

FY 2023 PCAARRD LIST OF GRANTS-IN-AID PROGRAMS/PROJECTS

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status 'As of December 31, 2023'	Total Project Cost	2023 PCAARRD GIA
Development of Rubber-based Cropping Systems in Southern Philippines (Land Management of Diverse Rubber-based Systems in Southern Philippines)	Project 1. Effective Rubber-Based Cropping Systems in Agusan del Sur and North Cotabato	Integrity of the environment and climate change adaptation and mitigation	This project will contribute to the reduction of poverty in marginalised upland communities through developing a rubber-based cropping system that sustainably increases smallholders farmers' income through crop diversification and improved soil nutrient management. The project supports the Philippine Development Plan (PDP 2017-2022) which aims to expand economic opportunities to address poverty and inequality using rubber as a priority and value added crop.	Products: 1 Rubber farming system model People and Services: Trained Extension worker from LGU PGAS, CSU and other cooperating agency on the rubber farming system model. Partnerships: LGU PGAS, CSU, and BSWM	University of Southern Mindanao (USM)	Rubber stakeholders, policy makers, researchers, planters processors, traders	1-Jun-2019	31-May-2024	Ongoing	3,308,851	932,930
Development of Rubber-based Cropping Systems in Southern Philippines (Land Management of Diverse Rubber-based Systems in Southern Philippines)	Project 3. Developing Rapid and Affordable Soil Nutrient Test Fertilizer Formulation	Integrity of the environment and climate change adaptation and mitigation	The project will develop rapid and affordable soil nutrient test fertilizer formulation for rubber cropping system.	Experimental protocol on the study on Optimization of N and K for rubber plantations in Kabacan, North Cotabato and Agusan del Sur. 2. Experimental protocol on study on the influence of Maunra, Inorganic fertilizer and organic fertilizer in some soil properties and the growth and yield of rubber in Kabacan, North Cotabato and Agusan del Sur.	University of Southern Mindanao (USM)	Rubber stakeholders, policy makers, researchers, planters processors, traders	1-Jun-2019	31-May-2024	Ongoing	4,749,621	1,241,861
Development of Rubber-based Cropping Systems in Southern Philippines (Land Management of Diverse Rubber-based Systems in Southern Philippines)	Project 4. Development of Cost Effective Pest and Disease Management for Rubber and Intercrops	Integrity of the environment and climate change adaptation and mitigation	This project will contribute to the increase of income of small-hold rubber farmers through the development of cost-effective pests and disease management strategies for rubber and its intercrops. The cost-effective pest and disease management strategies will endeavor to reduce the infestation of pests and severity of diseases of rubber as well as its intercrops. The reduction of infestation and disease infection will result to higher yields and higher income for rubber farmers.	Pest and Disease Profile of Rubber-based Systems in Agusan Del Sur and Kabacan b. Pest and Disease Management Protocol for Rubber and Intercrops c. Publications (articles for journal and IEC materials)	University of Southern Mindanao (USM)	Rubber stakeholders, policy makers, researchers, planters processors, traders	1-Jun-2019	31-May-2024	Ongoing	2,610,100	648,596
Development of Rubber-based Cropping Systems in Southern Philippines (Land Management of Diverse Rubber-based Systems in Southern Philippines)	Project 5. Economic Studies on Rubber-based Cropping System in Southern Philippines	Integrity of the environment and climate change adaptation and mitigation	The project provides the support for the economic and impact analyses of the other program components. It takes charge of the generation of baseline information about the rubber-based farming systems in Southern Philippines, particularly in selected municipalities of Agusan del Sur and the experimental sites on the said farming systems at the University of Southern Mindanao, Kabacan, North Cotabato. It is responsible for the documentation of the establishment, testing and analysis of the farming systems that the program will eventually promote to the rubber farmer stakeholders, including the set of technologies anchored on nutrient management and land suitability to improve sustainably the productivity of rubber in Agusan del Sur and in Southern Philippines. This project is also responsible for the quantitative impact estimation (or potential impact estimation) for the technologies to be introduced to some selected farmer cooperators and for the recommendation of future actions for the adoption of and monitoring of results from the technologies introduced by the program.	Publication: Written report, articles about the farming systems and practices of the rubber farmers in Agusan del Sur and/or Southern Philippines Partnerships: Continued partnerships with the Provincial Government of Agusan del Sur, the University of Southern Mindanao, the Upland Sustainable Agricultural Development Program beneficiaries, and the rubber farmers People: rubber farmers of Agusan del Sur and Southern Philippines Product: integrated survey questionnaire	Caraga State University (CarSU)	Rubber farmers in Southern Philippines, rubber industry, local government units	1-Jun-2019	31-May-2024	Ongoing	1,810,576	559,516
Good Agri-Aqua Livelihood Initiatives towards National Goals (GALING) - PCAARRD Kontra CoVID-19 Program	ENHANCING FOOD PRODUCTION AND LIVELIHOOD THROUGH COMMUNITY-BASED URBAN GARDENING PROJECT AMIDST COVID-19 PANDEMIC IN SELECTED AREAS IN ALBAY PROVINCE	Integrity of the environment and climate change adaptation and mitigation	This project is in response to the pandemic problem and aimed to address the goals of the PCAARRD GALING Program Kontra CoVID 19. This is intended to help the communities in Albay province through the science-based urban gardening technologies.	Publication: At least one (1) popular article/ paper on Community-based Urban Gardening will be submitted for publication. Patent: Patent organic fertilizer which will be formulated by the group from local materials. Patent a social technology which will be developed by the group in the implementation of the community-based Urban Gardening Project/Product. Production of vegetables (Quantity can, -1 be determined yet); Produce verm-compost as organic fertilizer (Quantity can, -1 be determined yet); People: 80 households trained on Urban Gardening Provide technical services to at least 50 households/Place: Prepare at least one (1) tripartite MOA with the LGU partners and farmers association/Policy: At least one (1) local ordinance will be for LGU partner.	Bicol University (BU)	The target participants of the project are those households in the areas mentioned above. At least a total of 90 (30 pax per barangay) residence/households will be targeted as participants of the project.	16-Feb-2022	15-Aug-2023	Completed	2,500,000	677,298
Good Agri-Aqua Livelihood Initiatives towards National Goals (GALING) - PCAARRD Kontra CoVID-19 Program	Urban spaces as workplace for augmenting income through gulayan sa pamilyan Iloilo Kontra COVID19 project (USWAG IKCP)	Integrity of the environment and climate change adaptation and mitigation	The project shall provide an alternative source of income and livelihood to the most vulnerable sectors of society brought about by the COVID-19 pandemic "unemployed women, retrenched workers, out-of-school youth, and persons with disabilities. The initial 100 households as identified and coordinated with the City Agriculturist Office of Iloilo and a cooperative from Miagao shall be given 100 pots of planting materials of vegetables including okra, ampalaya, pechay, pole sitaw, tomatoes, chili pepper, squash, eggplant, turmeric, ginger, and spring onion along with basic garden tools ready for growing until harvest. Prior to the distribution/awarding of the potted vegetables the participating households shall undergo training covering preparation, care and maintenance, harvesting post-harvest handling, extraction and storage of planting materials for the next cycle in order to ensure sustainability of the project beyond the first cycle. Succeeding modules will be conducted to provide additional information. The project aims to achieve the following for each household: Provision of technological knowledge, vegetable seedlings, trainings, materials, and income source; Promotion of sustainable production and consumption; and Reduction of the cases of food and nutrition insecurity, unemployment, and hunger. This project shall run for 18 months upon approval and implemented by UP Visayas in partnership with the Iloilo City Agriculturist Office and under supervision by the WES/VARRODEC. The source of funding shall come from DOST-PCAARRD in the amount of PhP 2,520,367.20. A counterpart from UP Visayas shall come in the form of part-time detailed personnel, office space, and other logistical support in the amount of PhP678,000.00.	Publication: A publication and video documentary in the form of reflections, stories, and insights of the participating households shall be produced capturing the actual experience of the participants, challenges and constraints encountered, and innovations introduced to address the constraints. The theme of the publication is Filipino resilience amidst the pandemic. IEC materials on care and maintenance of crops Patent: The actual documentation on the Project both in terms of the process as well as the tangible outputs which are unique and directly attributable to the Project may be patented. Product: There are two types of product that could be expected from the project: the actual products harvested, sold, consumed. □ the technology generated out of the project experience in the form of innovative processes or approaches especially highlighting people, "s resilience amidst the COVID-19 pandemic. Products 100 urban gardens per site, □ 10 communities 12 varieties vegetables per urban garden People: This project highlights what the government can do to help address the socio-economic plight of the people especially during the abnormally perilous times which both directly and indirectly affect the safety and welfare of the people. This project is a result of the partnership between and among R and D institutions, local government units and other stakeholders in helping address the socio-economic welfare of the people. □ EXPECTED OUTPUTS, □ Y1 Objectively Verifiable Indicators (OVI6)	University of the Philippines Visayas (UPV)	The initial target beneficiaries of 100 households shall come from the various barangays representing the vulnerable sectors especially during the pandemic with the assistance of the Iloilo City Agriculturist Office. An additional project site shall be in Miagao, Iloilo coming from the members of the Navalassa Farmers Rise Against Hunger and Malnutrition Inc., a farmers, -, association. This Association, -, a mission statement says, -"A To provide livelihood opportunities, better income to our farmer agripreneurs as a steadfast commitment and advocacy to improve the health and general welfare. -" - The criteria used are: □ Highly vulnerable sector - household urban women, unemployed or underemployed preferably belonging to an association (e.g. A-H Club, Rural Improvement Club, Urban Poor), out-of-school youth, persons with disability (PWD) Preferably a family-based enterprise in a communal setting and belonging to a local organization or association	16-Feb-2022	15-Aug-2023	Completed	2,520,367	478,525

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Managing Cocoa Quality in the Post-Harvest Process: Biological Approaches for the Management of Mycotoxins and Storage Pests of Cocoa	Prq. 1 Quick Detection of Mycotoxins in Cocoa using Nanobiosensor	Integrity of the environment and climate change adaptation and mitigation	Mycotoxins such as aflatoxins and ochratoxin A can occur in cocoa as a result of fungal infection of crops. They are a major cause of economic loss in the cocoa sector. The recognition of the health hazards of mycotoxins has led to regulatory limits being set around the world, particularly in the European Union. Since the Philippines is resurrecting the cacao industry and potentially can be one of the leading exporters of cocoa worldwide, it is therefore necessary to monitor the levels of OTA and aflatoxin in cocoa beans to determine whether the cocoa beans being produced in the Philippines conform to international standards. The export value of Philippines was USD 196.42K, and the export volume was 38.54K metric ton in 2020. The Philippines should target the production of high quality beans with no to low level of mycotoxins to avail of the growing market opportunities locally and internationally. This project under the program will develop innovative tool using nano-biosensor in the detection of molds causing mycotoxins for early detection and quick response to mitigate the effect of the molds on the quality of cacao beans	Publications 3 publications Manuals, Guide, IEC materials for onsite detection (at least 3) Patent Patent application on the nano-biosensor tool Products Nano-biosensor diagnostic kit (prototype) Field validated prototype People and Services At least 1 graduate students (MS/PhD in Chemistry) Farmers (at least 25 for each location); Agricultural technicians (at least 2 for each partner agencies) Places and Partnership concerned agencies like LGUs, DA, and academic institutions and potential industry partner Michigan State University Policy Policy brief governing innovative postharvest operations towards production of superior quality cocoa beans Social Impact: More efficient use of human resources using advanced technology in detecting mycotoxins Food safety addressing SDG3 (Good Health and well-being) Economic Impact: Higher yield of quality beans improved efficiency for treatment plans More income for the farmers Addressing SDG 1 (No Poverty) and SDG 2 (Zero Hunger)	University of the Philippines Los Baños (UPLB)	Postharvest Facilities Other Partners/Adaptors Bureau of Plant Industries (Pest Clinic Laboratories) Municipal Agricultural Offices Farmers as identified by DA Regional Offices	1-Mar-2022	29-Feb-2024	Ongoing	5,671,287	1,444,831
Rebuilding the Agriculture, Aquatic and Natural Resources in Response to COVID-19 (ReAARRC)	Soil Health Management in Support to Agricultural Recovery on Selected Areas in CALABARZON during CoVID-19 Pandemic	Integrity of the environment and climate change adaptation and mitigation	Soil degradation is one of the world's most pressing environmental problems and it will worsen without rapid remedial. Globally about 25 percent of the total land areas has been degraded. In the Philippines, agriculture losses about 457 million tons of soil yearly, and the highest erosion rate is accounted to Region IV, FAO 1993. In Batangas alone around 262,762 ha of land are considered eroded and vulnerable to soil degradation.	Product Total of 9 Demo farms (500 m2 each) practicing soil health management for vegetables Total of 1600 kg of assorted vegetable produced from demo farms People and Services 30 Agricultural Technicians and extension workers capacitated on better provision of extension support through Soil health management. 20 farmer leaders capacitated on better provision of extension support through Soil health management. Analyzed 300 farms using Soil Test Kit Trained 300 farmers on soil management for better crop production. Partnership MOU with DA Regional Field Office IV-A LOAs with LGUs Publication At least 2 infographics on soil health and crop production produced and distributed for the farmers and Technicians. 5 different training modules on soil health assessment and management for crop production Policy 1 Draft Policy recommendation on monitoring and management of soil health of selected agricultural areas in Batangas and Cavite.	University of the Philippines Los Baños (UPLB)	Agricultural Technicians, Agricultural extension workers, farmer leaders, vegetable farmers in Region IV-A.	1-Mar-2022	31-Aug-2023	Completed	3,539,979	353,125
	Design and Development of Low-Cost Temporary Immersion Bioreactor System for Coffee Micropropagation	Integrity of the environment and climate change adaptation and mitigation	The project will locally develop bioreactor system to speed up the production of quality coffee planting materials and increase its efficiency as well as its mortality rate.	Year 1: Optimization data (final specifications and design of the temporary immersion bioreactor) Year 2: Low-cost temporary immersion plant tissue culture bioreactor Publications "at least 1 article published in ISI/Scopus-indexed journal; Manual of Operations of the equipment; Coffee Somatic Embryogenesis protocol Patent/Intellectual Property "patent and/or IPR of the equipment filed." Products " 1 unit of temporary immersion bioreactor system; 3,000 plantlets." People and Services " engaged at least 2 undergraduate/MS students Places and Partnerships " partnership with chosen fabricator established	Cavite State University (CvSU)	Tissue culturists, researchers, laboratory technicians, coffee farmers, coffee nursery owners, students, Department of Agriculture	1-Dec-2021	30-Nov-2023	Completed	5,000,000	527,337
	ADAPTABILITY TRIAL AND PERFORMANCE EVALUATION OF PROMISING SUGARCANE HYBRIDS IN DIFFERENT AGRO-ECOLOGICAL GROWING CONDITIONS OF THE PHILIPPINES	Integrity of the environment and climate change adaptation and mitigation	The vegetable production systems in the country are intensively managed and are prone to a series of biophysical constraints that greatly impact productivity and sustainability. The previous ACIAR project on vegetable production (SMCN/2012/029) has identified major gaps in our understanding of the short- and long-term impacts of crop management practices on soil fertility and off-site environmental impacts. Specifically, these included undiagnosed micronutrient deficiencies, excessive soil accumulation of Cu and Zn, and excessive application of fertilizer and manures. Rates of fertilizer application were greatly in excess of crop demand and the seasonal application of Cu and Zn through fungicides was found to be in the order of 20-30 times crop demand. The substantial knowledge gap on the impact of PEHM (particularly Cu and Zn) and other undiagnosed nutrient limitations needs to be evaluated. The unabated and excessive application of PEHM and fertilizer combined with poor soil management strategies will have long-term deleterious environmental and productivity impacts on Philippine vegetable production if it is not properly addressed. New strategies and options are required to address key issues in vegetable production including optimized nutrient inputs, more effective management of soil and foliar pathogens and reduce PEHM inputs and accumulation over time. This necessitates the identification of alternative options that maintain soil fertility and health, offset inputs of Cu and Zn and maximize crop productivity and to develop appropriate decision support tools to achieve this. The project will focus on understanding the impact of excessive PEHM on the productivity of both upland (cabbage and sweet pepper) and lowland vegetables (tomato and eggplant), develop strategies for reducing the inputs of PEHM, resolve unidentified micronutrient limitations and develop cropping strategies to maintain fertility and soil biology while reducing PEHM inputs. The findings of the project can be used to draft policy recommendations on soil, crop and pathogen management for implementation by the LGUs and government agencies such as BSWM and BAFS.	Publication: At least 1 full paper in ISI Journal At least 2 posters in scientific conference Patent: sugarcane variety for NSIC registration Product: promising sugarcane varieties People: students to be included in the project farmers to be involved in selection Place: University of Southern Mindanao, Kabacan, Sugar Regulatory Administration (SRA), La Granja (SRA LaGrA/REC) Policy: none	University of the Philippines Los Baños (UPLB)	sugarcane farmers researchers, other interested users	1-Jul-2023	30-Jun-2026	Ongoing	20,358,482	7,097,628
	Assessment and management of plant essential heavy metals (PEHM), nutrients and pathogens in vegetable production to enhance soil health and food safety in the Philippines (Managing heavy metals and soil contaminants in vegetable production to ensure food safety and environmental health in the Philippines)	Integrity of the environment and climate change adaptation and mitigation	The vegetable production systems in the country are intensively managed and are prone to a series of biophysical constraints that greatly impact productivity and sustainability. The previous ACIAR project on vegetable production (SMCN/2012/029) has identified major gaps in our understanding of the short- and long-term impacts of crop management practices on soil fertility and off-site environmental impacts. Specifically, these included undiagnosed micronutrient deficiencies, excessive soil accumulation of Cu and Zn, and excessive application of fertilizer and manures. Rates of fertilizer application were greatly in excess of crop demand and the seasonal application of Cu and Zn through fungicides was found to be in the order of 20-30 times crop demand. The substantial knowledge gap on the impact of PEHM (particularly Cu and Zn) and other undiagnosed nutrient limitations needs to be evaluated. The unabated and excessive application of PEHM and fertilizer combined with poor soil management strategies will have long-term deleterious environmental and productivity impacts on Philippine vegetable production if it is not properly addressed. New strategies and options are required to address key issues in vegetable production including optimized nutrient inputs, more effective management of soil and foliar pathogens and reduce PEHM inputs and accumulation over time. This necessitates the identification of alternative options that maintain soil fertility and health, offset inputs of Cu and Zn and maximize crop productivity and to develop appropriate decision support tools to achieve this. The project will focus on understanding the impact of excessive PEHM on the productivity of both upland (cabbage and sweet pepper) and lowland vegetables (tomato and eggplant), develop strategies for reducing the inputs of PEHM, resolve unidentified micronutrient limitations and develop cropping strategies to maintain fertility and soil biology while reducing PEHM inputs. The findings of the project can be used to draft policy recommendations on soil, crop and pathogen management for implementation by the LGUs and government agencies such as BSWM and BAFS.	Publication: Minimum of 1 Scopus or ISI-indexed publication paper publication; IEC materials like press releases, information bulletins, instructional or training materials and modules Patent: None Product: Databases and management protocols: Database on soil properties, levels of nutrients and PEHM, pests and disease incidence in major vegetable growing regions in the Philippines Proper nutrient and pesticide recommendations to mitigate impact of excessive PEHM and nutrient deficiencies/toxicities on vegetable production Soil, crop, pest and disease management to mitigate PEHM accumulation, ensure food safety and environmental health People: Trained personnel through workshop/trainings for the protocols on management practices in heavy metal-contaminated soils; Minimum of 1 training/workshop to be conducted; Minimum of 4 undergraduate/graduate students to conduct their thesis studies under the program. Place: Partner institutions, SUCs, LGUs, and concerned stakeholders of vegetable farming: Visayas State University (VSU) University of Science and Technology of Southern Philippines (USTSP) Benguet State University (BSU) Policy: Policy recommendation for strengthening of partnership among key stakeholders in vegetable production and for knowledge/ info pathway of key stakeholders of vegetable production.	University of the Philippines Los Baños (UPLB), University of Science and Technology of Southern Philippines (VSU)	Primary beneficiaries -co selected vegetable production sites in Claveria, Leyte, and Benguet Secondary beneficiaries -co researchers, students, farmers and LGUs	1-Apr-2023	31-Mar-2027	Ongoing	14,953,090	4,212,959

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	Biological Control- Based Approaches Against Major Diseases of Coffee in Region XII	Integrity of the environment and climate change adaptation and mitigation	Coffee is the world's second most consumed beverage (after water) and the second most traded commodity (after petroleum). Philippines is the fourth biggest coffee exporter until market conditions changed from 1989 to 2002 when coffee production went down from 70,000 tons a year to just 23,000 tons. The declining local coffee production is due to factors such as low buying price, outdated production practices and unproductive coffee trees due pest and diseases, diversification into other crops and lack of post-harvest production and processing facilities. One way to support existing and future coffee entrepreneurs is by encouraging farmers to go into coffee production. However, there are challenges that have addressed to have a sustainable coffee. Disease identification in each variety is essential to determine the appropriate management strategies to employ. The study will provide information to the farmers and community that there could be a high potential in using indigenous endophytic microorganisms as biocontrol agents to protect coffee plants from known pests.	Products: At least 2 biopesticides and 2 Indigenous endophytic microorganisms Publications: Distribution map of major diseases in Coffee in region 12; at least 2 techno guides for biopesticides/ endophytic microorganisms for coffee prepared for the growers (translated in vernacular language); 1 publishable article prepared; Patents: At least 4 patents prepared and submitted to IPOPHI People and Services: At least 2 capacity building conducted for the personnel; At least 2 capacity building conducted for staff & farmers; At least 6 farm cooperators identified in Region 12; Places and Partnerships: At least 6 MOA/Us forged with the farm co-operators and LGU/Philippines; At least 2 techno guides for biopesticides/EMs for coffee prepared for the growers (translated in vernacular language); 1 publishable article prepared	Sultan Kudarat State University (SKSU)	Coffee farmers	1-Apr-2022	31-Mar-2024	Ongoing	5,000,000	1,274,080
	Compendium of Developed Agricultural and Fisheries Mechanization Technologies in the Philippines	Integrity of the environment and climate change adaptation and mitigation	The Higher Education Institutions/State Universities and Colleges (HEIs/SUCs), including research and development institutions (RDIs to include PhilMech, PhilRice, DOST, to name a few) are the major technology generators as part of their mandate in research and development, extension and public service efforts. Moreover, other private agencies, including local manufacturers are good sources of information on agri-fisheries technologies. However, these developed technologies oftentimes, do not reach the target end-users or commercial level due to various reasons such as the lack of funding support for extension activities, limited coverage of the HEIs/SUCs and the lack of manpower, among others. The compilation of all available technologies, specifically, agri-fishery mechanization technologies developed through the years by the HEIs/SUCs into a compendium will be a very useful tool in the promotion of these agri-fisheries mechanization technologies. The compendium will be distributed to different stakeholders both either in hardcopies or e-copies. These include the HEIs/SUCs, government and non-government agencies assisting farmers and other end-users and local manufacturers who are the possible fabricators and suppliers of these technologies. This will aid in providing vital information on readily available technologies which can already be adopted, promoted, locally manufactured and utilized for the benefit for intended beneficiaries as well as technologies that need modifications and improvements.	Publication "The primary output of the project is the publication of the Compendium of Developed Agricultural and Fisheries Mechanization Technologies in the Country" Patent "A copyright will be applied for the compendium for the compendium and the DBMS" Product - The compendium and the database are the main output of this project which will be an important information materials for RDI and public service activities of research development institutions (RDIs) & HEIs/SUCs, and private entities involved in agri-mechanization technologies development and promotion. People and Services - The compendium will serve as a reference material or a guide for local fabricators who want to venture or fabricate locally-developed technologies either through collaborative or licensing agreements. Places and Partnerships - Major agreements will be forged in the form of MOU with the different HEIs/SUCs, Agricultural and biosystems engineers and/or researchers will be trained on handling database management information system that will be developed for the project. Policies - The project output can be utilized for the National Agri-Fisheries Mechanization Program (NAFMP) of the Mech Law in the determination and/or accomplishments of its target accomplishments. The compendium is expected to provide information on the available mechanization technologies for the agri-fisheries sector.	University of the Philippines Los Baños (UPLB)	Target beneficiaries of the project outputs are agricultural and biosystems engineers, RDE workers in HEIs/SUCs and research and development institutions, ABE undergraduate and graduate students, local manufacturers, ABE of DA-Regional Field Units nationwide, policy and decision makers in agricultural and fisheries mechanization, DA-Bureau of Agricultural and Fisheries Engineering (DA-BAFE), among others	1-Jul-2023	31-Dec-2024	Ongoing	5,000,000	3,105,463
	Cost-Effective Cold Chain Systems and Product Monitoring for High Value Crops	Integrity of the environment and climate change adaptation and mitigation	Cost-effective alternatives to conventional refrigerated facilities have been found to be appropriate for small-scale growers and marketers, for short-term holding or situations preceding emergency storage, and/or holding of crops with low respiration rates. The project will use tomato and cabbage only as test crops but the technologies and systems to be developed can be used for other high value crops. A trader or retailer will adapt and use the prototype cold chain system as part of the testing and evaluation of the study.	Publications: Paper publications (3), oral and poster presentations on the design and testing of forced-air precooler, cold room, pallet wrap, artificial fruit, IEC Materials and operations manual; Places & Partnerships: Partnership with local growers and traders for continuous testing and evaluation of the cold chain system (e.g., weekend markets and small retailers in Los Baños); at least 2 MOUs forged People & Services: 1 MS student to work on performance evaluation of low-cost cold chain system for small-scale growers; 1 MS student to work on design and development of 3D-printed shell for artificial fruit, Trainings of farmers or end-users on the proper use of the developed technology; Collaborative R&D activities with PHTRC; Team teaching of short courses on postharvest handling, storage and systems improvement with the PHTRC Products: Prototype of mobile forced-air precooler with temperature control system (1 unit), Prototype of cold room with temperature control system (1 unit) Prototype of reusable insulated pallet wrap (3 units), Prototype of Arduino-based artificial fruit for impact stress, temperature and humidity measurement (5 units); Patents: Utility model applications for forced-air precooler, cold room, and pallet wrap. Patent application for artificial fruit Policy: Submit draft national standard and methods of test for small cold rooms	University of the Philippines Los Baños (UPLB)	The prototypes to be developed are expected to benefit farmer cooperatives, traders, and retailers in the fruit and vegetable industry.	1-Mar-2022	29-Feb-2024	Ongoing	5,000,000	1,884,561
	Deployment of SARAI Integrated Crop Monitoring and Forecasting in Selected LGUs in the Philippines for Rice and Corn (Oriental Mindoro, Nueva Ecija, Iloilo and Bukidnon)	Integrity of the environment and climate change adaptation and mitigation	The project aims to implement a monitoring and forecasting system using a combination of crop modelling, GIS and Remote Sensing data, and weather and climate information. This will enable the implementing agencies (LGUs with SUCs partners) to create a system that produces crop advisories, production estimates, and improved productivity. Aside from this, capacity building and training activities will enhance the capability of the implementing agency in the use of state-of-the-art technologies in carrying out their functions in the agriculture sector.	Publication: Knowledge products: ICM bulletins, crop status reports, climate and weather data which includes weather outlook and drought forecasts; Patents: (Ongoing with another project) Product: Monitoring and forecasting system running for rice and corn in selected LGUs People: Seasonal rice and corn harvest estimates and production data; trained and capable personnel in terms of implementation and monitoring of the crop monitoring and forecasting system Places: LGUs and SUC partners in Nueva Ecija, Bukidnon, Iloilo and Oriental Mindoro Policy: Estimates of regular budgetary and personnel requirements for the program's sustainability	University of the Philippines Los Baños (UPLB)	LGUs, Industry (export-import), small entrepreneurs, farm managers, farmers	16-Aug-2023	15-Aug-2024	Ongoing	5,000,000	5,000,000
	Development of a Detection Tool for Fungicide Resistant Isolates of Fungal Pathogens Affecting Selected Vegetables and Strawberry in the Northern Philippines	Integrity of the environment and climate change adaptation and mitigation	The project will determine the emergence and widespread prevalence of fungicide (antifungal) resistance of fungal plant pathogens affecting vegetable and fruit crops in the Northern regions of the Philippines. These include emphasizing on the emerging problems and the risks of fungicide resistance in vegetable production and how the project will help alleviate the global concern on the general antimicrobial resistance due to heavy reliance to synthetic/chemicals used in agricultural management practices.	Product: Multiple PCR-based markers; People & Services: Train at least 3 groups of beneficiaries (university-based service labs, RCPC, NCPCC) Conduct at least 3 trainings/seminars and technical advisory on molecular diagnostic tools in plant pathology and mycology. Involve undergraduate 1 graduate student, 3 staff, >10 farmers through farmer field day activities e.g., advisory on use of fungicides; Places & Partnerships- One (1) MOA/MOU among 2 partner agencies (Benignet State University, Regional Crop Protection Center) signed Publications: Two (2) manuscripts submitted to scientific journal; Training modules for the capacity building activities, extension bulletins/infographics for the advisory systems, protocols for the technology developed, proceedings and presentations from scientific conference attended Policy: Drafted policy recommendation on the regulation of fungicide use	University of the Philippines Diliman (UPD)	Vegetables and strawberry farmers, chemical industry, LGUs, Fungicide resistance action committee, NGAs: FFA, NCPCC, RCPC,	1-Oct-2021	31-Mar-2024	Ongoing	5,000,000	725,289

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	Development of an Unmanned Ground Vehicle Drone-Aided System with vis-NIR Sensors for Soil Nutrient Mapping of Coffee Farms	Integrity of the environment and climate change adaptation and mitigation	The agricultural sector in the country contributes 8.5% to the national economy. Crops like coffee, mango, abaca, and tobacco production deteriorated in comparison to the production in the same period of the previous year (Philippine Statistic Authority, 2017). One of the reasons for decreasing growth is the low production of crop plantations as a result of poor farm practices, lack of equipment, and inadequate post-harvest equipment and facilities. Likewise, there is a limited access to materials and information on farm nursery establishment and proper seeding handling. There is also limited access to the proper water and soil nutrient management. All these factors contribute to the low production of the sector which also limits its potential for product importations. With the support of the government to strengthen the sector, national programs are developed to improve its current production. The project will design, fabricate and test an unmanned ground vehicle with vis-NIR sensors to operate soil nutrient measurement and mapping services in the Philippines. It will be implemented following the input-process-output-outcome approach and will go through series of processes from idea validation, fabrication, evaluation up to deployment. The data collected through the equipment will help the coffee farmers for efficient soil, nutrient and water of their farms which will lead to improved farm productivity. The UGV UAV-aided system with vis-NIR sensors for realtime and quick analysis of soil nutrients of coffee farms in the Philippines.	Year 1: Assessment of the perception and acceptance of target clientele about unmanned ground vehicle (UGV) Soil Nutrient Analyzer, Fabricated spectrometry instrument (SI) and UGV platform fabrication, Integrated SI & UGV platform Year 2: Prototype of unmanned ground vehicle equipped with vis-NIR sensor; Reliable prediction models of soil properties; Integrated software of the UGV vis-NIR unit for soil property measurements and soil nutrient mapping; 1 patent/utility model application; 1 copyright; at least 2 paper publications * publish at least 2: articles in ISI/Scopus-indexed journal; 1 operations manual journal Patents/Intellectual Property * apply for patent/ utility model of the equipment Products * 1 prototype of Unmanned Ground Vehicle System with vis-NIR Sensors coupled with unmanned aerial vehicle People services * engage at least 2 undergraduate/MS students	Cavite State University (CVSU)	Farmers, researchers and soil scientists, local government units	1-Jun-2022	31-May-2024	Ongoing	11,229,714	2,766,933
	Development of nanofertilizer from poultry waste biogas digestate	Integrity of the environment and climate change adaptation and mitigation	The project is a research collaboration between the University of Mindanao and Ana ^{ms} Breeders Farm, Inc. (ABFI). ABFI is one of the leading integrated poultry farm producers of high-quality broiler chicken meat in the Philippines. Their scope of operation includes feed mill plant, parent stock farms, hatchery, broiler farms, dressing plant, cold storage facility, and meat processing plant. One of the problems the company is facing is the salability of their fertilizer from chicken manure. A few of the factors that affect its marketability are the undesired odor and moisture possessed by the produced fertilizer. With a production rate of 120 m ³ digestate per day in their biogas reactor, the company is expected to recover 12 tons of fertilizer after 30 days of fermentation. Although the company ^{ms} existing technology uses a decanter to separate the solid fertilizer, the approach was not enough to produce fertilizer with higher market value. The current technology is estimated to cost Php 20 per kg for the treatment, while the market price of the product is only at Php 2, hence, the company is suffering a significant loss, and thus, the process must be improved. Organic fertilizers such as these are cheaper than chemical fertilizers, e.g. urea which is priced at around Php 1140 per sack or Php 22.8 per kg. The use of this fertilizer will result in the increase our farmer ^{ms} profits through reduction of fertilizer cost and at the same time increasing crop yield. This project aims to produce a nanofertilizer which is considered a promising approach to improve crop production, thus, making it more attractive in the market. The project also aims to develop a technology to deodorize the produced nanofertilizer to increase its salability. Biofiltration is the technology for deodorization over the others. Various technologies are available such as chemical scrubbing and adsorption, but these technologies produce secondary products that require additional treatment. Four products are expected for this project, namely: solid nanofertilizer, N-P-rich liquid nanofertilizer, N-K-rich liquid nanofertilizer, and purified water which can be used for plant operations.	Publication: At least one (1) publication for the technology to simultaneously deodorize and produce solid and liquid nanofertilizer from biogas plant digestate, Patent; At least one (1) patent application for the technology to simultaneously deodorize and produce solid and liquid nanofertilizer from biogas plant digestate; Product: Products (3) Solid Nanofertilizer Liquid Fertilizer Biogas plant digestate processing equipment People: People and Services (5) 2 Masters students and 3 undergraduate students, Place: Places and Partnerships (2): Partnerships with Ana ^{ms} Breeders Farm Inc. and Radior Manufacturing Inc. Policy: N/A	University of Mindanao-Bolton (UM-Bolton)	Ana ^{ms} Breeders Farm Inc. General Community Environment Academe (researchers, educators, students)	1-Apr-2022	31-Mar-2024	Ongoing	4,990,000	1,482,875
	Enhancing Biopesticide Efficacy of Entomopathogenic Fungi (EPF) against Citrus Rind Borer (CRB) in Calamansi and Pummelo by Myco-synthesis of Bio-Nanoparticles (Old Title: Enhancing Biopesticide Efficacy by Myco-synthesis of Bio-nanoparticles Mediated by Entomopathogenic Fungi (EPF) against Citrus Rind Borer (CRB) in Calamansi (Citrus x microcarpa) and Pummelo (Citrus maxima))	Integrity of the environment and climate change adaptation and mitigation	A two-year project entitled "Efficacy Evaluation of Biopesticides Derived from Entomopathogenic Fungi Against Rind Borer and Twig Blight Disease of Citrus-developed biopesticides derived from EPF against CRB and found effective both in laboratory and in field condition. In order to enhance more of its efficiency and efficacy of formulated fungal derived from EPF, other techniques will be harnessed that will improve stability and biological activity of the products. The project aims to develop nano-biopesticides (utilizing nanoparticles mediated by fungi- the fourth generation pesticide) which have higher bio-efficacy/efficiency and highly specific to a target pest. Application of nanotechnology in developing biopesticides now days is one of the most potential techniques with better efficacy. In fact, it gives 20% higher efficiency compared to other forms of biopesticides. In recent years, the use of nanomaterials has been considered as an alternative solution to control plant pests including insects, fungi and weeds. Several nanomaterials are used as antimicrobial agents in which several nanoparticles such as silver nanomaterials are in great interest. Many nanoparticles (Ag, Fe, Cu, Si, Al, Zn, ZnO, TiO ₂ , CeO ₂ , Al ₂ O ₃ and carbon nanotubes) have been reported to have some adverse effects on plant growth apart from the antimicrobial properties. This technology uses nano-scale carriers will react to fungal biomolecules. Fungal biomolecules could either be in the form of protein, toxin, enzymes (cell wall degrading enzymes), secondary metabolites and other forms of amino acids. When these molecules react with metal ions forms thin film of bio-nanoparticles. Hence, this project was conceptualized. The project aims to enhance biopesticide efficacy by harnessing myco-synthesis of bio-nanoparticle mediated by EPF against CRB in Calamansi and Pummelo. Studies on compatibility of the two Philippine isolates of EPF on the biosynthesis of AgNO ₃ and compare the two methods of biosynthesis of EPF-AgNPs using intracellular and extracellular routes; to optimize myco-synthesis of EPF-AgNPs production and formulation; to document structural pathogenesis of EPF-AgNPs; and to test bio-efficacy of myco-synthesized EPF-AgNPs against CRB under in-vitro and in-vivo/field trial condition.	Publication 2 scientific papers to be published in ISI journal Patents 2 utility model for mass production of EPF-AgNPs, drafting of Patent application harnessing myco-synthesized EPF against CRB Products 1 Bottled product of organic-based bio-nanoparticle in the form of EPF-AgNPs People and Services 2 undergraduate students and 5 trained personnel (NVSU), 1 lab assistant from NVES of DA-Region 2, 30 trained farmers on field application of EPF-AgNPs Places and Partnership Municipal Agriculture Office, Aurora, Isabela, Calamansi Growers Association, Aurora, Isabela Policy Promotion on the use of EPF-AgNPs	Nueva Vizcaya State University (NVSU)	RFOs most especially the Regional Crop Pest management Centers (RC-PMC ^{ms}): Researchers and agricultural scientists Professor and students Citrus growers and consumers	1-Aug-2021	31-Jul-2024	Ongoing	10,348,034	2,343,283

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Far-UVC Pulse Treatment: A Multi-Layer Approach to Suppress Three Major Cassava Diseases	Integrity of the environment and climate change adaptation and mitigation	Cassava is planted yearly in about 120,000 hectares of agricultural land in the Philippines, producing about 1.8 million tons of cassava roots. The demand for cassava is increasing and will continue to increase with continued increase in the number of consumers and improvements in processing cassava roots into value-adding products. «DA-AMAS, 2019)Farmers in the Isabela region of the Philippines grow cassava for livestock feed and industrial use. The San Miguel Foods Inc., one of their buyers, projected a demand for cassava tuber at 6 million metric tons, however, the 2019 actual cassava volume of production amounted to only 2.6 million metric tons. (PSA, 2020)Pest and disease problem is one of the pressing challenges of the cassava industry in the region. Limited access to technology and knowledge on management factors that influence PD presence and incidence is minimal. Cassava phytoplasma disease, for instance, can reduce yield to about 50-70% when symptoms appear 4 to 6 months after planting. A 100% loss in yield may even occur when infection ensues during the first three months from planting. (PCAARRD, 2016). The occurrence and spread of the diseases will continue to affect yield and income of farmers specially the smallholders who are constrained with access to technology and disease management strategies. Continually relying on chemicals that are harmful to the environment could lead to a bigger problem. Therefore, it is necessary to re-examine alternative or complementary solutions from a different perspective.	Year 1 Far-UVC pulse Treatment Technology with no harmful effects Cloud-based information system Standard procedures/protocols for the treatment monitoring developed Year 2 Men and women Cassava farmers & stakeholders capacitated Publications submitted and presented and IEC materials produced/utility model I-EC and System Copyright registered	Isabela State University (ISU)	More than 800 cassava farmers in the province of Isabela. At least three technicians from the DA-RFOs and DA Regional Crop Protection Centers (RCPCs). Two Local Government Units farmer technicians. One private company (San Miguel Corporation), which greatly relies on Cassava for starch. The beneficiaries mentioned above will have the opportunity to rent and explore the Far-UVC Pulse Treatment Technology's innovative design, affordability, effectiveness, and environment-friendly treatment or control of CPD, bacterial blight, and leaf spot diseases. Additionally, this technology could be a	1-Aug-2022	31-Jul-2024	Ongoing	6,801,006	1,174,229
	Formulation of Biopesticide and Assessment of its Efficacy in Controlling Armyworm (Spodoptera exigua) in Onion Production	Integrity of the environment and climate change adaptation and mitigation	This project aims to formulate a biopesticide that can be used as an alternative to synthetic pesticides in the control of armyworm (Spodoptera exigua). This alternative pesticide will be called nanoparticle-enhanced biopesticides (NPEB), from plant extracts and metallic oxide nanoparticles. Botanical plants, extraction methods, and solvents will be assessed. Evaluation of the different plant extracts with bioactivity against armyworm will be the initial step in the formulation process. The mechanism of action of these plant extracts to armyworm will be determined through the expression of the phenoloxidase (PO) gene. The plant extract with the highest activity against armyworm will be utilized in the synthesis of metal (Cu, Ag, Zn) oxide nanoparticles. This process of producing nanoparticles is called the bioreduction of the metal ions into metal/metal oxide nanoparticles. The parameters such as volume ratio of extract and metal salt solution, pH, and temperature will be optimized using Response Surface Methodology. The optimization process will be monitored via UV-Vis spectrophotometry by measuring the Surface Plasmon Resonance (SPR) of the nanoparticles. Efficacy tests of the different formulations (single or combinations of plant extracts) in comparison with a commercial insecticide will be conducted. The mechanism of action of the different formulations will be determined through the phenoloxidase gene of the armyworm. The measured indicator of immune responses can be analyzed in the activity of the PO hemocyte. Therefore, one of the aims of this research is to analyze the effect of the formulated biopesticide on the PO expression before and after the treatment in different periods. Plant growth and yield and the economic benefit of using the NPEB against armyworm will be determined.	Product Optimized condition for the biosynthesis of nanoparticle-enhanced biopesticide Development of nanoparticle-enhanced biopesticide People and Services 1 MS student trained/graduated Patent patenting of the process and products Places and Partnership Collaboration with the LGU's in identified field testing sites (Bongabon and San Jose, Nueva Ecija) Social Impact Biopesticide that is safer to consumer's health and environment friendly	Central Luzon State University (CLSU)	The specific beneficiaries of the project are the more than 4,000 onion farmers in 15 towns of Nueva Ecija who were affected during the outbreak of onion armyworms. Onion farmers in the Ilocos Region and Cagayan Valley. If this nanoparticle-enhanced biopesticide can control onion armyworms, then the onion industry, in general, will benefit from the results of the project. It is expected that the results of the project may be applied in the production of other crops identified to be host plants of armyworms.	1-Dec-2021	30-Nov-2023	Completed	5,000,000	324,588
	Implementation and Integration of Specific Project SARAI Systems and Technologies in Selected DOST-PCAARRD Research and Development Projects	Integrity of the environment and climate change adaptation and mitigation	The Project Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (Project SARAI) have developed several systems and technologies that are now ready to be deployed in the farming communities. In cooperation with the different divisions of DOST-PCAARRD, SARAI systems and technologies will be evaluated which are suitable for integration to their on-going programs, with the goal to provide agricultural information that can improve crop management amidst the changing climate. This project is also in line with the Presidential Directive PBBM 2022 086-090 (21 October 2022) to mainstream Project SARAI. Aside from the collaboration and partnership to key agencies, another major objective of this project is the conduct of knowledge and capacity building activities. These activities will focus on how SARAI systems and technologies can be used in the farming communities. Lastly, monitoring and evaluation will be conducted to assess the impact of the project.	Publication: Two journal publications (drafts and ready for submission); 2 Popular publications (in magazine, newspaper)Patent: (Ongoing with another project)Product: Expanded application of SARAI technologies; e.g. mobile apps; use of ICAMF Bulletin; advisoriesPeople: Partners are trained in the use of SARAI products in crop productionPlace: LGUs investments to establish SARAI hub in their domains; Integration of the use of SARAI in their governancePolicy: Generate information needed to fine tune SARAI system for nationwide application, including funds and human resource requirements	University of the Philippines Los Baños (UPLB)	LGUs, Industry (export-import), small entrepreneurs, farm managers, farmers	16-Aug-2023	15-Aug-2024	Ongoing	5,000,000	5,000,000
	MANGGA - Mango Automated Neuralnet Generic Grade Assignor	Integrity of the environment and climate change adaptation and mitigation	MANGGA is a project aimed to improve the quality inspection and sorting of export grade mango fruits through the development of an automated fruit grading and sorting system. Sorting and grading of mangoes is usually done manually making it prone to error when voluminous fruits are being graded. The development of an equipment for efficient and accurate sorting and grading is necessary to reduce postharvest losses and have uniformity of graded fruits for export and local markets.	PublicationsOne (1) scientific manuscript submitted for publication on refereed journalTraining manual/IEC material on operation and maintenance of MANGGAProductsOne (1) minimum viable product of MANGGA systemOne (1) mCNN mobile app for mango grade assignmentPlaces/PartnershipsOne (1) partnership with a mango growers' association/cooperativeDAOOne (1) partnership with fresh mango exporting industry/companyPatentOne (1) patent/utility model of the automated A.I. - operated mango; quality-sorting hardwareOne (1) copyright of the MANGGA training moduleOne (1) copyright of image and chemical dataset of mango fruit quality/classificationPeopleTraining of at least three (3) students on AITraining of at least two (2) industry staff of the module on operation and maintenance of MANGGATraining of at least one (1) mango association/cooperative on MANGGAPolicy	University of the Philippines Cebu (UPCebu)	1. Mango growers and cooperatives2. Mango fruit exporters and processors3. Department of Agriculture4. Researchers	1-Dec-2022	30-Nov-2024	Ongoing	7,290,906	1,914,440

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Pilot testing of Hybrid Solar Powered Dehydrator Machine for Processing of Agri-Products	Integrity of the environment and climate change adaptation and mitigation	Pilot Testing of Multi-powered Dehydrator Machine for Processing of Ginger, Turmeric and Cocoa-based Health Food Products (old title) ISATU has developed a dehydrator machine for drying leaves for herbal tea materials under the project, "Design and Development of a Programmable Dehydrator Machine for Herbal Tea Materials. The ISATU developed dehydrator has been field tested at the Ephrathah Farms in Badjangan, Iloilo which reduces the farm's electric consumption and established a science-based drying protocols for the different tea products. The success of the previous research grants on the dehydrator machine and the demand of the said machine by Small and Medium Enterprises (SMEs) on food processing in Panay Island inspires the researchers to continue the research endeavor through pilot-testing study. Moreover, this pilot testing study would address the production problem of SMEs and infuse technological innovations in the food production process in order to meet the market demands and to produce agricultural products that customers needed and good quality products, boost competitiveness of the food products in the market and create more jobs for the realization of inclusive growth in the countryside and in the country as a whole.	The expected output of this project: 1. A technically efficient, economically viable, and socially acceptable dehydrator machine that caters to different agricultural products. 2. Locally developed machine would significantly reduce the acquisition cost of dehydrators as compared to imported units.	Iloilo Science and Technology University (ISAT-U)	I. Local machinery fabricators i.e.AMF Metal Industry II. Local food business/SMEs involved in food processing/agri-products manufacturing (A1 D Foods, Iloilo, Ephrathah Farms, Connie's Dabong) III. Fisherfolks, local vendors and LGU of San Dionisio, Iloilo	1-Aug-2021	31-Dec-2023	Completed	4,999,474	947,387
	Smart Indoor Farming System for Hot Pepper and Tomato Production in the Philippines	Integrity of the environment and climate change adaptation and mitigation	The technology is an indoor production system for hot pepper and tomato production under tropical conditions. The test crops will be provided with a controlled environment including production input requirements through smart agriculture principle and system. There is an existing glasshouse in the University Research Center which will be converted into a smart greenhouse which will have retractable solar panels, cooling pads, elevated containers for planting and LED lights. This shall enable year-round production of these priority crops. Moreover, higher yield and quality products are expected due to better management of pests and diseases. While a fully-automated structure is costly, solar energy will be designed to power the structure to reduce the operating cost. It is expected that this project will create a functioning and sustainable smart greenhouse with automated monitoring and intervention system to control the proper crop care management for any crops. This will serve to create an impact among future food growers to produce crops sustainably.	Publication: At least 1 (one) publication in scientific journal/Patent: 1 (one) patent application/Product: One product, People: at least 4 (four) undergraduate student and 2 (two) graduate student of agriculture, soil sciences, crop protection, and, agricultural engineering/Place: 1 (one) partnership (with Chungbuk National University/Policy: None	Central Luzon State University (CLSU)	The target beneficiaries for the project are: CLSU and Chungbuk National University researchers through the partnership and benchmarking. Other researchers and students who will pursue further research on indoor farming based on the resulting publication and patent from this project, and Farmers and extension workers, who will be learning the technology thru field day and visits.	1-Aug-2023	31-Jan-2026	Ongoing	5,000,000	3,226,373
Banana Bract Mosaic Disease (BBMD) in the Philippines: Geographic Distribution, Yield Loss Assessment, Virus Elimination, and Evaluation of Germplasm Collection	Project 2. Evaluating the Impact of BBMD on the Yield of Selected Banana Cultivars in the Philippines	Integrity of the environment and climate change adaptation and mitigation	Yield loss assessment caused by Banana bract mosaic virus and mitigate Banana Bract Mosaic Disease in the field through different nutrient management regimes. This project is initiated to expand the narrow information available on the extent of yield loss caused by BBMD. Common banana cultivars consumed in the country along with two promising saba strains selected from a previous DOST-PCAARRD funded project will be used as test plants to generate a coherent data on their response to the viral disease.	1. Knowledge on yield loss in common banana cultivars due to BBMD 2. Yield loss response of Lakitan, Lalandan, Cardaba, and some other promising strains. 3. Nutrient management regime for BBMD mitigation. 4. Published at least one article	University of the Philippines Los Baños (UPLB)	Banana growers Agricultural officers/technicians Non-government organizations Researchers Students	1-Sep-2020	31-Aug-2023	Completed	8,075,000	258,835
Banana Bract Mosaic Disease (BBMD) in the Philippines: Geographic Distribution, Yield Loss Assessment, Virus Elimination, and Evaluation of Germplasm Collection	Project 3. Virus Elimination and Production of Virus-Free Planting Materials of 'Saba' Varieties	Integrity of the environment and climate change adaptation and mitigation	The limitations in the production and supply of disease-free quality planting materials of high yielding and promising 'Saba' varieties will be addressed in this project. Continuous supply of quality disease-free planting materials will boost the existing production and will accelerate further expansion programs of the country in order to meet the growing demand of the 'Saba' industry.	1. Optimized sampling technique for BBMD indexing 2. Micropropagated virus-free indexed plants of Saba varieties 3. At least two protocols optimized for BBMD elimination 4. Technology dissemination through trainings and seminars 5. In vitro bank of disease-free bananas 6. At least 1 publication	University of the Philippines Los Baños (UPLB)	Farmers Banana growers Researchers Tissue culture laboratories engaged in banana production Agricultural workers	1-Sep-2020	31-Jan-2024	Ongoing	7,250,000	518,002
	Chemical and Biological Management of Fungal Species Complex Inciting Onion Anthracnose	Poverty reduction and empowerment of the poor and vulnerable	A project that aims to provide chemical and biological management options for sustainable management of onion anthracnose.	Publication: at least 2 journal articles and 2 pamphlets/Patent: none/Product: at least two (2) fungicides with different modes of action and at least one (1) biological control agent identified effective against anthracnose pathogens/People: 100 onion growers, 2 RCPC III staff, 5 MAO, and 1 PAO Nueva Ecija/Place: 5 letters of commitment with onion growers association in Nueva Ecija/Policy: none	University of the Philippines Los Baños (UPLB)	100 onion growers, 2 RCPC III staff, 5 MAO, and 1 PAO Nueva Ecija	1-Sep-2023	31-Aug-2025	Ongoing	5,000,000	1,487,818
	Development of a Detection System for Pest and Disease Resistance in Philippine Coffee Varieties	Integrity of the environment and climate change adaptation and mitigation	Two coffee species, <i>Coffea canephora</i> (2n=22) and <i>Coffea arabica</i> (2n=44), contribute to the worldwide coffee bean production (International Coffee Organization, 2018). These yield the commonly known Robusta and Arabica varieties, respectively. In the Philippines, an additional species <i>Coffea liberica</i> (2n=22) with its two distinct varieties, <i>Coffea liberica</i> var. <i>liberica</i> and <i>Coffea liberica</i> var. <i>deveveri</i> , are also cultivated which yields the Liberica (also Barako) and Excelsa varieties, respectively (Bureau of Plant Industry, 2015; Philippines Statistics Authority, 2018). The Philippines however is not a major exporter of coffee. In 2017, coffee production (Arabica and Robusta only) in the Philippines yielded only 200,000 60kg bags of the 159,663,000 60kg bags produced globally (International Coffee Organization, 2018). Recently however, the government has initiated a comprehensive program in propping up the local coffee industry, hoping to turn the Philippines from a coffee importing to a coffee exporting country (Cahiles-Magkilat, 2018). Unfortunately, the local coffee industry is still faced with one of the most common problems, which is pest and disease infestation. Coffee production in the Philippines for the 1st quarter of 2018 has been hampered by berry borers (Philippines Statistics Authority, 2018). There are also a variety of fungal diseases that plagued the coffee plant (Hindorf & Omond, 2011). With climate change also contributing to the development of susceptible varieties, a repeat of the coffee industry collapse in the 19th century (Bacongus, 2007) is not far from happening. Hence, it is important that local authorities and stakeholders work together to safeguard our local coffee varieties from these modern day challenges. A detection system that can determine resistant varieties and consequently susceptible ones will aid coffee growers/farmers and researchers in planting those that can withstand infections.	Year 1: Designed and synthesized primers for pest and disease resistance in coffee. Year 2: Validated markers that can be utilized in designing a detection kit for resistance in Philippine coffee varieties.	University of the Philippines Diliman (UPD)	Coffee growers/farmers, breeders, researchers and scientists from academe and industry	1-Aug-2021	31-Jul-2023	Completed	5,000,000	983,791

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Development of Improved Eggplant Varieties with New Plant Defense Genes for Multiple Insect Resistance using Innovative Technologies	Rapid, inclusive and sustained economic growth	Eggplant, <i>Solanum melongena</i> L., is one of the most important and popular vegetable crops grown and consumed in the Philippines. For the past 10 years, it has remained as the leading vegetable crop grown in the country with an average total production area estimated at 21,481 hectares valued at Php 2,599B at constant prices (PSA, 2017). Eggplant production is severely constrained by two major insect pests, the eggplant fruit and shoot borer or EFSB (<i>Leucinodes orbonalis</i> Guenee; Lepidoptera: Crambidae) and leafhopper or LH (<i>Amrasca biguttula</i> (Shidua); Hemiptera: Cicadellidae). Yield losses from EFSB and LH infestations have been estimated at up to 90% and 50%, respectively, at severe pest pressure. Farmers use excessive amount of chemical sprays to control EFSB and LH because conventional breeding for resistance has failed to produce commercial varieties with acceptable levels of resistance to these pests. Other control practices are more expensive, impractical and/or ineffective. The preferred control method of heavy insecticide application significantly increases input cost by 25-30% and more importantly, poses immediate and long-term hazards on human health and the environment. It is expected that EFSB and LH infestations will be get more severe because of climate change and intensified production system for food security. Therefore, it is imperative to develop effective and environmentally sustainable solutions to control EFSB and LH. Consequently, this will improve farmers' productivity and consumer access to this important food crop. The release of insect resistant varieties remains the best option which researchers can provide to farmers. Through the years, Institute of Plant Breeding (IPB) of UPLB has maintained an active eggplant breeding program using both conventional and non-conventional breeding techniques. IPB has released NSIC-approved OP eggplant varieties (Guevara and Maghirang, 2013) and the first eggplant hybrids from a public research institution (Haxtea et al. 2014). IPB has also used modern biotechnology (molecular markers and genetic engineering) in its eggplant breeding program. IPB has developed even EE-1 Bt eggplant OP and hybrid varieties with very high level of resistance against EFSB and no significant negative effects on non-target organisms. Successful deployment in the	1) A well characterized Philippine eggplant germplasm collection and database for local and global eggplant community 2) Eggplant insect resistance breeding pipeline consisting of parent lines, specialized populations, elite inbred lines, advanced breeding lines, and improved varieties with various combinations of defense gene alleles for resistance to EFSB and LH for plant breeders, other researchers, students, farmers and/or consumers, seed companies 3) Eggplant R&D resources and tools for scientists and academics: molecular maps and markers, genome/gene sequences of eggplant and target pests associated with plant defense mechanisms; NBT-related eggplant protocols 4) IT-based validated phenotyping apps and HTS screening techniques for components of EFSB and LH resistance for entomologists, breeders/genetic researchers, students, extension workers; other relevant govt agencies 5) at least five (5) publications in ISI journals and at least three (3) paper presentations per year in scientific meetings for other researchers, graduate students and the wider academic community 6) at least three (3) MS graduates (Genetics, MBB, Plant Breeding, Entomology or Computer Science) and five (5) IPB researchers and (5) support staff with enhanced knowledge and training in marker technology, genomics, NBT and regulation and/or IT-based screening techniques 7) IEC materials and training activities specifically on NBT for other stakeholders and the general public.	University of the Philippines Los Baños (UPLB), University of the Philippines Diliman (UPD)	The target beneficiaries of the project research results are: i. Public and private sector institutions * ii. Academic and research institutes, SMEs involved in eggplant industry iii. Eggplant researchers * plant breeders, gene bank managers, entomologists, geneticists, molecular biologists. iv. Students interested in plant breeding, entomology and agricultural sciences v. Policy makers, regulators, agricultural extension workers - vi. Farmers/consumers * long-term beneficiaries of profitable, less costly and safe varieties	1-Jul-2018	30-Jun-2023	Completed	36,668,412	1,095,320
	Development of New Hibiscus rose-sinensis Varieties through Conventional Hybridization and Embryo Rescue (Varietal Improvement and Development of Climate-resilient Flowering Bedding/Pot Ornamental Plants)	Integrity of the environment and climate change adaptation and mitigation	The study aims to develop new varieties of hibiscus, using both the conventional and the wide hybridization to produce novel, climate resilient, and plants with good morphological characters and aesthetic appearance.	1)To publish 2 ISI publications, 1 poster and 2 IEC materials 2)Minimum of 6 new Hibiscus rose-sinensis varieties and 2 interspecific hybrids 3)To conduct 1 training in the production and multiplication of gamamela during entire project duration 4)To partner with the institution that will partner in the launching and naming of the new varieties that will be derived from the project. 5) GTRRO registration and approval	University of the Philippines Los Baños (UPLB)	The target beneficiaries of the project research results are: i. Plant nursery owners ii. Landscapers and landscape engineers iii. Ornamental growers iv. Ornamental plant enthusiasts/hobbyist v. Ornamental plant exporters/importers	1-Mar-2021	29-Feb-2024	Ongoing	4,996,480	1,569,327
	Development, Genotyping and Preliminary Evaluation of Genetically Stable Planting Materials of Selected Medicinal Plants	Integrity of the environment and climate change adaptation and mitigation	The project will focus on some of the DOH-recommended medicinal plants, and those plants prioritized by DOST-PCHRD and the herbal industry. As mentioned earlier, this will also serve as a re-entry project of the DOST GREAT program.	At least one (1) ISI/indexed journal article At least one (1) poster/paper presented in scientific conferences At least 9 genetically stable, characterized and evaluated accessions/lines/genotype as reference and standard At least 3,000 seeds of the four (4) sexually propagated and genetically stable medicinal plant ready for distribution and safety duplication At least 50 propagules/seeds of the five (5) asexually propagated medicinal plant ready for distribution 4 project personnel trained on breeding, genetic resource conservation and management of medicinal plants One (1) Bachelor's, and one (1) Master's student trained on genotyping, and evaluation of medicinal plants	University of the Philippines Los Baños (UPLB)	The target beneficiaries of the project research results are: i. Research organizations, men and women researchers, scientists, students, medicinal plant growers, and the general public will benefit from a promising and genetically stable source of planting materials of medicinal crop species.	1-Jul-2021	31-Dec-2023	Completed	4,999,216	1,031,925
	Enhancement of Ubi (<i>Dioscorea alata</i> L.) Production through Trials and Demonstrations of S&T-based Farm Practices to Support Industry Development in Bohol	Poverty reduction and empowerment of the poor and vulnerable	Purple yam (<i>Dioscorea alata</i> L.) locally known as ubi is one of the most sought-after crops due to its economic potential not just as a staple food but as an in-demand crop for the food industry in the processing of high-value food and health products. The crop has been used by various industries offering healthy refreshments like ice cream as it is also known for its high anti-oxidant content, aroma, and attractive pigmentation. In the country, ubi production from 2017 to 2021 declined at an average annual rate of -0.4 percent. In Central Visayas, the top producer region of this crop, for the same period also showed a declining trend (PSA, 2021). Bohol to be specific is one of the provinces in Region VII that is best known for its ubi Kinampay, an aromatic purple yam native to the province. Ubi production shared almost one-fifth (17.32%) of the total volume of rootcrops production in the province (Bohol PSD, 2021). However, ubi production in the province dropped in recent years. The decreasing trend is attributed to several factors such as the seasonality of the crop, infestation of pests and diseases, high cost of minisets (ubi planting materials), and low adoption of recommended technologies, among others. Recognizing the role of science and technology (S&T) and research and development (R&D) for the needed production and industry enhancement, the provincial government of Bohol sought the assistance of the Department of Science and Technology (DOST) through the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD). On May 18, 2023, therefore, DOST-PCAARRD initiated a meeting together with the local provincial government, PhilRootcrops, and other relevant local stakeholders/agencies in Bohol like the Provincial Agriculture Office, Regional DOST, and local research institutions, among others, to discuss the gaps and areas that need to be addressed through S&T interventions. Among the important gaps identified were the lack of available planting materials for the production, the innate seasonality of the crop due to its dormancy periods as well as the very low yield that is attributed to the low adoption of the recommended production technologies. A follow-through field and scoping visit were also conducted on June 23, 2023, to validate the gaps that have been mentioned. The PhilRootcrops, which is a prime mover in national rootcrops research and development, and which works on systematic undertakings to innovate and introduce more advanced technologies to fill the gaps and shape the rootcrops industries from	Publication: Regarding Publication, this project will develop and reproduce one (1) IEC material on ubi S&T-based farmers practices as well as one (1) IEC material for the miniset propagation technique. At least 100 pieces of the cultural management and propagation technique IECs will be distributed to the beneficiaries and stakeholders. At least one (1) article highlighting the results of the trials and demonstrations will also be submitted to a scientific journal. Two (2) training modules will be developed to aid in the technology transfer activities. Patent, Copyrights of IECs and Manuals/Product For the Products, this project will identify at least one (1) quality, high-yielding, adaptive to local conditions and year-round production of ubi varieties for Bohol. It will also increase the availability of quality ubi planting materials and raw material supply in the target areas. At least 10,000 ubi-planting materials will be distributed by the project in the different areas of Bohol including those used in the demonstration farms. People For People and Services, this is going to serve farmers, LGUs, and other concerned stakeholders involved in the ubi industry in Bohol. The project can benefit, especially the collaborating farmers, researchers, and stakeholders that will be involved directly in the implementation. This project is going to serve at least 50 farmer-beneficiaries to be trained on the ubi production and miniset propagation techniques. Place: In terms of Places and Partnerships, this is going to revitalize and expand ubi production in Bohol and engage cooperation among the different stakeholders through formal partnerships. At least 4 demonstration partners and at least 1 marketing linkage will be established by the project. The project will have collaboration with the Bohol Island State University, Bohol Provincial Agriculture Office, Bohol Experiment Station - DA Region 7, and the Atlasus Group of Companies. Policy For the Policy, one (1) draft policy recommendation on the use and promotion of quality and high-yielding ubi varieties per agro-ecozone in Bohol, miniset propagation technique; and recommended S&T-based farmers practices for ubi production.	Visayas State University (VSU) Bohol Island State University (BISU)	Ubi farmers Processors Extension workers Policymakers	16-Sep-2023	15-Sep-2025	Ongoing	4,999,021	1,545,985

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Exploring the Efficacy of RNA Interference (RNAi) as a Biopesticide for Managing Sweetpotato Weevil, <i>Cylas formicarius</i> (Fabr.)	Poverty reduction and empowerment of the poor and vulnerable	weetpotato is an important root crop that is grown widely in the Philippines. In addition to its use as a food crop, sweetpotato has been used as an alternative ingredient to corn in the formulation of commercial animal feeds. Some losses of yield may be accounted to the damages caused by insect pests like sweetpotato weevil, <i>Cylas formicarius</i> (Fabr.), and viral diseases such as Sweetpotato virus disease (SPVD) caused by the synergistic interaction of the aphid-transmitted Sweetpotato leathery mottle virus (SPFMV) and whistly-transmitted Sweetpotato chlorotic stunt virus (SPCSV). These and other diseases beset the sweetpotato industry in the country. Hence, the needs facing our farmers in the sweetpotato producing areas is the control of diseases and pests which can be addressed through development of viral resistance, quality planting material, and implementation of disease or pest management strategies. One of the top priorities that have been identified by the farmers is pest and disease control management of viruses and insects like weevils (Fuglie, 2007). Therefore, this research project aims to address these needs as expressed by the farmers which will no doubt help this crop to continue to make significant improved income for them. Exploiting modern biotechnological advances can be used for managing insects like weevils. RNA interference (RNAi) is one of these biotechnological advances and has been proven to be effective in managing pests and diseases of crops of agricultural importance. Here, we propose to develop a non-transgenic RNAi-based biopesticide product for SPW. The target gene is Laccase2 which is involved in sclerotization and pigmentation in insects. We hypothesize that as a result of the downregulation of laccase2 mRNA, the dsRNA prevents expression of the corresponding insect laccase2 protein and hence causes aberrant expression of the cuticle or may cause death or growth arrest.	Publication: Three People: 3 Undergraduate, 2 Graduate students (MS and PhD), 1 University Researcher, 1 Laboratory Aide, 9 Research Internships/Placements Three places and partnerships. Sweetpotato R&D Center in Tarlac: Agricultural University; We will get the insects from them and will have consultation meetings with their staff with regards to the SPW infestations they monitor in the field. Our contact person is Ms. Bhang Calaza. We are also in contact with Prof. Libeth Bajaj Lanang, a retired professor of TADU who is now the president of Mayantoc Sweetpotato Farmers' Group in Camiling, Tarlac. ☐ Insect Eicosanoid Physiology Laboratory, Andong National University South Korea through Prof. Yongjun Kim who will provide us with the RNAi vector and control plasmid DNA. Institute for Agro-Environmental Sciences, NARO, Tsukuba Japan, will serve as our consultant with regards to the SPW genomic sequencing through Dr. Hiraku Yoshioka.	University of the Philippines Los Baños (UPLB)	Farmers, RCPC workers, students, researchers, academics	16-Aug-2023	15-Aug-2025	Ongoing	4,999,984	2,459,096
	Improvement of Carabao Mango Production and Fruit Quality Through Quantitative Trait Loci (QTL) Identification for Scab and Stem-end Rot Resistance by Genome Wide Association Studies (GWAS) (Old Title: Mango Fruit Quality Improvement for Scab and End Rot Resistance through Quantitative Trait Loci (QTL) Identification by Genome Wide Association Studies (GWAS))	Rapid, inclusive and sustained economic growth	Mango is an economically important crop in the Philippines. The country produces approximately 960,000 tons of mangoes per year from 187,000 ha with 73% of farms operated by 2.5 million small holder farmers. In 2015, the Philippines ranked seventh among exporters of fresh and dried mango worth \$91 million (UNCOMtrade 2016). Around 85% of the country's mangoes are processed and exported. The popular Philippine "Carabao" mango is the prime export variety and is acknowledged as one of the best mangoes in the world. It has 15-20 cultivars and 12 newly registered selections of the "Carabao" type. Declining production yields and poor quality of fruit had been a challenge. This problem besetting the mango industry is attributed mainly to high pest and disease pressure. Mango trees are affected by a number of fungal and bacterial diseases at various stages which include scab and stem end rot. In the Philippines, anthracnose and stem rot are considered the most destructive diseases of mango while mango scab on the other hand becomes a problem early in the life of mango tree by attacking seedling trees and nurseries. Stem end rot is considered as the second major problem limiting the storage and shelf life of mango fruits. Losses due to scab and stem end rot disease was estimated to be 20% of the production (Nishijima, 1993). Thus, there is a great need to improve "Carabao" mango since its susceptibility to the abovementioned diseases result in low yield and poor quality of mango fruits. Molecular marker assisted breeding has been instrumental in the development of new varieties in many crops. Ongoing research by DOST-PCAARRD and the Institute of Plant Breeding-University of the Philippines Los Baños (IPB-UPLB) is being undertaken to develop molecular markers associated with resistance to anthracnose. Development of molecular markers associated with scab and stem end rot should also be initiated, hence this project. Molecular marker development is very critical since it makes use the genomic DNA sequences that lead to the identification of genes per se or close linkage of molecular markers with gene targets. This is complemented with phenotyping of mapping populations for desired genes of interest. While cultivar characterization had been done both at the morphological level (Alcaid et al., 2015) and at the molecular level using SSR markers (Sales and Butarso, 2017) that developed and identified useful markers to differentiate "Carabao" mango over other types, there is a need to develop a genome data base for a genetic	Products (12) : Two (2) GBS database for scab and stem-end rot resistance in mango : 1. Ten (10) molecular markers for scab and stem-end rot resistance in mango : People and Services Two (2) trained personnel Two (2) MS Plant Breeding Students Places and Partnerships Memorandum of Agreement (MOA) with National Taiwan University (NTU) Partnership with University of the Philippines Los Baños (UPLB) Partnership with Bureau of Plant Industry-Guimaras National Crop Research, Development and Production Support Center (BPGINCRDPSC) Publications (4) : Two (2) papers for publication : 1. Two (2) scientific paper : presentations	University of Southern Mindanao (USM)	1. Mango growers and producers 2. Nursery owners 3. Researchers and plant breeders 4. Students 5. Universities and research institutes	1-Feb-2019	31-Jul-2022	Completed	4,234,722	564,474
	Integrated Crop Management (ICM) for the Rehabilitation of Banana in a Coconut Intercropping Production System [Old Title: Deployment of Coconut-Banana Intercropping Technology (DECOBAIT)]	Integrity of the environment and climate change adaptation and mitigation	The project will validate an on-farm integrated crop management (ICM) package to rehabilitate banana under coconut intercropping production system. Additionally, the project will use mobile applications generated from the SARAI Project (SpaTech) for pest identification, monitoring and advisory and Banatech (harvest date estimator) as part of the ICM for Banana. The use of unmanned aerial vehicle (UAV) for crop growth and health monitoring will also be explored in the project.	Publication: Publication : At least one publication on a peer-reviewed, internationally-abstracted journal (Y2)People: NAProduct: An image database of Lakatan and saba/candaba banana growth stages (Y2)People: 1 MS GREAT SCHOLAR Capacity building in Farmer Cooperatives and LGU -> (Y1)Place: LGU -> and Farmer CooperativesPolicy: A policy brief of the application of BananaTech for crop insurance (Y2)	University of the Philippines Los Baños (UPLB)	Banana/Coconut Farmers; Banana Traders and LGUs Quezon and Laguna	1-Jul-2022	30-Jun-2024	Ongoing	4,784,836	1,743,219
	Integrated Management of Sineguelas Leaf Beetle (Podontia quatuordecimpunctata (L.)) (Chrysomelidae: Alticinae) an Introduced and Emerging Pest of Sineguelas (Spondias purpurea Blanco) in Batangas	Integrity of the environment and climate change adaptation and mitigation	Sineguelas leaf beetle (Podontia quatuordecimpunctata (L.)) (SLB) is an emerging and introduced pest of Spanish plum (Spondias purpurea Blanco) or locally known as Sineguelas in the Philippines. Mohamedsaid (2004) Catalogue of the Malaysian Chrysomelidae reported the insect as host of June plums (Spondias dulcis) (Anacardiaceae) and widely distributed in Peninsular Malaysia, India, Nepal, Myanmar, Thailand, Laos, and Cambodia. There is no current record of insect pests in the country. Most likely, the pest was recently introduced either through infested seedlings, fruits or other plant parts with eggs, larva, pupa or adult forms. The most likely sources are foreigners, tourists or Filipino migrant workers (OFWs). The Department of Agriculture, Regional Crop Protection Center-IV-CALABARZON (DA-RCPC-IV) first monitored the presence of the pest in Laiya, San Juan, Batangas in August 2016 and Agoncillo in 2017 (Sandoval & Manzanilla 2016, 2017) (Unpublished report). The main author temporarily identified the pest as a chrysomelid leaf beetle and withheld the true identity of the pest for further confirmation with experts abroad (Calceas 2016). However, Ebor, et. al (2017) reported the pest from Balsa, San Juan, Batangas as leaf-eating beetle or spotted beetle (Podontia sp.), their feeding damage was described and the life cycle was also studied. In 2019, three years after its reported introduction the pest brought havoc to fruit farmers in San Miguel, Batangas City, which is considered as the largest producer of the fruit in the whole province and Luzon. Based on the latest survey conducted by the City Agriculturist Office (CAO) of Batangas City, 14 barangays are dependent on Sineguelas as the major source of livelihood. This comprises a total of 343 affected farmers and with approximately 15,791 infested Sineguelas trees. The pest was also reported in Upper Batangas, Cagayan de Oro City, Misamis Oriental by DA-RCPC-X-Malabaybal, Bukidnon on September 2018. A farmer's forum and consultation were held on August 29, 2019 and the following information was gathered. Before the introduction of the pest, a typical tree of Sineguelas can yield an average of 3,000 fruits per harvest while the tree can be continuously harvested for almost 30 days. The Sineguelas fruit farm gate price on the average is P1.00 per fruit. Thus, on average a daily fruit harvest income of P3,000 pesos per day for a farmer with 100 Sineguelas trees per hectare. This is approximately equivalent to P90,000 pesos per month. However, after three years of leaf	Three (3) papers on biology, ecology, population dynamics IPM package for SLB IPM package disseminated to 20 extension workers at least 50 sineguelas growers Partnerships with: BPI-LBNCRDPSC LGU of Batangas LGU of Occidental Mindoro LGU of Cavite Policy recommendation on IPM package for SLB to LGUs	DA Region 4A, Bureau of Plant Industry - Los Baños National Crop Research Development and Production Support Center (BPI-LBNCRDPSC)	Sineguelas growers Local Government Units Researchers Students	1-May-2021	30-Apr-2023	Completed	5,000,000	854,429

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARR GD
	Integration of Coconut-based Farming System for Increased Farm Productivity and Profitability in Sibutu, Tawi-Tawi	Integrity of the environment and climate change adaptation and mitigation	The project aims to establish a coconut-based demonstration farm in Tawi-Tawi using Outstanding Open-Pollinated Varieties (OPV) of coconut and market-driven intercrops. The demonstration farm will collectively comprise the five (5) dwarf and tall populations mainly utilized in the mass production of PCA-recommended and NSIC-registered coconut hybrids. A critical part of the establishment involves the method with which the planting materials are produced. The coconut-based demonstration farm will be established in a manner that will produce true-to-type planting materials and near genetically identical to the original populations so that these populations will be performing as expected. To materialize this, matured seednuts will be harvested from the selected palms in the middle of the plantations, one or two rows away from the other coconut populations. Furthermore, integration of coconut farming system technology will be done including intercropping of selected market-driven intercrops to increase farm productivity and profitability.	<p>Publication</p> <p>Submit at least one (1) article and/or informal materials on coconut-based demonstration farms in peer-reviewed local journals. (Site: Coconut-based Demonstration Farming in Tawi-Tawi: A Sustainable Model for Food Security and Economic Prosperity)</p> <p>Product</p> <p>Established a 5-hectare demonstration farm with 5 coconut populations of outstanding dwarf and tall open-pollinated varieties (at least 850 seedlings planted); and Recommended suitable and market-driven intercrop with the highest income and benefit to the farmers in Tawi-Tawi.</p> <p>People Services</p> <p>Trained 15 project personnel and 20 coconut farmers and representatives from the LGU of Tawi-Tawi in seednut selection, nursery establishment, farm establishment, coconut farm management, and coconut-based integrated farming.</p> <p>Places and Partnership</p> <p>One (1) Provincial Local Government Unit (PLGU): Tawi-Tawi One (1) PCA Regional Office: BARM</p> <p>Policies</p> <p>One (1) policy draft on the integration of recommended farming systems and practices for increasing farm revenue and income</p>	Philippine Coconut Authority - Zamboanga Research Center	The beneficiaries of the project are coconut farmers in Tawi-Tawi, agricultural workers in the LGU, researchers on the possible collaboration with a local State University and College (SUC), and coconut stakeholders.	1-Jul-2023	30-Jun-2026	Ongoing	5,000,000	1,222,668
	Interlaboratory Pulping and Paper Making Analysis of BANDALA (Backcross Abaca with Native and Desirable Accessions to Lift Up the Abaca Industry) Abaca Hybrid (Old Title: Inter-Laboratory Pulping and Paper Making of BANDALA (Backcross Abaca with Native and Desirable Accessions to Lift Up the Abaca Industry) Abaca Hybrid)	Integrity of the environment and climate change adaptation and mitigation	Paper is one vital commodity to human needs and activities. With the previous studies on the properties of BANDALA variety, investigating further the potential of the said variety could significantly contribute to paper development. Thus, addressing one major problem of our paper mills which is the lack of source of good fibers.	<p>Publications: One(1) technical paper</p> <p>Products/Technology Generated: Technical information on pulping process for pulping abaca hybrids</p> <p>People and Services: Abaca producers/farmers and abaca pulp mills</p>	Forest Products Research and Development Institute (DOST-FPRDI)	abaca producers/farmers, abaca pulp mills, academe and the general public	1-Jan-2023	30-Jun-2024	Ongoing	4,869,137	4,066,288
	Molecular Mechanisms of Root System Formation for Genetic Improvement of Rice Adapted to Water Stress Conditions	Integrity of the environment and climate change adaptation and mitigation	This project will employ characterization of varieties/lines with promoted lateral root (LR) development, gene expression and epigenetic regulation (histone modifications) of LR's under soil moisture fluctuation (i.e. during and after drought) that has not yet been studied thus far. Additionally, the QTL's conferring LR plasticity under re-watering (i.e. after drought), which is equally important for water-stressed environments but has not yet been reported elsewhere, will be identified. This will be crucial for breeders and biotechnologists in designing genetically improved drought avoidance with higher root plasticity and minimally-compromised productivity of rice plants under stressful environments.	<p>Publication:</p> <p>4 manuscripts (2 submitted to scientific journals, 2 grad and undergrad theses)3 proceedings & presentations from scientific conferences1 training module/ protocol/Patent:</p> <p>Potential patent of drought related putative QTL/gene/Product: 3 drought tolerant lines2 molecular markers on target root traits1 optimized root histone modification protocol</p> <p>People:</p> <p>10 researchers trained on root gene expression/ epigenetics assays and other molecular tools/ assays in plant genetics1 graduate student (Crop Biotechnology/Place: One (1) MTA/MCU with Nagoya University signedPartnership with Central Luzon State University (CLSU)</p> <p>Economic Impact/Efficiency of breeding programs on improved root system by 80% yield improvement (projected at 20-30%) Increase in farmers' income (projected at 20-30%)Social ImpactAdaptation to climate change through the availability of drought tolerant rice varietiesImproved livelihood of rice farmers</p>	Philippine Rice Research Institute (DA-PhilRice)	Our target beneficiaries are the crop biotechnologists, geneticist, breeders and university thesis students. They may utilize the results of the project particularly in the conduct of R&D initiatives (ex. designing or developing improved rice varieties with enhanced drought avoidance). Ultimately, the outputs of this project benefits the most vulnerable rice farmers in the face of climate change. The information can improve production management strategies of resource-poor farmers in rainfed systems.	1-Apr-2022	31-Mar-2024	Ongoing	13,581,433	4,169,193
	Utilization of Interdisciplinary Strategies and Plant Breeding Innovations for the Development of Eggplant (Solanum melongena L.) Haploid and Doubled Haploid Lines	Poverty reduction and empowerment of the poor and vulnerable	A project that will develop eggplant haploid and doubled haploid lines through plant breeding innovations involving in silico, in vivo and in vitro techniques.	<p>Publication:</p> <p>At least one (1) poster/oral paper per year</p> <p>One journal article on the screening of eggplant genotypes with high microspore embryogenic response using established in vitro anther isolated microspore culture protocols for the generation of haploids/doubled haploids.</p> <p>One journal article on the phenotyping app used to characterize microspores</p> <p>One journal article on the characterization of at least one candidate gene (DMP) and the effect of CRISPR/Cas-mediated knock-out on these genes.</p> <p>Patent:</p> <p>Appropriate IPR (copyright) for apps for phenotyping of microspore developmental stages in various eggplant genotypes.</p> <p>Appropriate IPR for the Haploid Inducing- RUBY Expressing-Dicotyledonous (HIREDD) Crop System.</p> <p>Product:</p> <p>Haploid/ doubled haploid eggplant line</p> <p>A haploid inducer line for eggplant</p> <p>People:</p> <p>At least three (3) graduates of at least BS level, trained in computer science, plant tissue culture, plant transformation, and molecular biology and biotechnology</p> <p>Place:</p> <p>Prospective consultancy from Dr. Jose M. Seguí-Simarro, a professor from Universitat Politècnica de València (Polytechnic University of Valencia) in Spain, and author of numerous papers related to eggplant doubled haploids</p> <p>Policy:</p> <p>Information and products generated from the project will be presented to contribute in the discussions and policy decisions on products of New Breeding Techniques (such as CRISPR/Cas genome editing), and breeding programs of local institutions.</p>	University of the Philippines Los Baños (UPLB)	Public and private sector institutions - academic and research institutes, enterprises involved in the eggplant industry Eggplant researchers - plant breeders, geneticists, molecular biologists Students interested in plant breeding, tissue culture, floral biology, plant transformation Farmers and consumers - long-term beneficiaries of improved varieties with shortened breeding periods.	1-Aug-2023	31-Jul-2025	Ongoing	5,000,000	1,585,186
	Varietal Development in Philippine Native Hoyas	Rapid, inclusive and sustained economic growth	Hoya is a genus of tropical climbing or trailing plants in the Apocynaceae (Dogbane) plant family, a native to southern Asia, Australia, and Polynesia with an estimated of 200-300 species.	<p>1. 2 poster presentations, 1 oral presentation, 1 refereed journal</p> <p>2. at least 5 potential varieties</p> <p>3. at least 5 propagated materials per potential variety</p>	University of the Philippines Los Baños (UPLB)	Scientists, researchers, students, hobbyists, plant enthusiasts	1-Mar-2021	29-Feb-2024	Ongoing	4,999,703	1,464,840
ACIAR	Enhancing Livelihoods through Forest and Landscape Restoration (ASEM/2016/103)	Rapid, inclusive and sustained economic growth	This project will provide livelihood options to smallholders involved in forest restoration.	Livelihood options to smallholders through forest restoration	Visayas State University (VSU)	Tree farmers, LGUs, academe, researchers	1-Apr-2019	31-Dec-2023	Completed	3,996,800	105,809

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Characterization and Performance of Ten (10) Promising Varieties of Cacao in Different Agro Climatic Zones in the Philippines	Proj. 1 Yield and Bean Quality Evaluation of Ten (10) Promising Cacao Varieties in Type II and Type III Agro Climatic Zones in Northern and Southern Mindanao	Integrity of the environment and climate change adaptation and mitigation	<p>The cocoa tree, <i>Theobroma cacao</i> L. is one of the very popular crop created a rapidly expanding market with a very high price stimulated production and export in all suitable islands. Technological improvements and emergence of new product like chocolate bar in the late 1800s created rapid increase and demand. In the Philippines, cacao flourished into an industry with 9% average growth rate in production (1977-1986) due to increase in production area i.e. from 4,400 hectares in 1977 to 15,230 hectares in 1986 with estimated production of 2,900 tons in 1977 to 6,240 tons in 1986. Ironically, as the Philippine Cacao Industry was starting to grow, the implementation of the Comprehensive Agrarian Reform in 1988 fragmented the well performing commercial cacao farm.</p> <p>The Philippine government realized the importance of cacao due to its high demand both in domestic and international markets. The current plan of the government and private sector to increase cacao production to 100,000MT in 2022 calls for a lot of planting materials (Philippine Cacao Industry Roadmap 2017-2022). This would mean a lot of heclarage to be planted from the current ~30,000 has. If we average 1 ton of beans/ha, then we need to plant 70,000 has more.</p> <p>Cacao production however, is beset with several problems like pests and diseases, poor cultural practices, and use of low yielding and poor quality planting materials. Several varieties which are of good quality (i.e. criollo) and promising in terms of yield (i.e. W10) are worthwhile to be tested for future use of our cacao farmers. Definitely, identification of well adapted varieties will benefit growers as the burden of trying out varieties will be lifted from the farmers'™ shoulders and definitely justifies the resources invested in it. The output will be varieties identified to do well in a particular agro-climatic zone and can easily be disseminated by informing accredited nursery owners priority varieties to be propagated in each region and by providing them the mother plants as scion sources. The output of this research will benefit the DA for its cacao expansion program, DAR ARBs and NGP of DENR.</p> <p>To date, cacao production is one of the researchable areas under ISP of PCAARRD through</p>	<ol style="list-style-type: none"> 1. Selected 1 or 2 cacao varieties with outstanding performance adaptable to high, medium and low elevation. 2. Identified varieties for combined elevation and climatic type- with resistance to pest and diseases and high productivity level. 3. Production of IEC materials. 4. Partial budget analysis for mulcacion cacao trials 5. Capacity building and dissemination of new technologies to farmers 	University of Southern Mindanao (USM), Sultan Kudarat State University (SKSU), Agusan del Sur State College of Agriculture and Technology (ASSCAT)	The beneficiaries of the project primarily include nursery owners, cacao farmers, cacao plantation growers, cacao bean processors, cacao breeders, cacao industry, consumers and government agencies such as Bureau of Plant Industry	16-May-2023	15-Nov-2024	Ongoing	2,760,000	910,306
Managing Cocoa Quality in the Post-Harvest Process: Biological Approaches for the Management of Mycotoxins and Storage Pests of Cacao	Proj. 2 Management of Storage Insect Pests and Mycotoxins of Cocoa Using Biological Control Approaches	Integrity of the environment and climate change adaptation and mitigation	<p>After harvest, the cacao bean is fermented, dried, and stored. Farmers remain vulnerable to production losses during these processes and the quality and flavor of the product is defined by the environment and the methods used. Post-harvest processing falls upon the pillars of productivity and adaptation. Farmer incomes are dependent on the amount of cocoa beans they can sell and the success in post-harvest processing is dependent on the interaction between environmental factors (e.g. humidity) and factors related to the process (e.g. bacteria during fermentation). The last step in cocoa processing is storage of dried beans. During storage, beans are risk of damage in particular the presences of insect storage pests such as warehouse moths and red flour beetles.</p> <p>These insect pests of stored products have for long greatly depended on the use of synthetic insecticides and fumigants, which have multitudes of problems such as residues in products, and insecticide resistance. Thus, a big concern on food safety. Warranting the need to explore alternative method(s), which are bio-based. Losses from insect infestation in the postharvest facility is ranging from 5-30% and can reach 100% if left unattended especially when the beans become unfit for human and animal consumption due to increase Free Fatty Acid (FFA) content brought about by the after feeding effect of the storage insect pests.</p> <p>This project under the cacao postharvest program will develop a biobased management system with innovative tools in controlling the population of storage insect pests on cocoa beans. Innovative tools include monitoring and control of insect pests through semiochemicals, the use of biological control agent(s), and particle film technology with entomopathogens as repellent and biocontrol. This storage pest management system will serve as early detection and quick response to mitigate the effect of storage insect pests as well molds resulting to superior quality of cacao beans for local consumption and will increase competitiveness of the country in the international market.</p>	<p>6PA Merica Publications (no. of paper published/peer reviewed and IEC materials, citations)</p> <p>Year 1 1 publication</p> <p>Year 2 3 publications</p> <p>Manuals, Guide, IEC materials for on-site detection (at least 3)</p> <p>Patents (no. of patents, IP filing) Patent application on the pest management tools</p> <p>Products (perceived future value, value of commercialized products) Kaionomone/pheromone trapping system Biocontrol agent</p> <p>People and Services (no. of MS, PhD Graduated, no. of trained personnel, value of public service contributed) Year 1 At least 2 graduate students (MS/PhD in Biology, and Computer Science)</p> <p>Year 2 Farmers (at least 25 for each location); Agricultural technicians (at least 2 for each partner agencies)</p> <p>Places and Partnership (if of startups formed, MOA/MOU signed) concerned agencies like LGUs, DA, and academic institutions and potential industry partner Michigan State University</p> <p>Policies Policy brief governing innovative postharvest operations towards production of superior quality cocoa beans</p>	De La Salle University (DLSU)	Postharvest Facilities Other Farmers/Adaptors Bureau of Plant Industries (Pest Clinic Laboratories) Municipal Agricultural Offices Farmers as identified by DA Regional Offices	1-Jul-2022	30-Jun-2024	Ongoing	6,742,532	1,219,070
Application of eDNA Metabarcoding in Faunal Biodiversity Assessment of Indo-Pacific Mangroves Vulnerable to Climate Change: Philippine Node	Integrity of the environment and climate change adaptation and mitigation	<p>This research project is part of a regional collaborative research submitted to East Asia Science and Innovation Area Joint Research Program, or e-ASIA JRP, a multilateral international joint initiative between a number of public funding organizations of the East Asia Summit (EAS) member countries, including Japan, Indonesia, Philippines, entitled as Application of eDNA metabarcoding in faunal biodiversity assessment of Indo-Pacific mangroves vulnerable to climate change and to other funding agencies for non e-ASIA member countries (Thailand, South Africa, Malaysia). This collaborative research project for Philippines aims to determine the change in biodiversity of fish and benthic macroinvertebrates in select mangrove areas of the country following a standardized biomonitoring tool, that is the aquatic environmental DNA and application of species distribution modelling (SDM). The data and information that will be gathered in the Philippines will be incorporated for analysis on Indo-Pacific mangrove ecosystems through the collaboration. The eDNA approach will serve as a new indicator for evaluating species biodiversity in mangrove ecosystems. Incorporating with Species Distribution Model analyses, the study will provide prediction of species distribution under different climate change scenarios and/or environmental conditions. Given the multitude of ecosystem services provided by mangrove ecosystems, it is important to understand their potential responses to global climate change of which faunal biodiversity assessment can provide baseline contribution. Climate change is likely to have a substantial impact on faunal diversity of mangrove ecosystems in the Indo-Pacific, through various impacts resulting from sea level rise (SLR), changing ocean currents, increased storminess, increased temperature, changes in precipitation and increased CO2. These factors are inter-related and spatially variable on inter-regional scales. Challenges in doing biodiversity monitoring can be addressed by application of innovative tool, such as the eDNA. This approach is easy to be standardized across countries, under a system of collaborative work and capacity-building. Raw sequence datasets will be</p>	<p>Publications</p> <p>1 project brochure</p> <p>5 publications to national/international indexed journals</p> <p>6 posters of species and/or SDM maps</p> <p>Patent</p> <p>1 copyrighted scientific poster</p> <p>People and Services</p> <p>12 project members trained on eDNA protocols</p> <p>4 young or early career researchers'™ capacity building on eDNA</p> <p>25 LGUs/NGAs technical staff trained on faunal diversity assessment using eDNA</p> <p>5 LGUs with enhanced mangrove conservation strategies through workshops, fora, and/or research involvement</p> <p>3 DOST-PCAARRD GREAT Scholarships</p> <p>4 DOST-SEI undergraduate/graduate scholarships</p> <p>2 project staff and 3 Res. capacitated by PGC in the genetic laboratory works</p> <p>1 PhD MEXT (Japanese Government) Scholarship</p> <p>Places and Partnership</p> <p>5 sites of mangrove forests monitored for fish and macrobenthic invertebrates towards biodiversity conservation strategies</p> <p>7 Philippines agencies involved</p> <p>3 International collaborations established</p> <p>5 coastal communities with better appreciation on mangrove ecosystems through community fora and/or participatory data collection</p> <p>2 Collaborations for scholarships: DOST-PCAARRD GREAT and DOST-SEI</p> <p>1 collaboration with Japanese University for the MEXT Scholarship</p> <p>Policy</p> <p>1 Policy brief on how eDNA metabarcoding, a non-invasive tool for biodiversity assessment, can revolutionize biomonitoring approach in mangrove ecosystems</p> <p>1 Policy brief on conserving the faunal biodiversity in the mangrove ecosystems</p> <p>1 Policy brief on the importance of networking among researchers and local stakeholders esp. in the growing molecular era of biodiversity assessment/monitoring</p>	Mindanao State University (MSU-Naawan)	The target beneficiaries of the project are the following- Mangrove conservation managers from DENR, BFAR and LGU (Municipal Agriculture Office, Municipal Environment and Natural Resources Office)- Fisherfolks and local coastal communities- Pool of mangrove and marine biodiversity researchers or networks-SUCs- Early career ocean professionals and technical staff	1-May-2022	30-Apr-2025	Ongoing	14,937,641	4,435,664	

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Artificial Intelligence-Based Diagnostic Clinic for Detection and Monitoring System for the Management of Rubber Diseases and Insect Pests	Integrity of the environment and climate change adaptation and mitigation	This project deals with providing intervention in increasing rubber quality and production, addressing the issue of lack of efficient and effective surveillance, detection, clinic for rubber experts, and monitoring system of rubber diseases and insect pests through the development of artificial intelligence-based databases and online platform for information dissemination, diagnostic clinic, and monitoring system for the management of rubber diseases and insect pests. The development of an online database and platform for diagnostic clinics and monitoring systems is based on R&D needs, problems, and gaps identified by DOST, DA-PRRI, PCAF and TWG for the rubber diseases as an output of consultations and discussions in collaboration with SUCs, government, and private agencies. Thus, this project is timely and relevant. This technology could have particular benefits to rubber farmers, associations, LGUs, SUCs, researchers, and other rubber stakeholders and could have a great impact from small to large-scale rubber stakeholders in the country. This project will be implemented in major rubber producing provinces in the country. After the project's completion, an artificial intelligence-based centralized database system and online platform for detection clinics, monitoring, surveillance and reporting system of rubber diseases and insects will be developed for the productivity of the rubber industry in the country.	<p>Publication:</p> <ul style="list-style-type: none"> At least 1 paper presentation in a conference At least 2 scientific papers At least 1 paper presentation in a conference 1 IEC materials; 1 promotional video for the promotion of the technology <p>Patent:</p> <ul style="list-style-type: none"> Copyright for the database and online platform for rubber diseases and insect pests <p>Product:</p> <ul style="list-style-type: none"> Profile of rubber diseases and insect pests in the Philippines Databases for diagnosis of rubber diseases and insect pests Pool of plant doctors for an online rubber clinic Artificial intelligence-based, powered diagnostic clinic and monitoring system; Online database platform for information dissemination of rubber diseases and insect pests <p>People:</p> <ul style="list-style-type: none"> 1 undergraduate 1 PhDMS graduate student 1 capacity building training to promote the technology for at least 50 rubber farmers <p>Place:</p> <ul style="list-style-type: none"> Partnership with small scale rubber growers and rubber farmer's associations, DOST, LGU and SUC <p>Policy:</p> <ul style="list-style-type: none"> Certification of online platform for diagnostic and rubber clinic Protocol for reporting and disseminating information of the observed incidence of rubber diseases and insect pests 	<p>Philippine Council for Agriculture, Aquatic & Natural Resources Research & Development (DOST-PCAARRD)</p>	<p>The beneficiaries of this project are the Rubber Farmers, Rubber Cooperatives, LGU's, and SUC's in SOCCSKARGEN, Zamboanga Sibugay, Davao del Oro, Basilan, Palawan and Negros Oriental and Agusan del Sur.</p>	1-Oct-2022	30-Sep-2024	Ongoing	5,000,000	1,059,636
	Assessment of various rubber-based cropping systems for enhanced production of smallholder rubber farmers in different climatic types of the Philippines (Old Title: Assessment of Various Rubber-Based Agroforestry Models/Systems For Enhanced Production of Smallholder Rubber Farmers in Different Climatic Types of the Philippines)	Integrity of the environment and climate change adaptation and mitigation	The study on rubber-based cropping system is in order to address the identified research gap for ISP on rubber and to aligned on the development strategies of Philippine rubber industry which is to expand production and improve plantation/farm productivity by adopting new technologies and good agricultural practices as well as the intensification of R&D on rubber to improve technology on production (PhilRubber Roadmap 2020-2040). The study aims to increase the income of rubber farmers and address the issue on the decreasing and inconsistent price of rubber in the market which affects the income of rubber farmers through the rubber-based cropping system (RAS). The study will include documentation and analysis of the current RAS and provide policy recommendations in rubber traditional areas. At the end of the study, book on compendium on rubber-based agroforestry system in different agroclimatic condition will be published and disseminated, and forum will be conducted in order to enhance knowledge of smallhold farmers on this system	<p>Publication: Project press releases, brochures and leaflets about the project</p> <ul style="list-style-type: none"> One (1) Information Bulletin for Policy recommendation on rubber-based farming system One (1) technical journal One (1) Compendium of rubber-based agroforestry systems published Draft information bulletin on rubber-based agroforestry systems for PCAARRD Publication Patent: Not Applicable Product: Book on Compendium of rubber-based agroforestry systems People: Graduated 2 MSc scholars in agriculture specialized in rubber-based agroforestry and/or agricultural economics 50 participants on the forum of Rubber-Based Agroforestry System Place: At least eleven (11) PLGU coordinated for gathering of secondary data; At least eleven (7) PLGU coordinated for gathering of secondary data Policy: One (1) Policy advocacy prepared for LGUs PAO and MAO in improving smallhold rubber farmers productivity by adopting appropriate rubber-based agroforestry for their situation. 	Philippine Rubber Research Institute (DA-PRRI)	Different rubber stakeholders (rubber farmers, LGUs, NGOs, Research institutions, SUCs, other government agencies etc.)	1-Jun-2022	31-May-2024	Ongoing	4,998,099	1,160,875
	Bamboo ACTIVE Ph: Activated Carbon Through Innovation for the Vulnerable Sectors and the Entrepreneurs in the Philippines	Integrity of the environment and climate change adaptation and mitigation	Bamboo activated carbon from Philippine bamboo species will be used to develop prototype products with industrial applications. Activated carbon from bamboo are used in many applications such as for medicine, food and drinks, cosmetics and personal hygiene. In the Philippines, very little information is known about the use of our local bamboo species for the production of the abovementioned products. This project aims to determine the characteristics of activated carbon from different bamboo species and to develop products for various industrial uses, particularly in disaster-prone areas.	<p>Publication:</p> <ul style="list-style-type: none"> Local Publication 1 IEC Material (1)0 oBrochures oFlyers oVideos oPress releases, news and materials/Modules oPoster oInstructional/Training <p>Patent/Intellectual Property:</p> <ul style="list-style-type: none"> Patent/Utility model application file for bamboo activated carbon (1) Patent / Utility model application file for bamboo activated carbon hygiene products (1) Patent/utility model application file for bamboo activated carbon water filter (1) Patent/ utility model application file for bamboo activated carbon wound patch (1) Copy rights (10) oBrochures oFlyers oVideos oPress releases, news and feature articles (10-media, social media) oPoster oInstructional/Training materials/Modules Product:bamboo activated carbon (50)bamboo activated carbon hygiene products (50)bamboo activated carbon water filter (50)bamboo activated carbon wound patch (50)People and Services Trainings/seminars/workshops conducted/organized (50 pax)Place and Partnership Partner institutions and collaborating partners Project sitesMemorandum of Agreement/Understanding forged 	Forest Products Research and Development Institute (DOST-FPRDI)	Men and women in the disaster-prone areas in the country Bamboo plantation owner, bamboo industry and general public	1-Oct-2023	30-Sep-2025	Ongoing	4,999,408	2,699,704
	Bamboo LEAF Ph: Leaf Extracts Active Formulations from the Philippines	Integrity of the environment and climate change adaptation and mitigation	The Jiangxi Academy of Forestry of the People's Republic of China and the DOST-Forest Products Research and Development Institute of the Republic of the Philippines have reached the agreement to jointly apply the key international cooperation research and development projects and have agreed on the following areas of cooperation for project application of seabamboo charcoal/bamboo-based activated carbon preparation for bamboo industry and bamboo leaf active substance extraction technology in the Philippines. This research aims to develop skincare products using leaf extracts from selected bamboo species in the Philippines. Specifically, the research will focus on extracting and characterizing bamboo leaf polysaccharides, polyphenols, and flavonoids. In addition, this study will also involve prototype product development, evaluation of product effectiveness, assessment of acceptability, cost analysis, and formulation of commercialization strategies.	<p>Publication:</p> <ul style="list-style-type: none"> 1 local publication for Year 2 5 IEC materials for serum and lotion for Year 1 and Year 2 (total of 10 IEC materials) brochures flyers videos press releases posters instructional / training materials / modules and newsletters <p>Patent:</p> <ul style="list-style-type: none"> 1 Patent / UM application filed for serum for Year 2 1 Patent / UM application filed for lotion for Year 2 1 Patent / UM application filed for process of producing bamboo flavonoids and polysaccharide for Year 2 5 Copyright for IEC materials for serum and lotion for Year 1 and Year 2 (total of 10 copyrights of IEC materials) <p>Product:</p> <ul style="list-style-type: none"> 50 pieces of serum for Year 2 50 pieces of lotion for Year 2 <p>People:</p> <ul style="list-style-type: none"> Training / seminars / workshops conducted / organized (50 pax) for Year 2 <p>Place:</p> <ul style="list-style-type: none"> Established laboratories for Year 1 <p>Sino-Philippines Bamboo Research Joint Laboratory</p> <p>Partner institutions and collaborating partner for Year 1</p> <p>Jiangxi Academy of Forestry</p>	Forest Products Research and Development Institute (DOST-FPRDI)	Skincare consumers who are interested in eco-friendly and sustainable products—Skincare manufacturers and industry practitioners—Local communities and bamboo farmers who can potentially benefit from the production of bamboo leaf extracts as a value-added product—Government agencies and policymakers who may use the research findings to support sustainable and eco-friendly initiatives in the skincare industry.	1-Oct-2023	30-Sep-2025	Ongoing	4,999,816	2,553,408

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	Bamboo LIQUOR Ph: Local Innovation for Quality Use as Organic Pesticide Resources in the Philippines	Integrity of the environment and climate change adaptation and mitigation	This study aims to provide a more sustainable alternative to organic pesticides and help eradicate the infestation of insects, particularly the fall armyworm (cutworm) and onion armyworm (OAW) in local onion farms. A bamboo pyrolytic liquid (PL) formulation shall be developed and validated in the actual farm setting to test its efficacy, commercial potential, and applicability in minimizing the harmful effects of the cutworm and OAW in onion farms. This is in partnership with the Bureau of Plant Industry of the Department of Agriculture (DA-BPI). Production of bamboo PL and pesticide formulation shall be assumed by DOST-FPRDI, which includes laboratory tests and preliminary field verification. In contrast, actual field applications will be implemented by the BPI, particularly the Crop Protection and Management Division (CPMD).	Publication At least five (5) IEC materials for organic pesticide from bamboo PL (brochures, flyers, video/press releases, instructional and training materials) by the second year of the project Patent/Intellectual Property At least one (1) intellectual property right (patent, or utility model) related to the technology produced and subsequent modification, if necessary, at the end of Year 1 Copyright for IEC materials in Year 2 Product: Technology package of the bamboo PL for cutworm and OAW in Year 2 Pesticides for cutworm and OAW People and Services: At least 10 workers of the identified partner-cooperators shall be trained on how to make and apply the bamboo PL in Year 2 Place and Partnership: Agreement with partner-cooperators that shall simulate the field conditions of applying the technology in Year 2 At least three (3) partner-cooperators identified Partnership with Jangje Academy of Forestry on separation of tar and PLEstablishedPolicy	Forest Products Research and Development Institute (DOST-FPRDI)	Onion farmers Producers/Manufacturers of organic pesticides	1-Oct-2023	30-Sep-2025	Ongoing	4,954,999	2,577,500
	Biodiversity Assessment of Riparian Zone in Ulit River in Samar Island Natural Park (SINP) Kaigangan	Integrity of the environment and climate change adaptation and mitigation	This project project serves as a Re-Entry project project of Ms. Buhay, as part of her completion of the GREAT Program of DOST-PCAARRD. This is a continuation of the Conserve Kaigangan Program, which has completed the study on biodiversity of the terrestrial environment, documenting plants, animals and microbes, in 2019 (Villanueva et al., 2022; Buot et al., 2022; delos Angeles et al., 2022a; delos Angeles et al., 2022b; delos Angeles et al., 2022c; Hernandez et al., 2022; Rubite et al., 2022; Tandang et al., 2022; Villanueva et al., 2021a; Villanueva et al., 2021b; Villanueva et al., 2021c; Obesa et al., 2021; Madera et al., 2021; Tolentino et al., 2020; Fernandez et al., 2020). However, the riparian zone, has never been investigated yet this is also a very important component of the Kaigangan ecosystem, especially since typhoons and anomalous climatic changes trigger abnormal heavy rains leading to flooding and overflow of flood waters from rivers. Ulit River, the longest river in Samar Island (Ly et al., 2021), has a major contribution to the socioeconomic development of Samar Islands' local community. Ecotourism activities are present and active in the locality particularly the Tour guide and Boat Operators for Environmental Development Organization (TORPEDO), other activities such as river cruise among others. With the aggravating climate change issues largely due to anthropogenic practices, there is a need to study the riparian zones in Samar Island kaigangan. There is a need to look into the different landscape elements and land use types such as residential areas, farms, forest, grasslands, etc., along the river. It is critical to know the condition of the riparian ecosystem since the river cuts across the kaigangan forests. This 2-year research project will deliver the following outputs: 2 research articles published in refereed journals, 5 Communication, Education and Public Awareness (CEPA) Materials, 5 online press releases to publicize the project and its initiatives, 3 presentation of webinar papers, 100 herbarium vouchers, a map of the identified floral species for conservation, maintenance of the kaigangan website, database and other online platforms which bring kaigangan advocacy to the public, established partnerships with 2 peoples' organizations and 2 local academic institutions in Samar, training for PO leaders and park managers, mentoring of students and faculty members of local SUC.	Publication: 5 CEPA Materials 5 Online press releases about the project 2 Webinar paper presentations 2 research articles published in refereed journals Patent: not applicable Product: 100 herbarium vouchers 2 maps showing profile of Ulit watershed and land cover GIS generated map showing conservation priority areas zones 1 enhanced Kaigangan nursery 1 enhanced database established in Phase 1 and 2 of Kaigangan Project People: Capacity building of 10 people each in local communities in Paranas and Can-Avid Training 10 PO leaders and park managers Place and Partnership: Sustained partnership with PO's (BOSIS and TORPEDO) and local academic institutions (SSU and ESSU-Salcedo)	University of the Philippines Los Baños (UPLB)	Residents of the 2 municipalities, members of Peoples Organizations (PO's) general public, selected (*) Local Government Units (LGUs) located inside the towns of Can-avid and Paranas.	1-Aug-2023	31-Jul-2025	Ongoing	5,000,000	2,822,979
	Community-based Verification of Fiber Extraction Technology using Local Bamboo Species as a Textile Material	Integrity of the environment and climate change adaptation and mitigation	Natural fibers have a lot of advantages over synthetic fibers since natural fibers emit low pollutants, lower greenhouse gases emission, and are biodegradable. In comparison with other sources of natural fibers, bamboo have a high growth rate and can perform carbon sequestration wherein plants capture carbon from the atmosphere and store it in their biomass (leaves, branches, and pole) during their growth. Several studies showed that bamboo fibers could be reinforced with other composites to further improve the mechanical properties of bamboo fibers. Because of the abundance of bamboo species in the Philippines and its distinctive properties, PTRI develops more environment friendly processes to extract bamboo textile fibers using previous bamboo species that have been evaluated. The Philippine Textile Research Institute (PTRI) bamboo technology evaluated 12 Philippine Bamboo Species such as Anos (Schizostachyum lima, Blanco, Merr.), Bayog (Bambusa merilliana, Blanco, Merr.), Kawayang-kiling (Bambusa vulgaris, srad), Puser (Cytzochloa puser, s. drand.), Buho (Schizostachyum lumampao, Blanco, Merr.), Laak (Bambusa philippensis, sp.2), Black Bamboo (Gigantochloa atrovivacea, Widjaja), Green Buho (Schizostachyum brachycladum, Kurz), Iron Bamboo (Guadua angustifolia, Kunth), Kayali (Gigantochloa atter, Hassk, Kurz), Machiku (Dendrocalamus patiflorus, Munro) and Thailand Bamboo (Thyrsostachys siamensis, Gamble) in its GIA funded project implemented last year. Evaluation of different bamboo species for the desired properties such as spinnability, yarn count, fiber recovery, and fiber strength has been a crucial part in investigating which bamboo species is feasible as a textile material. After the assessment of bamboo species, the technology for fiber extraction will be applied at specific farm sites in Northern Luzon. This project will verify the fiber processing and extraction at the community level. The same procedure will be conducted such as mechanical extraction, alkali treatment, yarn processing, and weaving of prototype fabrics. PTRI will collaborate with local bamboo farms in Northern Luzon specifically in	Publication: Two (2) technical articles on the fiber quality of locally planted Bamboo species in Abra and Pangasinan Patent: Two (2) IP (Utility model/Industrial design for fabric rendered using the bamboo blended and natural textile fiber blended yarns) Product: At least 50kgs of bamboo fibers for each identified three (3) local Bamboo species in Abra and Pangasinan 200kgs bamboo blended yarns Two (2) prototype of fabrics developed People: Ten (10) people trained on bamboo textile fiber extraction and natural fiber treatment Place: Two (2) Memorandum of Agreement forged with local organizations in Abra and Pangasinan Policy: One (1) policy recommendation on the sustainability of bamboo raw materials for textile utilization	Philippine Textile Research Institute (DOST-PTRI)	1. Farmers/farming communities 2. Craft makers 3. Handloom weaving communities.	1-Oct-2022	30-Sep-2024	Ongoing	16,859,968	2,631,414

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARR GIA
	Conservation and Mass Production of High-yielding Falcata Seed Sources in Mindanao (Old Title Conservation and Mass Production of High-yielding Falcata Families in Mindanao (An Offshoot of Phase 1 Falcata Project "Advancement of Science for the Sustainable Conservation and Utilization of Forest Genetic Resources of Falcata and Yemane")	Integrity of the environment and climate change adaptation and mitigation	The current project (which will be referred to as Phase 2) seeks to conduct progeny selection from the Phase 1 field trials by identifying seed sources that are performing well across a wide range of sites. These progeny seed sources will be tested in different locations with the superior seed sources and more resistant to the attack of gall rust and stem borer from each site are to be conserved and mass produced. Thus, Phase 2 is based around a series of field trials via clonal seed orchard establishment, clonal seedling propagation, and seed tree stand establishment with the participation of local farmers. Phase 2 could accelerate or increase the production rate of falcata wood in the region while ensuring the sustainability of falcata tree improvement program in the country. The output of Phase 2 project will be important in the long-term eradication of underperforming or low-quality falcata populations in the country especially those being used or sold widely by tree farmers and wood industries in Mindanao. These efforts are expected to improve the wood supply in the country and hence the income of farmers engaged tree farming. This project is therefore an offshoot of Phase 1 falcata project and seeks to exploit the gains from Phase 1 through the following component activities, namely: selection of superior seed sources from Phase 1 project, F2 progeny trials via clonal seed orchard establishment, development of clonal propagation protocols for superior seed sources, seed tree stands establishment, and engaging local small-scale farmers in the region on implementation of these activities.	The project is expected to accomplish the following: Year 1: Publication Patent/Intellectual Property Product If 105 plus trees selected from 5 seed sources; If 4,000 cloned seedlings produced; If One (1) on-site learning nursery established; If One (1) experimental clonal seed orchard established; People and Services If 15 forestry students availed services of the rooting experiment and clonal seed orchard areas for their laboratory classes, special problem/thesis Places and Partnership If Two (2) barangay LGU resolutions supporting the project in their barangay; If Two (2) Memorandum of Understanding (MOU) forged between the project leader and the land-owner of the two areas for clonal seed orchard/seedstock Year 2: Publication If One (1) brochure on plus trees selection protocol produced; If One (1) training module on rooting protocol; Patent/Intellectual Property Product If 8,000 cloned seedlings produced; If One (1) on-site learning nursery established; If Two (2) experimental clonal seed orchards established; People and Services If 30 PO member tree growers trained on one competency/training; If 15 forestry students availed services of the rooting experiment and clonal seed orchard areas for their laboratory classes, special problem/thesis clonal Partnership Policy	Central Mindanao University (CMU)	Two (2) people/organizations of tree farmers consisting of 60 participants, particularly, from Talisayan (Misamis Oriental) and Balangao (Misamis Occidental) Field Trial sites, and 45 forestry students and faculty.	1-Jul-2020	30-Jun-2023	Completed	4,999,992	597,382
	Development and optimization of micropropagation protocol for selected bamboo species (Old Title: Optimization of micropropagation protocol of genetically-verified superior bamboo species)	Integrity of the environment and climate change adaptation and mitigation	Bamboos are essential non-timber forest species in the world because of their adaptability, quick physical growth and development that result to renewable materials for construction and furniture products. Growing bamboo has high economic potential. Processing bamboos into a variety of items from simple toothpicks, chopsticks, barbecue sticks, to basketware and furniture provides benefit from the bamboo culms, making business available and profitable for communities and village-level entrepreneurs. The government aims to develop bamboo plantations nationwide through the leadership of the Philippine Bamboo Industry Council (PBIC), in order to create sustainable sources of livelihood for Filipinos especially in the provinces (DTI, 2020). Government organizations such as the Ecosystem Research and Development Bureau (ERDB) in partnership with the Philippine Army, launched the Bamboo Plantation Development Project that aims to rehabilitate denuded areas in the military reservation and combat the effects of climate change (Gillado and Jimenez, 2020). Bamboos are among the fastest biomass producers that are used as alternative to wood. Thus, an increase in their consumption subsequently exerts pressure on the genetic resource. The number of species, geographic range of distribution, species and ecosystem diversity are important to determine in situ conservation programme and selection of appropriate species from good populations for ex situ conservation. 2 International funding has been focused on a relatively small set of commercially important and widely distributed priority bamboo species (Williams and Rao, 1994; Rao et al., 1998 reviewed in Thakur 2016), paving the way for genetic improvement to increase productivity. This can be achieved by comprehensive intra-specific studies on bamboos such as flowering and breeding behavior, hybridization, cytogenetics, selection of desirable population and individuals, and many more, and their application to increase productivity (Williams, 1998). Recently, trait-specific molecular and genetic information are also being used for genetic improvement. The main aim of tissue culture is to obtain true-to-type plants to maintain the germplasm, but during tissue culture, there is a chance of genetic aberration, which is commonly known as somaclonal	Publications Manuscripts on bamboo peer-reviewed journal 1 Protocol development for tissue culture for mass production 2. Genetic profiles of selected bamboo species 3. Microbial endophytes elimination for tissue culture of bamboo Patent One intellectual property rights (IPR) application for technologies/products developed from tissue culture Products Minimum of 100 Plantlets from tissue culture of each bamboo species Protocols for tissue culture of 3 bamboo species People Services Three (3) staff trained on tissue culture Places and Partnership Partnership between the College of Forestry and Natural Resources and College of Agriculture and Food Science * UPLB in the implementation of the project established Places and Partnership Draft policy recommendation on bamboo species for selection, utilization for mass propagation by tissue culture, and commercialization of tissue cultured plantlets, highlighting the appropriate evaluation of materials prior to production and commercialization of tissue cultured bamboo plantlets	University of the Philippines Los Baños (UPLB)	The results of the study will benefit various stakeholders including the forestry sector, and the DENR, in designing and implementing conservation and sustainable management of bamboos in the country. The government's National Greening Program (NGP) and other forest rehabilitation program will also benefit through the availability of increased number of bamboo planting materials through tissue culture.	16-Aug-2022	15-Aug-2024	Ongoing	3,497,070	682,487
	Development of an Efficient Rubber Tapping Devices for the Improvement of Rubber Latex Harvesting (Economic Viability of Different Tapping Devices Utilized by Tapping Workers in Rubber Latex Production)	Integrity of the environment and climate change adaptation and mitigation	Rubber tapping is an occupation with a high risk for developing carpal tunnel syndrome (CTS). Exposure to excessive ulnar deviation and wrist flexion, among other risk factors, contributes to increased carpal tunnel pressure contributing to the development of carpal tunnel syndrome (Pranmoo et al. 2018). As the rubber-producing countries today is looking towards the advent of technology to accomplish tapping operation in an effective and ergonomic way, this study is an attempt to develop and showcase such technological advancement in the field of latex harvesting. Thus, this study aims to develop and showcase different tapping knives and determine its ergonomics and economic viability to be used by tapping workers in rubber latex production.	Utility model of an efficient tapping knife, established experimental sites; Training of rubber farmers; MS Degree of PRRI staff under the GREAT program	Philippine Rubber Research Institute (DA-PRRI)	The target beneficiaries of this project are current rubber farmers i.e. rubber cooperatives, rubber farmer associations and other smallholders who will be convinced on the economic viability of using different tapping knives in rubber production after the conduct of the research project. Other target beneficiaries of this project are the concerned government offices, such as the researchers and State Universities and Colleges (SUCs) who have Income Generating Project on rubber that will be provided with alternative ways in minimizing the cost of expenses and maximizing the limited skilled men rubber tappers in the sense that women workers in rubber production can be potentially used in the area of latex harvesting.	1-Jan-2022	30-Jun-2024	Ongoing	4,622,162	1,141,928

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Development of Nursery Management and Outplanting Technique(s) for Selected Tissue Cultured Bamboo Species (Old Title: Development of Outplanting and Nursery Management Techniques of Selected Tissue Cultured Bamboo Species)	Integrity of the environment and climate change adaptation and mitigation	Bamboos are proven to be of valuable economic, sociological and commercial importance. However, with these known benefits from bamboos, constraints lie heavily on the limited availability of quality planting materials of the appropriate bamboo species. The traditional propagation using suckers, culms, and branches is quite slow. In order to address these concerns, there is a need to produce quality planting materials in mass to cope with the demand to operate the marketing of bamboo and bamboo products in a sustainable manner. Mass propagation through tissue culture of bamboo species will help address this problem. Micropropagation by tissue culture offers to be a powerful technique to rapidly mass-produce quality planting materials of bamboos. Moreover, the use of quality planting materials from tissue culture may improve the production and sustainable productivity of bamboos with better yield performance. However, survival and growth after outplanting are crucial to the success of any micropropagation protocols. An effective outplanting and nursery management may help stakeholders in extensive and cost-effective cultivation of bamboos. In addition to the use of tissue culture techniques for mass propagation, propagation using vegetative/clonal means to the established tissue cultured-bamboos in the nursery will be explored. Bakshi (undated) stated that research into innovative and rapid methods of propagation are urgently required to meet the infinite requirements for industrial plantations of bamboos. The method may contribute to further increase the propagation rate of tissue cultured plants and reduces the cost of micropropagation. The project is expected to help address the problem of lack of planting materials and support bamboo industry development. Increasing bamboo production is a strategic S&T priority (PCAARRD, 2012). Furthermore, the project will generate new knowledge in ex vitro plant propagation systems, nursery management and outplanting.	Publication: At least 2 papers presented in scientific conferences and/or published in refereed journals. Patent: 1-Outplanting and nursery management procedure for tissue cultured bambooProduct: Tissue cultured bamboo of at least four species Handered tissue cultured bamboo in the nursery of at least four species Field-demo farm of tissue cultured bambooPeople: Recommendation for filed planting of tissue culture-derived bamboos Trainings Student assistantshipPlace: LGUS, Private StakeholdersPolicy: Not applicable	Visayas State University (VSU)	The major beneficiaries are the: Bamboo growers for more livelihood opportunities. Bamboo industry -no supply of quality planting materials while maintaining the environment and forest conservation. Students and researchers as the facility will become a learning ground	1-Dec-2021	31-May-2024	Ongoing	3,990,296	866,514
	Enhancing the conservation and breeding program of the Philippine spotted deer, Rusa alfredi using molecular-based approaches for natural resiliency	Integrity of the environment and climate change adaptation and mitigation	The Philippines is a megadiverse country with high rates of endemism. One of the top biodiversity conservation priority areas in the Philippines is the Negros-Panay region as it is a home to many threatened endemic species. However, the country's unique biodiversity suffers from major threats such as habitat destruction, overexploitation, climate change, and disease-causing pathogens. Because of this, there is an urgent need of action backed by basic research to protect and nurture the existing terrestrial biodiversity of our country, especially in the Negros-Panay region. The Philippine spotted deer, Rusa alfredi, is one of the five key species of the Negros - Panay region. This deer species is only found in the Philippines and is deemed to be the rarest, least known, and most narrowly distributed deer in the world (Key, 2003). Captive-breeding program initiatives are currently being conducted by the Talarak Foundation and the Silliman University Center for Tropical Conservation Studies (CENTROP) to protect this species. However, data to enhance the captive-breeding program is scarce. Currently, there is a need to understand the genetic diversity, inbreeding levels, and the health baseline of this deer species (Rode-Margono et al., 2021). Access to this knowledge will enable us to improve the genetic stock of the captive individuals and prepare them for reintroduction to the wild. Therefore, this study would like to address those gaps by understanding the genetic diversity and screening the vulnerability of the captive-bred stock of the Philippine spotted deer in the Negros - Panay region. Specifically, to understand the phylogenetic relationship, inbreeding frequency, and the natural selection mechanism of their immune genes against extracellular pathogens.	Publication brochure about the Philippine spotted deer generate at least two (2) scientific article drafts for possible publications Products protocols for DNA barcoding of the Philippine spotted deer produce DNA barcodes, microsatellite markers, protocols for identifying and analyzing the microsatellite markers of the Philippine spotted deer produce MCH profiles for target species, protocols for identifying and analyzing the MHC genes of the Philippine spotted deer Amended breeding protocol and conservation program of the Philippine spotted deer at CENTROP. People /Services Build capacity of at least 3 faculty & staff in molecular biology and bioinformatics possible mentorship of DOST - GREAT scholars on molecular biology and bioinformatics Build capacity of at least 10 faculty & staff, undergraduate and graduate student in molecular biology and bioinformatics possible mentorship of DOST - GREAT scholars on molecular biology and bioinformatics Build capacity of at least 10 faculty & staff, undergraduate and graduate student in molecular biology and bioinformatics possible mentorship of DOST - GREAT scholars on molecular biology and bioinformatics Places and Partnership Strengthen partnership with Department of Environment and Natural Resources (DENR), academic institutions, NGOs and captive breeding facilities within Panay and Negros islands focused on the conservation and protection of endemic fauna. Enhancement of the cell and molecular laboratory of Silliman University. Information sharing with the different stakeholders (launching event) Strengthen partnership with Department of Environment and Natural Resources (DENR), academic institutions, NGOs and captive breeding facilities within Panay and Negros islands focused on the conservation and protection of endemic fauna.	Silliman University (SU)	Philippine natural heritage for present and future generations.DENR - by supporting their mandate of conserving & protecting wildlife for ecosystem integrity.Local academic institutions - by building the capacity of faculty & students to apply molecular-based approaches for conservation. Specific list of stakeholders and their roles: a.DENR, PENRO, CENRO, Regional Executive Director (RED) - Facilitation of necessary permits; policy development & implementation specific to PSD conservation program, development of plans for habitat suitability assessments, deer reintroduction, deer translocation, etc. b.Silliman University, Biology Department- implementing body- Building the capacity of faculty and students to apply molecular-based approaches or conservation. c.Silliman University - Center for Tropical Conservation Studies (CENTROP)- Conservation program amendment; provide deer samples. d.Mari-it Eco Park (West Visayas State University)- Conservation program amendment; provide deer samples. e.Talarak Foundation- Conservation program	1-Aug-2023	31-Jul-2026	Ongoing	9,218,276	3,836,092
	Etiology, Detection and Management Strategies against Pestalotiopsis Disease of Rubber	Integrity of the environment and climate change adaptation and mitigation	This project deals with the emerging Pestalotiopsis causing leaf fall disease of rubber by conducting preliminary studies on the epidemiology by determining the host range, pathogenicity, and the occurrence of disease complex involving major rubber leaf diseases and the Pestalotiopsis. This aimed to provide intervention through the development of DNA-based detections and integrative management strategies to circumvent the possible outbreak of the disease in the country towards increased rubber quality and production. The cross-infection potential of the emerging Pestalotiopsis pathogen of rubber to different plant species is important to determine to identify plant species as possible interspers and this will add to the existing knowledge on the epidemiology of the disease. The knowledge on the co-infection scenario of Pestalotiopsis with other leaf pathogens of rubber is also important for the development of effective control measures. The development of easy-to-perform molecular platforms for diagnosing pathogens is necessary for the early detection and implementation of prompt mitigation measures to prevent the spread and outbreak of the disease. Also, the development of integrative management strategies against Pestalotiopsis like screening for resistance of existing clones, and evaluation of biological and chemical-based treatments should be done to optimize effective management strategies against the emerging disease. The above concerns should be addressed through R&D programs of rubber agencies particularly the PRRI as an output of several meetings, consultations, and discussions made with TWG for Pestalotiopsis. This could have a great impact on small to large-scale rubber stakeholders. After the project's completion, the preliminary information on the biology and epidemiology of Pestalotiopsis will be determined and rapid and accurate molecular platform for the disease will be developed and cost-effective management strategies to circumvent the spread and outbreak of the disease in the country.	Publication: At least 2 scientific papers At least 1 paper presentation in a conference Patent: Patent for the DNA-based diagnostic method Patent for the integrative management strategy Product: DNA-based diagnostic for Pestalotiopsis Effective and integrative management strategy for Pestalotiopsis People: 1 MS graduate student Awareness campaign to 100 rubber farmers in Regions 9 and 12Place: Partnership with rubber farmer -s associations, SUC, DA-PRRI and other government agencies Policy: Plant health certification of Pestalotiopsis free rubber planting material and plantation Policy brief for the status and management strategies for Pestalotiopsis leaf fall disease	Philippine Rubber Research Institute (DA-PRRI)	Local farmers/plantation owners Rubber cooperatives and association Local Government Units Researchers SUC	1-May-2023	30-Apr-2025	Ongoing	5,000,000	2,794,692

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Evaluation of Philippine Bamboo Species for Textile Material (Old Title Proj. 2 Bioprospecting the Philippine Bamboo Varieties/Species for Textile Fiber)	Integrity of the environment and climate change adaptation and mitigation	Sustainability of raw material is imperative for this research and this can be through proper cultivation and management. Having the desired fiber properties at hand, the performance of the bamboo production on a per hectare basis from planting to selective harvesting until utilization will be profiled. For the Y1 bioprospecting activity of the project, the Carolina and EdFlor Garden in Antipolo, Rizal will be tagged as a partner for the different bamboo species/varieties in their possession. Initially, six (6) already identified bamboo species will be screened for year 1 and another six (6) will be screened for year 2. The selection process for candidates in year 2 will be performed in year 1 following a criteria of properties optimized for yield and processing. If not available in the same region, other provinces, e.g. Pampanga, Ilocos, Abra, and Iloilo in the Visayas all of which have robust bamboo species, will be visited for inspection of potential candidates. The project also utilize this opportunity to build relationship with potential fiber processing technology adopters during the collection of bamboo poles and extracting fiber with properties optimized specifically for textile production. It will establish a model textile fiber facility consisting of all equipment necessary for the production of bamboo fiber for textiles. The fibers will then be sent to the laboratory of PTRI for fiber testing and characterization. The extracted textile fiber for each species will be characterized for its fiber property and processability. A laboratory pretreatment trial will also be conducted using the optimized pretreatment for Kawayang Tinik. A spinnability trial will be conducted using the mini-spinning machine to determine the yarn processability of every treated fiber.	Publications One (1) Technical paper submitted to a peer-reviewed journal (Y2) Patents/IP Two (2) IPs on natural fiber blended yarns/fabric developed resulting from screened species (Y2) Products At least twelve (12) of bamboo variety profiled for fiber extraction for textile manufacturing (Y1) At least six (6) prototype bamboo fabric from the identified species/variety (Y1) People and Services 4 personnel trained for bamboo cultivation practices based on local seminars or courses available online (Y1) Process and Partnership 2 linkages forged (Y1) Social Impact Bamboo can be easily transformed into a cash crop. Hence, it helps in easing the plight of poor farmers engaged in its production. By maximizing the use of bamboo other than producing products like furniture, handicrafts and construction materials, it will help increase job creation to stimulate economic growth particularly for the marginalized sectors in the countryside. The utilization of bamboo fiber for the manufacture of yarns and fabrics will increase the demand for the fiber supply which will benefit the farmers and fiber producers. The verification of a viable process for the fiber extraction and production of treated fibers will allow our local textile industry to introduce new textile products that would cater to not only the demand of government entities but also the local markets and hopefully, penetrate the global arena. Economic Impact The emergence of local bamboo fibers will allow our textile industry to diversify and create	Philippine Textile Research Institute (DOST-PTRI)	Beneficiaries 1. Farmers/farming communities 2. Spinning mills 3. Weaving and Knitting companies 4. Handloom weaving communities 5. Fashion design industry 6. Uniform manufacturer 7. Government employee 8. Garment Producers/Retailers	1-Mar-2021	28-Feb-2023	Completed	9,998,099	1,723,277
	Evaluation of Promising Rubber Clones as Clonal Rootstocks	Integrity of the environment and climate change adaptation and mitigation	In line to the rubber industry problem related to the low productivity of the crop, selection of the seeds for rootstock is one of the factors contributing to the growth development that partly governs the yield of rubber tree. One major concern is the limited information on rootstocks that is suitable for propagation. Commonly, small-hold farmers were originally established with rootstocks from unselected sources of seeds. The use of varying unselected seeds will lead to considerable heterogeneity resulting to lower yield (Senanayake et al., 1968 as cited by Wiredo, 2015). The performance of the parent tree as the source of seeds is one thing to consider. Stock seedlings from clones with good performance producing vigorous roots is a good choice as it significantly improved the yield of the crop (Smith et al. 2008). Various promising rubber clones are newly introduced in the country and these could be a potential use as seedling stock. This study will evaluate the seedlings of these clones under nursery and field trial. Clonal rootstocks that possess commendable growth development will be recommended.	Publication: Flyers, leaflets, terminal reports, posters, journal/Patent: None/Product: None/People: Rubber farmers, nursery operators, rubber stakeholders/Place: None/Policy: Use of recommended clones as clonal rootstocks	DA Region 9	Rubber farmers Nursery operators Rubber stakeholders	1-Jul-2022	31-Dec-2024	Ongoing	4,447,660	600,740
	Field Verification of the Bamboo Textile Material Production and Treatment Technology (Old Title Proj. 1 Field Verification of the Bamboo Textile Fiber Production and Treatment Technology)	Integrity of the environment and climate change adaptation and mitigation	The bamboo fibers and fabrics that flood the market are products from the regenerated cellulose process. The downside to this process is the generation of toxic by-product gas CS ₂ poses a high risk to the people working in the manufacturing facility and also pollutes the environment. This prompted the DOST-PTRI to develop more environment-friendly processes to extract bamboo textile fibers. The methods include mechanical extraction, alkali treatment, and further mechanical processes. Bamboo fabrics are often referred to as bamboo linen possessing the characteristic grains of the extracted fibers. PTRI-developed technology on the extraction of bamboo textile fibers provides diversification and a value-adding proposition to bamboo utilization. This project will verify the technology/data and economic figures on the mainstreaming of bamboo textile fiber extraction at the community level. With as much as a 15x increase of per kilogram of bamboo when converted to fiber compared to the P5/kilo for a 20 kg, 20m pole, it hopes to ensure that the value addition is justly shared to the farmer. Areas under consideration include Terra Verde (Maragondon, Cavite) and Timpugog it Casilagan (Brgy Casilagan, Naguilian, La Union). This will include the integration of communities into bamboo fiber processing hubs where its members individually partake in gathering and fiber extraction in their homes and converge to the hub for the pooling and use of some equipment, the output then proceeds to the bench-scale treatment that renders these extracted fibers into spinnable forms ready for textile use. The community-based deployment enables the communities to partake in the most extensive material transformation thus leaving a considerable part of the value in the community as well.	Publications One (1) Technical paper submitted to a peer-reviewed journal (Y1) Patents/IP Three (3) IP filed: One (1) on natural fiber blended yarns developed resulting from community-based extraction (Y1) One (1) on modified processing condition for treatment (Y2) One (1) on machine design and fabrication for fiber extraction (Y2) Products At least two hundred (200) kg of the extracted bamboo fiber system (Y1) One (1) optimized technology verified (Y2) Ten (10) kg treated bamboo Ten (10) kg bamboo blended yarn (Y2) People and Services Twelve (12) personnel, six (6) local members from each of the communities, will be trained and educated in operating the machines and performing the fiber treatment, setting, and extraction (Y1 and Y2) Places and Partnership 2 linkages forged Social Impact Bamboo can be easily transformed into a cash crop. Hence, it helps in easing the plight of poor farmers engaged in its production. By maximizing the use of bamboo other than producing products like furniture, handicrafts and construction materials, it will help increase job creation to stimulate economic growth particularly for the marginalized sectors in the countryside. The utilization of bamboo fiber for the manufacture of yarns and fabrics will increase the demand for the fiber supply which will benefit the farmers and fiber producers. The verification of a viable process for the fiber extraction and production of treated fibers will allow our local textile industry to introduce new textile products that would cater to not only the demand of government entities but also the local markets and hopefully, penetrate the global arena.	Philippine Textile Research Institute (DOST-PTRI)	1. Farmers/farming communities 2. Spinning mills 3. Weaving and Knitting companies 4. Handloom weaving communities 5. Fashion design industry 6. Uniform manufacturer 7. Government employee 8. Garment Producers/Retailers	1-Mar-2021	28-Feb-2023	Completed	10,878,099	1,509,270

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Growth Stress Attributes and Measures to Minimize the Wood Defects of Falcata (Falcataria moluccana (Miq.) Barneby & Grimes) Old Title: Growth Stress Attributes and its Measures to Minimize the Wood Defects of Falcata (Falcataria moluccana (Miq.) Barneby & Grimes)	Integrity of the environment and climate change adaptation and mitigation	Falcata (Falcataria moluccana) (Miq.) Barneby & Grimes tree plantation in Mindanao, Philippines is one of the lucrative ventures of tree farmers. Falcata is widely planted throughout Mindanao and some parts of Visayas and Luzon islands, because of its demands for different wood products. Caraga Region, is declared as the timber corridor of the country as per DENR - DAO no. 99-13. The order supports the timber industry to enhance and develop by providing appropriate land for investment. The region has vast open land, good climatic and environmental conditions ideal for tree plantations. Tree plantations as a common commodity for many decades made this a way of life for many Caraganons. In 2011, the region contributed 60% of the production for wood of the country. Sixty-seven percent (67%) of national log production is from falcata (Falcataria moluccana) trees (FMB-DENR, 2011). It is the major crop raised in the region. Its suitability to the site as exhibited by its fast growth rate, and the high market demand for plywood, lumber, boxes and crates production that encourage more farmers into falcata tree farming. The log demand of falcata increased spontaneously because of the log ban as per Executive order no. 23 (Declaring a moratorium on the cutting and harvesting of timber in the natural and residual forests and creating the anti-illegal task force). Despite this demand the falcata tree farmer recently experienced odd market price on logs because of the log defects e.g. radial cracks at the log-end and lumber crooking during harvesting, that depreciate the value of logs during marketing and this attributes also the low recovery of wood processing. These defects can be attributed to Longitudinal growth stress. Cassens & Serrano, (2004) emphasized that Longitudinal growth stresses are present in all standing timber and cut logs. In fact, if they did not exist, trees could not maintain a vertical position. Growth stresses are not viable although they can be measured and are called growth strain (GS). When trees are felled and cut into logs and logs processed into lumber the results of growth stresses being released become evident. a study conducted by the USDA Forest service showed that on the average 12.6 percent of the potential lumber tally is lost due to multiple defects (Cahill & Canelka, 1988). <i>Consideration on the total volume per hectare of falcata</i> Agarwood is a fragrant dark resinous wood formed in the heartwood of Aquilaria trees. It occurs in Aquilaria trees of the family Thymelaeaceae, with 6-8 recognized species in the Philippines. The tree has the unique feature of producing resin-impregnated heartwood which is fragrant and economically highly valued depending on the oleoresin content of the wood. Agarwood is dubbed as <i>øwood of the Gods</i> with immense cultural significance due to its use in incense ceremonies. The studies on the biological agents in rainforest areas on the infection site of the agarwood trees revealed that the fungal microbes could be the potential agents that induce the formation of agarwood. As a response to the fungal infection, the tree produces a high resin in volatile organic compounds that aids in suppressing or retarding the growth of the fungus. As the fungi caused injury to the tree trunk, the tree underwent several biochemical reactions and produced a white, milky substance called oleoresin. Once the production of aromatic trunk or agarwood is complete, the tree slowly starts drying up, signaling its readiness to be harvested. It is understood that resin wood or agarwood is the result of oleoresin accumulation in response to fungal infection. However, little information is available on the potential fungi and its enzymatic activities that are associated with the formation of agarwood for Aquilaria species in the Philippines. However, bacterial communities were also found abundant and coexistent with fungal communities in agarwood and their role in agarwood formation were reported. Thus, the project considered also the bacterial community in our project as subject of analysis. In this circumstance, correct identification of fungi and bacteria associated with agarwood formation is imperative so as to proceed to further research work on artificial inoculation of the biological agents on Aquilaria spp. so as to produce high amounts and quality agarwood Indiscriminate harvesting of agarwood has severely affected natural regeneration of Aquilaria trees which in effect threatens the survival of the species in the wild. Thus, establishing the ability of the agarwood-forming pathogen to infect the species through artificial inoculation and reproduce similar symptoms will reduce the pressure on the natural	The Project will have the following Expected Outputs: 6Ps Metrics Publications One manuscript submitted for publication in peer reviewed journal One paper submitted for publication in peer reviewed journal Production of 200 brochure/leaflets on protocol on how to reduce/minimize falcata log defects Patents 1 submitted application for utility model for protocol on how to reduce/minimize falcata log defects Products Identified the Physical, and anatomical characteristics of 12 Falcata (both tension and normal wood) for wet season Identified the Physical, and anatomical characteristics of 24 Falcata (both tension and normal wood) for dry season Determine of the SRS and RRS of 24 trees both wet and dry season (total of 1,248 strain measurements) Two (2) experimental set up on the log treatment 1 protocol on how to reduce/minimize falcata log defects Result of benefit cost analysis of treatment to minimize defects Determined the Juvenile to Mature Wood Transition of Falcata People and Services 1 MS student mentored and 3 undergrad students mentored Places and Partnership MOU between CMU and ERDB-FWRDEC Policies 1 Policy brief about harvesting and post-harvest processing of falcata	Central Mindanao University (CMU)	Free farmers and private plantation owners in Mindanao, academics and researcher	1-Nov-2021	31-Oct-2024	Ongoing	5,000,000	988,859
	Identification of agarwood-forming pathogen in Aquilaria species in the Philippines and agarwood induction	Integrity of the environment and climate change adaptation and mitigation	Agarwood is a fragrant dark resinous wood formed in the heartwood of Aquilaria trees. It occurs in Aquilaria trees of the family Thymelaeaceae, with 6-8 recognized species in the Philippines. The tree has the unique feature of producing resin-impregnated heartwood which is fragrant and economically highly valued depending on the oleoresin content of the wood. Agarwood is dubbed as <i>øwood of the Gods</i> with immense cultural significance due to its use in incense ceremonies. The studies on the biological agents in rainforest areas on the infection site of the agarwood trees revealed that the fungal microbes could be the potential agents that induce the formation of agarwood. As a response to the fungal infection, the tree produces a high resin in volatile organic compounds that aids in suppressing or retarding the growth of the fungus. As the fungi caused injury to the tree trunk, the tree underwent several biochemical reactions and produced a white, milky substance called oleoresin. Once the production of aromatic trunk or agarwood is complete, the tree slowly starts drying up, signaling its readiness to be harvested. It is understood that resin wood or agarwood is the result of oleoresin accumulation in response to fungal infection. However, little information is available on the potential fungi and its enzymatic activities that are associated with the formation of agarwood for Aquilaria species in the Philippines. However, bacterial communities were also found abundant and coexistent with fungal communities in agarwood and their role in agarwood formation were reported. Thus, the project considered also the bacterial community in our project as subject of analysis. In this circumstance, correct identification of fungi and bacteria associated with agarwood formation is imperative so as to proceed to further research work on artificial inoculation of the biological agents on Aquilaria spp. so as to produce high amounts and quality agarwood Indiscriminate harvesting of agarwood has severely affected natural regeneration of Aquilaria trees which in effect threatens the survival of the species in the wild. Thus, establishing the ability of the agarwood-forming pathogen to infect the species through artificial inoculation and reproduce similar symptoms will reduce the pressure on the natural	6PsPublicationYear 1 & 2 Infographic material on agarwood formation Infographic on agarwood 2. 2 publishable article in refereed/ISI journal Year 2 1 application for PPR on agarwood induction tech ProductsYear 1 & 2 2. Partial list of fungal and bacterial strains/species in agarwood of Aquilaria Accession codes for deposited DNA sequences of fungal/bacterial strains/species in agarwood Year 2 Complete list of fungal and bacterial strains/species in agarwood of Aquilaria Protocol on artificial agarwood production People Services Year 1 & 2 3MS students (Forestry, Biology, Molecular Biology or Biotechnology/Microbiology) assisted by the project in the conduct of the study 1 Staff trained on molecular and microbiology techniques Places and Partnership Year 1 & 2 Continued partnership with FWRDEC-ERDB-DENR; Established partnership with selected State Universities/Colleges with similar research work; Established Collaboration with industry and private associations on Aquilaria tree farming 2Economic Impact Provision of additional income to tree farmers involved in agarwood collection and be able to assist industries venturing on artificial agarwood production and trade. Based on our potential collaboration with tree farm associations and other private industries, we are targeting a minimum of around 300 member farmers and interested potential investors. Social Impact	University of the Philippines Los Baños (UPLB)	Local communities, DENR, research and academic institutions, tree farmers/growers, industry	1-Aug-2023	31-Jul-2025	Ongoing	11,121,413	8,392,289
	Integration of Traditional and Modern Bioproduction Systems for Sustainable and Resilient Future Under Climate Ecosystems Changes (ITMCb)	Integrity of the environment and climate change adaptation and mitigation	Consistent with the global and regional efforts towards pursuing a more sustainable and climate resilient development pathways, the Philippine's National Climate Change Action Plan (NCCAP) comprehensively addresses the primary goal of increasing natural ecosystems' resilience to climate change to promote a climate risk-resilient Philippines. The NCCAP identified seven strategic priorities to sustainable and climate resilient development pathways. These are food security, water sufficiency, environmental and ecological stability, human security, climate-friendly industries and services, sustainable energy, and knowledge and capacity development. (Climate Change Commission 2011). This project is a multilateral cooperative research between Japan, Indonesia and the Philippines under the e-ASIA Joint Research Project. However, the outputs enumerated in this project is exclusive to the Philippines only and hopes to contribute to the goal of NCCAP.	Database of traditional and modern bioproduction systems in Japan, Philippines and Indonesia jointly developed by participating research team and made accessible online to other researchers following a specific protocol. Framework document co-developed by project partners from Japan, Philippines and Indonesia and validated by key stakeholders detailing the process of creating multiple scenarios of bioproduction systems to determine sustainable and resilient future under climate and ecosystem changes. The framework can also guide the scaling up of the project to other areas in the participating countries for broader impacts. Analytical report on the detailed assessment and predicted impacts on selected bioproduction systems under multiple future scenarios in the project areas in the context of climate change, demographic change and land-use change from 2021 to 2050. Assessment report on the changes in ecosystem services in the project areas produced by selected modern and traditional bioproduction systems under multiple scenarios indicating the potential synergies and tradeoffs between ecosystem services. List of interventions in the project sites to optimize ecosystem services within each scenario based on modeling outputs and consultations with different stakeholders. Workable networking and communication platform developed and institutionalized among project partners in Japan, Philippines and Indonesia like shared data base, project websites, and project output dissemination plan that provides research outputs, policy recommendations, and training materials available to relevant stakeholders.	University of the Philippines Los Baños (UPLB)	Researchers, academics, and students working on climate change, land use and demographic changes, and ecosystem services Policymakers working on the environment and food security issues Decision-makers like LGUs, national government agencies, and civil society involved in climate change adaptation and mitigation and ecosystem services especially those operating in the project areas Private sectors and development agents with investments/development interventions in the project sites Local communities depending on ecosystem services in the project areas	16-Oct-2021	15-Oct-2024	Ongoing	17,405,392	5,851,394

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status 'As of December 31, 2023'	Total Project Cost	2023 PCAARRD GIA
	Landslide Susceptibility Analysis, Monitoring, Mapping and Early Warning Systems for Selected Areas in the Cordillera Administrative Region	Integrity of the environment and climate change adaptation and mitigation	Landslides has become a major threat in CAR. Almost yearly, landslides occur induced by storms or major typhoons. Many occur outside of local residences and villages thus avoiding casualties and other adverse impacts. Occasionally, landslides occur in population centers often resulting in significant losses of lives and infrastructures, including buildings, roads, bridges and others. Because of the potential for extensive damage and high risk of lives when landslides occur, systematic efforts to investigate concepts and frameworks for forecasting landslides must be developed. This will help in better understanding of landslides and the causal factors that cause or trigger their occurrence. This project offers a strategic approach to addressing landslides by focusing on the root causes, the trigger factors, and the likelihood or probability of occurrences and the causes. Such knowledge, once generated by the Project, will allow better understanding of the phenomena and its dynamics, and ultimately enables the development of early warning systems. Such an early warning system enables agencies and local organizations to be better prepared, better informed, and affords them the opportunity to be proactive before and during the onset of major storm events, which appear to be the triggering event when landslides occur. Such capability ultimately provides better safety for the local communities, and potential economic benefits to local governments by minimizing economic costs of reconstruction if no mitigative actions are undertaken. Such actions can be planned in advance if adequate advisories can be provided by the early warning system which is one of the ultimate outputs of this project.	Publications Two (2) Publishable articles submitted (5S and for SCOPUS Journal) Patents/IP Copyrighted project brochures Patent application for LIM on Landslide EWS developed Product 1 geographic database and platform on landslide EWS developed; copyrighted project brochures 1 Landslide Early Warning System prototype developed People Services 9 trainings for technical staff and 80 professionals (PMDRRM and PMPPO Officers and researchers) on landslides GIS mapping and database development; landslide inventory survey spatial data generation; analytical tools modeling and mapping; rainfall-induced thresholds development and landslide EWS development conducted Places and Partnership	Benquet State University (BSU)	Some of the more notable beneficiaries of the Project are: the local government units such as DRRMO and Planning and Development Office and their local constituents who are likely to benefit from the early warning systems and the likelihood that preemptive plans can be put in place in terms of proper advisories that can be given to them in advance or prior to the likelihood of landslide occurrence. Other beneficiaries also include professionals who are trained on the different concepts, principles, and tools in landslide assessment, monitoring and early warning systems.	1-Nov-2022	31-Oct-2024	Ongoing	4,999,442	1,205,610
	Latex Yield Evaluation of Conventional (S/2) and Novel (S/4) Rubber Tapping Systems	Integrity of the environment and climate change adaptation and mitigation	Some rubber producing countries like Thailand, Indonesia, India, and China introduced reduce tapping intensity (reduced tapping cut length) or Low Frequency Tapping (LFT) with the target to get the same yield per land unit and increase the tapping labour productivity. Therefore, each tapper can be allocated to greater number of trees resulting in reduced tapper requirement when compared with the traditional tapping system. Tapping system described by which a combination of the portion of the trunk covered by the tapping spiral usually half (S/2), third (S/3) or fourth (S/4) spiral, and the tapping frequency like d2 (one day tap and one day rest), and d3 (one day tap and two days rest) (Vijayakumar K.R., et. al. 2009). However, the tapping panel management recommended by other countries to allow possible tapping period of at least 25 years on virgin bark with d3, d4 or d5 tapping frequencies combined with tapping spiral S3 or S4 is accompanied by use of yield stimulants (2-chloroethylphosphonic acid or ethephon). They also practiced upward tapping using S4 tapping system after the first 10 years of downward tapping in BO-I and BO-II using S2 tapping system. In the Philippines low frequency harvesting system has not been tested. Thus, Latex Yield Evaluation of Conventional (S/2) and Novel (S/4) Rubber Tapping Systems will be conducted to evaluate and compare the two tapping systems in terms of latex yield, cost-effectiveness and farmers' acceptability.	Information in the efficiency of novel S/2 tapping system; Manual on Low frequency Tapping systems; Trainings; Policy advocacy	Philippine Rubber Research Institute (DA-PRRI)	The beneficiaries of this project are the Rubber Farmers and their household members, Rubber Cooperatives, Rubber Association, LGU's and SUCs in Zamboanga Sibugay and North Cotabato.	1-Jan-2022	30-Jun-2024	Ongoing	5,000,000	2,375,075
	Localized Conservation Strategies of Plant Resources in Forests over Limestone of Samar Island	Integrity of the environment and climate change adaptation and mitigation	Setting conservation priorities is essential in biodiversity conservation since not all plant species had been assessed by IUCN and the national committee on Red List. This helps identify the taxa that need to be targeted for conservation with local communities taking active part. Thus, a list of conservation priorities provides knowledge on plants that need to be targeted for regulation and wise utilization by the local communities in Samar before these are overharvested and eventually become extinct. It is also a crucial step in creating conservation strategies for the species and ecosystems, given the limited financial resources allocated in any conservation efforts. It can give the planners, resource managers, and local people essential information on local biological diversity of cultural and economic importance (Brehm et al., 2010). Moreover, this approach can also be used in identifying the priority areas for conservation (Chanthavong and Buot, 2019). This project will also provide an equal opportunity for men and women in the local communities to actively participate in addressing biodiversity decline. The conservation priority setting is instrumental for the formulation of science-based strategies on sustainable use and conservation of biodiversity. The local policy will be formulated alongside consultations among stakeholders from different sectors. We hope to contribute to SDGs 5 (Gender equality), 6 (Clean water), 11 (Sustainable cities and communities), 12 (Responsible consumption and production), 13 (Climate Action), 15 (Life on land) and 17 (Partnership to achieve goal).	Publication: Preparation of 2 research articles for publication in refereed journals. The articles will be based on the outcomes of this research project. Communication, Education and Public Awareness (CEPA) materials Patent: N/A Product: N/A People: Training for PO leaders and park managers Mentoring of students and faculty members of SUCs Place: Three municipalities/study sites, partnership with PO's (BOSIS and TORPEDO) and local academic institutions (SSU and ESSU-Sabedod) Policy: Local policy for the assessed plant species and gender roles on conservation	University of the Philippines Los Baños (UPLB)	Residents of the four municipalities, members of Peoples Organizations (PO's) general public, Local Government Units (LGUs) of Paranas, Talt, and Guiuan	1-Jan-2022	31-Dec-2023	Completed	5,000,000	1,761,846

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Management of White Root Rot (Rigidoporus lignosus) Using Endophytic Fungi from the Roots of Healthy Rubber Tree	Integrity of the environment and climate change adaptation and mitigation	White root rot of rubber is the most serious disease affecting in almost all rubber clones resulting in severe loss of production. The infective fungal organism of the white root rot disease is Rigidoporus lignosus (klozsch) Imazeki. It is the main cause of rubber tree losses with 40-60% of the trees destroyed over a period of 21 years. White root rot of rubber is being controlled using chemical fungicides. Aside from additional production cost, the continuous use of chemicals becomes a public concern due to its detrimental effect in the environment. With the increasing awareness on environment conservation, it is vital to develop disease management technique which is environment-friendly and reduces the use of chemicals. Using biological control technique is an attempt to reduce the use of chemicals. Fungal endophytes are considered as potential candidate for biological control agent. Therefore, this project will provide information on the diversity of fungal endophytes associated in the roots of healthy rubber and screening for its potential antifungal activities to manage and control white root rot as biofungicide. Mass production of potential fungal endophytes as biofungicide against white root rot disease of rubber may lead to economical disease control that could increase farmers income.	Publications Year 1 - 1 information bulletin/brochure on white root rot of rubber Year 2 - 1 article for publication in a refereed journal - 1 handbook guide on white root rot disease of rubber and biological control measure Patents At least one (1) patentable product (biofungicide formulation) using endophytic fungi Products - At least one (1) Formulated Endophytic Fungi as biofungicide - At least 1 demo farm for field trials/experiments on the efficacy formulated biological control agent against white root rot disease on rubber People and Services Year 1 Thesis conducted of at least 1 selected undergraduate student and at least 1 Graduate Student on the isolation and screening of endophytic fungi against WRR. Year 2 At least 1 information caravan conducted on the information dissemination of the new technology. Places and Partnerships Year 1 - Partnership and collaborations with rubber farmer cooperators, SUCs, DA-RFO, and LGU's - At least 1 plantation sites per region for disease survey - At least 1 plantation sites per region for collection of healthy rubber roots as source of endophytic fungi. Year 2 - Partnership and collaborations with rubber farmer cooperators, SUCs, DA-RFOs and LGU's	DA Region 11	The results of this study will be useful to rubber growers especially in small-scale areas, agro-based industries, state universities and colleges, cooperatives and peoples' organization that into rubber venture. This also generate and benefit students especially agriculture practitioners that is interested in this new knowledge and information on endophytic fungi and its benefit to disease control.	1-Oct-2021	31-Mar-2024	Ongoing	5,000,000	953,704
	Mangrove-sediment-microorganism carbon dynamics to enhanced CO2 sequestration capacity of Mangrove forests	Integrity of the environment and climate change adaptation and mitigation	Mangrove ecosystems are one of the most critical ecosystems along continental margins that provide valuable economic and ecological services. Because of the vital ecological services, vulnerable coastal communities strongly depend on the fishery resources available in mangrove ecosystems. These ecosystems function as nursery grounds and food sources for both terrestrial and aquatic fauna (SDG 14 & 15), support livelihoods (SDG 2), and protect coastal areas against disasters caused by typhoons, hurricanes, and tsunamis (SDG 13). Among tropical wetlands, mangrove forests have the highest carbon stock, and 49-98% of this carbon stock is stored in their sediments. The high carbon stock is a result of the high net primary productivity of mangroves, and their location in depositional areas also makes them effective traps of organic matter inputs from the terrestrial and marine environments. Mangrove ecosystems are efficient carbon sinks due to their high capacity for long-term carbon sequestration through the burial of OC in sediments. However, the mechanisms of the burial of OC in mangrove sediments and the microbial community in mangrove sediments remain poorly understood and thus remain elusive. Thus, understanding the mangrove-sediment-microorganisms carbon dynamics is an integral component in the conservation and rehabilitation of mangrove ecosystems in the Philippines that are indispensable in climate regulation to help counterbalance the anthropogenic carbon emissions. Beyond evaluation, this research will provide baseline information on mangrove-sediment-microorganism carbon dynamics in Philippine mangroves important in understanding the long-term carbon sequestration, flux/cycling, and feedback and this project can contribute to providing data and information on mangrove sequestration capacity of mangroves as input to the country's National Determined Contributions (NDC) being submitted by the Philippine government to the UNFCCC.	Policy Publication Project brochures and flyers Press releases on the progress of the project Three (3) Publications in ISI-indexed journals related to environmental, monitoring, assessment and conservation Presentation of results in national or international conferences People and Services Trained project staff and involved LGU's MENO Staff on mangrove-sediment-microorganisms carbon dynamics data gathering, monitoring and analysis. One (1) PhD, two (2) MS thesis and 5 undergraduate thesis supported. Places and Partnerships MOAs/MOJs re collaboration with DENR-ERDB-PWERDEC, Surigao State College of Technology, Caraga State University, Southern Leyte State University, MSU-Iligan Institute of Technology, and Surigao del Sur State University and Hinatuan, Coron and Masain City LGU Partnership with academe forged through student training and thesis assistance Patents/IP Copyright of a training manual on mangrove-sediment-microorganisms carbon dynamics data gathering, monitoring and analysis Patent application for CO2-CH4 flux model incorporating microbial activity, dissolution-degassing, carbonation and litter production-decomposition Product Process, knowledge/know-how/information on mangrove-sediment-microorganisms carbon dynamics Training manual training on mangrove-sediment-microorganisms carbon dynamics data gathering, monitoring and analysis	Southern Leyte State University (SLSU)	1. Researchers * researchers involved in this project will be able to produce scientific publications and assist them in capacity-building integral in nation building. 2. Local government units, government agencies, non-government, organizations, HEIs * this project will serve as baseline information for policy formulation of government agencies and local government units in managing and understanding the importance of mangrove in carbon sequestration. 3. Philippine government * provide data and information on sequestration capacity of mangroves as input to the country's NATIONAL DETERMINED CONTRIBUTION (NDC) being submitted by Philippine government to the UNFCCC.	1-Jul-2023	30-Jun-2025	Ongoing	4,993,612	2,634,192
	Morphological, Anatomical, and Physio-Mechanical Properties of Lesser-Used Bamboo Species in the Philippines	Integrity of the environment and climate change adaptation and mitigation	The bamboo of the Poaceae family has been well known with many names such as poor man's timber and poor man's lumber, until the time that it became conventional and popular changing its alias to: grass of hope, grass of life, grass of thousand uses, green steel, green gold. The bamboo grass has many uses such as: source of food, construction material, hygiene, medicine, fodder, fuel, paper, fabric industry, household products, raw materials of craft, accessories, scaffolding, instrument for acoustics, floorings, board, panels, and roofing (Hossain et al., 2016). Due to its pliability, incredible growth rate, convenience, and numerous uses, it has become to be one of the most important Non-Timber Forest Products (NTFPs) that greatly affects the daily life of people living within the forest area (Ravindra et al., 2019). The morphological properties could help determine the volume of usable pole and provide a better commercial prospect. On the other hand, anatomical properties are important to determine the suitability of the species for paper making and other end-uses. Lastly, the mechanical and physical properties of lesser-used bamboo species (LUBs) is essential for structural uses where strength is critical (Razal, 2013). According to Abdullah et al. (2017) density and shrinkage properties are vital factors for determining the suitability of bamboo for various application, with density associated with mechanical properties. Bamboo as construction and engineering material has gained an impact in architecture and aesthetics. Since its renewable, environment friendly and extensively available it became a substitute building material, concurrent to the wood resources in the forest which are diminishing, and imposed laws restricts and limits the use of trees (Raj & Agarwal, 2014). Due to its rapid growth rate, bamboo species can adapt to most climatic conditions and due its incredible properties it became a very suitable alternative. Determining the morphological, anatomical, and physico-mechanical properties of LUBs can help identify the range of application for better utilization and efficiency in managing our resources.	Publication ISI publications on the morphological, anatomical, and physico-mechanical properties of lesser-used bamboo species grown in the Philippines/Leaflet/brochure on properties of lesser-used species of bamboo grown in the Philippines and proto-type product using the lesser-used bamboo species/Patent: naProduct: Information on the morphological, anatomical and physical properties of selected lesser-used bamboo species People: The target beneficiaries (bamboo growers, plantation growers (DENR, developer), Bamboo industry) will benefit on the result/information generated in this project/Places and Partnership: Memorandum of Agreement between DOST-FPRD and DENR - ERDB/Policy: Research results will serve as significant inputs in the formulation of policies/rules and regulation for utilizing lesser used bamboo for various uses such as construction materials, furniture, handicrafts/engineered bamboo, etc.	Forest Products Research and Development Institute (DOST-FPRD)	Community bamboo farmers Plantation grower Bamboo industry	1-May-2022	30-Apr-2024	Ongoing	4,999,173	2,224,226

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Pest and Disease Incidence and Severity in Falcata Plantations in Mindanao	Integrity of the environment and climate change adaptation and mitigation	<p>This project is designed as an initial inquiry or evaluation of pests and diseases incidence and severity associated with Falcata plantations in Mindanao. The main goal is to generate empirical data as basis for IPDM system development and future detailed studies of pests and diseases control and management in Falcata plantations. The empirical data to be generated in this project will be achieved through the systematic sampling of Falcata plantations at various elevation ranges in five regions (i.e. Regions 9, 10, 11, 12, and CARAGA) in Mindanao where plantation forestry is a major source of livelihood for many smallholder farmers.</p> <p>Since the project covers multi-location, the involvement of experts from other SUCs/agencies such as ERDB-FWRDEC and University of Southeastern Philippines (USEP) will be tapped. ERDB-FWRDEC will be responsible in the implementation of the project in CARAGA region, while USEP will lead the project implementation in Regions 11 and 12. The participation of these partner SUCs/Agencies will ensure the simultaneous collection of data especially incidence and severity data and micro-climate data. As the lead agency, CMU will be responsible in the overall coordination and implementation of the project to ensure that the objectives or target outputs of the project are met. Aside from the overall coordination, CMU will handle the implementation of the project in Regions 9 and 10.</p> <p>The empirical data in this project will be generated through established methods and techniques in the parameterization of pests and diseases incidence and severity and will follow usual protocols in the conduct of field surveys such as courtesy calls with plantations owners and reconnaissance survey (Figure 1). The methods and techniques to be used will cover four major activities that include, (i) site characterization, (ii) quantification of incidence and severity of pests and diseases, (iii) geospatial analysis and map generation of pests and diseases incidence and severity, (iv) and statistical modeling looking at the main effects of different site factors and management systems and their two-way interactions on the incidence and severity of Falcata pests and diseases in the five regions. The data and information generated will be used as basis to identify options to control and manage the</p>	<p>Publication One (1) paper is submitted for publication in scientific journal</p> <p>Product 5 Falcata plantations for each of the 5 elevation ranges in Regions 9, 10, 11, 12, and CARAGA are identified and selected. 125 plantation sites visited 123 sampling plots are established and geotagged. 123 sampling plots are sampled and characterized 123 samples (for insect, soil, and understory vegetation) collected, analyzed or identified in the laboratory Five data sets are consolidated, encoded, verified, and summarized 6 sets of secondary information on environmental variables are collected for the 5 Regions. One progress report submitted</p> <p>Year 2 150 sampling plots are established and geotagged. 150 sampling plots are sampled and characterized 150 samples (for insect, soil, and understory vegetation) collected, analyzed, or identified in the laboratory Five data sets are consolidated, encoded, verified, and summarized One progress report submitted</p> <p>Year 3 102 sampling plots are established and geotagged. 102 sampling plots are sampled and characterized 102 samples (for insect, soil, and understory vegetation) collected, analyzed or identified in the laboratory Five data sets are consolidated, encoded, verified, and summarized Geospatial analysis for five data sets conducted Geospatial and statistical results are summarized and discussed. Five candidate statistical models pests and diseases incidence and severity are generated Five (5) maps on pests and diseases incidence and severity are generated</p>	Central Mindanao University (CMU), Ecosystems Research and Development Bureau (DENR-ERDB), University of Southeastern Philippines (USEP)	At least five (5) people/organizations of tree farmers and five (5) regional offices in Regions 9, 10, 11, 12, and CARAGA, tree farmers and private plantation owners in Mindanao.	1-Jun-2021	31-May-2024	Ongoing	20,000,000	5,634,691
	Production and Biodiversity Conservation of Wild Tea Plants in Mountain Province	Integrity of the environment and climate change adaptation and mitigation	<p>In Mountain Province, five plants are consumed as tea and are generally called and considered as wild tea. These wild teas are present in different municipalities, namely: Cinnamomum mercedoi S. Vidal locally called okumayogend Gaultheria leucocarpa var. cumingiana (S.Vidal) known locally as otayugotog Barlig; the Clausena sanki (Perr.) J.F. Molino var. molis (Merr.) J.F. Molino known as ogumotog found in the boundaries of Bauko; Descaeperrum fruticosum (J.R. Forst and G. Forst) in Bontoc that locals call mountain tea; and Glycymis pentaphylla growing in Sagada with a local name of oltzer. Local communities gather the leaves from the wild and consume them as tea. The natives claim that they use it as local medicine such as to ease diarrhea or any stomach pain and prevent coughs and colds. In addition, Nasungan (2022) has also reported that these wild tea plants have the potential as antioxidant, antibacterial and antitumor sensing values. This project aims to assess the diversity and ethnobotanical importance of the wild tea plants their morphological characteristics including species distribution, habitat and site suitability assessment and mapping. In addition, the project will also examine their propagation, production, and management. Moreover, the project will also analyze biodiversity conservation and management strategies for selected wild tea plant species to ensure their sustainability, management, and use. Such strategies include exploring and mapping their distribution, studying their habitat, and studying the site suitability where they are likely to grow well. Finally, the project will also conduct feasibility studies to examine the technical and financial viability of wild tea products, along with a value-chain analysis that will examine the production efficiencies of the wild tea products and the potential entry points for subsequent development of a tea business industry for Mountain Province.</p>	<p>1. Publication: Draft IEC materials like technology guides for production of artisanal products and field guides on selected wild tea plants- 3 articles submitted for publication in the last year of the project such as the ethnobotanical assessment, morphological characterization and standardization of processing methods for quality selected wild tea; 2. Patent: - 3 copyrights of the research studies 2 copyrights of the 2 research studies specifically on the ethnobotanical assessment, morphological characterization and 1 copy copyright of the developed on-field guides of the selected wild tea plant species submitted; 3. Product: - 3 wild tea products developed on the last year, specifically the last quarter of the year 2.4. People and Services: - 1 capacity building training on processing and production techniques on year 2. - 1 capacity building activities on the propagation techniques of the wild tea plants on year 2.5. Place and Partnership: - 1 coordination with government agencies like DTI etc. for support in financing and regulation on year 2. - 1 partnership with LGUs for the conservation of the wild tea plants on year 16. Policy: - 1 policy recommendation regarding the wild tea conservation and management on year 2.</p>	Mountain Province State Polytechnic College (MPSPC)	The target beneficiaries of this project are those who are organic tea drinkers especially the health-conscious ones and all other customers who will patronize the products, tea growers who are willing to propagate the wild tea plant species, profit sharing for the distribution channels that will link our products to our customers (tea drinkers) and during the production of the product, employees that will be hired for the production management. Tea growers will be provided training on plant propagation and field management to enhance their knowledge of crop production while some will be trained in product development processing. These measures would not only enable the tea growers to meet the growing demand for products sourced from sustainable and responsible farming, but also improve the yields and productivity on their lands. Specifically, the beneficiaries include: - local government units of Mountain Province - MPSPC - Indigenous Peoples of Mountain Province - Micro Small and Medium Enterprises (MSMEs) - DENR-PENRO	1-Dec-2023	30-Nov-2025	Ongoing	4,410,873	2,479,257
	Project 1. Inventory and Assessment of Flora and Fauna, and Macrofungi in Mt. Banahaw de Lucban (MT. BANAHAW DE LUCBAN BIODIVERSITY ASSESSMENT, VALUATION AND CONSERVATION PROGRAM)	Integrity of the environment and climate change adaptation and mitigation	<p>This research is one of the component projects of the program of SLSU titled "Mt. Banahaw de Lucban Biodiversity Assessment, Valuation and Conservation Program". This program was initiated by the Southern Luzon State University (SLSU) as part of their responsibilities as steward of Mt. Banahaw San Cristobal Protected Landscape, one of the remaining forested areas in Luzon.</p>	<p>Year 1 Publications Draft GIS maps of the locations of assessed flora, fauna and macrofungi in MBdL. People and Services One (1) graduate student and one (1) undergraduate student trained in the inventory and GIS mapping of the locations of flora, fauna and macrofungi in MBdL. Places and Partnership At least one (1) MOA/MOU with selected stakeholders (LGUs, POs and DENR)</p> <p>Year 2 Publications At least one (1) publication either in a peer-reviewed journal article (ISI-indexed, SCOPUS, Thomson Reuters, etc.), book, or instructional material Patents Application for patent on the habitat suitability maps of species indigenous to MBdL. Products GIS map locations of flora, fauna, and macrofungi in MBdL. Updated information on the conservation status of flora and fauna species in MBdL. People and Services One (1) graduate student and one (1) undergraduate student trained in the inventory and GIS mapping of the locations of flora, fauna and macrofungi in MBdL. Places and Partnership At least one (1) MOA/MOU with selected stakeholders (LGUs, POs and DENR)</p>	Southern Luzon State University (SLSU)	Students, faculty researchers; nursery personnel; tree farmers, decision-makers; Government Institutions (DENR, PAMB, LGUs); Non-Government Institutions (NGO, POs); SLSU; Students; other academic institutions (SUCs); Researchers; Local communities/stakeholders of MBSGPL and vicinities.	1-Apr-2021	31-Mar-2023	Completed	4,999,926	33,590

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Resource Assessment and Utilization of Indigenous Fruit Trees in CALABARZON (Old Title: Resource Assessment and Propagation of Underutilized Indigenous Fruit Trees for Natural Food Colorant, and Flavoring Agent)	Integrity of the environment and climate change adaptation and mitigation	The project will focus on the propagation and utilization of native trees which will result in increased awareness and knowledge of their economic importance thereby enhancing the conservation of these species. This project aims to collect and determine the distribution of the fruit trees above in CALABARZON; conduct ethnobotanical and market survey on the traditional and current use of these indigenous fruit trees; and establish protocol for the propagation of these indigenous fruit trees in nurseries. Moreover, this project aims to determine the phytochemical components of above-mentioned indigenous fruit trees; optimize the processing of natural colorant, and flavoring agents in the form of powder, puree and syrup from indigenous fruit trees using the UPLB-DOST Food Innovation facilities (i.e. spray, freeze and cabinet dryers, can, pouch and vacuum sealers, and water retort); and determine their functional properties and potential application as natural colorant or flavoring agent in yoghurt and yoghurt drinks, baked products, beverages, confectionary, and meat products. Ultimately, we will recommend which plant species can be conserved or protected for their potential economic values based on the studies conducted.	1.Draft policy brief/input on natural food colorant and flavoring agent from indigenous fruit trees, their exploration, conservation, propagation, wise utilization, trade and development 2.Optimized processing conditions for natural food colorant and flavoring agent from indigenous fruit trees 3.Optimized protocol for the propagation of the selected indigenous fruit trees	University of the Philippines Los Baños (UPLB)	Various stakeholders, Tree Farmers/Growers, Farmer organizations, LGUs and NGOs, Students, Filipino Consumers.	1-Aug-2021	31-Jul-2024	Ongoing	5,000,000	629,663
	Screening of Potential Endophytes as Biocontrol Agent Against Major and Emerging Diseases of Rubber (Old Title: Development of Biodiversity-based Management Strategies Utilizing Endophytes as Biocontrol Agent Against Major and Emerging Leaf Disease of Rubber)	Integrity of the environment and climate change adaptation and mitigation	Chemical, genetic and cultural practices have been used so far for the control of these diseases, but none has provided sufficient and economical methods for desired results. With the increasing concern in conserving the environment, and reducing the risk of health impact due to pesticides, it is imperative to develop sustainable disease management strategy with emphasis on reducing the use of chemicals such as the exploration of biological control agent utilizing endophytic fungi. Endophytes are considered as excellent candidate for biological control which exist ubiquitously in plant hosts which may provide defense mechanisms against pests, pathogens and adverse environmental conditions (Puig and Cumagun, 2019). Hence, this study was conceptualized.	At the end of the project, the following are the expected outputs: 1. Quantified disease severity of major and emerging leaf diseases of rubber in the different plantation areas/locations in North Cotabato. 2. Collected at least 100 endophytic fungi associated with rubber in North Cotabato. 3. Determined at least 1 effective endophyte (in vitro and in vivo) and determined mode of action (mycoparasitism, antibiosis, production of volatile compounds) against leaf diseases of rubber. 4. Identified effective endophytic fungi and generated DNA sequences and pure culture of the microorganism to be deposited in the database and culture databank. 5. Confirmed the endophytic nature/endophytism of at least 1 effective endophytes: the proof of an effective/potential biological control agent	University of Southern Mindanao (USM)	The results of this project will be beneficial to rubber growers both in nursery and small-scale areas, other agro-based industries, different government agencies such as DOST, DA. The information on antagonistic microorganisms generated in this project will also benefit the students, scientists, and other agriculture practitioners and will be recognized as new information in science particularly in plant health both for national and international levels.	1-May-2021	31-Oct-2023	Completed	5,000,000	372,832
	Spore Morphology, Ex-situ Conservation and Utilization of Mindanao Indigenous Pteridophytes	Integrity of the environment and climate change adaptation and mitigation	This research will elucidate the spore morphology of pteridophytes in Mindanao using the Scanning Electron Microscopy (SEM) to solve some taxonomic problems and show phylogenetic relationship of the families, genera and species. Importantly, this project will mass propagate, conserve and utilize the pteridophytes in participation with selected indigenous groups.	Publication: 2 scientific papers published CEPA on In-situ and Ex-situ conservatio Patent: 1 Utility Model (Patent) on protocol for ex-situ conservation Product: (40%) Spore SEM images of 120 species of ferns and lycophytes (60%) Spore SEM images of 180 species of ferns and lycophytes People: 3 forest guards/focal researchers per site trained as members of the research team 2 personnel/research assistants trained 2 biology graduate students mentored 1 manager/mentor organized for the Marobo-Tigwahahan in Bukidnon and Marobo-Matigagalog in Marilog District, Davao City Policy: Science-based policy recommendations for conservation management and development	Central Mindanao University (CMU)	The beneficiaries of this research include barangays around the selected mountain ecosystems, officials of the LGU's, and DENR Protected Area Management Board, forest guards, Marobo-Tigwahahan in Bukidnon and Marobo-Matigagalog in Marilog, Davao City, conservationists, hobbyists, TLDC researchers, academic institutions and policy makers.	1-Feb-2022	31-Jan-2024	Ongoing	4,997,147	1,974,415
	Validation of Molecular Markers for Identification of Cacao HYVs, Criollo Types and Disease Resistant Varieties through Marker-assisted Breeding	Integrity of the environment and climate change adaptation and mitigation	Cacao is an economically important crop worldwide due to its strong domestic and export market demand by various industries. Cacao production in the Philippines is constrained by several factors including low production attributed to planting of low to average yielding cultivars, pests and diseases and fewer area of cacao production. There is a great need to increase production to meet global demand. To increase cacao production in the country, efforts are exerted towards increasing the area of production for cacao and by planting high yielding varieties. The National Seed Industry Council (NSIC) recommends high yielding cacao varieties for production. In commercial nurseries, these recommended varieties appear morphologically similar. Thus, the use of the desired high yielding varieties is compromised due to difficulty in visually identifying planting materials of the genuine variety in the nurseries. There is need to utilize the SSR markers that we generated in our PCAARRD-funded project to validate NSIC cacao recommended varieties. This is to guarantee that farmers use the correct high yielding varieties for increased cacao production and income. The completed cacao project has also produced functional SSR markers that differentiate true Criollo cacao types from non-Criollo cacao accessions. Criollo is one of the most cultivated varieties worldwide and the most favored cacao variety due to its fine flavor and aroma. In the Philippines, there are numerous collections claimed as Criollo but these accessions have not been verified as true Criollo type. There is a need to validate the claimed Criollo types in different regions in the country using the SSR markers. This is to identify the true Criollo types for utilization in clonal propagation for Criollo cacao production and as parents in cacao breeding. The completed cacao project has also identified SSR markers that are associated with resistance to VSD-causal pathogen Lasiodiplodia theobromae and phytophthora disease causal pathogen Phytophthora palmivora. There is a need to validate these molecular markers in cacao breeding populations and clones. This will facilitate the identification of cacao	Publications Year 2 At least 3 scientific papers At least 2 paper presentations in conferences People and Services Year 1 2 undergraduate and 2 MS graduate students Year 2 2 undergraduate and 2 MS graduate students Training of at least 8 BPNSQSC staff/personnel Product Year 1-2 SSR markers for utility in plant certification agencies SSR markers to identify true Criollo cacao types Year 2 Cacao cultivars with resistance to VSD and/or phytophthora disease Patent Year 2 Utility model for cacao NSIC recommended variety identification and certification Places and Partnerships Year 12 : Partnership with Bureau of Plant Industry (BPI) Policies Utilization of molecular technology and certification of true NSIC cacao varieties and Criollo types as requirement in BPI certification policy/protocol 2b Social Impact	University of Southern Mindanao (USM)	The beneficiaries include cacao breeders, cacao farmers, cacao plantation growers, nursery owners, cacao bean processors, cacao industry consumers and government agencies such as Bureau of Plant Industry and DOST-PCAARRD for the product and technology.	1-May-2021	30-Apr-2023	Completed	5,000,000	810,353

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Development of a Framework for Resource Management, Mitigation of Impacts, and Guidance Towards Rational Utilization of <i>Mytella strigata</i> in the Philippines	Project 1. The fishery, socio-economic aspect, and governance of <i>Mytella strigata</i> in Philippine waters	Integrity of the environment and climate change adaptation and mitigation	A DOST-PCAARRD-funded study showed that <i>Mytella strigata</i> , a non-indigenous mussel species, has infested Philippine waters (Monteciaro et al., 2021). The same reported that the occurrence of this novel species has become both a boon and a bane among local communities in coastal areas of the country. <i>M. strigata</i> has emerged as a source of human food and has demonstrated the potential of being a source of income for local communities. The caveat, however, is that the non-indigenous species has caused negative impacts in other communities particularly in areas where shellfish harvesting and farming are considered traditional livelihood activities. The non-indigenous species have been shown to outcompete local shellfish commodities, resulting in decreased production of cultured shellfish, and loss of livelihood. This study, therefore, aims to develop draft recommendations on the management of <i>Mytella strigata</i> in the country and guidance on the utilization of <i>M. strigata</i> , especially in areas where infestation has occurred. This is to help prevent the spread of the indigenous mussel species in non-infested sites and, for those who utilize the resource, to ensure that these products are safe for consumers.	<p>Publication:</p> <ul style="list-style-type: none"> 2 manuscripts submitted to WoS- or Scopus-indexed journals; 2 brochures on <i>M. strigata</i> <p>Patent/IP:</p> <ul style="list-style-type: none"> 1 copyright for published material <p>Products:</p> <ul style="list-style-type: none"> 1 Occurrence and Vulnerability GIS Map 1 website developed; 1 video documentary on <i>M. strigata</i> in the Philippines <p>People and Services:</p> <ul style="list-style-type: none"> 3 MS and/or BS students supported through their thesis/ special problem; 1 scientific meeting conducted 1 consultative meeting with DENR and other key agencies <p>Place and Partnership:</p> <ul style="list-style-type: none"> 3 MOUs/MOAs inked with NGAs/Academe (i.e., BFAR/NFRDI, DENR, MSU, Naawan) <p>Policy:</p> <ul style="list-style-type: none"> 1 policy paper submitted to relevant agencies <p>Social Impact:</p> <ul style="list-style-type: none"> Sustainable utilization of mussel resources <p>Economic Impact:</p> <ul style="list-style-type: none"> Livelihood protection (for shellfish farmers) and livelihood promotion (for residents in infested areas) 	University of the Philippines Visayas (UPV)	Target beneficiaries of the project are shellfish farmers, collectors, and vendors, local government units, national government agencies (DENR, BFAR), peoples' organizations, industries, mentored students and young researchers from the academe.	1-Apr-2023	31-Mar-2025	Ongoing	7,396,286	4,324,056
Development of a Framework for Resource Management, Mitigation of Impacts, and Guidance Towards Rational Utilization of <i>Mytella strigata</i> in the Philippines	Project 2. Biological and Ecological Aspects, and Socioeconomic Impact of the Non-Indigenous Mussel, <i>Mytella strigata</i> , in Newly Infested Area	Integrity of the environment and climate change adaptation and mitigation	<i>Mytella strigata</i> , a possibly invasive mussel, was recorded for the first time in the Philippines in 2014. It established populations throughout the country's major islands and eventually spread to the southern region of the country in just seven years (i.e., Luzon, Panay, and Mindanao). To develop effective policies for the management and potential use of biological invasions, knowledge of the species' biology and ecology, effects on native species, and socioeconomic effects is essential. Because we still know very little about this species, this study project aims to fill in knowledge gaps about its biology, the affecting biophysical conditions, and socioeconomic implications in Pangul Bay, southern Philippines. This would result in the formulation of policy recommendations on the management and possible utilization of this non-indigenous mussel species which would serve as a model/reference site. Ultimately, the expected outcome of the project is to improve the resilience and adaptive capacity of local communities in the country considering this biological invasion.	<p>Publications</p> <ul style="list-style-type: none"> 3 scientific papers submitted for publication 1 IEC material produced <p>Patents/Intellectual Property</p> <ul style="list-style-type: none"> 1 copyright for the pamphlet <p>Product</p> <ul style="list-style-type: none"> 1 Distribution map of <i>M. strigata</i> in Pangul Bay 2 Initial information on reproductive and population dynamics of <i>M. strigata</i> <p>People and Services</p> <ul style="list-style-type: none"> 1 Graduate student (MS) 3 Undergraduate students 1 Training on monitoring and surveillance (at least 10 participants) 1 Graduate student (MS) 2 Undergraduate students <p>Place and Partnership</p> <ul style="list-style-type: none"> 4 MOAs signed: (3) LGUs and (1) DA-BFAR X <p>Policy</p> <ul style="list-style-type: none"> 1 Policy recommendation on the management and mitigation options for the occurrence of <i>Mytella strigata</i> in Pangul Bay 	Mindanao State University (MSU)-Naawan	The target beneficiaries of the project are fisherfolks, local government units (municipal and provincial), peoples', organizations, industries, academe, regional offices of national government agencies (DA-BFAR and DENR), and non-government organizations operating within the jurisdiction of the study area.	1-Mar-2023	28-Feb-2025	Ongoing	4,996,967	2,790,921
Development of a Framework for Resource Management, Mitigation of Impacts, and Guidance Towards Rational Utilization of <i>Mytella strigata</i> in the Philippines	Project 3. Pest to Feed: The Potential Use of Invasive Mussel <i>Mytella strigata</i> as Wet and Dry Feeds	Integrity of the environment and climate change adaptation and mitigation	The non-indigenous mussel <i>Mytella strigata</i> was first recorded in the country 8 years ago. To date, this species is of interest to many experts for it spread exponentially and affects other marine species. Research efforts are focused on the species' biological invasions, information on the biology and ecology of the species, its impacts on native species, and socio-economic impacts and possible utilization of the species. This project aims to explore the potential use of <i>Mytella strigata</i> as feed and mineral supplement to broiler and layer chicken because aside from it being non-indigenous, information on its utilization as animal feed is very limited. The positive results of this study would also provide good inputs to the poultry feed industry since protein feed source like fish meal is primarily the most expensive feedstuff. The potential outcome of the study is to contribute to the decision support system and management plan on the possible utilization of non-indigenous mussel <i>Mytella strigata</i> . And at the same time possibly provide a cheaper feed source for poultry and crab.	<p>Publication</p> <ul style="list-style-type: none"> 3 presentation in scientific fora 3 published articles At Least 1 IEC materials on mussel as feeds <p>Patent</p> <ul style="list-style-type: none"> 1 potential patent on <i>Mytella strigata</i> meal processing and utilization as animal feed <p>Product</p> <ul style="list-style-type: none"> Information the proximate composition of <i>Mytella strigata</i> Formulated feeds for trials Mussel as dry and wet feeds <p>People and Services</p> <ul style="list-style-type: none"> Participation and mentoring of at least 2 undergraduate students 2 Trainings on the utilization of mussel (<i>M. strigata</i>) as feeds <p>Places and Partnership</p> <ul style="list-style-type: none"> Partnership with 3 LGUs Partnership with 3 farmers/people's organizations Partnership with DA-BFAR X supported by a memorandum of agreement. <p>Policy</p> <ul style="list-style-type: none"> Policy recommendation on the utilization of non-indigenous mussel species <i>M. strigata</i> as feeds 	Mindanao State University (MSU)-Naawan	The target beneficiaries of the projects are the following: Broiler and mangrove crab farmers Government agencies such as DA-BFAR, LGUs and other stakeholders Farmers of asian green mussel, oyster, and crab- indirectly they will benefit to the positive results of this study Researchers of related fields and undergraduate students	1-Mar-2023	28-Feb-2025	Ongoing	5,296,209	3,445,086

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Enhancement of Milkfish Aquaculture Productivity through Genomics (Bangus Aquaculture Enhancement through Genomics and Unified Sciences (BANGUS))	Project 1. Milkfish Broodstock Development and Management	Integrity of the environment and climate change adaptation and mitigation	In spite of the availability of well-established milkfish hatchery technologies and the implementation of local government programs to increase milkfish seed production, the milkfish aquaculture industry remains to be reliant on the wild fishery for its seedstock requirements (Garcia et al. 2019). While there are some government and private hatcheries that are able to support the Philippine milkfish industry, the supply of seedstock could not meet the demand and the farmers still resort to the use of imported hatchery-bred milkfish fry either from Indonesia or Taiwan. The shortage of milkfish fry/fingerling supply is a problem that could be addressed through the administration of improved broodstock feeds, the adoption of optimized feeding schemes, appropriate water quality management and more importantly through genetic means (in particular, increased effective population size, broodstock selection, management and genetic stock improvement). Since it takes years for milkfish broodstock to mature in captivity, a more practical approach would be to determine the genetic quality of the current, actively breeding stocks in a milkfish hatchery and assess how this is correlated with their on-farm breeding performance.	Year 1: Milkfish broodstock management/hatchery/nursery practices documented and will serve as reference information for both science and policy-based interventions to improve milkfish seed production in the Philippines Year 2: Genetic information on milkfish brood stock used in the major Philippine milkfish hatcheries will be available (genetic variability data from actively spawning broodstock will be generated, extent of inbreeding determined from biomolecular marker data and genetic markers for detecting quality seedstock developed. Loci involved in genetic sex determination in milkfish will be characterized. Validation of sex-determining loci will be performed Year 3: Genetic structure of current local hatchery populations as inferred from microsatellite marker information correlated with reproductive performance traits, better genetic stocks identified, hatchery-specific broodstock development and management schemes formulated and recommended for use; scientific publications apart from the genetic database shall be written and made available Sex identification based on immature individuals based on genotype will be performed SNP profile of two generations of milkfish will be produced Product SNP and additional microsatellite markers for milkfish will be developed. Loci that could be targeted for early sex determination will be determined. Also, novel markers can be used for stock enhancement and marker assisted selection. Patent Protocol on early detection for sex in milkfish Policy Genetic profile of milkfish stocks will be established. This will be used to identify best hatchery practices Publication At least two manuscripts (research articles) will be submitted to scientific journals for	University of the Philippines Diliman (UPD)	The results of this study shall benefit the Milkfish hatchery operators, milkfish growers, students, fellow researchers	1-Feb-2021	31-Jan-2024	Ongoing	24,912,505	6,314,586
Enhancement of Milkfish Aquaculture Productivity through Genomics (Bangus Aquaculture Enhancement through Genomics and Unified Sciences (BANGUS))	Project 2. Developing Genomic Resources for Improved Production Traits in Hatchery-bred Milkfish	Integrity of the environment and climate change adaptation and mitigation	Seafood has a fundamental role in meeting current and future food needs. In view of the overexploitation and decline of capture fisheries, aquaculture production increasingly contributes to food supply and security. An important food fish in Southeast Asia, the milkfish (Chanos chanos, Family Chanidae) has a centuries-long history of farming in the region. In the Philippines, milkfish production is almost exclusively sourced from aquaculture, and is the leading aquaculture species in both production volume and economic value. However, hatchery production of seedstock is considered inadequate to supply industry needs, and continued improvements in scale, efficiency, and sustainability of aquaculture are essential. One strategy to improve aquaculture production is through genetic improvement of milkfish hatchery broodstock. Growth performance is considered one of the key production traits for selection programs in aquaculture. The development of genomic resources for milkfish, and characterization of the genetic determinants for growth performance are of scientific and commercial interest and are fundamental towards the development of marker-assisted selection protocols for broodstock management, selection, and improvement. The project will employ high-throughput sequencing of the milkfish genome and transcriptome to investigate the genomic basis of growth performance, and identify putative molecular markers such as candidate genes/gene regions and allelic variants. Identification of putative markers will be essential for the development of marker-assisted selection methods and genetic improvement of milkfish broodstock to enhance milkfish aquaculture production.	1 Profiling milkfish gene expression for growth performance through transcriptome sequencing and identification of growth-related genes/transcripts 2 Identified genetic variants putatively associated with growth performance; 3 Discovery of putative molecular markers (genes, genetic variants) associated with growth performance for phenotype selection.	University of the Philippines Diliman (UPD)	1. Stakeholders in the milkfish aquaculture industry (government, private sector) may benefit from the development of molecular markers for genetic improvement of hatchery broodstock; 2. Local researchers (research staff, graduate students) who will be provided opportunities for further training in advanced methods for genomic analysis and bioinformatic analysis; 3. The research/scientific community in general as results from these studies will provide further avenues for research related to milkfish genomics, biology, aquaculture, and resources management	1-Feb-2021	30-Nov-2024	Ongoing	22,256,906	2,820,344
Genomic Technologies for Improved Production of Penaeus monodon	Project 1. Validation of genetic markers associated with body weight in the tiger shrimp Penaeus monodon	Integrity of the environment and climate change adaptation and mitigation	This project is a sequel to a previous project implemented under the DOST-PCAARRD-funded Tiger Shrimp Genomics Program and is part of a longer-term effort that aims to capitalize on genomic technologies to enhance P. monodon production in the country. The previous project succeeded in generating a draft genome assembly for P. monodon and, in collaboration with SEAFDEC/AQD and UPV, in identifying candidate markers (based on single nucleotide polymorphisms, or SNPs) for body weight / growth. This project represents the next phase of the effort and will focus on the validation of the genetic markers through studies to be implemented in collaboration with a commercial P. monodon farm. This will enable the project to evaluate and confirm the performance of the markers under an environment that is representative of industry-based culture operations.	Publication 1 scientific paper published in an international refereed journal Patent/Intellectual Property Intellectual property application on genotypic markers for P. monodon body weight Product A set of genotypic markers for P. monodon body weight People Service Training of 1 MS student Place and Partnership Partnership with 1 P. monodon farm operator	University of the Philippines Diliman (UPD)	The direct target beneficiaries of the project are P. monodon farm operators who will be enabled by the genotyping technology to increase their production through selection and use of genetically higher-quality broodstock. The whole P. monodon-based industry (fisheries, aquaculture, processing, export) also stands to benefit from the increased production of the farms.	16-Sep-2023	15-Sep-2025	Ongoing	8,440,919	4,783,334
Genomic Technologies for Improved Production of Penaeus monodon	Project 2. Targeting Essential Genes Utilizing RNA Interference to Mitigate WSSV in tiger shrimp	Integrity of the environment and climate change adaptation and mitigation	Shrimp production has been one of the major contributors to the country's economy and an essential source of food. In the effort of controlling White Spot Syndrome Virus (WSSV) in shrimp, the study aims to gain a deeper understanding of host-virus interactions, targeting genes that may play a role in the infectivity or pathogenicity of WSSV. This project will focus on available information in the published database (e.g. GenBank), in published reports, and in previous studies such as the recently concluded Tiger Shrimp Genomics Program. This study will capitalize on the previous results of the previous projects the researchers have implemented. Specifically, in Project 1 (Mass production of dsRNA to mitigate WSSV infection in shrimp) where a VP9, a viral non-structural gene was identified to have therapeutic potential against WSSV infection. Project 2 (Application of genomics in the development of genome-wide markers linked to production traits in Penaeus monodon) has initially identified potential markers for WSSV resistance. These previous data/processes can be utilized as a springboard in identifying genes for this project. In addition, this project will innovate and develop existing methodologies for local applications to control and/or neutralize WSSV such as the in vivo and in vitro utilization of RNA interference (RNAi).	Publication 2 publications in an international-refereed journal 1-IEC material 1-Manual for dsRNA production Place and partnership MOA with MSU-IT People and Services 3 Undergraduate and 2 Graduate students supported Product/Process Low-cost dsRNA production system	University of Santo Tomas (UST)	Shrimp farmers, Biotech Laboratories, Aquaculture industry, Research students, Academe	16-Sep-2023	15-Sep-2025	Ongoing	8,475,864	5,007,932

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
MECO-TECO	Role of Type VI Secretion System during Shrimp Infection of <i>Vibrio</i> spp. –causing Acute Hepatopancreatic Necrosis Disease (AHPND)	Integrity of the environment and climate change adaptation and mitigation	This project will investigate the potential role of Type VI Secretion System encoded by <i>Vibrio</i> -causing AHPND during shrimp infection. It has been shown that AHPND is caused by plasmid-encoded binary toxins V. parahaemolyticus Photorhabdus insect-related toxins (PirAVP and PirBVP). However, little is known about the pathogenicity and it remains unknown whether other virulent factors are present that might play important roles during shrimp infection. Interestingly, comparative genome sequence analysis revealed that Type VI Secretion System (T6SS) is the differentiating factor between AHPND-causing V. parahaemolyticus strains (AHPNDVP) and non-AHPND strains. Only AHPNDVP strains encode T6SS; the V. parahaemolyticus not causing AHPND does not have T6SS. T6SS is a nanomachine used by gram-negative bacteria to inhibit the growth and kill by injecting toxins into target bacteria or eukaryotic cells. To date, all of the studies on the disease-causing mechanism is on V. parahaemolyticus. Recently, however, other AHPND-causing <i>Vibrio</i> spp. were identified from affected shrimp populations, such as <i>V. Harvey</i> (Kondo et al., 2015), <i>V. owensii</i> (Lu et al., 2018), <i>V. campbellii</i> (Dong et al., 2017) and <i>V. punensis</i> (Restrepo et al., 2018). There is very limited AHPND-related information available for these strains. This study aims to extend our understanding on how <i>Vibrio</i> spp. causing AHPND colonize and thrive in the shrimp.	Publication 2 publications 1 Indexed Conference presentation People and Services Trained staff: NFRDI: 1 Science Research Specialist 1 Project Staff 1 undergraduate/ graduate students (OJT/ internship/ thesis advisee) Places and partnership MOA with Academia Sinica: Dr. Em-Min Lai Dr. Chih-Hong Kuo MOA with UP Diliman PGC Core Facility for Bioinformatics SEAFDEC Aquaculture Department	National Fisheries Research and Development Institute (DA-NFRDI)	P. vannaime and P. monodon farms/growers, Aquatic animal health researchers, T6SS scientists/research community, NFRDI technical staff	1-Jan-2022	31-Dec-2024	Ongoing	9,675,131	2,194,958
Nursery of Eel Enhancement and Development Program	Development of Brackishwater Nursery Culture Systems for Tropical Anguillid Eel <i>Anguilla marmorata</i> in the Philippines	Integrity of the environment and climate change adaptation and mitigation	Due to the decline of the larval fishery of Japanese eel, other tropical anguillid species such as <i>Anguilla bicolor pacifica</i> and <i>Anguilla marmorata</i> which are richly found in Philippine estuaries were utilized as an alternative to satisfy the gaps in the market for the endangered <i>A. japonica</i> . In the Philippines, the requirement for an eel to be exported is at the size of 15 cm. Eel nursery growers follow the technique of culturing temperate eels for growing tropical eel species in the country. These culture systems require high capital input which only big businessmen in the country can afford. However, earlier studies prove that <i>A. marmorata</i> and <i>A. bicolor pacifica</i> can grow in higher water salinities. Thus, culture in brackishwater or seawater for the nursery of eel is possible for an economically feasible approach. This project aims to develop a brackishwater fishpond-based nursery system for Anguillid Eel, <i>Anguilla marmorata</i> in the Philippines. It involves the identification of optimum stocking density of glass eels that would result in maximum survival and optimization of a feeding scheme for the larvae reared in the nursery conditions.	Publication: 2 science journal publications Patent: Protocols on brackishwater-based nursery system for glass eel Product: 1 product related to eel nursery growing People: Support 2 undergraduate and 2 MS students/Place: 3, Industry and 4 academic partner/Policy: N/A	University of the Philippines Visayas (UPV)	Fisher (sk)/traders/Feed industry, Researchers/Scientists, the general public and science in general.	1-Jun-2022	31-May-2024	Ongoing	8,721,638	4,510,819
Nursery of Eel Enhancement and Development Program	Glass Eel Early Weaning and Nursery Grow-Out Operations	Integrity of the environment and climate change adaptation and mitigation	The project will conduct research on early weaning and nursery rearing grow-out operation to develop protocol and policy recommendation on stock enhancement through aquaculture. This effort ensures sustainability and increase in production that would help the industry in moving forward.	Publication: Effect of different salinity and stocking density in pre-nursery rearing of glass eel Patent: Protocols on green water technology; Protocols on cyclic feeding scheme for glass eel during early weaning and nursery rearing stage Product: Protocols on eel Pre-Nursery and Nursery Rearing People: Symposium, Training/Seminar-workshop on eel Pre-Nursery and Nursery Rearing, 2 undergraduate student Place: Local Government Unit, Small Scale Private Farm, Bureau of Fisheries and Aquatic Resources D1 (BFAR R01), UPV, ISFSC Policy: Policy Brief on Eel Stock Enhancement Through Aquaculture	Mariano Marcos State University (MMSU)	Glass eel gatherers, glass eel traders, eel growers, extension workers and researchers, policy makers/regulators	1-Jun-2022	31-May-2024	Ongoing	9,453,394	1,727,960
Nursery of Eel Enhancement and Development Program	Nursery Rearing Performance of glass eel <i>Anguilla marmorata</i> in Pond-Based Culture System	Integrity of the environment and climate change adaptation and mitigation	Philippines is one of the few areas in the world where high-value species of eels thrive, making the country in a better position of becoming a major producer of eel. Locally, freshwater eels are locally known as <i>okasil</i> , <i>dagat</i> or <i>oepalos</i> and they usually thrive most of the rivers and estuaries of the country. Although there were already reported preliminary studies (Cramer, 1976, Rickards et al., 1976, Jessop, 2000, Leander et al., 2012, Wei-dong et al., 2013) conducted specially abroad which showed positive results and some eel farms are already established in the country, the protocols on rearing were still unknown since these were considered as trade secrets, that hinders advancement, dissemination and application of knowledge into technology in the country that could help build the eel industry in the country. Thus, the project was conceptualized.	Publication: 3 posters and 2 scientific papers Patent: Protocols for improved pre-weaning diets of glass eel in tank-based culture system Protocols for improved nursery rearing performance from glass eels to eelers in pond-based culture system Product: n/a/People: 3 BS in Fisheries Students Place: Memorandum of Understanding on Research Collaboration between Isabela State University (ISU) and Bureau of Fisheries and Aquatic Resources-Region 02 (BFAR-R02), Memorandum of Agreement between ISU and Department of Science and Technology (DOST) Policy: n/a	Isabela State University (ISU)	The target beneficiaries of the research will be as follows: Aquaculture industry –no fish farmers may use the results of this project for commercial production of glass eels. Research institutions –no results of the study will give insights to researchers about the potentials of nursery stage of glass eels in pond-based culture system. Academic institutions –no students and professors will acquire new knowledge on the benefits of the nursery stage of glass eels in pond-based culture system. Government agencies/ policy makers- the results of this study can be used by the policy makers in the formulation of guidelines and regulations on nursery stage of glass eels in pond-based culture system.	1-Apr-2022	31-Mar-2024	Ongoing	8,600,163	3,415,087
	A Valorisation of Agri-Fishery Materials Using Opportune Science (AVAMOS): Nanomaterials from mussel shells for agri-aquaculture applications	Integrity of the environment and climate change adaptation and mitigation	AVAMOS, which stands for A Valorisation of Agri-Fisheries Materials using Opportune Science, is a registered trademark of UP Visayas researchers whose goal is to transform low value and/or waste materials into high value biobased materials. It abides by the principles of green chemistry and circular economy in implementing such transformations, and will showcase the application of these principles on mussel shells. For this project, AVAMOS considers key aspects in valorisation strategies such as proximity of mussel shell waste generators to the valorisation facility and proximity to where the resulting products have a market. UPV developed technologies for the processing of mussel meal. Other companies are also producing fish paste out of mussels. These activities can potentially generate tons of shells as byproducts which can be processed by AVAMOS into products for potential use in agriculture and aquaculture farms in the region. Thus, the specific tasks in this project include the use mussel shells as nanoadsorbents for the removal and/or recovery of excess nitrogen and phosphorus from aquaculture effluents and synthesize nano-hydroxyapatite from mussel shells for agriculture or aquaculture use. The outlined tasks hope to demonstrate the strength of interdisciplinary work to ensure that innovation anchored on green nanotechnology processes and circular economy is translated into positive impact to society.	Publication 1 scientific paper on the product development. 1 abstract in conferences 1 conference posters 1 scientific paper on life cycle assessment of developed product. 1 abstract in conferences 1 conference posters 2 technical manuals/guides 2 technical specifications 2 training modules Patent/ Intellectual Property 2 UM applications (process of producing nano-hydroxyapatite and process of preparing calcium hydroxide) 2 trademarks applied Product 1 biofilter matrix powder 1 process of synthesizing calcium hydroxide nanoparticles 1 slow-release fertilizer powder 1 process of producing nano-hydroxyapatite 1 website People and Services 3 BS or MS students involved 5 researchers trained 2 invention disclosure report 2 prior art search report Place and Partnership 1 Collaborative Research Agreement with an aquaculture farm operator Policy 1 policy recommendation input on the integrated use of mussel waste products to support the creation of livelihoods.	University of the Philippines Visayas (UPV)	Mussel Producers, Mussel Processors, aquaculture farm operators, Nanofertilizer developers and consumers, Academia	1-Jan-2023	31-Dec-2024	Ongoing	4,937,122	2,853,943

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Capability Enhancement of Local Laboratories in the Determination of Inorganic Toxic Elements in Aquacultured Milkfish through Proficiency Testing Scheme	Integrity of the environment and climate change adaptation and mitigation	To support the enhancement of the capability of the local testing laboratories in the Philippines for the measurement of inorganic toxic element in fish, a proficiency testing (PT) scheme will be organized during the duration of the project. Milkfish is the chosen matrix as it is among major species produced in the Philippine aquaculture fisheries. While the toxic elements to be analyzed are lead, cadmium, arsenic and mercury. These toxic elements have been identified in the Focus group discussion conducted with the local testing laboratories.	Publication: One (1) presentation in scientific fora/conference Patent: Not applicable Product: Year 1 a. Four (4) validated method: for GF-AAS for Pb and Cd, HVG-AAS for As, and DMA for Hg in milkfish b. One (1) proficiency test item for toxic elements in milkfish Year 2 a. Four (4) validated ICP-MS method: for toxic elements Pb, Cd, As, Hg in milk fish People: Year 1 Two (2) staff trained on chemical test and analysis Year 2 PT scheme for toxic elements in milk fish (pre-and post-PT) Place: Bureau of Plant Industry (BPI) and other PT participants Policy: Not applicable	Industrial Technology Development Institute (DOST-ITDI)	Local testing laboratories are the primary beneficiaries of this project as support will be given through local PT provision. PTs are generally procured internationally because of the unavailability of PT providers for inorganic contaminants in the country. Prepared PT items will also support the QA/QC systems for method validation and internal quality control of these laboratories. Collaboration with the Philippine Accreditation Bureau (PAB) and Philippine Metrology, Standards, Testing & Quality (PhilMSTQ) enhance the involvement of these laboratories. In response ISO/IEC 17025:2017 requirement, the PAB LA/SR01-Supplementary Requirements on Participation to Proficiency Testing Programs states that, "A laboratory shall participate in at least one (1) PT for each major area which accreditation is being sought and the validity of the PT participation shall be maximum of two (2) years prior to application for accreditation." [24]. With this, cost savings are projected if there is a local provider, like the Metrology in Chemistry, for PTs and RMs.	1-Dec-2021	31-May-2024	Ongoing	4,999,999	988,668
	Conservation and Aquaculture Research and Development Project for <i>Glossogobius giuris</i> (Biyang Puti) in Naujan Lake (GoBy Project)	Integrity of the environment and climate change adaptation and mitigation	<i>Glossogobius giuris</i> (Bar-eyed Goby, White Goby) is an anadromous species of goby that are widely exploited for food in many countries. It is also used as an aquarium species and can attain a maximum size of 30-45 cm. In the Philippines, it is known to occur in rivers and inland lakes such as Laguna Lake, Taal Lake, Lake Mainit, and Lake Lanao, and Naujan Lake. From Naujan Lake, the fish is processed into dried fish. Relative to the fresh fish as food, dried baya is considered a delicacy fetching higher prices and adding value to fishermen's economic gains. There is, however, an equivocal taxonomic identity of the species. Recent studies on genetic diversity of <i>G. giuris</i> using isozyme, indicated high diversity among populations indicating limited gene flow between populations pointing to the need for area-based conservation measures for the species (Ardestani et al., 2014). Given the amphidromous nature of the taxa (Larson et al., 2016), and its wide distribution (Dhin et al., 2017), population dynamics may be assumed stable. Fish catch survey within the lake done by Urate et al. (2016) however, showed seasonality of catch possibly indicate dwindling population. This project will contribute to the growing body of knowledge on the biology and ecology of the species towards its conservation. Aspects of aquaculture towards the development of cultivation protocols will be dealt with in relation to its biology. Overall, this project is anticipated to contribute to the biodiversity conservation measures for Naujan Lake National Park with a balanced view of the species ecology and its commercial potentials.	The project is expected to provide baseline for the conservation and management of Naujan Goby population as well as develop the basic protocol for pond culture of the species. 6Ps Publications 3 Scientific Papers; 5 Presentations; 1 book; 2 Information Bulletins People and Services 1 graduate and 6 undergraduate thesis students; at least 10 aquaculture farmers Places and Partnerships Mindanao State University Marawi (MSU Marawi), University of the Philippines Diliman Philippine Genomics Center (UPD-PGC), UP-MSL, Naujan Lake Protected Area Management Board (NLPAMB), Provincial Government of Oriental Mindoro (PGORM), Bureau of Fisheries and Aquatic Resources MMARoPa (BFAR MMARoPa), and University of the Philippines Los Baños (UPLB) Policy link with communities and the Naujan Lake Protected Area Management Board (PAMB) for presentation of the possible Social Impact rarity of the goby species in Naujan Lake 2b Economic Impact technology development in aquaculture of the species will increase options for livelihood for 10 cooperating farmers People and Services Fisherfolk community will develop the attitude to conserve and achieve the harvesting of goby as a sustainable bioresource.	Mindoro State University (MindSU)	The project will benefit the academe for producing basis for population study. This project will benefit fish farmers of the 30 BFAR-registered aquaculture farms in Oriental Mindoro who are target adopters of the technology. The students of the Institute of Fisheries of MinSCAT will also be benefited through enhancement of technical skills on fish breeding and aquaculture production of white goby.	1-Jan-2021	31-Dec-2023	Completed	10,946,618	1,627,513
	Development and Provision of Proficiency Test Scheme in Shrimp Product for Local Microbiological Laboratories	Integrity of the environment and climate change adaptation and mitigation	This project aims to assist the shrimp industry by developing quality control materials for microbiological testing laboratories in the country. It is recognized that laboratory testing is an integral part in ensuring food safety through accurate measurement. The DOST-ITDI, through the National Metrology Laboratory, has developed its capability in the field of biological metrology for microbial measurement by developing of a microbiological proficiency test (PT) materials and the provision of PT schemes for local laboratories. This is in response to the need for local PT providers in the country. This project will develop the PT material, <i>Salmonella</i> sp. and APC in frozen, shelled shrimps product. The PT schemes is intended for the Bureau of Fisheries and Aquatic Resources laboratories and other microbiological testing laboratories in the country.	Year 1: Product - two (2) PT materials People and Services - One (1) PT Orientation Training Twenty - five (25) personnel Year 2: Publication - One (1) Scientific Paper Patent/ Intellectual Property - One (1) patent application Protocol on the optimized process of PT materials development People and Services - One (1) PT Orientation Training/ twenty - five (25) personnel	Industrial Technology Development Institute (DOST-ITDI)	Local microbiological laboratories involved in food testing	1-Nov-2021	31-Oct-2023	Completed	4,997,326	892,372
	Development of Baculovirus Expression Vector System (BEVS)-based subunit protein vaccine against Tilapia Lake Virus	Integrity of the environment and climate change adaptation and mitigation	Tilapia Lake Virus (TLV) has been reported to infect wild tilapia <i>Sarotherodon galilaeus</i> , farmed tilapia <i>Oreochromis niloticus</i> and commercial hybrid tilapia (<i>O. niloticus</i> X <i>O. aureus</i>) (Bacharach et al., 2016; Eyyngor et al., 2014; Ferguson et al., 2014). In 2018, Abdullah and co-workers have also detected TLV in wild river carp (<i>Cyprinus carpio</i>) in Malaysia (Abdullah et al., 2018). Zebrafish (<i>Danio rerio</i>) was also found to be susceptible to TLV infection and a good animal model to study fish-pathogen virus (Rakus et al., 2020). To date, only the mentioned species of fishes were found to be susceptible to TLV infection but it is possible that other species will be found to be susceptible when epidemiologic studies on its susceptible hosts would be intensified. The emergence of TLV is the first ever reported infectious disease in epidemic proportion in tilapia aquaculture which threatens the global tilapia industry. The risk is further exacerbated by irresponsible trade in live marine and fresh water animals and disregard to biosecurity. The very high mortality (20-90%) of tilapia caused by TLV infection may also affect food security and nutrition since tilapia serves as a cheap protein source especially in the developing parts of the world. The threat of TLV to global tilapia industry and to ecology, economy, food security, and nutrition is alarming. Immediate action to control, prevent, and mitigate this aquaculture disaster to farmed tilapia caused by TLV is warranted through the development of prophylactic vaccine, diagnostics, and antivirals.	Publication: 1 ISI-indexed publication Patent: 1 Oral subunit protein fish vaccine against TLV Product: 1 Potential vaccine candidates against TLV People: 5 Training of project staff, students (MS, PhD), and other beneficiaries to be proficient to perform recombinant protein production 5 Training of project staff, students (MS, PhD) and other beneficiaries to be proficient on performing vaccine challenges and vaccine administration Place: 1 Coordination and consultation meeting with Cooperating agencies (Chung Yuan Christian University) Policy: It is expected that through this project, both National Fisheries Research and Development Institute, Department of Agriculture, Philippines and Chung Yuan Christian University, Taiwan, will come up with policy to share more resources, expertise, and best practices in aquaculture/aquaculture biotechnology. This project may also be a basis for the institutionalization and establishment of Vaccine Research Institute in the Philippines and expand vaccine development cooperation with Taiwan not only for fisheries/aquaculture and animal use but also for human use to prevent human and animal disease to expedite into another pandemic	National Fisheries Research and Development Institute (DA-NFRDI)	Local fisherfolks, tilapia farm owners, tilapia industry Fish Health management sector (BFAR Fish Health Management and Quality Assurance Laboratory, BFAR Regional Offices/Regional Fish Health Laboratories) Local Government Units, NGOs, private stakeholders Researchers, academics, and extension workers. Individuals in the field of virology, aquatic pathology, fish production, molecular diagnostics, etc.	1-Oct-2022	30-Sep-2024	Ongoing	10,471,390	2,110,611

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD IGA
	Development of Captive Breeding and Larval Rearing Protocols for the Endangered <i>Sardinella tawilis</i>	Integrity of the environment and climate change adaptation and mitigation	Development of captive breeding and larval rearing technology for <i>tawilis</i> is necessary and urgently needed for the conservation of this species, which could potentially contribute to food security and sustainability of aquatic resources. Through captive breeding and stock enhancement, biodiversity in lakes can be revitalized, thus restoring native ecosystems. Breeding them in captivity will ensure continuous survival and viable fish populations in case a powerful explosion of Taal Volcano is inevitable and with the continuous fisheries overexploitation and other threats it has been facing for several years. Captive breeding will allow production of fish stocks which can be used for restocking in Taal lake after catastrophic events and in other lakes. This project aims to develop protocols for captive breeding and larval rearing of <i>tawilis</i> by determining optimal water quality conditions, appropriate live feed, and feeding regime. The primary goal is to develop protocols for captive breeding and larval rearing of <i>tawilis</i> . This can be done through a series of experiments which would allow determination of optimal conditions for breeding in captivity, seed production, and larval rearing of <i>tawilis</i> . Appropriate feeds, feeding regime and the possibility of using commercial feed will be determined and explored. At the end of the project, accessible and replicable protocols will be developed to ensure technology transfer to government agencies and local fish farm operators. This could potentially enhance <i>tawilis</i> stock in the wild and may provide an additional source of livelihood for fishermen and aquaculturists.	Publication: 1 ISI journal article publication and 1 local or international paper presentation, Techno-bulletin on protocols/Patent: Protocols on captive breeding and larval rearing of <i>tawilis</i> /Product: None/People: 1 Graduate Student/ 2 Undergraduate Thesis Students, Training/Workshop of Researchers/Technicians/Place: BFAR-IV-A, TVPL-PAMO DENR, LGUs/Policy: None	University of the Philippines Los Baños (UPLB)	The project can help in the conservation of <i>tawilis</i> especially now that its wild catch has been reported to decline. This project can also open a new path in fisheries research and inland aquaculture for <i>tawilis</i> , which could serve as potential source of income for fisherfolks.	1-Apr-2022	31-Mar-2024	Ongoing	5,000,000	2,070,809
	Development of Models for Assessment and Monitoring of the Seven Lakes of San Pablo	Integrity of the environment and climate change adaptation and mitigation	Monitoring of the water quality is necessary to sustainably manage the lake water. It also provides the objective evidence necessary to make sound decisions on managing water quality in the future. The development of the water quality index (WQI) is an effective approach to identify the status and condition of Seven Lakes. Water quality is affected by natural and anthropogenic influences. It is done so that the LGU and community know the current status and emerging problems in the lake. WQI report is easier for the general public to understand than a large amount of complicated environmental data presented. This will also satisfy two important sustainable development goals by the United Nations (UN) "clean water and sanitation" and "life below water. It is done so that the LGU and community know the status and emerging problems in the lake. One problem of the aquaculture lakes in San Pablo is the occurring fish kill which damages the economic condition of the fish farmers. Developing the predictive model using Bayesian Network Model will provide them what are the factors that could cause fish kill and the solutions to be done to avoid this event. These two developed models would be helpful in crafting short- or long-term development policies to sustainably manage the lakes.	Publication: The project would target to publish 4 ISI journal articles (2 per year)/Patent: The output models of the project which is a scientific process could be a source of profit in the future/Product: The output models of the project which is a scientific process could be a source of profit in the future/People: The project will mentor two undergraduate students who will specialize in Freshwater Ecology and one graduate student who will specialize in Modelling. This will be on a yearly basis/Place: The project will partner with the local government unit of San Pablo and FARM-C of San Pablo/Policy: The project will draft a policy recommendation for sustainable management of the lakes to the LGU of San Pablo.	University of the Philippines Los Baños (UPLB)	a. Local Government Unit of San Pablo The results and output of the study can be used by the LGU to craft effective policies and management strategies to protect and conserve the lakes. They can create a comprehensive management strategy, and action plan for the Seven Lakes of San Pablo. b. Aquaculturists/Fish farmers Refining the legalities of establishing aquaculture systems will support the livelihood of authorized aquaculturists by decreasing competition from illegal aquaculture pens and increasing their supply while supporting the sustainable management of the lakes. The fish farmers can also be capacitated and train on how to monitor water quality. c. Local Business Owners The findings will assist local business owners in the effective positioning of their respective stalls around the lake to support sustainable management. d. Local Community Members Community members residing around the lake will have knowledge on the impacts of their activities on the water quality of the lake. They will be capacitated on how to	1-Mar-2022	29-Feb-2024	Ongoing	4,727,560	1,678,308
	Effect of Biofloc Technology on Water Quality and Growth Performance of <i>Macrobrachium rosenbergii</i> and Assessment of the Associated Bacterial Communities	Integrity of the environment and climate change adaptation and mitigation	Biofloc technology has become a popular technology in the farming of tilapia, <i>Penaeus monodon</i> , <i>Litopenaeus vannamei</i> . It is an advanced technology identified for solving evolving viral problems and rising costs for energy. BFT has already been pilot tested in three farms in Luzon, two in Visayas, and two in Mindanao. Biofloc technology proved success in the culture and production of tilapia, and shrimp but there is no work on the effect of this technology in the culture of freshwater prawn in the Philippines. This study is the pioneer attempt to apply BFT in the culture of freshwater prawn in grow out culture. Moreover, characterization of the complex microbial communities associated with the bioflocs might help in deciphering the bacterial influence towards optimal water quality and health of animals being cultivated. Since no study exists on the microbiome diversity associated with giant freshwater prawn in a biofloc system, this project will help understand the disease-free shrimp surface microbiome as well as its rearing water microbiome in such a system and look for changes if there is any. This study will provide a basis for future work to understand the host-microbe interaction, and the relationships between disease outbreak and the bacterial community associated in the host organism. This will also provide a basis for future work on the production of effective artificial biofloc stock in laboratory using various microbial. And even future works combinations specially on biotechnological applications like screening microbes and small invertebrates in the biofloc for the production of antimicrobial products, probiotics, etc.	Publication At least 2 scientific manuscripts in publishable format that will describe the biofloc technology application in freshwater prawn and the characterization of bacterial flora in a biofloc technology culture Patent/Intellectual Property Bacterial isolates that will be isolated and identified will be stored as stock cultures for future use Product Microbial stock cultures of the bacterial isolates. People Service Trained personnel: 2 project staff and 4 Student assistants to be trained in freshwater prawn hatchery operations and microbiological methods. Place and Partnership MOU with 5 local fish farmers and private farms in Lanao del Sur Policy Results of this study can be incorporated in IECs and other campaigns by the LGUs or MAFAR in the local communities to increase awareness about the technology.	Mindanao State University (MSU-Main)	This study would significantly benefit the Maranao freshwater prawn fish farmers of Lanao Lake, and other fish farmers and private stakeholders, the Ministry of Fisheries and Aquatic Resources (MAFAR), the government agency responsible for the development, improvement, management and conservation of the country's fisheries and aquatic resources in my country who wish to use the new technology in farming freshwater prawn. Also, MSU and academic community through this study, will be informed of the biofloc technology application to aquaculture where studies are still limited.	16-Oct-2021	15-Oct-2023	Completed	4,888,495	722,058

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Field Testing and performance evaluation of saline tolerant Philippine Tilapia strain cultured in different geographical brackish water ecosystems	Integrity of the environment and climate change adaptation and mitigation	The Philippine Tilapia aquaculture industry has a significant contribution to the national economy. Tilapia is the second largest aquaculture-produced fish species in the Philippines with a total production of 281,114 metric tons valued at Php24.26 Billion in 2021. However, the growth of this industry has become minimal with an average annual production rate of 0.82% from 2012-2021. This declining production trend could be attributed to congested production system in lake and in cages coupled with the dwindling water quality due to mismanaged production (high stocking density, without consideration of the lake carrying capacity). The productivity of lakes and freshwater fishponds in terms of tilapia production appeared to reach its maximum capacity and for the industry to further expand. Farming of tilapia is expected to expand towards the estuarine and brackish coastal areas. Brackishwater ponds and estuarine coastal water cages are seen to have a high potential for growth and expansion of tilapia farming. The research would identify the best performing saline tolerant tilapia strains, existing in the Philippines, when cultured in brackishwater ponds, coastal brackishwater and estuarine cages. The best strain that would exhibit better growth, feed efficiency, survival and harvest yield will be identified as per particular culture environment. Result of this project would be vital in designating particular strain to specific brackishwater and estuarine culture ecosystems in the country.	Year 1: People and Services: Train and mentor 3- 5 tilapia culture technicians and 2 students.Places and Partnership: MOU or collaboration with 1 tilapia grower and 2 state college researchersYear 2: Publications: 1 IEC material, Saline tolerant tilapia rearing manual, 2 Academic journal publicationProduct: 1 protocol for saline tilapia culture in estuarine cages and 1 protocol for saline tilapia culture in brackishwater ponds People and Services: Train and mentor 3- 5 tilapia culture technicians and 2 students.Places and Partnership: MOU or collaboration with 1 tilapia grower and 2 state college researchers	University of the Philippines Visayas (UPV)	Tilapia hatchery operators, tilapia growers, coastal, estuary and river dependent communities.	1-Dec-2022	30-Nov-2024	Ongoing	4,999,179	1,103,598
	Field Testing of Azolla filiculoides and Amaranthus spinosus "Kollits" Leaf Meal for Improved Tilapia in Pond Culture	Integrity of the environment and climate change adaptation and mitigation	Tilapia is the most preferred cultured fish species in many tropical and subtropical countries of the world. This has commercial importance in aquaculture because they are highly resistant to diseases, exhibit rapid growth, efficient feed conversion, easy to breed, and have good consumer acceptance (Nyonje et al., 2011). A variety of factors affecting its growth rate include sex, stocking density, decrease in water temperature, and supplemental feeding (Mizanur et al., 2011 & Lili et al., 2005). Since fishmeal is expensive as a feed ingredient, the use of non-conventional feedstuffs has been reported with good growth and better cost-benefit values. The utilization of non-conventional feedstuffs of plant origin had been limited as a result of the presence of various biological activities to mention a few despite their nutrient values and low-cost implications (Sogbesan, 2006). Therefore, the most important aspect of tilapia farming is to identify economically viable and easily available ingredients for formulating diets that are nutritive and palatable, and have a maximal conversion ratio to give greater fish yield per application. The research is expected to evaluate the low-cost tilapia diet with Azolla Azolla filiculoides or Amaranthus spinosus orKollits-Leaf Meal for utilization in tilapia aquaculture. Results from this field testing will be submitted for publication in refereed journals, local conferences, and symposia.	Publications 2 IEC materials (brochure/pamphlets) and 1 scientific paper Product Feed with 20% Azolla Feed with 47% ASLM People and Services 2 BS in Fisheries Students 6 Farm cooperators Places and Partnership 3 MOU with LGU of Ramon, Isabela, LGU of Nueva Ecija and University of San Carlos, Cebu City. Economic Impacts Additional income to farmers and development of low-cost feed. Social Impacts Good quality and low cost feeds for tilapia growers.	Isabela State University (ISU)	The target beneficiaries of the research will be as follows: Aquaculture industry " fish farmers and fish feed developers/industries may use the results of this project for commercial production of tilapia. Research institutions " results of the study will give insights to researchers about the potentials of plant-based protein diet in tilapia. This might also provide an avenue on the utilization of Azolla and ASLM as feed for tilapia aquaculture. Academic institutions " students and professors will acquire new knowledge on the use of Azolla and ASLM as feed for tilapia aquaculture. Government agencies/policy makers " the results of this study can be used by the policy makers in the formulation of guidelines and regulations on the use Azolla and ASLM as feed for tilapia aquaculture.	1-Mar-2023	31-Aug-2024	Ongoing	4,998,750	3,233,500
	Gut metagenomics and transcriptomics for rapid development of single cell protein (SCP) alternatives to fish meal and probiotics for Chanos chanos	Integrity of the environment and climate change adaptation and mitigation	Production of aquafeeds is predicted to increase from 49.7 million tons in 2015 to 87.1 million tons in 2025 (Hua et al. 2015). The supply of fish meal, the primary source of protein in feeds, will increasingly be scarce given the limited fisheries resources and the threats from climate change. There is an immediate need to develop options. This project proposes to escalate efforts to develop protein alternatives for aquafeed from microbial biomass and hasten the process with a genomics-based approach.Single-cell proteins (SCP) from microbial biomass are viable sources of protein for feeds. In addition, SCP production involves the valorization of discards from other food, beverage, or petroleum manufacturing systems, a plus for environmental outcomes (reviewed by Ritala, 2017). Examples of SCP include Australia's Novaco, involving sugarcane bagasse with marine bacteria and algae, Uniprotein, from Denmark, involves methane-associated bacteria. SCPs in diets apparently reduce feed consumption, improves FCR, and develop resistance to disease in shrimp and tilapia (Simon et al., 2019, Glencross et al., 2014). In the Philippines, microbes associated aquafeed projects include UPV's "Juan Algae" an algal paste for milkfish larvae (PCAARRD, 2019) "Juan Biofeed" for fish cultured in tanks (PCAARRD, 2016) and UPLB probiotics for aquaculture (PCIEERD, 2014). None of these involved SCP production similar to Novaco, or Uniprotein. We heard about the struggles to source raw materials and the rising prices. The farmers have shown us gut inflammation and how much they lose with longer feeding times and disease. Our strength is in our ability to use genomics tools, to access microbial databases, scan the web for information, and culture microorganisms. We hope to fast-track SCP development in the country from the former hit-and-miss approach of finding microorganisms and matching them to potential substrates.	Publication: At least 3 journal publications Patent: At least on patent/ utility model for feed development protocolProduct: At least one novel feed prototypePeople: Two (2) MS students substantially advanced to the completion of their programPlaces: Collaboration with industry in the process of protocol development. Capiz Aquaculture Producers Cooperative Santech Feeds Corp.Policy: Write paper on SCP development.	De La Salle University (DLSU)	Fish farmers Aquaculture industry Feed development industries Down stream/ value chain players to the industry	1-Aug-2023	31-Jul-2026	Ongoing	14,341,580	7,541,860
	HATCH: Heat-Assisted Temperature Control and Monitoring System for Hatchery Management of Milkfish	Poverty reduction and empowerment of the poor and vulnerable	The production of milkfish in hatcheries in the Philippines is affected by seasonal variations, particularly during colder months when environmental changes result in lower or no egg production by the milkfish broodstock. This poses a challenge for hatcheries as they incur operational costs without generating output. The Metals Industry Research and Development Center (MIRDC), in collaboration with the National Fisheries Research and Development Institute (NFRDI) and National Fisheries Development Center (NFDC), proposes a project to address the effect of environmental changes in hatcheries. The primary focus of the research is to establish a cost-effective and reliable heating system that can maintain the optimal water temperature in the broodstock tank during cold months. The design involves implementing a Recirculating Aquaculture System (RAS) equipped with a heat pump and an electric heater. The project aims to create a conducive breeding environment for the milkfish broodstock by maintaining the optimum water quality. The implementation of this project will take place at the NFDC - Dagupan.	Publication One (1) scientific paper for the design and development of the system; One (1) developed operations manual; One (1) set of IEC materials (pamphlets)flyers about the functions, features, and specifications of the automated system Patent/ Intellectual Property One (1) Utility Model registration for the equipment Product One (1) water quality control and monitoring system for hatchery People and Services Two (2) trained personnel to operate and maintain the system Place and Partnership One (1) MOA with DA-NFRDI and BFAR-NFDC	Metals Industry Research and Development Center (DOST-MIRDC)	Aquaculture industry in the Philippines Consumers of milkfish Metals, Engineering and Allied Industry involved in aquaculture	1-Dec-2023	31-May-2025	Ongoing	5,000,000	3,829,180

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Hatchery Development for Four (4) Indigenous Macrobrachium freshwater prawn species in Marinduque	Integrity of the environment and climate change adaptation and mitigation	Among the recorded nine (9) naturally-occurring Macrobrachium species in Marinduque, there are 4 species with potentials for culture for their size, including M. australe, M. latimanus, M. lar, and M. latidactylus. These species are among the target species captured by local residents from the wild for domestic consumption and occasionally sold at the local market for extra income. This project is deemed to investigate some aspects of the reproductive biology of the freshwater prawn species, its fecundity, egg size, hatching rate and larvae survival rate in hatchery conditions with the hope that a new commodity for the local fishermen to produce can be identified, at the same time conserve and protect the remaining freshwater prawns in the wild.	Good quality berried female and matured male broodstock for each species; Information on fecundity, hatching rates, larval survival and growth rates; Manual on Customized Hatchery Protocol for the species that will perform best and have the potential for the grow-out phase Publications 1 Hatchery Operations Manual 1 Scientific paper Products Most promising freshwater prawn for aquaculture that is found in Marinduque People Services 23 Student-interns; 12 fisherfolk; 23 student-researchers; 4 faculty/staff researchers; 6 LGU fishery technicians Places and Partnerships 1 MDA/MOU with LGUs of Marinduque Patent 1 Copyright of the Manual 1 Utility Model of the protocol of culturing local Macrobrachium species Policy Policy support (advocacy) for the protection and conservation of the freshwater prawns	Marinduque State College (MSC)	Student-interns; fisherfolk; student, faculty/staff researchers; LGU fishery technicians	16-Aug-2021	15-Feb-2023	Completed	4,100,000	101,097
	Improvement of Milkfish larval rearing and nursery culture through Gut Metagenome, transcriptome analysis and gut microbial community manipulations	Integrity of the environment and climate change adaptation and mitigation	Milkfish is an important food commodity in the Philippines and is considered as the main pillar of the country's aquaculture in terms of value (P40.8 billion, PSA, 2019). Currently, the industry is facing insufficient supply of fry and hampers production efforts thus restraining the growth of the milkfish industry. The Philippines' requirement for bangus fry is close to four billion yearly, but hatcheries can produce only 800 million fry a year. Vulnerability of milkfish production is further aggravated by deformities and low survival of hatchery produced milkfish fry. The reduced in fitness of hatchery reared milkfish fry is linked to physiological challenges caused by poor genetic quality and environmental issues. The gut microbiota of fish has been shown to play an important role in nutritional provisioning, metabolic homeostasis, and immune defense. Further knowledge of these microorganisms will facilitate the selection of probiotics, prebiotics and chemical compounds with potentials to improve the gut homeostasis and health of fish, which are promising alternatives to antibiotics and would be a helpful tool in designing rearing protocols for efficient hatchery production of milkfish. Generally, the gut microbiota can significantly alter the host's physiology, metabolism of nutrients and exogenous toxic substances, and can significantly affect the immune system. However, only limited information about the metagenomic analysis of fish GI microbiome is available. The present study will evaluate the gut Metagenomics composition of milkfish fry and juveniles. The influence of gut micro biome on overall larval physiology will be evaluated by the transcriptome analysis. Information generated will establish the link between epigenetic differences and look for direct evidence of functional consequences to understand the physiological fitness mechanism of milkfish larvae. With these information, protocols to produce a better and robust milkfish will be developed thus increasing the survival and yield of the farmers.	Publication 1 IEC material 2 Journal Article 1 Protocol manual on basic metagenomic and transcriptome analysis for fish larvae Patent: 1 protocol for milkfish larvae gut metagenomic analysis 1 protocol for milkfish larvae transcriptome analysis 1 protocol for probiotic application on milkfish hatchery and nursery operation Product At least 2 probiotic products 1 process of improving milkfish hatchery and nursery productivity by application of microbial manipulation techniques People At least 1 graduate student Places and Partnerships 1 industry and 1 academic partner Policy None	University of the Philippines Visayas (UPV)	Hatchery operators, nursery growers, milkfish growers.	1-Jul-2022	30-Jun-2025	Ongoing	21,035,101	1,881,846
	Intestinal Amino Acid Transporters as Indicators of Stimulatory and Inhibitory Effects of Dietary Proteins (Fishmeal, Soybean Meal and Copra Meal) on Amino Acid Absorption in Tilapia (O. niloticus)	Integrity of the environment and climate change adaptation and mitigation	The study will use nutrigenomics as a tool in the advancement of aquaculture nutrition research in the country and in filling knowledge gaps related to nutritional inadequacy problems in aquaculture species. Further extensive studies will lead to development of ocellite feeds or feeds that are specially designed depending on the desired quality of fish (e.g. firmness of muscle) in the interest of either the farmers or the consumers. This will give new perspective in nutritional recommendations for aquaculture feeds thus will provide benefits to consumers, entrepreneurs, farmers, and the entire aquaculture industry.	1. Biological markers using gene and expression patterns 2. Recommended feed ratio based on gene expression 3. Gene expression method in evaluating protein/amino acids in aquafeeds 4. Recommendation for development of personalized and functional feeds.	University of the Philippines Diliman (UPD)	Knowledge acquired from this project will provide new insights on the effect of feed ingredients on fish that is important in the development of feed and improvement of feed quality. Outputs of this project could be used to complement, re-assess and improve conventional practices in aquaculture. Therefore, this project will primarily benefit the aquaculture feed industry, farmers, aquaculture sector. In addition, the academe (students and faculty researchers) and research institutes will also benefit from this project through thesis/dissertation and collaborations.	1-Jul-2022	30-Jun-2024	Ongoing	9,400,941	1,103,998
	Mannan Oligosaccharides (MOS) Prebiotic Feed Ingredient for Aquafeeds From Bioprocessed Coconut Residue	Integrity of the environment and climate change adaptation and mitigation	Mannan oligosaccharide (MOS) is the most used prebiotic in aquaculture. It has been shown in various studies to be effective in enhancing the growth and disease resistance of milkfish and other fishes like tilapia, and common carp. MOS is produced from the hydrolysis of mannan, a polysaccharide commonly found in yeast and plant cell walls. Coconut residue or casapike the by-product after the extraction of coconut milk either for virgin coconut oil production or household use. It is high in fiber. And the fiber is mostly composed of mannan making it a good source of MOS. The project aims to bioprocess coconut residue using solid state fermentation and a mannanase producing microorganism to produce a MOS prebiotic product that can be used in aquafeeds formulations. The microbe's mannanase will produce MOS from the mannan, reducing the fiber content. The fermentation will also improve the protein content. Since coconut residue also contains residual oil, the resulting MOS prebiotic bioprocessed coconut residue can also be used as partial substitute for fish oil, and soybean meal in aquafeeds. The solid fermentation parameters will be optimized using the expertise in bioprocessing that has been developed in BIOTECH-UPLB.	Publication: At least 2 publications in ISI/Scopus Journal At least 1 paper presentation in conferences Patent: At least 1 patent/utility model for the prebiotic bioprocessed coconut residue (BCR) feed ingredient production Product: One (1) established process of producing Mannan oligosaccharide (MOS) prebiotic feed ingredient One (1) product (MOS prebiotic feed ingredient product); Gut microbiome profile of milkfish fed with MOS prebiotic feed ingredient product enhanced aquafeed People: Mentored/Trained at least 2 researchers Mentored/Trained at least 2 researchers, and 1 undergraduate student Place: At least one partnership with aquaculture or coconut processing stakeholder on further field testing of developed product	University of the Philippines Los Baños (UPLB)	Local farmers engaged in aquaculture farming LGUs and cooperatives Feed manufacturers and compounders Food industry Academe	1-Dec-2022	30-Nov-2024	Ongoing	4,999,298	1,124,184

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Optimization of temperature for <i>Scylla serrata</i> broodstock in a recirculating system with a polychaete-assisted biofilter	Integrity of the environment and climate change adaptation and mitigation	The mangrove crab, <i>Scylla serrata</i> is a highly valued commodity in both local and export markets. However, until recently, the farming of mangrove crabs was still dependent on wild-caught juveniles for stocking in ponds. In the Philippines, the mass seed production of mangrove crabs has been done since the late 1990s to reduce the collection of wild stocks. However, hatchery production of mangrove crab seeds remains inconsistent and one of the problems identified as the possible cause of low survival of seeds is the inconsistent larval quality which may be due to the quality of broodstock. This project aims to enhance the broodstocks reproductive performance in captivity by providing them with a suitable diet and optimum water temperature using the less expensive recirculating aquaculture system with a polychaete-assisted sand biofilter. Specifically, the project aims to compare survival, maturation, percent failed or aborted spawnings, rematuration and stress responses through molecular markers, number of eggs and zoea/spawner, and zoea quality through response in stress tests when held in temperatures of 27, 30, and 33°C. The same physiological parameters including nitrite, ammonia, and pH in the rearing water when the present water management protocol or the RAS will be used. A unique feature of the RAS that is to be used in the studies is the use of polychaete-assisted sand biofilters. The marine polychaetes will also serve as one of the major food of the crabs to improve reproductive performance. The output of this project will provide information on the environment-friendly approach to the improvement of broodstock management to boost hatchery seed production.	Publication: Year 1: 1 article submitted for publication in peer-reviewed indexed journals Year 2: 1 article submitted for publication in peer-reviewed indexed journals 2 EC materials/Phase: Year 2: 1 utility model application for RAS with polychaetes as part of the biofilter/Products: 1. Technology on the use of RAS with polychaetes as part of the biofilter for broodstock maintenance 2. Quality mangrove crab broodstock and seedstock (cables) 3. Polychaetes from the RAS as aqua feeds 4. Broodstock culture protocol using RAS/People: Year 1: 1 MS Student assisted Year 2: 1 MS student assisted 3 technical staff and 5 LGU staff trained/Place: 4 MOAs with MSU-Naawan, Kyushu University, LGU-Kauswagan, and ISDA/Policy: N/A	Mindanao State University - Iligan Institute of Technology (MSU-IIT)	This project will be beneficial to the following: Aquaculture practitioners (hatchery operators, farmers, etc) Academe including students Researchers/Scientists Government agencies Businessmen and potential investors	1-Jan-2023	31-Dec-2024	Ongoing	4,999,852	3,353,176
	PECM in Aquaculture Diets for Gut Health Modulation	Integrity of the environment and climate change adaptation and mitigation	Feed intake and feed conversion efficiency of cultured species is an essential parameter because feed inputs account for 57-70% of production costs in the aquaculture industry. The productivity of the aquaculture sector is centered towards utilization of nutrients and health status of aquaculture species which are mainly dependent on the modulation of gut microbiome. Intestinal microbiota confers numerous services such as nutrient digestion, disease resistance and production of vitamins and beneficial metabolites. Metagenomics and metabolomics in aquaculture research are multi-omics approaches in understanding microbial diversity and its metabolites that affect the overall health status of farmed fishes. Understanding how feed types and different biotic additives shape the intestinal microbiota and the biological interactions between host and bacteria is of paramount importance to continually boost sustainability of animal production. Non-targeted multi-omics approach can unravel the functional effects on the intestinal microbiota and intestinal metabolism in response to dietary inclusion with PECM. Through this approach, several insights can be inferred such as: (1) investigation on microbial shifts in the gut environment caused by PECM; (2) elucidation of functional diversity particularly on disease resistance and immunostimulation; (3) differentiation on the abundance of key growth and health-related metabolites in light of metagenomic profiles among fish reared on feed types with and without PECM; and the (4) establishment of network-based approaches for key metabolites which may be correlated with higher feed efficiency performance in finfish aquaculture.	Publication: At least 2 publications in ISI/Scopus Journal At least 1 paper presentation in conference/Patent: None/People: Mentored/Trained at least 2 researchers, 2 undergraduate students/Place: MOA with private sector/Policy: At least 1 policy recommendation for other potential uses/functionality of PECM in aquaculture farming	University of the Philippines Los Baños (UPLB)	Local farmers engaged in aquaculture farming Coconut farmers and stakeholders LGUs and cooperatives Feed manufacturers and compounders Food industry Academe	1-Dec-2022	30-Nov-2024	Ongoing	4,999,298	836,109
	Pilot scale production of bioactive protein and lipid products from mussels	Poverty reduction and empowerment of the poor and vulnerable	As part of the continuum of research on the biological activities of protein and lipids from mussel species, this project includes a design for technology verification and pilot scale production of the developed food supplement products from mussel. The first phase of the project which produced mussel powder capsules and lipid softgels was primarily intended to help the mussel production industry by opening up avenues for alternative uses of mussel aside from being a food commodity. Also, with the occurrence of potentially invasive mussel species that have no known economic value, the project was aimed at the maximum utilization of these species of mussels in the country, to increase the demand and secure a guaranteed market for the mussel produce. Peptide and lipid fractions extracted from the green, brown and charnu mussel showed remarkable biological activities such as antioxidant, antihypertensive, antidiabetic and anti-inflammatory actions in vitro and in vivo. Toxicity tests, shelflife and initial market studies have also been conducted to show the safety and economic viability of the developed products. This study is the second phase of the completed project. Development and characterization of bioactive protein and lipid products from mussels. The study will focus on the pilot scale production of bioactive protein and lipids from mussel. It includes verification of the technology for the isolation of bioactive compounds, evaluation of the stability and shelf life of the products produced at higher volumes or pilot scale. Evaluation will also be conducted to determine the products' safety in terms of allergen and heavy metal contents and their quality through in vivo analysis and in comparison with existing mussel products in the market. Further, the process flow for semi-automated production and the designs of pilot-scale equipment for fabrication are also included in the methodology.	Publication 1 draft paper (Optimized production) 1 draft manual on pilot scale production of mussel bioactive protein and lipid products Patents 1 (Scaled Up design and process flow) 1 LHM application (Optimized production protocol) 1 (copyright production manual) 1 trademark Products 1 detailed market study, 1 prior art search report 2 customized fabricated equipment (supercritical fluid extraction machine, freeze dryer) 2 products (1 extracted bioactive protein and 1 extracted lipid in pilot scale production) 1 Feasibility study/business plan 1 consumer acceptability study, 2 production extraction protocol (1 bioactive protein and 1 bioactive lipid) People and Services 3 BS students supported 2 trained research personnel 3 BS students supported Places and Partnerships 1 MOA with organization of mussel farmers (Cooperative in Roxas) as source of raw materials 2 MOAs with IUSFST and CAPSU 1 upgraded laboratory	University of the Philippines Visayas (UPV)	Both the mussel powder and the mussel oil can be sold as is in bulk packaging, or in the form of capsules and soft gels. The end products will be sold to pharmaceutical, nutraceutical, and food industry. Overall, the results of the project will be beneficial to the public consumers; mussel farmers, researchers, and food supplement industry partners. 1. Mussel farmers' higher demand due to other applications aside from being food commodity. 2. Biotech researchers - availability of optimized protocols for extraction and purification of bioactive peptides and lipids and their pilot scale production 3. Food supplement/nutraceutical industries' products as food supplement/	16-Dec-2023	15-Dec-2025	Ongoing	12,975,300	1,625,140
	Pilot Testing of the Green Mussel, <i>Perna viridis</i> Hatchery and Nursery Technology	Integrity of the environment and climate change adaptation and mitigation	The green mussel hatchery and nursery techniques were previously established with funding support from PCAARRD. DOST address the national issue on low mussel production due to unstable supply of mussel spats. The said technology is now ready to be pilot tested to check its viability in a commercial scale. The pilot testing will be conducted in selected areas such as in Western Philippines University, Palawan and University of the Philippines Visayas, Miagao hatchery facilities where traditional mussel breeding grounds are present in the vicinity and in the regions. The pilot testing of a technology will likewise allow for further refinement of the protocol as necessary. The project will also address issues on biosecurity, food safety, sustainability and assurance of secured/healthy mussel spats for transplantation and grow-out farming.	1. Protocol for the hatchery and nursery of green mussel spat production in a commercial scale 2. Cost analysis for the green mussel hatchery at different production technologies (hatchery to nursery, hatchery only, and nursery only) 3. Hatchery-produced green mussel spats 4. Partnership with Western Philippine University (WPU), Palawan	University of the Philippines Visayas (UPV)	Hatchery investors, local government units, educators/researchers	1-Feb-2022	31-Jan-2024	Ongoing	4,992,000	1,490,667

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Prevalence Monitoring of Selected Emerging Bacterial Pathogens on the Surface Water and Aquaculture of the Seven Lakes of San Pablo, Laguna, Philippines	Integrity of the environment and climate change adaptation and mitigation	The Seven Lakes of San Pablo, situated in the bustling city of San Pablo, are economically important as a source of food and as tourism spots. While the lakes remain an ecotourism spot and a channel for livelihood through aquaculture systems, the integrity of the lake is compromised. Humans may be exposed to a variety of disease-causing microorganisms in recreational waters. A meta-analysis found that the risk of contracting diarrhoea for non-swimmers was 35/1000, which rose to 59/ 1000 after swimming at beaches where the fecal indicator bacteria (FIB) <i>Enterococcus</i> spp. exceeded 35 CFU/100 mL of water (Arnold et al., 2016). Fecal pathogens, including those coming from humans and livestock and other emerging pathogens can cause diarrhoea, abdominal pain, cramping, nausea, vomiting and other zoonotic infections in healthy humans. The coliform group is used as an indicator of the sanitary quality of the water because its presence in the water body would suggest fecal contamination or would indicate the disease-producing potential of the water. Ideally, water should not contain any microorganisms known to be pathogenic or any bacteria indicative of fecal pollution.	Publication: At least 2 peer-reviewed journal publications will be targeted for this project. Patent: The isolated strains may be the subject for future vaccines as part of the next phase. Product: Isolated bacterial isolates, Lake Maps, Prevalence Maps. People: At least 2 Undergraduate and 1 graduate students who will conduct their thesis within the domain of the project. Place: This project will foster strong partnerships among the University of the Philippines Los Baños, the City Government of San Pablo City, Laguna and the DOST-PCAARRD Policy - Policy Framework for Microbial Quality for the Seven Lakes of San Pablo. Resolutions and recommendations on the microbial quality of the lakes through SWOT, Cost-Benefit Analyses and Risk Management (Risk Identification, Risk Characterization, and Risk Evaluation) in juxtaposition to the recreational and economic value of the lakes. The results of this analysis will also serve as a reference for mitigation controls through management systems and policy formulations.	University of the Philippines Los Baños (UPLB)	Local Government Units of San Pablo City ... The local government of San Pablo will gain information as to the microbiological status of the 7 lakes with respect to emerging waterborne microbial pathogens such as, coliforms, <i>Salmonella</i> sp, <i>E. coli</i> O157:H7 and others. This would put into perspective the current recreational, aquaculture, agricultural and other anthropogenic activities on and around the vicinity of the lakes vis a vis the impacts these activities make to the water quality of the 7 lakes. Ultimately, this information will guide the LGU in crafting mitigating measures, guidelines and policies to ensure water quality and safety for users. Consumers, Tourists and Lake Users ... The maintenance of good quality water will ensure the safety of people visiting the lake especially when some of the lakes such as Panrurin and Yamho are	1-Mar-2022	29-Feb-2024	Ongoing	4,969,622	1,121,367
	Production and evaluation of dried microalgal biomass for improved shelf-life and product diversification	Integrity of the environment and climate change adaptation and mitigation	Microalgae are known to be beneficial in a diverse field of applications but, very limited extensive studies have been conducted for its post-harvest development and its other functionality aspects. One of the challenges faced by local producers is maintaining microalgal post-harvest quality. The high moisture and nutrient-rich medium (fresh and paste form) make it susceptible to fast deterioration. In order to keep it fresh, it needs to be stored in refrigerated temperature, and storage life varies (few days to weeks only) depending on the harvesting method. If proper storage conditions are not properly maintained, supplies could lead to deterioration and wastage. It also makes product transportation very challenging. In addition, the production is based on the immediate market demand to prevent deterioration and wastage during storage. Producers could not stockpile supplies during good weather conditions, and reserve for eventual market demands. This study was conceptualized to be able to address this issue through the different post-harvest methods of moisture removal. In addition, finished products will be characterized using physico-chemical analyses and storage viability studies. The findings of this study aim to help microalgal biomass producers by providing in-depth data about the potential products to be developed, competitive market advantages, and expanded applications.	Publication: at least 1 in refereed ISI indexed scientific journal. Patent: 1 possible utility model. Product: at least 1 developed and characterized dried microalgal biomass product. People: at least 2 project personnel trained in research and laboratory techniques; at least 1 MSU student trainee. Place: partnership with at least 1 local producer of microalgae (Nagaon Aquafeed Manufacturing). Policy: via	University of the Philippines Visayas (UPV)	1. Local microalgal producers. Consumers of microalgae: Aquaculture and Food Industry 3. Product developers in Food, Health, Nutrition, Pharmaceutical Industry 4. Academe	1-Jul-2022	30-Jun-2024	Ongoing	4,989,330	851,845
	Production of all-male and fast-growing progeny using phytoestrogen for sustainable seedstock of giant freshwater prawn <i>Macrobrachium rosenbergii</i> (De Man, 1879)	Integrity of the environment and climate change adaptation and mitigation	The bottleneck in Philippine production of <i>Macrobrachium rosenbergii</i> is not the number of prawn culture ponds and cages, but the production of postlarvae in the hatchery. The production is constrained by the lack of postlarvae for grow-out, but if resolved, has a good potential for the aquaculture industry. <i>M. rosenbergii</i> is a promising alternative to tiger shrimp due to its high market value, high export potential and low susceptibility to diseases. Many potential investors who visited MSU Naawan and expressed interest to venture into freshwater prawn culture have inquired if MSU Naawan can do something to produce all male prawn fry to reduce the head-body ratio of the prawn, to reduce the enormous size of the claws, and to delay the spawning of young female prawns. Their contention is that an improvement of these characteristics would make the freshwater prawn more attractive as an aquaculture species. This inquiry is clearly suggestive of the need for innovative researches that are within the realm of genetics and biotechnology. The history of the hatchery operations of <i>M. rosenbergii</i> in Mindanao can be traced from minor activities in different locations by various institutions. Earlier attempts to produce postlarvae of <i>M. rosenbergii</i> in hatcheries were conducted in various government and private sectors but sustainability of the operation was not attained to date. In fact, in Northern Mindanao, there are numbers of hatchery facilities for freshwater prawn previously reported in 2005 and 2007. Nevertheless, continuous operation of these hatcheries were not sustained to date and these were converted for other culture commodity such as tilapia.	Publication 1 paper submitted for publication in refereed journal 1 Manual on hatchery production of <i>M. rosenbergii</i> for conservation and adaptive management Production of at least four (4) IEC materials which include brochures, pamphlets among others that contain relevant information about the project, rearing protocols, technology generated and the like. Patent/Intellectual Property 1 IP disclosure for microsatellite markers developed 1 IP disclosure for the utilization of pine pollen as sex inversion and growth enhancer for <i>M. rosenbergii</i> Product/Process At least 10 sites for broodstock sources identified At least 50 Broodstock collected 20 Primer pairs sequenced Production of 80,000 quality <i>M. rosenbergii</i> post larvae At least 10 microsatellite (SSR) markers developed People Services At least 5 mentees and collaborators trained on the hatchery technology of <i>M. rosenbergii</i> At least 5 Undergraduate/ graduate students supported (0 undergraduate, 2 graduate students) 5 Undergraduate/ graduate students trained (On-the-Job Trainings and immersions) At least 10 mentees and collaborators trained At least 5 Undergraduate/ graduate students supported (3 undergraduates, 2 graduate students) 10 Undergraduate/ graduate students trained (On-the-Job Trainings and immersions)	Mindanao State University (MSU-Naawan)	This is a science-based project which aims sustainability and food security for the benefits of various stakeholders. → Fish farmers, people's organizations and NGOs → Local government units → Academic and research institutions → Researchers and students	1-Aug-2023	31-Jul-2025	Ongoing	4,999,883	2,402,568

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Reducing mortalities in crablet packaging and trading for better management of mangrove crab farms	Integrity of the environment and climate change adaptation and mitigation	This project is based on the results of previous mangrove crab projects of DOST-PCAARRD and the recommendations from the technical panel. Focused group discussions with six of the largest mangrove crablet producing regions in the Philippines show that mangrove crab farmers lose 25-100% of purchased crablets during transport and when purchased from locations with a huge difference in environmental conditions. The current packaging materials need to be evaluated for effectiveness and we need to continue improving the existing Alinmango algorithm to provide farms with a way to choose the best source of crablets for their farms. To address these issues, this study will document the stress levels of crablets in different packaging materials and propose an alternative design based on the results. It will collect variations in water parameters in Philippine coasts to ground truth Alinmango, which is still based on models and satellite data, and improve awareness and increase engagement of local communities in understanding coastal ecosystems by employing a citizen science approach.	Publication: Year 1 - Training manual for citizen science activities on (1) water monitoring, (2) mangrove vegetation assessment, and (3) mangrove crab species monitoring year 2. 3 papers drafted for publication/Patent: Year 1 - Preliminary set of markers for stress determination in crablets. Preliminary design of improved crablet packaging For transport Year 2 - Database of water parameters in target sites Design of an improved crablet packaging for transport Best practice in transporting crabs/People: Year 1 - 30 additional coastal community members trained to collect information on the ground Year 2 - 30 additional coastal community members trained to collect information on the ground. 3 MS students supported/Place: Year 1 - 2 - MOJUs with LGU/ Government agencies in Regions 1, 2, 5, 8, and 10/Policy: Year 2 - 1 policy recommendation on improved management of mangrove habitats to help mitigate the impact of climate change and anthropogenic factors on the wild populations of mangrove crabs	De La Salle University (DLSU)	Mangrove crab stakeholders, Youth groups, Women's groups with environmental concerns, Fishing communities, Philippine fisheries industry, local schools and state universities, environmental managers, LGUs, NGOs	1-Aug-2023	31-Jul-2025	Ongoing	4,994,792	2,479,896
	Refinement of Protocols for Captive Breeding and Larval Rearing of Ayungin (Leptocheilichthys plumbeus)	Integrity of the environment and climate change adaptation and mitigation	Refinement of the captive breeding and larval rearing technology for Ayungin is necessary for the conservation of this species, which could potentially contribute to food security and sustainability of aquatic resources. Through captive breeding and stock enhancement, biodiversity in rivers and lakes can be revitalized, thus restoring native ecosystems. Ayungin is one of the first few endemic species studied to have high potential for captive breeding. The captive breeding technology for Ayungin was developed in the DOST-PCAARRD-funded program of Fish Ark Philippines but problems on high larval mortality were observed. This project aims to refine and improve the technology by identifying possible factors for the high mortality of Ayungin larvae during the critical stage of development and increase their survival by improving their food and nutrition as well as rearing protocols. The primary goal is to develop breeding and larval rearing protocols for ayungin to increase their yield. This can be done through a series of controlled experiments which can identify optimal conditions and prevent high mortality in the early larval stage of Ayungin. Improvement of feeds will be done by exploring potential live plankton, feed enhancement protocols, and through development of suitable artificial feeds. At the end of the project, accessible and replicable protocols will be developed to ensure technology transfer to government agencies and local fish farm operators. This could potentially enhance Ayungin stock in the wild and may provide an additional source of livelihood for fishermen and aquaculturists	Publication: 1 ISI journal article publication and 1 local or 1 international paper presentation; Technical bulletin on protocol, Promotional Material such as TV interviews, newspaper articles Patent Protocol on hatchery production, larval rearing and grow-out of Ayungin/Product: None/People: 1 Graduate Student/ 2 Undergraduate Thesis Students, Training/Workshop of Researchers/Technician/Place: MOU with BFAR-IV-A Policy/Policy recommendation on the conservation of Ayungin	University of the Philippines Los Baños (UPLB)	The project can help in the conservation of ayungin especially now that its wild catch has been reported to decline. This project can also open a new path in fisheries research and inland aquaculture for ayungin, which could serve as potential source of income for fisherfolks.	1-Apr-2022	31-Mar-2024	Ongoing	5,000,000	2,004,249
	SMS in Aquafeeds: Development of an Alternative Aquafeed Ingredient Using Spent Mushroom Substrate (SMS)	Integrity of the environment and climate change adaptation and mitigation	Aquaculture has been one of the fastest growing animal production sectors in the world. The ever-increasing demand to supply the growing aquaculture industry, leads to a higher demand for fish feeds production. However, to get a good quality of feed, higher costs must be required accounting for over 50% of the production cost in fish farms. This has led researchers to the search and development for alternative ingredient for aquafeed production. Alternative fish ingredients from locally available products, such as agricultural waste, could further provide benefits in cost savings and reduction of imports. A good example of agricultural wastes is spent mushroom substrate (SMS), the agro-residues and the fungal mycelium left after harvesting of mushrooms. With the increased production of mushrooms, it is accompanied with the generation of tons of SMS. Due to the presence of highly significant biochemical compounds, studies have shown the potential for their use as a feed source for animals. The use of SMS can help address the need for an alternative fish ingredient that is cheap and has the potential to improve the profit by incorporating agriculture waste in the formulation.	Publication: At least 1 publication in ISI/Scopus Journal/At least 1 paper presentation in conference/At least 1 IEC material/Patent: At least 1 P protection for the SMS Aquafeed/Product: One (1) product (SMS aquafeed)/People: Mentored/ Trained at least 4 researchers, 2 undergraduate students/Place: MOU with UPLB, DA-RTOS, and Biod Entrepreneurship Association for Mushroom (BEAM, Inc.)/Policy: At least one (1) policy recommendation for potential use of SMS aquafeed in aquaculture farming.	Partido State University (ParSU)	Local farmers engaged in aquaculture farming LGUs and cooperatives Feed manufacturers and compounders Academic	1-Jan-2024	31-Dec-2025	NEW	4,953,897	2,447,018
	Thraustochytrid Cultivation in Wastewater for Polyunsaturated Fatty Acid Production as Alternative Fish Feed/Ingredient for Fish and Seafood Products	Integrity of the environment and climate change adaptation and mitigation	The demand for aquaculture products and docosahexaenoic and eicosapentaenoic acids (DHA and EPA)-enriched food will continue to increase, but the production using fish oil dependent on catchment of fish will eventually reach their limits. If the technology in this project is implemented for alternative fish oil production, it will contribute to the realization of a robust and sustainable fishery, as well as the development of new industries such as production of high-value poultry products and human supplements. The novelty of this project in the Philippines is centered on using wastewater streams as substrate for growing thraustochytrid yeast to replace or enrich fish feed. This methodology of culturing thraustochytrids in wastewater offers a number of advantages addressing particular problems in the Philippines: 1) alternative and more sustainable source of fish oil for the aquaculture industry, thereby lessening the demands of fish oil meant for human consumption, which in the long run can decrease incidences of overfishing, 2) recycling organic residuals and wastes as an improvement of wastewater treatment technology towards zero-waste discharge, and 3) decreased cost associated with feeding valuable high-PUFA to farmed fish, that ultimately helps the aquaculture industry.	6Ps/Year 1Year 2Year 3Publication4 publications in scientific journals/At least 1 paper/poster presentation/Patent/ Intellectual Property/At least 3 patents on improved treatment technology for food wastes/optimized conditions for the propagation of thraustochytrids using low-cost substrates and organic residuals, and advanced aqua feed formulation with thraustochytrid/Product/Process/ product - Thraustochytrid biomass as alternative fish oil for farmed fish and seafood products/People and Services/2 MS students 2 MS student/2 MS students/Places and Partnerships/3 collaborations (Petrobrima University (Lipari), Institut Teknologi Sepuluh Nopember (Indonesia), and UP Visayas/Policy/At least 2 Policy recommendations: 1. use of alternative industrial or manufacturing wastewater treatment methods aimed at zero-liquid waste discharge 2. sustainable sources of fish oil for animals, fish, and seafood products to lessen competition for human consumption and lessen overfishing due to the demands of fish meat and fish oils/Social Impact/ Increased knowledge and awareness on the social contributions of the projects among the three countries, particularly in the use of sustainable resources in aquaculture and livestock feeding/Enhanced exchange of knowledge, skills, technology among relevant stakeholders for the realization of the positive effects of recycling carbon systems through the use of organic residuals and high-organic wastes and wastewaters for production of highly valuable organic products/3.Strengthened cooperation between research institutions and stakeholders (food and beverage processing industries, aquaculture industry) towards achieving technologies that solve premier issues in the society (waste and wastewater management, high-cost feed products for aquaculture and livestock, overfishing/Economic Impact/1.Fish feed or fish ingredient from the thraustochytrids can be commercialized and sold to fish farmers for a much lower cost decreasing operation and maintenance cost in seafood product-rearing.2.Using wastewater streams and in the long run, solid wastes, for the purpose of producing highly valuable commodities, like microbial oil, indirectly improves the condition of our environment since they are no longer disposed in the environment like our waterways and land, thereby lessening socio-economic concerns regarding environmental pollution.	University of the Philippines Los Baños (UPLB)	1. Scientific Community/2. Feed manufacturing industry/3. Aquaculture industry Early career researchers	1-Apr-2022	31-Mar-2025	Ongoing	11,387,157	1,821,448

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Conservation, Improvement and Production of Central Luzon Native Pig	Project 2 Establishment of Foundation Breeder Stocks of Central Luzon Native Pig; Project 2.2 Breeding and Selection to Establish Foundation Breeder Stocks	Rapid, inclusive and sustained economic growth	A nucleus farm of native pig will be established. Breeding objectives will be formulated based on the parameters important to the native pig farmers and also based on the requirement of the lechon processors. The results of phenotypic and molecular characterization of native pigs in Project 1 will be the basis of selection of foundation native breeders. Further evaluation of male and female breeder stocks will be conducted and the sperm of male animals will be evaluated based on visual and olfactory assessment of ejaculate, such as semen volume and sperm concentration, motility, and morphology. Preferably, males with acceptable physical characteristics, and sperm quality will be used as breeders based on the description of Rosenbloom (2000).	Established foundation herd at PSAU Established breeding and selection protocols Produced foundation stocks populations of CL native pig	Pampanga State Agricultural University (PSAU)	a. Native pig raisers b. Researchers and development workers c. Students d. Consumers e. Market agents f. Local government	1-May-2021	30-Apr-2024	Ongoing	6,354,300	1,769,392
Conservation, Improvement and Production of Central Luzon Native Pig	Project 3: Performance Evaluation of Selected Native Pigs following the Most Common Feeding and Management Practices in the Area	Rapid, inclusive and sustained economic growth	Breeder animals from the nucleus farm will be tested and evaluated at the multiplier farms based on their reproductive and growth performance.	Reproductive and growth performance data of improved CL native pigs Trade namelmark applied for registration at IPO Established multiplier farm at PSAU Established feeding and healthcare management protocols Conducted techno-promotional activities Trained 40 farmer co-operators on production and management of CL native pig Established 4 private techno-demo farms Developed techno-guide on aProduction of CL native pig*	Central Luzon State University (CLSU)	a. Native pig raisers b. Researchers and development workers c. Students d. Consumers e. Market agents f. Local government	1-Jul-2022	30-Jun-2026	Ongoing	4,177,066	124,505
Novel Approaches in African Swine Fever Diagnostics, Genomics, and Proteomics (Old Title: MEGA ERADICATE ASF (Molecular Epidemiology, Genomic Analysis, Epitopes of Recombinant Antigenic Determinants, and Immunologic Characterization for Total Elimination of African Swine Fever)	Proj. 3 Discrimination of Immune Epitopes against African Swine Fever Virus	Integrity of the environment and climate change adaptation and mitigation	African Swine Fever is a highly contagious disease that causes high mortality in swine. There is no treatment and vaccine and the only way to control is to depopulate affected and exposed swine. These measures must be combined with strict movement of animals, biosecurity in farms, and banning the importation of meat products from affected countries. Early detection and diagnosis are critical for effective control of disease spread. However, for this to be successful, adequate laboratory support and effecting diagnostic platforms must be available. The limited data on the genetic characteristics of ASFV makes it challenging to develop diagnostic platforms that are specific to a local setting. Knowing the ASFV specific diagnostic tools and to understand viral evolution. Hence, this study aims to utilize molecular techniques to develop tools for detection and immunological characterization of African Swine Fever virus in the Philippines. Obtaining ASFV isolates from cell culture and determining whole genome sequences of ASFV isolates in the Philippines will aid in the molecular characterization of ASFV strains causing outbreaks in the Philippines, phylogeographic patterns of outbreak, and eventually aid in the prevention and control of ASFV in the country through epidemiological tracing of strains. Through genomics, we propose to develop recombinant ASF proteins and antigenic epitopes specifically circulating in the country that will be used for the development of ELISA. In order to elucidate the relative contributions of immune-related cytokines, chemokines and cell receptors in ASF-infected pigs, we will investigate molecular mechanisms mediating viral pathogenesis, pathogen-host interaction, and immune responses of this detrimental swine disease in the country. The materials and information outputs of this program are all important in the development of local ASF vaccine.	1. Characterization of major epitopes map among common ASFV isolates circulating in the Philippines. 2. Locally produced recombinant peptides for ASFV immune studies 3. Enhanced capability in ASFV diagnostics through development of assays specific and validated for the country.	University of the Philippines Los Baños (UPLB)	1. Outputs from the project will aid government organizations such as the Department of Agriculture and the Bureau of Animal Industry for policy recommendations such as control and prevention strategies against ASF. 2. Published data can help scientists in the development of potential diagnostic methods, drug and vaccine candidates. 3. Veterinarians will be guided in their evidence-based decision making in the epidemiological surveillance and implementation of effective control and eradication strategies against ASF. 4. Farm owners will be benefitted by the improved diagnostic efforts, policy recommendations, and control and eradication strategies which will help alleviate the socioeconomic consequences caused by the ASF outbreak. 5. Undergraduate students	1-Jan-2023	31-Dec-2024	Ongoing	19,130,592	13,523,733
Surveillance and Molecular Epidemiology of Economically and Public Health Important Animal Diseases in the Philippines	Proj. 1 Development of Surveillance System of African Swine Fever (ASF) Virus in Farm Environment and Fomites of ASF-Affected Swine Farms in Luzon, Philippines: An Added Tool for ASF Sentinel, Repopulation and Recovery Programs	Integrity of the environment and climate change adaptation and mitigation	This project is composed of a multidisciplinary team of veterinarians, epidemiologist, virologist, biomathematician, and molecular biologist to investigate the epidemiological distribution patterns of environmental contamination of ASFV in ASF-affected farms in select regions in Luzon, Philippines.	TARGET ACCOMPLISHMENTS a. Epidemiologic data of ASFV based on sample types and types of farm b. Optimized sampling approach and laboratory procedures for ASFV detection in swine farms c. Prototype of Sampling Protocols and Laboratory Procedures of the Surveillance System d. Manual on Surveillance System for Environment Samples and Fomites EXPECTED OUTPUTS a. Publication: Submission of one (1) publication in peer-reviewed scientific journal and 1 field manual: Initial and Final Field Manual on Surveillance System for African Swine Fever (ASF) Virus in Farm Environment and Fomites of ASF-Affected Swine Farms in Luzon, Philippines: An Added Tool for ASF Sentinel, Repopulation and Recovery Programs b. Patent/Intellectual Property: ASF Surveillance System using Farm Environment and Fomites for Sentinel, Repopulation and Rebuilding Programs that can be filed for registration as Utility Model c. Product: 1. Sampling protocols and initial epidemiological data (Year 1). 2. Initial and Final Biosecurity Recommendations for Farm Adoption d. People and Services: With the ASF surveillance system that will be produced by the data gathered and analyzed by the research team, swine farms can have higher probability of a safe and successful repopulation, thus accelerating the recovery of the Philippine hog industry. This will ensure the availability as well as the affordability of pork and pork products. With seminars and program materials, at least 100 veterinarians, researchers, policy makers and farmers can benefit with the information on policy and biosecurity recommendations which can be applied to other farms affected by ASF. Engaged 2 undergraduate and 1 MS students in research. e. Place and Partnership: 1. Procurement and acquisition of laboratory equipment and improvement of laboratory facilities (Year 1) 2. Collaboration with Philippine Genome Center - Program for Agriculture, Livestock	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this program are swine farmers, veterinarians, researchers/scientists, government agencies, veterinary and animal science students, veterinary pharmaceuticals and vaccine companies, veterinary diagnostic companies, government and private research institutions.	1-Jan-2022	31-Dec-2023	Completed	12,994,635	3,737,387

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Surveillance and Molecular Epidemiology of Economically and Public Health Important Animal Diseases in the Philippines	Proj. 2 Molecular Detection and Transmission Risk Assessment of African Swine Fever Virus (ASFV) in Raw Meat and Processed Pork Products in the Philippines	Integrity of the environment and climate change adaptation and mitigation	Detection of the virus in raw and processed pork products and their possibility of disease transmission have not been extensively studied in the Philippines. Therefore, understanding the epidemiology and assessment of ASFV risk of local transmission through these raw and processed pork products are essential in the implementation of a targeted measure of prevention and control. Hence, this project aims to detect ASFV molecularly in raw and processed pork products from backyard, commercial and wild pigs in select local markets.	TARGET ACCOMPLISHMENTS a.Quantitative data on the detection profile of ASF in raw and processed pork products in the Philippines. b.ASF frequencies among meat and meat products sold in selected provinces in the Philippines. c.Quantitative data and formulated risk matrix and risk categories of sampled provinces in the Philippines. d.Geographical distribution map of ASFV-contaminated raw and processed pork products in the Philippines to be submitted in BAI's PHIAHS database. EXPECTED OUTPUTS Publication Publishable manuscripts (at least 2) of the epidemiological surveillance of ASF in raw and processed pork products using qRT-PCR, as well as the risk assessment of ASFV-positive raw and processed pork products, will be submitted for peer review to a journal publication. Patent/Intellectual Property: (NA) Product: Sampling protocols and initial epidemiological data (Year 1). Final Epidemiological data and geographic distribution map of ASFV-positive raw meat and processed pork products (Year 2). People and Services The researchers aim to share the knowledge that will be gathered from the study to at least 100 veterinarians and researchers of DA-BAI and Regional Animal Disease Diagnostic Laboratories (RADDL) in the country who are working on animal disease surveillance and diagnosis. The data that will be generated from the study will inform the researchers of the disease's geographical patterns and will be an invaluable tool in developing an ASF diagnostic workflow or framework. In addition, the researchers also hope to conduct seminars to at least 50-100 farmers and stakeholders as well as the concerned public to raise awareness about ASF emphasizing the surveillance results and on the risk of possible ASFV transmission to domestic pigs including wild pigs through ASFV-contaminated raw and processed pork products. It would also be good to emphasize during the seminars the	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this program project are swine farmers, veterinarians, researchers/scientists, government agencies, veterinary and animal science students, veterinary pharmaceuticals and vaccine companies, veterinary diagnostic companies, government and private research institutions.	1-Jan-2022	31-Dec-2023	Completed	12,150,200	5,145,193
Surveillance and Molecular Epidemiology of Economically and Public Health Important Animal Diseases in the Philippines	Proj. 3 Molecular detection and serological profiling of Swine Influenza and Classical Swine Fever in Backyard Farms in the Philippines	Integrity of the environment and climate change adaptation and mitigation	In line with the objectives of the Philippine Inter-agency Committee on Zoonoses and the National Task Force on Animal-Borne Diseases, the data obtained from this study will contribute in the preparation of the framework for managing emerging diseases that affect animals and humans in the country (DA Advisory, 2020).	TARGET ACCOMPLISHMENTS a) Quantitative data on the detection profile of CSFV and SVV in backyard growing pigs in the Philippines. b) Quantitative data for risk assessment of CSFV and SVV transmission in backyard growing pigs in the Philippines. c) Disease profile information database (farm demographics, epidemiological status, economic costs) of CSFV and SVV in backyard pig farms in the Philippines. a)Publication-Submission to journal publication of at least 2 publishable manuscripts: 1. Epidemiological surveillance of CSFV and SVV in selected backyard growing pigs using qRT-PCR, as well as 2. Risk assessment of CSFV and SVV transmission. b)Patent/Intellectual Property: (NA) c)Product:Sampling protocols and initial epidemiological data (Year 1). Final epidemiological data and serologic profiles of CSFV and SVV-positive samples (Year 2). d)People and Services-The researchers will share the knowledge and learnings from the SI and CSF studies to at least 100 veterinarians, researchers and policy makers of the Department of Agriculture, Bureau of Animal Industry and Regional Animal Disease Diagnostic Laboratories who are working on disease diagnosis and surveillance. The scientific data that will be obtained will aid both the scientific community as well as the policy-makers in the crafting of measures to prevent and control CSF and SI outbreaks based on the geographical distribution maps generated. Seminars and fora will be organized to provide knowledge and information on the molecular epidemiology and risk assessment of CSF and SI to at least 100 farmers, stakeholders and students. Engaged 2 MS students in research. e)Place and Partnership- Procurement and acquisition of laboratory equipment and improvement of laboratory facilities. Collaboration between UPLB and LGUs and DA-BAI will be strengthened. f)Policy- The involved government agencies, DA-BAI and LGUs, will be able to use the gathered data in the preparation and implementation of strategies to mitigate, if not prevent outbreaks of the economically-devastating CSF, and the public health threat of SI.	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this program project are swine farmers, veterinarians, researchers/scientists, government agencies, veterinary and animal science students, veterinary pharmaceuticals and vaccine companies, veterinary diagnostic companies, government and private research institutions.	1-Jan-2022	31-Dec-2023	Completed	13,960,476	6,357,507
Assessment of the Production Performance and Profitability of Raising ItikPINAS (IP Kayumanggi) at Bureau of Corrections (BuCor), Muntinlupa City	Assessment of the Production Performance and Profitability of Raising ItikPINAS (IP Kayumanggi) at Bureau of Corrections (BuCor), Muntinlupa City	Integrity of the environment and climate change adaptation and mitigation	ItikPinas (IP) is a new breed of Philippine native duck developed in 2017. Two parental lines (IP-tim and IP-Khaki) and one commercial hybrid line (IP-Kayumanggi) were developed through years of breeding and selection through research funded by DOST-PCAARRD. This new breed of layer type ducks is genetically superior to the traditional "Pateros" ducks. From 200 eggs, IP-Kayumanggi now produces 260 eggs per duck per year, 80% of which weigh 65g or more, which is the minimum requirement for balut production. Assessment of the production performance of the ItikPINAS hybrid line will be done in small scale under BuCor that will be funded by DOST-PCAARRD.	Publication: At least 1, copyrighted IEC materials/promotional materials Patent: NA Product: Performance Data of IP-Kayumanggi, established farm at BuCor Muntinlupa. No. of balut and salted eggs sold People: Technical guidance and training provided to: 4 BuCor Personnel ~ 100 PDL trained on IP-Kayumanggi management and egg processing Place: BuCor and Cavite State University Policy: NA	DOST Region VI	LGUs, PDLs, researchers, students, IP raisers, Native duck industry, balut and salted eggs vendors	1-Jul-2023	30-Jun-2025	Ongoing	5,900,000	3,035,290
Development of Forage-Targeted Starter Culture for Ensiling of Forage Feeds for Native Chickens and Ducks	Development of Forage-Targeted Starter Culture for Ensiling of Forage Feeds for Native Chickens and Ducks	Integrity of the environment and climate change adaptation and mitigation	The availability of low-cost feed ingredients is one of the problems faced by native chickens and duck raisers in the country affecting farm production efficiency and profitability. Many of poultry species raisers depend mainly on commercially available feed and/or ingredients and if not, will leave their birds to browse their food to the pasture with no or minimal cash input, resulting to lower productivity with inconsistent product quality. Although, there are some raisers that started to utilize locally abundant feedstuffs, forages, farm biomass and kitchen waste (swill) to minimize feed cost. However, because of lower digestibility of these feedstuffs due to higher crude fiber and presence of antinutritional factors (ANF), its utilization is not fully maximized. This problem on lower digestibility due to higher crude fiber and presence of ANFs can be mitigated through fermentation. Ensiling of forages improved its nutritive value and degrades antinutritional factors present in the plant material, leading to an improved availability of proteins and other nutrients. However, silage quality is inconsistent as no changes were observed on fermentation. Addition of inoculants can improve the fermentation, but efficiency of fermentation of inoculated forages is largely dependent on the interactions of the microbial species in the inoculant with epiphytic microbial populations and chemical components within the forage and therefore consistency of fermentation product/silage can only be attained if a forage-targeted-starter culture will be developed. The developed starter culture can be used now to establish an improved fermentation protocol for easier and consistent fermentation products, resulting to increase utilization of forages and other locally abundant feedstuff for zampan native chicken and ItikPINAS and its adoption by farmers will be increased because it is very easy to use.	Publication: 1. IEC materials for improved fermentation protocol; 2. Substrate specific starter culture for improved fermentation; 3. Nutritional composition of Fermented Forages; 4. Nutritional Composition of Formulated Feeds mixed with fermented forages Patent: 1. Starter Culture; 2. Utility Model for improved fermentation protocol utilizing starter culture; 3. Formulated feeds mixed with fermented forages Product: 1. Starter culture; 2. Improved ensiling protocol utilizing developed starter culture Formulated feeds mixed with fermented forage People: Training on improved fermentation protocol; 15 WMSU employees; 60 Students; 15 Farmers Place: 1 MOA to UPLB; 10 MOA to Farmer Adoptors Policy: Starter culture developed to specific forages may be a policy recommendation to the barangay for the adoption and utilization and thereby requiring farmers to plant or culture these forages for sustainability of the technology.	Western Mindanao State University (WMSU)	Local farmers engaged in aquaculture farming LGUs and cooperatives Feed manufacturers and compounders Food industry Academe	1-Apr-2023	31-Mar-2026	Ongoing	4,999,745	1,744,582

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Development of Philippine Signature Muscovy Duck Breed	Integrity of the environment and climate change adaptation and mitigation	A breeding and selection project geared towards the development of Philippine signature Muscovy duck breed that will support sustainability of quality breeder stocks leading to availability of duck meat supply in support to scarcity of pork brought about by ASF. This project also promotes livelihood to smallholder farmers thru Muscovy duck meat production and other potential duck meat specialty products.	At the end of four years, the project is expected to deliver the following: —8,000 stable breeding true-to-type Philippine Muscovy ducks with predictable production performance and consistent product quality (Y2 and Y3). —Quality breeder duck production and distribution systems developed (Y3 and Y4) —At least 2 private breeder farms engaged in breeder Muscovy duck production (Y4) —Nutrient composition and sensory characteristics of Muscovy duck meat (Y4)	Iugao State University (ISU), Bureau of Animal Industry (DA-BAI)	—Iugao and Quezon local farmers —Day-old duckling, slaughter and ready to lay pullet producers —Researchers	1-Jan-2022	31-Dec-2025	Ongoing	19,707,422	2,094,612
	Development of Screening Protocol for Genetic Defects and other Economically Important Traits in Cattle and Buffaloes in the Philippines	Integrity of the environment and climate change adaptation and mitigation	The Philippines is an agricultural country, owing the major contributions from plants and animal resources. Over the years, the interest and efforts of the government livestock sector and private breeders in the development of cattle and buffalo industry in the Philippines have grown rapidly. However, despite its contribution to the meat and milk supply of the country, the industry still needs to keep up with the demand of the consumers. One of the challenges that affect the growth of the cattle and buffalo industry is the poor production performance and low reproductive efficiency. To address these challenges, most of the private cattle and buffalo breeder farms, including the government itself outsource their stocks and genetic resource from other countries which facilitated the entry of new genetics for improved production efficiency in terms of meat and milk but also entry of genetic defects. In addition to importation, the use of assisted reproductive technologies like artificial insemination, as it is widely used in the industry has resulted to a selection from relatively limited number of elite bulls, which might have facilitated the spread of these genetic defects in the local herds. Several economically important genetic defects have been reported in cattle, but there are still limited studies on buffalo. Although genetic disorders and minor concern in livestock industry, the increase in number of carrier animals may lead significant losses in the production. Several cases are still not reported, causing an underestimation of the real burden of genetic diseases in these animals. Understanding these genetic defects and economically significant traits at the molecular level will aid in the identification of carrier animals even at earlier stage in animal's life. Screening of semen donor bulls should be aimed to identify carriers of genetic defects and eradicate them from the breeding program. Furthermore, directly screening for genes that have huge effect on the production traits will greatly aid in the selection of replacement animals and hasten genetic improvement.	Identified significant markers for genetic defects and other economically important traits present in cattle and buffalo that are possibly be incorporated in the culling and selection program of breeder farms. Established genetic testing protocol using DNA marker technology for economically important traits and genetic defects in cattle and buffalo. At least 10 gene markers optimized Policy recommendation on the use of the technology for the local livestock industry.	Philippine Carabao Center (PCC)	Cattle and buffalo breeder farms and research agencies both government and private-owned. Breed associations whose work focuses on the genetic improvement as well as conservation of livestock species. Local large ruminant industry in general	1-Jan-2021	31-Dec-2023	Completed	14,109,528	3,174,005
	Development of Sustainable breeding and production systems for Paraoakan native chicken in Palawan	Integrity of the environment and climate change adaptation and mitigation	Paraoakan, the known genetic group of native chicken in Palawan has varying phenotypic characteristics and production performance within its group as perceived by paraoakan raisers. A sustainable breeding and selection R&D program for paraoakan native chicken can intensify the improvement of the native chicken industry.	> Information on the productive and reproductive performance of breeding true-to-type Paraoakan native chicken. > Information on appropriate production and management practices for Paraoakan native chicken. > Paraoakan breeding and selection, and hatchery technology. > 5,000 head breeder Paraoakan native chickens. > 20,000 head quality Paraoakan hatched chicks > Two (2) private entrepreneurs identified as multiplier farms. > Two (2) scientific articles published in refereed journal. > Improvement of Paraoakan NC breeding and production facilities.	Western Philippines University (WPU), Palawan State University (PSU)	Native chicken raisers in the province and in the region, faculty, students, NGOs, cooperatives, and other institutions who wish to engage in native chicken production, native chicken domestic and institutional consumers	1-Aug-2021	31-Jul-2024	Ongoing	8,478,601	2,314,380
	Establishment of the Batanes Native Pig Breeding Herd	Integrity of the environment and climate change adaptation and mitigation	To boost the native pig production in Batanes, the Batanes State College through its agriculture department, intends to implement an R&D project to develop breeding-true-to-type populations of Batanes native pigs. This is to realize the potentials of the native pig in contributing to the country's attainment of food security, agricultural growth, and in providing livelihood opportunity not only for the vatan people but for the Filipino in general.	Publication: At least two papers on the production system of native pigs in Batanes, phenotypic characteristics and genetic diversity of Batanes native pigs Production guide on Batanes native pig raising Breeding goal and selection criteria for Batanes native pig Patent: NA Product: Batanes native pig breeder animals People: Farmers, Agriculture Department, and partner agencies will receive technical knowledge and training Place: Partnership with LGUs in Batanes Province Policy: Policy on breeding and conserving the unique genetics of native pigs in Batanes	Batanes State College (BSC)	Researchers, professors, students, and swine breeding practitioners Native pig farmers Native pig consumers Institutional markets	1-Nov-2021	31-Oct-2024	Ongoing	5,000,000	889,398
	Genetic structure analysis and development of genetic screening protocols for traceability of Philippine Native Pig populations	Integrity of the environment and climate change adaptation and mitigation	Several native pig R&D stations have established and purified breeding herds of native pigs sourced out from different locations/Regions, i.e. the O-Black from Quezon, Markaduke from Marinduque, Sinirangan from eastern Samar, ISUbeba from Isabela, Yoakab from Kalina and the Benguet native pig. Unfortunately, the African Swine Fever (ASF) outbreak diminished the number of breeder animals in native pig R&D stations. Repopulation is being done with animals coming from multiplier farms and communities where the native pigs originate. Identifying and selecting animals from communities or multiplier farms to repopulate the established breeding herds of native pig R&D stations would be facilitated with a set of DNA markers to determine their genetic profile. Furthermore, having a specific genetic profile for each of the established native pig genetic groups would prevent commercial farms misrepresenting their animals to be belonging to one of the established genetic group that the various R&D Stations worked so hard to develop. This research project will look into the genetic diversity of the native pig population and identify a set of DNA markers for use in breed identification, breed composition and parentage testing, which are essential in establishing animal traceability and Breed Registry in both native pigs and commercial pigs.	Publication: At least one (1) publication in scientific journal. At least two (2) abstract/proceedings from scientific conference. Patent: At least one (1) IP filing on UMP Patent on genetic screening protocol/Product: At least one (1) Parentage testing protocol established suitable for native and/or commercial pig. At least one (1) protocol on determining breed purity established suitable for native/commercial pig. At least one (1) protocol on genetic profiling or breed ID of various breeds/genetic group People: Training of SGASL staff on new genetic testing protocol for parentage and genetic profiling or breed identification Place: Genetic testing protocol and parentage testing service to be made available by PCC molecular genetics laboratory and SGASL to participating herds/industry Policy: Recommended policies on the use of DNA verification in setting up of breed registry	Philippine Carabao Center (PCC)	Various native pig R&D stations, Cooperatives and farmer's association, individual households rearing native pigs, including women's groups, multiplier farms and commercial native pig raisers	1-Jul-2023	30-Jun-2026	Ongoing	19,179,054	8,527,601
	Genome-wide Association Study (GWAS) for Growth and Egg Production Traits of Darag Native Chicken (Genome-wide Association Study for Egg Production Traits of Darag Native Chicken)	Integrity of the environment and climate change adaptation and mitigation	Research and development efforts have been done considerably for Darag native chicken for several decades now. The breed has already been purified while the management system is continuously being optimized by the West Visayas State University.	The project aims to deliver the following output: 1.Information on the degree of variations in growth and egg production traits of Darag native chicken; 2.Information on the heritability, genetic and phenotypic correlations of growth and egg production traits of Darag native chicken; 3.Information on possible genetic marker(s) associated with growth rate, egg production and other economically important traits of Darag native chicken; 4.Whole-genome sequence of Darag native chicken; 5.Optimized protocol on genome-wide association study for growth rate and egg production traits of Philippine native chicken; 6.At least five (5) trained WVVSU staff and PADABA members on the use of molecular-assisted selection; 7.At least two (2) scientific article published in refereed journal.	University of the Philippines Los Baños (UPLB)	Darag breeders and producers, Academic, Research and Extension workers, Funding agencies, Native chicken producers, consumers, and traders	1-Jan-2021	31-Dec-2023	Completed	21,051,418	2,319,426
	Improving the Microbial Quality and Shelf-Life of BEPCO Pasteurized Liquid Egg Products thru On-Line Processing Equipment Intervention	Integrity of the environment and climate change adaptation and mitigation	This project will address the seasonal supply of table eggs and fluctuations in egg price by processing the excess egg during summer months brought by high egg production of layer chickens and low consumption of eggs. Moreover extending the shelf life will further widen the distribution and market of processed liquid egg products.	Comprehensive scientific assessment with recommendations regarding the evaluation of the implementation and integration of four On-Line Processing Equipment Interventions by BEPCO. Specific outputs are detailed further below using the IP's metric: Publications: Two (2) undergraduate theses and/or One (1) graduate thesis / at least one (1) paper submitted for publication in a scientific journal Product/Technology: Improvement of product specifications based on FDA Philippine microbial standards (5 New shelf-life declaration resulting from implemented equipment interventions originally set at 14 days) (5 Expected extension of shelf-life with possible sales growth from original Shelf-life declaration from 14 days) People and Place: Knowledge-transfer to 15 BEPCO technical staff Partnership: Partnership with BEPCO processing plant and egg-producers. Policies: New processing parameters for BEPCO (in-house policy) taking into consideration the equipment-enhanced processing line.	University of the Philippines Diliman (UPD)	1) Egg Producers and Processors 2) Batangas Egg Producers Cooperative (BEPCO) 3) Egg Product Consumers	1-Aug-2021	31-May-2023	Completed	4,765,299	543,824

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status 'As of December 31, 2023'	Total Project Cost	2023 PCAARRD GIA
	Integrating S&T Interventions with Common Farm Practices to Ensure Quality and Safety of Locally-Produced Cow's Milk (Enhancing the Handling and Packaging Technologies of Locally-Produced Cow's Milk)	Integrity of the environment and climate change adaptation and mitigation	The project will help the dairy farmers minimize milk spoilage and wastages while ensuring the quality of the milk produced in the farms and it will be safe for the consumers. It will reduce milk deterioration attributed to long storage and shifts in milk temperature because, as practiced by most far-flung farms, milk is stored at freezing temperatures and removed from farmers overnight to be delivered to the processing plant. The study will be integrating S&T technologies that will minimize milk contamination and keep the consumers safe from the ill effects these contaminations.	At the end of two years, the project is expected to deliver the following: 1. Information on fresh milk quality as influenced by production practices, handling, packaging and marketing in Northern Mindanao 2. Reduced milk wastage due to spoilage by 80% 3. Validated technologies on milk handling, storage and packaging that are suitable for dairy farmers in Northern Mindanao	University of Science and Technology of Southern Philippines (USTSP)	The following entities are the target beneficiaries that would potentially benefit from the project. Local Government Units Milk plants and processors Dairy Farms Schools implementing the milk feeding program People in the community	16-Apr-2022	15-Apr-2024	Ongoing	9,506,881	1,438,490
	Production Performance and Profitability Testing of Purified Native Pig Breeds	Integrity of the environment and climate change adaptation and mitigation	In 2015, the DOST-PCAARRD funded a research initiative led by the Marinduque State College in collaboration with the BAI-NSPRDC and other research institutions on the conservation improvement and profitable utilization of Philippine native pigs. The R&D initiative has resulted in the establishment of 6 breeding true-to-type native pig populations (Q-Black, Benguet Native Pig, Sinirangan, Isabela, Markaduke, and Yookah) with at least 80% uniformity in physical characteristics and with improved production performance and product quality. The program also developed technology on breeding and selection, free-range and healthcare management, feeding and forage production, and artificial insemination. The Q-Black native pig from Quezon province is one of the most significant genetic groups that has the potential for commercial native pig production. However, the production performance and profitability of Q-Black native pig is yet to be tested under farmer's field. BuCor, Muntinlupa is one of the strategic areas for the testing of Q-Black native pig. BuCor, Muntinlupa has already been engaged with several DOST-PCAARRD projects and has the potential to promote native pig production as a livelihood option for the persons deprived of liberty or PDLs. Also, BuCor has already been reported as ASF-free for many months and has pink status which will allow implementation of the project. The Cavite State University will provide the technical expertise and will facilitate the conduct of this research in partnership with BuCor, Muntinlupa.	Publication: Publications - At least 2 copyrighted EIC material/promotional materials. . Patent: N/A Product: Performance Data of Oblak Native Pig, established farm at BuCor Muntinlupa, # pigs for lechon, feeding system/People 100 pas (Personnel and TOL) trained for swine management and processing Place Bureau of Corrections and Cavite State University/Policy; N/A	Cagayan State University (CagSU)	LGU, PDL, ..s, Researchers and students, native pig raisers/ farmers, Native pig industry, Lechoneros	1-Jul-2023	30-Jun-2025	Ongoing	5,000,000	8,636,661
	Proj 4. Gene Expression Profiles of Immune-Related Cytokines: Highlighting the Potential Role of Cellular Immunity against Local Isolates of ASF in the Philippines	Integrity of the environment and climate change adaptation and mitigation	African Swine Fever is a highly contagious disease that causes high mortality in swine. There is no treatment and vaccine and the only way to control is to depopulate affected and exposed swine. These measures must be combined with strict movement of animals, biosecurity in farms, and banning the importation of meat products from affected countries. Early detection and diagnosis are critical for effective control of disease spread. However, for this to be successful, adequate laboratory support and effective diagnostic platforms must be available. The limited data on the genetic characteristics of ASFV makes it challenging to develop diagnostic platforms that are specific to a local setting. Knowing the ASFV specific diagnostic tools and to understand viral evolution. Hence, this study aims to utilize molecular techniques to develop tools for detection and immunological characterization of African Swine Fever virus in the Philippines. Obtaining ASF isolates from cell culture and determining whole genome sequences of ASF isolates in the Philippines will aid in the molecular characterization of ASFV strains causing outbreaks in the Philippines, phylogeographic patterns of outbreak, and eventually aid in the prevention and control of ASFV in the country through epidemiological tracing of strains. Through genomics, we propose to develop recombinant ASF proteins and antigenic epitopes specifically circulating in the country that will be used for the development of ELISA. In order to elucidate the relative contributions of immune-related cytokines, chemokines and cell receptors in ASF-infected pigs, we will investigate molecular mechanisms mediating viral pathogenesis, pathogen-host interaction, and immune responses of this detrimental swine disease in the country. The materials and information output of this program are all important in the development of local ASF vaccine.	1. Quantified relative expression levels of immune-related cytokines in the whole blood and macrophages of ASF-infected pigs; 2. Comparative expression analysis of blood and macrophages stimulated with recombinant proteins to elucidate the extent of the host immune response to ASFV both in natural infection and in vitro stimulation; 3. List of potential ASFV recombinant proteins that recognize ASFV which can be used for future vaccine and diagnostic technique development	University of the Philippines Los Baños (UPLB)	1. Outputs from the project will aid government organizations such as the Department of Agriculture and the Bureau of Animal Industry for policy recommendations such as control and prevention strategies against ASF. 2. Published data can help scientists in the development of potential diagnostic methods, drug and vaccine candidates. 3. Veterinarians will be guided in their evidence-based decision making in the epidemiological surveillance and implementation of effective control and eradication strategies against ASF. 4. Farm owners will be benefited by the improved diagnostic efforts, policy recommendations, and control and eradication strategies which will help alleviate the socioeconomic consequences caused by the ASF outbreak. 5. Undergraduate students from the cooperating academic institutions will be able to learn the laboratory skills and techniques used to conduct related researches in the future.	1-Apr-2023	31-Mar-2025	Ongoing	16,826,512	11,208,060
	Strengthening the Thriving Duck Egg Industry in Negros through the Introduction of ItiPINAS	Poverty reduction and empowerment of the poor and vulnerable	Negros Oriental is not a major duck producing province. In 2022, there was an inventory of 84,000 heads as reported by the Provincial Veterinary Office of Negros Oriental. The Philippine Statistics Authority (PSA) reported 171,153 ducks in Negros Oriental for January 2023 which represents a meager 1.2% of the national population. Despite the low production in the province, Negros Oriental received 3.9M balut eggs from Central Luzon in 2022 according to the Bureau of Animal Industry. This amount is expected to increase since for the month of January 2023 alone, the Bureau of Animal Industry has reported 1.1M balut eggs entering Negros Oriental. One of the limitations of Negros Oriental duck industry is the type of ducks used. At the moment, duck farmers use their own stocks whose breeds are not known in order to produce the next generations. This results in birds that have varying characteristics especially that many duck farmers mix ducks of different ages. These pose challenges in projecting production and nutrition as varying sizes will have different nutritional needs. Furthermore, threat of Avian Influenza (AI) hinders ease in transport of live breeder animals especially in inter-island shipment particularly in areas affected by AI. In 2016, ItiPINAS (IP) was launched by DOST-PCAARRD. This breed includes 2 purelines (IP-Itim and IP-Khaki) and a commercial hybrid line (IP-Kayumanggi) that is bred to produce eggs for balut and salted eggs. IP produce around 270 eggs/duck/year which is higher than what most traditional or mongrel ducks can produce. Further, IP mature birds weigh uniformly around 1.1 to 1.3 kg. These characteristics allow for better production and management. Several studies have been conducted on the management of IP and its advantages for duck production. However, IP is not yet used and available in Negros Oriental. This project will establish an IP breeder multiplier farm and create stable supply of IP-Kayumanggi, farm specific management practices in order to encourage and promote its use so that Negros Oriental will be less dependent on other provinces for its duck egg needs. This will further help the local economy by creating livelihood opportunities for women, youth, and men. Furthermore, the establishment of legitimate source of IP in Negros Oriental will ensure sustainability of quality breeder stocks for duck egg production with or without transport restriction due to AI. This project will partner with local farmers and institutions to help develop management systems and leverage on these partners' networks to further promote IP and duck farming as a whole.	Publication: IEC materials (technique and brochures) for Duck egg production and marketing, and costs and returns. 1 paper on IP management in Negros Oriental 1 paper on value chain analysis of the duck industry in Negros Oriental Product: 18,055 female IP Kayumanggi produced in the breeder farm Database of duck farmers in Negros Oriental Profile of Negros Oriental duck farmers and their practices People: 15 capacitated women in Duck production/30 farmers trained in Duck production/15 capacitated women in making Balut/5 capacitated women in making salted eggs/5 Capacitated women in entrepreneurial activities related to Iti Pinas/15 capacitated women in using IP eggs for baking/Pace: MOA with PCAARRD regarding implementation of the project/DOU with other schools, government institutions, associations, and private farmers. MOU with LGU -> for training of farmers (men, women, youth)/Policy: Promotion of locally produced IP products	Foundation University (FU)	1. Existing layer duck farmers 2. Potential duck farmers 3. Balut and salted egg vendors 4. Balut and salted egg processors 5. Consumers of duck eggs and (culled) duck meat 6. Agriculture Technicians, researchers, teachers and students in layer duck breeding, production, and marketing.	1-Oct-2023	30-Sep-2025	Ongoing	4,998,052	1,868,788

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status 'As of December 31, 2023'	Total Project Cost	2023 PCAARRD GIA
	VALIDATION OF MILK PRODUCTION TECHNOLOGIES IN SMALL DAIRY GOAT FARMS	Integrity of the environment and climate change adaptation and mitigation	This project was conceptualized to respond to the need to provide livelihood to our small farmers in the countryside and also to produce more food for the Filipino people.	Goat breeding, feeding, healthcare and management, milk handling and processing technologies validated Innovations on R&D derived technologies developed (by incorporating best farm practices of successful dairy goat farms) Feasibility of small dairy goat farm enterprise evaluated	DOST Region VII	Dairy goat farmers Academe Researchers and students	1-Aug-2021	31-Jan-2024	Ongoing	4,600,000	543,580
Attaining sustainability in the fisheries for sardines and other small pelagic fish off the Zamboanga Peninsula (v. 2021)	Proj 3. Spatial patterns in the fisheries for sardines, their fry, and associated small pelagic fish off the Zamboanga Peninsula	Integrity of the environment and climate change adaptation and mitigation	The program builds on the results of the first phase of investigations of the Zamboanga Upwelling System and the fisheries it supports, and seeks to provide answers to the major questions arising from these results, particularly those concerning maturity, spawning, early stage growth and recruitment, the fry fisheries, and the role of sardines as a key species in the trophic structure of the ecosystem and how its fisheries affects associated small pelagic stocks. In addition, the new studies cover the entire Zamboanga Peninsula (East Sulu Sea) to examine more closely the coupling of North and South Zamboanga, as suggested by the results of previous studies.	Baseline information on the composition, distribution, abundance of fry caught by various gear types will be established and will be used to polish the existing FAO of the sardines fishing ban in Zamboanga Peninsula. Marketing channels of sardine fry will be determined, as well as issues involved can be addressed. Options for interventions in flow of material from fishers to market. Ecologically important areas for different life stages of the small pelagic resources are determined and will be used to polish the existing FAO of the sardines fishing ban in Zamboanga Peninsula	Jose Rizal Memorial State University (JRMSU)	Local commercial and municipal fisheries sector, fisheries stakeholder and consumers, regional BFAR and NSAP, and academe	1-Apr-2022	31-Mar-2025	Ongoing	11,484,492	1,993,506
Attaining sustainability in the fisheries for sardines and other small pelagic fish off the Zamboanga Peninsula (v. 2021)	Proj. 1 Early Life Dynamics and Reproductive Capacity of Sardinella lemuru and Associated Small Pelagic Fish off the Zamboanga Peninsula (Life history, recruitment and trophic role of Sardinella lemuru off the Zamboanga Peninsula)	Rapid, inclusive and sustained economic growth	The program builds on the results of the first phase of investigations of the Zamboanga Upwelling System and the fisheries it supports, and seeks to provide answers to the major questions arising from these results, particularly those concerning maturity, spawning, early stage growth and recruitment, the fry fisheries, and the role of sardines as a key species in the trophic structure of the ecosystem and how its fisheries affects associated small pelagic stocks. In addition, the new studies cover the entire Zamboanga Peninsula (East Sulu Sea) to examine more closely the coupling of North and South Zamboanga, as suggested by the results of previous studies.	—Science-based harvest control reference points for the dominant species of sardines and key small pelagic species off the Zamboanga peninsula—Evaluation of length-based growth models (vs age based) and applications to management of other stocks in the country—MS Biology/Fisheries graduate specializing on sardine population biology—Research staff with expertise on fisheries biology and management—Enhanced understanding of the reproductive capacity of the stock as basis for management—Management scenario options for the small pelagic fisheries off Zamboanga Peninsula—Ecosystem model that may be applied to other fishing grounds in the country	University of the Philippines Visayas (UPV)	Local commercial and municipal fisheries sector, fisheries stakeholder and consumers, regional BFAR and NSAP, and academe	1-Apr-2022	31-Mar-2025	Ongoing	11,474,842	2,300,556
Attaining sustainability in the fisheries for sardines and other small pelagic fish off the Zamboanga Peninsula (v. 2021)	Proj. 2 Trophic Role of Sardinella lemuru off the Zamboanga Peninsula	Rapid, inclusive and sustained economic growth	The program builds on the results of the first phase of investigations of the Zamboanga Upwelling System and the fisheries it supports, and seeks to provide answers to the major questions arising from these results, particularly those concerning maturity, spawning, early stage growth and recruitment, the fry fisheries, and the role of sardines as a key species in the trophic structure of the ecosystem and how its fisheries affects associated small pelagic stocks. In addition, the new studies cover the entire Zamboanga Peninsula (East Sulu Sea) to examine more closely the coupling of North and South Zamboanga, as suggested by the results of previous studies.	Science based information as input to policy on:§ Food web of sardine and other component small and large pelagic species§ The protection of feeding or nursery grounds of sardines in Northern Zamboanga Peninsula- MS Marine Biology graduate specializing on the role of sardines in food webs of Northern Zamboanga Peninsula- Research staff with expertise on trophic analysis in Philippine pelagic ecosystem using C, N and O stable isotopes and stomach content analysis, and predator-prey and pelagic ecosystem Ecopath with Ecosim (free software) simulation modeling- Enhanced understanding of sardine feeding interactions (predator-prey and competitive relationships)- Management scenario options for the small pelagic fisheries off Northern Zamboanga Peninsula	Mindanao State University - Iligan Institute of Technology (MSU-IIT)	Regional and National BFAR, NSAP, NFRDI, Local commercial and municipal fisheries sector, Fisheries stakeholders, Sardine run tourism industry, Academic institutions offering marine sciences, Sardine and mackerel canning and bottling industries, Sardine and small pelagic fisher folks, Marine Science and Fisheries Students (BS/MS/PhD)	1-Apr-2022	31-Mar-2025	Ongoing	9,923,747	2,464,385
Biodiversity and Resilience of Coral Reef and Other Ecosystems in Submarine Groundwater Discharge Areas	Proj 3. Response of Coral Communities in Various Submarine Groundwater Discharge (SGD) sites	Rapid, inclusive and sustained economic growth	SGD is now slowly recognized as an important factor that determines the chemistry of ocean waters. Compared to rivers which has a defined entry to the sea, SGD can potentially discharge into the sea all along the coastal area and into the shelf highlighting the wider influence that SGD may contribute. SGD is also in contact with rocks, soils and sediments which are main sources of dissolved metals, nutrients, and potential urban contaminants can impact the coastal environment as much as or maybe even more than rivers. SGD and its influence on the coral reef ecosystem in Mabini is an area where we might find ways of preserving our reefs given the threats of warming, ocean acidification, and eutrophication. If SGD indeed factors in, then there are more reasons to include this factor in marine surveys, setting-up of marine protected areas, and in environmental protection guidelines for sustainable tourism, which are not included in any of the guidelines worldwide.	1. Spatio-temporal characterization of coral communities (benthos, fish and macroinvertebrates) and coral recruitment in SGD and non-SGD sites 2. Physiological characterization (growth rate, chlorophyll a content, zooxanthellae density, and diversity) * Symbiodinium clade identification) of common species in SGD and non-SGD sites	University of the Philippines Diliman (UPD)	Fisheries managers, Resource planners, local and global scientists	1-Aug-2021	31-Jul-2024	Ongoing	13,511,330	3,831,911
Biodiversity and Resilience of Coral Reef and Other Ecosystems in Submarine Groundwater Discharge Areas	Proj 4. Probing Microbial Diversity in Submarine Groundwater Discharges (SGD) Areas	Rapid, inclusive and sustained economic growth	SGD is now slowly recognized as an important factor that determines the chemistry of ocean waters. Compared to rivers which has a defined entry to the sea, SGD can potentially discharge into the sea all along the coastal area and into the shelf highlighting the wider influence that SGD may contribute. SGD is also in contact with rocks, soils and sediments which are main sources of dissolved metals, nutrients, and potential urban contaminants can impact the coastal environment as much as or maybe even more than rivers. SGD and its influence on the coral reef ecosystem in Mabini is an area where we might find ways of preserving our reefs given the threats of warming, ocean acidification, and eutrophication. If SGD indeed factors in, then there are more reasons to include this factor in marine surveys, setting-up of marine protected areas, and in environmental protection guidelines for sustainable tourism, which are not included in any of the guidelines worldwide.	Database on the diversity of microbial communities in selected SGD affected sites Database on microbial community structures in selected SGD affected sites Protocols for culture-independent methods for microbial diversity studies, such as sample preparation, DNA extraction, PCR amplification and DNA fingerprinting	University of the Philippines Diliman (UPD)	Academe, Biotechnologists Microbiologists, microbial ecologists and systematists Natural products chemists and researchers Researchers and scientists involved in microbial diversity conservation	1-Aug-2021	31-Jul-2024	Ongoing	14,884,593	5,113,591
Biodiversity and Resilience of Coral Reef and Other Ecosystems in Submarine Groundwater Discharge Areas	Proj. 1 Distribution, Type and Fluxes of Submarine Groundwater Discharge (SGD) in Mabini, Batangas	Rapid, inclusive and sustained economic growth	SGD is now slowly recognized as an important factor that determines the chemistry of ocean waters. Compared to rivers which has a defined entry to the sea, SGD can potentially discharge into the sea all along the coastal area and into the shelf highlighting the wider influence that SGD may contribute. SGD is also in contact with rocks, soils and sediments which are main sources of dissolved metals, nutrients, and potential urban contaminants can impact the coastal environment as much as or maybe even more than rivers. SGD and its influence on the coral reef ecosystem in Mabini is an area where we might find ways of preserving our reefs given the threats of warming, ocean acidification, and eutrophication. If SGD indeed factors in, then there are more reasons to include this factor in marine surveys, setting-up of marine protected areas, and in environmental protection guidelines for sustainable tourism, which are not included in any of the guidelines worldwide.	1. Map of SGD occurrences from the coast to a depth of 30 m in Mabini, Batangas 2. Characterization of acoustic signal of differing SGD types 3. Estimates of spatio-temporal variation in fluxes over 4. Protocols in the use of satellite images and acoustics for rapid assessment of SGD occurrences.	University of the Philippines Diliman (UPD)	Fisheries managers, resource planners, local and global scientists	1-Aug-2021	31-Jul-2024	Ongoing	7,562,840	2,211,593

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Biodiversity and Resilience of Coral Reef and Other Ecosystems in Submarine Groundwater Discharge Areas	Proj. 2 Marine Benthic Geochemistry and Ecosystems Associated with Submarine Groundwater Discharge (SGD)	Rapid, inclusive and sustained economic growth	SGD is now slowly recognized as an important factor that determines the chemistry of ocean waters. Compared to rivers which has a defined entry to the sea, SGD can potentially discharge into the sea all along the coastal area and into the shelf highlighting the wider influence that SGD may contribute. SGD is also in contact with rocks, soils and sediments which are main sources of dissolved metals, nutrients, and potential urban contaminants can impact the coastal environment as much as or maybe even more than rivers. SGD and its influence on the coral reef ecosystem in Mabini is an area where we might find ways of preserving our reefs given the threats of warming, ocean acidification, and eutrophication. If SGD indeed factors in, then there are more reasons to include this factor in marine surveys, setting-up of marine protected areas, and in environmental protection guidelines for sustainable tourism, which are not included in any of the guidelines worldwide.	1 Protocols for successful water, sediment, biomass sample collection from various environmental conditions of SGD Areas 2 Isotopic characterization of water from SGD and non-SGD sites 3 Ionic composition of the waters (SGD, ambient seawater) 4 Trace metal composition of the waters (SGD, ambient seawater) 5 Map of seagrass occurrence and type 6 Summary of topics of dominant seagrasses across physico-chemical conditions 7 Synthesis of molecular markers in the sediments that will provide information on the biogeochemical pathways and diagenetic degradation. 8 Compound-specific C and N of select ligids	University of the Philippines Diliman (UPD)	Local communities in Mabini (resort owners, teachers, students, LGUs, tourists) and nearby HEIs (i.e. Batangas State University)	1-Aug-2021	31-Jul-2024	Ongoing	20,395,005	4,138,655
Ecological factors affecting mesophotic coral reef ecosystems: potential refuge from disturbances	Proj. 1 Biodiversity in Mesophotic Coral Reef Ecosystems	Rapid, inclusive and sustained economic growth	Coral reefs today are threatened by multiple stressors at varying spatio-temporal scales. Mesophotic coral reef ecosystems, which are coral reefs that occur at depths of 30 m and deeper, have been to provide a refuge against such large-scale stressors, considering their ability to buffer against disturbances such as increased temperatures and storms (Lesser et al. 2009), and their often close proximity to euphotic (i.e., shallow-water; 0 to 30 m deep) reefs (Bridge et al. 2013). Recent work has suggested that the potential of mesophotic reefs to function as a refuge for euphotic reefs is not universal and depends on various biological and physical factors that are taxa- and site-specific (Bongaerts et al. 2010, 2017). Refuge potential is partly determined by the connectivity of reef sites (i.e., are adjacent reefs biologically and physically connected), which is determined by species-specific dispersal potential and post-settlement survival of reef organisms, and site-specific oceanographic patterns (Cowan & Sponaugle 2009), as well as the adaptive capacity of mesophotic organisms. Thus, there is a need to improve understanding of these various factors in order to better assess the refuge potential of mesophotic reef ecosystems.	Biodiversity of coral, including precious corals, and reef fish communities in selected mesophotic sites in the Philippines. Differential susceptibility of the shallow and mesophotic reefs to thermal stress-induced coral bleaching, based on the presence of coral taxa that are susceptible to thermal stress. Trained at least five staff in technical diving (mesophotic diving) Training workshops (at least one at each of the five sites) on biodiversity survey and thermal stress impact assessment. Engage MS and/or PhD DOST-PCAARRD scholars who intend to do their research on mesophotic coral ecosystem information, Education, and Communication (IEC) materials distributed and biodiversity and role of mesophotic coral ecosystems as refuge from disturbances. At least two (2) manuscript prepared for publication on mesophotic coral ecosystems. Handbook on mesophotic coral ecosystems in the Philippines. Video production summarizing the output of the Program. Science-based inputs to policy recommendations on biodiversity conservation and climate change adaptation	University of the Philippines Diliman (UPD), Mariano Marcos State University (MMSU), Holy Name University (HNU)	Local communities, local government units (LGUs), fishers, research/scientific community and students	1-Nov-2022	31-Oct-2025	Ongoing	40,847,667	6,055,281
Ecological factors affecting mesophotic coral reef ecosystems: potential refuge from disturbances	Proj. 2 Investigating the Genetic Basis of Adaptive Capacity in Mesophotic Organisms	Rapid, inclusive and sustained economic growth	Coral reefs today are threatened by multiple stressors at varying spatio-temporal scales. Mesophotic coral reef ecosystems, which are coral reefs that occur at depths of 30 m and deeper, have been to provide a refuge against such large-scale stressors, considering their ability to buffer against disturbances such as increased temperatures and storms (Lesser et al. 2009), and their often close proximity to euphotic (i.e., shallow-water; 0 to 30 m deep) reefs (Bridge et al. 2013). Recent work has suggested that the potential of mesophotic reefs to function as a refuge for euphotic reefs is not universal and depends on various biological and physical factors that are taxa- and site-specific (Bongaerts et al. 2010, 2017). Refuge potential is partly determined by the connectivity of reef sites (i.e., are adjacent reefs biologically and physically connected), which is determined by species-specific dispersal potential and post-settlement survival of reef organisms, and site-specific oceanographic patterns (Cowan & Sponaugle 2009), as well as the adaptive capacity of mesophotic organisms. Thus, there is a need to improve understanding of these various factors in order to better assess the refuge potential of mesophotic reef ecosystems.	Characterized microbial symbiont diversity in at least two species of mesophotic corals and sponges. Generated reference transcriptome sequences for at least one species of coral and sponge from selected mesophotic reefs. Valuated gene expression responses of at least one species of coral and sponge transplanted at different depths. At least two (2) manuscripts prepared for publication on mesophotic coral ecosystem information, Education, and Communication (IEC) materials distributed and biodiversity and role of mesophotic coral ecosystems as refuge from disturbances. Trained at least 2 staff in microbiome and transcriptome analysis. Training workshop (at least one at each of the three sites) on adaptive capacity of organisms in mesophotic coral ecosystems. Engage MS and/or PhD DOST-PCAARRD scholars who intend to do their research on mesophotic coral ecosystem. Science-based inputs to policy recommendations on biodiversity conservation and climate change adaptation	University of the Philippines Diliman (UPD)	Local communities, local government units (LGUs), fishers, research/scientific community and students	1-Nov-2022	31-Oct-2025	Ongoing	26,163,174	3,413,866
Ecological factors affecting mesophotic coral reef ecosystems: potential refuge from disturbances	Proj. 3 Examining Population Connectivity between Euphotic and Mesophotic Coral Reef Ecosystems	Rapid, inclusive and sustained economic growth	Coral reefs today are threatened by multiple stressors at varying spatio-temporal scales. Mesophotic coral reef ecosystems, which are coral reefs that occur at depths of 30 m and deeper, have been to provide a refuge against such large-scale stressors, considering their ability to buffer against disturbances such as increased temperatures and storms (Lesser et al. 2009), and their often close proximity to euphotic (i.e., shallow-water; 0 to 30 m deep) reefs (Bridge et al. 2013). Recent work has suggested that the potential of mesophotic reefs to function as a refuge for euphotic reefs is not universal and depends on various biological and physical factors that are taxa- and site-specific (Bongaerts et al. 2010, 2017). Refuge potential is partly determined by the connectivity of reef sites (i.e., are adjacent reefs biologically and physically connected), which is determined by species-specific dispersal potential and post-settlement survival of reef organisms, and site-specific oceanographic patterns (Cowan & Sponaugle 2009), as well as the adaptive capacity of mesophotic organisms. Thus, there is a need to improve understanding of these various factors in order to better assess the refuge potential of mesophotic reef ecosystems.	Short read sequences and single nucleotide polymorphism markers generated for two depth-generalist coral species collected from western Luzon populations. Characterized spatial patterns and degree of genetic connectivity between MCEs and shallow-water reefs along the western Luzon coast based on single nucleotide polymorphism (SNP) markers. Identified spatial patterns and scales of population connectivity between MCEs and shallow-water reefs along the western Luzon coast based on biophysical modeling approaches. Trained at least 3 staff in analysis of population connectivity. Training workshop (at least one at each of the three sites) on population connectivity in mesophotic coral ecosystems. Engage MS and/or PhD DOST-PCAARRD scholars who intend to do their research on mesophotic coral ecosystem information, Education, and Communication (IEC) materials produced and distributed (Handbook on mesophotic coral ecosystems, videos and other reference and training materials). Science-based inputs to policy recommendations on biodiversity conservation and climate change adaptation	University of the Philippines Diliman (UPD)	Local communities, local government units (LGUs), fishers, research/scientific community and students	1-Nov-2022	31-Oct-2025	Ongoing	17,570,647	3,818,336
Ploidy-dependent physiological and chemical traits of Kappaphycus culturs	Project 1. Prevalence and ploidy-dependent physiological responses in farmed culturs and novel strains of Kappaphycus	Integrity of the environment and climate change adaptation and mitigation	Ploidy is the number of complete sets of chromosomes in a cell or an organism, which can either be monoploid (=haploid; 1 set), diploid (2 sets), or polyploid (3 or more chromosome sets). Variation in ploidy confers adaptive and ecological significance. For example, among unicellular organisms, haploids are less fit than diploids following exposure to mutagens but are more fit than diploids under certain nutrient limited conditions, but not under others. Polyploids are common among plants and green algae but are less adequately documented in red and brown algae. Increasing ploidy level is suggested to improve plant traits such as size, quality, yield, enhanced vigor, and improved tolerances to environmental stresses, pests, and pathogens. Whether this is true among our farmed eucheumatoids remained to be investigated. This study will determine the prevalence of ploidy corresponding to specific life history phase among commercial and novel Kappaphycus strains, and their corresponding physiological and biochemical characteristics. Unravelling the occurrence and prevalence of specific ploidy in Kappaphycus is important in: (1) understanding corresponding vigor and productivity among different culturs; (2) selecting novel strains from the wild for future domestication replacing old and fatigued culturs; and (3) developing tools for breeding and crop improvement programs.	Publication: At least 2 published papers in ISI Journal. Patent: None for this phase. Product: Well-characterized robust cultivar(s) for distribution and cultivation by seaweed farmers. People: The project will support at least two graduate students. These are: Place: Establish cultural cooperation/association in Palawan, Samar, and Sorsogon. Policy: Contribute to national seaweed research and utilization agenda.	University of the Philippines Diliman (UPD)	Seaweed farmers, policy makers, national and global scientists.	1-May-2023	30-Apr-2026	Ongoing	11,374,188	4,788,548
Ploidy-dependent physiological and chemical traits of Kappaphycus culturs	Project 2. Development of Genetic and Chemical Markers for Identifying Tetrasporophytes, Male Gametophytes and Female Gametophytes of Kappaphycus alvarezii and K. striatus	Integrity of the environment and climate change adaptation and mitigation		Publication: 5 scientific papers published in international refereed journal. Patent: None for this phase. Product: genetic markers for phase (ploidy) and sex for Kappaphycus species. Biochemical markers for phase (ploidy) and sex for Kappaphycus species. Biochemical markers for phase (ploidy) and sex for Gracilaria species. Biochemical markers for phase (ploidy) and sex for Gracilaria species. Technique for using these markers to determine the phase (ploidy) and sex of a given specimen of Kappaphycus/Gracilaria. People: potential training of seaweed researchers in government or academe interested in a training on the application of the diagnostic techniques developed by this study. Places and Partnership: potential linkage with BFAR or NFRDI or academic institutions for the sharing/transfer of the techniques	University of the Philippines Diliman (UPD)	The eventual target beneficiaries of the project are those involved in the seaweed industry (seaweed farmers and traders, carrageenan/vagar manufacturers).	1-May-2023	30-Apr-2026	Ongoing	12,287,333	5,387,861

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status 'As of December 31, 2023'	Total Project Cost	2023 PCAARRD GIA
Reproductive Biology Studies, Dietary Analysis, and Life-History of Philippine Tuna Species towards Sustainable Fishing Industry in Mindanao	Project 1. Reproductive Biology Studies of 3 Neritic Tuna Species in Mindanao	Integrity of the environment and climate change adaptation and mitigation	This project will evaluate neritic tuna species with its reproductive biology to establish a proper data that will be used primarily in fish management efforts and will further provide more inputs to stock population density implications in the future. Inter and intra-species reproductive variations will, therefore, be generated that will be instrumental in crafting policies that will ensure a sustainable tuna fishing in Mindanao and the country. If the following objectives are realized, the results of this research will be able to provide an updated information on the reproductive biology of neritic tuna species. It would provide relevant knowledge to help understand the reproductive condition of male and female individuals of each species. Having a better picture of the species' reproductive biology on a tissue level would help understand its population dynamics as much as reproduction is concerned. Wholly, this undertaking will be able to provide essential and required biological knowledge that would facilitate stock assessments and efficient management of tuna and tuna-like species in the future, in consideration of sustainability of the tuna resources. Among these policies that might be supported by the data that will be generated from this project are: 1) control of fishing seasons, 2) control of the fishery areas (spawning areas), and 3) control of juvenile fish through the regulation of minimum net mesh size and the prohibition of the sale of juvenile fishes. Thus, this project is important for the assessment of the reproductive potential of the populations as well as to well understand the productivity of fish populations and their resilience to fisheries and environmental changes.	Publications At least 3 publications on the reproductive biology of Eastern Little Tuna (Euthynnus affinis), Tuna (Auxis thazard) and Bullet Tuna (Auxis roche) in the seas of Mindanao, Philippines. Products Atlas of the neritic tuna species with updated information on its reproductive biology based on the results of this project People and Services Awareness campaign for local Fisherfolk, canning industries or tuna consumers on the target prey and food preferences of these 6 commercially important tuna species Two research assistants and two MS Bio students will be trained in reproductive characterization of neritic tuna species Places and Partnerships MOU with Bureau of Fisheries & Aquatic Resources, private tuna industries, and local government units Patents/Intellectual Properties Copyright for an atlas of the neritic tuna species with an updated information on its reproductive biology based on the results of this project Policy Science based information that will input to policy on the 1) control of fishing seasons, 2) control of the fishery areas (spawning areas), and 3) control of juvenile fish through the regulation of minimum net mesh size and the prohibition of the sale of juvenile fishes. Social Impact Increased awareness of fisherfolk and local community on the present status of the tuna resources in Region 12 as well as its significance in managing these resources Economic Impact Through the policy that will be crafted and implemented out of the program, this will contribute in sustaining the tuna resources as well as the livelihood of fisherfolk and other	Mindanao state University - General Santos City (MSU-GSC)	Stakeholders (Tuna Industry). This project can provide the stakeholders recommendations in tuna fishery management, especially for the small-scale fishers that could potentially result to an increased and efficient catch. The results may be used to provide guidance to the fishing industries to improve their management practices in order to save valuable time and resources. Government Sectors (LGUs and DA). Results from this project can serve as a basis for the development of species atlas that the LGUs and the DA can extend to their clientities. Furthermore, the results can serve as benchmark information in crafting new technologies in management especially for research purposes, and in developing policies and regulations related to the management and sustainability of the tuna industry and the marine ecosystem in the country. This will also pave the way for LGUs, DA and SUCs to craft complementary technologies for research, development, and extension purposes.	1-Jan-2020	30-Jun-2023	Completed	6,478,990	697,413
	Aquaculture Development of Ulva for Sustainable Production and Product Formulation	Integrity of the environment and climate change adaptation and mitigation		1.Publications. At least 2 publications in refereed Scopus or ISI-indexed journal; 2.Patents/P. One (1) patent application on the culture technology of Ulva for the entire Philippines; and copyrighted manual for the outdoor culture of Ulva; 3.Products. Ulva seed strain and biomass products (wet or preserved-dried) as base ingredient for agriculture and food industry including the isolated and purified Ulvan polysaccharide products which will be used in pharmaceutical and nutraceutical companies/industries; 4.People and Services. At least 2 graduate scholars to be trained; 5.Places and Partnerships. Technology transfer collaboration with seaweed industry, pharmaceutical company and government agencies (BFAR-R7 and DA-R7) 6.Policy. Policy brief on a sustainable aquaculture of Ulva and the promotion of its uses to agriculture and pharmaceutical industries.	University of San Carlos (USC)	Academe and Scientific Community. The target beneficiaries of this project are the following: a. Seaweed company/industry * seaweed farmers and companies may obtain Ulva seed stock material as potential strain for biomass culture, including trainings to individuals interested in Ulva cultivation for agricultural purposes. b. Research institutions and pharmaceutical industry * results of the study will provide various applications in various fields in the product formulation as feed/food and biomedical applications. c. Academic institutions * students, researchers and professors will acquire knowledge in understanding the culture processes and production of Ulva as commercial species desirable in value chain programs. d. Government agencies * adoption and registry of Ulva seedstocks as culture strains for biomass cultivation and product formulation, such as BFAR-R7 and DA-R7.	1-May-2021	30-Apr-2024	Ongoing	8,901,556	533,679
	Assessment and Mobilization of Research Initiatives on Philippine Marine Mammals (PHLMarMans)	Integrity of the environment and climate change adaptation and mitigation	To date, there are 31 species of marine mammals (30 cetaceans and the dugong) in the Philippines (Aragones, unpublished data). Globally, there are 83 cetaceans and 4 sirenians. Studies on Philippine marine mammals have been wanting. The more recent limited studies have been mainly conducted by the Marine Mammal Research & Conservation Laboratory of the Institute of Environmental Science & Meteorology of the University of the Philippines - Diliman in collaboration with the Philippine Marine Mammal Stranding Network (PMMSN), BFAR and C3-PHL (for the dugong part). Most of these have had limited funding and were expectedly limited in scale (coverage & duration; except the strandings data, which is national and 15 years running). The other related literature is already old (1990s and early 2000s). Unfortunately, these animals are already vulnerable due to their demanding biology: long-lived, large size, mostly single live birth, extensive pre-reproductive period, resulting in low reproductive potential. In addition to these biological vulnerabilities, these animals are mostly threatened by overexploitation, by catch, pollution, changing climate, and habitat degradation and loss. Under the IUCN Red List, most marine mammals are either threatened, vulnerable, endangered and critically endangered. Proper management of these species, require information or data on their abundance and distribution (i.e., ecology) and population genetics. Also, the quantification and documentation of their threats is imperative to address these problems systematically. It is about time that the Philippines comprehensively study these megalanans in the light of our changing environment and continuing biodiversity loss.	End of the Project Outputs/Products/Assessment Profile Taaon Strait and Calauit Island,Enhrance Repository for the samples collected from stranded marine mammals Publication/At least one (1) peer-reviewed publications People and Services/One (1) mentored MS student/Conduct one (1) necropsy training/Twenty (20) trained personnel to necropsy and pertinent samples collected. Places and Partnerships/Partnership with LGUs in southern Taaon Strait, Negros and Cebu in Visayas and in Calauit Island in Palawan./Partnership with BFAR, DENR and C3-PH Policy/Results of the study can be used as input to policy conservation of Philippine Marine Mammals in Taaon Strait (Negros and Cebu in Visayas) and in Calauit Island in Palawan.	University of the Philippines Diliman (UPD)	Select Local Government Units (LGUs) (Regions 4B & 7). Locals communities and Indigenous People (IPs) Bureau of Fisheries and Aquatic Resources (BFAR)/Department of Environment and Natural Resources (DENR) (Regions 4B, 7)	1-May-2022	30-Apr-2024	Ongoing	5,000,000	835,066

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Biological and Ecological Studies on Asparagopsis taxiformis (BEAT) for Culture Technology Development	Integrity of the environment and climate change adaptation and mitigation	The Philippines has among the most diverse seaweed flora (~ 1000 spp.) in the western tropical Pacific yet we are only utilizing about 20 seaweed species. Of these, the Philippine seaweed industry is heavily reliant on three carrageenan-producing species (i.e., Eucheuma denticulatum, Kappaphycus alvarezii, and Kappaphycus striatus). To lessen our dependence on these species, we need to maximize our seaweed resources by tapping and developing those that hold great socio-economic potentials. Among these underdeveloped and underutilized seaweed resources is the red seaweed Asparagopsis taxiformis. The species can be sold and consumed as food, possess high-value natural products such as phycobiliproteins, and produce bioactive compounds that can be used in the medical, pharmaceutical, and nutraceutical industries (Tono 1997, 2001). Extracts of A. taxiformis was also reported to have anti-microbial properties against pathogenic bacteria in cultured fish and shrimps (Genovese et al. 2012). As feed additives, the bioactive compound bromoform they produce was known to reduce the amount of methane released by cows when they belch (Machado et al. 2014, 2015, Kinley et al. 2020). Recent findings also suggest that as low as 0.20% Asparagopsis addition to feeds, decrease in methane release from cows can go as high as 98%; that, while promoting weight gain among those fed with it (Kinley et al. 2020). Consequently, this alleviates the contribution of livestock to greenhouse gas emissions. However, the culture technology for the large-scale biomass production of A. taxiformis is yet to be developed and this is largely due to our lack of knowledge and poor understanding of the basic aspects of its biology, physiology, and ecology. Thus, we propose to conduct this research for development work to: 1) fill our foundational knowledge gaps on the biology, physiology, and ecology of A. taxiformis; and, 2) facilitate the cultivation technology development for A. taxiformis to sustainably produce biomass for the abovementioned purposes.	Products —Technology package for sporulation and short- to the medium-term culture maintenance of Asparagopsis taxiformis spores —DNA barcodes of Asparagopsis —Catalogue of Herbarium specimens —Data on the biology, ecology, and physiology of Asparagopsis taxiformis Publication —Two (2) publications on ISI, SC-indexed or peer-reviewed journal People and Services —Six (6) trained researchers, four (4) project staff and two (2) graduate students mentored on seaweed biodiversity, ecology, physiology, and in vitro culture —MOA with BatStateU —MOA with Local Government Units and BFAR Policy —Information as input to policy recommendation on the conservation and protection of Asparagopsis taxiformis resources. Currently, A. taxiformis is being targeted by both local and international seaweed researchers and industries due to the high economic potential of the species.	University of the Philippines Diliman (UPD), Batangas State University (BatState-U)	—Seaweed Farmers —Seaweed Industry —Coastal populations —DA-BFAR —Academe, Researchers, Students	1-May-2021	30-Apr-2023	Completed	9,983,854	1,626,795
	Capacity Building on Reef Assessment and Coral Taxonomy Phase 2 (C-BRACT 2)	Integrity of the environment and climate change adaptation and mitigation	This project will initiate citizen science monitoring of coral reefs through a training and capacity building effort. It builds on the foundations developed by CBRACT 1 and will provide trainers-training to the graduates of CBRACT-1 on reef monitoring using recently developed citizen-science methods. Modules and a protocol handbook will be developed to enable the training to be delivered remotely. Further, it will build the nationwide database and clearinghouse to serve as a repository and back-up for images and data produced by such an effort.	Publication Training modules and digital versions of training materials 1 Protocol handbook Product: 1 Remote Learning Course on reef assessment with citizen science methods 2 Protocols 2 Databases People and Services 24 trainers from HEIs and stakeholder LGUs capacitated/trained 6 members from the filipinians association of Lian, Batangas Two trainings of trainers conducted Places and Partnerships At least 1 partnership	De La Salle University (DLSU)	Faculty and staff of regional institutions of higher education Coastal community partners of regional institutions of higher education Bureau of Fisheries and Aquatic Resources Department of Environment and Natural Resources Faculty and students of high schools, senior high schools, and colleges	1-Sep-2021	31-Aug-2023	Completed	4,999,326	1,083,690
	Developing Sustainable Macroalgal Feeds to Enhance Production of Sea Cucumber Culture	Integrity of the environment and climate change adaptation and mitigation	The overexploitation of wild sea cucumber stocks has affected the livelihood of many fishing communities. As this dilemma continues to persist, stock enhancement efforts and aquaculture programs were initiated. However, the dependency of hatchery rearing on cultured live microalgae as feed remains a major bottleneck in the production of juveniles for grow-out. Hence, the development of alternative or supplemental feeds that are optimal for growth but are accessible and less costly is strategic. In this project, different locally abundant macroalgal species (e.g., Sargassum ilicifolium, Sargassum polycystum, Ulva sp., and Gracilaria sp.) will be tested to determine their effectiveness in enhancing growth and survival of juveniles of two high-value sea cucumbers, Holothuria scabra and Stichopus of horrens. Hatchery and field trials to be conducted will be geared towards the refinement of the use of macroalgae (i.e., Sargassum) as early juvenile feed that can be used to develop sustainable, affordable, and locally available feed for enhancing sea cucumber juvenile culture in the hatchery and ocean nursery. This project will capitalize on the diversity of seaweed resources in the country and will address the challenges of developing sustainable aquaculture systems that will have socio-economic benefits for different stakeholders, while maintaining the productivity of coastal ecosystems.	End of the Program Outputs/Products At the end of the project, it is anticipated that an alternative/supplemental macroalgal feed for H. scabra and S. cf. horrens will be developed/identified. Nutritional factors (ANFs) are characterized, and threshold concentrations determined. Publication/At least one paper submitted for publication/Paper/ poster presentations in regional/local conference/Patent/Intellectual Property/Process of sediment enrichment/People and Services In this 2-year project, researchers and graduate students will be mentored and trained in hatchery production and ocean nursery rearing of two sea cucumber species. In addition, at least 2 research assistants/aides will be trained. Places/Partnerships/Interdisciplinary collaboration with researchers specializing in seaweeds including private and academic institutions/Policy/SAT-based recommendations on management of sea cucumber and seaweed resources, focused on S. cf. horrens and H. scabra for LGUs and DA-BFAR	University of the Philippines Diliman (UPD)	The research/scientific community, as results generated from the abovementioned studies and observations will open doors for further research/press on sustainable mariculture feeds and practices and fishery stock management (e.g., culture-based restocking and stock enhancement)/Local fisher partners in pilot demo sites/LGU and local resource managers will have science-based information to improve sea cucumber fisheries management	1-May-2023	30-Apr-2025	Ongoing	4,988,589	2,338,521
	Examination of Possible Eutrophication of the Reefs in Tubbataha (EXPERT) Project	Integrity of the environment and climate change adaptation and mitigation	The research seeks to undertake a detailed examination and analysis of the changes in community composition in Tubbataha. This will entail resurveying and reprocessing of transect and fixed plot images collected over (at least) a nine-year period since the Tubbataha Management Office (TMO) continues the monitoring of the sites and stations of Licuanan et al. (2017) using the same methods even during the quarantine. The resurveying will be done at a more detailed level than the taxonomic agglomeration units (TAUs) used in NACRE. Images to measure turf algae height and coral recruitment will also be processed to determine if there were changes in these parameters.	Data on patterns of benthic composition throughout 2012-2019 in sampling sites/Map of coral cover distribution in sampling sites/analyzed data will be published in a peer-reviewed abstracted journal (one publication)/List of management interventions that can be adopted by TMO/One policy brief that will contain the direct application of scientific data to changes in policy related to marine protected areas	De La Salle University (DLSU)	The Tubbataha Management Office (TMO) Stakeholders from diving tourism industry/Scientists and researchers/Policy makers	1-Aug-2021	31-Jul-2023	Completed	4,982,859	1,095,699
	Impacts of Marine Heatwaves in select West Philippine Sea Reefs	Integrity of the environment and climate change adaptation and mitigation	This study is part of the program entitled Marine Heat Waves in the Western Pacific: Detection, Mechanisms and Their Impacts on the Coral Reef Ecosystems under the e-Asia Joint Research Program. The lead Principal Investigator (PI) is Dr. Sc. Anindya Wirasatriya from Indonesia. He is an expert in remote sensing for observing air-sea interaction phenomena. The second PI is Prof. Toshio Suga from Japan. His expertise in ocean dynamics made him trusted as the member of Argo Steering Team, Global Ocean Observing System and IPCC. He is experienced in terms of investigating the upper ocean heating in the global ocean. The third PI is Dr. Maria Vanessa Baria-Rodriguez from the Philippines, a coral reef ecologist and the proponent of this project.	Information on the MHW occurrence in the western Pacific in broader-scale and finer-scale in the Philippines, Indonesia and Japan/Information on the mechanisms of MHW generation in the Philippines, Indonesia and Japan/Coral reef monitoring sites in West Philippine Reefs, Bali, Indonesia and Okinawa, Japan/Standardized coral bleaching monitoring protocol	University of the Philippines Diliman (UPD)	Scientists and students (UPD MSI, Batangas State University, Diponegoro University, Tohoku University) and local stakeholders (LGU Bolinao and Anda, Pangasinan, Zambales, Batangas and Puerto Galera) and, NGAs (DENR and BFAR)	1-Nov-2022	31-Oct-2025	Ongoing	13,251,380	6,369,938

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Macronutrient, Carbon Cycling, and Aerosol Deposition: Impacts on Phytoplankton Community Structure and Toxin Production of Harmful Algal Blooms (Trace-HABs)	Integrity of the environment and climate change adaptation and mitigation	The project will look into the interactive effects of various growth factors (e.g., light intensity, temperature, macro- and micronutrient availability) on the occurrence and toxicity of Alexandrium and Pyrodinium blooms in two major sites in the Philippines: Bolinao in Pangasinan and Cancabato Bay in Tacloban City. These areas are identified as study areas because harmful Alexandrium and Pyrodinium blooms have been reported in these sites where coastal communities also rely on fisheries as a major source of food and income. The project results are expected to benefit coastal communities in the study areas as well as the Philippine population, in general.	<p>Product:</p> <ul style="list-style-type: none"> -Knowledge/knowhow/information regarding interactive effects of trace metals with other growth factors of HABs -Database of macronutrient concentrations -Module/training program for trace metal-defined algal cell culturing conditions <p>People and Services:</p> <ul style="list-style-type: none"> -Trained personnel in metalloitics and trace metal biogeochemistry (including all 3 research staff that will be hired during the project duration) -On the job trainees/ interns (about 5 per year) -Addition to scientific workforce by graduating science majors (estimated 3 graduate students for the duration of the project) <p>Publications:</p> <ul style="list-style-type: none"> -ISI-indexed publication (estimated 2-4 peer-reviewed articles for the duration of implementation) -Papers in national and international conferences (estimated 1 per year) -EC materials: posters, proceedings <p>Places and Partnerships:</p> <ul style="list-style-type: none"> -Established laboratories including -Laboratory equipped with facilities for trace metal-defined algal cultures: -Isotope measurement facility for major nutrients: -Partnership with Academia Sinica <p>Policy:</p> <ul style="list-style-type: none"> -Policy briefs on discharge of riverine and anthropogenic wastes especially those that are metal-containing -Science-based information as input into the crafting of policies on the management of HAB 	University of the Philippines Diliman (UPD)	General Public Coastal Communities Academic/Scientific Community	1-Jun-2020	30-Nov-2023	Completed	12,508,077	2,054,260
	Seaweed Waste Biomass from the Carrageenan Industry (SWBC) as Phyco-biostimulants	Integrity of the environment and climate change adaptation and mitigation	Kappaphycus and Eucheuma species are commercially being exploited to produce carrageenan, a phycocolloid typically employed as a direct food additive generally recognized as safe (GRAS) by USFDA and FAO-JECFA. They are commercially cultivated species in the Philippines providing significant and sustainable livelihood especially in coastal communities. Numerous scientific industry-driven applications of carrageenan are highly-recognized in various fields of aquaculture, agriculture and environment, fuel, material science, human and animal health, and nutrition which are tangible solutions in satisfying the UNDP Sustainable Development Goals or Global Goals by 2030. The increasing worldwide demand for Kappaphycus and Eucheuma species and carrageenan has resulted not only in the expansion of culture sites, but also in the increased seaweed biomass waste from industrial carrageenan manufacturing plants. For instance, the extraction of refined carrageenan (RC) leaves seaweed waste biomass (SWBC) that are usually disposed of, generating about 60-70%, based on the seaweed initial dry weight. It is presumed that SWBC still contains different types of carbohydrates usually in the form of fibers, pectinous substances, floridean starch, poly- and oligosaccharides which may be used not only as feedstock for fuel production but also as source of bioactive components promoting plant growth, thus increasing crop yields and quality.	<p>Publication: Academic Publications ~no total of 1:~</p> <p>Year 2: Growth-promoting potential of SWBC in alvarezii: Biochemical profiles and nutrient composition of SWBC</p> <p>Patent: None</p> <p>Product: None</p> <p>People and Services:</p> <p>Year 1: 1 undergraduate student supported</p> <p>Year 2: 1 undergraduate and 1 MS student supported; dissemination of improved methodologies (e.g., application of extracts from SWBC) in field cultivation of Kappaphycus to seaweed farmers/Places Partnerships: Years 1 ~no2: 2-3 Collaborations: probably with 1-2 seaweed farmers associations, 1 seaweed processing industry partner (Shemberg Marketing Corp., Marcel Trading Corp.)</p> <p>Policy: None</p>	University of the Philippines Visayas (UPV)	Seaweed farmers / coastal communities Seaweed processing industry ~no adequate supply of raw materials and continuity of supply chain assures stable/ continued commercialization, both for domestic and export demand; promotion of ~A zero-waste ~in the process of carrageenan production Researchers in seaweed ecophysiology and aquaculture ~no Through these studies, innovative approaches in production and propagation of Kappaphycus in Philippine waters may be developed to further increase seaweed production amid the challenges brought about by global climate change. Findings from this research could also be used to support projects for funding studies on the application of extracts from SWBC as innovative farming strategy for other cultivated seaweed species of commercial interest (e.g., Asparagopsis, Porphyra, Halymenia, Gracilaria, Sargassum, Caulerpa). This study could likewise stimulate researches on new methods of extraction or production of untapped seaweed metabolites for their value-added potential	1-Sep-2023	31-Aug-2025	Ongoing	5,000,000	1,236,468
	Understanding Physiological Vulnerability of Ulva spp.: Implication to Green Tide Blooms (ULVA Project)	Integrity of the environment and climate change adaptation and mitigation	This research would like to explore the potential of a seaweed biorefinery concept integration which considers the use of	<p>1. Publication</p> <ul style="list-style-type: none"> -Two (2) Research papers: local and international publication (peer-reviewed) -EC Materials (e.g., brochure, flyers, video) <p>2. Product</p> <ul style="list-style-type: none"> -Two (2) Database and Herbarium: one in BatStateU VIP CORALS and one in UPMSI -DNA barcodes of Ulva species from Batangas <p>3. People and Services</p> <ul style="list-style-type: none"> -Eight (8) trained personnel: Two (2) trained research assistants -Six (6) trained personnel from LGUs <p>4. Places and partnerships</p> <ul style="list-style-type: none"> -MOA with six (6) coastal areas in Batangas & one (1) National University <p>5. Policy</p> <ul style="list-style-type: none"> -Scientific inputs to policy <p>6. Social Impact</p> <ul style="list-style-type: none"> -Public information and awareness about green tide blooms -Capacitating locals on monitoring possible green tide bloom <p>7. Economic Impact</p> <ul style="list-style-type: none"> -Data from the project can be used for scientific valuation aiding MPAs eco-tourism area establishment and EAFM action planning -Possible development of alternative livelihood 	University of the Philippines Diliman (UPD), Batangas State University (BatState-U)	The target beneficiaries of this project are the following: Research Staff of VIP CORALS and UPD MSI Government Agencies Non-Government Organizations Environmental Practitioners of Hotels in the VIP Resorts and Hotel Owners Coastal Resource Managers	1-Jul-2021	30-Jun-2023	Completed	4,264,660	726,028

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	VISMO: Visayan Sea Model for Operational Oceanography	Integrity of the environment and climate change adaptation and mitigation	In the Visayan Sea, despite the decreasing catch, the potential for fisheries remains because of its seemingly naturally productive waters. The reason for the high productivity is not clear. Time series of fish catch per unit effort (CPUE) data do show correlations with environmental variables, particularly sea surface temperature (SST), wind speed and net primary productivity (Bacalzo et al., 2022). However, it is recognized that the mechanisms involved in the relationship between fisheries and environmental variability in the Visayan Sea remain unexplored. This study will attempt to characterize the circulation in the Visayan Sea and the drivers of both the observed high net primary productivity and fisheries productivity. It is very likely that understanding the processes in the Visayan Sea involves its interaction with the neighboring basins in the Visayas and examination of the neighboring basins is also a crucial part of the study. An explanation of the processes contributing to the natural productivity of the Visayan Sea is an important input towards an ecosystem-based management of marine resources.	1. Publications (3) Three Research Articles/Journal Publications 2. Product (3 Knowledge Products) A website providing near-real-time high-resolution ocean current maps of the Visayan Sea from Structured and Unstructured grid Retriactable Ocean platform for Forecasting, Nucleus for European Modeling of the Ocean (SURF-NEMO) output 3. People and Services (2) Personnel trained in using DELFT3D and SURF-NEMO modeling 4. Places and Partnerships Research collaboration with UPV and BFAR 5. Policy Science-based information that will serve as inputs The expected outputs of the projects are the following: Publications 2 journal publications in peer-reviewed journals; Impact Assessment bulletin; Policy report that documents the program's outcomes and social, economic and environmental impacts to society in the Philippines. Enterprise budget for organic vegetable farmers and factsheet; Places and partnerships Linkages with LGUs and NGAs People and services Capacities built on the use of RCT enhanced Policy Discuss policy implications in relation to development and deployment of the technological interventions	University of the Philippines Diliman (UPD)	BFAR and SUC's who need surface current maps and productivity information for maritime enforcement, oceanographic research and fisheries management.	1-Jul-2023	30-Jun-2025	Ongoing	4,999,368	2,777,164
Accelerating the Growth and Assessing the Impacts of Gender-sensitive and Technology Enhanced Organic Vegetable Production in the Province of Laguna	Proj. 2 Assessing the economic impacts of technological intervention on organic vegetable farm profitability and gender roles in organic farming	Integrity of the environment and climate change adaptation and mitigation	This initiative would evaluate the economic impacts of technological interventions in organic vegetable production on both farmer profits and household wellbeing using a randomized controlled trial (RCT). RCTs offer more rigorous documentation of impacts than commonly used methods such as before-and-after designs or enrolled-versus-unenrolled designs.	Publications 2 journal publications in peer-reviewed journals; Impact Assessment bulletin; Policy report that documents the program's outcomes and social, economic and environmental impacts to society in the Philippines. Enterprise budget for organic vegetable farmers and factsheet; Places and partnerships Linkages with LGUs and NGAs People and services Capacities built on the use of RCT enhanced Policy Discuss policy implications in relation to development and deployment of the technological interventions	University of the Philippines Los Baños (UPLB)	1. Farmers who have not tried organic vegetable production; 2. Policy and decision makers, national R&D/S&T system and the funding agencies supporting R&D activities; 3. Researchers who are directly involved in technology generation as well as those whose field of study included technology assessment and impact assessment; and 4. Evaluators of R&D programs, including PCAARRD's Socio-Economics Research Division.	1-Oct-2021	31-Dec-2023	Completed	2,546,392	454,268
Enhancing the Value Chain Project Designs for Coffee, Cacao and Cavendish Banana Towards the Development of Agri-Aqua Value Chain Laboratory in UP Mindanao	Project 1. Value Chain Analysis and Development: Cacao, Coffee and Cavendish Banana	Integrity of the environment and climate change adaptation and mitigation	This project covers three of the five components of the program. It will update analysis of cacao, coffee and cavendish banana from previous projects as inputs to supply chain network design and agent-based modelling and app development for the other two program components. It will also conduct capacity building activities, evaluation and network development. For the three chains, updating includes utilizing previous survey data to examine the role of consolidation and clusters. Factors affecting the decision to cluster will be examined using a logit model. A technical efficiency model will also be estimated to analyze the role of clusters in enhancing efficiency. A new survey will be conducted for cacao which will be used in agent-based modelling in component 2 as well as in the analysis of clusters. Training and workshops on value chain analysis and development will be conducted for a selected group of researchers and practitioners. Stakeholder workshops will also be conducted to present research outputs. These capacity building activities and stakeholder engagement form part and parcel of developing a value chain laboratory for the agri-food sector.	Publications —At least three (3) papers submitted for publication —At least two (2) papers presented in academic conference/forum Products —Development of value chain upgrading strategies for the selected commodities —Training module on value chain analysis and development —Compilation of value chain studies in the Philippines Places and Partnerships —At least five (5) partnerships to be established with international research collaboration, partnership with regional inclusive innovation center, industry, academic institutions, and local government unit(s) People services —At least thirty (30) researchers, students and practitioners trained —At least three (3) thesis students involved Policies —Policy recommendations for the improvement of value chains of the selected commodities	University of the Philippines Mindanao (UPMin)	small scale producers in selected agri-food chains (eg Talle farmers association), researchers and practitioners in value chain research and development particularly those involving small scale producers and poor communities, government agencies and other relevant agencies.	1-Feb-2023	31-Jul-2024	Ongoing	2,386,000	1,640,784
Enhancing the Value Chain Project Designs for Coffee, Cacao and Cavendish Banana Towards the Development of Agri-Aqua Value Chain Laboratory in UP Mindanao	Project 2. Value Chain Modelling and Simulations: Cacao, Coffee, and Cavendish Banana	Integrity of the environment and climate change adaptation and mitigation	This project aims to address the second component of the program on developing an agri-food value chain research laboratory in UP Mindanao. This project aims to develop models of agri-food value chains that will aid decision-making and evaluation of the chain. This project also seeks to support components 3 and 4 of the program, where value chain strategies and interventions will be disseminated to stakeholders. For phase 1, this project will focus on developing models of at most three chains: Cavendish banana, coffee, and cacao. Studying these value chains in UP Mindanao is not new. However, this project aims to incorporate the data gathered from previous studies (CHED-funded study on Cavendish banana value chain; DOST-PCIEERD-funded project on the coffee value chain; CHED-funded and PCARRD-UP Mindanao-funded projects for cacao value chain) to develop further models that will support in the improvement of the studied chains. For the Cavendish banana, an updated model on the supply chain network design (SCND) will be improved based on the updated inputs gathered from component 1 of the program. For coffee and cacao, a prototype SCND model or an agent-based model will be developed based on the value chain analysis inputs from component 1. The results of the analysis of the SCND models for the value chains will provide insights on how to improve the income generation of small-scale enterprises and explore other alternative markets for the sustainability of the value chain. Similarly, results of the agent-based model aim to explore and reveal behavioral drivers affecting the actors of the chain. This model also looks at the interactions of key players in the value chain that drive potential scenarios of the chain's outputs. It is to be noted that the modeling techniques	Publication —At least one paper for publication Products —At least three (3) value chain models of cavendish banana, cacao, and coffee Places and Partnership —At least three (3) partnerships to be established with academic institutions, industry, and local government unit(s) Economic Impact —Improved livelihood of small-scale producers in selected agri-food chains through effective implementation of strategies and implementations —Improved economic status of the Davao region in the cacao, coffee, and banana sector —Increased financial benefits for value chain participants Social Impact —More inclusive and sustainable value chains in cacao, coffee, and banana —Improved technology adoption of small-scale producers in selected agri-food chains through a well-designed digital application to help decision-making at the farm level —Enhanced partnerships and stakeholder engagements to bring in investments for the large-scale deployment of digital technologies for selected agri-food chains.	University of the Philippines Mindanao (UPMin)	small scale producers in selected agri-food chains (eg Talle farmers association), researchers and practitioners in value chain research and development particularly those involving small scale producers and poor communities, government agencies and other relevant agencies.	1-Feb-2023	31-Jul-2024	Ongoing	1,290,000	854,786

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Enhancing the Value Chain Project Designs for Coffee, Cacao and Cavendish Banana Towards the Development of Agri-Aqua Value Chain Laboratory in UP Mindanao	Project 3. Data analytics for the Cacao, Coffee, and Cavendish Banana Value Chains	Integrity of the environment and climate change adaptation and mitigation	This project covers the data analytics component of the program. It will build on the updated analysis of the banana (Cavendish banana), cacao, and coffee value chains by developing decision support platform based on an analysis of issues in the value chains, previous outputs of mathematical models (e.g., SCND), previous technologies developed (e.g. Kape Analytics), and data analytics modules for selected crops. The technologies will be tested and built as a validated prototype. The prototype testing will include testing with small-scale farmers of the selected crops to validate model results and ease of use of the application. The capacity building activities will be based on the user manual of the application featuring how it provides insights for decision-making at the farm-level. Trainings and workshops will be conducted for its users. Technology pitch can be created to drum up investment support from potential investors. The stakeholder workshops will be a venue to present the capabilities of the prototype to gain interest and possible future investments from government or the private sector. The prototype(s) can also further be developed as a commercial technology through incubator programs. Project 3 will contribute to the large gap in A4.0 technologies in the three selected commodities.	Products —Technology module on digital technology developed for coffee —Training manual on the use of digital technology based on decision support platform(s) developed —Places and Partnerships —At least two (2) collaborative research partner from the regional inclusive innovation center, academia/government, non-government organization, and private sector —People and Services —At least thirty (30) farmers and extension workers/technicians (public and private) trained for technology use —At least three (3) thesis students involved —At least twenty (20) key industry players informed about the technology outputs from the forum conducted —Stakeholder forum conducted involving 30-40 participants where technology outputs are presented as inputs to agriculture 4.0 technology development policy and incubator programs of the academe and government/Social Impact —Employed technology adoption of small-scale producers in selected agri-food chains through a well-designed digital application to help decision-making at the farm level.	University of the Philippines Mindanao (UPMin)	The target beneficiaries of the project include small scale producers in selected agri-food chains (eg Tala farmers association), researchers and practitioners in value chain research and development particularly those involving small scale producers and poor communities, government agencies and other relevant agencies.	1-Feb-2023	31-Jul-2024	Ongoing	1,324,000	861,507
Resource Inventory, Valuation and Policy in Ecosystem Services under Threat (RE-INVEST): The Case of the West Philippine Sea	Project 1. Resource Inventory and Assessment of the West Philippine Sea	Integrity of the environment and climate change adaptation and mitigation	Project 1 of the RE-INVEST Program seeks to quantify the ecosystem assets and services in the WPS and assess the biophysical impacts of damages in the area. Specifically, the project aims to make a comprehensive determination of its biological resources; ascertain the mineral and energy resource potential of the area; measure the spatial extent of damage that has occurred in the last decade due to anthropogenic activities; and elucidate other potential damages due to construction, navigation, and marine pollution.	Publication: Ten (10) manuscripts for submission to reputable scientific journals/At least one (1) policy brief/At least two (2) explainer videos Product: Coastal and marine natural capital accounts for WPS Standardized valuation protocol People: Capacity building of stakeholders and project staff Educating the local and NGAs on the value of coastal and marine resources of WPS Two (2) graduate students involved in the project as GREAT scholars Place: Linkages with LGU, academe, NGAs that are mandated to protect/manage coastal resources Policy: Input to possible national law/policy on WPS	University of the Philippines Diliman (UPD)	Filipino people (in terms of food and job security), LGUs and NGAs, Filipino researchers	1-Apr-2022	31-Mar-2025	Ongoing	79,427,230	25,808,800
Resource Inventory, Valuation and Policy in Ecosystem Services under Threat (RE-INVEST): The Case of the West Philippine Sea	Project 2. Natural Capital Accounting of Coastal and Marine Ecosystems in the West Philippine Sea	Integrity of the environment and climate change adaptation and mitigation	Project 2 of the RE-INVEST Program will develop a systematic and comprehensive accounting and valuation of the ecosystem assets and services of the WPS that conform to international guidelines and frameworks. Using natural capital accounting, estimation of the coastal and marine assets and services will be made by putting values to different components, and its contribution to the economy and human well-being will be analyzed.	Publication: At least three complete drafts ready for submission to journals/At least one (1) policy brief/At least two (2) explainer videos Product: Coastal and marine natural capital accounts for WPS Standardized valuation protocol People: Capacity building of stakeholders and project staff Educating the local and NGAs on the value of coastal and marine resources of WPS Two (2) graduate students involved in the project as GREAT scholars Place: Linkages with LGU, academe, NGAs that are mandated to protect/manage coastal resources Policy: Input to possible national law/policy on WPS	University of the Philippines Los Baños (UPLB)	Fisherfolks within the WPS National policy makers, local and NGAs Graduate students, SUCs	1-Apr-2022	31-Mar-2025	Ongoing	22,416,795	7,131,551
Resource Inventory, Valuation and Policy in Ecosystem Services under Threat (RE-INVEST): The Case of the West Philippine Sea	Project 3. Development of Legal and Policy Framework for the Assessment, Valuation, and Accounting of Philippine Coastal and Marine Resources	Integrity of the environment and climate change adaptation and mitigation	Project Component 3 of the RE-INVEST Program will enhance the general legal and policy framework for marine resource valuation, accounting, and assessment in the Philippines, including the means for determination of liabilities and imposition/collecting of damages and/or penalties for adverse impacts on the marine environment and resources attributable to man-made causes, both deliberate or accidental. The current framework is too specialized and limited in scope and application, and there is a need to expand and elevate its status and utility, hence the necessity for the RE-INVEST Program. Project Component 3 aims to provide the legal basis for more specific initiatives for assessing damages for the degradation of the marine environment and resources, particularly in the West Philippine Sea (WPS). It will also provide legal guidance/advice as necessary to the other two Project Components in the course of the RE-INVEST Program to ensure that recommendations work within the parameters of relevant Philippine laws and policies.	Publication: Two (2) research papers/publications, the first, reviewing the Philippines' existing legal and policy regime relevant to marine resource valuation, accounting, and assessment; and the second, comparing the Philippine legal and policy regime with international practices and experiences, proposing general legal or policy reforms to improve/enhance the Philippine legal and policy regime. One (1) research paper/publication utilizing the findings of the previous research and applying the guidelines to the situation in the West Philippine Sea, assessing legal liabilities and provable damages for damage to the marine environment and resources therein, relying on the findings of Project Components 1 and 2. Patent: None Product: One (1) guidelines for making, pursuing and proving claims for damages and/or imposing penalties and costs for marine environment/resource indemnity, rehabilitation or restoration before national and international courts or tribunals. People: One (1) public seminar/symposium on the liability and compensation regime for the marine environment and resources. Place: Partnership with the International Oil Pollution Compensation Funds (IOPC) Policy: One (1) draft legislative bill and/or draft interim policy instrument providing guidance for the investigation, documentation, and assessment of damages and costs for the marine environment and resources.	University of the Philippines Diliman (UPD)	Government officials and agencies involved in environment and natural resources management Civil society stakeholders with interests in environment and natural resources	1-Apr-2022	31-Mar-2025	Ongoing	5,792,155	1,915,539
Advocating Policy Reforms Towards Effective and Efficient Conduct of Public R & D in the Philippines		Integrity of the environment and climate change adaptation and mitigation	In keeping with PCAARRD's Policy Analysis and Advocacy framework, this study will use Kingdon's multiple stream framework to understand the challenges and interests involved with advancing the utilization of Sec 53.6 of RA 9184 and in promoting the granting of honoraria to researchers. The use of policy scanning and stakeholder mapping will allow for a deeper understanding of the problem. The policy streams which intend to provide policy solutions will be addressed through the conduct of policy dialogues, round-table discussions among others. The politics stream will involve identification of cooperating policy champions to engage in the coproduction of policy instruments and serve as primary actors in the targeted advocacy campaign aimed at the particular government agencies. At the end of the project, a policy instrument that provides guidance to the research community is envisioned.	Publication: 1 Journal Article 2 Policy Briefs Advocacy materials tailored for specific audiences 3-5 minute video explainer Process: documentation of the advocacy People and Services: Round Table Discussions Regional and National Policy Dialogues Information Dissemination Seminars/Workshops Places and Partnerships: With NGAs involved in the procurement and granting of honoraria Agreements or partnerships on advocacy and campaign formed through technical working groups or interagency groups Policy: Policy recommendations drafted and formally endorsed 2 Policy instruments advocated and endorsed	University of the Philippines Los Baños (UPLB)	Cooperating policy entrepreneurs of DBM, COA, GPPB, DOST, DENR, DA, CHED, CPBRD, RDIs	1-Dec-2022	31-May-2024	Ongoing	5,000,000	684,592

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Advocating Science-based Policy Reforms for the Sustainable Production and Consumption of Non-Timber Forest Products in the Philippines: The Case of the Almaciga Resin Industry	Integrity of the environment and climate change adaptation and mitigation	This policy advocacy project is an offshoot of the recently completed project on Market Assessment and Financial Feasibility of the Production of Chemical Non-Timber Forest Products funded by the Department of Science and Technology through the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development. The project aims to advocate for policy reforms on almaciga resources in the Philippines to increase the benefits gained by indigenous peoples and local communities from the resource and to ensure its sustainable production and consumption. Specifically, the project aims to establish the technical/scientific basis for the determination of almaciga resin quota and push for advocacy reforms on almaciga resin.	1. Policies a. Draft DENR Administrative Order on permit duration and almaciga resin tapping that will provide a basis for determining almaciga resin collection quota and a more realistic way of conducting inventory of almaciga resources, among others b. Recommendations to enhance the FPRDI guidelines, e.g., tapping frequency and other findings of the resin yield study. 2. Products a. Almaciga Research and Development Framework. Publications a. At least two (2) articles ready for publication in refereed journals b. Policy Brief c. IEC materials on almaciga resin tapping 4. People and Services a. Capacitated POs and PO members on resource inventory 1. Economic Impacts a. Increased income of almaciga resin tappers b. Higher contribution of the NTFP sector to the GDP c. Higher government revenues from NTFP utilization (forest charges) 2. Social Impacts a. Improved welfare of resin tappers b. Appreciation of the true value of almaciga resin c. Conservation of natural almaciga stands for future generations	University of the Philippines Los Baños (UPLB)	At the end of the project, it is expected to benefit the following sectors: IPs and local communities engaged in almaciga resin tapping and collection Local government units Department of Environment and Natural Resources Palawan Council for Sustainable Development Department of Trade and Industry Non-Timber Forest Products - Exchange Programme Almaciga resin industrial users and exporters	1-Feb-2022	31-Jan-2024	Ongoing	5,000,000	1,609,247
	Analyzing the Effectiveness of Awareness Interventions for the Protection and Conservation of the Philippine Tamaraw	Integrity of the environment and climate change adaptation and mitigation	The project presented here entails a deep-dive on the effects of different awareness interventions to influence the behavior of individuals for the conservation and protection of the Philippine Tamaraw. The main objective is to provide meaningful inputs to LGUs in their efforts to effectively and sustainably manage the community's natural resources through the involvement of the residents. This is relevant especially within the context of the Mandanas ruling wherein such responsibility is placed squarely on the shoulders of the LGU. This project will also be useful as it will provide necessary information and insights when creating sustainable conservation and protection programs for endangered species in the country.	Publications-Effective and potential IEC strategies (social media and radio advertisements, general assembly) -One (1) Journal article-Products-At least three (3) educational materials 1. An assessment framework designed to help stakeholders understand the importance of natural resource protection and conservation 1-Strategic action plan that integrates the use of IEC materials (e.g., suggested creative theme and content for TV and radio, social media, and infographics), suggested IEC campaign, communications strategy, specifying the potential roles and responsibility of key stakeholders including government agencies, NGOs, corporate organizations, LGUs, and national government 1-Database of policies that specifically caters to environmental conservation and protection measures of localities in the Province 1-Calculation of the economic value of the Philippine Tamaraw 1-People and Services 1-Capacity building and information education skills to at least 15 key stakeholders in each project site to empower and ensure that everyone is aware of the importance of conserving the Philippine Tamaraw. The 15 key stakeholders can reach the knowledge and skills gained to others and further expand the reach and impact of conservation education. Places and Partnerships 1-A formal partnership and collaboration in the form of a Memorandum of Understanding (MOU) or letter of commitment is secured from the LGUs involved, the DENR, or at least two leading NGOs (possible candidates being Mindoro Conservation Foundation, Inc. or Makabule Foundation and Deme Farm, Inc., UNDP BIOFIN, HARBON Foundation) at the forefront of Tamaraw conservation. The signed MOU between these stakeholders aims to foster cooperation, combine resources, and expertise to achieve the common goal of protecting the Philippine Tamaraw. Policies 1-Policy recommendation of environmental conservation and protection in the local/social impacts. -Improved community-based approaches for conservation and protection -Improved stakeholder engagement with initiatives to conserve wildlife -Increased awareness: Increase public awareness about the importance of protecting and conserving the Philippine Tamaraw by raising consciousness about the need for environmental conservation and biodiversity preservation -Behavioral change: Study can lead to changes in community attitudes and behaviors toward the protection of Tamaraw promoting sustainable practices and responsible tourism -Local engagement: By involving selected members of the community in the awareness interventions, the study fosters participation and ownership, empowering local communities to take an active role in Tamaraw conservation efforts. Improved environmental stewardship attitudes among community members leading to a greater sense of responsibility towards the protection of biodiversity -Cultural preservation: Protecting the Tamaraw also contributes to the preservation of the cultural heritage of indigenous communities who have lived alongside	University of the Philippines Los Baños (UPLB)	-National government -Local Government Units -Local Community -Other stakeholders	1-Nov-2023	31-Oct-2025	Ongoing	5,000,000	2,559,412
	Annotated Compendium of Gender and Development Research in Agriculture, Aquatic, and Natural Resources (AANR). Towards Developing the AANR Gender and Development and Development Research and Development Agenda and Framework	Integrity of the environment and climate change adaptation and mitigation	The creation of a compendium provides an analytical review of the research findings of gender perspective related researchers. It will begin by determining what are current gender perspective related researches, what are the gender-perspective methodologies done, what specific knowledge areas in gender and development in AANR research in the Philippines will focus on; and will determine the existing research and knowledge gaps that exist in AANR research in the Philippine context. Further, it can provide a critique to the existing publications.	Provision of resources to know future directions of gender-related researches in AANR. Recommendation for capacity building program for researchers necessary for the conduct of contextual studies; Policy brief; Development of the AANR CAD R&D Agenda and Framework Product Collection of published and unpublished research outputs People and services Practical training on Qualitative Content Analysis to 3 Science Research Analysts Publication Compendium of Gender and Development Research in Agriculture, Aquatic, and Natural Resource One journal article Partnerships Established linkages with state universities and colleges and private universities and colleges	University of the Philippines Mindanao (UPMin)	State universities and colleges, Private universities and colleges, PCW, LGUs, and National Government Agencies	1-Jul-2021	30-Sep-2023	Completed	5,000,000	987,716
	Assessment and Valuation of the Ecosystem Services of the Pantabangan-Carranglan Watershed Forest Reserve	Integrity of the environment and climate change adaptation and mitigation	The Pantabangan-Carranglan Watershed Forest Reserve (PCWFR) is a critical watershed that contributes significantly to the provision of ecosystem services in the northern part of the Philippines. Recognizing this, the project aims to conduct a holistic assessment and valuation of key ecosystem services to support the development of a sustainable financing mechanism for the PCWFR. Specifically, the project aims to assess the ecosystem extent, conditions, ecosystem services, benefits and beneficiaries of PCWFR, characterize the different stakeholders, estimate the value of key ecosystem services provided by the PCWFR evaluate the potential of PES as a conservation financing scheme for the PCWFR, and provide specific recommendations for the sustainable management of PCWFR. These objectives will be accomplished through watershed characterization, land use and land cover analysis, focus group discussions, key informant interviews, stakeholder and institutional analyses, modeling, and market and non-market valuation techniques. Among the outputs of the project will be publications in refereed journals, policy brief, ecosystem accounts of PCWFR, IEC materials on PES, description of PES potential of PCWFR, capacitated POs and partners (NVSU, PAMB, DENR) and recommendations for PA management and for the institution of PES and other conservation financing schemes in the Philippines. The project's potential impacts include poverty reduction in upland communities (SDG 1), sustainable management of water resources (SDG 6), forest restoration and biodiversity conservation in PCWFR (SDG 15).	1. Publication a. At least two (2) articles ready for publication in refereed journals b. At least one (1) Policy Brief c. At least one (1) brochure or poster on PES2. Product a. Ecosystem accounts for PCWFR3. People and Services a. Capacitated at least ten (10) staff of LGU, DENR/PAMB, NGO, POs and academe on the use of valuation tools and PES b. At least two (2) trained undergraduate (BS) and two (2) graduate (MS/PhD) students c. Involve and train at least one (1) GREAT scholar4. Places and Partnerships a. Partnership with NVSU (MOU only for staff involvement) b. Partnership with PAMB/DENR and LGUs. Policies a. Local level (municipal) and national level recommendations for the institution of PES and other sustainable financing mechanisms in the Philippines b. Policy recommendations for PA management	University of the Philippines Los Baños (UPLB)	Policy and decision makers, academe (students, faculty members, researchers), private organizations, local government units, government agencies (DENR), POs, upland communities (men and women)	1-Aug-2022	31-Jul-2024	Ongoing	5,000,000	1,253,126
	Assessment of Payment for Water Ecosystem Services (P-WES) Initiatives towards the Development of a Philippine PES Protocol	Integrity of the environment and climate change adaptation and mitigation	The recognition of Payment for Ecosystem Services (PES) started in 2000, but the Philippines still has to craft a policy that regulates or facilitates adoption of PES. There are various PES schemes that are documented/reported to be existing in the country, with services including watershed protection, carbon sequestration, water supply, flood mitigation, aesthetic and recreational value, and biodiversity. However, these are short-lived PES-like initiatives. A successful and market-driven PES is yet to be implemented in the country. Embarking on a review of secondary data from published PES initiatives in the country and an on-site data collection using various methods and tools to analyze these data, there is the need to have a closer look at the benefits that accrue to the providers of the environmental services, to understand the necessary steps needed for adoption of PES in the Philippines. This project will complement an on-site research on PES that will be conducted in Barobob Watershed in Nueva Vizcaya to provide a road map that looks back at the success and failures of previous initiatives. In this light, the project will contribute to the establishment of workable arrangements to form a well-informed National PES Policy.	1. Product a. National Protocol for P-WES Implementation 2. People and Services a. Capacity building of stakeholders and project staff. b. Educating the local stakeholders of their roles and benefits from PES implementation. c. One (1) graduate student to pursue GREAT with PCAARRD 3. Places and Partnerships a. Linkages with LGU, academe, NGOs that are mandated to promote PES in the country4. Policy a. Policy brief b. Draft policy on PESS. Publication a. At least two complete drafts ready for submission to journals 1. Economic Impacts a. Improvement in income levels of communities, businesses, and local governments from conserving Ecosystem Services through PES. b. Improvement of health outcomes through increase in water ecosystem services; and, c. Sustained and robust market for ecosystem services contributing to local economic growth.2. Social Impacts a. More cohesive communities because of binding agreements and continued interaction through PES arrangements; b. Higher concern and prioritization of the environment by communities, businesses, and government; and, c. Empowered communities implementing complementary environment conservation programs.	University of the Philippines Los Baños (UPLB)	Researchers, communities, local governments, and national policy makers	1-Feb-2022	31-Jan-2024	Ongoing	5,000,000	2,290,851

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Comprehensive Gender Analysis of R&D Projects on Selected Commodities in the Agriculture, Aquatic, and Natural Resources Sector	Integrity of the environment and climate change adaptation and mitigation	The gender aspect of technologies, knowledge transfer, and decision-making support is often overlooked. There is a need for gender mainstreaming in every research and development program, which requires a comprehensive gender analysis. The Harmonized Gender and Development Guidelines (HGDD) sets the standards for gender-responsive projects to close the gender gap in agricultural and fisheries value chains. The project implementers of the Industry Strategic Science and Technology Program (ISP) for the identified agriculture, aquatic, and natural resources (ANRR) commodity industry also face the challenge of gender mainstreaming. The project argues that a comprehensive gender analysis of R&D projects on ISP key commodities will produce additional knowledge on gender issues specific to each commodity, gender roles and needs, access and control to resources and benefits, and gender opportunities and constraints. Results will be useful for policy recommendations towards gender-responsive R&D projects.	Expected Outputs Publication —GAD Bulletin on gender issues and gender roles in ISP commodities —Article for publication in a journal on the status of gender in key commodity industries —Article for publication in a journal on recommendations towards a gender-responsive R&D in key commodity industries —Article for PCAARRD Monitor on the findings of the project Product —GDD of gender issues and gender roles for each ISP commodity of key commodity industry players with corresponding gender analysis concepts People and Services —Capacity building activity through basic GAD seminar during the FGD with men and women beneficiaries and/or ISP key players. Places and Partnerships —Established linkages with key commodity industry groups towards making the commodity industry gender responsive. The FGD and community workshops will be conducted with GAD handouts and basic awareness of GAD. This will institutionalize GAD among the households or communities of ISP commodity players. —Forming partnership with PCAARRD NAARRD to ensure that gender analysis outcomes will be used for policy direction. Policy —Policy recommendations towards gender-responsive R&D in key commodity industry Economic Impacts 1. Results of the project may instigate policies and concrete actions to enable better employment and social access to both men and women in the ANRR sectors. Social Impacts 1. Sex-disaggregated data on issues, roles, needs, constraints, and opportunities lead to reliable guides and interventions addressing gender issues and causes, creating opportunities for gender equality and women empowerment. 2. This project will also impact to the R&D proponents since they will be using projects™ output as well as to the men and women beneficiaries of PCAARRD-funded projects.	Central Luzon State University (CLSU)	—Policymakers, researchers, and project leaders of R&D agencies, —Development organizations —Citizens (men, women, children) in each target area.	1-Aug-2023	31-Jan-2025	Ongoing	5,000,000	4,185,050
	Decision Support System for Effective Lake Governance of the Seven Small Crater Lakes in San Pablo City, Laguna	Integrity of the environment and climate change adaptation and mitigation	This study aims to contribute to the body of knowledge and to development practice by examining the evolution of the governance system and institutional arrangements in relation to the management and conservation of the seven crater lakes in Laguna and developing a decision support system for guidance in local communities. This will involve dissection of changes in human-environment interactions within the communities surrounding the seven crater lakes. In turn, results will guide us the development of a decision support system for planned change within lake communities vis-à-vis local development planning. While there have been a limited number of studies that explicitly tackle governance systems and human-environment interactions in the context of lakes, a research and development endeavor has yet to be done to develop appropriate policy planning tools informed by a focus on systematic study of human-environment and governance transitions in surrounding communities.	Publication: Publication - Draft scientific journal articles IEC and training materials Patent: n/a Product: Product - Decision support system, knowledge sharing platforms (website) People: People and Service - Training-workshop with LGU representatives and other stakeholder groups on the use of the decision support system and the knowledge-sharing platforms	University of the Philippines Los Baños (UPLB)	Scientific community Municipal Local government units (San Pablo City, Nagcarlan, Rizal) Provincial Government of Laguna Local Fisheries and Aquatic Resources Management Council (FARMC) Other local people -s organizations Laguna Lake Development Authority	1-Mar-2022	29-Feb-2024	Ongoing	5,000,000	2,379,819
	Deconstructing the Filipino Youth's Perspectives on Agriculture as a Livelihood Source	Integrity of the environment and climate change adaptation and mitigation	This research is a direct offshoot of the earlier PCAARRD funded project which: confirmed the ageing farmer phenomenon in Philippine agriculture; established that the youth seem to be disinterested to pursue agriculture as a career or source of livelihood; parents in a typical farming family do not encourage their children to pursue agriculture as primary livelihood source. The youth's view of agriculture as a career or livelihood source is molded by a myriad of pull and push factors, which have to be thoroughly understood if initiatives designed to encourage greater youth participation in agricultural development are to succeed; Therefore, deconstructing youth's perspective of agriculture and taking a deep dive into the various factors which have formed such perspective is imperative.	Publication:At least 1 paper for publication on that factors that limit/motivate young people to participate in agriculturePolicy recommendations in relation to motivating the youth to get interested in agriculture as a source of livelihoodProduct:Sex disaggregated database on socio-cultural, economic, institutional, and technological factors about youth and agricultureR&D Framework that will enhance youth engagement in agriculturePartnership with the Department of Education at the Municipal Level Economic Impacts: Addresses food security through efficient agricultural technologies2 Provides employment for the youth by making agriculture more attractiveSocial Impacts: A stronger curriculum that underscores the relevance of agriculture among the youth3 Better agricultural policies that support youth engagement in agriculture	University of the Philippines Los Baños (UPLB)	Policy and decision makers to improve national R&D/S&T system and the funding agencies supporting R&D activities. Researchers who are directly involved in youth and agriculture, and agricultural development Young men and women who will benefit in the programs and policies that will be developed based on the results of the project.	1-Aug-2023	31-Jul-2024	Ongoing	5,000,000	5,000,000
	Developing a Point of Catch to Plate Traceability System for Tuna in Davao Region	Integrity of the environment and climate change adaptation and mitigation	Building from the outputs of the catch documentation project implemented by Davao Oriental State University, this new project will develop a traceability system for tuna to support compliance to the market needs. It will involve the collection and analysis of key ecological and socio-economic data in the tuna value chain enabling traceability from point of catch to export and end-retail. Different models will be built to target specific areas of impact while considering the feasibility of implementation. The models will be aligned with the value chain players™ diverse needs and strategies. It is perceived that impacts would be different for the small and big players	Publication:—At least two (2) traceability tool kits for use of (1) value chain players; (2) policy-makers (e.g. BFAR and LGUs); —At least five (5) articles submitted to journal publications (e.g. IS/Scopus) —Presentation to at least five (5) local and international conferences/seminars —At least one (1) policy brief discussing how the developed traceability system and platform/tool can help improve competitiveness and compliance to local and international regulationsProduct: —At least one (1) traceability system developed exhibiting the CTE-KDE framework in the tuna value chain —At least two (2) traceability tool/platform: one (1) mobile app and one (1) desktop applicationPeople: —Mentoring of at least five (5) undergraduate students (men or women) and internship for two (2) Master of Science students (men or women) —At least fifty (50) women and men stakeholders (fisherfolk, fishing companies, fish traders, BFAR, local government units) trained on the traceability system and use of digital platform for food safety and sustainable production of tuna —R&D/training of 100 fishers and 45 vendors (72 males, 73 females) on the traceability tool/platformPartnerships: At least fifteen (15) partnerships developed including Bureau of Fisheries and Aquatic Resources (BFAR), Davao Oriental State University (DOSU), six (6) local government units within the region, various municipal and Barangay Fisheries and Aquatic Resources Management Councils (BFARMCs), BFARMC, fishing companies and other value chain playersPolicy: Policy (e.g. development of new policy/ordinance) for the institutionalization of tuna traceability in the Davao Gulf	University of the Philippines Mindanao (UPMIn)	—Value chain players in the tuna industry (fishers, traders, processors, fishing companies) —Consumers/general public —All local government units in the Davao Region —Government agencies working on fishery management and regulations (e.g. DA-BFAR) —Research institutions including state universities and colleges/academe	1-Mar-2022	29-Feb-2024	Ongoing	5,000,000	2,178,069

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD IGA
	Developing and Piloting LGU-based Natural Capital Accounting for Improved Governance and Management of Community Natural Assets	Integrity of the environment and climate change adaptation and mitigation	Conventional and practical wisdom dictate that planning and management cannot be effectively and efficiently done without accurate and timely information. This is particularly true for LGUs that have been mandated with the primary responsibility of managing their community's natural assets. As natural resources are utilized for various purposes due to population and economic pressure, there has been an increasing concern for sustainable development through better management of resources. It is within this context that LGU-led natural capital accounting is highlighted, to assist in effectively planning, managing, and ultimately governing the community. It is through natural capital accounting (NCA) that ecosystem valuation that the balance between economic activities and environmental conservation is aided by data-driven decisions. At present, the National Economic and Development Authority together with Philippine Statistics Authority and Department of Environment and Natural Resources developed a Roadmap for the institutionalization of the NCA in the Philippines for 2022 to 2040. While natural capital accounts directly apply to the national scale, there should be a site-specific, localized application to make this effort sustainable, timely, and useful for those that govern. Local-level accounts would capture the nuances of the conditions and situations of ecosystems, thus significantly enhancing the contribution of natural accounts to ecosystem health monitoring, it is more appropriate management, and identification of precise interventions for protection. Similarly, efforts to create local-level accounts support and are consistent with the pending PENCAS bill which is expected to become law.	1. Publications a. Journal article b. Discussion paper c. Policy Brief2. Products a. Localized NCA framework b. NCA calculator c. Ecosystem accounts for selected ecosystems d. Inventory of natural assets in the community3. Places and Partnerships a. MOU on the adoption of the localized framework4. People and Services a. Trained representatives of LGUs and other stakeholder groups5. Policy a. Policy inputs for the adoption of the localized framework6. Social impacts: —Strengthening of local partnership among stakeholders (government and community)Economic impacts: —Improvement of livelihood of the people within the locality through data-driven ecosystem-based development planning	University of the Philippines Los Baños (UPLB)	—Local Government Units —National government (PSA, DENR, NEDA) —Laguna Lake Development Authority —Private local organizations —People's Organizations	1-Sep-2023	31-Aug-2025	Ongoing	4,996,364	2,316,468
	Development of a Gender-Responsive Knowledge Transfer Pathway for Potential Adoption of Best Practices in Philippine Vegetable Production Systems	Integrity of the environment and climate change adaptation and mitigation	The project complements the ACIAR-funded SLAM Project by providing enabling mechanisms for the adoption of the strategies generated by the SLAM project on vegetable crop and soil management that can optimize crop inputs, reduce soil loading of plant essential heavy metals, and enhance the quality of soil and pathogen management. The project is participatory action research and will employ mixed method approaches. Project sites are Leyte, Claveria, and Benguet.	Publication- Two (2) publishable papers on any of the following topics/titles:- Enhancing women's... contribution to vegetable technology adoption through better knowledge transfer pathways - Gender-responsive knowledge transfer pathways for key stakeholders- Literature review on gender's role in technology adoption and knowledge transfer Product: Sex-disaggregated database People Services- One (1) Capacity-building activity for project team development One (1) Gender-related training for farmer participants Places and Partnerships - Memorandum of Agreement (MOA) between cooperating agencies: (1) PCAARRD, (2) VSU, (3) UPLB, and (4) USTP- Linkages forged with Institutions engaged in knowledge transfer: (1) Input suppliers, (2) Agricultural Offices, (3) Agricultural Training Institute (ATI)- Three (3) Letters of Commitments signed by the Local Government Unit in Leyte, Claveria, and Benguet (one per site) - adoption of policy recommendations per site Policy	Visayas State University (VSU)	Male and female farmers in three project sites Project Communities Implementing universities in terms of improved research competence Project staff in terms of professional development	16-Nov-2022	15-Nov-2024	Ongoing	5,000,000	1,231,036
	Development of an LGU-led Supply Chain Management System for Selected Vegetables	Integrity of the environment and climate change adaptation and mitigation	Supply chain management is a concept that aims to synchronize the customer requirements with the goods and services being provided by suppliers resulting in a more efficient supply chain, minimizing the supply-demand gap and providing more benefits for the key stakeholders (Stevens, 1989). It has been a long standing issue in the vegetable industry that supply chains are poorly coordinated, wherein customer needs and available supply of goods are not matching. This leads to localized supply shortages and highly volatile prices of vegetables. The same case can be observed in the municipality of Majajjay, a major producer of vegetables in Laguna. Thus, an LGU-led supply chain management system will be developed for the smallholder vegetable farmers in Majajjay with the mentorship of the UPLB-DAME.	Publications —At least two (2) articles based on the results of the project (including one policy brief) Products —Intervention/strategy models; supply chain management system; inventory system; database of key players in vegetable industry in Majajjay, Laguna; supply chain management operations manual; production manuals Places and Partnerships —At least (10) partnerships/linkages established with LGU, producer groups, institutional buyers, and other value chain actors People and Services —At least 197 men and women farmers and LGU staff directly capacitated from the projectPolicies —Policy recommendation to be distributed in the LGU of Majajjay, vegetable farmers/associations, and key institutions working on vegetables to further the growth of the industry. —Municipal ordinance institutionalizing the vegetable supply chain buildEconomic Impact —Higher income — Improved competitiveness of farmers —Livelihood improvement —Improved marketing strategiesSocial Impact —Improved backward and forward linkages —Higher involvement of the LGU in the industry	University of the Philippines Los Baños (UPLB)	The target beneficiaries of the project include women and men vegetable producers, policy-makers, R&D agencies, and service providers.	1-Jul-2023	31-Dec-2024	Ongoing	5,000,000	3,569,174
	Development of an S&T based Gender-responsive and Crisis-resilient Root and Tuber Crops Value Chain through a Participatory Market Chain Approach	Integrity of the environment and climate change adaptation and mitigation	This project hopes to bring the opportunities in root and tuber (R/T) crops production and utilization into a pilot of the Participatory Market Chain Approach (PMCA) to facilitate a gender and crisis-responsive R/Tmarket chains. This project will seek to facilitate the development of shorter and more inclusive S&T-based R/T crops value chain(s) where actors conduct business as partners and collaborators. With a greater sensitivity to gender dimensions of R/T value chains built in, inclusiveness is promoted on two fronts: by facilitating smallholder participation and by conducting gender analyses at key points to inform the innovation process	Publication Two (2) articles One (1) Facilitators' basic guide for public institution-led gender-responsive value chains innovation (electronic format) Products At least one (1) new R/T value chain developed and launched per site Process documentation People and Services At least three (3) personnel in total from cooperating LGU(s) trained in the principles of PMCA and gaining actual experience in facilitating gender-responsive value chain innovation Policy Local ordinance formulated for adoption by the three (3) LGUs of the selected sites to promote gendered PMCA Places and Partnerships Collaboration among value chain actors with LGU Link value chains to Food Innovation Centers	University of the Philippines Los Baños (UPLB)	Communities Livelihood opportunities in new value chains accessible to rural women Sustainable utilization of indigenous root/tuber crops Capacity development in value chain engagement Local government units - Capacity building in facilitating value chain development - Development of a guide for a crisis- and gender-responsive approach for facilitating value chains Researchers/RDE Methodological innovation in facilitating crisis- and gender-responsive value chain development Empirical data on gender dynamics, relations as well as benefits and challenges in a crisis- and gender-responsive value chain	16-Nov-2021	15-May-2024	Ongoing	5,000,000	893,600

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Development of Sustainable and Inclusive Value Chains for Selected Commodities in Laguna	Integrity of the environment and climate change adaptation and mitigation	For this project, three commodity value chains would serve as case studies covering rice, tilapia and bitter melon. These commodities have significant roles in environmental, social and economic sustainability. Rice leads the agricultural sector in terms of greenhouse gas emissions attributed to the use of nitrogen fertilizers. Tilapia farming in Laguna de Bay contributes to increased biological oxygen demand. High value crops such as bitter melon in conventional farming are normally exposed to excessive synthetic pesticide usage that contribute to air pollution, deteriorate soil fertility and contaminate the surface runoff. Farmer groups working on these commodities have also been identified as partner-cooperators. The project will leverage on the role of organizations in ensuring efficient and effective value chains and will develop partnerships with enabling players like the local government units (including the Municipal Agriculturists), attached agencies of the Department of Agriculture like the Agricultural Training Institute and Bureau of Fisheries and Aquatic Resources, Laguna Lake Development Authority and DOST-PCAARRD's own Agri-Aqua Business Hub. In the case of AABH, the project will form part of its Enterprise Development Program.	Publication: At least two (2) articles based on the results of the project (including one policy brief/Patent: N/A/Product: Intervention/strategy models; improved and/or new products/services of enterprises; improved enterprises/People: At least 100 women and men personnel from 5 associations; At least 15 market services/linkages/advisors) provided/Place: At least ten (10) partnerships developed with LGUs, value chain actors, and enabling players/Policy: Policy recommendations on promoting sustainable and inclusive value chains	University of the Philippines Los Baños (UPLB)	Smallholder farmers and fisher-folk in selected locations in Laguna, specifically from the municipalities of Rizal and Pila, as well as the city of Calamba, value chain players, policy makers, local government units (LGUs), agribusiness service providers	1-Jul-2022	31-Dec-2023	Completed	5,000,000	1,473,295
	Enhancing the Development and Growth of Seaweed-based Enterprises in Sorsogon (EDGES)	Integrity of the environment and climate change adaptation and mitigation	Sorsogon was historically one of the major producers of wild stock seaweeds in the Philippines and was the pioneer of seaweed farming in the Bicol region. However, in the past two decades, the production of seaweed in the province has been continuously declining. The industry is hampered with various issues throughout the different stages in the value chain, such as lack of low-cost quality seedlings, poor post harvest practices, limited equipment, disorganized farmers, limited market access, and lack of credit access. With the growing demand for seaweed products globally, it presents an opportunity to revive the industry in the province by helping the seaweed farmers and other value chain players in developing viable enterprises. In this project, appropriate interventions will be identified and applied to address issues and tap opportunities for the development of viable enterprises in the seaweed value chains. Geo-mapping the seaweed farms will be conducted to assess the resource capital and characterize existing seaweed farms in the province. This is important since environmental pressures like typhoons can cause seaweed value chain vulnerabilities and disruptions. Consequently, this project will focus on addressing the value chain challenges faced by the seaweed-based enterprises whose livelihood are vulnerable to natural hazards. A key factor concerning the future economic impacts of the seaweed industry in the province of Sorsogon is the need to identify which communities are most vulnerable to natural disasters that can affect their livelihood. This study seeks to support the vulnerable seaweed farmers in improving their livelihoods by developing and implementing intervention strategies to address the specific needs of the industry and their farm enterprises. These may include capacity building, market and institutional networking, forging partnerships with relevant players in the value chain, developing local industry player databases for the benefit of the local seaweed enterprises among others. In addition, a policy brief will also be made that will highlight key and actual challenges facing seaweed production in Sorsogon and recommendations promoting sustainability of this important industry in the province. The intervention designs will be geared towards the growth and development of the production and operations of the key players in the seaweed industry.	Publication: At least one (1) draft article for publication in highly regarded peer-reviewed journals; One (1) policy brief/Product: One (1) geo-map database to be easily accessed by various stakeholders, a database of seaweed producers and consolidators/People: At least 50 seaweed farmers and processors directly benefiting from the intervention/Places and Partnership: At least 10 partnership agreements with LGUs, seaweed farmers, key players in the value chains, government agencies (e.g. BFAR), and international partners. Policy: A policy recommendation to be distributed among LGUs in Sorsogon, seaweed farmers/associations and key institutions working on seaweed to further the growth of the industry/Social Impact: Creation of livelihood opportunities for otherwise economically and socially marginalized rural coastal communities/Creation of livelihood opportunities for otherwise economically and socially marginalized rural coastal communities. The information that will be generated will help seaweed farmers, cooperators and policy makers to address key challenges on how to improve production and market.	Sorsogon State College (SSC)	It is estimated that at least 81 men and women seaweed farmers belonging to three (3) seaweed producer groups will benefit from this study. As indirect beneficiaries, the LGU, academe and policy makers within the province may benefit from the replication and/or scaling of interventions.	1-Oct-2022	30-Sep-2024	Ongoing	5,000,000	1,145,220
	Enhancing the Growth of Bamboo-based Enterprises in Laguna	Integrity of the environment and climate change adaptation and mitigation	This project will examine the various issues and challenges surrounding the enterprise system and develop the necessary interventions to help them gain the access to technologies, markets, inputs and services like finance and training, in ways that are commercially viable. The development model will be based on the identification of key stakeholders and their key challenges across the value chain to develop high value economic opportunities for the enterprises. Based on the results of the analysis, tailor-fit interventions will be packaged to address the specific needs of the entrepreneurs and the enterprises around the realities of the industry to find solutions to constraints that hinder its development.	Publication —At least two (2) articles based on the results of the project—Value chain maps — Intervention/strategy models — Improved products of identified enterprises/People and Services—At least twenty (20) women and men personnel from 8 enterprises trained on technical and managerial skills/Partnerships—At least (10) partnerships developed with LGUs, value chain actors and enabling players/Policy —At least one (1) policy recommendation to address constraints identified/Economic Impact: The potential economic impact as a result of the interventions may include: —Increase in income, better operational efficiency, improved competitiveness, and improved livelihood, among others, not just for the involved enterprises but also the key players in the value chain/Social Impact: The potential social impacts could be: —Better vertical and horizontal relationships and strengthened partnerships between key players along the value chain that would result in a more healthy and conducive environment for the industry's development. —More people venturing into bamboo-related livelihood activities.	Forest Products Research and Development Institute (DOST-FPRDI)	Women and men bamboo producers and processors in Laguna, policy-makers, R&D agencies, and service providers are the target beneficiaries of the project.	1-Feb-2022	31-Oct-2023	Completed	3,500,000	928,393
	Enhancing the Growth of Crossbred Dairy Buffalo-based Enterprises in San Agustin, Isabela	Integrity of the environment and climate change adaptation and mitigation	This project will build from the results of the project on the strengthening of the San Agustin crossbred carabao-based enterprise development (CBED) model. The CBED model organized a group of 13 dairy producers associations (equivalent to 103 smallholder farmers) to produce milk and bring it to a central processing plant under the management of San Agustin Dairy Cooperative (SADACO) for collective processing and marketing. SADACO was established in 2010 through the partnership of the PCC and the local government unit of San Agustin. As a dairy marketing cooperative, SADACO provided farmers with a marketing outlet. Through the PCAARRD-PCC project, technical training, equipment and supplies were provided; linkages were established with potential markets; and a system for M&E was established. In fact, a municipal ordinance was even developed to regulate the sale and slaughter of crossbred buffaloes and institutionalizing a municipal crossbred carabao development program for the municipality. The implementing rules and regulations, however, are yet to be developed.	Publication: At least two (2) articles based on the results of the project (including one policy brief/Patent: Not applicable/Product: Intervention/strategy models; improved and/or new products of identified enterprises; improved dairy-buffalo based-based products and/or enterprises/People: At least 100 women and men personnel from 13 associations trained on technical and managerial skills/Place: At least (10) partnerships developed with LGUs, value chain actors and enabling players/Policy: At least one (1) implementing rules and regulation developed for institutionalizing development programs for the crossbred carabao industry/Policy recommendation for further development of the crossbred dairy industry	University of the Philippines Los Baños (UPLB)	Women and men dairy-buffalo based producers and processors in San Agustin, Isabela, policy-makers, R&D agencies, and service providers are the target beneficiaries of the project.	1-Jul-2022	30-Jun-2024	Ongoing	5,000,000	1,199,260
	Enhancing the Growth of Tree Plantation Industries in the Philippines: Simplification and Harmonization of Policies and Governance along the Value Chain	Integrity of the environment and climate change adaptation and mitigation	This study will be conducted in Regions 10, 11, and 13 that covers different stages of the industrial tree plantation along the value chain. This research intends to review the policies and identify issues and problems associated with the ITP value chain. It aims to develop a draft policy to simplify and harmonize policies and governance systems to improve the competitiveness and economic development of tree planters and other stakeholders of the wood industry in local, regional and national level.	Policy: Draft policy to simplify and harmonize ITP in both tenured and private lands (Y2) and policy recommendations for inclusion to the SPM Bill/Resolution with ITP stakeholders adopting the policy recommendation/Bulletin: (Y1 & Y2) - 1 brochure/Printer on value chain of ITP (Y1) - 1 policy brief (Y2) - 1 Journal article/publication after completion of the project/Places and Partnership: Technical Working Group (TWG) with members from key agencies formed through issuance of appointments. Social Impacts: Improvement in access to investment opportunities for local farmers/Economic Impacts: —Increase in sustainably sourced logs satisfying the demand of the local industries —Increase in employment opportunities as more private investments are directed to the ITP industry, particularly in wood processing —Increase in income of the key players in the ITP value chain resulting from a more efficient processing of permits and other requirements	University of the Philippines Los Baños (UPLB)	The primary beneficiaries of this project will be the Department of Environment and Natural Resources (DENR), ITP developers, private investors, and the Philippines wood-based industry.	1-Dec-2022	31-May-2024	Ongoing	5,000,000	1,055,396

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Gender Analysis Framework and Monitoring and Evaluation Tools in gender Responsive AANR Development Projects (GAME Tools in AANR)	Integrity of the environment and climate change adaptation and mitigation	Gender-analysis frameworks aim to provide methods to gather and use sex-disaggregated and gender-related data and information to inform development interventions at various stages, that is, from project/program conception and design through to evaluation. GA frameworks and M&E tools emerged in response to the realization of the significance in development projects of the differing roles of men and women. Before then, until the 1980s, development perspective was gender neutral, assuming that the impact of development projects is equal to both men and women. The high rate of failure of development policies, programs and projects was attributed in part to the neglect or lack of knowledge of women's productive and reproductive roles. Thus, the demand emerged for methods which could assist development planners to gather data from which to make informed decisions for the benefit of both men and women, prevent possible negative effects, and make development more effective and efficient.	<p>Publication</p> <p>1 technical journal publication</p> <p>Products</p> <p>1. Questionnaires to complement the HGDD descriptors™ 10 core elements of a gender responsive AANR projects</p> <p>2. Simplified guide to using gender analysis framework and M&E tools suitable for R&D projects (GAME Tools)</p> <p>3. Training-workshops for development planners (SP Managers) and project implementers</p> <p>4. Consultative planning workshops with project staff, development planners (SP Managers), representative project implementers and experts of various fields (GAD and AANR R&D sectors)</p> <p>5. Three (3) training modules/materials to enable GAME tools users to have harmonized understanding of the tools and vocabularies.</p> <p>People and Services</p> <p>The capacity building to use the GAME tools for AANR projects would result to the development of partnerships with PCAARRD and its AANR networks.</p> <p>Places and Partnerships</p> <p>1. Partnership with the PCAARRD NAARRD networks to ensure that the gender impact of the PCAARRD funded projects are determined and used for policy direction</p> <p>2. Possible partnership with PCW</p> <p>Policy</p> <p>Policy recommendation to articulate the necessity to determine the gender impact of government funded R&D projects</p>	University of the Philippines Los Baños (UPLB)	AANR researchers/ project implementers and development planners/ ISP managers, the men and women in agriculture, aquatic and natural resources sector, including studies in socio-economic so that their differential needs and roles would be identified, and that they would benefit equally on the impacts of PCAARRD funded development projects, other R&D agencies, SLCS, and the Philippine Commission on Women.	1-Jun-2022	31-May-2024	Ongoing	5,000,000	2,006,580
	Gender Impact Assessment of Forest Conservation Projects among Indigenous Peoples in Luzon, Philippines	Integrity of the environment and climate change adaptation and mitigation	This project assesses the gender impacts of forest conservation projects introduced to indigenous peoples (IP) in Luzon. It focuses on four indigenous peoples, namely, the Kalanguya/Ikalahan, and Ifugao-Ayangan of Nueva Vizcaya, Aeta of Nueva Ecija, and Molbog of Palawan. This research conducts a Gender Impact Assessment (GIA) on forest conservation projects, including the National Greening Program (NGP), and watershed management involving valuation and assessment of payment for ecosystem services. In conducting GIA, this project analyzes: (1) gender-disaggregated socio-economic impacts of forest conservation projects on indigenous peoples; (2) gender gaps engendered by these initiatives in terms of access and control of benefits and opportunities, participation in decision-making, leadership positions, and employment status; and, (3) policy recommendations to close gender gaps and improve the project design and delivery to promote gender empowerment in forest conservation projects. It uses mixed methods, where both quantitative and qualitative tools generate gender-disaggregated data on: (a) roles and activities; (b) access and control; (c) practical and strategic needs; (d) decision-making participation; (e) gender impacts on labor, time, resources, and socio-cultural factors; (f) influencing factors (economic, social, environmental and education); and, (g) level of equality and recognition of women's issues.	<p>Publication -One (1) state of the art literature review on the selected indigenous peoples and their situations-One (1) compendium of documented case studies on gender-specific impacts of forest conservation in selected research sites-At least two (2) journal articles on gender-specific impacts of forest conservation projects on indigenous communities-Product -One (1) information database system on the gender impacts of forest conservation projects among indigenous communities in the selected research sites-People and Services- Three (3) graduate students gaining support for their research work under PCAARRD assistance program -Six (6) undergraduate students gaining experience in conducting fieldwork in research sites-Four (4) IP guide/translators gaining work experience and involvement in the research activities -Twenty (20) survey enumerators from the research sites gaining training and experience in conducting surveys -Four (4) LGU facilitators gaining mentorship and hands-on experience in conducting research activities-Places and Partnerships-Four (4) partnership/linkage with LGUs, GAs, NGOs, POs, and selected indigenous peoples for selected research sites-Policy -One (1) policy brief on the relevance of studying gender-specific impacts of forest conservation projects on indigenous communities</p>	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this project are the men and women of the indigenous communities. The results of this research will also benefit the sponsoring GA and LGU as well as the participating PO and NGO as they learn from the lived experiences among men and women of the indigenous communities.	1-Jul-2022	30-Jun-2024	Ongoing	5,000,000	954,638
	Horizon Scan on the Biotechnology Path of the Philippines	Integrity of the environment and climate change adaptation and mitigation	Horizon scanning is a practice performed by many institutions worldwide to detect and prepare for the arrival of novel and emerging technologies. The exercise can help in maximizing opportunities and minimizing threats that come together when novel technologies arise. Biotechnology, the application of biological products, systems, and processes to manufacture products and provide services is one of the fastest-growing fields of technology. Building on the DOST's Pagitanaw 2050 foresight, we seek to perform a comprehensive horizon scan on the biotechnology path of the Philippines by elucidating seven (7) of the foresight's 12 operational areas. The horizon scan will be performed by eliciting the foresight of Filipino experts from the various disciplines biotechnology covers. By using structured elicitation protocols, we aim to come up with a list of biotechnology issues/topics that will be relevant to the Philippines in a 10, 20, and 30-year timescale. The list is expected to identify opportunities and threats in biotechnology for the Philippines and thus contribute to guiding sustainable policy direction, research path, scientific advancement of the country.	<p>1. Publications</p> <p>a. at least seven (7) manuscripts for publication/ submission to journal publications/</p> <p>b. policy brief</p> <p>2. People and services</p> <p>a. Results promotion or information dissemination seminar/ workshop</p> <p>3. Place and Partnership -The inherent need of the study; to tie up with experts from diverse fields and sectors will ultimately result to linkages and strengthened collaboration with the various players in the field of biotechnology</p> <p>a. Academe partnership</p> <p>b. Industry partnership</p> <p>c. NGO partnership</p> <p>d. Government offices</p> <p>4. Policy</p>	National Committee on Biosafety of the Philippines (NCBP)	NCBP, DOST, government offices, academe, research institutions,	1-Jul-2023	30-Jun-2024	Ongoing	5,000,000	5,000,000
	Impact Assessment of Floods and Droughts in Selected Agricultural Municipalities in Laguna	Integrity of the environment and climate change adaptation and mitigation	The project is anchored on the end-to-end theoretical framework/approach (Koike, 2009) which is composed of three main facets, namely: scientific, engineering and agricultural, and socio-economic approach. The framework aims to characterize the effects of climate change through various global circulation models under specific greenhouse emission scenarios. This guiding framework aims towards more resilient Filipino communities that are characterized by healthy surroundings, rich biodiversity, good governance, and robust economy. Hence, the socioeconomic impacts of the identified flood and drought risks are assessed for the environment and the inhabitants. This involves assessment of interventions through policies, programs, and coping practices, in relation to the identified impacts of climate change hazards.	<p>Publication: One (1) publication in scopus/ISI-indexed journal</p> <p>Policy brief: evidence-based recommendations to be incorporated to development plans</p> <p>People: Capacity-building to LGU personnel and stakeholders</p> <p>Places and Partnerships: LGU of Bay, Pila, Santa Cruz, Provincial Government of Laguna</p> <p>Policy: One (1) policy brief</p>	University of the Philippines Los Baños (UPLB)	Farmers/fishers and farming/fishing communities LGU of Bay, Pila and Santa Cruz Policy-makers	16-Mar-2022	15-Mar-2024	Ongoing	5,000,000	2,530,385

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Impact Assessment of the DOST R&D Program on Increasing Sea Cucumber Production and Value of Dried Sea Cucumber Products	Integrity of the environment and climate change adaptation and mitigation	This study will determine the program's impacts and contributions to the growth and development of the sea cucumber industry. It will also provide policy recommendations that can improve the design and implementation of future R&D and technology transfer programs for sea cucumber.	Publication: At least one (1) draft for the journal article Product: Information about the status and/or subsequent use of outputs of the Sea cucumber R&D program Information about the outcomes and the impacts of the Sea cucumber R&D program People and Services: At least four (4) researchers capacitated in impact assessment Policy: Policy recommendations for the improvement of the design and implementation of future R&D and technology transfer programs for sea cucumber Social Impact: Improved employment opportunities because of improved sea cucumber-based enterprises Economic Impact: Increased income of sea cucumber producers, hatchery operators, processors, and other participants in the sea cucumber industry increased competitiveness of the sea cucumber industry	University of the Philippines Los Baños (UPLB)	Researchers R&D funding and implementing agencies Policymakers Fishers, processors/traders, and other stakeholders in the sea cucumber industry	1-May-2023	31-Oct-2024	Ongoing	5,000,000	3,502,684
	Impact Assessment of the National R&D Initiatives for Seaweeds with Focus on the DOST-funded Seaweeds R&D Program	Integrity of the environment and climate change adaptation and mitigation	This impact assessment project aims to trace the utilization of the outputs and evaluate the impacts of the National R&D initiatives for seaweeds with focus on the DOST-funded R&D initiatives implemented from 2012 to 2014. This will cover the three sub-programs with a total of nine (9) projects implemented across the three main islands of the Philippines. The main goal of the program is to improve the production capacities of the Philippines seaweed farms. Now, after 8 years from completion of the program, it is imperative to determine the impact of the investment on its beneficiaries and stakeholders. The impact assessment will be conducted to determine the achievement of the program's development objectives; assess the impact of the interventions on the beneficiaries at the micro, meso, and macro levels; and document lessons learned in the implementation of the program which crucial input in designing similar or related interventions in the future. The total cost for the implementation of this impact study is PhP 7,516,373.35 (PhP 4,999,870.15 is requested from DOST-PCAARRD, while PhP2,516,503.20 is the counterpart of the University of Southeastern Philippines as the implementing agency) to be implemented in 18 months across ten (10) study sites in the country.	Publication: - At least one (1) draft journal article Patent - No patent/IP output for this project Product: - Information on the program's impact on stakeholders particularly seaweed farmers, women, and youth People and Services: - Ten (10) trained researchers Places and Partnerships: - Will cover the 10 implementation sites (Bangao, Panglima Sugala, Puerto Princesa, Tapanan, Gusan, Bolinao, Quizon City, Calarman, Suluan, and Calatagan) for visits and potential collaboration to see the effect of localized context in the impact pathways Policy: - Identification of areas that requires further policy intervention, policy recommendations on sustainability (e.g. institutionalization of the program introduced practices that are proven to be effective), policy recommendation to complement and support changes in outcomes caused by the program.	University of Southeastern Philippines (USEP)	1. Policy and decision-makers, national R&D system and R&D funding agencies 2. Researchers and development workers 3. DOST-PCAARRD 4. Evaluators of R&D programs 5. Academe 6. Seaweed networks across the country	1-Mar-2023	31-Aug-2024	Ongoing	4,999,793	3,446,231
	Impact Assessment of the National R&D Initiatives for Tilapia with Focus on the DOST-funded National Tilapia R&D Program	Integrity of the environment and climate change adaptation and mitigation	Tilapia remained the second highest farmed food fish species in the Philippines in the last 25 years. Despite the industry's current position, the development of the tilapia industry was a series of growth, fall, and recovery in the last decade. Data also showed that this erratic trend started with a significant drop in the average annual production growth rate from 21.8% in 2004-2007 to merely 2.44% in 2007-2010. To address this pressing concern, the DOST invested to boost tilapia production and enhance its product competitiveness through the National Tilapia Research and Development Program (NTRDP) from 2011-2015. Seven years after the completion of the projects under the NTRDP, this research generally aims to assess the impacts to key stakeholders and the society of the NTRDP using a mix of qualitative and quantitative data and analytical tools. By building adoption and impact pathways, the study intends to estimate the contribution of the NTRDP to key production parameters and industry targets and evaluate processes to inform future R&D programs to effectively support the development of the tilapia industry.	Publication: - a draft impact assessment bulletin and a draft journal article Product: - Information on the subsequent use of outputs and/or status outcomes and impacts of the NTRDP through the identified adoption pathways Information on impacts of the NTRDP at the farm, community, and industry levels People and Services: at least 4 faculty and/or researchers capacitated in impact assessment Places and Partnerships: at least 3 partnerships/collaborations with HEIs, NGAs and/or LGUs Policies: a draft recommendation that can improve the design and implementation of future R&D and technology transfer programs for tilapia	University of the Philippines Los Baños (UPLB)	Researchers R&D funding and/or implementing agencies/organizations Fishery planners and managers Policymakers Tilapia industry stakeholders	1-May-2023	31-Oct-2024	Ongoing	4,999,693	3,469,112
	Impact Assessment of the Program on the Production of Corals for Reef Restoration	Integrity of the environment and climate change adaptation and mitigation	The project will assess the impacts of the PCAARRD-funded program, on Production of Corals for Reef Restoration implemented from 2014-2017 with the general aim of improving reef restoration efforts through the development of culture technologies for sexual propagation of corals, identification of the timing of their spawning/planulation, determination of resilient coral species suitable for reef building, and the evaluation of the physiological responses and molecular mechanisms and the underlying response to various environmental stressors. The project at hand would employ various impact assessment methods to provide empirical data to effectively contextualize, and quantify the impacts of the program. Furthermore, this study aims to provide an overview on the adoption rate and factors affecting adoption of such technologies in pilot coastal communities and LGUs. Overall, the project aims to devise a monitoring and evaluation framework to support future coral reef restoration at least in the Philippines.	Publication: At least 1 draft journal article for publication in ISI journals Impact Assessment Bulletin Manual on the conduct of Impact Assessment for Coral Reef Restoration Policy Reef rehabilitation and management plan for DENR-BMB Monitoring framework for reef restoration using sexually propagated corals. People and Services: At least three researchers trained on impact assessment of coral reef restoration projects Social Impact: Wider acceptance and implementation of methods on sexually-derived coral propagules Economic Impact: Improved welfare of women and children	University of the Philippines Los Baños (UPLB)	Local fisherfolks Local tourism Local Government Units of Pangasinan, Cebu, and Tawi-tawi HEIs DOST, DENR, and BFAR	1-May-2023	31-Oct-2024	Ongoing	4,999,997	3,544,053
	Impact Assessment of the Project on Development of Sustainable Breeder Philippine Mallard Duck (PMD) Production System	Integrity of the environment and climate change adaptation and mitigation	This impact assessment project aims to trace the utilization of the outputs and evaluate the impacts of the DOST PMD project implemented from 2012 to 2017. This will cover the five (5) implementation sites and five (5) DOST-accredited suppliers across the three main islands of the Philippines. The main goal of the program is to improve the production capacities of the Philippine Mallard Duck Farms. Now, after 6 years of the completion of the program, it is imperative to determine the impact of the investment on its beneficiaries and stakeholders. The impact assessment will be conducted to determine the achievement of the program's development objectives; assess the impact of the interventions on the beneficiaries at the micro, meso, and macro levels; and document lessons learned in the implementation of the program which are crucial input in designing similar or related interventions in the future.	Publication: -At least one (1) draft journal article Product: Information on the project's impact on stakeholders particularly duck farmers, women, and youth Places and Partnerships: Linkage and collaboration with stakeholders in 10 implementation sites (Zaragoza, Nueva Ecija, Muñoz, Nueva Ecija, Candalaria, Quizon, Talang, Quizon, Calamba, Laguna, Iloilo City, Zamboanga City, Treñas, Agusan del Sur, Compostela, Davao del Oro, and Davao City) Policy: Identification of areas that requires further policy intervention, policy recommendations on sustainability (e.g. institutionalization of the program introduced practices that are proven to be effective), policy recommendation to complement and support changes in outcomes caused by the program Social Impact: Increased awareness of LGUs and other stakeholders on the availability of the technology Economic Impact: Increased production capacities of duck farms in the country Economic Impact: Increase in the contribution of the sector to the overall economic development of the country	University of Southeastern Philippines (USEP)	Policy and decision-makers, national R&D system, and R&D funding agencies Researchers and development workers DOST-PCAARRD Evaluators of R&D programs Academe Duck farming networks across the country	1-Oct-2023	31-Mar-2025	Ongoing	4,997,079	3,533,036
	Improving Agricultural Productivity and Competitiveness of Women Livelihood Operators through Gender-Responsive S&T Strategies	Integrity of the environment and climate change adaptation and mitigation	Women's role in agriculture is vital but not limited to household consumption, introduction of diversified diets to their households, and preparation of foods. They are also important in the process of marketing and distributing products. They are capable of informing customers on the use and preparation of crops from diversified agriculture and on the nutritional value of indigenous crops. Furthermore, they participate in post-harvest and processing. However, at present, there are several changes in the agri-food system that affect women's roles. There are gender gaps that need to be addressed, thus there is a need to promote gender-responsive S&T strategies which are useful in addressing the changes and issues that affect women. These strategies will help women improve their agricultural productivity and their competitiveness. In this regard, this project generally aims to document and enhance the specific roles of women livelihood operators in selected municipalities through gender-responsive S&T strategies. Through the use of SVOT Analysis, Gender Analysis Tools such as the Harmonized Gender and Development Guidelines (HGDD) and Project Implementation and Management, and Monitoring and Evaluation (PIMME) checklist, and Longwe's Women Empowerment Framework, this project will be able to explore the participation and needs of women livelihood operators and this will help in making recommendations that will improve women's condition.	Publication: One publication in a refereed journal Product: Information Bulletin on gender roles and issues of women livelihood operators People and Services: Provide six (6) capability building and training to ninety (90) women and men stakeholders and/or project participants. Each training will have fifteen (15) women and men participants Places and Partnerships: Form a link or establish a Memorandum of Understanding (MOU) with six (6) LGUs and with six (6) people's organizations, including women livelihood operators and women-led enterprises Policy: Recommend policies that would help in the development of and improving women's access to more gender-responsive S&T strategies to enhance their productivity and competitiveness Social Impact: The gender-responsive science and technology strategies can close the gender gaps and eliminate the disparities between men and women livelihood operators Economic Impact: Improved agricultural productivity and competitiveness will also increase the possibility of earning more relative to their previous condition.	University of the Philippines Los Baños (UPLB)	Women livelihood operators, Women-led Enterprises, Women and Men Researchers, Women and Men Policy Makers, Local Government Units	1-Oct-2023	30-Sep-2025	Ongoing	5,000,000	3,039,914

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Innovation Willingness and Readiness of Fish and Seafood Processing Micro, Small and Medium Enterprises (MSMEs) for Food Safety Standards	Integrity of the environment and climate change adaptation and mitigation	This study aims to assess willingness, capability, and readiness of fish and seafood processing MSMEs to innovate for food safety. Understanding these firm characteristics precedes that of improving innovation adoption. This study further aims to contribute to the current limited scholarly work on innovation capability in the Philippines and provide policy support to existing laws promoting innovation among MSMEs with particular focus on food safety.	Publication: At least one (1) article in a refereed journal on innovation capability of processing MSMEs in fish and seafood sector At least four (4) technical reports (i.e. 3 progress, 1 terminal) At least one (1) policy brief relating to food safety and innovation of processing MSME in fish and seafood sector Product: —At least five (5) innovation capability intervention models for the processing MSMEs in the fish and seafood sector People and Services: At least 20 men and women staff of processing MSMEs in the fish and seafood sector provided with specific aspects of their operation that need to be improved for chances of successful innovation activities Partnership: —At least 10 partnerships established comprising of regional Bureau of Fisheries and Aquatic Resources (BFAR), Department of Trade and Industry (DTI), and local government unit Policy: —Policy recommendations useful to government agencies' more focused effort on promoting innovation adoption among MSMEs	University of the Philippines Los Baños (UPLB)	Small and micro-enterprises (coastal and marine processing) Local government units governing coastal communities National Government, Agencies involved in promoting innovation	1-Jul-2022	30-Jun-2024	Ongoing	5,000,000	990,264
	Institutionalization of Guidelines on Watershed-Based Integrated Area Land Use Planning Towards Resiliency	Integrity of the environment and climate change adaptation and mitigation	To facilitate the institutionalization of WILUP, a systematic advocacy program is needed. Fragmented advocacy efforts to adopt watershed-based approaches to local land use and development planning in the past had limited success despite existing guidelines. Comprehensive systematic advocacy program directed to LGUs, NGAs, policy makers, academe, among others is needed to promote sufficient understanding on WILUP covering its fundamental basis, its importance, and how to operationalize it. This advocacy program will need to employ blended strategies including use of printed IEC materials, AVPs, social media, fora and workshops in order to reach different target audience. It will also need for piloting WILUP to provide a venue for showcasing actual operationalization of WILUP, experiential learning, and capacity building. Likewise, it will also be instrumental to facilitate the formation of core group of advocacy champions consisting of prominent personalities from the government and civil society. Advocacy for the passage of related national legislations such as the National Land Use Act and Sustainable Forest Management Act that both provides for the adoption of watershed and ecosystem-based approach to land use planning and development should also be included. Towards the end of operationalizing the WILUP this advocacy project project is submitted for funding support.	6Ps metrics: 1. Publications a. One (1) advocacy kit containing the following: i. 1 policy brief ii. 1 brochure about the policy reform being advocated iii. Print and digital IEC materials on watershed resiliency and the need for watershed-based land use planning b. WILUP tool kit: Guidelines on how to do WILUP, other reference materials c. Publication / stories from the pilot-testing experience: good practices, challenges encountered 2. Product a. Guidelines on WILUP 3. People and Services a. 1 Policy forum for targeted audience organized b. 1 training among land use planners and practitioners c. At least 1 round table discussion on WILUP 4. Places and Partnerships a. Partnership with LGUs on the pilot-testing of WILUP b. Agreements in the conduct of advocacy activities among DOST-PCAARRD, implementing agencies, others. c. Partnership with DENR, DLG, DHSUD, DA, DAR, DPWH, CCC, NDRRM, NEDA, and other concerned agencies 5. Policies a. Draft policy documents on the adoption of Guidelines to WILUP b. Draft modifications of salient sections of concerned DAOs, Technical Bulletins and Guidelines c. Draft CLUP (for adoption through SB Resolution and LGU Ordinance)	University of the Philippines Los Baños (UPLB)	At the end of the project, it is expected to benefit the following sectors: Fisherfolk and lake-dependent communities in Laguna de Bay Farmers and communities within the Baroro watershed in San Gabriel, La Union Laguna Lake Development Authority Department of Environment and Natural Resources Department of Interior and Local Government Department of Human Settlements and Urban Development Local Government Units, including the Province of Laguna and La Union	16-Oct-2021	15-Jan-2024	Ongoing	8,166,318	1,196,326
	Institutionalizing Integrated Crop Monitoring and Forecasting (ICMF) towards a Smarter Philippine Agriculture	Integrity of the environment and climate change adaptation and mitigation	The main goal of this project is to facilitate the institutionalization of the SARAI ICMF system towards smarter Philippine agriculture nationwide through policy advocacy and legislative processes. The project will take three paths to advance its advocacy: Executive, legislative, and university paths. It will employ a mix of social research methods. On top of the list is conduct of consultation meetings with various Department of Agriculture (DA) units in charge of field operations (PhilRice, PCA, Planning Office, Field Operations Division) and data management system (DA-ICT, DICT, NFA). Other key entities to be consulted on the establishment of the SARAI ICMF are the following: DOST-PAGASA, DOST-PhilSA, DLG and LGUs, private sector such as PHIMAZE, Inc. and Philippine Sugar Millers Association (PSMA), National Federation of ICT Councils, among others. DOST Regional Offices is to be a major stakeholder in mainstreaming the system at the regional and local levels. The other level of consultation is with identified legislators at both the Congress and the Senate who can serve as champions of Philippine agriculture digitization program. The ultimate goal of the project is to draft and endorse policy instruments (e.g., Executive Order, Legislative Bill, Memorandum, Resolution) towards the institutionalization of the SARAI ICMF.	Publications: One (1) advocacy plan developed b. One (1) advocacy kit developed: i. One (1) policy paper/brief i. One (1) brochure about the policy reform i. Print and digital IEC materials i. One (1) Publication/success stories from SARAI partner institutions and communities c. One (1) video explainer on the SARAI ICMF developed People and Services: One (1) round table discussion and/or validation meeting with concerned NGAs, SUCs, and farmer's federations/cooperatives stakeholders b. One (1) legislative-executive forum on the institutionalization of SARAI ICMF conducted c. One (1) workshop with the Technical Working Group conducted Places and Partnerships: Policy Advisory Body (PAB) and Technical Working Group (TWG) established towards institutionalization of SARAI ICMF Partnership: forged with at least three (3) key government agencies in the conduct of advocacy initiatives Policies: Policy instruments endorsed for the institutionalization of SARAI ICMF a. One (1) draft Executive Order b. One (1) draft Legislative Bill c. One (1) draft Memorandum from UPLB System on the creation of SARAI ICMF Center Program Patents, Trademark for SARAI and ICMF Social Impacts: → Improved climate change resilience among well-being of farmers and their households → Decreased hunger incidence and food insecurity among Filipino communities Economic Impacts: → Improved farm productivity increasing the total annual income of Filipino farmers → Positive growth in the economic performance of the Philippines agriculture industry	University of the Philippines Los Baños (UPLB)	Farmers, farmer entrepreneurs, farmers/agribusiness cooperatives, LGUs where agriculture is an industry Regional Agricultural Officers, Department of Agriculture (DA), Department of the Interior and Local Government (DILG)	1-Dec-2023	30-Nov-2025	Ongoing	5,000,000	2,594,808
	Integration of Indigenous Knowledge in Designing Nature-based Solutions for Climate-Smart Agriculture Sector in Selected Municipalities in Northern Philippines	Integrity of the environment and climate change adaptation and mitigation	This action-oriented research project highlights the need to utilize a locally available knowledge resource, the indigenous knowledge, to support local aspirations for a climate-smart agriculture sector. Primarily, it is that this is done through its integration to the design of nature-based solutions that directly respond to the climate hazards affecting the agriculture sector in Sagada, Mountain Province and Bayombong, Nueva Vizcaya. In summary, the process that the research project will undertake will include understanding the socio-cultural, institutional, and biophysical context of the project sites, co-designing nature-based solutions with the local stakeholders in response to various climate hazards, and finally, assist the LGUs in institutionalizing these NS as a vital component in establishing their respective climate smart agriculture sectors.	Publication: Two (2) Journal articles/ Research brief Two (2) Policy briefs on the recommendations of the project Product: One (1) Compendium of Indigenous Cultural Practices related to DRR response/ Coffee Table Book illustrating these practices One (1) training manual on the co-design and institutionalization process People and Services: Two (2) Capacity-building workshops with at least 15 stakeholder group representatives each Places and Partnerships: Partnership with LGUs and NCI Policy: Two (2) draft ordinances for the institutionalization of NS in the local development plans Social Impacts: → Promotion and protection of K-based natural resource conservation practices, especially within the context of local agriculture sectors → Strengthening of the partnership between the IP communities and the local government units → Higher recognition of the vital role of the IP community in the management of natural resources Economic Impacts: → Sustainability of the local agriculture sectors in the project sites	University of the Philippines Los Baños (UPLB)	The outputs of the study are targeted to primarily benefit the following: Local government units National Commission on Indigenous People Department of Interior and Local Government National Economic Development Authority Department of Human Settlements and Urban Development Department of Agriculture Department of Environment and Natural Resources Indigenous peoples of the Philippines	1-Oct-2023	30-Sep-2025	Ongoing	5,000,000	1,294,694

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	IslandReGen:Assessment of the Resilience of Small Islands Communities and Gender Roles towards Mitigating Climate Change Impacts	Integrity of the environment and climate change adaptation and mitigation	This project will determine the contemporary overall resilience of Busuanga and Marinduque, which are good representations of the majority of small islands in the Philippines. Small islands have a high vulnerability to climate hazards that negatively impact ecosystems and human well-being. Since human interaction with the environment drives community responses to disturbances, the various components and connectivity in the natural and social systems to withstand, recover, and adapt to climate change will be determined. Resilience Assessment will be conducted through a community participatory workshop, survey, Focus Group Discussion (FGD), and Key Informant Interviews (KII) with women and men respondents. Twenty-two indicators from the Toolkit for Socio-ecological Productive Landscapes and Seascapes (SEPLS) and other relevant studies will be adopted to determine the level of ecological, agricultural, and social resilience. Each indicator will be explained with discussion questions in the context of climate change and with local examples. Generated community landscape maps, documentation of biodiversity, sex-aggregated baseline information, and radar maps on scores of resilience indicators will provide a better understanding of human-nature linkages toward island resilience. The trend for specific indicators will be the basis for recommendations to enhance the adaptive capacity to mitigate climate change impacts of selected small island communities. The project will contribute to the sustainable development planning of LGUs of Busuanga and Marinduque, and towards fulfilling our commitment to several national and international agreements and goals such as United Nations (UN) Sustainable Development Goals (SDGs), UN's Sendai Disaster Response Framework, the National Economic and Development Authority's Philippine Development Plan (PDP) 2023 to 2028 and Ambisyon Natin 2040, and the National Academy of Science and Technology (NAST) PAGTANAW 2050.	Publications: At least two (2) conference papers/ paper presentations/ At least two (2) draft manuscripts for publications in refereed journals 1. Policy brief for the recommendations of the study 2. Community, Education and Public Awareness Materials on gender roles, biodiversity conservation and climate change action 3. Training modules on gender sensitivity, resilience assessment and other climate-related topics 4. Places and Partnerships: Partnerships obtained through a MOA or letter of support on the conduct of project activities such as capacity building with or from the following institutions: Marinduque State College (MSC), Kingfisher Park (Private), LGUs and communities in Busuanga and Marinduque Islands. Specifically, collaboration with MSC to implement and monitor the progress of the project in Marinduque 5. People and Services: At least 50 number of stakeholders participated in the stakeholder consultation workshop on resilience and climate change 1. At least 50 number of stakeholders capacitated through a gender sensitivity training and discussion of gender issues in small island communities 2. Policy recommendations of increasing adaptive capacity, strengthening disaster risk governance, and mainstreaming gender to climate change responsiveness 3. Social Impact—Improved gender inclusivity in biodiversity conservation and climate preparedness plans and actions —Improved capacity of the local community in monitoring the level of their resilience and in developing management and sustainable development plans. —Enhanced resiliency of small island communities and environmental sustainability 4. Economic Impact—Increased long-term economic gain from ecotourism and natural resource management activities as a result of recognizing the ecological importance of the areas for which the local community would be more conscious of the importance of habitat conservation while generating non-destructive livelihood sources.	University of the Philippines Los Baños (UPLB)	Target beneficiaries are the women and men of local communities and various stakeholders such as Local Government Unit, Non-government service institutions, policy makers, natural resource managers, and academe.	1-Oct-2023	30-Sep-2025	Ongoing	5,000,000	1,432,616
	Policy Advocacy for the Adoption of Ecotourism as a Local Sustainable Development Solution for Laguna de Bay's Resource Use and Management	Integrity of the environment and climate change adaptation and mitigation	This project consists of lobbying the LLDA and concerned local government units to adopt the management scheme and creating public awareness about the new management system that leads to Laguna de Bay's sustainable resource use and management and increasing its income generating potential.	1. Product a. S&T-based model for LGU tourism development plan 2. Publication a. One (1) advocacy kit containing the following: i. 1 policy brief ii. 1 brochure about the policy reform being advocated iii. Print and digital IEC materials on watershed resiliency and the need for watershed-based land use planning 3. Policy a. Policy on implementing a lake-based tourism management for Laguna de Bay through policy documents 4. People and services a. 1 policy forum for targeted audience organized b. 1 seminar for general audience organized 5. Places and partnership a. Agreements in the conduct of advocacy activities among DOST-PCAARRD, implementing agencies, others b. Partnership with LLDA as potential co-implementor	University of the Philippines Los Baños (UPLB)	At the end of the project, it is expected to benefit the following sectors: Fishery and lake-dependent communities in Laguna de Bay Laguna Lake Development Authority Department of Environment and Natural Resources-RBCO Department of Interior and Local Government DSHUD Local Government Units, including the Province of Laguna and La Union	1-Jun-2022	30-Nov-2023	Completed	5,000,000	640,869
	Research for Development: Payment for Ecosystem Services Outcome for Sustainable Water Provision (RAD: PESO SWaP) in Barobob Watershed, Nueva Vizcaya, Philippines	Integrity of the environment and climate change adaptation and mitigation	Implementing payment for ecosystem services (PES) mechanism as an approach towards sustainability is a relatively novel approach in environmental conservation. PES mechanisms create a market for ecosystem services by making users/beneficiaries pay for the services while compensating conservation activities of service providers. While the mechanism has already been implemented in several areas in the country, this action research is needed to design a PES mechanism tailor-fit to the needs of the Barobob watershed stakeholders to be successful. This study consciously integrates the science, economics, and institutions and governance aspects of PES while continuously engaging and capacitating stakeholders. The results of this study are envisioned to provide inputs to a national policy on PES. A national policy may stimulate the establishment of PES mechanisms across the country, boosting efforts for sustainability.	Product Implementation and monitoring plan for PES Water supply provision map/model Process documentation of PES design and implementation People and services Capacity building of stakeholders and project staff Capacity building of faculty and staff of the local university (Nueva Vizcaya State University) Places and partnership Partnership with LGU, NVSU, water district, NIA (if applicable), farmer organizations, NGOs Memorandum of Agreement with NVSU Policy PES scheme initiated Local ordinance initiating PES Policy outputs as inputs to advocacy on national act on PES Publication IEC materials: leaflets, flyers and brochures, training materials Training modules (PowerPoint) Policy brief At least two complete drafts ready for submission to journals	University of the Philippines Los Baños (UPLB)	The PES mechanism to be implemented in Barobob watershed will benefit the local community. Upland dwellers will receive income from practicing sustainable management and downstream households, farmers, farmers organizations and the local water district will benefit from improved water quality and stable water supply. Throughout the project, the mentioned stakeholders and representatives from the LGU and the academe will be capacitated regarding the design and implementation of PES.	16-Oct-2021	15-Jan-2024	Ongoing	5,000,000	1,098,903
	Valuation of Forest Ecosystem Services of Mt. Malindang Range Natural Park (MMRNP), Misamis Occidental	Integrity of the environment and climate change adaptation and mitigation	With this, the project aims to conduct valuation of MMRNP ecosystem services using Contingent Valuation Method (CVM). The three important priority resources to be valued in this project are forest, water and tourism. This project study is timely and urgent to determine how the biophysical resources and selected ecosystem services affect the socio-economic condition of the stakeholders. Their access and benefits derived from MMRNP will be determined. The Knowledge, Attitude, Practices of households towards the issues concerning the park will be assessed, use and passive value of the selective ecosystem services will be estimated, and factors affecting WTP for conservation will be identified. Ultimately, policy options for biodiversity conservation that focus on innovative financing mechanisms through Payment of Ecosystem Services (PES) and Access to Benefit Sharing (ABS) schemes will be formulated and recommended. After determining the Willingness to Pay (WTP) of selected households in the study area, analysis will eventually lead to an acceptable PES and ABS schemes which are doable and applicable in Misamis Occidental. These will be the innovative financing mechanism for biodiversity conservation which will be used to generate funds and resources to support the continuous conservation of MMRNP. This will be supported by appropriate policies which will be enforced by the concerned agencies: LGUs, PAMB, DENR and other sectors directly involved in the park's conservation and protection. Ultimately, the enhanced conservation and protection effort involving all the stakeholders will positively affect ecological health and will be a vital step towards ensuring water sufficiency, food security and climate resiliency in the Misamis Occidental province.	1. Publication — One (1) storybook— Two (2) modules (environmental classes and TOT) — 5 poster designs for information dissemination (CEPA) — 2 billboards design for information dissemination (CEPA) — One (1) policy brief — 5 articles for journal publication 2. Product - PES mechanism involving the four (4) major Water Districts in Misamis Occidental and adjacent Zambanga Peninsula and integrating PES in their payment - Ecosystem accounts for MMRNP 3. People and Services At least 10 staff from the partners agencies provided with seminars/trainings on ecosystem accounts. 4. Place and Partnership Partnership established among Misamis University, MMRNP-PAMB, MMRNP-PAMO, local water districts and LGUs surrounding MMRNP. 5. Policy - Policy recommendations for at least two (2) local policies/ordinances/resolutions- Policy recommendations or inputs to the protected area management plan for MMRNP	Misamis University (MU)	The primary beneficiaries of this project will be the local communities that will be informed of the total economic value of MMRNP through scientific methods. The most important beneficiaries include the MMRNP-PAMB and Local Government Units in Misamis Occidental who will use the data for the protected area management conservation and protection plans, programs, projects and activities. In likely manner, the project will enrich the academe's competency to improve their instruction, research and extension. The private sectors and NGO's can also utilize data for their respective priority environmental programs	1-Jul-2022	30-Jun-2024	Ongoing	5,000,000	1,219,719

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Value Chain Analysis for Selected Bamboo Products in the Philippines	Integrity of the environment and climate change adaptation and mitigation	Bamboo is a fast-growing, renewable, and versatile resource, which is found in numerous communities in the Philippines. Bamboo development could contribute to at least seven of the UN Sustainable Development Goals, including poverty alleviation, affordable and clean energy, affordable and resilient housing, sustainable consumption, climate change mitigation, and terrestrial ecosystem protection (Gauli et al., 2018). It also provides enormous opportunities for developing an inclusive, sustainable and green value chain. Bamboo plantations and natural stands exist all over the Philippines, both on government and private lands. Region 7 has the highest number of available culms yearly with 129,820 clumps, followed by Region 3 with 111,314 clumps. Major provincial sources of bamboo include Abra, Benguet, Ilocos provinces, La Union, Pangasinan, Isabela, Batangas, Quezon and Camarines Sur in Luzon; Iloilo, Bohol, Negros provinces and Leyte in the Visayas; and Davao del Norte and Bukidnon in Mindanao (Virtucio and Roxas, 2003). In terms of number of bamboo enterprises, Region XI has the most number (590 enterprises) followed by Regions XII and VI with 363 and 356 enterprises, respectively. The Philippines is being pushed to become a key player in the global bamboo industry. The global bamboo market size was estimated at USD 53.29 billion in 2020 and is anticipated to expand at a compound annual growth rate (CAGR) of 5.7% from 2021 to 2028. Major driving factors include growing investments in infrastructure development, increasing use of sustainable building/ construction resources, and rising consumer awareness on the benefits of using bamboo. Bamboo has been declared as a cash-value crop as part of the efforts to develop the local bamboo industry. From 2021 to 2022, the government has allocated at least PHP 22 billion for the development of the bamboo industry in the country. Indeed, the growing global bamboo market and the initiatives of the government present opportunities to the bamboo industry players that they can take advantage of.	Publication: Two (2) draft article for possible publication in a peer-reviewed journal (1 per year)/Patent: NA/Products: Value chain map Matrix of VC players profiles and corresponding information/People and Services/Two (2) graduate students mentored Two (2) technical personnel trained/Places and Partnerships: At least six (6) partnerships established comprising of the Department of Environment and Natural Resources- Forest Management Bureau (DENR-FMB), state universities and colleges (SUCs), and value chain players/Policy: At least two (2) policy recommendations for the development of the bamboo industry	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this project are the different value chain players, such as: farmers, traders, processors, and end-users who will benefit once the bamboo industry is invigorated. It also includes government agencies involved in the development of the National Inventory System (i.e., DOST-PCAARRD and DENR-FMB)	1-Oct-2022	30-Sep-2024	Ongoing	5,000,000	1,111,659
	Value Chain Analysis of Bamboo Textile Products in the Philippines	Integrity of the environment and climate change adaptation and mitigation	In this project, bamboo textiles will be analyzed through a value chain lens to uncover the bottlenecks of the industry and find opportunities for improvement in the chain. Furthermore, it would support the development of programs, projects and activities for the development and use of bamboo fiber and textile in the Philippines.	Publication —At least one (1) draft article for possible publication in a peer-reviewed journal Product —Value chain map —Matrix of value chain players profiles and corresponding information People Services —At least one (1) undergraduate student mentored —At least one (1) technical personnel trained Partnerships —At least six (6) partnerships established comprising of the Philippine Textile Research Institute, state universities and colleges (SUCs), and value chain players Policy —At least one (1) policy recommendation for the development of the bamboo textile industry/Economic Impacts: Through the information that will be produced from tracing the bamboo textile value chain, the project positions itself as a component of the strategy aimed at improving the competitiveness of the Philippine bamboo sector and improving the economic situation of smallholder bamboo farmers. Social Impacts: This project intends to empower stakeholders and players in the bamboo textile value chain in order to promote a more thriving bamboo industry in the Philippines. It would encourage the awareness of the market on bamboo textile which may attract individuals to enter on bamboo textile-related livelihood.	University of the Philippines Los Baños (UPLB)	The target beneficiaries of this project are the different bamboo textile value chain players, such as farmers, traders, processors, and end-users who will benefit once the bamboo industry is invigorated. It also includes government organizations working to build the National Inventory System and the bamboo textile industry such as DOST-PTRI, DOST-PCAARRD and DENR-FMB.	1-Oct-2022	31-Mar-2024	Ongoing	2,000,000	422,878
	Value Chain Development of Tamarind in Central Luzon	Integrity of the environment and climate change adaptation and mitigation	The project will build from the results of the two previous value chain studies funded by PCAARRD and DOST on tamarind to address the need for a supply chain management system and capacity building of the tamarind producers. Considering the economic importance of tamarind, this project will promote entrepreneurship from production and processing through strengthening the market linkage which will, in turn, induce job creation, economic activity, and socio-economic conditions of the target communities. By establishing a supply chain hub, a direct linkage between growers and processors will be conducted. This will yield guaranteed markets for growers' produce, encourage large-scale processing, and attract new entrants into the industry. Also, creating a direct link would diminish the dependence of growers to middlemen in terms of collection (i.e., collecting and receiving delayed payments) and marketing. This would enable the growers to secure higher prices by eliminating brokerage fees or commissions. Moreover, the removal of intermediaries in the chain will lower the delays and post-harvest losses incurred by the wholesalers and retailers.	Publication: At least two (2) articles based on the results of the project/Products/One (1) Supply Chain Hub/One (1) information system on tamarind/People and Services: At least fifty (50) men and women tamarind growers organized, trained and linked with the processors/Places and Partnerships: At least five (5) partnerships developed with LGUs, value chain actors (e.g., processors) and enabling players/Policy: At least two (2) policy recommendations to address constraints identified	Pampanga State Agricultural University (PSAU)	Three (3) groups of beneficiaries are foreseen to benefit from this project. The following are: —Stakeholders of the tamarind industry, such as the growers, processors, and other entities providing support services along the value chain of tamarind in Central Luzon. —Policy/decision makers —Researchers and development workers involved in technology transfer and agribusiness development	1-Dec-2022	30-Nov-2024	Ongoing	5,000,000	1,208,661
Extending the reach and impact of the LIFE model in improving livelihoods and building peace in conflict-vulnerable communities in Mindanao	Proj 1. Contributing to Peacebuilding through the LIFE Model in MILF Communities of Zamboanga Sibugay, South Cotabato and Maguindanao	Integrity of the environment and climate change adaptation and mitigation	Across eight years and 26 pilot sites, the LIFE (Livelihood Improvement through Facilitated Extension) Model has consistently demonstrated its ability to rapidly improve farmer economic and social livelihoods as well as building much stronger local institutional partnerships. Developed in 2013 by the ACIAR Mindanao Agricultural Extension Project and further adopted and validated by the PCAARRD-UP-Mindanao-Landscape-LIFE (PULL) program in 2017, the Model is the only agro-extension model specifically developed for conflict-vulnerable areas of Mindanao. Given its success, there is now an opportunity to validate its impact more broadly in particular conflict settings. The project specifically identified MILF communities in Zamboanga Sibugay, Maguindanao and South Cotabato, where there is potential to have significant impact in assisting the joint livelihood-improvement/poverty reduction and peace-building process for combatants returning to civilian life.	Y1 - Products/Three (3) demo farms established in 3 sites/Y1 - People and Services/Three (3) farmer groups organized/At least one (1) cross-visit conducted/Y1 - Publications/Two (2) journal articles (working papers)/Y1 - Places and Partnerships/Three (3) MOAs drafted/Y1 - Policies/At least one (1) stakeholders' meeting initiated to discuss potential policies/sustainability mechanisms/Y1 - Patent/NA/Y1 - Social Impact/increased participation in community/increased participation of women and youth/Y1 - Economic Impact/diversified livelihoods and improved food security/Y2 - Products/Three (3) demo farms established in three (3) new sites/ Y2 - People and Services/Three (3) farmer groups registered/At least three (3) capacity building activities conducted/Ten (10) Fijians learned about the LIFE model/Eight (8) Filipinos shared their experiences in learning/Using the LIFE model to Fiji partners/Y2 - Publications/One (1) journal article submitted to an international refereed journal/ One (1) video produced/ Y2 - Places and Partnerships/Three (3) MOAs signed/Y2 - Policies/Two (2) ordinances/resolutions passed/Y2 - Social Impact/increased participation in community/increased participation of women and youth/Y2 - Economic Impact/diversified livelihoods and improved food security/Y3 - People and Services/Three (3) farmer groups registered/Y3 - Publications/One (1) journal article submitted to an international refereed journal/ Y3 - Places and Partnerships/Three (3) MOAs signed/Y3 - Policies/Two (2) ordinances/resolutions passed/Y3 - Patent/NA/Y3 - Social Impact/increased participation in community/increased participation of women and youth/ Y3 - Economic Impact/diversified livelihoods and improved food security	University of the Philippines Mindanao (UPMin)	The project's target beneficiaries are the farmers in MILF communities specifically the following: Maguindanao: Barangay Banaba in Datu Abdullah Sangki; Barangay Kamasi in Ampatuan; South Cotabato: Barangay Little Baguio and Barangay Sepaka in Suralha; Zamboanga Sibugay: Barangay San Pedro and Barangay Santo Niso in Tungawan.	1-Jun-2023	31-May-2026	Ongoing	15,631,206	5,499,040

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2022	Total Project Cost	2023 PCAARRD GIA
Extending the reach and impact of the LIFE model in improving livelihoods and building peace in conflict-vulnerable communities in Mindanao	Proj 2. Expanding the LIFE model to UP Mindanao's Land Reservation in Laak, Davao de Oro	Integrity of the environment and climate change adaptation and mitigation	Across eight years and 26 pilot sites, the LIFE (Livelihood Improvement through Facilitated Extension) Model has consistently demonstrated its ability to rapidly improve farmer economic and social livelihoods as well as building much stronger local institutional partnerships. Developed in 2013 by the ACIAR Mindanao Agricultural Extension Project and further adopted and validated by the PCAARRD-UP-Mindanao-Landscape-LIFE (PULL) program in 2017, the Model is the only agro-extension model specifically developed for conflict-vulnerable areas of Mindanao. Given its success, there is now an opportunity to validate its impact more broadly in particular conflict settings. The project specifically identified UP Mindanao's Land Reservation Area in Davao de Oro, where there is potential to address conflict over land and the influence of the New People's Army.	Y1 - Products/At least one (1) demo farm establishedY1 - People and Services/One (1) farmer group organized One (1) cross-visit conductedY1 - Publications/One (1) journal article (working paper)Y1 - Places and Partnerships/One (1) MCA draftedY1 - Policies/at least one (1) stakeholders' meeting initiated to discuss potential policies/sustainability mechanismsY1 - Patents/NAV1 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY1 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceededY2 - Production/ Y2 - People and Services/One (1) farmer group registered At least three (3) capacity building activities conducted Y2 - Publications/One (1) journal article submitted to an international refereed journalY2 - Places and Partnerships/One (1) MCA signedY2 - Policies/One (1) ordinance/resolution passedY2 - Patents/NAV2 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY2 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceededY3 - Production/One (1) farmer group organized/At least three (3) capacity building activities conducted in the new siteY3 - Publications/One (1) journal article draft ready for submission to an international refereed journalY3 - Places and Partnerships/Two (2) MOAs draftedY3 - Policies/One (1) ordinance/resolution passedY3 - Patents/NAV3 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY3 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceeded	University of the Philippines Mindanao (UPMin)	The target beneficiaries of the project are the Talle Farmer's Association or a newly formed farmer's group located in Laak, Davao de Oro.	1-Jun-2023	31-May-2026	Ongoing	8,075,810	2,437,132
Extending the reach and impact of the LIFE model in improving livelihoods and building peace in conflict-vulnerable communities in Mindanao	Proj 3. Reintegration of IP Youth Farmer Evacuees (BAKWITS): Contributing to peacebuilding through the LIFE model in Talaingod, Davao del Norte through the LIFE Model	Integrity of the environment and climate change adaptation and mitigation	Across eight years and 26 pilot sites, the LIFE (Livelihood Improvement through Facilitated Extension) Model has consistently demonstrated its ability to rapidly improve farmer economic and social livelihoods as well as building much stronger local institutional partnerships. Developed in 2013 by the ACIAR Mindanao Agricultural Extension Project and further adopted and validated by the PCAARRD-UP-Mindanao-Landscape-LIFE (PULL) program in 2017, the Model is the only agro-extension model specifically developed for conflict-vulnerable areas of Mindanao. Given its success, there is now an opportunity to validate its impact more broadly in particular conflict settings. The project specifically identified Talaingod, Davao Del Norte, where it aims to support the rescued IP youth farmers who were formerly illegally recruited by the CPP-NPA. The CPP-NPA established the Salugupangan IP schools in its guerrilla bases in the municipality and used these schools for terrorist recruitment by propagating communist revolutionary terrorism concepts and ideas, indoctrination, orientation, and radicalization of the IP youth and children.	Y1 - Products/One (1) People and Services/One (1) People's Organization (PO) organized for the IP youth farmersY1 - Publications/One (1) MCA draftedY1 - Policies/NAV1 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY1 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceededY2 - Production/ Y2 - People and Services/One (1) farmer group registered At least three (3) capacity building activities conducted Y2 - Publications/One (1) journal article submitted to an international refereed journalY2 - Places and Partnerships/One (1) MCA signedY2 - Policies/One (1) ordinance/resolution passedY2 - Patents/NAV2 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY2 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceededY3 - Production/One (1) farmer group organized/At least three (3) capacity building activities conducted in the new siteY3 - Publications/One (1) journal article draft ready for submission to an international refereed journalY3 - Places and Partnerships/Two (2) MOAs draftedY3 - Policies/One (1) ordinance/resolution passedY3 - Patents/NAV3 - Social Impact/Improved social capital Empowered women and youth participating in community activitiesY3 - Economic Impact/Stable and diverse livelihoods/food and poverty threshold reached and exceeded	University of Southeastern Philippines (USEP)	The project's target beneficiaries are the IP youth farmers of the three barangays of Talaingod, namely: Sto. Niaz, Dagohoy, and Pluma Gil. The initial number of beneficiaries are 30 with an additional 82 IP youth farmers once the capacity of the TATAG IP Program has increased.	1-Jun-2023	31-May-2026	Ongoing	9,000,000	3,643,624
Good Agri-Aqua Livelihood Initiatives towards National Goals (GALING) - PCAARRD Kontra CoVID-19 Program	Enhancing the Sweetpotato Food Value Chain through Smart Technologies and Partnerships towards Food Resiliency in the New Normal in West Samar	Integrity of the environment and climate change adaptation and mitigation	This project will demonstrate the convergence of technology transfer modalities using the supply and value chain improvement approach in multi-locations, focusing on building community-based sweet potato production enterprises and improving the operations of Technology Business Incubators (TBIs) for sweet potato towards food resiliency in the new normal.	Publications-At least 4 Business plans, product investment portfolios, etc materials and or training guides are to be produced by this initiative Products-The processed products such as the sp fries, vacuum fried sp and other products that will be produced by the co-operators. Products also include the fresh roots that will be produced by the farmers/STCBFs/At least 4 IP protected products transferred, utilized and marketed through TBI approach (sp fries, vacuum fried sp, chips, and other products from waste utilization-30% increase in the volume of production (to be based from the assessment and baseline survey)/People and services-Conduct at least 20 community organizing activities/meetings and trainings; at least 12 community organizing activities and at least 8 formal trainings with farmers and processors/Places and Partnerships-Forge 10 linkages and partnerships to LGU % farmer associations, DOST Regional offices, DTI Regional offices, NGO %., business organizations/ chambers, SUCs and RDEs and MCA with PCAARRD/ DOST Policy-Provide 1 policy input for the province of West Samar such as an ordinance to further promote the production and utilization of SP	Visayas State University (VSU)	Community-based farm enterprises *Technology-based start-ups/spinoffs *Farmers and fisherfolk, cooperatives and associations *Industry (Traders, Retailers) *General public/consumers *Local government units *National government agencies *Non-governmental organizations	1-Mar-2022	29-Feb-2024	Ongoing	4,894,224	1,523,018
Patent Mining for Selected AANR Commodities in Consortia Member Agencies Through Strengthened IP-TBM Offices	WPU IP-TBM Phase II: Patent Mining for Sea Cucumber through Strengthened WPU IP-TBM Office	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2021 - December 31, 2022) by Western Philippines University, with a total PCAARRD-GIA funding of Pp 2,473,900.80. The project aims to focus on the capacity building of the IP-TBM staff on patent mining and IP inventory. On the same year, several technology commercialization endeavors will be made to further promote the IP-TBM through exploratory meetings and trainings. The second year of implementation will focus on the commercialization phase of technologies.	At least 1 IP-TBM staff extensively trained under the Patent Mining Mentorship Series At least 2 industry practitioners and technical experts consultation meetings conducted 1 Exploratory meeting with potential technology adopter 1 Technology taker/adopter At least 20 WPU trained (short duration/seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainer/speaker At least 4 promotional IECs for WPU technologies At least 10 IP (5 patents and utility model only) applications At least 1 commercialization agreement executed At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions Full implementation of IP policy (with internal memos, AOs) Full implementation of technology transfer protocol (with internal memos, AOs) At least 1 Patent mining report 1 updated inventory of IP assets 1 Technology commercialized 1 Sustainability Plan 1 set of entries to support content	Western Philippines University (WPU)	IP-TBM Personnel Researchers Students Technology Adopters/Entrepreneurs At least 20 WPU personnel trained on IP and Commercialization from the echo seminar to be conducted by the IP TBM staff.	17-Jan-2022	16-Jul-2024	Ongoing	2,473,901	1,023,135

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1. Regional Intellectual Property and Technology Business Management (IP-TBM) through RAISE Bicol	Integrity of the environment and climate change adaptation and mitigation	Bicol University has been identified as the mentoring agency for the SUSTAIN IP-TBM program due to its experience and programs in IP protection and commercialization. BU as the mentoring agency is now starting to commercialize its Protected IPs and the mentee SUCs are now mastering the process of IPs protection and will eventually go into commercialization. Thus, the Regional Agri-Aqua Innovation System Enhancement (RAISE) Bicol program is. The RAISE Bicol program will not only cater to the IP protection and pre-commercialization process of the technology, but it will cater to creating agribusiness start-ups, technology incubation, and knowledge management. The program will be the mirror image of the DPITC in the Regions. It will serve as a one-stop-information service shop and convergence hub for technology generators and users. It will be a Platform to package, promote, and commercialize SST creations to enhance the innovation ecosystem in the AANR sector. It will be the IP-centric technology transfer mechanisms of the region. The program will increase the number of mentee agencies from five (5) to seven (7). It aims to increase the number of IPs protected by mentor and mentee agencies. It aims to enhance the awareness of establishing start-ups, introducing technology incubation and marketing of products and technologies, and realize the process and importance of knowledge management. This will zero the gap between the academe, researchers, market end-users, and industry. The program developed partnership between participating agencies within the Bicol Region and in the entire country. Through the program, the developers of the identified technologies will be assisted in the process of filing IP protection for their developed technology, start-up establishment, packaging and labeling their product, negotiating deals that champion the interests of both parties, and inventory and creation of technology management system.	Publication: 1 Training Module on IP Management 1 Training Module on Technopreneurship 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Reg.-J Inventory of potential IPs: 2 Reg.-J Inventory of IP Assets: 2 Reg.-J Inventory of Mature Technologies: 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: Reg.-J Prior Art Search & IP Audit: Trained at least 11 CMI Staff 1 Regional Pitch Day 10 CMIs trained/coordinated business network 2 Regional Pitch Days 11 CMIs trained/coordinated business network Reg.-J Technology Commercialization Mentorship Series Trained at least 11 CMI Staff/Place: 2 Commercialization Agreement Signed	Bicol University (BU)	The completion of the program through Bicol University College of Agriculture and Forestry in their continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubatees. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality over quantity and productivity and building valuable partnerships with them. The Faculty and students by making them researchers realize its societal impact anchored in the mind to market concept. Plus, be able to combat the status quo that is the Publish and Perish mentality through technopreneurship and technology business incubation.	1-Jan-2022	31-Dec-2023	Completed	3,000,000	1,405,169
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1-A: Enhancing IP-TBM in CNSC through RAISE (Old Title: Camarines Norte State College (CNSC) Agri-Aqua Innovation System Enhancement)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 1, 2022 * December 31, 2023) by Camarines Norte State College - Main in F. PIMENTEL AVE., BRGY. II, DAET, CAMARINES NORTE with a total PCAARRD-GIA funding of Php 1,600,000.00.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional Inventory of potential IPs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: None	Camarines Norte State College (CNSC)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubatees. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality	1-Jan-2022	31-Dec-2023	Completed	1,600,000	779,026
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1B: Enhancing the Intellectual Property and Technology Business Management (IP-TBM) in Camarines Sur Polytechnic Colleges (CSPC) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 1, 2022 * December 31, 2023) by Camarines Sur Polytechnic College - Main in Nabua, Camarines Sur with a total PCAARRD-GIA funding of Php 1,600,000.00.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: None	Camarines Sur Polytechnic College (CSPC)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubatees. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality	1-Jan-2022	31-Dec-2023	Completed	1,600,000	781,887

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1C: Enhancing the Intellectual Property and Technology Business Management (IP-TBM) in Sorsogon State University (SorSU) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 1, 2022 - December 31, 2023) by Sorsogon State University (SorSU) in Sorsogon State College - Main; Magsaysay Street, Sorsogon City with a total PCAARRD-GIA funding of Php 1,600,000.00.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPAs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested, □ 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series. □ 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: Policy	Sorsogon State college (SSC)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors and MSMEs to be able to address their needs	1-Jan-2022	30-Jun-2024	Ongoing	1,600,000	751,334
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1D: Enhancing the Intellectual Property and Technology Business Management (IP-TBM) in Catanduanes State University (CatSU) through RAISE	Integrity of the environment and climate change adaptation and mitigation	Catanduanes State University has been identified as one of the mentee agency for the SUSTAIN IP-TBM program. It was mentored by PCAARRD, POPH and BU in terms of IP protection and commercialization. As per IP audit of IPTBM, there are numerous technologies developed through the researches and studies conducted by the faculty and students of Catanduanes State University, CatSU as a mentee agency is now mastering IP protection and its commercialization. By this there is a need mastering IP protection and will start commercializing its IP's. By this there is a need to continue the mentoring process to make the mentor and the mentees very able in the IP protection and commercialization. Nevertheless, the program should be enhanced and must be added with the knowhow in agribusines, technology incubation and the knowledge management to ensure that the technology develop by faculty funded by the government will reach the market and the intended users. The SUSTAIN IP-TBM Program has given the opportunity to strengthen the efforts of the institution for IPR and Technology Commercialization. CatSU was able to apply for different IPRs since the beginning of the program and as it is about to end this December 2021, CatSU has been pushing forward to prepare faculty members and researchers to pursue technology commercialization. The CatSU IP-TBM team has been holding different echo seminars and coaching sessions to equip faculty members with the knowledge and background in pursuing patent applications and commercialization. CatSU sees the need for more seminars and trainings that will address the lacking avenues for technology partnerships and commercialization of AANR products of the institution. The RAISE Program can also provide the capability training and building on technology transfer to R&D partners while developing CatSU's technology transfer programs. .	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPAs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: Noted	Catanduanes State University (CatSU)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality	1-Jan-2022	30-Jun-2024	Ongoing	1,600,000	772,236
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1-E: Enhancing IP-TBM in CBSUA through RAISE (Old Title: Central Bicol State University of Agriculture (CBSUA) Agri-Aqua Innovation System Enhancement)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Central Bicol State University of Agriculture (CBSUA) San Jose Pili, Camarines Sur / Philippines / PCAARRD-GIA funding of Php 1,600,000.00.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPAs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: None	Central Bicol State University of Agriculture (CBSUA)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality	1-Jan-2022	30-Jun-2024	Ongoing	1,600,000	803,626

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1F. Developing the Intellectual Property and Technology Business Management (IP-TBM) in Partido State University (ParSU) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Partido State University (ParSU) in San Juan Evangelista Street, Goa, Camarines Sur with the PCAARRD-GIA funding of Php 1,800,000.00.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: None	Partido State University (ParSU)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the research products of the university while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and	1-Jan-2022	31-Dec-2023	Completed	1,800,000	745,241
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 1G. Developing the Intellectual Property and Technology Business Management (IP-TBM) in Dr. Emilio B. Espinosa, Sr. Memorial State College of Agriculture and Technology (DEBESMSCAT) through RAISE	Integrity of the environment and climate change adaptation and mitigation	DOST as one of the identified "start-up enablers" in the country has made a significant contribution to this achievement through various initiatives. In 2016, PCAARRD launched the DOST-PCAARRD Innovation and Technology Center (DPITC) which caters to the technology commercialization initiatives of the agency. Under the initiatives of the DPITC, the Intellectual Property-Technology Business Management (IP-TBM) program was conceptualized and approved. For batch 1 of the program, 5 licensing agreements were executed against the target of 10. For Batch 2, exploratory meetings with potential investors are still ongoing. To sustain and pursue the initial efforts in protecting the technologies generated by the participating HEIs in Batch 1 and 2 of the IP-TBM program. The SUSTAIN IP-TBM Phase II was implemented using the mentor-mentee approach where there are five mentor agencies that taught and guided thirty mentor agencies on IP Protection and Commercialization. Dr. Emilio B. Espinosa Sr Memorial State College of Agriculture and Technology is now beginning to transform into a university where it sees IP and knowledge protection and commercialization as the backbone for instruction, research, and extension. The college faculty will redefine quality education in the context of DEBESMSCAT to meet the demands of the quality expected of a university. With the aforementioned vision, DEBESMSCAT sees the need for seminars and training on IP protection and Commercialization that will address the lacking avenues for technology partnerships and commercialization of AANR products of the institution. The RAISE Program can provide the capability training and building on technology transfer to R&D partners while developing DEBESMSCAT's establishment of a technology transfer office. This will also bring forth a maximized economic potential of science and technology innovations.	Publication: 1 Training Module on IP Management 5 IEC 1 Regional Sustainability Plan/Patent: 10 IP Applications/Product: 10 Prior art search of R&D projects 2 Institutional inventory of potential IPs 2 Institutional Inventory of IP Assets 2 Institutional Inventory of Mature Technologies 2 technology with pre-comm reports 2 Product manufactured for pre-comm/ market tested 2 Technology Commercialized/People: 1 Institutional Prior Art Search & IP Audit Send at least 2 CMI Staff to IP Masterclass At least 2 CMI Staff send to be trained for Technology Commercialization Mentorship Series 1 Institutional Pitch Day/Place: 1 Commercialization Agreement Signed 1 partnership agreement with Business Groups/Trade Institutions/Policy: None	Dr. Emilio B. Espinosa Sr. Memorial State College of Agriculture and Technology (DEBESMSCAT)	The RAISE program will benefit the institution especially faculty members researchers, and students who will pursue research to create technological products. The IP application and technology commercialization will safeguard the university's research products while earning revenue. This will also benefit the community who will be part of the production team and the target community for the use of the technological product. The completion of the program and the continuous efforts to bring the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the mentor and mentee agencies, Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors, and MSMEs to be able to address their needs in increasing their efficiency and	1-Jan-2022	30-Jun-2024	Ongoing	1,800,000	701,605
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 2. Regional Agri-business Hub through RAISE Bicol	Integrity of the environment and climate change adaptation and mitigation	In Bicol region, Bicol University has been identified as the mentor agency for the SUSTAIN IP-TBM program due to its experience and programs IP protection and commercialization. It has five (5) mentees all member of Bicol Consortium for Agriculture, Aquaculture and Natural Resources Research and Development (BCAARRD). As per IP Audit of the mentor and mentee agencies, there are numerous technologies developed through the researches and studies conducted by the faculty and students of participating SUC TM s in the region. BU as the mentor agency is now starting to commercialize its Protected IP TM s and the mentee SUC TM s are now mastering the process of IP TM s protection and will eventually go into commercialization. By this there is a need to continue the mentoring process to make the mentor and the mentees very able in the IP protection and commercialization. Nevertheless, the program should be enhanced and must be added with the knowhow in agribusiness, technology incubation and the knowledge management to ensure that the technology developed by faculty funded by the government will reach the market and the intended users.	Publication: 1 Training Module on Agribusiness 5 IEC 1 Training Module on Technopreneurship 1 Regional Sustainability Plan/Patent: 4 Trademarks endorsed to IP TBM for application/Product: 2 Reg.-I Inventory of Mature Technologies: 2 Product manufactured for pre-comm/ market tested 2 technology with pre-comm reports 2 Technology Commercialized 2 Business Plan created for identified technologies for commercialization/People: At least 11 CMI Staff attended and trained for Reg.-I Agribusiness MasterClass: 11 CMIs trained/coordinated business network/Place: 2 Commercialization Agreement Signed 3 partnership agreement with Business Groups/Trade Institutions/Policy: None	Bicol University (BU)	The completion of the program through Bicol University College of Agriculture and Forestry in their continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubates. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality over quantity and productivity and building valuable partnerships with them. The Faculty and students by making them researchers realize its societal impact anchored in the mind to market concept. Plus, be able to combat the status quo that is the "A-Publish and Perish" mentality through technopreneurship and technology business incubation.	1-Jan-2022	30-Jun-2024	Ongoing	2,000,000	948,169

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 3: Establishment of the Bicol Agri-Aqua Technology Business Incubation (BATBI) Center (Old Title: Regional Agri-Aqua Technology Business Incubation (ATBI))	Integrity of the environment and climate change adaptation and mitigation	The Bicol Agri-Aqua TBI (BATBI) is a part of the University's efforts to strengthen and sustain the R&D and commercialization efforts through the Bicol University - Center for Technology Commercialization and Enterprise Development. This project aims to facilitate intensive efforts in the technology transfer efforts of the R&D and extension outputs for the AANR sector. The AATBI aims to support the University's efforts to introduce to the market the technologies and innovations developed by the College of Agriculture and Forestry by developing it into products and services for public consumption. Through the AATBI the 34 identified and assessed technologies of the College will undergo business incubation and commercialization, with top priority to technologies for Pili processing. Furthermore, it aims to capacitate its alumni, faculty and researchers to be prospective technopreneurs in the AANR Sector by providing them with the facility and mentors that will support and nurture their skills in the development of technology-based businesses at a subsidized cost with minimal business risk. The AATBI will provide a business center with a provision for office space, meeting rooms complemented with common space for administrative services. The BATBI will also provide workstations such as display area, processing facility and a farm shop to facilitate the production and development of the products and services for business incubation. Through the BATBI, access to the laboratory and service areas of the College as well as technology business incubation, business coaching and technology expertise assistance will also be provided.	Publication: 10 TBI Business Plan prepared 1 Operations Manual Prepared 1 TBI Curricular Developed 1 Technopreneurship Manual Developed Patent: None Product: 10 Technology Portfolio prepared 10 technology incubated 10 Business Model Crafted 2 incubatees graduated People: 12 Pre-commercialization service provided 10 technologies accepted for incubation 10 Incubatees Trained/Mentored 15 faculty researcher involved in training and mentoring 4 Mentoring and Training activities conducted Place: 7 HEIs involve in TBI 5 Private sector partner 2 NGA partner 3 Funding Institution Partner 3 MDA Executed 2 Farming Community involve in Incubation Policy: None	Bicol University (BU)	The completion of the program through Bicol University College of Agriculture and Forestry in their continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the Department of Agriculture Region V, Department of Science and Technology Region V, Department of Trade in Industry Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubatees. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality over quantity and productivity and building valuable partnerships with them. The Faculty and students by making them researchers realize its societal impact anchored in the mind to market concept. Plus, be able to combat the status quo that is the "A-Publish and Perish," mentality through technopreneurship and technology business incubation.	1-Jan-2022	31-Dec-2023	Completed	5,000,000	1,821,293
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Bicol Region	Project 4: Regional Knowledge Management Hub through RAISE Bicol	Integrity of the environment and climate change adaptation and mitigation	In Bicol region, Bicol University has been identified as the mentor agency for the SUSTAIN IP-TBM program due to its experience and programs IP protection and commercialization. It has five (5) mentees all member of Bicol Consortium for Agriculture, Aquaculture and Natural Resources Research and Development (BCAARRD). As per IP audit of the mentor and mentee agencies, there are numerous technologies developed through the researches and studies conducted by the faculty and students of participating SUC's in the region. BU as the mentor agency is now starting to commercialize its Protected IP's and the mentee SUC's are now mastering the process of IP's protection and will eventually go into commercialization. By this there is a need to continue the mentoring process to make the mentor and the mentees very able in the IP protection and commercialization. Nevertheless, the program should be enhanced and must be added with the knowhow in agribusiness, technology incubation and the knowledge management to ensure that the technology develop by faculty funded by the government will reach the market and the intended users.	Publication: 4 Research Presentation monitored 6 EC encoded in the database Patent: 20 Copyright endorsed to IP TBM for Application Product: 1 RTMS developed 20 Agri-aqua technologies encoded in the database 5 New agri-aqua Products added in the database People: 4 patent mining report endorsed to IP TBM (project 1) Place: None Policy: None	Bicol University (BU)	The completion of the program through Bicol University College of Agriculture and Forestry in their continuous efforts to bringing the knowledge and technologies closer to the industries through technology business incubation in the realization of their goals to be a conduit of connection and collaboration between the Department of Agriculture Region V, Department of Science and Technology Region V, City LGU, and Municipal LGU in the six Provinces of Bicol Region, private sector and MSMEs and the incubatees. The industries, private sectors and MSMEs to be able to address their needs in increasing their efficiency and effectiveness without compromising quality over quantity and productivity and building valuable partnerships with them. The Faculty and students by making them researchers realize its societal impact anchored in the mind to market concept. Plus, be able to combat the status quo that is the "A-Publish and Perish," mentality through technopreneurship and technology business incubation.	1-Jan-2022	31-Dec-2023	Completed	1,800,000	811,496
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in Cagayan Valley through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Isabela State University (ISU) is one of the leading state universities of the Philippines. Known as the university for people, nature, entrepreneurship and innovation, ISU is one of the sources of AANR Technologies in the countries. At present, the university hosts 19 research center across different disciplines. The use of innovative technologies or intellectual properties is one of the initiatives of the university to contribute in the improvement of farming activities of the province in particular. Since 2017, the university is implementing the Intellectual Property and Technology Business Management Project to efficiently manage the IP assets of the university. To sustain our initiatives, IPTBM is imperative to maintain and intensify our efforts toward making IP into a valuable and profitable asset for businesses. The prospect of commercializing IPs is bright as the government is aligning significant programs and policies to help our innovators and entrepreneurs. The enhancement of the IPTBM in the region shall ensure that every R&D strategic action leading to the creation of products and its process shall ensure that IP rights to the rightful recipients are ensured and novel ideas are properly managed. This project would further sustain the IPTBM in Region 2 to support ongoing and future regional-generated technologies and intellectual properties, as the region continues to engage, pursue, and partner with other organizations locally and globally. To attain these goals. In the implementation of this project, there will be four major activities to be conducted to include technology inventory, filing of Ips and capacity building. On technology inventory, it will involve inventory and assessment of research-based technology developed by various researchers within the consortium. The protected technologies will be commercialized, while the unprotected will be filed for registration at the Intellectual Property Office- Philippines. To improve the knowledge and skills of the researchers on IP management, they will attend capability building activities. For this particular project, the project team will attend master class series organized by Technology Transfer and Promotion Division of DOST-PCAARRD. After completing the master class, a regional training will be conducted to capacitate more researchers. The different capability building activities will focus on improving researchers' knowledge on IP concepts as well as their drafting skills.	6 Regional IPTBM Institutional PTBM (ISU) IPTBM Phase 3 Publication 3 Regional Training Reports ISU ECPaters40 IP Applications (UM and Patent) 22 Copyright Application 10 IP Applications (UM & Patent) only 5 ISU Copyright (ECs) Products 1 Regional list of Priority R&D Areas commodity prepared and updated 1 Regional technology and IP inventory prepared and updated 1 Regional Sustainability Plan 1 Consolidated regional report (IPs filed, tech commercialized, and others) Consolidated 40 PAS Reports Consolidated 6 inventory of IP assets and technologies (potential IPs & IP's filed) Consolidated 6 inventory of knowledge resources Consolidated reports of 6 product enhance or co-incubated or market tested Consolidated reports of 6 technology commercialized Identified and consolidated 12 technologies pitched Consolidated pre-commercialization reports of 6 technologies 10 PAS Region's IP's & technologies inventory of ISU updated 1 inventory of knowledge resources of ISU prepared and updated 1 communication plan developed & implemented 1 Tech Communication plan developed & implemented 1 technology with pre-commercialization report 2 technologies pitched 1 Technology Commercialized People and Services Coordinated & hosted 1 national IPMC (last module & graduation) Coordinated participation of 6 CMs on national training 12 CM Staff trained attended the national IPMC 12 CM Staff trained attended the national ABMS 12 CM Staff trained attended the national TCMS 12 CM Staff trained attended the national TPMS 1 Regional IP Audit & Inventory Workshop conducted Trained 18 CM Staff on IP Audit & Inventory Workshop 1 Regional Policy/Tech Transfer Protocol review conducted Trained 18 CM Staff on Policy/Tech Transfer Protocol 1 Regional Echo IPMC Conducted Trained 18 CM Staff on echo IPMC Participate in the content build-up & updating of RAISE RTMS 1 Regional tech/business pitch day conducted 1 Regional promotional activity conducted (e.g. exhibits, bootcamps, IP caravan, etc.) Participation to the National Pitch Fes 2 ISU staff trained in national IPMC 2 ISU staff trained in national ABMS ISU staff trained in national TCMS ISU staff trained in national TPMS 2 ISU staff attended regional IP Audit & Inventory Workshop 2 ISU staff attended regional IP Policy/Tech Trans Protocol review 2 ISU staff attended regional Communication Plan Workshop 1 Institutional echo seminar conducted Trained 30 ISU staff on echo seminar Participate to content build-up of RTMS Spaces and Partnership Consolidated 6 commitment letters to attend national training Consolidated 6 signed commercialization agreements CMs assisted in the commercialization of technologies RAISE Advisory Council created 1 Commitment Letter for the national training 1 partnership agreement w/Business/Trade Institutions 1 Commercialization Agreement Policy Memorized Regional Policy on IP and Technology	Isabela State University (ISU)	Component 1. Regional IPTBM/CAARRD CMs Researchers/Inventors (ISU, NVSU, CSU, BSC, OSU, BFAR, RIZ) Technology adapters in Region 02 Entrepreneurs in Region 02 Component 2. Institutional IPTBM (ISU) IPTBM Phase 3 ISU Researchers/Inventors Technology Adapters Entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	4,566,672	2,990,836

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1A. Enhancement of the Intellectual Property and Technology Business Management Office (IP-TBM) in Nueva Vizcaya State University (NVSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The establishment and development of the Nueva Vizcaya State University Intellectual Property Technology Business Management (NVSU IPTBM) Office was made possible by the assistance of the Department of Science and Technology Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD). The office advocates the protection of intellectual properties and assisting inventors and/or technopreneurs to take advantage of their novel ideas and turn it into business. Since the assistance of the DOST-PCAARRD, the university has filed 64 technologies for intellectual property protection excluding copyrights and trademarks. Of these technologies, one is on the commercialization stage, one is on the pipeline of commercialization and eight (8) are enrolled in the technology business incubation (TBI) for future commercialization or technology transfer. Through the patent mining project, the NICER for Citrus Project was also approved and implemented, giving way to the application of various technologies on citrus production and processing within and outside the province. With the implementation of the program on Regional Agri-Aqua Innovation System Enhancement (RAISE) in Cagayan Valley, it will enhance and sustain the on-going IP-TBM of Nueva Vizcaya State University. This initiative will continuously manage the technologies and intellectual properties of the university by providing capability building to researchers and innovators. It is expected that this initiative will enhance the technology transfer programs of the university.	Publication0 IECA/Patent10 IP Applications (UM & Patent only)5 Copyright (IECs)Products2 PAS Reports1 Ps & technologies inventory updated1 inventory of knowledge resources prepared and updated1 communication plan developed & implemented1 Tech Communication plan developed & implemented1 technology with pre-commercialization reports2 technologies pitched1 Technology Commercialized People and Services2 BSC staff trained in national IPM2 CMI staff trained in national ABMS2 CMI staff trained in national TPM2 CMI staff attended regional IP Audit & Inventory Workshop2 CMI staff attended regional IP Policy/Tech Trans Protocol review2 CMI staff attended regional Communication Plan Workshop1 Institutional echo seminar conducted Trained 30 staff on echo seminarParticipate to content build-up of RTMS/Places and Partnership1 Commitment Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPolicy/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Nueva Vizcaya State University (NVSU)	Technology and Business Incubator Office of NVSU/Unclubatees- Male and Female/Technology Business Incubator personnel and manager/NVSU male and female Researchers/ Inventors/Technology adapters- Male and Female/Entrepreneurs- Male and Female	1-Oct-2023	30-Sep-2025	Ongoing	2,431,200	1,389,400
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1B. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Batanes State College (BSC) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	In its pursuit to increase its research activities, technology and knowledge generation, and to protect these outputs, the Batanes State College need to establish its Intellectual Property and Technology Business Management (IP-TBM) Office through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. Through this initiative, the College will further enhance and manage the technologies generated from research and protect its generators through IP application. This initiative will further provide its researchers and generators with capability building and trainings which will lead to the proper transfer of technologies to the Ivtan community. With the establishment of the IP-TBM Office of the College, this will ensure that appropriate actions taken in conducting research activities through product development, production and technology generation will be enhanced. The establishment of the project will not only sustain and improve the on-going research and technology generation activities of the college, but it will also engage researchers, innovators and future technology generators to pursue appropriate activities that may involve its community through partnership and collaboration with other organizations not only within the locality but also nationally and perhaps internationally.	Publication0 IECA materials/Patent5 IP Applications (UM & Patent only)3 Copyright (IECs)Products2 PAS Reports1 Ps & technologies inventory updated1 inventory of knowledge resources prepared and updated1 BSC communication plan developed & implemented1 Tech Communication plan developed & implemented1 technology with pre-commercialization reports2 technologies pitched1 Technology Commercialized People and Services2 BSC staff trained in National IPM2 BSC staff trained in National ABMS2 BSC staff trained in national TPM2 BSC staff trained in national TPM2 BSC staff attended regional IP Audit & Inventory Workshop2 BSC staff attended regional IP Policy/Tech Trans Protocol review2 BSC staff attended regional CommPlan Workshop1 Institutional echo seminar conducted Trained 30 staff on echo seminarParticipate to content build-up of RTMS/Places and Partnership1 Commitment Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPolicy/Enhancement of IP policy/Enhancement of technology transfer protocol	Batanes State College (BSC)	BSC Researchers/ Inventors/Technology adapters/Entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	3,068,100	1,775,800
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1C. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Cagayan State University (CSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Cagayan State University (CSU) is one of the leading universities in Region 2. At present, CSU has seven (7) campuses that are strategically established across the province. The university offers courses in agriculture, engineering, and even medicine. One of the mandate of the university is to develop technologies. In particular, the university is known for developing machineries. Moreover, CSU Aparri Campus caters aquatic sector. Today, the campus has developed various technologies on aquatic and marine sciences. These technologies cover production to product processing. Although these technologies are already protected in terms of intellectual property, these are not yet commercialized. This project will therefore manage the commercialization of the mature technologies. Furthermore, through the project, other technologies will be efficiently manage starting from IP until it is deployed to target beneficiaries or commercialized by private sector. Researcher and faculty will also be trained on IP and technology management approaches which are all necessary to improve the process of research and development activities as well as in technology transfer.	Publication0 IECA materials/Patent5 IP Applications 3 Copyright (IECs)Products2 PAS Reports1 Ps & technologies inventory updated1 inventory of knowledge resources prepared and updated1 CM communication plan developed & implemented1 Tech Communication plan developed & implemented1 technology with pre-commercialization reports2 technologies pitched1 Technology Commercialized People and Services2 CSU staff trained in national IPM2 CSU staff trained in national ABMS2 CSU staff trained in national TPM2 CSU staff trained in national TPM2 CSU staff attended regional IP Audit & Inventory Workshop2 CSU staff attended regional IP Policy/Tech Trans Protocol review2 CSU staff attended regional CommPlan Workshop Trained 30 staff on echo seminarParticipate to content build-up of RTMS/Places and Partnership1 Commitment Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPolicy/Enhancement of IP policy/Enhancement of technology transfer protocol	Cagayan State University (CaGSU)	CSU Researchers/ Inventors/ Technology adapters/ Entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	1,514,200
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1D. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Quirino State University (QSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Quirino State University (QSU) aims to establish an Intellectual Property and Technology Business Management (IPTBM), in the pursuit to develop and generate knowledge and technologies for the attainment of increased net income of the community, takes the responsibility to further enhance the intellectual property protection and technology management through the Regional Agri-Aqua Innovation System Enhancement (RAISE). As such, this initiative will continuously manage the technologies and intellectual properties of the University by providing capability building to researchers and innovators. Hence, it is expected that this initiative will enhance the technology transfer programs of the University. Concomitantly, the establishment of the IP-TBM Office in the university shall ensure that every R&D strategic accomplishment leading to the creation of products and its process shall guarantee that IP rights to the recipients are safeguarded and novel ideas are properly managed. This project would further sustain the IP-TBM office to support ongoing and future QSU-generated technologies and intellectual properties, as QSU continues to engage, pursue, and partner with other organizations locally and globally.	Publication0 IECA materials/Patent5 IP Applications (UM & Patent only)3 Copyright (IECs)Products2 PAS Reports1 Ps & technologies inventory updated1 inventory of knowledge resources prepared and updated1 QSU communication plan developed & implemented1 Tech Communication plan developed & implemented1 technology with pre-commercialization reports2 technologies pitched1 Technology Commercialized People and Services2 QSU staff trained in national IPM2 QSU staff trained in national ABMS2 QSU staff trained in national TPM2 QSU staff trained in national TPM2 QSU staff attended regional IP Audit & Inventory Workshop2 QSU staff attended regional IP Policy/Tech Trans Protocol review2 QSU staff attended regional Communication Plan Workshop Trained 30 staff on echo seminarParticipate to content build-up of RTMS/Places and Partnership1 Commitment Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPolicy/Enhancement of IP policy/Enhancement of technology transfer protocol	Quirino State University (QSU)	QSU Researchers/ Inventors/Technology adapters/Entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	2,566,600	1,530,800
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 1E. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Bureau of Fisheries and Aquatic Resources Region 2 (DA-BFAR R2) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The DA-Bureau of Fisheries and Aquatic Resources Region 02 through its researchers has been developing various fishery products particularly from underutilized fish and other aquatic resources as well as innovated several fisheries technologies. The research on value adding of tilapia to increase production profits was then promoted by the agency and commercialized with the assistance of the Department of Science and Technology and the DA-Bureau of Agricultural Research and adopted by fish processors locally. The DA-BFAR researchers also worked on the utilization of rice eel and has turned the resource, which was initially considered as waste into a livelihood opportunity for the farmers and fishers by developing value added products to promote consumption and marketing. Meanwhile, some of the value-added products from local shrimp called osaramang and gracilaria seaweed are now being commercialized and adopted by women associations in the region for their livelihood business ventures. With the implementation of the program on Advancing Technology Transfer in Region 02 through the Regional Agri-Aqua Innovation System Enhancement (RAISE), it will enhance and sustain the on-going IP-TBM of DA-Bureau of Fisheries and Aquatic Resources Region 02. This initiative will continuously manage the technologies and intellectual properties of the university by providing capability building to researchers and innovators. It is expected that this initiative will enhance the technology transfer programs of the university.	Publication0 IECA materials/Patent5 IP Applications (UM & Patent only)3 Copyright (IECs)Products2 PAS Reports1 Ps & technologies inventory updated1 inventory of knowledge resources prepared and updated1 Communication plan developed & implemented1 Tech Communication plan developed & implemented1 technology with pre-commercialization reports2 Technologies pitched1 Technology Commercialized People and Services2 BFAR-02 staff trained in national IPM2 BFAR-02 staff trained in national ABMS2 BFAR-02 staff trained in national TPM2 BFAR-02 staff trained in national TPM2 BFAR-02 staff attended regional IP Audit & Inventory Workshop2 BFAR-02 staff attended regional IP Policy/Tech Trans Protocol review2 BFAR-02 staff attended regional Communication Plan Workshop Trained 30 staff on echo seminarParticipate to content build-up of RTMS/Places and Partnership1 Commitment Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPolicy/Enhancement of IP policy/Enhancement of technology transfer protocol	Bureau of Fisheries and Aquatic Resources Region 2 (DA-BFAR R2)	BFAR-02 Researchers/ Inventors/Technology adapters/Entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	1,545,000

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 2. Establishment of Regional Agri-business Hub (ABH) in Cagayan Valley through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Region 2 also known as Cagayan Valley is the country's top 1 producer of corn, 2nd top producer of rice and tobacco. It is also known as a major producer of vegetables and root crops, which makes it 2nd top producer of eggplant, 3rd top producer of mungbean, potato, tomato, and cassava; and 4th top producer of ampalaya. Moreover, the Province of Nueva Vizcaya is known as the Citrus Capital while the City of Ilagan is the Corn Capital of the country. Due to its vast pasture, the valley is also known for livestock and poultry production. Its coastal waters and inland fisheries industry make the region a producer of aquatic products. Furthermore, the region also implements research and development programs and projects that are sources of technologies, new production processes and new product formulation. These technologies are developed to improve production performance and are designed to improve productivity. Among the banner commodities of CVAARRD are corn, mungbean, mango, tiliapia, small ruminant and timber (forest products), however, there are also commodities that plays an important role in backyard farming of the region to include native animals (swine, duck, chicken) and other emerging commodities such as coffee, cacao, mushroom among others. In this project, a regional agribusiness hub will promote technologies and innovations developed for the AANR sector developed by different researches conducted by Isabela State University and other institutions in Region 2. These outputs will be packaged into technology and investment portfolios to be used by different stakeholders such as farmers, farmer organizations and cooperative and private groups. With these interventions, it is expected that it will fast track transfer of technologies and its impact particularly on productivity improvement will be realized which will contribute to the economic stability of the region. The establishment of a regional agribusiness hub will catalyze the transfer of relevant technologies to the different clients such as producers, processors and distributors in Region 2.	Publication3 Regional Training ReportsProducts10 Pre-commercialization services2 technologies with business plan2 technologies with feasibility study2 technologies with market research2 technologies with validation technologies with enterprise plan (EP)1 Consolidated regional report on technology pre-commercialization People and ServicesCoordinated participation of 6 CMIs to national ABMSCoordinated the participation of 6 CMIs to national ABMS2 ISU Staff trainedattended the national ABMS3 Regional echo ABMS conductedTrained 14 CMI Staff on ABMS (echo)1 Training on Agripreneurship for MSMEs or potential agripreneurs conductedTrained 20 of MSMEs on agripreneurshipParticipates in the content build-up & updating of RAISE RTMSParticipation to the National Pitch FestAssisted 2 CMIs in pre-comm services (e.g. FS, BP, MS, MT, Val, EP)Places and Partners2 partnership agreements with Business/Trade Institutions	Isabela State University (ISU)	Technology and Business Incubator Office of ISU/Incubates- Male and FemaleTechnology Business Incubator personnel and managerISU male and female Researchers/ InventorsTechnology adapters- Male and FemaleEntrepreneurs- Male and Female	1-Oct-2023	30-Sep-2025	Ongoing	3,149,964	1,789,988
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI) in Cagayan Valley through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Project 3 of the RAISE Program will be implemented to promote the technologies generated from R&D to be transferred and eventually be commercialized through technology business incubation or co-incubation. The project will likewise capacitate R&D partners on technology transfer to improve the technology adoption rate in the region. It will also serve as a venue for convergence of regional AANR stakeholders from the academe, public, private sectors, NGOs and international partners. The project will also facilitate public-private access to AANR technologies to improve the innovation ecosystem in the region by renewing the existing partnership and forge new Public Private Partnerships for R&D Results Utilization (RDRU). In general, it is hoped that this will enhance the science, technology, and innovation ecosystem in the region as it strengthens the ATBIs and IPTBMs in the CMIs.	PublicationComponent A- Regional ATBI2 Regional Training Reports1 Regional ATBI Operations Manual crafted1 Regional ATBI Business Plan crafted1 Regional ATBI Service Offering preparedComponent B- Institutional ATBI (ISU-ATBI Phase 3)1 ATBI business plan revised as needed1 ATBI operations manual revised as needed2 basic/advanced incubation curricula revised as needed6 acceleration curricula developed or improved as needed2 IEC or promotional material for the ATBI produced1 promotional video for the ATBI developed18 IEC or promotional materials for the incubates developed2 promotional videos for the incubates developed1 ATBI sustainability plan developed and implemented1 ATBI communication plan developed and implementedPhaseComponent A- Regional ATBI3 IP ApplicationsComponent B- Institutional ATBI (ISU-ATBI Phase 3)10 trademarks filed10 copyrights filedProductsComponent A- Regional ATBI2 Technologies co-incubated1 Technology Commercialized with FOR /Facilitated the commercialization of 1 CMI technology1 Consolidated regional reportComponent B- Institutional ATBI (ISU-ATBI Phase 3)10 technologies incubated/adopted by new incubates10 technologies incubated/adopted by continuing incubates5 technologies incubated/adopted by accelerated2 technologies co-incubated3 technologies commercialized with issued Fairness Opinion ReportPeople and ServicesComponent A- Regional ATBI2 new incubates enrolled in any of the existing ATBI2 CMI Staff trainedattended the national ATBI MCCoordinated participation on national TCMS2 CMI Staff trainedattended the national TCMSCoordinated participation of 6 CMIs on regional ATBI MC echo trainingCoordinated participation of 6 CMIs on regional TCMS echo trainingTrained 30 staff on TCMS thru echo seminarTrained 30 staff on ATBI thru echo seminar1 regional tech/business pitch day conducted1 regional promotional activity conductedAssisted 2 CMIs in ATBI servicesParticipates in the content build-up & updating of RAISE RTMSParticipation to the National Pitch FestComponent B- Institutional ATBI (ISU-ATBI Phase 3)10 new incubates enrolled at basic incubation program10 continuing incubates enrolled to the advanced incubation program6 accelerates enrolled at acceleration program10 incubates graduated from basic/advanced incubation program<4 div="lr" style="list-style-type: disc	Isabela State University (ISU)	The target beneficiaries in the project are: micro, small and medium entrepreneurs, existing incubates, farmers association and cooperatives/researchers and technology generators/industries (agriculture-based and food industries.	1-Oct-2023	30-Sep-2025	Ongoing	6,827,552	3,831,940
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cagayan Valley	Project 4. Establishment of Regional Knowledge Management (KM) Hub in Cagayan Valley through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Cagayan Valley Agriculture, Aquatic and Natural Resources (CVAARRD) Consortium currently serves as the host of Regional Knowledge Management. The unit produces IEC materials from the databases of the different CMIs which are intended for information sharing. The consortium is participated in by member institutions composed of academe, both public and private, regional and national agencies that are active in R&D-related activities in priority commodities to include citrus, legumes, rice, small ruminant and timber to name a few. When the knowledge generated from the different R&D initiatives are collected, packaged and distributed to target clients, it will create impact to the community, particularly in the AANR Sector. With the establishment of a Knowledge Management Hub in Region 02 through the Regional Agri-Aqua Innovation System Enhancement (RAISE), it will enhance and sustain the collaborative effort consortium to address challenges in the AANR sector. It is also in support of RA 10055 or the Technology Transfer Act of 2009 wherein use and commercialization of IPs generated from government-funded R&D is mandated.	Publication 30 IECs2 Regional Training Reports3 Promotional MaterialsPatents1 IP applications copyright (IP inventory, technology portfolio)Products 1 Regional Inventory KM Inventory1 Reg™ CommPlan prepared & updated1 consolidated CommPlan prepared & updated1 consolidated Tech CommPlan prepared & updated30 Agri-Aqua technology-based IEC materials collected for E-Lib uploading1 Consolidated regional reportPeople and Services 2 ISU Staff Trained in Knowledge ManagementCoordinated participation of 6 agencies to national TPMSCoordinated attendance of 12 project staff to national TPMS1 echo seminar on TPMSTrained 30 CMI staff in echo seminars1 Reg1 Inventory of Knowledge Resources Workshop conductedTrained 30 CMI Staff on Reg1 Inventory of Knowledge Resources WorkshopParticipation to RTMS content build up trainingAssisted 6 CMIs in KM Mgt servicesFacilitate consolidation of knowledge resources for the E-LibFacilitate and coordinate content build-up of RTMS of the region1 regional tech business pitch day 1 regional technology fair/ promotion conducted 1 national pitch day participated Places & Partners2 memorandum of agreement signed with partners for technology promoterPolicy Institutionalization of KM HubSocial Impact Provided the AANR sector with easy access to information and technologies.Economic Impact The utilization of R&D outputs will improve the productivity of agri-aqua industries.	Isabela State University (ISU)	Technology and Business Incubator Offices of Region 2 Incubates- Male and FemaleTechnology Business Incubator personnel and managerISU male and female Researchers/ InventorsTechnology adapters- Male and FemaleEntrepreneurs- Male and Female	1-Oct-2023	30-Sep-2025	Ongoing	2,652,800	1,491,400
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in Caraga through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga aims to enhance the innovation ecosystem in the region by managing and supporting the development of regional Agriculture, Aquatic, and Natural Resources (AANR) technologies and intellectual properties. The program also aims to provide capacity building to R&D partners in technology transfer, facilitate public-private access to AANR technologies, and establish new partnerships for research and development utilization. The program has significant social impacts such as better sustainable environmental management, job creation for rural communities, and potential breakthroughs in various fields. The program will implement various activities, including strengthening IP-TBM personnel's capacity in patent protection, prosecution, patent mining, and other necessary skills through training and development programs. The program will also enhance the management of intellectual property and promotion and transfer of technology activities within CSU and fellow Consortia Member Institutions (CMIs), identify emerging technological trends, recommend priority R&D programs, provide support in technology evaluation and assessment, and promote technology commercialization through stronger linkages with industry and community stakeholders. These efforts aim to ensure the relevance of intellectual property and technology management activities in promoting economic growth and sustainable development in the region.	Project 1 - Regional IP-TBMY12PUBLICATION3 Regional Training Reports, 1 consolidated training report of all the CMI participants who attended to IPMC1 training report on reg™ IP Audit & Inventory Workshop1 training report on reg™ echo IPMC (including PAS)1 IP PATENT2 IP Applications (UM & Patent only)13 Copyright (IECs)3PRODUCT 1 Consolidated list of CMI Priority R&D Areas/commodity prepared and updated1 Consolidated CMI Technology Inventory prepared and updated (IPs application status, tech commercialized, etc.)1 Regional Sustainability Plan1 Consolidated regional report (IPs filed, tech commercialized, etc.)XXPEOPLE & SERVICESCoordinated participation of 3 CMIs on national IPMC32 Staff trainedattended in national IPMC21 Reg™ echo IPMC conductedTrained 20 personnel on Reg™ echo IPMC20 Reg™ IP Audit & Inventory Workshop1Trained 2 Staff on IP Audit & Inventory Workshop2 Reg™ Policy/Tech Transfer Protocol review conductedTrained 2 Staff on IP Policy/TIP Review22 Staff trained in national TCMS-plan style="font-size: 11pt; font-family: Arial; color: rgb(0, 0, 0); background-color: transparent; font-variant-numeric: normal; font-variant-east-asian: normal; font-variant-alternates: normal; vert	Caraga State University (CarSU)		1-Oct-2023	30-Sep-2025	Ongoing	3,983,650	1,351,975

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 1A. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in North Eastern Mindanao State University (NEMSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project aims to enhance the operation of the Intellectual Property and Technology Business Management Office (IP-TBM) at North Eastern Mindanao State University (NEMSU). The project will be implemented through a series of activities, including strengthening the capacity of IP-TBM personnel in patent protection, prosecution, patent mining, and other necessary skills through training and development programs, enhancing and harmonizing the management of intellectual property and promotion and transfer of technology activities within NEMSU to ensure effective utilization of intellectual property and technologies developed by the university; identifying emerging technological trends and recommending priority research and development (R&D) programs to align with national and regional priorities; providing support to R&D institutions, funding agencies, and researchers in technology evaluation and assessment; and forging stronger linkages with industry and community stakeholders to promote technology commercialization and ensure the relevance of intellectual property and technology management activities. The project will address the Sustainable Development Goal on Industry, Innovation, and Infrastructure. By improving the management of intellectual property and technology transfer at NEMSU, the project aims to contribute to the economic growth of the region and the country.	Output/Year 1 Year 2 6PA for new IP-TBM/Publication 2 promotional IEC for technologies generated from NEMSU; 111 technical paper presented in either local national or international conference; 1 Patent (IP Application) (IM & Patent only); 233 Copyright (IEC); 12 products PAS Reports 231 IP's & technologies inventory updated; 11 inventory of knowledge resources prepared and updated; 111 CM communication plan developed & implemented; 11 Tech. Comm. developed & implemented; 11 technology with pre-comm reports; 12 technologies pitched; 111 Technology Commercialized; 1 People and Services; 2 CM staff trained in national IP/MC2 CM staff trained in national ABM22 CM staff trained in national TCMS; open style="font-size: 11pt; 1	North Eastern Mindanao State University (NEMSU)	NEMSU Researchers/Inventors, Intellectual Property and Technology Business Management (IP-TBM) Team in NEMSU, NEMSU ITSO Technical Staff/Experts Indirect Beneficiaries, MSME, s in Caraga Region, Inventors in Caraga Region	1-Oct-2023	30-Sep-2025	Ongoing	2,252,656	728,164
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 1B. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Agusan del Sur State College of Agriculture and Technology (ASSCAT) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Agusan del Sur State College of Agriculture and Technology (ASSCAT) envisions a progressive innovation ecosystem to complement the growing demands of agriculture technology in the region. For the last three years, the institution conducted several innovation activities such as training, seminar, workshop, and benchmarking, which paved the way for establishing its Innovation and Development Office under the Research Innovation Development and Extension Affairs (RIDEA). The office aims to lead and support the innovation initiatives, such as Technology Development, Intellectual Property Protection, Technology Business Incubation, and Technology Commercialization. Since 2021, the Innovation and Development Office has set its sight on the establishment of ASSCAT ITSO intending to protect the Intellectual Property Rights of the institutions as well as in the province of Agusan del Sur (that is primarily agriculture-related technology). It has initially conducted primary training on Intellectual Property Rights and Protection with the Intellectual Property Office of the Philippines (IPOPHIL) that has already produced thirteen (13) patent applications. Since then, the office has been financially challenged in the conduct and support of all its innovation programs. The DOST PCAARRD IP-TBM program is one of the key solutions for ASSCAT support and implements its various innovation programs. ASSCAT aims that this project shall provide an avenue to engage in actual commercialization efforts with the industry, bringing technologies from the university towards the industry, thereby providing significant return to the college. The faculty, students, researchers, and inventors from ASSCAT and the province of Agusan del Sur will be the primary beneficiary of the ASSCAT IP-TBM, while the MSMEs and other inventors will be the indirect beneficiaries.	Project 1C - New IP-TBM/112 products 1 Inventory of IP assets 1 Technology Commercialized PAS Report 15 People and Services 2 CM staff trained in national IP/MC2 CM staff trained in national ABM22 CM staff trained in national TCMS 2 CM staff trained in national TPMS 2 IP-TBM staff attended a local IP workshop/ forum 20 faculty members or researchers from ASSCAT trained (short duration/short seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainer/speaker 2 networking events and technology promotion conducted by the IP-TBM in ASSCAT 1 technology later/1 paper 22/2021/2021 Publications 2 promotional IEC for technologies generated from ASSCAT 11 technical paper presented in either local or international conference 11 Patents 5 IP (patent and utility model only) applications 2 Places and Partnerships 1 IP-TBM established/institutionalized 1 Letter of Commitment from SURCIRI 1 Memoranda of Agreement signed 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions 1 commercialization agreement executed 111 4td style="border-width: 0.75pt; border-color: rgb(0, 0, 0); border-right-style: solid; border-bottom-style: solid; vertical-align: top; padding: 5pt; overflow: hidden; overflow-wrap: break-word;	Agusan del Sur State College of Agriculture and Technology (ASSCAT)	ASSCAT faculty ASSCAT students, ASSCAT researchers and inventors MSMEs in Agusan del Sur Inventors in Agusan del Sur	1-Oct-2023	30-Sep-2025	Ongoing	2,267,656	743,164
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 2. Establishment of the Regional Agri-Business Hub (ABH) in Caraga through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Establishment of Regional Agri-business Hub (ABH) in the Caraga Consortium for Agriculture, Aquatic, and Natural Resources Research and Development (CCAARRD) through the RAISE program aims to create a sustainable and innovative agribusiness ecosystem in the region. The project will establish a hub that provides farmers and agribusinesses with access to cutting-edge technology, technical support, and business development services. The ABH will act as a hub for cooperation, knowledge exchange, and capacity building, giving farmers and agribusinesses the instruments and materials required to boost output, cut costs, and open up new markets. The hub will also be involved in promoting laws and policies that assist the expansion of the region's agriculture industry. The project will have several outcomes, including improved access to technology and technical support, enhanced market opportunities, increased collaboration and knowledge sharing, a strengthened agribusiness ecosystem, improved sustainability practices, capacity building and skills development, and policy advocacy and reform. The establishment of the ABH will contribute to the economic development of the Caraga region, promoting job creation, investment, and sustainable growth. The project will be implemented through a public-private partnership approach, with key stakeholders from the government, private sector, and academia working together to achieve shared goals. Hence, establishing a regional agribusiness hub (ABH) within CCAARRD through the RAISE program, the agribusiness industry in Caraga will have the potential to change and give farmers sustainable, and innovative advantages in the future.	TOTAL 112 PUBLICATION 1 consolidated training report of all the CM participants who attended to ABMCI training report on regional echo ABMCI training report on Agripreneurship 1 1 1 PATENT/INTELLECTUAL PROPERTY 1 Copyright of training report 1 PRODUCT 10 Pre-commercialization Services for technologies with value proposition report, business plan, feasibility study, market study 2 technology with business plan 2 technology with market study 2 technology with feasibility study 2 technology with valuation 2 technology with enterprise plan 11 1 2 2 2 People and Services 2 CM Staff trained/attended the national IP/MC2 CM Staff trained/attended the national ABM22 CM Staff trained/attended the national TPMS 1 Regional echo ABMCI conducted 20 CM Staff trained/attended on ABMCI (echo) Training on Agripreneurship for MSMEs or potential agripreneurs conducted 5 of MSMEs trained on agripreneurship Participate in the content build-up & updating of RAISE RTMSP Participate in the National Pitch Fest 2 CMs assisted in pre-comm services (e.g. FS, BP, MS, MT, Val. EP) 22/2021/2015 XXPLACE AND PARTNERSHIP 2 partnership agreement with Business/Trade Institutions 1 POLICY/Regional Agribusiness Hub institutionalized X	Caraga State University (CarSU)	The project has a wide range of potential beneficiaries. By targeting these different beneficiary groups the project could have a wide-reaching effect on social and economic development both locally and globally. Below are target beneficiaries of the program: researchers/scientists providing pre-commercialization services; regional partners like universities/research institutions looking to build capacity in agribusiness and agripreneurship; rural communities/farmers/fisherfolks benefiting from improved access to AANR resources; private sector organizations, business/trade institutions interested in utilizing AANR technologies to realize the agribusiness potentials of R&D outputs; policy makers creating a supportive environment for innovation and tech transfer; international partners collaborating with the project.	1-Oct-2023	30-Sep-2025	Ongoing	2,278,800	659,700
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 3. Establishment of a Regional Agri-Aqua Technology Business Incubator (ATBI) in Caraga through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Agriculture Technology Business Incubator (ATBI) is a Agribusiness support program that aims to promote innovation, entrepreneurship, and economic growth in the Agricultural, Aquatic and Natural Resources (AANR) industry. The ATBI will provide a nurturing environment for early-stage agricultural technology startups/enterprises, enabling them to develop, commercialize and scale their ideas. The incubator will offer a range of services including workspace, mentorship, funding opportunities, access to a network of industry experts, and specialized resources such as laboratories and equipment. Additionally, the ATBI will organize events and training programs to help startups acquire essential business skills and technical expertise. The ATBI will focus on ag-tech innovations, including precision agriculture, smart irrigation, sustainable farming practices, and value-added processing technologies. The incubator will select startups based on the viability and scalability of their ideas, the potential for commercialization, and the impact on the industry. The ATBI will benefit the agriculture sector by creating a pipeline of innovative technologies that can help address key challenges such as food security, climate change, and sustainability. The program will also foster job creation, attract investment, and strengthen the overall competitiveness of the agricultural industry. Overall, the Agriculture Technology Business Incubator presents a valuable opportunity to support and nurture the growth of ag-tech startups/Agribusiness, creating a more vibrant and innovative agriculture sector.	PUBLICATION Year 1 Year 2 22 Regional Training Reports 1 Consolidated curricula of existing & new ATBI 1 Regional ATBI Service Offering prepared 1 Regional ATBI Business Plan (draft) 1 Regional ATBI Operations Manual drafted 11111 PATENT 3 IP Application/PRODUCT 2 incubates enrolled in incubation Program 2 Co-incubates enrolled in incubation Program 21 PEOPLE & SERVICES ATBI operations fully integrated to PCAARRD ATBI real-time monitoring system 1 Reg 1 tech Business pitch day conducted 1 reg 1 promotional activity conducted 1 Participation to the National Pitch Fest 3 CMs Coordinated participation to national ATBI MC6 CM Staff trained/attended the national ATBI MC3 CMs Coordinated participation to national TCMS CM Staff trained/attended the national TCMSX 13636X 1 PLACES & PARTNERSHIP 2 partnership agreement with Business/Trade Institutions 2 MDAs Facilitated w/ incubates 1 Commercialization Agreement 22 POLICY Project 3. Component B: Institutional ATBI PUBLICATION Year 1 Year 2 1 ATBI business plan developed 1 ATBI operations manual developed 10 ATBI curricula developed 2 IEC or promotional materials for ATBI developed 1 promotional video for ATBI developed 10 IEC or promotional materials for incubates developed 2 promotional videos for incubates developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented 1 4214116-p diu="tr" style="line-height	Caraga State University (CarSU)	The program has a wide range of potential beneficiaries, such as: researchers/scientists developing technology and intellectual property; regional partners like universities/research institutions looking to build capacity in tech transfer, rural communities/farmers/fisherfolks benefiting from improved access to AANR resources, private sector organizations interested in utilizing AANR technologies and IPs to improve their products and services, policy makers creating a supportive environment for innovation and tech transfer, international partners	1-Oct-2023	30-Sep-2025	Ongoing	5,562,480	1,630,620

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Caraga	Project 4. Establishment of a Regional Knowledge Management (KM) Hub in Caraga through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project on managing and commercializing Agricultural, Aquatic and Natural Resources (AANR) technologies aims to improve the innovation ecosystem in the region by managing regional AANR technologies and intellectual properties, supporting regional partners in developing their respective technology transfer programs, providing capacity-building on technology transfer to R&D partners, facilitating public-private access to AANR technologies, and strengthening existing and forging new Public-Private Partnerships for Research and Development Results Utilization. The potential social impacts of the program include improved food security, better nutrition, more jobs for rural communities, sustainable management of the environment, strengthened partnerships and collaborations, enhanced knowledge sharing, and potential breakthroughs in various fields. The potential economic impacts include the creation of new products and services, stimulation of economic growth and job creation, growth of new industries, and strengthening of existing ones, resulting in increased revenue generation and opportunities for both small and large enterprises. The program's sustainability plan includes strategies such as diversifying funding sources, establishing partnerships with government and private sectors, and adopting sustainable practices in managing AANR resources.	Y12PUBLICATION2 Regional Training Reportsconsolidated training report of all the CMI participants who attended to TPMS andregional training report on national TPMS)13 promotional materials (video, print/social media, RAISE calendar) developed(IPATENT1 IP Application (TM for regional RAISE logo) 2 copyrights filed for promotional materials developed)PRODUCT 1 Regional Inventory of Knowledge Resources11 Regional CommPlan prepared & updated 11 consolidated CMI CommPlan prepared & updated10 Agri-Aqua technology-based IEC materials collected for E-Lib uploading51 Consolidated regional report 1PEOPLE & SERVICESCoordinated participation of 3 CMIs on national TPMS2 CMI Staff trainedattended the national TPMS21 Regional Inventory of Knowledge Resources Workshop101 Regional Commplan conducted1trained 10 CMI personnel on Regional Comm plan 101 Regional tech/business pitch day conducted-td 195x-border-width: 0.75pt; border-color: #990000; border-right-style: solid; vertical-align: middle; padding: 0pt 2.25pt; overflow: hidden; over	Caraga State University (CarSU)	The project has a wide range of potential beneficiaries. By targeting these different beneficiary groups the project could have a wide-reaching effect on social and economic development both locally and globally. Below are target beneficiaries of the program: researchers/scientists providing pre-commercialization services; regional partners like universities/research institutions looking to build capacity in agribusiness and agripreneurship; rural communities/farmers/fisherfolks benefiting from improved access to AANR resources. private sector organizations, business/trade institutions interested in utilizing AANR technologies to realize the agribusiness potentials of R&D outputs; policy makers creating a supportive environment for innovation and tech transfer, international partners collaborating with the project.	1-Oct-2023	30-Sep-2025	Ongoing	2,279,000	763,500
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in Central Luzon through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Being an academic institution of higher learning, PSAU is tasked not only to transmit and disseminate knowledge but also to generate new ideas and apply these understandings into useful outputs to be relevant and able to contribute to national progress and development. It must be noted, however, not only by concerned PSAU stakeholders but by every research institution as well, that progress and development does not simply start with R&D and end with technology generation but extend further into technology transfer and actual utilization - all through commercialization.	Publication: Component A: Regional IP-TBM 1 consolidated training report of all the CMI participants who attended to IPMC 1 training report on reg1 echo IPMC (including PAS) 1 training report on reg-1 IP Audit & Inventory Workshop; Component B: Institutional IP-TBM 5 IECs Patent: Component B: Institutional IP-TBM 10 IP Applications (UM & Patent only) 5 Copyright (IEC) Product: Component A: Regional IP-TBM 1 Reg-1 list of Priority R&D Areas/commodity prepared and updated; 1 Reg-1 technology and IP inventory prepared and updated; 1 Consolidated regional report (IPs filed, tech commercialized, etc.) 1 Regional Sustainability Plan Component B: Institutional IP-TBM 10 PAS Reports 1 IPs & technologies inventory updated 1 technology pitched 1 IPs & technologies inventory updated 1 Inventory of knowledge resources prepared and updated 1 Technology Commercialized. 1 Inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech Commplan developed & implemented 1 technology with pre-comm report People: Component A: Regional IP-TBM	Pampanga State Agricultural University (PSAU)	The project is intended for the stakeholders, technology generators and takers, and other makers of the CMIs involved. Specifically, the project directly and indirectly benefits the following: IP-TBM Personnel of CMIs involved Technology generators and other makers of participating CMIs R&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	11,858,680	3,813,785
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1A. Enhancement of the Intellectual Property and Technology Business Management (IPTBM) in Central Luzon State University (CLSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Central Luzon State University (CLSU) as a higher education institution (HEI) was tasked to develop quality human resources, research and technologies for people empowerment, global competitiveness and sustainable development. These creations and inventions should be available for public use in accordance with CLSU's mandate to transfer and disseminate appropriate technologies generated by its faculty, researchers and other technical staff. Protecting and managing the Intellectual Properties and commercialization of generated technologies of CLSU is a work in progress that requires strengthened and unified efforts to improve IP management and hasten technology transfer and commercialization. The IPTBM Office of CLSU was then created as one of the support mechanisms of the University to conduct prior art search on IP databases worldwide and assess the potentiality of research and development projects being conducted by the university. It shall also provide technical support in the preparation and submission of patent application and post documentation requirements, drafting of responses to the formality and substantive examination reports from the Intellectual Property Office of the Philippines (IPOPHIL), and conduct IP related training. In addition, management of the IPs and commercialization of generated technologies of CLSU is a work in progress that requires strengthened and unified efforts to improve IP management and hasten technology transfer and commercialization. However, the IPTBM at present lacks facilities and additional staff who are capable of conducting IP-related activities and management of CLSU's generated technologies.	Publication: 5 IEC Patent: 10 IP applications 5 copyrights of IEC Product: 5 prior art search reports 1 updated IP Inventory 1 inventory of matured technologies 1 inventory of knowledge resources 1 communication plan 1 technology pitched People: 2 IP-TBM staff attended Prior Art Search & IP Audit Workshop 2 IP-TBM staff trained in IP MasterClass 2 IP-TBM staff trained in Agribusiness 2 IP-TBM staff trained in TCMS 2 IP-TBM staff trained in Tech Promotion Mentorship 2 IP-TBM staff attend Communication Plan Workshop Pato: 1 commitment letter 1 partnership agreement with business/ trade institution 1 commercialization agreement Policy: Participate to content build-up of RTMS Full implementation of IP policy and technology transfer protocol (with internal memos, AOs)	Central Luzon State University (CLSU)	Target Beneficiaries: The project is intended for the stakeholders, technology generators and takers, and other makers involved. Specifically, the project directly and indirectly benefits the following: CLSU-IP-TBM personnel CLSU researchers, technology generators, and other makers Technology generators and other makers of CLSU IP-TBI R&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,601,600	860,400

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1B. Enhancement of the Intellectual Property and Technology Business Management (IPTBM) in Philippine Rice Research Institute (PhilRice) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Intellectual Property and Technology Business Management (IPTBM) Office of the Philippine Rice Research Institute is the main office in charge of protecting and licensing PhilRice generated technologies. This Office was established in 2017 and strengthened through the DOST-PCAARRD project on Strengthening Technology Commercialization at PhilRice. Since then, the Institute through the assistance of IPTBM office has been able to apply several PhilRice technologies and other relevant works for IPR protection, and held a number of training sessions in the basics of IP, patent search and drafting, copyright, and technology commercialization. The goal of the present project, hence, is to enhance the existing IPTBM at PhilRice to intensify the IP and technology commercialization activities in response to current development needs like the Rice Competitiveness Enhancement Fund (RCEF) under RA 11203. Several PhilRice-developed machines were earmarked by the RCEF Program Management Office at PhilMech for use in farmer's field, hence the increasing manufacturer's interest in licensing these technologies. While it is envisioned that the IPTBM office of PhilRice will eventually be run by funds collected from royalties and upfront fees, the fact remains that the existing licensees were hit hard by the Covid pandemic and the current budget is not enough for optimally functioning IPTBM office. The project is focused on the conduct of trainings, mentoring of PhilRice researchers and technology transfer officers with hopes of introducing policies for better innovation, and facilitation of IP applications and commercialization.	Publication: 5 IECs for IP-TBM awareness and PHILRICE technologies Patent - 10 IP Applications Copyrights - 5 IECs Product - 10 Prior art search reports - 1 IP inventory - 1 inventory of matured technologies - 1 inventory of knowledge resources - 1 communication plan - 1 technology with pre-comm reports - 2 technologies pitched - 1 Technology Commercialized People - 2 PHILRICE staff attended Prior Art Search & IP Audit Workshop - 2 PHILRICE staff trained in IP MasterClass - 2 PHILRICE staff trained in Agribusiness MasterClass - 2 PHILRICE staff trained in TCMS - 2 PHILRICE staff trained in Tech Promotion Mentorship - 2 PHILRICE staff attend Communication Plan Workshop - 1 Participate to content build-up of RTMSPlace - 1 Commitment Letter - 1 partnership agreement w/Business Trade Institutions - 1 Commercialization Agreements/Policy - Full implementation of IP policy and technology transfer protocol (with internal memos, AOs)	Philippine Rice Research Institute (PhilRice)	The project is intended for the stakeholders, technology generators and takers, and even PhilRice inventors. Specifically, the project directly and indirectly benefits the following: PhilRice IP-TBM personnel PhilRice researchers, technology generators, and other makers R&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	782,750
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1C. Enhancement of the Intellectual Property and Technology Business Management (IPTBM) in Bataan Peninsula State University (BPSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Bataan Peninsula State University worked on the establishment of the IP-TBM Office to serve as an arm of the university towards supporting the technologies developed through research and was approved by the Board of Regents on July 16, 2020. IP management is an important issue for the competitiveness of technology-based products, processes, and services and a difficult issue due to the availability of resources to develop technologies with commercial potential to address the needs of the community and the industry. The enhanced IP-TBM Office envisions a successful technology transfer for various innovations and technologies produced by the university through efficient IP management, and technology commercialization. Furthermore, it envisions becoming a service provider for IP Management and technology commercialization in the region through various IP training and mentoring on IP management and commercialization.	Publication: 5 IECs Patent: 10 IP applications (5 patents & 5 UMs) 5 Copyrights (IECs) Product: 10 IPR Reports IP inventory updated 1 Patent Mining Report (Cashew) 2 technologies pitched 1 Tech Com plan developed and implemented 1 Technology commercialized 1 Sustainability plan. People: 2 CM staff trained in national IPMC At least 2 IP-TBM Staff (plantilla) extensively trained in Patent Mining 2 CM staff trained in national ABMC 1 technology taker adopter 2 CM Staff trained in national TCMS 2 CM Staff trained in national TPMS 2 IP-TBM Staff trained on IP Audit/Inventory Participation in the Updating of RAISE RTMS Places and Partnerships: 1 Commitment letter for the national trainings 1 partnership agreement with Business Groups/ Marketing or Trade Institutions 1 commercialization agreement executed Policy: Full implementation of IP policy (with internal memos, AOs)	Bataan Peninsula State University (BPSU)	Target Beneficiaries: BPSU IP-TBM Office Technology Transfer officers and staff BPSU Faculty and student researchers/inventors Community stakeholders External agencies (other universities, MSMEs, LGUs)	1-Oct-2023	30-Sep-2025	Ongoing	2,495,600	766,400
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1D. Enhancement of the Intellectual Property Technology Business Management (IPTBM) in Philippine Carabao Center (PCC) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Philippine Carabao Center as an attached agency of the Department of Agriculture, created by virtue of Republic Act 7307 in 1992, actively upholds its commitment to conserve, propagate and promote water buffalo. In 2008, PCC was given an additional mandate to cater other livestock species as the national lead agency for livestock biotechnology research and development, by the virtue of DA Administrative Order No. 9, Series of 2008. With this, several researches have been carried out and are being conducted which covers a wide area of discipline including and not limited to breeding and genetics, reproductive biotechnology and physiology, animal health, nutrition and forage/pasture, product development and socio-economics. By this action, the Agency also adheres to the policies and principles as specifically set in the Technology Transfer Act (R10055) and acknowledges that the successful transfer of funded R&D results depends on the efficient management of intellectual property management gearing towards commercialization. This is precisely the reason why the Philippine Carabao Center aims to continue the operations of its Intellectual Property Technology Business Management Office through a component project titled, "Project 1-D: Enhancement of the Intellectual Property and Technology Business Management (IPTBM) in PCC through the RAISE Program" under the project titled, "Project 1: Regional Intellectual Property and Technology Business Management (IPTBM) in Central Luzon through the RAISE program". The project will be implemented under the umbrella program, "Regional Agri-Aqua Innovation Enhancement System (RAISE) - Batch 2". In Central Luzon, this component project of the Consortium for PCC as funded by DOST-PCAARRD aims to strengthen and intensify technology promotion and commercialization activities and enhance linkages and partnerships with various consortium member institutions in Central Luzon.	Publication: 5 Information Education and Communication (IEC) materials Patent: 10 IP applications (UM & Patent only) 5 Copyright applications (IECs) filed[1] Product 10 Prior-Art Search (PAS) Reports 1 IP inventory of matured technologies 1 inventory of knowledge resources prepared and updated 1 communication plan developed & implemented 1 Tech Complan developed & implemented 1 technology with pre-commercialization reports 2 technologies pitched 1 Technology commercialized People & Services 2 PCC staff attended in regional IP Audit & inventory Workshop 2 PCC staff trained in national IP Masterclass 2 PCC staff trained in national Agribusiness Masterclass 2 PCC staff trained in national Technology Commercialization Mentorship Series (TCMS) 2 PCC staff trained in national Technology Promotion Mentorship 2 PCC staff attend regional Commercialization Plan Workshop 2 PCC staff attend regional IP Policy Tech Trans protocol review. 1 institutional echo seminar conducted Trained 10 staff on echo seminars Participate to content build-up of RTMS Participate to content build-up of RTMS	Philippine Carabao Center (PCC)	Target Beneficiaries: 1. PCC researchers, 2. Farmers & Dairy cooperatives, 3. Private entities, 4. Other consortium member institutions, 5. AANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs), and international partners 6. Potential entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	4,202,908	899,400

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2022	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1E. Enhancement of the Intellectual Property Technology Business Management (IPTBM) in Philippine Center for Postharvest Development and Mechanization (PHIMech) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Being a research and development institution, PHIMech is mandated not only to generate, extend, and commercialized problem-oriented agriculture and fishery postharvest and mechanization technologies but to generate a high-quality innovative technologies, processes, systems and products to be able to contribute to national progress and development. It must be noted, however " not only by concerned PHIMech stakeholders but by every research and academic institution as well, that development does not simply start with R&D and end with technology generation but extend further into technology transfer and actual utilization " all through commercialization.	Publication: 5 IECs/Patent: 10 IP Applications. □ Copyright of training report Product: 10 Prior Art Search (PAS) Reports 1 IP Inventory 1 inventory of matured technologies 1 inventory of knowledge resources 1 communication plan 1 technology with pre-comm reports 2 technologies pitched 1 technology commercialized People: 2 Prior art Search & IP Audit Workshop 2 IP Masterclass, □ 2 Agrbusiness Masterclass 2 Technology Commercialization Mentorship Series 2 Tech Promotion Mentorship 2 CommPlan Workshop Participate to content build-up of RTMS Place: 1 commitment letter 1 partnership agreement w/ Business/Trade Institutions 1 Commercialization Agreements Policy: Full implementation of IP policy and technology transfer protocol (with internal memos, AOs)	Philippine Center for Postharvest Development and Mechanization (PHIMech)	The project is intended for the stakeholders, technology generators and takers, and other makers of PHIMech and CMI's involved. Specifically, the project directly and indirectly benefits the following: PHIMech IP-TBM personnel PHIMech researchers, technology generators, and other makers IP-TBM Personnel of CMI's involved Technology generators and other makers of participating CMI's R&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,307,800	777,900
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1F. Establishment of the Intellectual Property Technology Business Management (IPTBM) in Tarlac Agricultural University (TAU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Over the years, the Tarlac Agricultural University (TAU) has strongly engaged in research and development, which has generated several matured technologies from its flagship commodities such as sweetpotato, bamboo, free-range chicken, and kamlong. Some of these technologies have been award winning and have been showcased in the international trade fair and exhibit. TAU's innovative technologies like sweetpotato clean planting materials and value-added food products, free-range chickens, e-bamboo, and kamlong were adopted by local farmers, women groups, cooperatives, entrepreneurs, and even farmers abroad. There are also innovative and transformative technologies that have been developed by the Department of Food Science, Biosystems Engineering, and Veterinary Medicine, which await IPR protection and an opportunity to be commercialized. Numerous business implements of the graduates of the BS Entrepreneurship have been set up and evaluated. However, the majority landed on empty shelves and dreams.	Publication: 3 IECs published/Patent: 5 IP applications. □ 3 IECs (copyrighted) Product: 5 PAS Reports 1 IP Inventory 1 inventory of matured technologies 1 inventory of knowledge resources 1 communication plan 1 technology with pre-comm reports 2 technologies pitched 1 technology commercialized People: 2 CMI staff trained in national IPMC 2 CMI staff trained in national ABMC 2 CMI staff trained in national TCMS 2 CMI staff trained in national TPMS 2 CMI staff attended reg.-] IP Audit and Inventory Workshop. □ 2 CMI staff attended reg.-] IP Policy/Tech Trans Protocol Review. □ 2 CMI staff attended reg.-] CommPlan Workshop. □ 1 Institutional Echo Seminar conducted Trained at least 10 staff echo seminars 2 CMI Staff participated in content build-up of RTMS Place: 1 Commitment Letter for national trainings 1 Partnership agreement with Business/Trade Institutions 1 Commercialization Agreement Policy: Crafting/enhancement of IP Policy Crafting/enhancement of technology transfer protocol	Tarlac Agricultural University (TAU)	TAU IP-TBM personnel TAU researchers, technology generators, and other makers Technology generators/owners R&D partners and the private sector Sweetpotato, free range chicken, Kamlong, and Bamboo R&D and industry Students Faculty Researchers Entrepreneurs Start-Ups SMEs	1-Oct-2023	30-Sep-2025	Ongoing	2,647,520	690,630
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1G. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in President Ramon Magsaysay State University (PRMSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	It is the mandate of President Ramon Magsaysay State University to continuously develop R&A&D technologies through the creation of new knowledge, transmit, and disseminate these innovations to clients, and support local and global development. Four (4) of the seven campuses that make up the PRMSU's satellite campuses are involved in developing new technologies for agriculture and aquatic resources. The organization manages IP-related activities through an Intellectual Property Unit that is run by three functional staff members. The PRMSU produced 55 AANR projects in 2021, including 30 papers for copyrighting, 15 projects with the potential for patentability, and 5 projects with soft innovations. Through the RAISE Program, the project seeks to establish an institutional IPTBM in PRMSU, Zambales to step up IP and commercialization efforts among the region's partner organizations and local communities. The project's main goals are to increase participation in training, carry it out, provide internal mentoring for the institution's IPTBM developers and creators, standardize and harmonize IP policies, create an institutional IP inventory, and strengthen relationships between agencies to further IPTBM-related endeavors.	Publication: IEC Material Institutional training report Patent: IP Application Copyright Product: Prior Art Search Communication plan Technology pitched Institutional inventory of matured technologies Inventory of knowledge resources Technology with pre-commercialization report Technology commercialized People and Services Staff attended the prior art search and IP audit workshop Staff trained in IP Master class Staff trained in the Agrbusiness master class Staff trained in TCMS Staff trained in technology promotion mentorship Staff attend the commercialization plan workshop Participate in the content build-up of RTMS Place and Partnerships Coordinated/Managed IP-TBM operation with the four AANR operating campuses Commitment letter partnership agreement with business/ trade institutions Commercialization agreement Policy: Implementation of IP policy and technology transfer guidelines of the institution	President Ramon Magsaysay State University (PRMSU)	The project is intended for the stakeholders, technology generators and takers, and other makers of PRMSU involved. Specifically, the project, directly and indirectly, benefits the following: PRMSU IP-TBM Personnel PRMSU researchers, technology generators, and other makers IP-TBM Personnel involved Technology generators and other makers of PRMSU R&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,666,320	793,530
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1H. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Bulacan Agricultural State College (BASC) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	This project will initially focus on the capacitating the personnel to be assigned to the BASC IPTBM, generation and enhancement of a Board of Trustees (BOT) approved IP Policy and Technology Transfer Protocol, generation and maintenance of the IP Inventory and Sex Disaggregated Data of IP generators, and establishment of linkages to improve IPTBM activities. The BASC IPTBM will then extend its services to the BASC constituents by promoting a culture of equitable IP protection and technology commercialization at BASC through information dissemination, echo seminars, packaging and submission of IP application, and over-all assistance to technology commercialization of BASC Mature Technologies. All of which will lead to a sustainable gender-responsive BASC IPTBM office incorporated to the organic structure of BASC.	Publication: 3 IECs, -eGender Responsive Information, Education and Communication materials/Patent: 5 IP Applications 1 Copyright of Gender Responsive IECs/Product: 5 PAS IP Inventory with SDO of IP generators 1 Inventory of matured technology 1 Communication plan 1 Technology with pre-comm reports 2 Technologies pitched 1 Technology Commercialized/People: 2 Staff attended Prior Art Search & IP Audit Workshop 2 Staff trained in IP Masterclass 2 Staff trained in AgrBusiness Masterclass 2 Staff trained in TCMS 2 Staff trained in TechPromotion Mentorship 2 Staff attended CommPlan Workshop 2 Participate to content build-up of RTMS/Place: 1 Commitment Letter 1 Partnership agreement with Business/Trade Institutions 1 Commercialization Agreements/Policy: Full implementation of BOT-approved equitable, IP policy and technology transfer protocol (with internal memos, AOs)	Bulacan Agricultural State College (BASC)	BASC IP-TBM Personnel BASC stakeholders: researchers and extensionists, technology generators and makers; and Group or individuals involved in rabbitry.	1-Oct-2023	30-Sep-2025	Ongoing	2,607,000	783,000

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1I. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Aurora State College of Technology (ASCOT) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The establishment of IPTBM Office in Aurora State College of Technology will serve as the main office in charge of all the technologies generated by the College. The goal of the project is to assist the researchers and inventors in patent application, enhancement, and commercialization of products. The project focuses on the establishing of an Intellectual property office that will identify and protect the intellectual property of ASCOT researchers and inventors; mentoring and capacitating the technology transfer officers of ASCOT; identifying and protecting the Intellectual Property Rights of the College to promote and embolden quality, ingenuity and novelty in research and other scholarly works; and establishing linkage with different agencies for the commercialization of matured technology of ASCOT.	Publication: 3 IECsPatent: 5 IP applicationProduct: 5 prior art search 1 IP Inventory 1 inventory of matured technologies 1 inventory of knowledge resources 1 communication plan 1 technology with pre-comm reports 2 technologies pitched 1 technology commercializedPeople: 2 CMI staff attended Prior Art Search and IP Audit Workshop 2 CMI staff trained in IP MasterClass 2 CMI staff trained in agribusiness MasterClass 2 CMI staff trained in TCMS 2 CMI staff trained in TechPromotion Mentorship 2 CMI staff attend CommPlan WorkshopPlace: 1 commitment letter 1 partnership agreement with business/trade institutions 1 commercialization agreementPolicy: Full implementation of IP and technology transfer protocol (with internal memos, AOs)	Aurora State College of Technology (ASCOT)	ASCOT, faculty, staff and student researchers, technology creator, and other makers, and R&D partners and private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,650,600	788,900
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 1J. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Department of Agriculture Regional Field Office III (DA RFO III) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Department of Agriculture RFO III is a government agency charged with the promotion of agricultural development in the region with a vision of a food secure Philippines with prosperous farmers and fisher folks. The mission of the agency is to empower its stakeholders, increase productivity and profitability, being mindful of sustainability and resilience. To ensure that technology transfer and commercialization will be a success, and that intellectual property rights is given due importance, there is a need for the establishment of the IPTBM of the Department of Agriculture RFO III.	Publication 3 IECs Patent 5 IP Applications 3 IEC copyright Product 5 PAS reports 1 IP & technologies inventory updated 1 inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech with pre-comm reports 2 Technologies pitched 1 Technology Commercialized People and Services 2 CMI staff trained in National IPMC 2 CMI staff trained in National ABMC 2 CMI staff trained in National TCMS 2 CMI staff trained in National TPMS 2 CMI staff attended reg™ IP - Audit & Inventory Workshop 2 CMI staff attended reg™ IP Policy/Tech Trans Protocol review 2 CMI staff attended reg™ Comm Plan Workshop 1 institutional echo seminar conducted Trained at least 10 staff on echo seminars Participate in content build-up of RTMS Places and Partnerships 1 Commitment letter for the national trainings 1 partnership agreement with business/trade institutions 1 Commercialization Agreement	Department of Agriculture Regional Field Office III (DA RFO III)	Target Beneficiaries:The project is intended for the stakeholders, technology generators and takers, and other makers of DA RFO III. Specifically, the project, directly and indirectly, benefits the following:DA RFO III CITBM and IP-TBM personnelDA RFO III researchers, technology generators, and other makersR&D partners and the private sector	1-Oct-2023	30-Sep-2025	Ongoing	2,696,600	772,900
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 2. Regional Agribusiness Hub (ABH) in Central Luzon through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Philippine Carabao Center at Central Luzon State University (PCC at CLSU) is one of the regional networks of the Philippine Carabao Center (PCC). PCC is an attached agency of the Department of Agriculture, created by the virtue of Republic Act 7307 or better known as the Philippine Carabao Act of 1992. PCC implements the Carabao Development Program (CDP) in the country. CDP is a continuous and organized effort to improve the genetic potential of a native carabao as a source of meat, milk, draft and hide. This is the reason why the Philippine Carabao Center advocates the continual improvement of carabao development program implementation under the project titled, ceRevitalizing the Regional Agribusiness Hub in Central Luzon. The project will be implemented under the umbrella program, ceRegional Agri-Aqua Innovation Enhancement System (RAISE) 1 Batch 2 in Central Luzon This component project for PCC as funded by DOST-PCAARRD aims to strengthen and enhance technology promotion and commercialization activities and intensify linkages and partnerships with various consortium member institutions in Central Luzon.	Publication: 1 Regional Training ReportsPatent: 1 Copyright of Training ReportProduct: 1 Technology with value proposition report; business plan, Feasibility study, market studyPolicy: 1 Regional Agribusiness Master Class 1 Trained CMI StaffPlace: 1 Partnership agreement with Business/Trade InstitutionsPolicy: 1 Regional Agribusiness Hub institutionalized	Philippine Carabao Center (PCC)	Ensure the full implementation and harmonization of the agribusiness hub with participating CMIs in Central Luzon. Develop a regional agribusiness hub Policy with consortia members from Central Luzon. Full implementation of policy (with internal memos). 1) PCC researchers 2) Farmers & Dairy Cooperatives 3) Private entities 4) other consortium member institutions 5) Stakeholders from the academe, public, and private sectors, NGO's and international partners 6) Potential entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	2,583,848	692,700
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 3. Regional Agri-Aqua Technology Business Incubation (ATBI) in Central Luzon through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The CLSU AFTBI will serve as one of the launching pads for AANR start-ups or new businesses in Central Luzon. The facility will provide early-stage companies access to resources they need to function, grow, and sustain their businesses. To help preserve and enhance the RAISE program, CLSU, PSAU and BPSU will be involved in the project implementations with the end view of internationalizing the ATBI operations and providing support in the transfer of technologies through capacity building, technology business incubation or co-incubation among these ATBIs including other CMIs that do not implement the TBI project. The Regional ATBI will operate in cycle wherein it shares and adopts the best practices of ATBIs within the country in general and within the region in particular and cascade the same to its partner CMIs. Through this, CMIs across the region are provided with necessary information and assistance. After two years, the RAISE Program shall have empowered ATBI operations in Region III by adopting several strategies, viz: Regional Capacity Building and Mentorship, Agri-Technology Business Development, Intellectual Property Management, Strategic Partnership and Collaboration with local and International Partners, and Enhanced Knowledge Management.	Publication: 2 Regional Training Reports 1 Regional ATBI Operations Manual crafted 1 Regional ATBI Business Plan crafted 1 Regional ATBI Service Offering prepared 1 Consolidated curricula of existing & new ATBIs 6 basic/advanced incubation curricula revised as needed 6 acceleration curricula developed or improved as needed 2 IEC or promotional material for the ATBI produced 1 promotional video for the ATBI developed 1 IEC or promotional materials for the incubatees developed 2 promotional videos for the incubatees developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented Patent: 10 trademarks filed 10 copyrights filed Product: 3 Technology Commercialized with FOR / Facilitated the commercialization of CM technology 1 Consolidated regional report 2 Technologies co-incubated 10 technologies incubated/adopted by new incubatees 6 technologies incubated/adopted by continuing incubatees 3 technologies incubated/adopted by accelerates People and Services 10 new incubatees enrolled in any of the existing ATBIs 2 new incubatees under co-incubation program Coordinated participation of 3 CMIs on national ATBI MC Coordinated participation of 3 CMIs on National TCMS Assisted 3 CMIs in ATBI services Participate in the content build-up & updating of RAISE RTMS	Central Luzon State University (CLSU)	Target Beneficiaries Benefits from the Project (1) State Universities and Colleges (SUCs) (1) Empowered technology generators, and ATBI staff (2) Better ATBI staffing through hiring project staffs (3) Enhancement/formulation of effective incubation policies (4) More inclusive and responsive ATBI services (5) Increased number of AFTBI clients served (6) Increased number of employment generated by incubatees/acceleratees (7) Increased number of IPAs protected	1-Oct-2023	30-Sep-2025	Ongoing	7,057,596	2,109,399

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 3A. Enhancement of the Agri-Aqua Technology Business Incubator (ATBI) in Bataan Peninsula State University through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Bataan Peninsula State University Agri-aqua Technology Business Incubator (DOST-PCAARRD-BPSU ATBI) has contributed significant milestones in nurturing the technopreneurial ecosystem in the province through business development and technology incubation. Currently, BPSU ATBI is incubating 11 incubatees that provide comprehensive training on identifying market traction and validation and technology development through the university's research and development (R&D) centers. Moreover, the incubator has successfully launched its own technology business incubation framework entitled "Agrisenso"™ that holistically fosters and encapsulates the functions of ATBI by providing programs and services needed by the incubatees during their early stage. Recognizing this success, enhancement of the DOST-PCAARRD-BPSU ATBI will ensure the sustainability of its program from basic incubation to advancement and acceleration. The project will focus on increasing the incubatees'™ investability through programs focusing on target market expansion, financial sourcing and networking, and further strengthening of developing market-driven and demand-driven agri-aqua technologies.	<p>Publication: For Year 1:</p> <ul style="list-style-type: none"> At least 3 EC or promotional material for ATBI produced At least 1 promotional video for ATBI developed At least 2 EC or promotional materials for the incubatees developed At least 1 promotional video for the incubatees developed At least 3 revised curricula for basic incubation At least 3 curricula developed for advanced incubation <p>For Year 2: □</p> <ul style="list-style-type: none"> 1 ATBI Business Plan revised as needed 1 ATBI Operations Manual revised as needed At least 2 EC or promotional material for ATBI produced At least 1 promotional video for ATBI developed At least 3 EC or promotional materials for the incubatees developed <p>Patent: For Year 1:</p> <ul style="list-style-type: none"> At least 1 trademarks filed At least 2 copyrights filed <p>For Year 2:</p> <ul style="list-style-type: none"> At least 2 trademarks filed At least 3 copyrights filed <p>Product: For Year 1: □</p> <ul style="list-style-type: none"> At least 2 technology transferred and incubated At least 1 technology commercialized with issued Fairness Opinion Report <p>For Year 2:</p> <ul style="list-style-type: none"> At least 3 technology transferred and incubated At least 1 technology commercialized with issued Fairness Opinion Report <p>People: For Year 1: □</p>	Bataan Peninsula State University (BPSU)	University-based faculty and student researchers, □ Local start-ups and MSMEs in Bataan Agri-aqua sector in the communities in Bataan Local cooperatives in Bataan Women in informal economy sector in Bataan Other marginalized sectors in Bataan	1-Oct-2023	30-Sep-2025	Ongoing	4,500,000	1,331,436
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 3B. Enhancement of the Agri-Aqua Technology Business Incubator in Pampanga State Agricultural University (PSAU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The PSAU Agri-Aqua Technology Business Incubation (ATBI) Office is established to synergize multi-sectoral relationships among the key players of the business and start-up ecosystem, especially the micro-, small and medium enterprises (MSMEs) in the sector of agriculture and aquatic with the aim to accelerate the technology transfer and commercialization of university-made technologies through technology management, enterprise development, and active partnership services. With its establishment on November 2021, the crucial initial steps for the project were to formalize operations, create awareness, acquire R&D partners and industry experts, and engage vital players in the ecosystem such as the private sector and the government were undertaken to onboard and support its clientele-the incubatees. Enhancing the PSAU-Agri-Aqua Technology Business Incubation (ATBI) project shall be instrumental for continuous operations and improvement of processes of the incubation for a more effective and efficient delivery of its services. The project shall facilitate further support to technology management, technology transfer and commercialization, and enterprise development efforts of the University and realize the socio-economic impact towards the community such as employment opportunities and enhanced business landscape in the agriculture and aquatic sectors.	<p>Publication:</p> <ul style="list-style-type: none"> 1 ATBI business plan revised as needed 1 ATBI operations manual revised as needed 10 basic incubation curriculum revised as needed □ 6 advanced incubation curriculum developed 2 EC or promotional material for the ATBI produced 1 promotional video for the ATBI developed 16 EC or promotional materials for the incubatees developed 2 promotional video for the incubatees developed 1 ATBI sustainability plan revised as needed <p>Patent:</p> <ul style="list-style-type: none"> 10 trademarks filed 10 copyrights filed <p>Product:</p> <ul style="list-style-type: none"> 10 technologies incubated/adopted by new incubatees 6 technologies incubated/adopted by continuing incubatees □ 2 technologies co-incubated 3 technologies commercialized with issued Fairness Opinion Report <p>People:</p> <ul style="list-style-type: none"> 10 new incubatees enrolled to the basic incubation program 6 continuing incubatees enrolled to the advanced incubation program 6 continuing incubatees graduated from the advanced incubation program 6 startups/spinoff registered and launched 1 benchmarking activity conducted 6 trainings for the ATBI staff conducted or participated in 10 trainings for the incubatees conducted 10 business plans for the new incubatees developed 6 business plans for the continuing incubatees improved 4 awareness seminars or promotional activities conducted 4 business pitching events, industry meetups, or networking events conducted or participated in 1 consortium member-agencies mentored on ATBI operations 	Pampanga State Agricultural University (PSAU)	PSAU ATBI Personnel PSAU Researchers/Inventors and other employees Agri-aqua incubatees (Entrepreneurs/ Agripreneurs, Farm Owners, Farmers)	1-Oct-2023	30-Sep-2025	Ongoing	4,500,000	1,124,615
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 4. Establishment of Regional Knowledge Management (KM) Hub in Central Luzon through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Knowledge is a critical enabling factor for Agriculture, Aquatic, and Natural Resources Sector (AANR), specifically the agri-aqua innovation system. Thus, a systemic interactions favouring innovation outcomes is greatly needed by formalizing the flow and management of information and knowledge between and among stakeholders. Moreover, since our society is becoming increasingly knowledge-based, the systematic management of intellectual capital and organizational knowledge is highly important to organizations focusing on the agri-aqua innovation system to capture and store significant data and information in a centralized or distributed electronic environment. As such, the situation calls for a more intensive efforts on mainstreaming knowledge management (KM) in Region 3. It is now high-time for the consortium to conduct an inventory of knowledge resources from the different member institutions and develop a database system or a knowledge portal which will serve as a repository of knowledge products, and information on AANR. Through this project, the consortium will also be able to establish a Knowledge Café (K-Café) that will serve as a platform to bring people together where knowledge sharing and learning could take place. This project will also be utilizing traditional and digital media for technology promotion. With this, it is expected that the regional knowledge hub will be strengthened with which knowledge and learning resources and information coming from the different R&D institutions, SUCs, and PLGUs in Central Luzon will be made available and accessible for public consumption.	<p>Publication:</p> <ul style="list-style-type: none"> Written Training reports and published and produced knowledge products (KPs) 1 regional training module 1 regional training report 10 knowledge products (brochures, booklets, avps) <p>Patent:</p> <ul style="list-style-type: none"> Copyrighted training modules and KPs 11 copyright of training modules and ECs <p>Product:</p> <ul style="list-style-type: none"> Produced inventory of knowledge resources, prepared and implemented a communication plan, and established and maintained the e-library 1 reg-3 inventory of knowledge resources □ 1 reg-3 comm plan □ 1 reg-3 e-lib established/enhanced □ <p>People and Services</p> <ul style="list-style-type: none"> 1 reg-3 comm plan and inventory of knowledge resources workshops □ 1 reg-3 tech promotion mentorship □ 1 reg-3 pitch day □ Trained 22 (11 CMIs x 2 paaj) CMI staff Assisted 11 CMIs in RM services 11 CMIs participated to content build up of RTMS <p>Places and Partnerships</p> <ul style="list-style-type: none"> Established K-Cafés 1 K-Café/JD with CLAARDEC as main hub and 6 K-Cafés/IDs in the from the SUCs □ <p>Policy:</p>	Central Luzon State University (CLSU)	Target Beneficiaries: CLAARDEC -on CLSU as base-agency- 21 Consortium Member Institutions (CMIs) ASCOT BASC BPSU NEUST PRMSU TAU PLGU Aurora PLGU Bataan PLGU Nueva Ecija PLGU Zambales PLGU Tarlac PhiRMech PCC DA-ATI 3 DOST Region 3 DA Region 3	1-Oct-2023	30-Sep-2025	Ongoing	2,508,800	767,200

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Luzon	Project 5. National Agri-Aqua Technology Business Incubation (ATBI) Networking and Capacity Building through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The activities of 22 Agri-Aqua Technology Business Incubators (ATBIs) conspire to create an enabling ecosystem for local innovations on a national level. Hence, continuous support must be extended to them by DOST-PCAARRD who shall likewise recognize an consider their individual strengths and needs including the uniqueness of their incubatees/acceleratees. Significant amounts of public funds have been allocated by DOST-PCAARRD to the establishment of ATBIs in the country. Hence, it is imperative to ascertain that the results of investment of government resources are maximized. Complementary to the establishment of 22 Agri-Aqua TBIs across the country, the monitoring, enhancement and documentation of the current state of the ATBI ecosystem in the national landscape resulting from the implementation of the programmed activities are essential for DOST-PCAARRD to come up with a needs-based and calibrated support to these facilities.	<p>Publication:</p> <ul style="list-style-type: none"> 1 training report on national ATBI MC 1 ATBI MC Training Module 1 compendium of spin-off incubatees prepared 1 coffee table book on ATBI in the Philippines developed 1 semi-annual report and 1 annual report prepared and submitted per year 1 terminal report prepared and submitted <p>Patent:</p> <ul style="list-style-type: none"> Copyright of Training Module At least 3 publications for copyright filed <p>Product:</p> <ul style="list-style-type: none"> 1 Consolidated national report 1 national ATBI master class conducted and attended by ATBI management and staff per year 10 CMIs trained/attended the national ATBI MC 1 national conference on ATBI conducted per year, attended by all ATBIs, stakeholders and partners per year 1 incubatee summit (with pitching activity) conducted per year; attended by incubatees/acceleratees from all ATBIs, stakeholders and partners Assistance on crafting Regional ATBI Operations Manual 1 pre-terminal and 1 terminal review conducted in Year 2 <p>People and Services</p> <ul style="list-style-type: none"> Coordinate and mentoring of 25 ATBIs Monitoring of new ATBIs Coordinated participation of 25 CMIs on national ATBI MC Assisted 25 CMIs in ATBI services At least 2 webinars for the general public as promotion of the program conducted At least 2 training/consultation meetings with DOST ROs conducted At least 1 site/virtual visit to ATBIs conducted per year <p>PLACES AND PARTNERSHIPS</p> <ul style="list-style-type: none"> 2 partnership agreement with Business/Trade Institutions 	Central Luzon State University (CLSU)	<p>Target Beneficiaries</p> <p>Target Beneficiaries</p> <p>Benefits from the Project</p> <p>(1) State Universities and Colleges (SUCs)</p> <p>(1) Enhancement/formulation of effective incubation policies</p> <p>(2) More inclusive and responsive ATBI services</p> <p>(3) Increased utilization rates of ATBI facilities, and machines and equipment</p> <p>(4) Increased number of technologies transferred and commercialized</p>	1-Oct-2023	30-Sep-2025	Ongoing	6,855,944	1,733,986
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in Central Visayas through the RAISE program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement (RAISE) Program is a mirror-image of the DPITC in the Regions. It serves as a one-stop-information service shop and convergence hub for technology generators and users. A platform to package, promote, and commercialize S&T creations to enhance the innovation ecosystem in the AANR sector. The program is centered on Intellectual Property (IP) and technology transfer mechanisms. The program has four (4) project components: Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in Central Visayas through the RAISE Program focuses on IP management and technology commercialization; Project 2. Establishment of Regional Agri-business Hub (ABH) in Central Visayas through the RAISE program focuses on agribusines enterprise management; Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI) in Central Visayas through the RAISE program which centers on technology inventory, assessment, valuation, and its process to commercialization; and Project 4. Establishment of Regional Knowledge Management (KM) Hub in Central Visayas through the RAISE program which will spearhead the knowledge management activities and technology promotion of all Consortium Member Institutions (CMIs). The RAISE Program in Region VII involves five (5) CMIs of the Central Visayas Agriculture, Aquatic and Natural Resources Research and Development Consortium (CVAARRDEC). The program will implement a mentor-mentee-regional approach to further enhance the innovation ecosystem in the agriculture, aquatic, and natural resources sectors.	<p>PUBLICATION</p> <ul style="list-style-type: none"> 3 Regional Training Reports (1 consolidated training report of all the CMI participants who attended to Intellectual Property Master Class (IPMC); 1 training report on regional IP Audit & Inventory Workshop; 1 training report on regional echo (IPMC). <p>PRODUCT</p> <ul style="list-style-type: none"> 1 Regional list of Priority R&D commodity prepared and updated 1 Regional technology and IP inventory prepared and updated 1 Regional Sustainability Plan 1 Consolidated regional report (IPs filed, tech commercialized, etc.) <p>PEOPLE & SERVICES</p> <ul style="list-style-type: none"> Coordinated & hosted 1 national ABMS (last module & graduation) Coordinated participation of 5 CMIs on national IPMC 10 CMI Staff trained/attended the national IPMC 1 Regional IP Audit & Inventory Workshop conducted Trained 10 CMI Staff on IP Audit & Inventory Workshop 1 Regional Policy/Tech Transfer Protocol review conducted Trained 10 CMI Staff on Policy/TTP Review 1 Regionatecho IPMC conducted Trained 20 CMI Staff on echo IPMC Participate in the content build-up & updating of RAISE RTMS 1 Regional tech/business pitch day conducted 1 Regional promotional activity conducted (e.g. exhibits, bootcamps, IP caravan, etc.) Participation to the National Pitch Fest <p>PLACES & PARTNERSHIPS</p> <ul style="list-style-type: none"> 5 CMIs assisted in the commercialization of technologies 1 RAISE Advisory Council created 	Bohol Island State University (BISU)	The target beneficiaries of this project are the IP offices of each participating agency; in particular, the technology generators involved in IP management and technology commercialization activities; teaching and non-teaching staff and university students.	1-Oct-2023	30-Sep-2025	Ongoing	5,093,952	3,101,976
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 1A: Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Cebu Institute of Technology-University (CIT-U) through the RAISE program	Integrity of the environment and climate change adaptation and mitigation	CIT-U strives to become one of the Philippines' top universities by 2025 through guiding learners toward success in their careers and lives, promoting creativity and knowledge generation, advancing community development, and adapting to a rapidly changing world. In 2013, the CIT-U Intellectual Property Policy was approved which shows the commitment of the university to develop programs on instruction, research, and community extension attuned to the Filipino culture, national goals, and global competitiveness with optimum utilization of existing resources, harnessing community development and goodwill in its implementation. The policy serves as a guideline to ensure the cultivation of the research culture and the optimization of research outputs that are relevant to commercialization and provide equitable solutions to possible IP issues. Currently, the following offices were established: Wildcats Innovation Lab from the Technology Business Incubator grant of DOST, Central Visayas Food Innovation Center, Makerspace, Innovation and Technology Support Office (ITSO), and Knowledge and Technology Transfer Office (KTTO). Also, the technology transfer of all technologies is being facilitated by KTTO which was established in 2022 in coordination with ITSO. As a strategic initiative aimed at promoting and managing CIT-U's intellectual property assets and fostering innovation and entrepreneurship, the Intellectual Property and Technology Business Management (IPTBM) Project seeks to establish, enhance, and operationalize the IPTBM office within the university. The project involves creating an IPTBM office to manage the institution's intellectual property portfolio, as well as developing a strategic plan for technology transfer, commercialization, and licensing in the field of Agriculture, Aquatic, and Natural Resources Research and Development. This is a timely project that can work collaboratively with the existing innovation offices of CIT-U to advance R&D in agriculture, aquatic, and natural resources.	<p>PUBLICATIONS/IEC/PATENTS/ IP Applications (UM & Patent only)3 Copyright (IECs)/PRODUCTS Prior Art Search (PAS) Reports1 IP's & technologies inventory updated1 Inventory of knowledge resources prepared and updated1 CIT-U IPTBM communication plan developed & implemented1 Tech Communication plan developed & implemented1 Technology with pre-commercialization reports2 Technologies pitched1 Technology CommercializedPEOPLE & SERVICES2 CIT-U staff trained in national IPMC2 CIT-U staff trained in national ABMS2 CIT-U staff trained in national TCMS2 CIT-U staff trained in national TPMSS2 CIT-U staff attended regional IP Audit & Inventory Workshop2 CIT-U staff attended regional IP Policy/Tech Trans Protocol review2 CIT-U staff attended regional CommPlan Workshop1 Institutional echo seminar conducted2 trained 20 staff on echo seminarsParticipate to content build-up of RTMSPLACES & PARTNERSHIPS1 Partnership Letter for the national trainings1 partnership agreement w/Business/Trade Institutions1 Commercialization AgreementPOLICYCrafting/enhancement of IP policyCrafting/enhancement of technology transfer protocolSOCIO-ECONOMIC IMPACTContribute to the SDG Goals (8.1-17) and Global Innovation Index (GI)Contribute to the SUC leveling among participating agenciesInfluence a positive change in the Professional Level Point System for the local regionFavorable operating conditions for local innovationInnovative mindsets as a game-changing asset for organizations as well as individuals.Active, fully-capacitated, and well-connected technology transfer offices.</p>	Cebu Institute of Technology-University (CIT-U)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Oct-2023	30-Sep-2025	Ongoing	2,491,600	1,345,800

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 1B. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Cebu Technological University (CTU) through the RAISE program	Integrity of the environment and climate change adaptation and mitigation	Nowadays, the government sectors, companies, and higher educational institutions (HEIs) struggle to adapt to the fast pace of technological innovation and high-end technology adoption in varied essential sectors (agriculture, aquaculture, etc.) that has hindered their growth and competitiveness on the global market. The adoption of an efficient systematized technology management system is highly potent in these sectors or HEIs'™ based in the production of high quality patentable products/technologies. A systematized technology management system like the capacities of Intellectual Property and Technology Business Management (IPTBM) would greatly elevate the productivity of different government sectors and HEIs like Cebu Technological University (CTU). This State University College is a leading academic institution in the Visayas region of the Philippines. With a mandate to promote scientific and technological research and development, the university has established itself as a major player in the fields of agriculture and aquaculture. Recognizing the vital role of innovation and technology in these sectors, CTU has established an Innovation and Technology Support Office (ITSO) to provide expertise and support in intellectual property management and technology commercialization. The ITSO also supports technology business management by providing guidance on commercialization strategies and assisting with licensing agreements. The office helps CTU faculty members and students to identify potential industry partners, negotiate licensing agreements, and manage the commercialization of their innovations. CTUs application as an IPTBM is envisioned to boost the university'™s production of patents. This will result in more faculty involvement in research and development which will aid in the accreditation of the university. Thus, strengthen the capacities of Intellectual Property and Technology Business Management (IPTBM) operations in Cebu Technological University to intensify technology commercialization activities.	6PaY1Y270aIPUBLICATIONS3 IECs123PATENTS5 P Applications (UM & Patent only)2353 Copyright (IECs)123PRODUCTS PAS Reports2351 P's & technologies inventory updated111 inventory of knowledge resources prepared and updated111 CM communication plan developed & implemented111 Tech communication plan developed & implemented111 technology with pre-comm reports112 technologies pitched1121 Technology Commercialized11 PEOPLE & SERVICES CM staff trained in national IPMC222 CM staff trained in national ABMS22-p dir="tr" style="line-height: 1.2; margin-left: -0.1pt; text-indent: -0.1pt; text-align: left;">	Cebu Technological University (CTU)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities, including stakeholders, community, teaching and non-teaching staff, university students, and MSMEs.	1-Oct-2023	30-Sep-2025	Ongoing	2,491,600	1,345,800
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 1C. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Holy Name University (HNU) through the RAISE program	Integrity of the environment and climate change adaptation and mitigation	Holy Name University recognizes the importance of protecting the intellectual rights of the employees; thus, in 2018, the Intellectual Property Policy of the university was drafted and approved by the Board of Trustees. This undertaking paved the way towards the production of patents. The university plans to review and enhance the said IP policy to include important components suggested by the Intellectual Property Office of the Philippines (IPOPHL). To date, HNU has produced 5 Utility Models, 1 Industrial Design and 1 Trademark through the trainings and mentoring of the Bohol Island State University being an Innovation and Technology Support Office (ITSO). Still in process are 1 Utility Model and 3 invention applications. HNU'™s application as an IPTBM is envisioned to boost the university'™s production of patents. This will result to more faculty involvement in research and development which will aid in the accreditation of the university.	6PaY1Y270aIPUBLICATIONS3 IECs123PATENTS5 P Applications (UM & Patent only)2353 Copyright (IECs)123PRODUCTS PAS Reports2351 P's & technologies inventory updated111 CM communication plan developed & implemented111 Tech communication plan developed & implemented111 technology with pre-comm reports112 technologies pitched1121 Technology Commercialized11 PEOPLE & SERVICES CM staff trained in national IPMC222 CM staff trained in national ABMS22 CM staff trained in national TMS22-p dir="tr" style="line-height: 1.2; margin-left: -0.1pt; text-indent: -0.1pt; text-align: left;">	Holy Name University (HNU)	The target beneficiaries of this project are the technology generators involved in IP management and technology commercialization activities; teaching and non-teaching staff and university students.	1-Oct-2023	30-Sep-2025	Ongoing	2,491,600	1,345,800
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 1D. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Negros Oriental State University (NORSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Negros Oriental State University (NORSU) is a higher education institution that recognizes its obligation to safeguard the scholarly endeavors of faculty and staff as they exercise their fourfold tasks: instruction, research, extension and production. The same responsibility is afforded to the students who are expected to become creators as outcome of quality instruction. The technologies developed by the faculty, staff and students of this institution are essential to the national economy, hence, a need to protect their property rights. With the establishment of University Intellectual Property Office through the NORSU-ITSO and under the tutelage of the Office of Research, Innovation, Development and Extension (RIDE) it complements the ambitious plan to develop the university into a center of research in the Negros Island Region anchored by its vision as a dynamic, competitive, globally-responsive state university. The research activities at Negros Oriental State University also address inventions, designs, technology and e-commerce solutions, mobile applications and other related intellectual properties that serve our communities. With the future establishment of the Intellectual Property and Technology Business Management (IPTBM) Office, it will encourage and supports research among faculty, students and staff to pursue collaboration with partners in the business and industry by generating financial resources for the sustainability of the research activities at NORSU as well as the individual faculty, student and staff involved. Currently, as of 2023, there were number of filed Patents and Utility Models of NORSU such as Formulation of Lemongrass (Cymbopogon), Ginger (Zingiber officinale), and Lemon (Citrus Limon) As Healthy Beverage and process of making thereof, A Formulation of Vegetable Enriched Soft Bar Taro Root (Colocasia esculenta) Cookies with Malunggay (Moringa oleifera) and Sweet Potato Leaves (Ipomea batatas) and process of making thereof, Composition of Seafood Patty from Fish Horn Snail (Telescopium) and process of making thereof, A Formulation of Gluten Free Baked Brownies from Taro Root (Colocasia esculenta) and Canistel Fruit Flour (Pouteria campechiana), Moringa (Moringa oleifera) Leaves, Ginger (Zingiber officinale) Sugarcane Bagasse (saccharum officinarum) and the process of making thereof, Red-Velvet Crinkle Cookies Composition, Skin Cream Composition and Four-in-one Tractor Mounted Farm Implement. The summary of these technologies are presented in the table below. Moreover, NORSU-RIDE is committed to creating a nurturing ecosystem that	6PaY1Y270aIPUBLICATIONS3 IECs123PATENTS5 P Applications (UM & Patent only)2353 Copyright (IECs)123PRODUCTS PAS Reports2351 P's & technologies inventory updated111 inventory of knowledge resources prepared and updated111 CM communication plan developed & implemented111 Tech communication plan developed & implemented111 technology with pre-comm reports112 technologies pitched1121 Technology Commercialized11 PEOPLE & SERVICES CM staff trained in national IPMC222 CM staff trained in national ABMS22-p dir="tr" style="line-height: 1.2; margin-left: -0.1pt; text-indent: -0.1pt;">	Negros Oriental State University (Norsu)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities, including stakeholders, community, teaching and non-teaching staff, university students, and MSMEs.	1-Oct-2023	30-Sep-2025	Ongoing	2,491,600	1,345,800
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 2. Establishment of Regional Agri-business Hub (ABH) in Central Visayas through the RAISE program	Integrity of the environment and climate change adaptation and mitigation	The R&D initiatives in AANR commodities are already established in the region due to the presence of research institutions such as the BISU, CTU, CTU, NORSU, HNU, and other institutions. However, many of the research outputs are not totally translated to bring impact to society due to several constraints. Some of these are the readiness of the technology for commercialization; knowledge of technology generators about pre-commercialization and commercialization steps, and awareness of the investors about existing AANR technologies. The R&D part usually ends with proving that it is possible to create such products. However, in order to move forward for commercialization, the market feasibility of the product should also be considered. This project is in line with the goal of the RA10055 (Philippine Tech Transfer Act) to push the R&D output for commercialization and in response to the sustainable development goal for innovation. Through this project, researchers will be capacitated in preparing pre-commercialization documents that they can use in their commercialization plan. This project will also bridge the AANR technologies with prospective investors and end-users to give them better options.	6PaY1Y270aIPUBLICATIONS3 Regional Training Reports123PRODUCT10 Pre-commercialization services2 technology with business plan2 technology with feasibility study2 technology with market study2 technology with valuation2 technology with enterprise plan (EP)1112122101 Consolidated regional reports1 PEOPLE & SERVICES Coordinated participation of 5 CMs & 10 CM personnel on national ABMS510 CM Staff trained/attended the national ABMS10101 Reg'™11 echo ABMS conducted11 trained 20 CM Staff on ABMS (echo)20201 Training on Agripreneurship for MSMEs or potential agripreneurs conducted11 Trained 10 MSMEs on agripreneurship1010 Participate in the content build-up & update of RAISE RTMS200 Participate to the National Pitch Fest-2023-p dir="tr" style="font-size: 10pt; font-family: Arial; color: rgb(0, 0, 0);">	Bohol Island State University (BISU)	The output of this project is beneficial to all individuals involve in agriculture, aquatic and natural resources (AANR) commodities. Specifically, the IEC materials and the training/pitching activities that will be conducted, will be useful for researchers, innovators, entrepreneurs, LGUs, research institutions, and venture capitalists.	1-Oct-2023	30-Sep-2025	Ongoing	2,616,000	1,488,000

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI) in Central Visayas through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Agriculture and aquaculture assimilation could increase the farming system economically, with continuous innovation playing a vital measure (Joffe et al., 2017). The business incubator aims to encourage industrial and income generation while technology incubators support technological advancement (Binsawad et al., 2019). Initiating an integrated system for agri-aquaculture could meet diverse essential needs, such as food, efficient use of vital resources, and pollution control (Rahman et al., 2018). However, Agri-aquaculture faces a growing critique of its environmental and social management practices and potential innovation challenges (Joffe et al., 2017). Incubation as part of creative processes has been recognized (Binsawad et al., 2019). Rapid technology innovation cultivates organizations to promote successful sustainable development amidst the evolving paradigms globally. By establishing a knowledge-sharing community, organizations will improve innovation efficiency. In general, Business Incubators are connected with technology departments and science facilities because they promote technologies and accelerate the growth of emerging technology-based businesses (Torun et al., 2018). The Cebu Technological University (CTU), the Visayas and Mindanao's largest state university in the Philippines, pursuit for economic superiority, craftiness, and strategic inventions in this dynamic environment serves as core advancement concepts. Therefore, the CTU operates a Technology Business Incubation and Development (TBID) as a self-government entity to strengthen entrepreneurship and start-up environments. The goal of the CTU is to encourage "technopreneurship" and contribution to local communities; to be competitive in leading the industry 4.0, the university should therefore build useful links between academia and potential business partners. CTU-ATBI intends to conceptualize commercialization and technology transfer ventures established between Agri-Aquaculture and academe for marketing and research concepts and development. Thus, helps the implementation of SUC innovation strategy and guidelines, and it will also enforce promoting agri-aquaculture ventures and address the challenges for competitive investments.	Component A: Regional ATBEPs/YYZTOT/AL/PUBLICATION/2 Regional Training Reports/121 Regional ATBI Operators Manual crafted/221 Regional ATBI Business Plan (ATBI) Services/ Ongoing prepared/11 Consolidated curricula of existing & new ATBIs/1 PATENT/3 IP Applications/3 PRODUCT/2 Technologies co-incubated/331 Technology Commercialized with FOR / Facilitated the commercialization of 1 technology/11 Consolidated regional report/PEOPLE & SERVICES/2 new incubatees enrolled in any of the existing ATBID/22 new incubatees under co-incubation program/3	Cebu Technological University (CTU)	The beneficiaries will include those who are willing to adopt innovation in the AANR sector such as the technology adopters, generators, micro and small enterprises, cooperatives, associations, and other interested individuals/groups.	1-Oct-2023	30-Sep-2025	Ongoing	4,825,640	2,121,776
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 3A. Establishment of the Agri-Aqua Technology Business Incubator in Bohol Island State University (BISU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Technology Business Incubation (TBI) is described as a facility that houses start-ups and offers business development services. The DOST-PCAARRD thinks that aiding SUCs in establishing their respective agricultural TBIs can boost regional economic development by fostering entrepreneurship, job creation, and public-private partnership. In the TBI setup, start-ups are housed in the incubator, which also offers business development services. A TBIs main objective is to promote the commercialization of research findings as well as the acquisition and application of cutting-edge/state-of-the-art technology, which would encourage the utilization of resources. TBIs are therefore an explicit tool for the transfer of technology. The idea of technology business incubation has emerged as a crucial strategy for the creation of new businesses and the commercialization of established technologies, particularly those produced through university research and development projects. TBI is seen as a viable innovation mechanism that fosters the expansion of technology-focused businesses. TBIs in the Philippines aim to create businesses that can operate sustainably and compete in the market once they leave the incubator (DOST-PCAARRD). The creation of BISU ATBI will serve as a center for technology transfer, and business incubation in the university that will provide services necessary for the establishment of for would-be entrepreneurs. Focusing on food and non-food products, for commercialization, it is hoped that the technologies generated through research and development will be transferred to potential adopters.	Publication: 1 ATBI business plan develop 1 ATBI operators manual revised as needed 10 basic incubation curricula revised as needed 2 IEC or promotional material for the ATBI produced 1 promotional video for the ATBI developed 10 IEC or promotional materials for the incubatees developed 2 promotional videos for the incubatees developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented Patent: 10 trademarks filed 5 copyrights filed Product: 10 technologies incubated/adopted by incubatees/People: 10 incubatees assisted and enrolled under incubation program 6 trainings for the ATBI staff conducted or participated in 10 trainings for the incubatees conducted 10 business plans for incubatees developed 3 awareness seminars or promotional activities conducted 3 business pitching events, industry meetups, or networking events conducted or participated in 2 ATBI staff attended the national ATBI MC 2 ATBI staff attended the national TCMS 1 institutional echo seminar conducted Trained 3 staff on echo seminars 2 benchmarking activities conducted ATBI operations fully integrated to PCAARRD's ATBI web-based M&E system Place: 10 MOAs/MOUs with the incubatees forged 6 MOAs/MOUs with organizations from the public and private sectors forged/renewed ATBI Advisory Board/Committee/Council created and convened Policy: ATBI institutionalized with approved Board Resolution ATBI-related policies of the University revised as needed	Bohol Island State University (BISU)	The beneficiaries will include those who are willing to adopt innovation in the AANR sector such as the technology adopters, generators, micro and small enterprises, cooperatives, associations, and other interested individuals/groups.	1-Oct-2023	30-Sep-2025	Ongoing	4,732,992	2,806,496
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Central Visayas	Project 4. Establishment of Regional Knowledge Management Hub in Central Visayas through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Accessibility or availability of information regarding the existing and completed research and available technology is very crucial to avoid duplication of effort, time, and money that is spent by every researcher and funding source to develop such technology. With the implementation of communication and promotional strategies for sharing information, the gap in the accessibility and availability of the information will be addressed. Furthermore, the strategies will ensure that every researcher of the consortium member institutions will be able to connect, build relationships and collaborate with each other so that the targeted goals of the consortium will be accomplished. The communication and promotional strategies will also play a significant role in guiding technology generators in moving the commercialization of their technology for the benefit of society. Information on pre-commercialization will be made available in the created IEC materials so that technology generators will not stock on producing a laboratory-scale prototype but will have an idea on how to prepare their technology for whatever commercialization pathway they will take. The communication and promotional strategies will also collect data on the potential industry partner, their commodity interest, and contact details for the benefit of the technology generators that are looking for industry collaborators. The establishment of communication and promotional strategies will also allow information sharing to other research institutions, local government units, entrepreneurs, and venture capitalists. This will serve as their guide for possible collaboration and engagement. IEC materials will provide information on the technology developed by the consortium member institutions. The local government unit and entrepreneur will be informed of the available technology that may solve the problem that they are currently facing. The venture capitalist, on the other hand, will have better options on the technology that they want to venture on. With the implementation of these strategies, there is a greater chance that technology generated will bring an impact on the economy. In face-to-face communication it will be much easier to convince people, build stronger connections, understand better body language, quicker, team engagement, and more effectively. Print communication channel is intended for a wide range of targeted internal and external audiences and can be either one or two-way communication. Web & Multimedia channels can cater broad-stroke messages, are mostly one-way communication and feedback is appreciated but not always required.	6PaYYZTOT/AL/PUBLICATION/2 Regional Training Reports/123 promotional materials (video, print/local media, RAISE calendar) developed/2 PATENT/1 IP Application/12 copyrights filed for promotional materials developed/22 PRODUCT/1 Reg™ Inventory of Knowledge Resources/11 Reg™ CommPlan prepared & updated/11 consolidated CMI CommPlan prepared & updated/11 consolidated Tech CommPlan prepared & updated/1100 Agri-Aqua technology-based IEC materials collected for E-Lib uploading/50501001 Consolidated regional report/11 PEOPLE & SERVICES/Coordinated participation of 5 CMI on national TPMS/510 CMI Staff trained/attended the national TPMS/10101 Reg Inventory of Knowledge Resources Workshop conducted-span style="font-size: 10pt; font-family: Arial; color: rgb(0, 0, 0); background-color: transparent; font-variant-numeric: normal; font-variant-east-asian: normal; font-variant-styles: normal; vertical-align: baseline; white-space: nowrap;">10 MOAs/MOUs with the incubatees forged 6 MOAs/MOUs with organizations from the public and private sectors forged/renewed ATBI Advisory Board/Committee/Council created and convened Policy: ATBI institutionalized with approved Board Resolution ATBI-related policies of the University revised as needed	Cebu Institute of Technology- University (CIT-U)	The output of this project is beneficial to all individuals involve in agriculture, aquatic and natural resources (AANR) commodities. Specifically, the IEC materials and the training/pitching activities that will be conducted, will be useful for researchers, innovators, entrepreneurs, LGUs, research institutions, and venture capitalists.	1-Oct-2023	30-Sep-2025	Ongoing	2,498,800	1,289,400

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 1: Regional Intellectual Property and Technology Business Management (IP-TBM) with Member Institutions in the Cordillera Consortium for Agriculture, Aquatic and Resources Research and Development (CoCAARRD)	Integrity of the environment and climate change adaptation and mitigation	Technologies as an output of research and development radically increased in the past decades and continuously mounting to date. In Benguet State University alone, there are around 200 technologies are patented or registered as Utility Models. However, most of these technologies have the difficulty of going the target market and establishing a market niche due to a lack of strategy in commercializing the technologies developed. Hence, research and development investments are frittered away. Facts likewise reveal that only three products got launched from 14 product ideas, only one in seven product ideas will yield successful outcomes and the launched products have a failure rate of 25% to 45% (McKinsley Global Institute, n.d.). Along this line, Kelly et al. (2018) suggested that an agile operating model to fuel the success in the industry must be conceptualized. In the ambit of research and innovation, it is likewise palpably necessary to introduce a model to fully maximize the economic potential of the technologies developed. Consequently, there is a need to take the edge off and strategize to hasten the commercialization of research-based technologies through advanced technology transfer. In this manner, a win-win solution between the inventor and entrepreneur can be achieved.	Publication: 1 Training Module (IP Masterclass)Patent: 20 IP filingsProduct: 1 Regional list of potential IPs and IP Assets2 Technology Commercialized2 Prior Art Search of R&D projects3 Regional R&D Areas 3 Regional Sustainability PlanPeople: 1 Regional workshop of IP Assist/Inventor/1 Regional workshop on Prior art search/ Regional IP Masterclass (5-module)Trained 20 CMI Staff in IP Policy Webinar/Workshop (new CMIs)1 Regional workshop on patent analysis/patent mine/Regional Sustainability Planning Workshop/Place: 1 Commitment Letter/Coordinated/managed business network of 10 CMIs2 Commercialization Agreement Signed/Policy: Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)AO to adopt prior art search report for R&D projects.	Benguet State University (BSU)	PTBMs in IFSU and ASCIPTBM project learners/Researchers/Technology generators in CMIs in the region/Technology users/takers	1-Jan-2022	31-Dec-2023	Completed	3,000,000	1,212,821
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 1-A: Enhancing the Intellectual Property and Technology Business Management Office (IP-TBM) in Ifugao State University (IFSU)	Integrity of the environment and climate change adaptation and mitigation	The Ifugao State University envisions to pursue excellence in Research and extension. Hence, with the challenging opportunities of the current trend on research and extension specifically in the commercialization of research outputs and technologies, the University open its doors to the challenges of this trends. Thus, with the initiatives of the University and DOST-PCAARRD, the IP Policy and technology transfer protocol was approved by the Board of Regents (BOR) on February 5, 2021. With the University's quest for the Institutionalization of the Intellectual Property and Business Management Department I IFSU this project deemed essential in the success of the operations and sustainability programs of this Department. This program entitled, onAdvancing Technology Transfer in CorCAARRD through the Regional Agri-Aqua Innovation System Enhancements (RAISE) Programaims to enhance and sustain the On-going IP-TBM of Ifugao State University through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. Specifically, it is focused in managing the technologies and intellectual properties of the University, provide capability building to researchers and innovators and enhance the technology transfer programs of the University. This project will help the University to achieve higher SUC Leveling vis-a-vis the sustainable economic status of the community as a whole.	Publication: 5 IECs developed and utilizedPatent: 5 IP ApplicationProduct: 5 prior art search reports 1 inventory of IP assets (potential IPs & IPs filed) 1 inventory of matured technologies of SUC 1 inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) People: 2 CMI Staff Trained in IP MasterClass 2 CMI Staff Trained inTCMS 2 CMI Staff Trained in Technology Promotion Mentorship 2 CMI Staff Trained in Agribusiness Master Class 2 CMI Staff attended CorrinPlan Workshop 2 CMI Staff participated in the technology pitch day Place: 1 commitment letter/Policy: Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Ifugao State University (IFSU)	Incubatees Technology Business Incubator personnel and manager IFSU Researchers/ Inventors Technology adapters Entrepreneurs ASC-IP/TBM Other CorCAARRD CMIs	1-Jan-2022	30-Jun-2024	Ongoing	1,316,451	896,539
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 1-B: Establishing the Intellectual Property and Technology Business Management (IP-TBM) in Apayao State College (ASC)	Integrity of the environment and climate change adaptation and mitigation	From a more tactical perspective, though IP-TBM is defined strategically, the IPTBM serves first to align core organizational competencies and then deliver efficiencies in the way it defines, monitors and supports the process that focus on the capture, nurturing and management of the organization's Innovation assets. Among the goals are increased transparency and a clearer understanding of how the activities of one set of stakeholders could or should affect the outcomes of another set of stakeholders. Apayao State College as the youngest State College in the Cordillera Administrative Region while serving as the sole higher learning institution in the province, also provides services along research, development and extension. Researches that are patented and awarded Utility Model Certificates. Research results are presented and disseminated locally, regionally, nationally and in some instances, internationally. These researches are also at some level commercialized. As we undertake this opportunity as a young college, the institution is looking forward to further manage this vital services. The establishment of Intellectual Property-Technology Business Management Center for the Apayao State College is therefore vital to maximize its potentials.	Publication: 5 IECs developed and utilizedPatent: 5 IP ApplicationProduct: 4 prior art search reports 1 inventory of IP assets (potential IPs & IPs filed) 1 inventory of matured technologies of SUC 1 inventory of knowledge resources 1 product enhanced or co-incubated or market tested 1 technology commercialized 1 technologies pitched 1 technology with pre-commercialization reports (valuation, FS, market study) People: 2 CMI Staff Trained in IP MasterClass 2 CMI Staff Trained inTCMS 2 CMI Staff Trained in Technology Promotion Mentorship 2 CMI Staff Trained in Agribusiness Master Class 2 CMI Staff attended CorrinPlan Workshop 2 CMI Staff participated in the technology pitch day Conducted re-echo seminars Trained at least 30 CMI staff in re-echo seminars Place: 1 commitment letter 1 commercialization agreement signed/Policy: 1 Institutional IP Policies reviewed/ crafted1 Technology Transfer Protocols reviewed/ crafted 1 Institutional IP Policies BOR approved1 Technology Transfer Protocols BOR approved	Apayao State College (ASC)	Researchers/ Inventors Technology adapters Project team Other stakeholders	1-Jan-2022	31-Dec-2023	Completed	1,855,000	775,359
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 2: Regional Agribusiness Hub in the Cordillera Consortium for Agriculture, Aquatic and Resources Research and Development (CoCAARRD)	Integrity of the environment and climate change adaptation and mitigation	Agribusiness has not always been a forte of SUC researchers for various reasons including the idea that making a personal business out of research that was funded by government is not acceptable. In a way this was promoted by exposing it as conflict of interest. However, the current policy environment encourages the utilization of research outputs even into the realm of agribusiness. The market is a key component in business and is therefore vital in technology commercialization. It is where products and services developed can be showcased and offered to takers or adopters. It is also the venue where information is shared as part of the technology transfer transaction. In order to have more items and a wider smorgasbord of options, this project seeks to establish a regional agribusiness hub. This will be a marketplace where users' feedbacks can also be gathered and brought back to the researchers, where agribusinessmen can meet the technology generators in a learning environment.	Publication: 1 Training Module (Agribusiness Masterclass)Patent: Copyright of training moduleProduct: 2 technologies (of the SUC/Implementing Agency) with value proposition report; business plan; FS; market study; 1 product market tested (of the SUC/Implementing Agency)/People: 1 Regional Agribusiness Masterclass conducted/Trained 20 CMI Staff/Assisted 10 CMIs/Mentees in pre-commercialization services (market study, business plan)Serve as mentor/coach in regional pitching activities/Place: 2 Partnership agreement with business organizations in CAR/Policy: Regional Agribusiness Hub, institutionalized	Benguet State University (BSU)	CMI Researchers Technology adapters MSMEs Industry stakeholders	1-Jan-2022	30-Jun-2024	Ongoing	2,000,000	921,336
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 3: Regional Agri-Aqua Technology Business Incubation in the Cordillera Consortium for Agriculture, Aquatic and Resources Research and Development (CoCAARRD)	Integrity of the environment and climate change adaptation and mitigation	The Project 3 of the RAISE Program targets technology users with their enterprise that will be incubated, the technology generators who will offer their protected technologies and serve as mentors, and the CMIs who will participate in the capacity building activities and share their technologies. The project aims to provide support to consorsia member institutions (CMIs) and other ATBIs in the transfer of technologies through technology business incubation or co-incubation. Specifically, it seeks to provide capability building on technology transfer to R&AmpD partners; provide a venue for convergence of regional AANR stakeholders from the academe, public, private sectors, NGOs and international partners; provide incubation services to at least 10 adopters/incubatees/co-incubatees; facilitate public-private access to AANR technologies to improve the innovation ecosystem in the region; and strengthen existing and forge new Public Private Partnerships for R&AmpD Results Utilization (RDRU). To achieve these, it shall work within the RAISE Program framework where its efforts will be focused on the utilization of technologies in enterprise creation through business incubation. As a regional ATBI, it shall also support other CMIs in IP management particularly along its utilization, promotion, partnerships and collaboration. The measures of accomplishment are defined in the agreed-upon expected outputs including regional trainings, seminars and workshops conducted, 10 IP applications filed, regional list of mature technologies, IP asset inventory, and knowledge resources inventory. It shall also endeavor to have at least 10 incubatees assisted/co-incubated and with partnership agreements, 10 technologies utilized, 20 CMI staff trained, and the full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs). In general, it is hoped that this will enhance the science, technology and innovation ecosystem in the region as it strengthens the ATBIs and IPTBMs in the CMIs.	Publication: 1 ATBI Operations Manual enhanced/1 training module on technology commercialization mentorship series (TCMS)Patent: 10 IP applications filedProduct: 1 regional list of mature technologies developed/ 1 regional list of ATBI curriculum/services/1 product enhanced (development, packaging, branding)/1 product manufactured for pre-commercialization/At least 10 technologies adopted/co-incubated 1 inventory of IP Assets (potential IPs & IPs filed)1 inventory of knowledge resources/People: 1 regional workshop in Inventory of Mature Technologies/1 regional workshop of ATBI Curriculum/Services/At least 10 incubatees assisted/co-incubated/At least 2 business pitching event/industry meet-up, or networking event/ conducted or participated in/1 regional technology commercialization mentorship series (TCMS) 5-module conducted/At least 20 CMI trained in the regional technology commercialization mentorship series/Place: At least 10 MOAs/MOUs with incubatees forged/Policy: Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Benguet State University (BSU)	The target beneficiaries in the project are the technology users with their enterprise that will be incubated, the technology generators who will offer their protected technologies and serve as mentors, and the CMIs who will participate in the capacity building activities.	1-Jan-2022	31-Dec-2023	Completed	4,504,357	3,484,506

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Cordillera Administrative Region	Project 4: Regional Knowledge Management Enhancement in Member Institutions of the Cordillera Consortium for Agriculture, Aquatic and Resources Research and Development (CorCAARRD)	Integrity of the environment and climate change adaptation and mitigation	The Regional Knowledge Management of CorCAARRD was established when PCAARRD re-engaged the Consortium in 2015. Originally the Regional Applied Communication Program produces IEC materials from the databases maintained by the Management Information System Program. With the new engagement the two programs were merged into one program, the Knowledge Management. It is just apt and proper that IEC materials and other collaterals for information sharing is handled by one program for easy flow of materials and production process. Matured technologies as a result of evaluations will not be resting on shelf and archives and these must be used by the intended clientele/recipient. The technology will be valued and promoted in different media and modality of promotion and utilization. The archiving of information will be in the form of electronic library and shared among the Consortium Member Institutions. While IEC production will be digitally produced and published, Data Privacy Law will be strictly observed and implemented.	Publication: 10 IEC materials developed and utilized; Patent: 20 copyrights of 10 IECs (lead); Product: 1 regional Communications Plan developed in Year 1; 1 regional Communications Plan updated in Year 2; 1 technology pitch deck developed; 1 Regional inventory of knowledge resources developed in Year 1; 1 Regional inventory of knowledge resources updated in Year 2; 1 RTMS established in Year 1; 1 RTMS updated in Year 2; 1 Regional workshop on the Communications Plan preparation and inventory of knowledge resources conducted; 1 Technology Promotions Mentorship (IEC and technology pitch deck) 2-module conducted; 2 Regional Technology Pitch Day; 20 CMI staff on technology promotion; 1 Partnership agreement with KM group/consultant in CAR; Policy: KM institutionalized	Benquet State University (BSU)	CMI researchers/technology generators Technology users	1-Jan-2022	30-Jun-2024	Ongoing	1,849,000	883,746
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1: Regional Intellectual Property and Technology Business Management in VICARP through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Samar State University (SSU) in Artoche Road, Brgy. Guindapunan, Catbalogan City, Samar 6700 with a total PCAARRD-GIA funding of Php 2,995,551.00. The strengthening of the IPTBM of SSU paved way to the revision of its IP Policy, crafting of the University Technology Transfer Protocol, protection of a number of intellectual properties such as patent and utility models, partnership with business sectors and technology transfer of technologies. Moreover, the IPTBM offices also developed their expertise in patent drafting, patent prosecution and patent searching.	Publication: 1 Training Module (IP Master Class); Patent: At least 20 IP; Filings/Product: 1 Regional list of potential IP and IP Assets; 2 Technology Commercialized; 1 Regional Priority R&D areas; 2 Prior art Search of R&D project; 1 Regional Sustainability Plan; People: 1 Regional workshop on IP Audit/Inventory; 1 Regional workshop on Prior Art Search; 1 Regional IP Master Class (6 Module); Trained 20 CMI Staff; 1 Policy Webinar/Workshop (New CMI); Place: 1 Commitment Letter; 2 Coordinated/managed business network of 10 CMI; 2 Commercialization Agreement signed; Policy: Full implementation of IP policy and technology transfer protocol (with internal memos, AOs) AO to adopt prior art search report for R&D projects	Samar State University (SSU)	The target beneficiaries of the project are the following: IP-TBM personnel/staff Consortia CMI researchers and technology transfer officers Prospective adoptors of technologies generated from this project Government partners/Private industry Private industry	1-Jan-2022	30-Jun-2024	Ongoing	2,995,551	1,397,893
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1-A: Establishing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Biliran Province State University (Naval State University)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Biliran Province State University (BIPSU) in Naval State University, Naval, Biliran with a total PCAARRD-GIA funding of Php 1,701,240.00. One of the main problems faced by BIPSU, in general, is how to bridge the gap between R&D and technology transfer and commercialization, which leads to more socio-economic gains. This project under VICAARP™'s helm is a step toward solving this problem through the establishment of the intellectual property and technology business management (IP-TBM) in BIPSU, which is imperative through the Philippine Technology Transfer Act of 2009 (Presidential Communications Operations Office, 2018).	Publication: At least one (1) IEC material will be developed for each year of the project. Copyright will also be secured for the IEC materials developed. Patent: At least one (1) patent/utility model applications will be submitted to IPOPHL for BIPSU AANR R&D products for each year of the project; Product: At least one (1) AANR R&D IP technology will be commercialized after the entire duration of the project; People: At least three (3) IP-TBM personnel mentioned in the PCAARRD Master Class Mentorship Series after the first year of the project; Place: At least (1) IP-TBM operations institutionalized after the duration of the project; Policy: None	Biliran Province State University (BIPSU)	The target beneficiaries are the faculty researchers of BIPSU -s School (college) of Agriculture and Fisheries as well as personnel who will man the university -s IP-TBM operations. Likewise, MSME cooperators of BIPSU who are into development of AANR products will benefit from this project .	1-Jan-2022	30-Jun-2024	Ongoing	1,701,240	635,967
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1-B: Establishing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Eastern Visayas State University (EVSU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Eastern Visayas State University (EVSU) in Eastern Visayas State University, Lino Gonzaga Avenue / Philippines with a total PCAARRD-GIA funding of Php 1,701,240.00. VSU is motivated to develop and capacitate its human resource in IP protection and management, licensing its technologies, or securing commercialization. EVSU also aims to help its community by developing and equipping local entrepreneurs with the skills and stamina to turn novel ideas into successful ventures in today's fast-paced economy. Enhancing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Eastern Visayas State University will serve as an essential tool to accomplish these goals. It will significantly improve its filing of patent and utility model applications and have a greater chance to penetrate the market through the commercialization of its technologies.	Publication: 5 IECs; 1 Publication; Patent: 5 IP Applications; Product: 1 Inventory of IP assets (potential IPs & IPs filed); 1 Inventory of matured technologies; 1 Inventory of knowledge resources; 4 Prior art search reports; 1 Technology with pre-commercialization reports (valuation, FS, market study); 1 product enhanced or co-incubated or market tested; At least 1 Technology Commercialized; 1 technology pitched; People: 2 CMI Staff Trained in IP Master Class; 2 CMI Staff Trained in TCMS; 2 CMI Staff Trained in Agribusiness Master Class; 2 CMI Staff Trained in Technology Promotion Mentorship; 2 CMI Staff attended CommPlan Workshop; 2 CMI Staff Participated in the Technology Pitch Day; Conducted Re-echo Seminars; Trained at least 20 CMI Staff in Re-echo Seminars; Place: 1 Commitment Letter; 1 Commercialization Agreement signed; Policy: 1 Institutional IP Policies reviewed/ crafted; 1 Technology Transfer Protocols reviewed/ crafted; 1 Institutional IP Policies BOR Approved; 1 Technology Transfer Protocols BOR Approved	Eastern Visayas State University (EVSU)	The following sectors are target beneficiaries of this project: MSMEs Partner Communities of the University Farmers and Fisherfolk, Associations Start-Ups	1-Jan-2022	30-Jun-2024	Ongoing	1,996,829	897,164
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1-C: Establishing the Agri-Fishery Intellectual Property and Technology Business Management (IP-TBM) Operations in Southern Leyte State University (SLSU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Southern Leyte State University (SLSU) in Naval State University, Naval, Biliran with a total PCAARRD-GIA funding of Php 1,701,240.00.	Publication: At least 2 promotional IEC for SUCRDI technologies; Patent: At least 8 IP (patent and utility model only) applications; Product: 1 inventory of IP assets; 1 technology commercialized; People: At least 2 IP-TBM staff attended a local/foreign IP workshop; for: At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series; At least 20 SUCRDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as, trainer/speaker; At least 2 networking events and technology promotion conducted by the SUCRDI; At least 1 technology taker/developer; Place: 1 IP-TBM established; 1 Letter of Commitment from SUCRDI; 1 Memoranda of Agreement signed; At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions; 1 IP-TBM institutionalized; At least 1 commercialization agreement executed; Policy: 1 Institutional IP Policies reviewed; 1 Technology Transfer Protocols crafted	Southern Leyte State University (SLSU)	Technology transfer personnel SLSU faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Jan-2022	30-Jun-2024	Ongoing	3,456,022	1,115,861
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1-D: Establishing the Intellectual Property and Technology Business Management (IP-TBM) Operations of University of Eastern Philippines (UEP)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Eastern Philippines (UEP) in University of Eastern Philippines, Catarman, Northern Samar with the PCAARRD-GIA funding of Php 1,835,797.60.	Publication: 5 IECs; Patent: 5 IP Applications; Product: 1 inventory of IP assets (potential IPs & IPs filed); 4 prior art search reports; 1 inventory of matured technologies; 1 technology with pre-commercialization reports (valuation, FS, market study); 1 product enhanced or co-incubated or market tested; At least 1 Technology Commercialized; 1 inventory of knowledge resources; 1 technology pitched; People: 2 CMI Staff Trained in IP Master Class; 2 CMI Staff Trained in TCMS; Conducted re-echo seminars; 2 CMI Staff Trained in Agribusiness Master Class; Trained at least 20 CMI staff in re-echo seminars; 2 CMI Staff Trained in Technology Promotion Mentorship; 2 CMI Staff attended CommPlan Workshop; 2 CMI Staff participated in the technology pitch day; Place: 1 commitment letter; 1 commercialization agreement signed; Policy: 1 Institutional IP Policies reviewed/ crafted; 1 Institutional IP Policies BOR approved; 1 Technology Transfer Protocols reviewed/ crafted; 1 Technology Transfer Protocols BOR approved	University of Eastern Philippines (UEP)	This project will help the proprietor of small and medium enterprises	1-Jan-2022	30-Jun-2024	Ongoing	1,853,298	773,708

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 1-E: Establishing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Visayas State University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Visayas State University (VSU) Visayas State University, Baybay City, Leyte/ PCAARRD-GIA funding of Php 1,791,504.80	Publication: 3 IECsPatent: 3 IP ApplicationsProducts: 3 prior art search reportsAt least 1 Technology CommercializedPeople and Services: Conducted re-echo seminarsTrained at least 1 CMI staff in re-echo seminarsParticipate to content build-up of RTMSPlaces and Partnerships: 1 commercialization agreement signedPolicies: Continued Enhancement of IP Policies and Technology TransferProtocols	Visayas State University (VSU)	Technology transfer personnel VSU faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Jan-2022	30-Jun-2024	Ongoing	1,791,500	839,787
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 2: Establishing the Regional Agribusiness Hub for the Pre-Commercialization of Technologies through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Region 8	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Visayas State University (VSU) in Visayas State University, VSU, Visca, Baybay City, Leyte with a total PCAARRD-GIA funding of Php 2,148,153.00. Its main function is to provide assistance, information and advice for regional consortia members to facilitate the transfer and commercialization of technologies. This is important because policy makers, funders and investors of publicly funded research longs for an approach that can efficiently connect between technology generation and commercialization.	Publication: At least 1 publication in peer-reviewed and indexed journal Patent: Product: At least pre-commercialization report including technology assessment, valuation, market research and business plan People: At least 1 CMI staff trained on pre-commercialization mentorship At least three trainings conducted At least 1 agribusiness master class implemented participated by at least 30 entrepreneurs, start ups, business planners, researchers in Region 8 At least 10 entrepreneurs, start ups, business planners, researchers in Region 8 served for technical advisory services Place: Policy.	Visayas State University (VSU)	The target beneficiaries of the project are the following: Entrepreneurs, start ups Market researchers Consortia researchers and technology transfer officers Prospective adopters of technologies or product generated from agri-aqua sector Government partners	1-Jan-2022	30-Jun-2024	Ongoing	2,148,153	971,082
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 3: Regional Agri-aqua Technology Business Incubation Program of VICARP	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Visayas State University (VSU) in Visayas State University, Brgy. Pangasugan, Visca, Baybay City, Leyte with a total PCAARRD-GIA funding of Php 4,139,923.00. For technology-based businesses to make real contribution in the economy of the EV, it is logical to aim for a region-wide co-incubation system that will harness the potentials of the technologies, inventions, and creations of AANR technologies for commercialization. The region-wide co-incubation system will enable promotion of innovation and Technopreneurship, provide support services, and networking opportunities in the Agriculture, Aquatic and Natural Resources (AANR) sector.	Publication: 1 operations manual developed for Regional ATBI 1 Training Module developed for TMS 1 Terminal report prepared and submitted Patent: 10 IP ApplicationsProduct: 1 Regional list of mature technologies 10 Technologies adopted/incubated 1 Regional list of ATBI Curriculum/Services 1 product enhanced and manufactured for pre-commercialization 1 Market acceptability and product assessment conducted At least 10 label designs crafted(packaging and branding) People: 1 awareness seminar conducted 1 inventory of IP assets (potential bps & lps filed) 1 inventory of knowledge resources 1 Regional workshop on Inventory of Mature Technologies 10 incubates assisted/incubated 1 Regional workshop of ATBI Curriculum/Services 1 Regional Technology Commercialization Mentorship Series (TMS) 5-module Trained 20 CMI Staff 2 business pitching event, industry meetup, or networking event conducted or participated in 2 Boot camps conducted At least 10 entrepreneurship trainings conducted At least 1 per year Monitoring and Evaluation conducted per incubate Place: 10 KMAs/MOs with incubates targetedPolicy: At least 1 ATBI related-policy approved by the University Administrative Council(UADCO) of VSU	Visayas State University (VSU)	Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs VICARP Member SUCs	1-Jan-2022	31-Dec-2023	Completed	4,139,923	1,877,791
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Eastern Visayas	Project 4: Regional Knowledge Management of VICARP	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Visayas State University (VSU) in Visayas State University, VSU, Visca, Baybay City, Leyte with a total PCAARRD-GIA funding of Php 3,355,955.00. One of the components of the program is the Knowledge Management System in VICARP. It is a one-stop-information service shop and convergence hub for technology generators and users. A platform to package, promote, and commercialize ST creators to enhance the innovation ecosystem in the AANR sector and an IP-centric technology transfer mechanisms	Publication: 20 IECsPatent: Copyright of IECsProduct: 2 Regional CommPlan 2 Regional inventory of knowledge resources 1 technology pitch deck 1 e-library enhance 1 Real Time Monitoring System updatedPeople: Regional workshop on the compilan preparationand, inventory of knowledge resources: Technology Promotions Mentorship (IEC and technology pitch deck) 2-module: 1 Regional Technology Pitch Day: Trained 24 CMI staff on technology promotionsPlace: 1 Partnership agreement with KM group/consortiaPolicy: N/A	Visayas State University (VSU)	Knowledge Management CMIs Representatives Consortia CMI researchers and technology generator Prospective adopters of technologies generated from this project Government partners/Private industry and students	1-Jan-2022	30-Jun-2024	Ongoing	3,355,955	1,453,587
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1: Strengthening the IP-TBM Offices in ILAARDEC's CMIs through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Higher education institutions should be capacitated and provided them with enabling ecosystem that stimulate their interest in and strengthen science, technology and innovation (STI) in the region. Duplicating the functions and initiatives of the DOST-PCAARRD Innovation and Technology Center (DITIC) in the Ilocandia by providing support to the consortium member agencies of ILAARDEC through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The RAISE Program will serve as the catalyst in the commercialization and utilization of technologies among ILAARDEC CMIs through the support of DOST-PCAARRD. Agri-Aqua technologies and strengthening the capacity of MSMEs will be prioritized to help boost the production and productivity of farmers and fisherfolks in the region. The approval of Innovative start-up Act (RA 11337) and implementation of RA 11293 or Innovation Act will help entrepreneurs bring their innovative ideas to fruition to survive from the effects of the COVID-19 pandemic. Through the RAISE program local innovators and entrepreneurs will be capacitated by providing them enabling ecosystem to succeed in a very challenging and competitive sector, and spur more startup enablers to boost technology innovation in the Ilocandia and achieve its goal to become the agribusiness and industrial hubs in the Northern Philippines.	Publication: - 1 training module IP Master Class - 1 Regional Sustainability PlanPatent: - At least 10 IP applicationsProduct: - 2 Prior art searches of R&D projects - 1 Regional Inventory of potential IPs - 1 technology commercialized - 1 Regional Sustainability PlanningPeople: - 1 Regional Workshop on IP Audit and Inventory - 1 Regional Workshop on Prior Art Search - 1 Regional Workshop on Patent Analytics/ Patent Mining - 1 Regional IP Masterclasses - Trained 40 CMI staff - 1 Policy webinar or workshop (New CMIs) - 1 Regional Sustainability Planning Workshop - 1 Regional Technology Commercialization Mentorship Series (TMS)Place: - 2 Commercialization Agreement Signed - 2 Coordinated/manage business network of 10 CMIs - 1 commitment LetterPolicy: - Full implementation of IP policy and technology transfer protocols (internal AOs, etc) - AOs to adopt prior art search report for R&D projects	Mariano Marcos State University (MMSU)	Faculty and fulltime researchers of the different CMIs involved will be the major beneficiary of the program also for the external stakeholders of each CMI.	1-Jan-2022	31-Dec-2023	Completed	4,092,931	2,490,687
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1A : Strengthening the IP-TBM Office in Don Mariano Marcos Memorial State University through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The development framework of Region 1 envisions the region as agribusiness and tourism hub in Northern Philippines by 2022 with equitable economic opportunities for its globally-competitive, happy, resilient, and culturally diverse peoples. By 2028 until 2034, Region 1 shall be the agribusiness, industrial, and tourism hub in Northern Philippines and in 2040, the region shall be the agribusiness, industrial, trade, services and tourism hub in Northern Philippines. Based on the Strategic Framework under the pillar ofPatuloy na Pag unlad or increasing growth potential, the Ilocos Regional Development Plan aims to vigorously advance science technology and innovation. This will be achieved through scaling up technology adoption and stimulating innovation. Science, Technology, and Innovation (STI) play a critical role in sustaining a robust economic growth, particularly in fostering creativity and competitiveness.	Publication: 1 Regional Sustainability PlanPatent: At least 10 utility models filed At least 10 copyrights filed At least 10 trademarks filedProduct: 5 Prior art searches of R&D projects 1 University inventory of potential IPsPeople: Participate in the Regi Prior Art Search & IP Audit Workshop Trained at least 2 DMIMMSU Staff Participate in the Regi IP Master Class Participate in the Regi Agribusiness Master Class Regi Technology Commercialization Mentorship Series Trained at least 11 CMI Staff Regional Pitch DayPlace: NonePolicy: Full implementation of IP policy and technology transfer protocols	Don Mariano Marcos Memorial State University (DMIMMSU)	All CMIs, SMEs, private individuals, technology generators/developers.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	765,099

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1B: Strengthening the IP-TBM Office in Ilocos Sur Polytechnic State College through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Ilocos Sur Polytechnic State College as one of the Higher Education Institution (HEI) of the province which has started its existence in 1996 by virtue of Republic Act 7960 authored by Cong. Eric D. Singson is in full support to this praiseworthy vision. Research is one of the four-fold function of Ilocos Sur Polytechnic State College. With the concerted efforts of the administration, researchers were motivated to conduct and undergo various studies resulting to numerous research outputs. Various equipment, tools and materials have been created and developed. In this connection, the need to established and recognized the intellectual property of the creators and developers is deemed important.	Publication: - At least 1 training module - 1 IEC - 1 Sustainability plan/Patent: At least 5 IP application/Product: At least 1 inventory of Potential IPs At least 1 Inventory of IP Assets At least 1 Prior Art Search of R&D project At least 1 technology with pre-commercialization, reports; At least 1 business plan of incubate At least 1 Product manufactured form pre-commercialization/ market tested At least 1 inventory of knowledge resources At least 1 technology Commercialized/People: Trained At least 5 ISPSC Researchers IP Masterclass At least 1 Prior Art Search & IP Audit Workshop Technology Commercialization Mentorship Series Pitch Commercialization Day At least 1 ISPSC Researcher trained/coordinated business network/Place: - At least 1 Commercialization Agreement - At least 1 partnership Agreement with Business Groups/ Trade Institutions/Policy: Full implementation of IP Policy and technology transfer protocols (internal AOs, etc)	Ilocos Sur Polytechnic State College (ISPSC)	Faculty and fulltime researchers of ISPSC will be the major beneficiary of the program and also for the external stakeholders of the College.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	439,892
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1C: Strengthening the IP-TBM Office in North Luzon Philippines State College through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	NLPSC has evolved from humble beginnings and continues to soar high with the steadfast dedication and commitment of its workforce. With the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) through its platform: the Innovation and Technology Center (DPI+TC) has initiated the capacitation of SUCs in enhancing their technology promotion and commercialization activities through the application of innovative platforms in nurturing SUC's human resources. Working with the Intellectual Property Technology Business Management (IP-TBM) Project spearheaded by the DOST - PCAARRD, in collaboration with other State Universities and Colleges (SUCs) in Region 1 from the past one and half years had been very challenging yet productive and worthwhile undertaking. Though NLPSC had only established recently its own Intellectual Property Management Office prior to the existence of the IP-TBM Project, the college certainly agreed to partner with DOST-PCAARRD to realize the aims and objectives of the aforesaid project.	Publication: 10 IECs/Patent: 10 IP applications/Product: 10 prior art search report 1 inventory of IP assets 1 inventory of mature technologies 1 technology commercialized 4 technologies pitched/People: 1 inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 2 CMI Staff Trained in IP Masterclass 2 CMI Staff Trained in TCMS Conducted re-echo seminars 2 CMI Staff Trained in Agribusiness Master Class Trained at least 20 CMI staff in re-echo seminars Place: 2 CMI Staff Trained in Technology Promotion Mentorship 1 commercialization agreement signed, ... Policy: Full implementation of IP Policy and Technology Transfer Protocol	North Luzon Philippines State College (NLPSC)	Faculty and fulltime researchers of the different colleges/departments of NLPSC will be the major beneficiary of the program. Furthermore, partnership from different LGUs among the province will be encouraged.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	766,922
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1D: Strengthening the IP-TBM Office in Pangasinan State University through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Pangasinan State University (PSU) Pangasinan State University; Alvar st. Lingayen Pangasinan PCAARRD-GIA funding of Php 1,500,000.00.	Publication: 5 IECs Patent: 10 IP Applications/Product: - At least 1 Inventory of IP Assets - 5 Prior art searches reports - 1 product enhanced (packaging, branding) - 2 technologies pitched - 1 Technology Commercialized/People: 2 CMIs staff trained in IP masterclass - 2 CMI staff trained in TCMS - 20 CMI staff trained in re-echo seminar - 2 CMI staff trained in technology promotions/Place: - 1 Commercialization Agreement Signed - 1 partnership agreement with Business Groups/Trade Institutions - 1 MOA/MOU with incubate forged/Policy: Revision of IP policy in accordance with the trend and TTP incorporating the ATBI related policies of the Univ., knowledge management and agri-business crafted	Pangasinan State University (PSU)	Faculty and fulltime researchers of the different CMIs involved will be the major beneficiary of the program also for the external stakeholders of each CMI.	1-Jan-2022	30-Sep-2024	Ongoing	1,600,000	792,549
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 1E: Strengthening the IP-TBM Office in University of Northern Philippines through Raise Program	Integrity of the environment and climate change adaptation and mitigation	The University of Northern Philippines takes part in the realization of this program through the implementation of the project Advancing Technopreneurship in Ilocandia through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program since the University continuously generates agriculture and fisheries-related research outputs. With the program, researchers will be capacitated on the management and protection of their outputs, starting from their conceptualization until commercialization. Moreover, the participation of researchers in the program will empower them and make them more confident in marketing their technologies, leading to improved market share, not only for themselves, but for the University as well.	Publication: 10 IEC materials/Patent: 10 IP Applications/Product: - 10 prior art search reports - 1 inventory of IP assets - 1 inventory of mature technologies - 1 technology commercialized/People: - 4 technologies pitched - 1 inventory of knowledge resources - 1 technology with pre-commercialization reports (valuation, FS, market study) - 1 CMI Staff Trained in IP Masterclass - 1 CMI Staff Trained in TCMS - 1 CMI Staff Trained in Agribusiness Master Class - 1 CMI Trained in Prior Art Search & IP Audit Workshop - Trained at least 20 CMI Faculty/researcher in re-echo seminars/Place: - 2 CMI Staff Trained in Technology Promotion Mentorship - 1 commercialization agreement signed/Policy: - Full implementation of IP policy and technology transfer protocols (internal AOs, etc)	University of Northern Philippines (UNP)	Faculty and researches of the University of Northern Philippines will be the major beneficiaries of the program. It will also benefit the stakeholders of the University.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	760,680
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 2: Reinforcing the Agri-business Hub in ILAARDEC's CMIs through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Higher education institutions should be capacitated and provided them with enabling ecosystem that stimulate their interest in and strengthen science, technology and innovation (STI) in the region. Duplicating the functions and initiatives of the DOST-PCAARRD Innovation and Technology Center (DPI+TC) in the Ilocandia by providing support to the consortium member agencies of ILAARDEC through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The RAISE Program will serve as the catalyst in the commercialization and utilization of technologies among ILAARDEC CMIs through the support of DOST-PCAARRD. Agri-Aqua technologies and strengthening the capacity of MSMEs will be prioritized to help boost the production and productivity of farmers and fisherfolks in the region. The approval of Innovative start-up Act (RA 11337) and implementation of RA 11293 or Innovation Act will help entrepreneurs bring their innovative ideas to fruition to survive from the effects of the COVID-19 pandemic. Through the RAISE program local innovators and entrepreneurs will be capacitated by providing them enabling ecosystem to succeed in a very challenging and competitive sector, and spur more startup enablers to boost technology innovation in the Ilocandia and achieve its goal to become the agribusiness and industrial hubs in the Northern Philippines.	Publication: - 1 Agri-business Training Module/Patent: - 1 copyright of training module/Product: - 2 technologies with value proposition report, business plan, feasibility study and market study of developer - 2 Value Chain Analysis - 1 product manufactured for precom/market tested/People: - 1 Regional Agribusiness Master Class - Trained at least 20 CMI Staff/Place: - 2 partnership per region agreement with Business Groups/Trade Institutions/Policy: None	Mariano Marcos State University (MMSU)	Faculty and fulltime researchers of the different CMIs involved will be the major beneficiary of the program also for the external stakeholders of each CMI.	1-Jan-2022	31-Dec-2023	Completed	2,126,298	967,708

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 3: Boosting the Agri-aqua Technology Business Incubation in DMMSU and MMSU through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The DOST-PCAARRD-DMMSU Agriculture Aquaculture and Food Technology Business Incubator was implemented August 16, 2018 to June 30,2021 under the National ATBI Program Batch 2. The following are the highlights of accomplishments of Phase 1. On Publications, the ATBI Business Plan and Operations Manual were developed, reviewed, and enhanced by the project management team, technical and technical advisory committee. Eight (8) curricula of technologies for incubation were developed and reviewed by technical evaluators. Two brochures featuring the service offerings and technologies for incubation were developed and published. The Project Management Team also developed the DOST-PCAARRD-DMMSU ATBI Informational and flyers that were used during the technology briefing, awareness seminar, trainings, and networking events. Ten utility models were filed for IP protection. Three (3) utility models were submitted to DOST-TAPI while seven (7) utility models were submitted to the University for filing at IPOPHL. On Products, Commercialization of the technologies on chevon dishes in retort pouch developed by Prof. Anabella G. Valdez is in progress. Processing of the licensing agreement is ongoing with an incubatee from Agoo, La Union, and Laguna under the co-incubation scheme with Laguna State Polytechnic University.	Publication: 1 ATBI operations manual enhanced At least 5 ATBI basic incubation curricula At least 1 promotional video for incubation developed At least 1 promotional video for Regional ATBI developed At least 5 EC or promotional materials for incubates developed At least 1 promotional video for incubates developed 1 ATBI sustainability plan developed 1 ATBI communication plan developed and implemented Patent: None Product: 1 technology with pre-com report 1 business plan of incubatee 1 product manufactured for precom/market tested At least 5 technologies adopted by new incubates At least 1 technology commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement People: 10 CMIs trained/coordinated business network At least 1 promotional video for incubates developed At least 3 trainings for ATBI staff conducted or participated in At least 5 trainings for incubates conducted At least 5 business plans for new incubates developed At least 2 awareness seminars or promotional activities conducted At least 2 business pitching events, industry meetups, or networking events conducted or participated in At least 2 consortium member-agency mentored on ATBI operations Place: At least 5 MOAs/MOUs with new incubates forged At least 5 MOAs/MOUs forged with CMIs At least 5 MOAs/MOUs with organizations from public and private sectors forged Policy: Regional ATBI institutionalized ATBI-related policies for Region 1	Don Mariano Marcos Memorial State University (DMMSU)	All CMIs, SMEs, private individuals, technology generators/developers.	1-Jan-2022	30-Jun-2024	Ongoing	4,043,155	2,393,028
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 3A: Boosting the Agri-aqua Technology Business Incubation in MMSU through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Higher education institutions should be capacitated and provided them with enabling ecosystem that stimulate their interest in and strengthen science, technology and innovation (STI) in the region. Duplicating the functions and initiatives of the DOST-PCAARRD Innovation and Technology Center (DITC) in the Ilocandia by providing support to the consortium member agencies of ILAARDEC through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The RAISE Program will serve as the catalyst in the commercialization and utilization of technologies among ILAARDEC CMIs through the support of DOST-PCAARRD. Agri-Aqua technologies and strengthening the capacity of MSMEs will be prioritized to help boost the production and productivity of farmers and fisherfolks in the region. The approval of Innovative start-up Act (RA 11337) and implementation of RA 11293 or Innovation Act will help entrepreneurs bring their innovative ideas to fruition to survive from the effects of the COVID-19 pandemic. Through the RAISE program local innovators and entrepreneurs will be capacitated by providing them enabling ecosystem to succeed in a very challenging and competitive sector, and spur more startup enablers to boost technology innovation in the Ilocandia and achieve its goal to become the agribusiness and industrial hubs in the Northern Philippines.	Publication: - 8 IEC Patent - 2 copyrights of IEC - 2 Trademark/Product - 1 List of Mature Technology - 6 Technologies adopted/co-incubated - 1 Product enhanced (packaging, branding) - 1 Product Manufactured for Pre-Commercialization People: - 1 Workshop on inventory of Mature Technology - 6 incubates assisted - 2 Business/technology pitching event, industry meetup, or networking event conducted or participated Place: - 6 MOAs/MOUs with incubates forged Policy: None	Mariano Marcos State University (MMSU)	Faculty and fulltime researchers of the different CMIs involved will be the major beneficiary of the program also for the external stakeholders of each CMI.	1-Jan-2022	31-Dec-2023	Completed	2,166,155	1,936,145
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Ilocos Region	Project 4: Champion Agri-aqua Knowledge Products/Technologies via new media platform through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Higher education institutions should be capacitated and provided them with enabling ecosystem that stimulate their interest in and strengthen science, technology and innovation (STI) in the region. Duplicating the functions and initiatives of the DOST-PCAARRD Innovation and Technology Center (DITC) in the Ilocandia by providing support to the consortium member agencies of ILAARDEC through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The RAISE Program will serve as the catalyst in the commercialization and utilization of technologies among ILAARDEC CMIs through the support of DOST-PCAARRD. Agri-Aqua technologies and strengthening the capacity of MSMEs will be prioritized to help boost the production and productivity of farmers and fisherfolks in the region. The approval of Innovative start-up Act (RA 11337) and implementation of RA 11293 or Innovation Act will help entrepreneurs bring their innovative ideas to fruition to survive from the effects of the COVID-19 pandemic. Through the RAISE program local innovators and entrepreneurs will be capacitated by providing them enabling ecosystem to succeed in a very challenging and competitive sector, and spur more startup enablers to boost technology innovation in the Ilocandia and achieve its goal to become the agribusiness and industrial hubs in the Northern Philippines.	Publication: - 10 IEC Patent - 4 copyrights of IEC Product: - 2 regional inventory of knowledge resources - 2 E-Books People: - 1 Regional Workshop on the Inventory of Knowledge Resources - 2 Regional Pitch Day - 1 Technology Promoters Mentorship (EC and technology pitch deck) - Trained 20 CMI staff on technology promotion Place: None/Policy: None	Mariano Marcos State University (MMSU)	Faculty and fulltime researchers of the different CMIs involved will be the major beneficiary of the program also for the external stakeholders of each CMI.	1-Jan-2022	31-Dec-2023	Completed	1,898,200	886,210
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 1. Regional Intellectual Property And Technology Business Management (IPTBM) In Northern Mindanao Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Component A: Establishing Regional IPTBM The Regional IPTBM, a project component of the RAISE Program is aimed at establishing IPTBMs among the Consortium Member Institutions (CMIs) in Northern Mindanao. It will assist in establishing the IPTBM at the MSU-Naawan (MSUN) in Lanao del Norte and USTP at Claveria (USTP-C) in Misamis Oriental. These two CMIs are chosen because they are active in conducting agriculture and aquaculture research projects with great potential for IP protection and commercialization. This project will also assist two existing IPTBMs, namely the CMU-IPTBM and MSU-IIT-IPTBM. These two CMIs had been in the IP Management business for four or more years. They are both recipients of the Platinum Awards from IPOPHL for their excellent performance in IP management and commercialization. However, they need continuing support to sustain the momentum of their IP management and commercialization activities because they are not yet generating enough royalties to fund their activities. Component B: Enhancing CMU-IPTBM Through the RAISE Program The participation of CMU in the DOST-PCAARRD IPTBM Program capacitated the CMU IP personnel to manage CMU's IP assets. The capacity building was made possible through attendance in the DOST-PCAARRD IP Master Classes and Technology Transfer and Commercialization Mentorship Series. Due to the enhanced capabilities of the CMU IP Personnel, 175 CMU faculty members were trained on claim drafting in July 2018 and December 2022, which resulted in the filing of 150 IPs, 25% of which were patents, and 47% were utility models. One hundred one (67%) of the 150 IPs filed were already granted Certificates of Registration. In addition, the IP personnel revised the CMU IPR Policy, which the CMU BOR approved via BOR Resolution #45, series 2020 on July 31, 2020. They also facilitated the commercialization of four technologies through the establishment of spin-off companies. To continue what has been started, CMU needs more support to sustain its effort in IP Protection and Commercialization. It is through this RAISE Project that CMU-IPTBM will be able to intensify the commercialization activities of the registered technologies. With this project, CMU-IPTBM is optimistic to serve a wider clientele by providing opportunities to assist the non-CMU-affiliated technology generators in registering their IPs.	Expected Outputs of Component A Project 1 - Regional IP-TBMY1Y2TOTALPUBLICATION1 consolidated training report of all the CMI participants who attended IPMC11 training report on regional echo IPMC (including PAS)111 training report on reg TM IP Audit Ramp; Inventory Workshop 11PATENTCopyright of training report2IPRODUCT1 Reg TM list of Priority R&D; 2 Areas/commodity prepared and updated 121 Reg TM technology and IP inventory prepared and updated thru the RIMS1121 Regional Sustainability Plan (Separate from the CMI Sustainability plan; assist CMIs in drafting their sustainability plans)111 Consolidated regional report (IPs filed, tech commercialized, etc.)112PEOPLE Ramp; SERVICECoordinated participation of CMIs personnel in national IPMC888 CMI Staff trained/attended the national IPMC881 Reg TM IP Audit Ramp; Inventory Workshop conducted 11Trained CMI Staff on IP Audit Ramp; Inventory Workshops20-up-dis-7tr	Central Mindanao University (CMU)	Target Beneficiaries:CMIs/Technology Transfer Officers/MSMEs/Entrepreneurs/Incubates /Farmers, Investors/Technology Generators/Faculty/Researchers/University Graduates Technology Investors/VCS/Angels, other R&D & S/T Partners/Thesis advisers and students preparing thesis	1-Oct-2023	30-Sep-2025	Ongoing	5,000,000	1,722,000

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 1A. Enhancement Of The Intellectual Property And Technology Business Management (IPTBM) in Mindanao State University - Iligan Institute Of Technology (MSU-IIT) Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project focuses on the sustainable intensification of the Intellectual Property and Technology Business Management (IPTBM) that mirrors DPITC's aim to provide the optimum environment for inventors, innovators and investor and its initiatives to strengthen the capacities of Mindanao State University - Iligan Institute of Technology (MSU-IIT) with sustainability interventions to enhance its technology commercialization activities. The IPTBM of MSU-IIT will be the central resource and support hub for researchers and the external partners. Discovery, learning, and societal engagement are mutually its supportive core missions in fostering and advancing innovative and entrepreneurial culture through effective and efficient protection, transfer, commercialization of MSU-IIT intellectual properties (IPs) and strategic partnerships to benefit society and promote economic development.	Publication: At least 5 IECs for SUC/RD technologies/Patent: At least 10 patent applications Copyright IECs/Product: 10 Prior Art Search (PAS) Reports 1 IP inventory of matured technologies 1 Inventory of knowledge resources 1 Commercialization plan 1 Technology with pre-comm reports 2 Technologies pitched 1 Technology Commercialized (Y2) People: 2 CMI staff attended Prior Art Search & IP Audit Workshop 2 CMI staff trained in IP MasterClass 2 CMI staff trained in Agri/business MasterClass 2 CMI staff trained in TCMS 2 CMI staff trained in TechPromotion Mentorship 2 CMI staff attend CommPlan Workshop 2 CMI staff attended Reg1 IP Policy/Tech Trans Protocol Review 2 Participate to content build up of RTMS Phase: 1 Commitment Letter 1 Partnership agreement w/Business/Trade Institutions 1 Commercialization Agreements (Y2) Policy: Full implementation of IP policy (with internal memos, AOs) Full implementation of technology transfer protocol (with internal memos, AOs)	Mindanao State University - Iligan Institute of Technology (MSU-IIT)	Target Beneficiaries: CMIU-IPTBM Personnel Faculty researchers Thesis advisers Students preparing thesis projects Local entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	767,462
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 1B. Establishment Of The Intellectual Property And Technology Business Management (IPTBM) in Mindanao State University At Naawan (MSUN) Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The IPTBM of MSU at Naawan shall aim to address the intellectual property concerns of the university, particularly in facilitating copyright and patent registrations, receiving disclosures assisting patent applications, and safeguarding intellectual property-related agreements. Engaging activities shall also be initiated through the conduct of ideation activities where industry and potential inventor/scientists meet to level off technology needs between the user and the creator and the planned industry immersion where inventors/scientists get to see the actual scenario in the industry and intend to develop possible solutions in it.	Expected Outputs (EPs) Publication—3 promotional IECs/Patent/Intellectual Property—5 IP Applications (UM and Patent only)—3 Copyright (IECs)/Product—5 Prior Art Search Reports—1 IP & technologies inventory updated—1 Inventory of knowledge resources prepared and updated—1 CMI commercialization plan developed and implemented—1 Technology Commercialization Plan developed and implemented—1 Technology with pre-commercialization reports—2 Technologies pitched—1 Technology Commercialized/People and Services—2 CMI staff trained in national IPMC—2 CMI staff trained in national ABMC—2 CMI staff trained in regional IP Audit and Inventory Workshop—2 CMI staff attended in regional IP Policy/Technology Transfer Protocol review—2 CMI staff attended in regional Commercialization Plan Workshop—1 Institutional echo seminar conducted—1 Trained 10 staff in echo seminars— Participated to content build-up of RTMS/Space and Partnership—1 Commitment Letter for the national training—1 Partnership agreement with Business/Trade Institutions—1 Commercialization Agreement/Policy—1 Institutional IP Policies reviewed/ crafted—1 Technology Transfer Protocols reviewed/ crafted	Mindanao State University (MSU-Naawan)	Target Beneficiaries: Students, Faculty, Staff, Stakeholders (Farmers, Fishermen, other partner organizations)	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	725,813
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 1C. Establishment Of The Intellectual Property And Technology Business Management (IPTBM) in The University Of Science And Technology Of Southern Philippines Claveria Campus (USTP-C) Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Strengthening the capacity of USTP's Innovation and Technology Solutions Office (ITSO) and Technology Promotions and Commercialization Office (TPCO) for the Intellectual Property and Technology Business Management (IP-TBM) operations to be an operational one-stop-shop for technology owners and generators, investors, and users, and other stakeholders to facilitate the commercialization of technologies generated, preferably along the AANR sectors. The concept of intellectual property patenting has become crucial in fostering innovation and creativity, as it incentivizes inventors and creators to invest their time and resources into developing new and unique ideas. The protection granted under these efforts has become increasingly relevant in today's rapidly advancing technological and creative industries. These encourage competition, reward innovation, and protect the inventors' rights to their creations. This legal framework provides a means of safeguarding the fruits of the researchers and innovators of the university while also fostering an environment where intellectual property can be shared and exchanged freely.	Publication: At least 2 promotional IECs for technology/Patent: At least 4 IP (patent and utility model only) applications/Product: 1 inventory of IP assets At least 1 Technology Commercialized/People: At least 3 PTBM faculty and staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series At least 3 PTBM staff attended a local IP workshop/for, Commercialization with IPTBM staff as trainer/speaker At least 1 networking events and technology promotion conducted At least 1 technology taker/adopter Phase: 1 IPTBM enhanced/established and institutionalized At least 1 adoption agreement executed 1 Memorandum of Agreement signed At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./ Business Groups/ Marketing or Trade Institutions At least 1 commercialization agreement executed Policy: 1 Institutional IP Policies reviewed/ crafted 1 Technology Transfer Protocols reviewed/ crafted	University of Science and Technology of Southern Philippines Claveria Campus (USTP-C)	Target beneficiaries are: Farmers, SMEs, and other stakeholders.	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	699,230
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 2. Establishment Of Regional Agri-business Hub (ABH) In Northern Mindanao Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agribusiness Hub (R@Hub) project, one of the projects under the Regional Agri-aqua Innovation System Enhancement (RAISE)Program, is designed to support the development of viable agribusiness enterprises hub in the Selected Consortium Member Institution that will provide business skills and trainings to the 2hub staff that will facilitate and management their own centers that focus on Technology transfer and commercialization. The activities will help in preparation of business plan and feasibility studies to support in funds sourcing for the needed investment to enable them to scale out their business successfully including the establishment of partnership with business companies for technology commercialization. This project will help address the issue on a number of research outputs that were not commercialized thus the agribusiness hub will develop an enabling environment for SUCs researchers to commercialize their technologies. The first phase of the project is designed to organize Regional agribusiness team and create an enabling environment for agribusiness enterprise development through production of @hub operational manual and inventories of research outputs as well development of training designs and modules for capability building programs and pre-commercialization services to the mentees which include the agribusiness coaching and mentorship program as well as commercialization processing services for technology transferred.	Publication: Three (3) Regional trainings Process documentation on the establishment of Agribusiness Hub Patent: xxxProduct: 10 Pre-commercialized services Technology with business plan Technology with feasibility study Technology with Market study	Central Mindanao University (CMU)	The target beneficiaries of this project are the Institutional Researchers Faculty and Students and RGMO Project Leaders whose research work are already ready for pre-commercialization.	1-Oct-2023	30-Sep-2025	Ongoing	2,499,800	859,300

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI) In Northern Mindanao Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The regional ATBI will be established to support NOMCAARRD CMI™s and ATBIs in the transfer of technologies through capacity building, technology business incubation, and co-incubation in the agriculture and aquatic sector in the region. The regional ATBI will help strengthen existing ATBI and mentor one (1) university from the consortia member institutions (CMIs) of NOMCAARRD for its ATBI establishment to facilitate the commercialization of Agri-Aqua technologies and products in Region X. The existing ATBI will be strengthened under the Regional ATBI is the CMU-ATBI. CMU-ATBI provides business support services for the commercialization of research-generated technologies of CMU. Since the project™s inception in 2018, the CMU-ATBI has assisted 26 incubatees with different technologies. The incubatees received support services that helped them grow their respective enterprises. In effect, they increased their income and provided job opportunities in the community. The CMU-ATBI aims to continually contribute to economic development through the sustainable operation of the unit in the region through the RAISE program. The Regional and CMU ATBI are separate but related project components that the CMU project team will implement. Both components provide an enabling environment for technology commercialization.	<p>Publication:</p> <p>PUBLICATION</p> <p>1 Regional Training Report</p> <p>1 Regional ATBI Operations Manual crafted</p> <p>1 Regional ATBI Curriculum/Service Prepared/Enhanced</p> <p>At least 2 IEC or promotional materials for Regional ATBI developed</p> <p>At least 1 promotional video for Regional ATBI developed and updated</p> <p>At least 1 IEC or promotional materials for incubatees developed</p>	Central Mindanao University (CMU)	The target beneficiaries of this project are the technology adopters, technology generators, Agri-aqua start-ups, cooperatives, associations among others.	1-Oct-2023	30-Sep-2025	Ongoing	6,700,000	1,787,500
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 3A. Establishment Of The Agri-Aqua Technology Business Incubator In Mindanao State University At Naawan (MSUN) Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The agriculture and aquaculture sectors are important contributors to the economy of the country. However, these sectors face numerous challenges like climate change, limited resources, and market competition. To address these challenges, Agri-aqua Technology Business Incubators are established to provide a nurturing environment for entrepreneurs and innovators to develop, refine, and commercialize technologies that address the challenges faced by the agri-aqua sectors. incubators will support the development of technologies, provide resources and mentoring to incubatees, and link them to different stakeholders like industry professionals, potential investors, researchers, etc.	<p>Publication:</p> <p>Publications</p> <p>1 ATBI business plan revised as needed</p> <p>1 ATBI business plan revised as needed</p> <p>1 ATBI operations manual revised as needed</p> <p>1 ATBI operations manual revised as needed</p> <p>At least 3 basic curricula revised od developed</p> <p>At least 3 basic curricula revised od developed</p>	Mindanao State University (MSU)-Naawan	The target beneficiaries of this project are the men and women of CMIs and technology generators, aspirant private entrepreneurs, and technology adaptors.	1-Oct-2023	30-Sep-2025	Ongoing	3,957,280	1,040,350
REGIONAL AGRI-AQUA INNOVATION SYSTEM ENHANCEMENT (RAISE) PROGRAM IN NORTHERN MINDANAO	Project 4. Establishment Of Regional Knowledge Management (KM) Hub In Northern Mindanao Through The RAISE Program	Integrity of the environment and climate change adaptation and mitigation	Knowledge management is essential for success and is demanded by all stakeholders. It involves a close connection to corporate strategy, knowledge of where and how knowledge resides, cross-functional processes, and ensuring projects are recognized and supported by organizational members. To generate knowledge and promote innovation, one must use the individual/group/organizational model of information exchange and dissemination as well as the tacit/explicit spectrum of knowledge types. The SECI model illustrates how people learn from others through socialization, externalization, combination, and internalization.	<p>Publication:</p> <p>6Ps</p> <p>Expected Outputs</p> <p>Year 1</p> <p>Year 2</p> <p>Publications</p> <p>KM System Manual/User Guide</p> <p>1</p> <p>1</p> <p>Patent:</p>	Central Mindanao University (CMU)	All individuals involved in agricultural, aquaculture, and natural resources (AARR) commodities will benefit from the project's results. In particular, LGUs, research institutes, entrepreneurs, scientists, and venture investors will benefit from the KMS.	1-Oct-2023	30-Sep-2025	Ongoing	2,500,000	797,230

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2022	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1: Establishment of a Regional Hub on Intellectual Property and Technology Business Management (IP-TBM) Hub of SMAARRDEC in Davao Region	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by University of Southeastern Philippines (USEP)University of Southeastern Philippines - Main; Inigo St. Obrero, Davao City/ Philippines / PCAARRD-GIA funding of Php 2,935,373.80.	Publication: 10 IECs 1 Training Module Patent: At least 35 IP applications Product: Atleast 15 Prior Art Search Report Atleast 2 Prior Art Search of R&D project 2 Inventory of IP Assets 3 Inventory of Matured Technology 2 Inventory of Knowledge resources 5 Technologies pitched 3 Technologies with pre-commercialization 3 Technologies commercialized 1 Regional List of IP Assets 1 Sustainability Plan 1 Product enhance People: 4 CMI staff trained in IP MasterClass 4 CMI staff trained in TCMS 4 CMI staff trained in Agribusiness MasterClass 4 CMI staff trained in CommPlan 4 CMI staff trained in Technology Promotion 2 re-echo seminars 4 CMI staff participated in technology pitch day: 70 CMI staff trained in re-echo seminar 1 Regional Workshop on IP Audit 1 Regional Workshop on Prior Art Search 1 Regional Workshop on IP MasterClass (5-module) 1 Regional Workshop on Patent 1 Regional Workshop on Sustainability Planning 1 Policy Webinar with New CMIs Place: 4 Commercialization Agreement Signed 3 Commitment Letter	University of Southeastern Philippines (USEP)	Technology Generators/Inventors from CMI Technology Users and General Public Technology Investors/Vcs/Angels Technology Transfer, and RDRU Staff, from CMI Tech Commercialization Service Providers Local & International R&D/S&T Partners	1-Jan-2022	31-Dec-2023	Completed	2,935,374	1,350,564
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1-A: Developing IP-TBM in the Department of Agriculture's Bureau of Plant Industry-Davao National Crop Research, Development and Production Support Center (DA-BPI-DNCRDPSC) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Bureau of Plant Industry Davao (BPI) Purok 1, Bago Oahiro, Tugbok District, Davao City, Philippines / PCAARRD-GIA funding of Php 1,829,348.-00	Publication: At least 5 ECs Patent: At least 5 IP applications Product: 1 Inventory of IP assets (potential IPs & IPs filed) 4, prior art search reports 1 inventory of matured technologies 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology pitched 1 inventory of knowledge resources 1 product enhanced or co-incubated or market tested People: 2 CMI Staff Trained in IP MasterClass 2 CMI Staff Trained inTCMS 2 CMI Staff Trained in Agribusiness Master Class 2 CMI Staff Trained in Technology Promotion Mentorship 2 CMI Staff attended CommPlan Workshop 2 CMI Staff participated in the technology pitch day Conducted re-echo seminars	Bureau of Plant Industry-Davao National Crop Research Development and Production Support Center (BPI-DNCRDPSC)	Technology Generators/Inventors from CMI Technology Users and General Public Technology Investors/Vcs/Angels Technology Transfer, and RDRU Staff, from CMI Tech Commercialization Service Providers Local & International R&D/S&T Partners	1-Jan-2022	31-Dec-2023	Completed	1,829,348	884,674
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1-B: Enhancing IP-TBM in Davao de Oro State College (DdOSC) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Davao de Oro State College (DdOSC) Davao de Oro State College, Compostela, Compostela Valley Province Philippines / PCAARRD-GIA funding of Php 1,572,422.00.	Publication: 10 IECs Patent: At least 10 IP applications Product: At least 10 Prior Art Search Report 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 Inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology commercialized 2 technologies pitched People: 2 CMI Staff Trained in IP MasterClass TCMS Agribusiness Master Class Technology Promotion Mentorship CommPlan Workshop Technology Pitch Day Conducted re-echo seminar Trained at least 30 CMI staff in re-echo seminars Place: 1 Letter of Commitment from SUC/IRDI 1 Commercialization Agreement signed Policy: Review and Revision of IP Policy and Technology Transfer Protocol	Davao de Oro State College (DDOSC)	Faculty, students, and staff Industry partners Entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,572,422	756,207

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1C: Enhancing IP-TBM in Davao del Norte State College (DNSC) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Davao del Norte State College (DNSC) 8M7C+4C4P, Panabo, Davao del Norte/ Philippines / PCAARRD-GIA funding of Php 1,572,422.00	Publication: 10 IECs Patent: Atleast 10 IP Applications Product: At least 10 Prior Art Search Report 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 Inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology commercialized 2 technologies pitched People: 2 CMI Staff Trained in IP MasterClass TCMS Agribusiness Master Class Technology Promotion Mentorship CommPlan Workshop Technology Pitch Day Conducted re-echo seminar Trained at least 30 CMI staff in re-echo seminars Place: 1 Letter of Commitment from SUC/RDI 1 Commercialization agreement signed Policy: Review and Revision of IP Policy and Technology Transfer Protocol	Davao del Norte State College (DNSC)	Faculty, students, and staff Industry partners Entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,572,422	744,625
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1D: Enhancing IP-TBM in Davao Oriental State University(DorSU) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Davao Oriental State University (DORSU) Martinez Drive Guang-guang, Dahican, Mati, Philippines / PCAARRD-GIA funding of Php 1,572,422-00.	Publication: 10 IECs Patent: Atleast 10 IP Applications Product: At least 10 Prior Art Search Report 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 Inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology commercialized 2 technologies pitched People: 2 CMI Staff Trained in IP MasterClass TCMS Agribusiness Master Class Technology Promotion Mentorship CommPlan Workshop Technology Pitch Day Conducted re-echo seminar Trained at least 30 CMI staff in re-echo seminars Place: 1 Letter of Commitment from SUC/RDI 1 Commercialization agreement signed Policy: Review and Revision of IP Policy and Technology Transfer Protocol	Davao Oriental State University (DorSU)	Faculty, students, and staff Industry partners Entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,572,422	756,212
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1E: Enhancing IP-TBM in Davao del Sur State College (DSSC) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Davao Del Sur State College (DSSC) Davao del Sur State College, 8002 Digos, Philippines / PCAARRD-GIA funding of Php 1,572,422.00.	Publication: 10 IECs Patent: Atleast 10 IP Applications Product: At least 10 Prior Art Search Report 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 Inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology commercialized 2 technologies pitched People: 2 CMI Staff Trained in IP MasterClass TCMS Agribusiness Master Class Technology Promotion Mentorship CommPlan Workshop Technology Pitch Day Conducted re-echo seminar Trained at least 30 CMI staff in re-echo seminars Place: 1 Letter of Commitment from SUC/RDI 1 Commercialization agreement signed Policy: Review and Revision of IP Policy and Technology Transfer Protocol Improved services of IP Mindanao on IP management and technology transfer; Streamlined IPTBM processes and strategies by IP policies and technology transfer protocol; Strengthened partnership to potential adopters of technologies for joint R&D, promotion, and adoption.	Davao del Sur State College (DDSSC)	Faculty, students, and staff Industry partners Entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,572,422	739,464

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1-F: Developing IP-TBM in Kapalong College of Agriculture, Sciences, and Technology (KCAST) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Kapalong College of Agriculture, Sciences and Technology (KCAST) Quezon St., Maniki, Kapalong, Davao del Norte, Philippines / PCAARRD-GIA funding of Php 1,829,348-.00.	Publication: At least 5 ECs Patent: At least 5 IP applications Product: 1 inventory of IP assets (potential IPs & IPs filed) 4. prior art search reports: 1 inventory of matured technologies 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology pitched 1 inventory of knowledge resources 1 product enhanced or co-incubated or market tested People: 2 CMI Staff Trained in IP MasterClass 2 CMI Staff Trained in TCMS 2 CMI Staff Trained in Agribusiness Master Class 2 CMI Staff Trained in Technology Promotion Mentorship 2 CMI Staff attended CommPlan Workshop 2 CMI Staff participated in the technology pitch day Conducted re-echo seminars Trained at least 20 CMI staff in re-echo seminars Place: 1 letter of Commitment from SUC/RDI 1 Commercialization Policy: 1 Institutional IP Policies reviewed/ crafted 1 Technology Transfer Protocols reviewed/ crafted 1 Institutional IP Policies approved 1 Technology Transfer Protocol approved	Kapalong College of Agriculture Sciences and Technology (KCAST)	Technology Generators/Inventors from CMI Technology Users and General Public Technology Investors/VCS/Angels Technology Transfer, and RDRU Staff, from CMI Tech Commercialization Service Providers Local & International R&D/S&T Partners	1-Jan-2022	31-Dec-2023	Completed	1,829,348	852,804
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1-G: Developing IP-TBM in Department of Agriculture's Philippine Coconut Authority (DA-PCA) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Philippine Coconut Authority (DA-PCA) J & G bldg., National Highway corner Waloan Street, Brgy. Magugpo North, Tagum City, Philippines/ PCAARRD-GIA funding of P1p 1,829,348.00.	Publication: At least 5 ECs Patent: At least 5 IP applications Product: 1 inventory of IP assets (potential IPs & IPs filed) 4 prior art search reports 1 inventory of matured technologies 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology pitched 1 inventory of knowledge resources 1 product enhanced or co-incubated or market tested People: 2 CMI Staff Trained in IP MasterClass 2 CMI Staff Trained in TCMS 2 CMI Staff Trained in Agribusiness Master Class 2 CMI Staff Trained in Technology Promotion Mentorship 2 CMI Staff attended CommPlan Workshop 2 CMI Staff participated in the technology pitch day Trained at least 20 CMI staff in re-echo seminars Place: 1 letter of Commitment from SUC/RDI 1 Commercialization Policy: 1 Institutional IP Policies reviewed/ crafted 1 Institutional IP Policies BOR approved 1 Technology Transfer Protocols BOR approved 1 Technology Transfer Protocols reviewed/ crafted	Philippine Coconut Authority (PCA)	Technology Generators/Inventors from CMI Technology Users and General Public Technology Investors/VCS/Angels Technology Transfer, and RDRU Staff, from CMI Tech Commercialization Service Providers Local & International R&D/S&T Partners	1-Jan-2022	31-Dec-2023	Completed	1,829,348	858,681
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1-H: Developing IP-TBM in Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST) through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST) 0855-7Q7, Digos City, Davao del Sur Philippines / PCAARRD-GIA funding of P1p 1,829,348-.00.	Publication: 5 ECs Patent: At least 5 IP applications Product: 10 Prior Art Search Reports 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 technology with pre-commercialization reports (valuation, FS, market study) 1 Inventory of knowledge resources 2 technologies pitched 1 technology commercialized People: 2 DRC Staff Trained in IP MasterClass 2 DRC Staff Trained in TCMS 2 DRC Staff Trained in Agribusiness Master Class 2 DRC Staff Trained in Technology Promotion Mentorship 2 DRC Staff attended CommPlan Workshop 2 DRC Staff participated in the technology pitch day Trained at least 5 CMI staff in re-echo seminars Conducted re-echo seminars Place: 1 Letter of Commitment from SUC/RDI 1 Commercialization agreement signed Policy: Review/Revision and Approval of 1 IP Policy and 1 Technology Transfer Protocol	Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST)	Technology Generators/Inventors from CMI Technology Users and General Public Technology Investors/VCS/Angels Technology Transfer, and RDRU Staff, from CMI Tech Commercialization Service Providers Local & International R&D/S&T Partners	1-Jan-2022	31-Dec-2023	Completed	1,829,348	848,115

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 1: Enhancing IP-TBM in UP Mindanao through RAISE	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of the Philippines Mindanao (UPMin) University of the Philippines Mindanao; Mintal, Davao City / Philippines / PCAARRD-GIA funding of Php 1,572,422.60.	Publication: 10 IECs Patent: At least 10 IP Applications Product: At least 10 Prior Art Search Report 1 Inventory of IP assets (Potential IP) 1 product enhanced or co-incubated or market tested 2 Inventory of matured technologies 1 Inventory of knowledge resources 1 technology with pre-commercialization reports (valuation, FS, market study) 1 technology commercialized 2 technologies pitched People: 2 CMI Staff Trained in IP MasterClass TCMS Agribusiness Master Class Technology Promotion Mentorship CommPlan Workshop Technology Pitch Day Conducted re-echo seminar Trained at least 30 CMI staff in re-echo seminars Place: 1 letter of Commitment from SUC/RDI 1 commercialization agreement signed Policy: Review and Revision of IP Policy and Technology Transfer Protocol	University of the Philippines Mindanao (UPMin)	Faculty, students, and staff Industry partners Entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,572,422	750,287
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 2: Establishment of a Regional Agribusiness Hub (ABH) of SMAARRDEC in Davao Region	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Southeastern Philippines (USEP) University of Southeastern Philippines - Main; Bo. Obrero, Davao City / PCAARRD-GIA funding of Php 2,181,247.60	Publication: 1 Training Module (Agribusiness MasterClass) Patent: Copyright of training moduleProduct: 1 technology (of the SUC/Implementing Agency) with value proposition report; business plan; FS; market study; 1 product market-tested (of the SUC/Implementing Agency)People: 1 Regional Agribusiness MasterClass Trained 20 CMI Staff Assisted 9 CMIs/Mentees in pre-commercialization services (market study, business plan) Place: 2 Partnership agreementsRegional Agribusiness Hub institutionalized with business organization per RegionPolicy; Regional Agribusiness Hub institutionalized	University of Southeastern Philippines (USEP)	CMIs □	1-Jan-2022	31-Dec-2023	Completed	2,181,248	915,786
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 3: Establishment of a Regional Agri-Aqua Technology Business Incubation (ATBI) Hub of SMAARDEC in Davao Region	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Southeastern Philippines (USEP) University of Southeastern Philippines - Main; Bo. Obrero, Davao City Philippines / PCAARRD-GIA funding of Php 2,990,747.60.	Publication: 1 RATBH operations manual enhanced 1 Training Module (TCMS)Patent: 10 IP ApplicationsProduct: 1 Regional list of mature technologies at least 10 technologies adopted/co-incubated 1 Regional list of RATBH Curriculum/Services 1 product manufactured for pre-commercialization 1 product enhanced (development, packaging, branding) People: 1 Regional workshop on Inventory of Mature Technologies: 1 Regional workshop of RATBH Curriculum/Services 1 Regional Technology Commercialization Mentorship Series (TCMS) 5-module Trained 20 CMI Staff 1 Inventory of IP assets (potential IPs & IPs filed) 1 Inventory of knowledge resources At least 2 business pitching event, industry meetup, or networking event conducted or participated in At least 10 incubatees assisted/co-incubationPlace: At least 10 MOAs/MOUs with incubatees forgedFull implementation of IP policy and Technology Transfer ProtocolsPolicy: Full implementation of IP policy and Technology Transfer Protocols RATBH institutionalized RATBH-related policies of the University crafted and approved	University of Southeastern Philippines (USEP)	CMI Innovators	1-Jan-2022	31-Dec-2023	Completed	2,990,748	1,404,264
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanaos in AANR Initiatives through Regional Approach	Project 3A: USEP's Agri-Aqua Technology Business Incubation (ATBI) Facility and Services for Smart Farming, Pre and Post Harvest and Food Technologies through Regional Approach	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Southeastern Philippines (USEP) University of Southeastern Philippines - Main; Bo. Obrero, Davao City Philippines / PCAARRD-GIA funding of Php 5,045,017.60	Publication: 1 ATBI business plan developed1 ATBI operations manual developedAt least 10 ATBI curricula developedAt least 2 IEC or promotional materials for ATBI developedAt least 1 promotional video for ATBI developedAt least 10 IEC or promotional materials for incubatees developedAt least 2 promotional videos for incubatees developed1 ATBI sustainability plan developed and implemented1 ATBI communication plan developed and implemented Patent: At least 10 trademarks filedAt least 5 copyrights filedProduct: At least 10 technologies adopted by incubateesPeople: At least 10 incubatees assistedAt least 6 trainings for ATBI staff conducted or participated inAt least 10 trainings for incubatees conductedAt least 10 business plans for incubatees developedAt least 3 awareness seminars or promotional activities conductedAt least 3 business pitching events, industry meetups, or networking events conducted or participated inATBI operations fully integrated to PCAARRD's ATBI real-time monitoring systemPlace: At least 10 MOAs/MOUs with incubatees forgedAt least 6 MOAs/MOUs with organizations from public and private sectors forgedPolicy: ATBI institutionalizedATBI-related policies of the University crafted and approved	University of Southeastern Philippines (USEP)	Start-up Entrepreneurs Faculty, □ Students	1-Jan-2022	31-Dec-2023	Completed	5,045,018	2,101,727

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Mindanao: UGMARA: Uplifting the Grassroot-based Mindanones in AARN Initiatives through Regional Approach	Project 4: Establishment of a Regional Knowledge Management (KM) Hub of SMAARDEC in Davao Region	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Southeastern Philippines (USEP - College of Agriculture - Tagum; Apokon, Tagum City / Philippines / PCAARRD-GIA funding of Php 1,897,997.60.	Publication: At least 10 IECs/Patent; 2 Copyright of IEC/Product; 1 Regional CommPlan and updated 1 Regional inventory of knowledge resources 1 e-library and enhanced 1 RTMS established 1 technology pitch deck/People: Regional workshop on the communication plan preparation and inventory of knowledge resources Technology Promotions Mentorship (IEC and technology pitch deck) 2-module 2 Regional Technology Pitch Day Trained 20 CMI staff on technology promotions/Place: 1 Partnership agreement with KM group/consultant per Region/Policy: N/A	University of Southeastern Philippines (USEP)	CMIs	1-Jan-2022	31-Dec-2023	Completed	1,897,998	913,745
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1: Establishing and Operationalizing Regional Intellectual Property and Technology Business Management (IPTBM) Office at the Southern Tagalog Agriculture, Aquatic and Resources Research, Development and Extension Consortium (Old Title: Sustaining CvSU IP-TBM Office and Enhancing IP-TBM Offices Among Member Agencies of the Southern Tagalog Agriculture, Aquatic and Resources Research, Development and Extension Consortium (STAARDEC))	Integrity of the environment and climate change adaptation and mitigation	RAISE hopes for a favorable environment for local inventions, including the shaping of innovative mindsets, enhanced policies to create a more level playing field and shared communication infrastructure such as new networks and linkages between members of the system; new resources, including information; new know-how; a workforce with enhanced skills specific to particular innovation niches. RAISE calls for the commitment of the actors in the innovation ecosystem to collaborate together to build a competitive agri-aqua innovation ecosystem that maximizes the potential of every S&T innovation. RAISE aims to contribute in the strengthening of the PCAARRD™s Regional Consortia through Regional Capacity Building and Mentorship; Agri-Technology Business Development; IP Management; Strategic Partnership and Collaboration; and Enhanced Knowledge Management.	Publication: CvSU: At least 4 promotional IECs for SUC/RDI technologies At least 2 consolidated technical reports (with report of income from commercialization agreements) At least 2 activity evaluation and documentation reports. □ 5 training evaluation and documentation reports (Ip Master class Modules 1-5) □ 1 Training Module Participating CMIs: At least 100 promotional IECs for SUC/RDI technologies/Patent: CvSU: At least 20 IP Applications (patent and UM) Participating CMIs: At least 100 IP (patent and UM) applications/Product: CvSU: 1 updated inventory of IP Assets & 1 Regional Priority R & D. □ 1 Regional list of potential IP- ,s. □ 4 PAS reports of R&D projects and IP applications. □ At least 2 technologies (products, processes, and systems) Commercialized. □ 1 Regional Sustainability Plans Participating CMIs: 20 updated inventories of IP assets 60 Prior Art Search (PAS) reports. □ 20 technologies pitched. □ 10 technology with pre-commercialization plan. □ 10 product enhanced or co-incubated/People: CvSU: At least 2 IP-TBM staff extensively trained under the IP Master Class (modules 1-5). □ At least 2 exploratory meetings/workshopping events and technology promotion activities conducted by the SUC. □ At least 2 technology taker-adopters. At least 20 SUC trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM-Mentor staff as trainer/speaker. □ 1 Regional workshop on IP audit/inventory. □ 1 regional workshop on prior art search. □ 1 Regional IP Masterclass (5 module). □ 1 Policy Webinar/workshop (new CMI- ,s) □ 1 commercialization agreement Participating CMIs:	Cavite State University (CvSU)	Intellectual Property and Technology Business Management (IP-TBM) of selected SUCs/RDIs Technology transfer officers/managers SUC/RDI Researchers/Inventors Technology takers	1-Jan-2022	31-Dec-2023	Completed	8,590,157	3,190,599
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1A. Enhancing the IP-TBM in Cavite State University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Cavite State University in Cavite State University, Bancod Indang, Cavite with a total PCAARRD-GIA funding of Php 1,402,853-. The project aims To sustain the Intellectual Property and Technology Business Management Office at Cavite State University. The project shall deal with the challenges of sustainability of the IP-TBM™s initial efforts in protecting and managing intellectual properties (IP) and pursuing technology commercialization. The project will implement a mentor-mentee-regional approach to further enhance the innovation ecosystem in the agriculture, aquatic, and natural resources sectors.	Publication:10 IECs/Patent:10 IP Applications/Copyright of IEC/Product:10 PAS Reports/1 IP inventory/1 inventory of matured technologies/1 inventory of knowledge resources/1 communication plan/1 technology with pre-comm reports/ product enhanced (prototyping, development, packaging, branding)/1 product pre-comm manufactured or technologies pitched/1 Technology Commercialized/People:2 CMI staff attended Prior Art Search & IP Audit Workshop/2 CMI staff trained in IP MasterClass/2 CMI staff trained in Agribusiness MasterClass/ CMI staff trained in TMS/2 CMI staff trained in TechPromotion Mentorship/2 CMI staff attended CommPlan Workshop/Content:1 re-echo seminar/Trained at least 30 CMI staff in re-echo seminars/Participate to content build up of RTMS/Place:1 Commitment Letter/1 partnership agreement w/Business/Trade Institutions/1 Commercialization Agreement/Policy:1 Full implementation of IP policy and technology transfer protocol (with internal memos, AOs)	Cavite State University (CvSU)	Intellectual Property and Technology Business Management (IP-TBM) of CvSU/Technology transfer officers/managers/SUC/RDI Researchers/Inventors/Technology takers	1-Jan-2022	31-Dec-2023	Completed	620,803	773,550
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1B. Enhancing the IP-TBM in Southern Luzon State University (SLSU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Southern Luzon State University (SLSU) in QUEZON CITY 2 NCR (Eastern Manila District) NATIONAL CAPITAL REGION (NCR)and BOLINAO 1 PANGASINAN REGION 01 (ILOCOS REGION) PCAARRD-GIA funding of Php 1,601,030.00~. SLSU ITSSO, with the support of the administration, seeks to not only enhance its Intellectual Property and Technology Business Management Activities, but also proceed to the next level and conduct Technology Transfer and Commercialization Activities, network with its regional HEI IPTBM counterparts, and establish its own ATBIs. Through RAISE, SLSU hopes to fully commercialize its technologies protected through SUSTAIN IPTBM.	Publication *At least 5 IECs of SLSU technologies and one (1) Sustainability Plan/Product * five (5) Prior art search reports, one (1) inventory of potential IP, one (1) inventory of IP Assets, one (1) inventory of mature technologies, one (1) technology with pre-commercialization reports, one (1) inventory of Knowledge Resources, and one (1) technology commercialized/People and Services * At least one (1) trained personnel on Regional Prior Art Search and IP Audit Workshop, at least one (1) personnel trained in the regional IP Master Class, At least one (1) personnel trained in Regional Agribusiness Master Class, At least one (1) personnel trained in Technology Commercialization Mentorship Series, At least one (1) personnel presenting/pitching at the Regional Pitch Day/Place and Partnership * At least one (1) commercialization agreement signed and one (1) partnership agreement with Business Groups/Trade Institutions/Policy * One (1) University Intellectual Property Policy presented/approved by the BOR and One (1) Technology Transfer Protocol presented/approved by the BOR	Southern Luzon State University (SLSU)	This project will benefit SLSU personnel, students, and its clientele communities.	1-Jan-2022	31-Dec-2023	Completed	876,515	706,991
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1C. Enhancing the IP-TBM in University of Rizal System (URS)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of Rizal System (URS) in URS Morong Campus, Sumulong St. Brgy. San Juan Morong, Rizal, Region 4A/ PCAARRD-GIA funding of Php 1,601,030.00~. The URS being tapped to implement a project component, titled, øEnhancing Technology Transfer through Intellectual Property Technology Business Management, has started doing the tasks in accordance with the targets and memorandum of agreement for the project. While the project has already achieved some of its initial objectives, technology transfer and commercialization remains the most significant challenge for the University. The Regional Agri-Aqua Innovation System Enhancement (RAISE) program hopes to deliver another opportunity to direct the SUCs mission to reflect a more significant role of delivering its function as what has been reflected in their respective vision and mission.	Publication:The Project is expected to publish 10 IECs/Patent/10 IPs are expected to be filed at IPOPHL/Product:1 inventory of IP Assets (potential IP & IP filed)/ inventory of matured technologies/1 product enhanced, co-incubated or market tested/1 technology commercialized/1 inventory of matured technologies/2 technologies pitched/2 technologies pitched/1 inventory of knowledge resources/1 technology with pre-commercialization reports (valuation, FS, market study/People:2 URS Staff Trained in IP Master Class/2 URS Staff Trained in TMS/Conducted re-echo seminar/URS Staff Trained in Agribusiness Master Class/Trained least 30 URS personnel in re-echo seminars/ URS Staff Trained in Technology Promotion Mentorship/2 URS Staff attended CommPlan Workshop/2 URS Staff participated in the Technology Pitch Day/Place:2 networking meetings conducted/2 networking meetings conducted/1 partnership established/1 commercialization agreement signed/Policy:The Project has to execute the full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	University of Rizal System (URS)	The project is intended for the URS stakeholders, innovators and technology adopters. It will also involve those individuals who are engaged in Science and Technology-related activities. It is also applies to all personnel engaged in the development of agri-aqua research-based technology that may be made available to investors or technology adopters for potential commercialization partnerships. -Faculty members (teaching and non-teaching); - Researchers (part time/ full time faculty, staff and students); Visiting faculty; -External researchers; -Other government, private and industry sectors	1-Jan-2022	30-Jun-2024	Ongoing	876,515	710,537
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1D. Enhancing the IP-TBM in Marinduque State College (MSC)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Marinduque State College (MSC) in Tanza, Boac, Marinduque PCAARRD-GIA funding of Php 1,601,030.00~. This project project calls for the enhancement of IP-TBM at Marinduque State College that will assist in protecting and managing Intellectual Properties (IP) and pursuing technology commercialization. The college will conduct capacity-building activities to encourage Intellectual Property (IP) Applications, full implementation of IP Policy and Technology Transfer Protocol, and execute licensing agreements for technology commercialization.	Publication:At least 10 Promotion IEC Materials/Patents/At least 10 IP Applications (Patent and UM)/Products/At least 10 Prior Art Search conducted/1 Inventory of IP Assets (potential and IP & IP filed)/1 inventory of mature technologies/1 inventory of knowledge resources/2 technologies pitched/1 technology with pre-commercialization reports/ product enhanced or co-incubated or market tested/1 technology commercialized/2 technologies pitched/People and Services/1 IP MasterClass/least 2 SUC Staff trained in TMS/At least 2 SUC Staff Trained in Agribusiness Master Class/At least 2 SUC Staff trained in Technology Promotion Mentorship/At least 2 SUC Staff trained in CommPlan Workshop/At least 2 CMI Staff participated in the Technology Pitch Day/Place: At least 30 SUC Staff trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainer/speaker/Places and Partnerships/1 commitment letter/1 commercialization agreement/Policy:full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Marinduque State College (MSC)	The target beneficiaries of the project are researchers and innovators from Marinduque State College (MSC) who seek to protect their technologies and innovations for technology commercialization.	1-Jan-2022	30-Jun-2024	Ongoing	876,515	706,261

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1E. Enhancing the IP-TBM in Batangas State University (BatStateU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Batangas State University (BatStateU) in Batangas State University, Rizal Avenue Batangas City PCAARRD-GIA funding of Pp 1,601,030.00-. The IP-TBM program aims to strengthen the capacities of selected SUCs and RDIs on IP and technology business management to enhance their technology commercialization activities. IP-TBMs are technology transfer offices that are envisioned to mirror the initiatives of the DPTTC, which serves as a one-stop hub for technology owners and generators, investors, end-users, and other stakeholders within the AANR innovation system.	PublicationsAt least 10 Promotion IEC MaterialsPatentsAt least 10 IP Applications (Patent and UM)ProductsAt least 10 Prior Art Search conducted1 Inventory of IP Assets (potential and IPs & PIs filed)1 Inventory of mature technologies1 Inventory of knowledge resources2 technologies pitched1 technology with pre-commercialization reports1 product enhanced or co-incubated or market tested1 technology commercialized2 technologies pitchedPeople member institutionsAANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs) and international partnersPotential entrepreneurs	Batangas State University (BatState-U)	The target beneficiaries of this project include the following individuals, groups, and organizations:Existing ATBI in Region IV and its personnelOther consortium member institutionsAANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs) and international partnersPotential entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	876,515	673,084
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1F. Enhancing the IP-TBM in Rizal Technological University (RTU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Rizal Technological University (RTU) in Cavite State University - Main : Bancod, Indang, Cavite / 046 482 201 / PCAARRD-GIA funding of Pp 1,601,030.00-. The IP-TBM program aims to strengthen the capacities of selected SUCs/RDIs on IP and technology business management to enhance their technology commercialization activities. RTU™s IP-TBM is now on its second year of implementing its mandate of increasing IP awareness among members of the RTU community and at the same time capacitating them with knowledge about IP, protection, technology transfer, and commercialization potential of their IPs.	Publications: 5 ECs5 IECsPatent2 IP applications3 IP applications2 IP applications3 IP applicationsProduct: 1 Inventory of potential IP assets (filed)1 technology pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 prior art search reports1 product enhanced or co-incubated or market tested3 prior art search reports1 technology commercialized1 inventory of mature technologies1 technology pitchedPeople2 staff trained in IP Master Class2 staff trained in TCM52 staff trained participated in the technology pitch dayConducted re-echo seminars Trained at least 30 staff in re-echo seminarsPlace: 1 commitment letter1 commercialization agreementPolicyFull implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Rizal Technological University (RTU)	The target beneficiaries of this project will be the SUC, student, faculty and staff researchers and innovators, the technology takers.	1-Jan-2022	31-Dec-2023	Completed	876,515	695,391
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1G. Enhancing the Intellectual Property and Technology Business Management (IP-TBM) in Laguna State Polytechnic University (LSPU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Laguna State Polytechnic University (LSPU) in Cavite State University - Main : Bancod, Indang, Cavite / 046 482 201 / PCAARRD-GIA funding of Pp 1,601,030.00-. At present, LSPU has already established and set the operation of the IP-TBM. It works hand on hand with Innovation Technology Support Office (ITSO) and the Technology Business Incubation (TBI) Office.	Publications: 10 IECsPatent:10 IP ApplicationsCopyright of IECsProduct:10 PAS Reports 1 IP Inventory1 Inventory of mature technologies1 Inventory of knowledge resources1 communication plan1 technology with pre-comm reports1 product enhanced (prototyping, developed, packaging, branding) 1 product pre-comm manufactured technologies pitched1 Technology CommercializedPeople2 CMI staff attended Prior Art Search & IP Audit Workshop 2 CMI staff trained in IP MasterClass2 CMI staff trained in Agribusiness MasterClass2 CMI staff trained in TCM52 CMI staff trained in TechPromotion Mentorship2 CMI staff attend CommPlan WorkshopConducted 1 re-echo seminarTrained at least 30 CMI staff in re-echo seminars Participate to content build up of RTMSPPlace:1 Commitment Letter1 partnership agreement w/Business/Trade Institutions 1 Commercialization AgreementsPolicyFull implementation of IP policy and technology transfer protocol (with internal memos, AOs)	Laguna State Polytechnic University (LSPU)	The project is intended for the LSPU stakeholders, innovators and technology adopters. It will also involve those individuals who are engaged in Science and Technology- related activities. It also applies to all personnel engaged in the development of Agri-aqua research-based technology that may be made available to investors or technology adopters for potential commercialization partnerships.Faculty members (teaching and non-teaching); Researchers (part time/ full time faculty, staff and students);Visiting faculty;External researchers and;Other government, private and industry sectors	1-Jan-2022	31-Dec-2023	Completed	488,950	705,515
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1H. Enhancing the IP-TBM in Forest Products Research Development Institute (FPRDI)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Forest Products Research Development Institute (FPRDI) in Narra Rd., Forestry Campus, College, Los Baños, Laguna PCAARRD-GIA funding of Pp 1,194,465.00-. This project primarily aims to enhance and strengthen FPRDI™s capacity for a more effective and efficient IP management and commercialization system by providing its women and men engaged in technology transfer activities opportunities to hone their knowledge and skills thru high-level trainings and mentorship programs.	Publications1 ATBI business plan revised as needed1 ATBI operations manual revised as neededAt least 10 ATBI basic incubation curricula revised as neededAt least 6 ATBI advanced incubation curricula developedAt least 2 IEC or promotional materials for ATBI developedAt least 1 promotional video for ATBI developed and updatedAt least 16 IEC or promotional materials for incubatees developedAt least 2 promotional videos for incubatees developed1 ATBI sustainability plan revised as needed1 ATBI communication plan developed and implementedPatentsAt least 10 trademarks filedAt least 10 copyrights filedProductsAt least 10 technologies adopted by new incubateesAt least 6 technologies adopted by continuing incubateesAt least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing AgreementPeople and ServicesAt least 10 new incubatees enrolled at basic incubation programAt least 6 continuing incubatees enrolled at advanced incubation programAt least 6 continuing incubatees graduated from advanced incubation programAt least 6 startups or spinoffs registered and launchedAt least 6 trainings for ATBI staff conducted or participated inAt least 10 trainings for incubatees conductedAt least 10 business plans for new incubatees developedAt least 6 business plans for continuing incubatees improvedAt least 4 awareness seminars or promotional activities conductedAt least 4 business pitching events, industry meetings, or networking events conducted or participated inATBI operations fully integrated to PCAARRD's ATBI real-time monitoring systemAt least 2 consortium member-agencies mentioned on ATBI operationsPlaces and PartnershipsAt least 10 MOAs/MOUs with new incubatees forgedAt least 6 MOAs/MOUs with continuing incubatees renewedAt least 10 MOAs/MOUs with organizations from public and private sectors forgedRenewed PoliciesATBI institutionalized with approved Board ResolutionATBI-related policies of University revised as neededSocial ImpactBaseline metrics to assess the social impact of ATBI to incubatees formulatedEconomic impact of ATBI to incubatees assessedInnovation ecosystem improvedContributed to the leveling of UniversityEconomic ImpactBaseline metrics to assess the economic impact of ATBI to incubatees formulatedEconomic impact of ATBI to each incubatees assessedGross and net income generated by incubatees determinedJobs generated by incubatees determinedGross and net income generated by ATBI determinedJobs generated by ATBI determinedBusiness valuation of startups or spinoffs determinedEconomic condition of the region improved	Forest Products Research and Development Institute (DOST-FPRDI)	Existing IPTBM in Region IV and its personnelOther consortium member institutionsAANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs) and international partnersPotential entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	488,950	704,585
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 1I. Establishing and Operationalizing the IP-TBM in Romblon State University (RSU)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Romblon State University (RSU) in Romblon State University, Odiongan, Romblon PCAARRD-GIA funding of Pp 1,800,955.00-. This project specifically proposes to capacitate the RSU KMITTO and establish the IP-TBM in order to strengthen IP management and promote techno transfer activities in the University by updating its IP Policy and crafting the University™s Techno Transfer protocol for the approval of the RSU Board of Regents.	People and Services2 CMI Staff Trained in IP Master Class2 CMI Staff Trained in TCM52 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 20 CMI staff in re-echo seminarsProducts1 inventory of IP assets (potential IPs & PIs filed)1 inventory of mature technologies1 inventory of knowledge resources4 prior art search reports1 technology with pre-commercialization reports (valuation, FS, market study)1 technology pitched1 product enhanced or co-incubated or market testedAt least 1 technology commercializedPublications5 IECsPatentAt least 5 IP ApplicationsPolicy1 Institutional IP Policies reviewed1 Technology Transfer Protocols crafted1 Institutional IP Policies BOR approved1 Technology Transfer Protocols BOR approved	Romblon State University (RSU)	The target beneficiaries of this project will be the SUC, student, faculty and staff researchers and innovators, the technology takers.	1-Jan-2022	31-Dec-2023	Completed	987,940	812,715
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 2. Regional Agri-business Hub in Southern Tagalog Agriculture and Resources Research and Development Consortium	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 24 months (January 01, 2022 - December 31, 2023) by Cavite State University in Cavite State University - Main : Indang, Cavite with a total PCAARRD-GIA funding of Pp 2,217,497.60. The project aims to further enhance and develop the agribusiness sector of the region by initially providing and creating training modules, establishing value proposition reports of certain technologies, business plans and assessment of their feasibility. The project will also implement training activities that aim to train a specific number of CMI staff. Furthermore, other initiatives of the project are geared towards establishing partnership with business organizations in every region of the country and to institutionalize the Regional Agribusiness Hub as the project hopes to further contribute to the sustainability of escalating the agri-aqua innovation sector in the Philippines.	Publications: 1 Training Curriculum/Module (Agribusiness Master Class) Patent: NoneProducts: 1 technology (of the SUC/Implementing Agency) with value proposition report; business plan; FS; market study 1 product market tested (of the SUC/Implementing Agency) People: 1 Regional Agribusiness Master Class 20 CMI staff trained 20 CMI staff trained 20 CMI staff assisted in pre-commercialization services (market study, business plan) Place: 1 Partnership agreement with business organization Policy: Regional Agribusiness Hub institutionalized	Cavite State University (CvSU)	The project direct beneficiaries are the selected staff of the member institutions of the STAARRDEC. Indirect beneficiaries of the project include prospective agri-entrepreneurs, business investors, faculty members and students as well as consumers of agricultural products.	1-Jan-2022	31-Dec-2023	Completed	1,182,493	916,163

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 3: Regional Agri-Aqua Technology Business Incubation (ATBI) Program in Southern Tagalog Agriculture, Aquatic and Resources Research, Development and Extension Consortium (STAARDEC)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Cavite State University (CvSU) in Cavite State University, Bancod Indang, Cavite PCAARRD-GIA funding of Php 5,217,824.00. The ATBI program plays a significant role in expediting the development in the region by nurturing creativity, innovation, and entrepreneurship. Hence, it is imperative for the Consortium to strengthen and expand the operationalization of ATBI in the region through properly managing AANR technologies and intellectual properties, upgrading capacity of existing incubators and mentoring potential incubators, and fostering partnership with other agencies.	<p>Publication:</p> <ul style="list-style-type: none"> 1 Training Module (TCMS) At least 3 ATBI advanced incubation curricula developed At least 2 EC materials produced At least 1 promotional video for ATBI developed and updated At least 10 ATBI basic incubation curricula revised as needed At least 6 ATBI advanced incubation curricula developed At least 2 EC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed and updated At least 16 EC or promotional materials for incubatees developed At least 2 promotional videos for incubatees developed 1 ATBI sustainability plan revised as needed <p>Patent:</p> <ul style="list-style-type: none"> 10 IP applications At least 4 trademarks filed At least 2 P applications At least 10 trademarks filed At least 4 copyrights filed At least 10 copyrights filed <p>Product:</p> <ul style="list-style-type: none"> 1 Regional list of mature technologies At least 1 technology commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement 1 product enhanced (development, packaging, branding) At least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement 1 product enhanced (development, packaging, branding) 1 product manufactured for pre-commercialization <p>People:</p> <ul style="list-style-type: none"> 1 Regional workshop on inventory of mature technologies At least 4 new incubatees enrolled at basic incubation program At least 2 new incubatees enrolled at basic incubation program 	Cavite State University (CvSU)	The target beneficiaries of this project include the following individuals, groups, and organizations: Existing ATBI in Region IV and its personnel Other consortium member institutions AANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs) and international partners Potential entrepreneurs	1-Jan-2022	31-Dec-2023	Completed	1,526,536	3,689,225
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 3A: Enhancing the DOST-PCAARRD ATBI of the Laguna State Polytechnic University (LSPU) through STAARDEC-RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Laguna State Polytechnic University (LSPU) in Laguna State Polytechnic University - Main: L. De Leon St. Siniloan / Philippines PCAARRD-GIA funding of Php 1,702,735-. LSPU-ATBI aims to set up a dynamic and active entrepreneurial ecosystem as key support to promote entrepreneurship and innovation by dedicating a space for ideation and business modeling; providing opportunities for learning and a venue to inspire and encourage engagement from the community and to promote the following thrust areas which have potential for faster growth namely: (1) Agriculture, (2) Fisheries and (3) Natural Food Products.	<p>Publication:</p> <ul style="list-style-type: none"> ATBI business plan or operations manual enhanced At least 2 EC materials produced Patent At least 2 P applications Trademark Product At least 2 technologies adopted by continuing incubatees 1 product enhanced (development, packaging, branding) People At least 2 new incubatees enrolled at basic incubation program At least 2 business plans for continuing incubatees improved At least 5 LSPU-ATBI Staff to participate in the Regional Technology Commercialization Mentorship Series (TCMS) 5-module At least 2 business pitching events, industry meetups, or networking events conducted or participated in At least 1 consortium member-agency mentored on ATBI operations At least 4 MOAs/MOUs with incubatees forged At least 2 MOAs/MOUs with incubatees forged At least 2 MOAs/MOUs with continuing incubatees renewed At least 2 MOAs/MOUs with organizations from public and Policy Adopt the full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs) Enhanced ATBI Business Plan Operations Manual 	Laguna State Polytechnic University (LSPU)	The target beneficiaries of this project include the following individuals, groups, and organizations: DOST-PCAARRD-LSPU-ATBI Project Team and potential incubatees Other consortium member institutions AANR stakeholders from the academe, public, and private sectors, non-government organizations (NGOs), and international partners Potential industry adopters and networks	1-Jan-2022	31-Dec-2023	Completed	265,600	1,432,415
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 3B: Enhancing the DOST-PCAARRD ATBI of the FPRDI through STAARDEC-RAISE	Integrity of the environment and climate change adaptation and mitigation	The establishment of TBI was also identified as one of four strategies in the Philippine National Innovation Strategy (Filipinovation), 2001, 2001'2010 and is also one of the technology transfer mechanisms identified in the DOST Technology Transfer Protocol. A TBI attached to FPRDI's commercialization program can help MSMEs struggling to take off by providing temporary office space, factory facilities and various services. Access to technical and marketing support will also be within their reach, thus increasing their chances of a sustainable adoption of our technology. It is the TBI's aim to create jobs, develop entrepreneurs, and promote public-private partnership for regional economic development. FPRDI's ATBI will benefit from the support being offered by DOST-PCAARRD's RAISE Program. Under this program it is envisioned that the technology transfer mechanism of the Institute will be strengthened and the commercialization of its technologies, accelerated to benefit more AANR enterprises in the Region.	<p>SPS & 2B's 1/27/2016</p> <p>Publication:</p> <ul style="list-style-type: none"> ATBI business plan revised as needed 1 ATBI business plan revised as needed At least 5 ATBI operations manual revised as needed 1 ATBI operations manual revised as needed At least 5 ATBI basic incubation curricula revised as needed At least 10 ATBI basic incubation curricula revised as needed At least 6 ATBI advanced incubation curricula developed At least 1 EC or promotional material for ATBI developed At least 1 EC or promotional material for ATBI developed At least 2 EC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed At least 1 promotional video for ATBI updated At least 11 EC or promotional materials for incubatees developed At least 5 EC or promotional materials for incubatees developed At least 1 promotional video for incubatees developed At least 1 promotional video for incubatees developed At least 2 promotional videos for incubatees developed 1 ATBI sustainability plan revised as needed 1 ATBI communication plan developed and implemented 1 ATBI communication plan implemented 1 ATBI communication plan developed and implemented Patents At least 10 trademarks filed At least 10 trademarks filed At least 10 trademarks filed At least 10 trademarks filed At least 5 technologies adopted by new incubatees At least 6 technologies adopted by continuing incubatees At least 1 technology commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement At least 2 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement At least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement People and Services At least 5 new incubatees enrolled at basic incubation program span style="font-size: 10pt; font-family: 'Arial Narrow', sans-serif; color: rgb(0, 0, 0); background-color: tra 	Forest Products Research and Development Institute (DOST-FPRDI)	xxx	1-Jan-2022	30-Jun-2024	Ongoing	2,656,418	2,286,048
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Southern Tagalog	Project 4: Enriching Knowledge Management Among Member Agencies of the Southern Tagalog Agriculture and Aquatic Resources Research, Development and Extension Consortium (STAARDEC)	Integrity of the environment and climate change adaptation and mitigation	Regional KM Management in Southern Tagalog	<p>Publication:</p> <ul style="list-style-type: none"> 9 brochures 9 posters <p>Patent:</p> <ul style="list-style-type: none"> 9 videos <p>Product:</p> <ul style="list-style-type: none"> 1 inventory of knowledge resources of CMB 1 database with real-time monitoring system <p>People:</p> <ul style="list-style-type: none"> 1 workshop on communication planning 1 workshop on EC production 1 workshop on digital marketing <p>Place:</p> <ul style="list-style-type: none"> 1 networking event <p>Policy:</p> <ul style="list-style-type: none"> 1 protocol on the use of database 	Cavite State University (CvSU)	The target beneficiaries of this project include the following individuals, groups, and organizations: Intellectual Property and Technology Business Management (IP-TBM) of selected SUCs/RDIs Technology transfer officers/managers SUC/RDI Researchers/Inventors Knowledge Management Staff of CMBs Interested Investors General Public	1-Jan-2022	31-Dec-2023	Completed	1,024,004	860,314

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-B. Enhancing Technology Transfer through RAISE in Aklan State University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Aklan State University (ASU) Banga - Libacaw Hwy, Banga, 5601 Aklan / Philippines / PCAARRD-GIA funding of Php 1,600,000.00.	Expected Outputs (6Ps):Publication:Version 110 IECaPatent:Version 110 IP Applications/Product:Version 110 PAS Reports1 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 technologies pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 product enhanced or co-incubated or market tested1 technology commercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 30 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Aklan State University (ASU)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	754,376
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-C. Enhancing Technology Transfer through RAISE in Central Philippines State University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Central Philippines State University (CPSU) VV3R+24W, cpsu admin, Kabankalan / PCAARRD-GIA funding of Php 1,600,000.00.	Expected Outputs (6Ps):Publication:Version 110 IECaPatent:Version 110 IP Applications/Product:Version 110 PAS Reports1 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 technologies pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 product enhanced or co-incubated or market tested1 technology commercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 30 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Central Philippine State University (CPU)	Target Beneficiaries: Version 1The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	761,076
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-D. Enhancing Technology Transfer through RAISE in Guimaras State College	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Guimaras State University (GSU) JH9V+GJ8, Guimaras Circumferential Rd, Jordan, Guimaras / Philippines / PCAARRD-GIA funding of Php 1,600,000.00.	Expected Outputs (6Ps):Publication:Version 110 IECaPatent:Version 110 IP Applications/Product:Version 110 PAS Reports1 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 technologies pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 product enhanced or co-incubated or market tested1 technology commercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 30 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Guimaras State College (GSC)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	766,226
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-E. Enhancing Technology Transfer through RAISE in Northern Iloilo Polytechnic State College	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Northern Iloilo Polytechnic State College (NIPSC) F554+F6X, Cudilla Ave, Estancia, Iloilo / Philippines / PCAARRD-GIA funding of Php 1,600,000.00.	Expected Outputs (6Ps):Publication:Version 110 IECaPatent:Version 110 IP Applications/Product:Version 110 PAS Reports1 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 technologies pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 product enhanced or co-incubated or market tested1 technology commercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 30 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	Northern Iloilo State University (NISU)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	766,225
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-F. Enhancing Technology Transfer through RAISE in University of Antique	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by University of Antique (UA) Sibolan, 5713 Antique / Philippines / PCAARRD-GIA funding of Php 1,600,000.00.	Expected Outputs (6Ps):Publication:Version 110 IECaPatent:Version 110 IP Applications/Product:Version 110 PAS Reports1 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 technologies pitched1 technology with pre-commercialization reports (valuation, FS, market study)1 product enhanced or co-incubated or market tested1 technology commercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 30 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA/Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs)	University of Antique (UA)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,600,000	738,524
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-G. Developing Technology Transfer through RAISE in Carlos Hilado Memorial State College	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Carlos Hilado Memorial State College (CHMSC) Mabini St, Talisay City, Negros Occidental, Talisay City 6115/ Philippines / PCAARRD-GIA funding of Php 1,800,000.00.	Expected Outputs (6Ps):Publication:Version 15 IECaPatent:Version 15 IP Applications/Product:Version 11 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 prior art search reports1 technology with pre-commercialization reports (valuation, FS, market study)1 technology pitched1 product enhanced or co-incubated or market testedAt least 1 Technology CommercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 20 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA1 Institutional IP Policies reviewed/ crafted1 Institutional IP Policies BOR approved1 Technology Transfer Protocols reviewed/ crafted1 Technology Transfer Protocols BOR approved	Carlos Hilado Memorial State University (CHMSU)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,800,000	746,268
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1-H. Developing Technology Transfer through RAISE in Iloilo Science and Technology University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by Iloilo Science and Technology University (ISATU) PH88+5G9, Burgos St, La Paz, Iloilo City, Iloilo/ Philippines / PCAARRD-GIA funding of Php 1,800,000.00.	Expected Outputs (6Ps):Publication:Version 15 IECaPatent:Version 15 IP Applications/Product:Version 11 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 PAS Reports1 technology with pre-commercialization reports (valuation, FS, market study)1 technology pitched1 product enhanced or co-incubated or market testedAt least 1 Technology CommercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 20 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA1 Institutional IP Policies reviewed/ crafted1 Institutional IP Policies BOR approved1 Technology Transfer Protocols reviewed/ crafted1 Technology Transfer Protocols BOR approved	Iloilo Science and Technology University (ISAT-U)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,800,000	769,441
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1I. Developing Technology Transfer through RAISE in West Visayas State University	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 * December 30, 2022) by West Visayas State University (WVSU) Luna St, La Paz, Iloilo City, 5000 Iloilo/ Philippines / PCAARRD-GIA funding of Php 1,800,000.00.	Expected Outputs (6Ps):Publication:Version 15 IECaPatent:Version 15 IP Applications/Product:Version 11 inventory of IP assets (potential PIs & PIs filed)1 inventory of matured technologies1 inventory of knowledge resources4 prior art search reports1 technology with pre-commercialization reports (valuation, FS, market study)1 technology pitched1 product enhanced or co-incubated or market testedAt least 1 Technology CommercializedPeople/NA2 CMI Staff Trained in IP MasterClass2 CMI Staff Trained inTCM2 CMI Staff Trained in Agribusiness Master Class2 CMI Staff Trained in Technology Promotion Mentorship2 CMI Staff attended CommPlan Workshop2 CMI Staff participated in the technology pitch dayConducted re-echo seminarsTrained at least 20 CMI staff in re-echo seminarsPlace:Version 11 commitment letter1 commercialization agreement signedPolicy/NA1 Institutional IP Policies reviewed/ crafted1 Technology Transfer Protocols reviewed/ crafted1 Institutional IP Policies BOR approved1 Technology Transfer Protocols BOR approved	Western Visayas State University (WVSU)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,800,000	776,793

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 1J. Developing Technology Transfer through RAISE in Iloilo State College of Fisheries	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Iloilo State College of Fisheries (ISCOF) Barotac Nueva, 5007 Iloilo/ Philippines / PCAARRD-GIA funding of Php 1,800,000.00.	Expected Outputs (6Ps):Publication: Version 15 IECA/Patent: Version 15 IP Application/Product: Version 11 inventory of IP assets (potential IPs & PIs filed)1 inventory of mature technologies1 inventory of knowledge resources prior art search report1 technology with pre-commercialization reports (valuation, FS, market study)1 technology pitched1 product enhanced or co-incubated or market testedAt least 1 Technology Commercialized/People: N/A1 CM Staff Trained in IP tested/Class2 CM Staff Trained inTCMS2 CM Staff Trained in Agribusiness Master Class2 CM Staff Trained in Technology Promotion Mentorship2 CM Staff attended CommPlan Workshop2 CM Staff participated in the technology pitch day/Conducted re-echo seminars/Trained at least 20 CM staff in re-echo seminar/Place: Version 11 commitment letter1 commercialization agreement signed/Policy: N/A1 Institutional IP Policies reviewed/ crafted1 Technology Transfer Protocols reviewed/ crafted1 Institutional IP Policies BOR approved1 Technology Transfer Protocols BOR approved	Iloilo State University of Fisheries Science and Technology (ISUFST)	The target beneficiaries of this project are the IP offices of each campus of the university; in particular, the technology generators involved in IP management and technology commercialization activities.	1-Jan-2022	31-Dec-2023	Completed	1,800,000	761,937
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 2. IP-centric Agribusiness Hub: Bridging Innovation and Entrepreneurship in the AANR Sector	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of the Philippines Visayas (UPV) University of the Philippines Visayas - Technology Transfer and Business Development Office; UP Visayas, Miagao, Iloilo / PCAARRD-GIA funding of Php 3,664,063.00.	Publication: Modules for pre-commercialization activities/Patent: 13. Copyright: 4. Trademark: 13. UMPatent/Product: 1. Inventory of AANR Technologies: 20. Technology Valuation Report: 20. Market Study: 20. Business Plan: 20. Freedom-to-Operate Report: 20. 1-Pager Technology: 20. Pitch deck: 2 set of entries to support the content build-up of the Knowledge Management database/People: 40. People Trained under the Agribusiness Masterclasses: 20. Mentoring and monitoring CMs Echo Training/Place: 2. Secure Agreement (CRA, License Agreement)/Policy: Implementation of IP Policy Transfer Protocol Implementation of Technology Transfer Protocol	University of the Philippines Visayas (UPV)	The target beneficiaries of this project are the technology generators or researchers engaged in AANR research and the AANR sectors.	1-Jan-2022	31-Dec-2023	Completed	3,664,063	1,236,587
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 2A. Enhancing UP Visayas IP TBM as Foundation for a Technopreneurial Culture	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of the Philippines Visayas (UPV) University of the Philippines Visayas - Technology Transfer and Business Development Office; UP Visayas, Miagao, Iloilo / PCAARRD-GIA funding of Php 960,184.00.	Expected Outputs (6Ps):Publication:Version 15 Promotional IECA1 Sustainability Plan IP Disclosure Guide1 Technology Commercialization Guide2 Research project Sumitee/Patent:Version 11 Updated inventory of IP Assets/At least 2 IP Applications (Patents)/At least 8 IP Applications (UM)/Product:Version 11 Research Ideas Portfolio/Research projects Submitted to Funding Agency1 Online IP and Technology Portfolio1 Technology Commercialized1 Market Research report1 Valuation report1 Freedom to Operate report1 Fairness Opinion Report/People: N/A/At least 2 project project writing workshops10 faculty/research staff trained in Prior Art Search and IP Drafting/2 researchers trained on research project writing/5 trained institute-based IP personnel1 trained plantilla personnel in pre-commercialization activities/Place:Version 1A least 1 commercialization agreement executed/Policy: N/A/Full implementation of IP Policy (with internal memos, AOs)/Full implementation of Technology Transfer Protocol (with internal memos, AOs)	University of the Philippines Visayas (UPV)	The target beneficiaries of this project are the technology generators or researchers engaged in AANR research and the AANR sectors especially in Region 6.	1-Jan-2022	31-Dec-2023	Completed	947,949	947,949
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI)	Integrity of the environment and climate change adaptation and mitigation		Publication: 1. ATBI operations manual enhanced: 1. Training Module (TCMS)/Patent: 10. IP Applications/Product: 1. Regional list of mature technologies 10. Technologies adopted/to-incubated: 1. Regional list of ATBI Curriculum/Services: 1. Product enhanced (development, packaging, branding): 1. Product manufactured for pre-commercialization/People: 1. Regional workshop on Inventory of Mature Technologies 1. Regional workshop of ATBI Curriculum/Services: 1. Inventory of IP assets (potential IPs & PIs filed): 1. Inventory of knowledge resources: 10. Incubatees assisted/to-incubation: 1. Business pitching event, industry meetup, or networking event conducted or participated in 1. Regional Technology Commercialization Mentorship Series (TCMS) 5-module/Place: 6. Regional Technology Commercialization Mentorship Series (TCMS) 5-module/Policy: 1. Full implementation of IP Policy and Technology Transfer Protocol (with internal memos, AOs) 1. ATBI-related policies of the University crafted and approved: 1. ATBI institutionalized	Capiz State University (CapSU)	The target beneficiaries of this project are the technology adopters, technology generators, MSMEs, cooperatives, associations and other professionals who are willing to embrace innovation in the AANR sector.	1-Jan-2022	31-Dec-2023	Completed	3,100,000	1,254,839
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 3A. DOST-PCAARRD-CAPSU Agri-Aqua Technology Business Incubator (ATBI)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by Capiz State University (CapSU) Capiz State University - Main, FUENTES DRIVE, ROXAS CITY CAPIZ / Philippines PCAARRD-GIA funding of Php 1,007,362.00.	Expected Outputs (6Ps):Publication:Version 11 ATBI business plan revised as needed1 ATBI operations manual revised as needed/At least 5 ATBI basic incubation curricula revised as needed/At least 1 ATBI advanced incubation curricula developed/At least 1 EC or promotional materials for ATBI developed/At least 1 promotional video for ATBI developed and updated/At least 5 EC or promotional materials for incubatees developed/At least 1 promotional videos for incubatees developed/1 ATBI sustainability plan revised as needed/1 ATBI communication plan developed and implemented/Version 1A/At least 3 trademarks filed/At least 3 copyrights filed/Product:Version 1A/At least 2 technologies adopted by new incubatees/At least 2 technologies adopted by continuing incubatees/At least 1 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement/People: N/A/At least 2 new incubatees enrolled at basic incubation program/At least 2 continuing incubatees enrolled at advanced incubation program/At least 2 continuing incubatees graduated from advanced incubation program/At least 1 startups or spinoffs registered and launched/At least 3 trainings for ATBI staff conducted or participated in/At least 5 trainings for incubatees conducted/At least 2 business plans for new incubatees developed/At least 2 business plans for continuing incubatees improved/At least 2 awareness seminars or promotional activities conducted/At least 2 business pitching events, industry meetups, or networking events conducted or participated in/ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system/At least 1 consortium member-agencies mentioned on ATBI operations/Place:Version 1A/At least 2 MOA/MOUs with new incubatees forged/At least 2 MOA/MOUs with continuing incubatees renewed/At least 2 MOA/MOUs with organizations from public and private sectors forged/renewed/Policy: N/A/ATBI institutionalized with approved Board Resolution/ATBI-related policies of University revised as needed	Capiz State University (CapSU)	CMIs and technology generators, aspirant private entrepreneurs, technology adopters.	1-Jan-2022	31-Dec-2023	Completed	1,000,000	1,000,000
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 3B. Development of S&T based Agri-Aqua Enterprises in the AANR sector and Technopreneurial Ecosystem in Western Visayas Region as Collaborator and Co-incubator of the Regional ATBI-CAPSULE	Integrity of the environment and climate change adaptation and mitigation			University of the Philippines Visayas (UPV)	a	1-Jan-2022	31-Dec-2023	Completed	5,053,788	2,443,948
Regional Agri-Aqua Innovation System Enhancement (RAISE) Program in Western Visayas	Project 4. Making Knowledge That Benefit Society Accessible to Everyone	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2022 - December 30, 2022) by University of the Philippines Visayas (UPV) University of the Philippines Visayas, Miagao, Iloilo Philippines PCAARRD-GIA funding of Php 3,630,297.60.	Publication: 1. KM System Manual/User Guide: 1. Patent: 1. Patent/UM for the KM System: 1. Copyright: for KM System Manual: 1. Copy for the KM System Software/Product: 1. KM System: 1. Updated/Optimized KM System/People: 20. People trained on the use of KM System/Place: 10. Agreement with CMIs on the use of KM system/Policy: 1. KM Policy	University of the Philippines Visayas (UPV)	The output of this project is beneficial to all individual involve in agriculture, aquatic and natural resources (AANR) commodities. Specifically, the KMS will be useful for researchers, innovators, entrepreneurs, LGUs, research institutions, and venture capitalists.	1-Jan-2022	31-Dec-2023	Completed	3,630,298	1,416,149

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in SOCCSKSARGEN through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the intellectual property (IP) in the region and promote innovative change through IP protection and technology commercialization. Pursuant to RA 10055, the Technology Transfer Act of the Philippines, the project is hereby implemented to sustain intellectual property and technology business management (IPTBM) operations not just in the University of Southern Mindanao (USM), where IPTBM was first rooted in the region. USM IPTBM as its base agency will spearhead collaborative mobilization of technology transfer activities through regional capacity building of IP and technology commercialization to SUCs with no existing IPTBM units.	Publication: 3 Regional Training Reports: 1 consolidated training report of all the CMI participants who attended to IPMC 1 training report on reg-1 IP Audit & Inventory Workshop; 1 training report on reg-1 echo IPMC (including PAS); Patent: copyright of training report; Product: 1 Reg-1 list of Priority R&D Areas/communitly prepared and updated 1 reg-1 technology and IP inventory prepared and updated; 1 Regional Sustainability Plan; 1 Consolidated regional report (IPs filed, tech commercialized, etc.); People: Coordinated participation of 4 CMIs on national IPMC3 CMI Staff trained/attended the national IPMC1 Reg-1 IP Audit & Inventory Workshop conducted; Trained 8 CMI Staff on IP Audit & Inventory Workshop; Reg-1 Policy/Tech Transfer Protocol review conducted; Trained 4 CMI Staff on Policy/TIP Review 1 Reg-1 echo IPMC conducted; Trained 8 CMI Staff on echo IPMC; Participate in the content build-up & updating of RAISE RTMS1 Reg1 tech/business pitch day conducted; reg1 promotional activity conducted (e.g. exhibits, bootcamps, IP caravan, etc.); Participation to the National Pitch Fest; Place: 4 CMIs assisted in the commercialization of technologies RAISE Advisory Council created; Policy: 4 CMIs assisted in IP Policy Review.	University of Southern Mindanao (USM)	Technology transfer personnel RAISE-12 IPTBM SUC mentees faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Oct-2023	30-Sep-2025	Ongoing	6,217,228	3,658,296
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 1A. Establishment of the Intellectual Property Business Management in Sultan Kudarat State University (SKSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the intellectual property (IP) in the region and promote innovative change through IP protection and technology commercialization. Pursuant to RA 10055, the Technology Transfer Act of the Philippines, the project is hereby implemented to enhance intellectual property and technology business management (IPTBM) operations at Sultan Kudarat State University under the RAISE- 12 program. SKSU will serve as one of CMIs to be part of the collaborative mobilization of technology transfer activities through regional capacity- building of IP and technology commercialization in SUCs. RAISE-12 recognizes the role of SUCs in promoting intellectual properties and technology commercialization for regional development.	Publication: 3 ECPatent: 5 IP Applications (UM & Patent only) 3 Copyright (IECs) Product: 5 PAS Reports 1 IPa & technologies inventory updated 1 inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech Complan developed & implemented 1 technology with pre-comm reports 2 technologies pitched 1 Technology Commercialized. People: 2 CMI staff trained in national IPMC2 CMI staff trained in national ABMC2 CMI staff trained in national TCMS2 CMI staff trained in national TPMS2 CMI staff attended reg1 IP Audit & Inventory Workshop 2 CMI staff attended reg1 IP Policy/Tech Trans Protocol review 2 CMI staff attended reg1 CommPlan Workshop 1 Institutional echo seminar conducted 2 staff on echo seminar Participate to content build up of RTMSPlace: 1 Commitment Letter for the national trainings 1 partnership agreement w/Business/Trade Institutions 1 Commercialization Agreement Policy: Crafting/enhancement of IP policy Crafting/enhancement of technology transfer protocol	Sultan Kudarat State University (SKSU)	Technology transfer personnel SKSU faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Oct-2023	30-Sep-2025	Ongoing	2,414,520	1,237,260
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 1B. Establishment of Intellectual Property and Technology Business Management (IPTBM) in Mindanao State University-General Santos (MSU-GenSan) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the intellectual property (IP) in the region and promote innovative change through IP protection and technology commercialization. Pursuant to RA 10055, the Technology Transfer Act of the Philippines, the project is hereby implemented to enhance intellectual property and technology business management (IPTBM) operations at Mindanao State University- General Santos (MSU- Gen San) under the RAISE- 12 program. MSU- Gen San will serve as one of CMIs to be part of the collaborative mobilization of technology transfer activities through regional capacity- building of IP and technology commercialization in SUCs. RAISE-12 recognizes the role of SUCs in promoting intellectual properties and technology commercialization for regional development.	Publication: 3 ECPatent: 5 IP Applications (UM & Patent only) 3 Copyright (IECs) Product: 5 PAS Reports 1 IPa & technologies inventory updated 1 inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech Complan developed & implemented 1 technology with pre-comm reports 2 technologies pitched 1 Technology Commercialized. People: 2 CMI staff trained in national IPMC2 CMI staff trained in national ABMC2 CMI staff trained in national TCMS2 CMI staff attended reg1 IP Audit & Inventory Workshop 2 CMI staff attended reg1 IP Policy/Tech Trans Protocol review 2 CMI staff attended reg1 CommPlan Workshop 1 Institutional echo seminar conducted 2 staff on echo seminar Participate to content build up of RTMSPlace: 1 Commitment Letter for the national trainings 1 partnership agreement w/Business/Trade Institutions 1 Commercialization Agreement Policy: Crafting/enhancement of IP policy Crafting/enhancement of technology transfer protocol	Mindanao state University - General Santos City (MSU-GSC)	Technology transfer personnel MSU- Gen San faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Oct-2023	30-Sep-2025	Ongoing	2,414,520	1,237,260
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 1C. Establishment of Intellectual Property and Technology Business Management (IPTBM) in Cotabato State University (CoSU) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the intellectual property (IP) in the region and promote innovative change through IP protection and technology commercialization. Pursuant to RA 10055, the Technology Transfer Act of the Philippines, and RA 11293, Philippine Innovation Act, the project is hereby implemented to establish intellectual property and technology business management (IPTBM) operations at Cotabato State University (CoSu) under the RAISE- 12 program. CoSu will serve as one of CMIs to be part of the collaborative mobilization of technology transfer activities through regional capacity- building of IP and technology commercialization in SUCs. RAISE-12 recognizes the role of SUCs in promoting intellectual properties and technology commercialization for regional development.	Publication: 3 ECPatent: 5 IP Applications (UM & Patent only) 3 Copyright (IECs) Product: 5 PAS Reports 1 IPa & technologies inventory updated 1 inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech Complan developed & implemented 1 technology with pre-comm reports 2 technologies pitched 1 Technology Commercialized. People: 2 CMI staff trained in national IPMC; 2 CMI staff trained in national ABMC 2 CMI staff trained in national TCMS 2 CMI staff trained in national TPMS 2 CMI staff attended reg1 IP Audit & Inventory Workshop 2 CMI staff attended reg1 IP Policy/Tech Trans Protocol review 2 CMI staff attended reg1 CommPlan Workshop 1 Institutional echo seminar conducted Trained 8 staff on echo seminars Participate to content build up of RTMSPlace: 1 Commitment Letter for the national trainings 1 partnership agreement w/Business/Trade Institutions 1 Commercialization Agreement Policy: Crafting/enhancement of IP policy Crafting/enhancement of technology transfer protocol	Cotabato State University (CoSu)	Target Beneficiaries: Technology transfer personnel CoSu faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Oct-2023	30-Sep-2025	Ongoing	2,414,520	1,237,260
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 1D. Establishment of the Intellectual Property and Technology Business Management (IPTBM) in Cotabato Foundation College of Science and Technology (CFCST) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the intellectual property (IP) in the region and promote innovative change through IP protection and technology commercialization. Pursuant to RA 10055, the Technology Transfer Act of the Philippines, and RA 11293, Philippine Innovation Act, the project is hereby implemented to establish intellectual property and technology business management (IPTBM) operations at Cotabato Foundation College of Science and Technology (CFCST) under the RAISE- 12 program. CFCST will serve as one of CMIs to be part of the collaborative mobilization of technology transfer activities through regional capacity- building of IP and technology commercialization in SUCs. RAISE-12 recognizes the role of SUCs in promoting intellectual properties and technology commercialization for regional development.	Publication: 3 ECPatent: 5 IP Applications (UM & Patent only) 3 Copyright (IECs) Product: 5 PAS Reports 1 IPa & technologies inventory updated 1 inventory of knowledge resources prepared and updated 1 CMI communication plan developed & implemented 1 Tech Complan developed & implemented 1 technology with pre-comm reports 2 technologies pitched 1 Technology Commercialized. People: 2 CMI staff trained in national IPMC; 2 CMI staff trained in national ABMC 2 CMI staff trained in national TCMS 2 CMI staff trained in national TPMS 2 CMI staff attended reg1 IP Audit & Inventory Workshop 2 CMI staff attended reg1 IP Policy/Tech Trans Protocol review 2 CMI staff attended reg1 CommPlan Workshop 1 Institutional echo seminar conducted Trained 8 staff on echo seminars Participate to content build up of RTMSPlace: 1 Commitment Letter for the national trainings 1 partnership agreement w/Business/Trade Institutions 1 Commercialization Agreement Policy: Crafting/enhancement of IP policy Crafting/enhancement of technology transfer protocol	Cotabato Foundation College of Science and Technology (CFCST)	Technology transfer personnel CFCST faculty/researchers with technologies potential for IP protection Agri-Aqua and natural resources graduates MSMEs Young entrepreneurs/start-up	1-Oct-2023	30-Sep-2025	Ongoing	2,414,520	1,237,260

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 2. Establishment of Regional Agri-business Hub (ABH) in SOCCSKSARGEN through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The project titled "Establishing the Regional Agribusiness Hub for the Pre-Commercialization of Technologies in Region 12" is part of the program titled Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The RAISE program aims to hasten the commercialization and development of S&T based agri-aqua enterprises in the AANR sector in Region 12. The establishment of the regional agribusiness hub will facilitate the pre-commercialization phase of the technology. The project will provide assistance to regional consortia particularly the SOCCSKSARDEC, and its member institutions. The operation of this project will be spearheaded by the SOCCSKSARDEC.	<p>Publication:</p> <ul style="list-style-type: none"> 3 Regional Training Reports 1 consolidated training report of all the CMI participants who attended to ABMC 1 training report on regional echo ABMC 1 training report on Agripreneurship <p>Patent: Copyright of Training Report</p> <p>Product:</p> <ul style="list-style-type: none"> 10 Pre-commercializations services 5 pre-comm for base agency (technology shall be owned by the base agency (pref. PCAARRD-funded), and shall be included in the list of tech offerings for potential incubation/co-incubation) and 5 pre-comm for CMIs. Can either be 1 tech with all 5 pre-comm reports or different techs each with a pre-comm report; other precomm includes machine testing (MT) 2 technology with business plan 2 technology with feasibility study 2 technology with market study 2 technology with valuation 2 technology with enterprise plan (EP) 1 Consolidated regional report <p>PEOPLE & SERVICES:</p> <ul style="list-style-type: none"> Coordinated & noted 1 national ABMC (test module & graduation) Coordinated participation of 5 CMIs & 10 CMI personnel on national ABMC CMI Staff trained/attended the national ABMC National ABMC will be conducted by APP 1 Reg-1 echo ABMC conducted For RAISE & non-RAISE CMIs, and other stakeholders Trained 10 CMI Staff on ABMC (echo) 1 Training on Agripreneurship for MSMEs or potential agripreneurs conducted Potential clients of ATBI Trained # of MSMEs on agripreneurship Participate in the content build-up & updating of RAISE RTMS Oversee updates of RAISE RTMS of the CMIs 	University of Southern Mindanao (USM)	The target beneficiaries of the project are as follows: Entrepreneurs, start ups Market researchers Consortia researchers and technology transfer officers Prospective adopters of technologies or product generated from the agri-aqua sector Government partners	1-Oct-2023	30-Sep-2025	Ongoing	2,480,800	1,280,400
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 3. Regional Agri-Aqua Technology Business Incubator (ATBI) in SOCCSKSARGEN through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	There are two Technology Business Incubators established in the region, the USM- ATBI and SKSU-ATBI but operating independently with minimal interaction with each other. DA-RFO 12, an active CMI of SOXAARRDEC is also establishing its TBI. The efforts of these TBIs will be limited if they operate without coordination and interaction with each other. Their accomplishments will be better if these TBIs collaborate and work together towards achieving an effective and efficient innovation system in Region 12. Most of the CMIs of SOXAARRDEC lack the mechanism to accelerate technology commercialization. The CMIs generate technologies in an environment with limited connections to the industry and technology takers. With the existing work and plans of the different TBIs, there is a need to harmonize all activities to benefit not only a few but more, hence the need to establish the Regional Agri-Aqua Business Incubation Project, hence this project.	<p>Publication:</p> <ul style="list-style-type: none"> 2 Regional Training Reports 1 consolidated training report of all the CMI participants who attended to TCMS 1 reg1 training report on national ATBI/MC 1 Regional ATBI Operations Manual crafted 1 Regional ATBI Service Offering prepared 1 Consolidated curricula of existing & new ATBIs consolidated curricula of existing & new ATBIs (For R3, R7, R10, R12); curricula should be an output of the ATBI MC <p>Patent:</p> <ul style="list-style-type: none"> 3 IP Applications Copyright of Training Report <p>Product:</p> <ul style="list-style-type: none"> 2 Technologies co-incubated Techs to be co-incubated shall come from non-ATBI CMIs within or outside the region 1 Technology Commercialized with FOR / Facilitated the commercialization of 1 CMI technology Different from the reported commercialized techs under ATBI & P-TBI subcomponent projects 1 Consolidated regional report <p>PEOPLE & SERVICES:</p> <ul style="list-style-type: none"> 2 new incubatees enrolled in any of the existing ATBIs 2 new incubatees under co-incubation program Coordinated participation of 5 CMIs on national ATBI MC 10 CMI Staff trained/attended the national ATBI/MC Coordinated participation of 5 CMIs national TCMS 10 CMI Staff trained/attended the national TCMS 1 Reg1 tech/business pitch day conducted 1 reg1 promotional activity conducted Assisted 2 CMIs in ATBI services Participate in the content build-up & updating of RAISE RTMS Participation to the National Pitch Fest 	Sultan Kudarat State University (SKSU)	Target Beneficiaries: Agri-Aqua and natural resources graduates Member SUCs of SOXAARRDEC MSMEs Young entrepreneurs	1-Oct-2023	30-Sep-2025	Ongoing	3,010,800	3,281,260
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 3A. Enhancement of the Agri-Aqua Technology Business Incubator (ATBI) in University of Southern Mindanao (USM) through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The Regional Agri-Aqua Innovation System Enhancement in Region 12 (RAISE- 12) Program under Project 1 will handle the Intellectual Property and Technology Business Management operations in Region 12 with its identified SUC mentees. This project will further enhance the agri-aqua innovators in the region through technology business incubation. This platform provides assistance to incubatees to promote startup developments. Pursuant to RA 11337, the Innovative Startup Act of the Philippines, the project is hereby implemented to mobilize MSME development. Under the banner program of RAISE, wherein ATBIs are implemented under Consortia agencies. This will help sustain agri- aqua technology business incubator (ATBI) operations in the University of Southern Mindanao (USM) and continue its role for regional development. USM ATBI will continue mobilizing technology transfer through technology business incubation.	<p>Expected Outputs (EPs):</p> <ul style="list-style-type: none"> Publication:Version 11 ATBI business plan revised as needed ATBI operations manual revised as needed 10 basic incubation curricula revised as needed 6 advanced incubation curriculum developed 2 IEC or promotional material for the ATBI produced 1 promotional video for the ATBI developed 16 IEC or promotional materials for the incubatees developed 2 promotional videos for the incubatees developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented Version 110 trademarks filed 10 copyrights filed Product:Version 110 technologies incubated/adopted by new incubatees 2 technologies incubated/adopted by continuing incubatees 2 technologies co-incubated 3 technologies commercialized with issued Fairness Opinion Report People:NA10 new incubatees enrolled at basic incubation program continuing incubatees enrolled to the advanced incubation program continuing incubatees graduated from the advanced incubation program startups or spinoffs registered and launched 0 trainings for the ATBI staff conducted or participated in 10 trainings for the incubatees conducted 10 business plans for the new incubatees developed business plans for the continuing incubatees improved 4 awareness seminars or promotional activities conducted 4 business pitching events, industry meetings, or networking events conducted or participated in 2 consortium member agencies mentored on ATBI operations 2 ATBI staff attended the national ATBI MC 2 ATBI staff attended the national TCMS1 Institutional echo seminar conducted 1 staff on echo seminars 1 benchmarking activity conducted ATBI operations fully integrated to PCAARRD's ATBI web-based M&amp;E system Place:Version 110 MOAs/MOUs with the new incubatees forged 6 MOAs/MOUs with the continuing incubatees renewed 5 MOAs/MOUs with organizations from the public and private sectors forged/renewed ATBI Advisory Board/Committee/Council created and convened Policy/NA/ATBI institutionalized with approved Board Resolution ATBI-related policies of the University revised as needed 	University of Southern Mindanao (USM)	Target Beneficiaries:Version 11 facultyStudentsTechnology generatorsCooperativesResearchersLocal entrepreneursLocal companies	1-Oct-2023	30-Sep-2025	Ongoing	3,830,200	1,995,100

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
Regional Agri-Aqua Innovation System Enhancement Program in SOCCSKSARGEN	Project 4. Establishment of Regional Knowledge Management (KM) Hub in SOCCSKSARGEN through the RAISE Program	Integrity of the environment and climate change adaptation and mitigation	The State Universities and Colleges (SUCs) in the Philippines have produced bulk of Knowledge Products (KP) from the programs and initiatives they have implemented. With all these knowledge products generated, it is imperative that each needs a systematic tool in order to improve access for knowledge generation, sharing, collaboration and informed decision making. Knowledge Management (KM) is the best tool that consists of a cycle of creating, sharing, structuring and auditing knowledge, in order to maximize the effectiveness of an organization's collective knowledge. Organizations that effectively gather, store and share knowledge can encourage a culture of collaboration and curiosity. In turn, they see improved efficiency and employee satisfaction. Knowledge management means that employees can quickly access best practices, information on past projects and other key information that informs their work. Armed with that information, they can improve their performance and decision-making. The efforts in conducting projects and promoting the adoption of the technology generated can be aided through enhanced knowledge management. The importance of knowledge management is growing every year. One of the best ways to stay ahead of the curve is to build every organization in an intelligent, flexible manner. Hence, this project aims to establish an enhanced regional knowledge management through capacitating knowledge workers within the AANR sector. In 2019, the Philippine Council for Agriculture, Aquatic and Natural Resources Research Development (PCAARRD) launched the program entitled "Mainstreaming Knowledge Management within AANR Sector". The SOCCSKSARGEN Agriculture, Aquatic and Natural Resources Research and Development Consortium (SOXARRDCC) was one of the collaborating consortium of this program. A series of activities such as knowledge audit, raw listing of tangible resources and knowledge assessment were done. In addition, sessions on capacity building were organized by an expert and been attended by KM representatives of the Consortium Member Institutions (CMIs).	<ul style="list-style-type: none"> Publication: <ul style="list-style-type: none"> 2 Regional Training Reports 1 consolidated training report of all the CMI participants who attended to TPMS Inventory of Knowledge Resources Workshop and Complan to be embedded in the national TPMS 1 reg1 training report on national TPMS 3 promotional materials (video, print/social media, RAISE calendar) developed Patent: <ul style="list-style-type: none"> 1 IP Application 1 TM for regional RAISE logo 2 copyrights filed for promotional materials developed Product: <ul style="list-style-type: none"> 1 Reg -> Inventory of Knowledge Resources 1 Reg -> ComPlan prepared & updated 1 consolidated CMI ComPlan prepared & updated 1 consolidated Tech ComPlan prepared & updated 25 Agri-Aqua technology-based IEC materials collected for E-Lib updating 1 Consolidated regional report PEOPLE & SERVICES: <ul style="list-style-type: none"> Coordinated participation of 5 CMIs on national TPMS 10 CMI Staff trained/attended the national TPMS 1 Reg1 Inventory of Knowledge Resources Workshop conducted Trained 10 CMI Staff on Reg1 Inventory of Knowledge Resources Workshop 1 Reg -> Complan conducted Trained # CMI Staff on Reg1 Complan 1 Reg1 tech/business pitch day conducted 1 reg1 promotional activity conducted Participation to RTMS content build up training Assisted # CMIs in KM Mgt services Facilitate consideration of knowledge resources for the E-Lib Facilitate and coordinate content build up of RTMS of the region Participation to the National Pitch Fest 	University of Southern Mindanao (USM)	The target beneficiaries of the project are the following: <ul style="list-style-type: none"> Knowledge Management CMIs Representatives Consortia CMI researchers and technology generator Prospective adoptors of technologies generated from this project Government partners/Private industry Students 	1-Oct-2023	30-Sep-2025	Ongoing	2,528,000	2,528,000
	Adoption of Improved Hatchery-Nursery Culture System for Commercial Production of Mangrove Crab Seedstock in Buguey, Cagayan	Integrity of the environment and climate change adaptation and mitigation	This hatchery is expected to supply 2.22% of the total demand for crablets in the province per year, eventually contributing an estimated increase in volume of mangrove crab production of 0.002% (regional) and 66.94 (municipal) equivalent to 60MT valued at PHP 27 million per year.	<ul style="list-style-type: none"> Two (2) infomercial videos (one for hatchery and one for nursery operations) produced One (1) hatchery operation manual produced One (1) communication plan developed One (1) sustainability plan developed 1,000 pcs IEC materials Two (2) infomercial videos One (1) hatchery operation manual produced One (1) communication plan developed One (1) sustainability plan developed 	Cagayan State University (CagSU)	Mangrove Crab hatchery-nursery-grower operators and other stakeholders in Cagayan	1-Jun-2023	31-May-2025	Ongoing	12,910,996	9,576,250
	Adoption of Improved Hatchery-Nursery Culture System for Commercial Production of Mangrove Crab Seedstock in Infanta, Quezon	Rapid, inclusive and sustained economic growth	One of the major factors that limit the expansion of mangrove crab enterprise is the inadequate supply of seedstock to support the grow-out operations. The establishment of hatcheries and nurseries for the production of seedstock and crablets, respectively, coupled with better management of the wild stock resources are, in essence, long-term solutions that will potentially support the sustainability of the mangrove crab industry in the Philippines. The availability of the hatchery-bred crab seedstocks seemingly offer practical solutions to problems linked to local availability of the seeds for grow-out production, seasonality of the seedstock supply sourced from the wild, and even conservation of the wild population (Gallard, 2010). The consistent efforts of the Philippine government (and the other ASEAN countries) to develop/improve the hatchery-nursery technologies for mangrove crab, are good indications for its potential to positively contribute as an industry, in the economic progress of these nations. The optimizations of the mangrove crab farming technologies have been recently attained under several S&T programs for enhanced culture systems for improved hatchery (Program A) and nursery (Program B) culture production systems. The proactive and sustained support from the DOST-PCAARRD, paved the implementation of S&T programs that covered five component projects: <ul style="list-style-type: none"> Program A " R&D for Improvement of the Hatchery System" <ul style="list-style-type: none"> Component 1 " Development of Techniques for the Mass Production of Marine Annelids as Live Feeds for the Mangrove Crab (Scylla serrata) Broodstock Component 2 " Improvement of the Larval Rearing Hatchery" Program B " R&D for Improvement of the Nursery System" <ul style="list-style-type: none"> Component 1 " Refinement of Efficient Diets for Nursery Culture" Component 2 " Application of Strategies for the Reduction of Cannibalism in the Mangrove Crab Nursery Component 3 " Development of Protocols for the Production of Hatchery-Reared Mangrove Crab Juveniles for Soft Shell Crab Farming 	<ul style="list-style-type: none"> Publications: <ul style="list-style-type: none"> 1,000 pcs IEC materials of two kinds produced and disseminated (500 pcs for hatchery operation, 500 pcs for nursery operations in Filipino and English) Products: <ul style="list-style-type: none"> One (1) commercial-scale mangrove crab hatchery-nursery facility established 80,000 hatchery-reared mangrove crablets produced One fully-operational commercial-scale mangrove 	Laguna State Polytechnic University (LSPU)	Mangrove crab hatchery-nursery operators in Infanta, Quezon	16-May-2021	15-Feb-2024	Ongoing	10,384,775	1,076,836

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Adoption of Mangrove Crab Hatchery Seed Production and Nursery Facility in Panay, Capiz	Integrity of the environment and climate change adaptation and mitigation	The hatchery is expected to supply 4.35-6.53% of the total demand for crablets in the province which will eventually contribute an estimated 4%-6% volume in mangrove crab production of about 102 MT valued at P51 million.	Publication: 1,000 pcs IEC materials 2 infomercial videos Patent: 3 copyrights from IEC materials 2 copyrights from infomercial videos Product: 1,000,000 hatchery-reared mangrove crablets People: 5 CAPSU-Pontevedra LGU personnel trained in mangrove crab hatchery-nursery operation 50 PO members trained in nursery operation Place: 1 commercial-scale mangrove crab hatchery-nursery facility established 1 MOA forged with LGU Panay (formerly Pilar) Policy: Hatchery Operations Policy established. Marketing and Promotion Policy established. Training and Extension Services policy established in cooperation with the mangrove crab growers.	Capiz State University (CapSU)	Mangrove crab hatchery-nursery-grower operators and other stakeholders in the Province of Capiz.	1-Jul-2022	30-Jun-2024	Ongoing	12,872,561	2,498,306
	ATBI Networking and Capacity Building Phase 2	Integrity of the environment and climate change adaptation and mitigation	Sprung on by various laws for the improvement of the mechanism for the diffusion and utilization of technologies and enabling the effective support to technology transfer, DOST-PCAARRD instituted the establishment of agri-aqua technology business incubators in the country. From June to August 2017, the PCAARRD Directors Council, the PCAARRD Governing Council and the DOST Executive Committee had approved the implementation and funding of six TBI projects implemented by Benguet State University (BSU), Isabela State University (ISU), Central Luzon State University (CLSU), Cavite State University (CVSU), University of the Philippines - Visayas (UPV) and Visayas State University (VSU). To support the activities of these six TBIs and ensure the successful and harmonized implementation of the TBI activities and monitor the milestones and accomplishments of the TBI ecosystem in the country, a coordination and management component was established as part of the program.	Publication At least 6 Training modules prepared/ enhanced At least 6 training modules prepared/ enhanced 1 Compendium of ATBI experts prepared 1 Compendium of ATBI technologies prepared 1 Compendium of start-up/ignition incubables prepared 1 Coffee table book on ATBI in the Philippines developed 1 Annual Report and 2 Semi-annual Reports prepared and submitted 1 National Conference on TBI conducted, attended by all TBIs in the agri-aqua sector, stakeholders, and partners 1 Incubate Summit (with pitching activity) conducted, attended by incubatees/acceleratees from all ATBIs, stakeholders, and partners 1 Incubate Summit (with pitching activity) conducted, attended by incubatees/acceleratees from all ATBIs, stakeholders, and partners At least 1 national training for ATBI graduates from all ATBIs conducted At least 1 national training for ATBI graduates from all ATBIs conducted At least 2 webinars for the general public as promotion of the program conducted At least 2 webinars for the general public as promotion of the program conducted At least 2 trainings for DOST ROs conducted At least 2 trainings for DOST ROs conducted At least 2 program reviews conducted	Benguet State University (BSU)	At least 16 ATBIs to be 6 from Batch I + 8 from Batch II + 2 from Batch III TBIs + new ATBIs in 2021 and 2022 2-9 new ATBIs + 11 ATBIs in Advanced Incubation + 3 ATBIs in Acceleration) New ATBIs: 1. Mariano Marcos State University, Batac, Ilocos Norte 2. University of Southern Mindanao (USM), Kabacan, North Cotabato 3. At least 9 new ATBIs within 2021-2022 ATBIs in Advanced Incubation: 4. Cavite State University (CVSU), Indang, Cavite 5. Capiz State University (CapSU), Roxas City, Capiz; 6. Central Mindanao University (CMU), Marawi, Bukidnon 7. Don Mariano Marcos Memorial State University (DMMMSU), La Union 8. Forest Products Research and Development Institute (FPRDI), Los Baños, Laguna 9. Isabela State University, Echague, Isabela 10. Laguna State Polytechnic University (LSPU), San Pablo, Laguna	1-Jul-2021	30-Jun-2024	Ongoing	5,000,000	1,020,767
	Community-based Roll-out of Tilanggit Production Technology: A Resilience Livelihood Program for Vulnerable Lakeshore Families of Los Baños, Province of Laguna (Community-based Rollout of Tilanggit for Resilience Livelihood: Social Enterprise for Vulnerable Lakeshore Families of Laguna Province)	Integrity of the environment and climate change adaptation and mitigation	This project aims to deploy the community-based rollout of tilanggit production technology to establish a social enterprise in target lake communities in Laguna. The project will adopt the Sustainable Livelihoods Framework (SLF) to build/increase the resilience of vulnerable resource-poor families as the target project beneficiaries. Capacity-building of unemployed mothers will be conducted to develop their technical and entrepreneurial skills on tilanggit production and marketing. The use of Multi-Commodity Solar Tunnel Dryers (MCSTD) developed by Philfloc will be adopted to produce high-quality tilanggit in commercial scale. The socioeconomic impact of the tilanggit social enterprise will also be evaluated following the Propensity Score Matching (PSM) technique in predictive simulation. The success of this targeted livelihood intervention project will serve as a model approach for rural development which can be replicated in other lakeshore areas in the Philippines. The outcomes of this project are directed towards building resiliency and adaptation among the rural poor against recent and imminent threats and stresses " an expected impact of this project that is central to the Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction, and the Paris Climate Agreement.	At least 200 digital copies " infomercial video distributed 150 hardcopies " infographic poster distributed 500 hardcopies " culinary brochure distributed 2 manuals 1 original scientific article 2 business plans " small-sized tilapia farming and tilanggit production PRODUCT 153,600 kg " small-sized tilapia, fresh bass 252,200 packs (100g/pack) " tilanggit produce 654,800 packs (100g/pack) " dried fish bone product 1 digital mock-up " brand & logo design developed 1 digital mock-up " product packaging developed PLACES & PARTNERSHIP 254 modular hapa culture set-ups (25 sq. m) 35 post-harvest facilities " tilanggit production agencies " inter-agency collaborations PEOPLE AND SERVICES 9 fisherfolk livelihood beneficiaries 80 households " livelihood beneficiaries 90 women " capacity building trainees 5 project assistants " job opportunities 2 consultants " expert services 6 resource persons for trainings/workshops 7 short trainings on tilanggit production 7 seminar-workshops on entrepreneurship 2 short trainings on small-sized tilapia production PATENTS 2 trademarks " brand & logo design and product packaging 5 copyrights " business plans (2) " culinary brochure (1) " infographic poster (1) " infomercial video (1) POLICY 1 policy brief " SLF on rural fisheries development SOCIAL IMPACT 1 (9) fisherfolk trained/empowered as additional skilled workers in intensive small-sized tilapia culture production (60) unemployed women from lakeshore communities trained/empowered as additional skilled workers in tilanggit production tilanggit as a high-quality yet affordable and safe source of animal-derived protein made more accessible to the public consumers ECONOMIC IMPACT Traditional income estimated at ₱75,316,900/year is made available to vulnerable lakeshore families as project beneficiaries	Laguna State Polytechnic University (LSPU)	60 resource-poor lakeshore families: 20 each from the three (3) coastal barangays	1-Jan-2022	31-Dec-2023	Completed	9,879,465	2,272,577
	Crabs for Change: Transfer of Commercial-Scale Mangrove Crab Nursery and Grow-out Technology Using Hatchery-Bred Crab Instars to Support Livelihood of Selected Former Combatants in Maguindanao	Integrity of the environment and climate change adaptation and mitigation	The crabs for change project aims to transfer the commercial-scale mangrove crab nursery and grow-out technology using hatchery-bred crab instars to support the livelihood of selected former combatants in Maguindanao. This project will be implemented by the Mindanao State University - Maguindanao and will be funded by the DOST-PCAARRD. The project duration runs from April 1, 2023 to March 31, 2025. Through this project, six (6) former combatants both men and women in the Province engaged in crab farming will be selected to venture into mangrove crab nursery and grow-out farming. The hatchery-bred crab instars produced from the DOST-PCAARRD-funded mangrove crab hatchery project established in Parang, Maguindanao will be utilized and be provided to the selected core partner-farmers. In addition to the crab instars, the selected core partner-farmers will also be provided with farm inputs to establish their crab nursery and grow-out farms. Each core partner-farmer will be provided with farm capital and production inputs enough for one (1) nursery and grow-out production runs. MSU-Maguindanao will also provide technical assistance with on-farm monitoring and mentoring sessions. The technologies recommended for mangrove crab nursery and grow-out from the DOST-PCAARRD's Philippine Recommendations will be adopted in the implementation of this project. Every core partner-farmer is expected to generate an estimated net income of around P30,000.00-40,000.00 from each production cycle that lasts for 3-6 weeks for nursery farming while P350,000.00 per production cycle for the grow-out farming. Through this project, the sustainability of the recently established DOST-PCAARRD-funded mangrove crab hatchery facility in Parang, Maguindanao is ensured. This project will also lead to the adoption of crab grow-out technology and the development of a mangrove crab nursery industry in the Province, thereby, revitalizing the crab industry in Maguindanao and the nearby municipalities and provinces. Further, this project will also demonstrate how S&T can be used to promote "Arms to Farms" in the pursuit of sustaining peace and order in Mindanao	Publication: 50 pcs of manual of operations (in the vernacular) for commercial-scale mangrove crab nursery technology 50 pcs of manual of operations (in the vernacular) for commercial-scale mangrove crab grow-out technology 6 video-documentations of trainings conducted Patent: 1 copyright from the manual of operation (in the vernacular) for commercial-scale mangrove crab nursery technology 1 copyright from the manual of operation (in the vernacular) for commercial-scale mangrove crab grow-out technology 6 copyrights from the video-documentation of the 6 trainings conducted Product: 5 commercial-scale mangrove crab nursery farms utilizing hatchery-bred crab instars 1 commercial-scale mangrove crab grow-out farms utilizing hatchery-bred crab crablets 6,300 nursery-reared crablets produced from each nursery farm 1,500 market-sized crab produced from each grow-out farm People: 5 core partner crab farmers who were former combatants (men and women) trained on commercial-scale mangrove crab nursery technology and entrepreneurship 1 core partner crab farmers who were former combatants (men and women) trained on commercial-scale mangrove crab grow-out technology and entrepreneurship	Mindanao State University - Maguindanao (MSU-Maguindanao)	NULL	1-Apr-2023	30-Sep-2024	Ongoing	5,000,000	4,447,916

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Developing Technology Transfer Capacity of the Philippine Science High School System (PSHSS)	Integrity of the environment and climate change adaptation and mitigation	The PSHSS is the premier science high school of the Philippines where students are prepared for a career in science, technology, and mathematics (STEM). In line with this, students are trained to develop a high aptitude in science and mathematics and are taught to apply these skills in conducting STEM-based research, which outputs are expected to benefit the general society. As a result, the PSHSS System has produced numerous technologies in the last five years that are eligible for commercialization and for public use. To further encourage students to embark on meaningful research endeavours, the PSHS-OED aims to create a framework that will guide every campus in the system to implement technology transfer on their own so that students' worthy and qualified research outputs can be commercialized for public use.	Publication: 17 IECs (Technology briefs/ one-page under the TCMS) Patent: 33 IP applications (UM & Patent only under the IPMC) Product: 1 PPs and technologies inventory 33 technologies with technology valuation reports (under the TPMSP) People: 33, staff trained in national IPMC 33 staff trained in national TCMS/Place: 1 commitment letter for the national trainings. Policy: Crafting/ enhancement of the PSHSS Technology Transfer Framework	Philippine Science High School System (PSHSS)	The training will upskill PSHS STEM and research teachers and staff on technology transfer and, when translated to classroom instruction, they would be able to properly guide PSHS students in conducting STEM research that is aligned to the standards of intellectual property rights and commercialization. Moreover, the public use of commercialized PSHS projects will be an opportunity for the PSHS to be of service to farmers, fisher folks, small to medium enterprises, and the Filipino households, among others.	1-Jun-2023	31-May-2025	Ongoing	4,104,032	2,586,516
	Development of Semi-Mechanized Facility for Selected VSU Developed Machine Technologies	Integrity of the environment and climate change adaptation and mitigation	The VSU-Technology Business Incubator (VSU-TBI) is a facility which provides a nurturing environment for commercialization of technology-based start-ups/businesses in order to attain better chances of success. VSU-TBI has been assisting various businesses in Eastern Visayas. Among the grants under DOST is the Start-up Grant Fund. The grant provides R&D support for the technology needs of the beneficiary. Upon receiving the grant, this would provide technical and financial support to the grantee. This project was to modernize the machine fabrication facility of VSU-TBI incubatee-Five Shepherds Planting Materials and Agri-products. The project will focus on developing a semi-mechanized facility of Five Shepherds Planting Materials and Agricultural Supply in fabricating Chippy and Puff Extruder Machine and Very Portable Vacuum Frying Machine. As a VSU-TBI incubatee, Five Shepherds Planting Materials and Agricultural Supply is the only license fabricator in the region that can fabricate the said technologies. They signed the Technology Licensing Agreement with Visayas State University on April 1, 2022 along with other new incubatees. The project will be carried out with the assistance of VSU-TBI to improve the manufacturing capacity of the aforementioned technologies. Increase the target market, as well as their manpower and management. As a result, the project will not only help to improve Five Shepherds Planting Materials and Agricultural Supply, but it will also help to commercialize VSU technology, notably the Chippy and Puff Extruder Machine and Very Portable Vacuum Frying Machine.	Publications: At least one (1) promotional video about Five Shepherd's and its machines: At least two (2) flyers about Five Shepherd's and its machines developed for distribution: One (1) Facebook Page for Five Shepherd's developed and launched: Patents: At least two (2) of copyrights of developed flyers filed Products: At least one (1) Portable Vacuum Fryer produced per month At least one (1) Chippy and Puff Extruder Machine, produced per month: People and Services: At least one (1) technical training for Chippy and Puff extruder machine fabrication attended At least one (1) technical training for very portable vacuum fryer attended At least one (1) facility maintenance training attended At least one (1) record keeping training attended At least one (1) digital marketing training attended At least one (1) intellectual property awareness training or seminar attended Places and Partnerships: At least one (1) MOA signed with a machine retailer or marketing partner in Visayas At least two (2) MOA signed with a machine retailer or marketing partner from Target Markets (Mindanao and Luzon) Policy: One (1) management policy for Five Shepherd's drafted: Total: At least 10 trademarks filed: At least 5 copyrights filed	Five Shepherd's	SUCs (State Universities and Colleges) This includes Universities that are into technology Private Entities Business Owners, individuals, Government Agencies These include Local Government Units, and current executive departments such as DA, DOST, and DTI. Food Manufacturing Industry These are industries that transform livestock and agricultural products into products for immediate or final consumption.	1-Jul-2023	30-Jun-2024	Ongoing	2,450,000	2,450,000
	DOST-PCAARRD-BPSU Agri-Aqua Technology Business Incubator	Integrity of the environment and climate change adaptation and mitigation	Undeniably, science, technology, and innovation (STI) play a crucial role in the achievement of 2030 Sustainable Development Goals. The process of creative disruption initiated by technological progress can help to transform economies and improve living standards, by increasing productivity, reducing production costs and prices, and helping to raise real wages. Harnessing frontier technologies " combined with action to address persistent gaps among developed and developing countries in access and use of existing technologies, and to develop innovations (including non-technological and new forms of social innovation) " could be transformative in achieving the Sustainable Development Goals and producing more prosperous, sustainable, healthy and inclusive societies.	Publication: Year 1: ATBI business plan developed. <input type="checkbox"/> ATBI operators manual developed <input type="checkbox"/> At least 5 ATBI curricula developed <input type="checkbox"/> At least 5 IEC for ATBI developed. <input type="checkbox"/> At least 1 promotional video for incubatees developed. <input type="checkbox"/> ATBI sustainability plan developed. <input type="checkbox"/> ATBI communication plan developed <input type="checkbox"/> Year 2: At least 5 ATBI curricula developed <input type="checkbox"/> At least 5 IEC for ATBI developed. <input type="checkbox"/> At least 1 promotional video for incubatees developed. <input type="checkbox"/> ATBI sustainability plan implemented. <input type="checkbox"/> ATBI communication plan implemented <input type="checkbox"/> Total: ATBI business plan developed. <input type="checkbox"/> ATBI operators manual developed <input type="checkbox"/> At least 10 ATBI curricula developed <input type="checkbox"/> At least 10 IEC for ATBI developed. <input type="checkbox"/> At least 3 promotional video for incubatees developed. <input type="checkbox"/> ATBI sustainability plan developed. <input type="checkbox"/> ATBI communication plan developed <input type="checkbox"/> Patent: Year 2: At least 10 trademarks filed. <input type="checkbox"/> At least 5 copyrights filed <input type="checkbox"/> Total: At least 10 trademarks filed. <input type="checkbox"/> At least 5 copyrights filed <input type="checkbox"/>	Bataan Peninsula State University (BPSU)	University-based faculty and student researchers, Local start-ups and MSMEs in Bataan Agri-aqua sector in the communities in Bataan Local cooperatives in Bataan Women in informal economy sector in Bataan Other marginalized sectors in Bataan	1-Nov-2021	31-Oct-2023	Completed	5,000,000	800,378

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	DOST-PCAARRD-CapSU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The DOST-PCAARRD-CAPSU Agri-Aqua Technology Business Incubator is a technology transfer and commercialization support facility of the University that aims to translate or develop products of research into a feasible technology-based enterprise. The incubator will also serve as an avenue and convergence hub that will provide services for prospect technology adopters, investors, and technology users in the fields of agriculture and aquaculture in the province of Capiz.	<p>ATBI business plan revised as needed</p> <p>1 ATBI operations manual revised as needed</p> <p>1 ATBI operations manual revised as needed</p> <p>At least 5 ATBI basic incubation curricula revised as needed</p> <p>At least 5 ATBI basic incubation curricula revised as needed</p> <p>At least 10 ATBI basic incubation curricula revised as needed</p> <p>At least 6 ATBI advanced incubation curricula developed</p> <p>At least 6 ATBI advanced incubation curricula developed</p> <p>At least 1 IEC or promotional material for ATBI developed</p> <p>At least 1 IEC or promotional material for ATBI developed</p> <p>At least 2 EC or promotional materials for ATBI developed</p> <p>At least 1 promotional video for ATBI developed</p> <p>At least 1 promotional video for ATBI updated</p> <p>At least 1 promotional video for ATBI developed and updated</p> <p>At least 11 IEC or promotional materials for incubatees developed</p> <p>At least 5 EC or promotional materials for incubatees developed</p> <p>At least 16 IEC or promotional materials for incubatees developed</p> <p>At least 1 promotional video for incubatees developed</p> <p>At least 1 promotional video for incubatees developed</p> <p>At least 2 promotional videos for incubatees developed</p> <p>1 ATBI sustainability plan revised as needed</p> <p>1 ATBI sustainability plan revised as needed</p> <p>1 ATBI communication plan developed and implemented</p> <p>1 ATBI communication plan implemented</p> <p>1 ATBI communication plan developed and implemented</p> <p>Patents</p> <p>At least 10 trademarks filed</p> <p>At least 10 trademarks filed</p> <p>Page 3 of 5</p> <p>At least 10 copyrights filed</p>	Capiz State University (CapSU)	The beneficiaries of this project are the incubatees (MSMEs, farmers, researcher, faculty, youths), consortia member agencies who will establish ATBI, Capiz State University, and other stakeholders.	1-Jul-2021	31-Dec-2023	Completed	5,000,000	989,418
	DOST-PCAARRD-CMU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The CMU-ATBI will be the center for technology transfer, and business incubation of technologies generated in the university. Specifically, it will provide support services to incubatees for the commercialization of technologies. The CMU-ATBI has a business name called Musuan PEAK Incubator. The name was coined from the famous landmark of CMU, the Musuan Peak and incubator meaning business service provider for start-ups as the main purpose of the center. The PEAK is the acronym that stands for the services provided by the center namely: Product commercialization, Enterprise development, Access to networks, and Knowledge transfer. Product Commercialization is the process of bringing new products or services to market. This service includes sales and marketing tools and training and assistance in the pilot production of a product or process.	<p>ATBI business plan revised as needed</p> <p>1 ATBI operations manual revised as needed</p> <p>At least 10 ATBI basic incubation curricula revised as needed</p> <p>At least 10 ATBI advanced incubation curricula developed</p> <p>At least 2 EC or promotional materials for ATBI developed</p> <p>At least 1 promotional video for ATBI developed and updated</p> <p>At least 10 IEC or promotional materials for incubatees developed</p> <p>At least 2 promotional videos for incubatees developed</p> <p>1 ATBI sustainability plan revised as needed</p> <p>1 ATBI communication plan developed and implemented</p> <p>At least 10 trademarks filed</p> <p>At least 10 copyrights filed</p> <p>At least 5 technologies adopted by new incubatees</p> <p>At least 6 technologies adopted by continuing incubatees</p> <p>At least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement</p> <p>At least 10 new incubatees enrolled at basic incubation program</p> <p>At least 6 continuing incubatees enrolled at advanced incubation program</p> <p>At least 6 continuing incubatees graduated from advanced incubation program</p> <p>At least 6 startups or spinoffs registered and launched</p> <p>At least 6 trainings for ATBI staff conducted or participated in</p> <p>At least 10 trainings for incubatees conducted</p> <p>At least 10 business plans for new incubatees developed</p> <p>At least 6 business plans for continuing incubatees improved</p> <p>At least 6 awareness seminars or promotional activities conducted</p> <p>At least 4 business pitching events, industry meetups, or networking events conducted or participated in</p> <p>ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system</p> <p>At least 2 consortium member-agencies mentored on ATBI operations</p> <p>At least 10 MOAs/MOUs with new incubatees forged</p> <p>At least 6 MOAs/MOUs with continuing incubatees renewed</p> <p>At least 10 MOAs/MOUs with organizations from public and private sectors forged/renewed</p> <p>1 CMU BOR Approved IPTBM council</p> <p>Baseline metrics to assess the social impact of ATBI to incubatees formulated</p>	Central Mindanao University (CMU)	Start-ups/Spin-off Would be Entrepreneurs Incubatees	1-Jul-2021	30-Jun-2023	Completed	5,000,000	1,059,057
	DOST-PCAARRD-CTU Agri-Aqua Technology Business Incubator	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 Years November 1, 2021 * October 31, 2023 by Cebu Technological University in R Palma Street, Cebu City, Philippines with a total PCAARRD-GIA funding of Php 5,000,000.00, to provide support to agri-aquaculture MSMEs by providing training, technology, facilities and possible access to microfinancing. It will also identify the main issues and challenges faced by the agri-aquaculture business to better offer relevant services to the MSME incubatees.	<p>Publication</p> <p>ATBI business plan developed</p> <p>ATBI operations manual developed</p> <p>At least 10 ATBI curricula developed</p> <p>At least 2 EC or promotional materials for ATBI developed</p> <p>At least 1 promotional video for ATBI developed</p> <p>At least 10 IEC or promotional materials for incubatees developed</p> <p>At least 2 promotional videos for incubatees developed</p> <p>1 ATBI sustainability plan developed and implemented</p> <p>1 ATBI communication plan developed and implemented</p> <p>Patent</p> <p>At least 10 trademarks filed</p> <p>At least 5 copyrights filed</p> <p>Product</p> <p>At least 10 technologies adopted by incubatees</p> <p>People</p> <p>At least 10 incubatees assisted</p> <p>At least 6 trainings for ATBI staff conducted or participated in</p> <p>At least 10 trainings for incubatees conducted</p> <p>At least 10 business plans for incubatees developed</p> <p>At least 3 awareness seminars or promotional activities conducted</p> <p>At least 3 business pitching events, industry meetups, or networking events conducted or participated in</p> <p>ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system</p> <p>Place:</p> <p>At least 10 MOAs/MOUs with incubatees forged</p> <p>At least 6 MOAs/MOUs with organizations from public and private sectors forged</p> <p>Policy:</p> <p>ATBI institutionalized</p> <p>ATBI-related policies of the University crafted and approved</p>	Cebu Technological University (CTU)	Agri-aquaculture MSMEs in Central Visayas. The select Agri-aquaculture MSME incubatees can avail of the services offered by the ATBI, which can allow them to become better prepared in the business, and possibly expand with an affordable start-up environment and a range of administrative, consulting, and networking services. Local Government Units (LGUs). The MSME incubatees will help in the development of the local economy and food production as well as in the generation of livelihood or employment. Community. People from the community can be employed as the MSME becomes more developed. University/College/Institution. The ATBI can serve as an avenue to market the developed technology by researchers in the academe. A well-implemented ATBI system could enhance the university's role for promoting, creating and enhancing an entrepreneurial society. It can also be made part of the extension and production functions of the institution. Microfinancing institutions. The microfinance institutions can have better	1-Mar-2022	29-Feb-2024	Ongoing	5,000,000	1,174,983

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	DOST-PCAARRD-CvSU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (January 1, 2021 - December 31, 2022) by Cavite State University in Indang, Cavite, with a total PCAARRD-GIA funding of Php 4,999,700.80. The CvSU Agriculture and Food Technology Business Incubation (AFTBI) will be part of the Philippine government's program in bringing scientific information and technologies closer to the community particularly Calabarzon region for agricultural development. The CvSU Agriculture and Food Technology Business Incubator aims to accelerate the successful development of entrepreneurs in the area through an array of business support resources and services. The CvSU-AFTBI focuses on three areas of business such as high value crop production, coffee production and food processing. AFTBI will assist the incubatees by providing them with farm lot, facilities, equipment and technical knowledge. Also, AFTBI will provide trainings and seminars about entrepreneurship, marketing and accounting to teach the incubatees how to operate a business.	<ul style="list-style-type: none"> 1 ATBI business plan revised as needed 1 ATBI operations manual revised as needed At least 10 basic incubation curricula revised as needed At least 6 advanced incubation curricula developed At least 2 EC or promotional materials for the ATBI developed At least 1 promotional video for the ATBI developed At least 16 EC or promotional materials for the incubatees developed At least 2 promotional videos for the incubatees developed At least 10 trademarks filed At least 10 copyrights filed At least 10 technologies adopted by new incubatees At least 6 technologies adopted by continuing incubatees At least 3 technologies commercialized with issued Fairness Opinion Report At least 10 new incubatees enrolled to the basic incubation program At least 6 continuing incubatees enrolled to the advanced incubation program At least 6 continuing incubatees graduated from the advanced incubation program At least 6 startups or spinoffs registered and launched At least 6 trainings for the ATBI staff conducted or participated in At least 10 trainings for the incubatees conducted At least 10 business plans for the new incubatees developed At least 6 business plans for the continuing incubatees improved At least 4 awareness seminars or promotional activities conducted At least 4 business pitching events, industry meetups, or networking events conducted or participated in ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system At least 2 consortium member-agencies mentored on ATBI operations At least 10 MOAs/MOUs with the new incubatees forged At least 6 MOAs/MOUs with the continuing incubatees renewed At least 10 MOAs/MOUs with organizations from the public and private sectors forged/renewed ATBI institutionalized ATBI-related policies of the University revised as needed Metrics to assess the social impact of the ATBI to the incubatees formulated Social impact of the ATBI to each incubatees assessed Innovation ecosystem improved 	Cavite State University (CvSU)	Smallholder farmers, Food processors, aspiring entrepreneur with no agricultural background, Faculty and Students, Employees or Businessman that was adversely affected by the pandemic	1-Feb-2021	31-Jul-2023	Completed	4,999,701	772,913
	DOST-PCAARRD-DMMSU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The DOST-PCAARRD-DMMSU Agri-Aqua TBI Phase 2 project will be established in DMMSU, Bacnotan, La Union as main office with three satellite stations at the College of Agriculture (Bacnotan, La Union), College of Fisheries (Sto. Tomas, La Union), and College of Agriculture (Rosario, La Union). The ATBI service offerings include basic/technical services such as lecture rooms, training rooms, conference rooms, product processing rooms, laboratory equipment, production farm, market space and technology support facilities. Moreover, this platform also offers business development such as access to professional services, networking for financial support, business planning, accounting and bookkeeping marketing, food testing and sensory evaluation, and trademark development and application.	<ul style="list-style-type: none"> 1 ATBI business plan revised as needed 1 ATBI operations manual revised as needed 1 ATBI operations manual revised as needed At least 5 ATBI basic incubation curricula revised as needed At least 5 ATBI advanced incubation curricula revised as needed At least 10 ATBI basic incubation curricula revised as needed At least 6 ATBI advanced incubation curricula developed At least 6 ATBI advanced incubation curricula developed At least 1 EC or promotional material for ATBI developed At least 2 EC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed At least 1 promotional video for ATBI updated At least 1 promotional video for ATBI developed and updated At least 11 EC or promotional materials for incubatees developed At least 5 EC or promotional materials for incubatees developed At least 16 EC or promotional materials for incubatees developed At least 1 promotional video for incubatees developed At least 1 promotional video for incubatees developed At least 2 promotional videos for incubatees developed 1 ATBI sustainability plan revised as needed 1 ATBI sustainability plan revised as needed 1 ATBI communication plan developed and implemented 1 ATBI communication plan implemented 1 ATBI communication plan developed and implemented Patents At least 10 trademarks filed At least 10 trademarks filed At least 10 copyrights filed At least 10 copyrights filed 	Don Mariano Marcos Memorial State University (DMMSU)	Private Individuals, Farmers, Fishertolks, Students, Peoples Organization, Cooperatives, Technology generators from DMMSU, and SME's	1-Jul-2021	30-Jun-2023	Completed	5,000,000	1,166,061
	DOST-PCAARRD-IFSU Agri-Aqua Technology Business Incubator	Integrity of the environment and climate change adaptation and mitigation	The IFSU-ATBI is composed of programs and process in-order to ensure the success of technologies in the market. The first two years of operations will be allotted for the development of programs and manuals of the IFSU-ATBI. In addition, building strong partnership with potential incubatees and linkages with industry partners is one of the objectives of this unit. The programs of the IFSU-ATBI will provide Technical assistance through a series of Agri-Aqua Technology Business Incubation processes to its potential incubatees to ensure the success of the technology and the entrepreneur in the market.	<ul style="list-style-type: none"> Publication - 1 ATBI business plan developed 1 ATBI operations manual developed At least 10 ATBI curricula developed At least 2 EC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed At least 10 EC or promotional materials for incubatees developed At least 2 promotional videos for incubatees developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented Patent - At least 10 Trademark filed At least 5 Copyrights filed Product - At least 10 technologies adopted by incubatees People - At least 10 incubatees assisted, At least 6 trainings for ATBI staff conducted or participated in, At least 10 trainings for incubatees conducted, At least 10 business plans for incubatees developed, At least 3 awareness seminars or promotional activities conducted, At least 3 business pitching events, industry meetups, or networking events conducted or participated in ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system Phase 2 At least 10 MOAs/MOUs with incubatees forged At least 6 MOAs/MOUs with organizations from public and private sectors forged Policy - 1 ATBI institutionalized, 1 ATBI-related policies of the University crafted and approved 	Ifugao State University (IFSU)	Technology and Business Incubator Office of IFSU/Technology Business Incubator personnel and manager/IFSU Researchers/Inventors/Technology adapters/Entrepreneurs	1-Nov-2021	31-Oct-2023	Completed	5,000,000	747,387

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	DOST-PCAARRD-LSPU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The DOST-PCAARRD-LSPU Agri-Aqua Technology Business Incubator (ATBI) is envisioned to be a center for development and advancement of sustainable agri-fishery and natural products industries in Laguna and nearby provinces through technology transfer, innovation, and entrepreneurship. To achieve its vision, it hopes to provide an enabling environment to potential business start-ups in order to increase entrepreneurial and economic growth. This project has established an ATBI Base Hub in LSPU Sinilagan Campus, with the aim of providing specialized services to technology developers/researchers, students, community people, and micro, small, and medium enterprises (MSMEs) by championing technology-based enterprises and foster the innovative and entrepreneurial spirit. During its Phase 1, the Project has been funded by the DOST-PCAARRD-LSPU Fund of PHP 8,110,313.28.	Publications 1 Business Plan revised as needed 1 ATBI operations manual revised as needed 10 ATBI basic incubation revised curricula 6 ATBI advanced incubation curricula developed 10 IEC or promotional materials for ATBI developed 1 promotional video for ATBI developed and updated 10 IEC or promotional materials for incubatees developed 2 promotional videos for incubatees developed 1 ATBI sustainability plan revised 1 ATBI communication plan developed and implemented Patents 10 trademarks filed 10 copyrights filed Products 10 technologies adopted by new incubatees 6 technologies adopted by continuing incubatees 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement People and Services 10 new incubatees enrolled at basic incubation program 6 continuing incubatees enrolled at advanced incubation program 6 continuing incubatees graduated from advanced incubation program 6 startups or spinoffs registered and launched 6 trainings for ATBI staff conducted or participated 10 trainings for incubatees conducted 10 business plans for new incubatees developed 6 business plans for continuing incubatees improved 10 awareness seminars or promotional activities conducted 4 business pitching events, industry meetups, or networking events conducted or participated in 2 consortium member-agencies mentored on ATBI operations	Laguna State Polytechnic University (LSPU)	Filipino consumers, Incubatees, Partner Farms, Partner RDIs, other SUCs, LSPU faculty, support staff, students, and the ATBI Management Team	1-Jul-2021	31-Dec-2023	Completed	5,000,000	1,133,521
	DOST-PCAARRD-MMSU Agri-Aqua Technology Business Incubator	Integrity of the environment and climate change adaptation and mitigation	In response to the challenge of establishing and enhancing agri/business TBIs to create jobs, promote public-private partnerships, and develop entrepreneurs for regional economic development, MMSU is taking the leap to improve its technology promotion and transfer programs to enhance client service and reach. As such, there is a seeming need to establish MMSU-TBI to promote entrepreneurship and produce successful and viable firms by providing business development services. This endeavor is envisioned to support the launch and growth of promising ventures in the Ilocos Region. Moreover, MMSU-TBI will also assist MSMEs in the region in improving their business operations and productivity specifically in providing assistance in regulatory requirements, intellectual property protection and other services. The establishment of MMSU-TBI will provide a more conducive ecosystem for entrepreneurs to promote and nurture technology-based enterprises and at the same time complement the existing MSMEs in the locality. Hopefully, through the MMSU-TBI, the University will be able to commercialize R&D outputs, transfer technologies to intended users, create employment, and accelerate the creation of new enterprises in the region for economic development.	Publications - TBI business plan enhanced - TBI operations manual developed - At least 4 TBI curricula developed - At least 8 IEC and promotional materials developed - At least 2 promotional videos developed - 2 semi-annual reports prepared and submitted - 2 annual reports prepared and submitted - Terminal report prepared and submitted - List of technologies for incubation/commercialization prepared and promoted - List of TBI service offerings prepared and promoted - List of TBI service facilities prepared and promoted Patents - At least 2 trademarks filed Products - At least 4 technologies incubated/commercialized People and Services - At least 8 incubatees enrolled - At least 8 business plans for the incubatees developed - At least 4 trainings for the incubatees conducted - At least 5 startups or spinoffs registered and launched - At least 3 benchmarking activities conducted - At least 5 trainings for the project team conducted and participated in - At least 4 awareness seminars and promotional activities conducted - At least 4 business pitching events, industry meetups, and networking events conducted and participated in Places and Partnerships - At least 8 MOAs/MOUs with the incubatees forged - At least 5 MOAs/MOUs with organizations from the public and private sectors forged - TBI launched	Mariano Marcos State University (MMSU)	Startups, spinoffs, farmers, fisherfolk, industry, general public, researchers/students, NGAs/NGOs	1-Jan-2021	30-Jun-2023	Completed	4,999,757	582,009
	DOST-PCAARRD-PSAU Agri-Aqua Technology Business Incubator	Integrity of the environment and climate change adaptation and mitigation	The project primarily aims to serve as an avenue where technologies developed in the University and other partner SUCs/RDIs are adopted and/or commercialized by enabling start-up business enterprises in the province. The role of the PSAU * Agri-Aqua Technology Business Incubation (ATBI) Office is to establish synergistic multi-sectoral relationship with the business and start-up communities, especially the micro-, small and medium enterprises (MSMEs) in order to accelerate the commercialization of university-made technologies. This project does so through the provision of various services to interested agricultural and aquaculture enterprises who are interested to be incubated.	1 ATBI business plan developed ATBI operations manual developed At least 10 ATBI curricula developed At least 2 IEC or promotional materials for ATBI developed and disseminated At least 10 IEC or promotional materials for incubatees developed and disseminated At least 2 promotional videos for incubatees developed 1 ATBI sustainability plan developed and implemented 1 ATBI communication plan developed and implemented 1 semi-annual report prepared and submitted 1 annual report prepared and submitted 1 terminal report prepared and submitted 1 list of technologies for incubation/commercialization prepared and published 1 list of ATBI service offerings printed/published At least 10 trademarks filed At least 5 copyrights filed At least 5 technologies commercialized with FOR and 5 extended/adopted At least 1-2 benchmarking activities conducted At least 6 trainings/capacity building activities for ATBI staff conducted or participated in At least 3 awareness seminars or promotional activities conducted At least 10 incubatees assisted At least 10 trainings for incubatees conducted At least 10 business plans for incubatees developed At least 3 business pitching event, industry meetup, or networking event conducted or participated in At least 1 PSAU-ATBI Advisory Board formed ATBI operations fully integrated to PCAARRD * the ATBI real-time monitoring system At least 10 MOAs/MOUs with the incubatees forged At least 4 MOAs/MOUs with organizations from public and private sectors forged ATBI-related policies of the University crafted and approved 1 ATBI organizational structure with terms of reference developed Baseline metrics to assess the social impact of ATBI to incubatees formulated Social impact of ATBI to each incubatee assessed Innovation ecosystem improved Contributed to the leveling of the University Baseline metrics to assess the economic impact of ATBI to incubatees formulated Economic impact of ATBI to each incubatee assessed Gross and net income generated by incubatees determined Jobs generated by incubatees determined Gross and net income generated by ATBI determined Jobs generated by ATBI determined Business valuation of incubatees * start-up/spin-off companies determined Economic condition of the region improved	Pampanga State Agricultural University (PSAU)	PSAU ATBI Personnel PSAU Researchers/Inventors Agri-aqua Incubatees (Entrepreneurs, Agripreneurs, Farm Owners, Farmers)	1-Nov-2021	31-Oct-2023	Completed	5,000,000	1,155,753

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	DOST-PCAARRD-SKSU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The SKSU Agri-Aqua Technology Business Incubator as the center for technology transfer, commercialization, and business incubation in the University is constantly providing technical services to the incubatees in adopting the developed technologies. However, aside from the focused technologies for adoption in Phase 1, there is still a need to enhance the incubator services by advancing the technologies and services provided to the existing incubatees and new start-ups/incubatees, spin-offs, and micro and small entrepreneurs.	<ul style="list-style-type: none"> ATBI business plan revised as needed At least 1 ATBI operations manual revised as needed At least 10 ATBI basic incubation curricula revised as needed At least 2 ATBI advanced incubation curricula developed At least 2 IEC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed and updated At least 10 IEC or promotional materials for incubatees developed At least 2 promotional videos for incubatees developed ATBI sustainability plan revised as needed ATBI communication plan developed and implemented At least 10 trademarks filed At least 10 copyrights filed At least 5 technologies adopted by new incubatees At least 6 technologies adopted by continuing incubatees At least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement At least 10 new incubatees enrolled at basic incubation program At least 6 continuing incubatees enrolled at advanced incubation program At least 6 continuing incubatees graduated from advanced incubation program At least 6 startups or spinoffs registered and launched At least 6 trainings for ATBI staff conducted or participated in At least 10 trainings for incubatees conducted At least 10 business plans for new incubatees developed At least 6 business plans for continuing incubatees improved At least 4 awareness seminars or promotional activities conducted At least 4 business pitching events, industry meetups, or networking events conducted or participated in ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system At least 2 consortium member-agencies mentored on ATBI operations At least 10 MOAs/MOUs with new incubatees forged At least 6 MOAs/MOUs with continuing incubatees renewed At least 10 MOAs/MOUs with organizations from public and private sectors forged/renewed ATBI institutionalized with approved Board Resolution ATBI-related policies of University 	Sultan Kudarat State University (SKSU)	Start-ups, micro and small enterprises	1-Jul-2021	30-Sep-2023	Completed	5,000,000	1,161,568
	DOST-PCAARRD-WPU Agri-Aqua Technology Business Incubator Phase 2	Integrity of the environment and climate change adaptation and mitigation	The goal is to establish the Western Philippines University-Technology Business Incubator (WPU-TBI) office in Puerto Princesa City campus where other government and private agencies that could be collaborators or future partners are at most accessible. The WPU-TBI will be the center for technology transfer and business incubation of technologies generated in the university. Specifically, it will provide technical services to advance incubatees for commercialization of mature technologies in the production of agriculture and aquatic species and products.	<ul style="list-style-type: none"> ATBI business plan revised as needed At least 1 ATBI operations manual revised as needed At least 10 ATBI basic incubation curricula revised as needed At least 10 ATBI advanced incubation curricula developed At least 2 IEC or promotional materials for ATBI developed At least 1 promotional video for ATBI developed and updated At least 10 IEC or promotional materials for incubatees developed At least 2 promotional videos for incubatees developed ATBI sustainability plan revised as needed ATBI communication plan developed and implemented At least 10 trademarks filed At least 10 copyrights filed At least 10 technologies adopted by new incubatees At least 6 technologies adopted by continuing incubatees At least 3 technologies commercialized with issued Fairness Opinion Report and signed Technology Licensing Agreement At least 10 new incubatees enrolled at basic incubation program At least 6 continuing incubatees enrolled at advanced incubation program At least 6 continuing incubatees graduated from advanced incubation program At least 6 startups or spinoffs registered and launched At least 6 trainings for ATBI staff conducted or participated in At least 10 trainings for incubatees conducted At least 10 business plans for new incubatees developed At least 6 business plans for continuing incubatees improved At least 4 awareness seminars or promotional activities conducted At least 4 business pitching events, industry meetups, or networking events conducted or participated in ATBI operations fully integrated to PCAARRD's ATBI real-time monitoring system At least 10 MOAs/MOUs with new incubatees forged At least 6 MOAs/MOUs with continuing incubatees renewed At least 10 MOAs/MOUs with organizations from public and private sectors forged/renewed ATBI institutionalized with approved Board Resolution ATBI-related policies of University revised as needed Baseline metrics to assess the social impact of ATBI to incubatees formulated 	Western Philippines University (WPU)	Existing and future incubatees Technology and Business Development Office of WPU Technology Business Incubator personnel and manager WPU Researchers/Inventors Technology adapters	1-Mar-2022	29-Feb-2024	Ongoing	5,000,000	2,144,791
	Enhancing the Adoption and Transfer of the Phenology-based bamboo mapping technology and GIS-based suitability mapping of potential areas suitable for commercial bamboo in selected areas in the Philippines (Enhancing the Capabilities of DENR Field Offices on Phenology-based Bamboo Mapping Technology and GIS-based Mapping of Areas Suitable for Commercial Bamboo Production)	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for one and a half year (1.5 years) by DENR-ERDB in collaboration with Asian Institute of Technology, Pathum Thani, Thailand, with a total PCAARRD-GIA funding of PHP4,057,872.00. This project hopes to cascade the state-of-the-art technologies like phenology-based bamboo mapping and GIS-based suitability mapping techniques to the regional and other frontline units of the DENR, particularly the PENROs and CENROs, and those persons and agencies in the DENR involved in bamboo resources monitoring and management in order to equip them with scientific tools that will serve as basis for better management option and quick decision-making. Specifically, it aims to: (1) familiarise selected DENR Field Offices on phenology-based mapping technology for possible sustained implementation; (2) To facilitate the transfer of GIS-based suitability mapping technology for bamboo; and (3) to generate GIS-based maps of areas suitable for commercial bamboo plantation.	<ul style="list-style-type: none"> People and Services 10 DENR field staff trained 6 trainings conducted Publications 1 journal paper submitted for publication 3 modules prepared 3 IEC materials produced Patents/IP 1 utility model for Bamboo mapping filed 3 copyrights filed Places and Partnerships 4 linkages forged Products 9 Bamboo distribution maps 9 bamboo suitability maps 	Ecosystems Research and Development Bureau (DENR-ERDB)	DENR technical field personnel Community based farms on bamboo Bamboo growers and processors industry (traders, retailers) National government agencies Non-governmental organizations	1-Jan-2022	30-Nov-2023	Completed	2,815,248	689,256

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Enhancing the Coffee Food Value Chain through Smart Technologies and Partnerships towards Food Resiliency in Region IV A&B (CALABARZON & MIMAROPA) -- Phase II	Integrity of the environment and climate change adaptation and mitigation	The Cavite State University - National Coffee Research, Development and Extension Center (CVSU-NCRDEC) proposes the second phase of the DOST-PCAARRD-funded Coffee Food Value Chain Project to monitor the support services provided to its beneficiaries in CALABARZON during its 1st phase. Further assessments and continued implementation of transferred technologies will be made to efficiently measure its maximum impact on the lives of the men and women in the region's coffee sector. More programs and interventions which were not employed before due to budget, time, and COVID-19-related constraints will also be done here. Included in the primary targets of the project for its second phase are to further increase the coffee production area in CALABARZON; to continuously apply the rejuvenation technology; to improve the quality of the PO's coffee; products by increasing the adoption rate of suitable and need-based processing technologies; to strengthen and widen the region's local coffee processing by assisting POs in product development; to capacitate the project beneficiaries through organizational upscaling and conduct of various capacity building activities; and to increase the coffee profitability by improving the market and institutional linkages in CALABARZON. In phase 2, the team will also scale out the best practices identified during the first phase of the project to the selected POs in MIMAROPA. These undertakings are envisaged to capacitate and empower regions IV A&B's key coffee value chain players in all aspects of coffee production and processing, marketing, and organizational management. The first phase of the Coffee Food Value Chain (CFVC) project was implemented by CVSU for 22 months. The project generally aimed to enhance the status of CALABARZON's coffee sector, especially during the pandemic. Serving as its beneficiaries were the ten identified coffee producer organizations (POs) and the two pilot farms from CALABARZON. These POs were subjected to a series of needs assessments; survey interview, KII, and Focus Group Discussion (FGD). Through these, some of the critical problems at the coffee production, processing and marketing were identified. The project will be implemented for two (2) years by Mindanao State University - Maguindanao. The project site is located at Datu Odin, Maguindanao with a total PCAARRD-GIA funding of Php 5,776,057.60. It generally aims to build and strengthen the resiliency of upland farming systems to adapt to climate change thereby decreasing the vulnerability to the negative effects of decreasing water resources and increasing soil degradation. Specifically, the project will focus on: Promoting climate-adaptive soil and water management options in highland agriculture; Building the capacity of Mindanao highland farmers in adopting climate-smart technologies; Establishing S&T community-based climate-smart highland farm; Recommending climate adaptation measures to address water scarcity; and Developing knowledge products on climate-smart soil and water management in highlands.	<ul style="list-style-type: none"> Publication: <ul style="list-style-type: none"> 1 needs assessment report prepared for the selected POs in MIMAROPA At least 4 IEC materials produced about the project and technologies applied 1 training brochure developed incorporating all NCRDEC's modules on coffee production and processing At least 2 promotional videos developed 1 social media page maintained 1 strategic plan developed prior to the full-blown implementation of the project. 2 benchmarking activity reports for the 2-year project duration 2 site assessment reports/development plans for the pilot farms drafted 2 business plans prepared in phase 1 updated 1 sustainability plan prepared at the end of the project Patent: <ul style="list-style-type: none"> At least 6 copyrights filed for the whole duration of the project Product: <ul style="list-style-type: none"> At least 1 POT and SMART technology (rejuvenation) used at the farm level At least 1 POT and SMART (wet processing/other suitable processing method) used At least 10% adoption rate (per POs) for the whole duration of the project At least 15 tons of new coffee plantation established At least 1 coffee nursery established for the whole duration of the project At least 2 new coffee products developed At least 1,000 pcs of innovative packaging materials transferred to the selected POs 2 manual/mechanical depulpers, 2 dehulpers, and 1 coffee roaster deployed (technology transfer) At least 650 copies of IEC materials distributed 1 packaging material developed for each 2 POs who will be assisted in introducing their single origin coffee People: <ul style="list-style-type: none"> At least 12 farm enterprises supported for the whole duration of the project At least 8 food processors supported and mentored At least 2 POs assisted in the development of their starting/new coffee products 3 benchmarking activities on the well-established coffee cooperatives in the country 3 incubates in phase 1, and at least 3 new incubates enrolled and supported for phase 2 At least 3 associations applied for CDA accreditation 	Cavite State University (CVSU)	The following POs from the CALABARZON region will be the beneficiaries of the project: Bailen Coffee Growers Association (BCGA), General Emilio Aguinaldo, Cavite Minantok East Coffee Growers Association (MECGA), Amadeo, Cavite Castle Guinting Upland Marketing Cooperative (CGUMC), Cabuyao, Laguna Juan Santiago Agriculture Cooperative (JSAC), Sta. Maria, Laguna Cueva Coffee Farmers Association (CCFA), Sta. Maria, Laguna Aga Farmers Multi-Purpose Cooperative (AGFAMCO), Nasugbu, Batangas Kaylaway Farmers Association (KFA), Nasugbu, Batangas Samahan ng Magasaika ng San Andres Bakkab Cuyambay Association, Tanay, Rizal Adarna Coffee Cooperative, Candelaria, Quezon formerly Masalukot Farmers Association Guinayangon Coffee Growers Association and Farmer Entrepreneur (G-CAF) Inc., Guinayangon, Quezon	1-Jul-2023	30-Jun-2025	Ongoing	5,000,000	3,055,000
	Implementation of S&T-based Climate-Smart Soil and Water Management in the Highlands of Maguindanao	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for two (2) years by Mindanao State University - Maguindanao. The project site is located at Datu Odin, Maguindanao with a total PCAARRD-GIA funding of Php 5,776,057.60. It generally aims to build and strengthen the resiliency of upland farming systems to adapt to climate change thereby decreasing the vulnerability to the negative effects of decreasing water resources and increasing soil degradation. Specifically, the project will focus on: Promoting climate-adaptive soil and water management options in highland agriculture; Building the capacity of Mindanao highland farmers in adopting climate-smart technologies; Establishing S&T community-based climate-smart highland farm; Recommending climate adaptation measures to address water scarcity; and Developing knowledge products on climate-smart soil and water management in highlands.	<ul style="list-style-type: none"> People and Services: <ul style="list-style-type: none"> 5 farmer organizations trained trainings conducted for highland farmers consultation meetings conducted experts' pool maintained Publications: <ul style="list-style-type: none"> 2 papers submitted to a peer-reviewed journal 1 Technical Report 1 brochure on climate-adaptive soil and water management for highlands 1 Guidance Manual on climate-smart highland agriculture 2 IEC materials on soil and water management for highlands 1 Patent/IPS Copyrights 1 Places and Partnerships 4 linkages and partnerships with DENR, DA, DOST, and private sectors 1 policy brief for input to relevant agencies 2 KP developed 1 demonstration farm 	Mindanao State University - Maguindanao (MSU-Maguindanao)	Highland farmers MSU-Maguindanao and the scientific community, local government units, National government agencies	1-Dec-2021	31-May-2024	Ongoing	4,996,058	863,883
	Improvement of Duck Egg Production using Itik PINAS in Isabela Province	Integrity of the environment and climate change adaptation and mitigation	Duck raising is considered as one of the largest poultry industries in the Philippines, which ranks second to chicken production. At present, the majority of duck raisers are based in the rural areas and currently operating backyard-scale production utilizing native ducks. Through intensive breeding and selection conducted by the government through DOST-PCAARRD, three ItikPINAS (IP) strains were developed. The production record of IP shows that it performs better than its unpurified counterparts in terms of egg production, fertility and hatchability of the eggs. With improved performance, there is an opportunity for the duck raisers to their increase profit, thus, making the production a sustainable livelihood for the raisers. This initiative aims will upscale the IP Kayumanggi production in the Province of Isabela by establishing an accredited breeder farm. The pure strains produced will be distributed in backyard farms until all of the stocks raised belonged to this strain. With the improved stocks raised, it will provide an opportunity for the raisers to improve the farm efficiency and increase production of main products that will lead to increase profit, making duck raising a sustainable livelihood.	<ul style="list-style-type: none"> Publications: <ul style="list-style-type: none"> 1, 2 IEC materials on duck egg products Patents: 1, 2 copyright of the publications Products: 1, Raised 1,100 heads of IP Kayumanggi (1,000 females; 100 male) 2, At least 125,000 eggs produced and marketed People and Services: <ul style="list-style-type: none"> 1, Attended at least 2 trainings on IP Kayumanggi production Places and Partnerships: 1, 1 signed partnership agreement with ISU-ATB Policy: Not applicable. 	AquChickBoy	1. Duck egg vendors 2. Duck industry in the Province of Isabela	1-Jul-2023	30-Jun-2024	Ongoing	1,520,000	1,520,000
	Levelling-Up of Innovative Agriculture, Aquatic, and Natural Resources-based Startups/Spinoffs thru Promotion, Assistance, and Development (LIPAD) Project	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (Mar 01, 2022 - Feb 28, 2024) by University of the Philippines Diliman; E. Virata Hall, E. Jacinto St. UP Campus, Diliman, Quezon City 1101 Philippines PCAARRD-GIA funding of Php 15,385,240.91	<ul style="list-style-type: none"> Publication: <ul style="list-style-type: none"> Year 1 Year 2 Total At least 7 marketing collaterals (brochures, flyers, primers, poster, pamphlets) At least 7 videos created for press releases, news and featured articles (tri-media, social media) 28 quarterly mentoring reports (7 startups/spinoffs x 4 quarters) 1 Proceeding for the Investment Forum At least 9 marketing collaterals (brochures, flyers, primers, poster, pamphlets) At least 9 videos created for press releases, news and featured articles (tri-media, social media) 36 quarterly mentoring reports (9 startups/spinoffs x 4 quarters) 1 Proceeding for the Investment Forum At least 16 marketing collaterals (brochures, flyers, primers, poster, pamphlets) At least 16 videos created for press releases, news and featured articles (tri-media, social media) 64 quarterly mentoring reports (16 startups/spinoffs x 4 quarters) 2 Proceedings for the Investment Forum 	University of the Philippines Diliman (UPD)	The target beneficiaries of this project project are sixteen (16) AANR-based startups and spinoffs.	1-Mar-2022	29-Feb-2024	Ongoing	7,152,155	3,027,458

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status /As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Market Validation and Scaled-up Production of Processed Carabao-based Products of Dairy Box Dinaluphan	Integrity of the environment and climate change adaptation and mitigation	The Makabagong Agrikultura ng Dinaluphan Marketing Cooperative (operator of Dairy Box Dinaluphan) is capable of processing and selling carabao milk and value-added products for the past years. However, the cooperative aims to position and market-fit their products in Dinaluphan and other parts of Bataan. Market Validation of Carabao-based Dairy Products and its expansion of market segment will significantly escalate the business enterprise. This will provide an avenue for increased financial income and generated jobs. Milk is considered as a basic commodity, and a healthy food for human consumption, but the Filipino community tends to buy local and imported milk brands from large-scale manufacturers and distributors in the country, bringing challenges to small local community farmers and processors in positioning their locally-produced yet competitive milk products. In summary, the course of actions to be undertaken in the project will be able to bring out the potential of Dairy Box Carabao Milk product's competitiveness in the market.	Publications: At least 1 revised business plan refined and board-approved At least 1 revised operations manual refined as per FDA and board-approved At least 1 promotional video developed At least 2 EC developed/Patents: At least 1 copyright filed At least 1 trademark filed Products: At least 2 products improved and/or developed At least 1 packaging design developed At least 10,000 Liters of milk processed/produced and marketed People and Services: At least 10 new farmers in cooperative registered At least 3 trainings conducted and/or participated in At least 1 promotional activity conducted At least 3 trade fairs participated in Places and Partnerships: At least 2 partnership with Government and/or Non-Government Unit forged Policy: N/A	Makabagong Agrikultura ng Dinaluphan Marketing Cooperative (MADMC)	Untapped potential of Carabao Milk and milk-based products continuously motivates the MADMC to reach and position their locally produced product in the market. The objectives of the project will work out, the potential of carabao milk and will greatly benefit not just the individual members of the cooperative but to the success of the cooperative as an entity. Additionally, post-harvest rice mechanization is continuously leveling up in the country and the number of carabao draft power utilization is decreasing. Motivating the individual carabao farmers (non-member of cooperative), within the area of Dinaluphan and other towns of Bataan, to use carabao for dairy milk production and make them as partner suppliers with MADMC will help them to increase their revenue streams.	1-Jul-2023	30-Jun-2024	Ongoing	1,800,000	1,800,000
	Mushroom Production and Processing Expansion of Mushroom City	Integrity of the environment and climate change adaptation and mitigation	Mushroom City is an agri-tourism site and training center for mushroom culture technology. It is one of the fastest-growing mushroom growers in Bukidnon, established in 2019. The company finds the shortage of production for mushroom in Bukidnon since there are markets that is yet to be served. This grant project aims for Mushroom City to expand its production and processing by adopting mushroom culture technology. The project will be implemented in a 1.3-hectare area located at Kalasungay, Malaybalay City, Bukidnon. The company has a set of marketing strategies to carry out a feasible mushroom enterprise. Benchmarking, capability trainings, production process, monitoring and evaluation by the CMU-ATBI were among the implementing strategies to carry out its deliverables. The project is expected to be completed in two years and a sustainability plan is in place. This project will increase the income of Mushroom City, provide direct and indirect employment, contribute to government revenue through tax, contribute to the tourism industry in Bukidnon, and simultaneously contribute to economic development in the region.	Publications: -At least 1 Operations Manual was developed and printed -At least 1 business plan revised and printed -At least 1 sustainability plan developed -At least 2 promotional videos developed -At least 1 Online Advertisement boosted -At least 3 IEC materials developed (brochure, flyers, signages)Patents: -At least 1 trademark filed -At least 3 copyrights filedProducts: -Produced 5,739 kgs of fresh mushrooms for one year -Produced 3,150 packs of mushroom spawn for one year -Produced and sold 27,700 trading bags for one year.People and Services: -Business Registration renewed -FDA/LTO application approved -At least 2 trainings attended by Mushroom City Staff -At least 1 benchmarking activity attended by Mushroom City Staff -At least 120 persons enrolled in Mushroom City Farm School for one yearPlaces and Partnerships: -Repair of Mushroom House -Repair of the Processing facility for the FDA/LTO application -At least 5 Partnerships EstablishedPolicy: -1 policy recommendation developed	Mushroom City Company	Mushroom City is an agri-tourism site and training center for mushroom production technology. It envisioned becoming the country's premier agri-tourism site and training hub, showcasing smart-farming technologies.	1-Jul-2023	30-Jun-2024	Ongoing	1,658,000	1,658,000
	Oikos Peace and Wellness Garden PA-SciCAT-In (Products and Services Advancement through Science for the Convergence of Agriculture and Tourism (SciCAT) for Inclusive Development	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (Oct. 1, 2022 - Sep. 30, 2024) by UBohol Island State University (BISU); Bohol Island State University - Bilar; Bilar, Bohol Philippines PCAARRD-GIA funding of Php 3,000,000.00	Publication: At least 3 technology promotional videos At least 3 EC materials (brochures, leaflets, etc.) At least 3 training modules prepared 2 Semi-annual reports 1 Annual report 1 Terminal report Patent: At least 6 copyrighted IEC materials (brochures, leaflets, posters, etc.) Product: At least 3 new POTs downloaded At least 150 kg farm fresh produce At least 3 value-added products from existing farm produce People: At least 5 trainings conducted At least 3 webinars conducted At least 250 trained farm owners/farming enthusiasts At least 250 potential POT adopters At least 5 actual POT adopters At least 100 monthly average visitors Place: 1 SciCAT site accredited by DOT as a farm tourism site. Policy: At least 1 policy recommendation promoting implemented POTs	Bohol Island State University (BISU)	OPWG personnel Community in Zamora Farm owners Farming enthusiasts Local and foreign tourists Farm entrepreneurs Students Academe Other interested individuals and groups	1-Oct-2022	30-Sep-2024	Ongoing	3,000,000	2,061,584
	Pre-commercialization of Probiotics and Prebiotics from Onion Wastes for Tilapia Culture	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 2 years (Jul 01, 2022 - Dec 31, 2023) by Central Luzon State University, Bantug, Science City of Munoz, Nueva Ecija Philippines PCAARRD-GIA funding of Php 4,999,866	Publication: Year 1 IEC materials: 1 infographic on probiotics and prebiotics produced2 infographics/posters on probiotics and prebiotics produced Year 2 1 paper submitted to a peer-reviewed journal Patent: Year 1: 3 trademarks Year 2 1 UMPatent Product: Year 1: Probiotics: 3,000 L probiotics produced Prebiotics: 840kg prebiotics producedStarter culture: 1000 L starter culture produced FS/SP/MS: 1 FS/MS/SP prepared People: Trained manpower: 6 farm cooperators trained on the preparation of probiotics and prebiotics 1 GREAT scholar trained on research project planning, conduct and presentationPlace: MOUNMOA 3 MOUNMOA established with partner agencies and LGUsPolicy: Year 2 1 policy brief submitted to the Solid Waste Management Board of LGUs and Department of Agriculture	Central Luzon State University (CLSU)	Tilapia farmers, other farmers (source of agricultural wastes) and their household members, feed dealers, agricultural suppliers, agricultural extension workers, local government units, spin-off or start up companies who will manufacture the probiotics and prebiotics from agricultural wastes	1-Jul-2022	31-Dec-2023	Completed	4,999,866	1,128,795
	Pre-commercialization of the porcine meat detection test kit for traceability and halal screening	Integrity of the environment and climate change adaptation and mitigation	The Meat Detection Test Kit (MDTK) is a DNA-based test for animal ingredient detection towards food safety and fair trade. It was developed during the UPLB-PCAARRD project in 2014-2017 and filed for Patent in 2019 (No: 1/2019/050095). The test can detect pig, chicken, cattle, buffalo, duck, goat, horse, crocodile, and even dog. This PCR test is an ideal tool for regulatory agencies to implement accurate food labeling and increase regulatory compliance of the meat processing industry. The primary target end-users are the government regulatory agencies NMIS & FDA, while the secondary market are the private meat manufacturers and the Halal-certification industry. This project will conduct pre-commercialization activities such as market research, business modeling and branding to support the commercialization of the technology. The gap in meat authenticity testing was due to the lack of manpower, in our regulatory agencies, to provide routine testing service. On the other hand, most meat manufacturers lack the capability and the facility to conduct the test. In this project, we will determine the customer preference as to product specifications (kit or service), pricing, and positioning. Ultimately, we intend to secure a licensing agreement between the spin-off company and UPLB and submit a policy recommendation.	Publication: 2 - 1 about market survey 1 about false labeling in the meat industryPatent: 1 brand designProduct: 1 product with specifications that meet the demands of clientsPeople: 1 training service to UP Mindanao and for other interested partnersPlace: 3 (DOST-HVL, UP Mindanao, NCMF) - 1 partnership DOST HVLA for RT-PCR testing 1 partnership with NCMF 4A for provision of Halal-certified meat samples 1 partnership with UP Mindanao for Halal screening using MDTKPolicy: 1 policy recommendation such as Department Order	University of the Philippines Los Baños (UPLB)	National Commission on Muslim Filipinos Halal Certifying Bodies Government Regulatory Agencies (National Meat Inspection Service, Food and Drug Administration) Private Meat Manufacturers Spin-off	1-Jan-2023	31-Dec-2023	Completed	5,000,000	5,000,000

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	S&T Action Frontline Emergencies (SAFE) for Forest Fire Hazard in the Watersheds in Bokod and Tublay, Benguet Province using Maguay (Agave cantala) as Greenbelt (S&T Action Frontline Emergencies (SAFE) for Forest Fire Hazard in the Watersheds using Maguay as Greenbelt in the Province of Benguet and Mountain Province, CAR)	Rapid, inclusive and sustained economic growth	The establishment of greenbelt is one of the promising technologies feasible to minimize or control forest fire in watersheds in CAR specifically in the Province of Benguet which is prone to fire hazards due to the forest fires. Penafiel (1990) identified and tested species for greenbelt establishment. Maguay (Agave cantala) is one of the species suitable in Benguet Province. This has thick evergreen plants which cannot be easily burned. This crop has evolved traits including crassulacean acid metabolism (CAM) that allows them to survive environmental stress even under extreme heat and drought. It can be grown in a range of tropical climates, with an annual rainfall up to 2500 mm, but it grows best in a semi-arid tropical climate. The plant can be propagated vegetatively by means of suckers or bulbils. This was brought by the Spanish from Mexico to the Philippines, Indonesia and Malaysia, where it later evolved into a fiber crop. Maguay was planted initially in some areas as a hedge to control soil erosion and fence plant. Cantala fiber is made into baskets, hammocks, bags, sandals, carpets, rugs, doormats, sacks and cordage, of which binder twine is the most important.	<p>YEAR 1</p> <p>Products</p> <p>Two (2) maguay nurseries established</p> <p>11,264 suckers/bulbils produced and planted</p> <p>2.56 km greenbelts established</p> <p>People and Services</p> <p>Twenty (20) farmers empowered on climate change and greenbelt establishment using maguay for forest fire</p> <p>Fourteen (14) LGU officials trained</p> <p>Places and Partnerships</p> <p>Two (2) MOAs forged for forest fire hazard protection and greenbelt sustainability</p> <p>Two (2) barangay partners in greenbelt establishment</p> <p>Two (2) SPAs protected from forest fires</p> <p>Publication</p> <p>One (1) manual produced (How to Establish Greenbelt Using Maguay)</p> <p>One (1) poster produced (Greenbelt Establishment)</p> <p>One (1) flyer produced (Greenbelt Establishment)</p> <p>YEAR 2</p> <p>Products</p> <p>11,264 suckers/bulbils produced and planted</p> <p>2.56 km greenbelts established</p> <p>People and Services</p> <p>Twenty (20) farmers empowered on climate change and greenbelt establishment using maguay</p> <p>Policies</p> <p>Two (2) barangay ordinances/resolutions drafted for the protection and adoption of greenbelt establishment</p> <p>Publication</p>	Ecosystems Research and Development Bureau (DENR-ERDB)	Municipal and Barangay Local Government Units (BLGU) of Bobok, Bokod and Daclan in Tublay, Benguet	1-Apr-2021	31-Mar-2024	Ongoing	4,999,618	1,191,269
	S&T Community-Based Farm (STCBF) on Enhancing Coffee Production in Sultan Kudarat	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented in the three major coffee producing municipalities of Sultan Kudarat namely San, Ninoy Aquino, Katamaning & Lebak. The project has a goal to increase coffee productivity of the farmer-participants in the project sites from 0.5-ton green beans to 1.5 tons green beans per hectare through STCBF technology transfer modality within the project duration. This involves the introduction of key technologies in the whole coffee production chain (such as selection and use of high yielding clone, rejuvenation of old unproductive trees then proper fertilization of coffee farms and provision of all-weather dryer) that will ensure high productivity of coffee farms and improved quality of coffee beans. These technologies should fill up the critical S & T gaps in the production operations of coffee farmers in Sultan Kudarat Province as well as in most coffee growing areas in the country.	<p>Products</p> <p>40,000 rooted coffee seedlings (Arabica and Robusta) produced</p> <p>People and Services</p> <p>1 clonal garden and nursery established</p> <p>3 groups of farmer cooperators (w/20 farmers per group) organized and trained</p> <p>27 trainings (3 trainings per site, 3 batches) conducted</p> <p>Places and Partnerships</p> <p>7 MOAs (Between SKSU and 4 farmer cooperators and 3 LGUs) signed</p> <p>Linkages with 1 PGLUs and 3 MGLUs, Peoples Organization, DTI, DOST R12, and NESTLE sustained</p> <p>Publications</p> <p>2 IEC materials produced, distributed and reprinted</p> <p>2 training modules video clip coffee manual</p> <p>Policies</p> <p>1 draft policy on intensive promotion of GAP in coffee (ie. Coffee Festival) and local land use plans</p> <p>Applied 5 copyrights</p>	Sultan Kudarat State University (SKSU)	Coffee farmers	1-Jun-2020	31-May-2023	Completed	9,143,527	342,885
	S&T Community-based Nursery, Plantation Establishment and Management of Giant Bamboo (Dendrocalamus asper, Schult Backer) in Dalwangan, Malaybalay City, Bukidnon	Integrity of the environment and climate change adaptation and mitigation	<p>Bamboo is one of the fastest-growing and highest yielding renewables and at the same time is a highly versatile natural resource. In the Philippines, bamboos are intertwined with our environment, economy, and culture. They are used in construction, furniture, and handicraft manufacture. The Philippines ranks 5th in the world as the largest exporter of bamboo products and because of its many uses, bamboos have been popularly used by many communities. Investors are coming to the country with a very promising livelihood opportunity for the people. Although bamboo is abundant in the country, the existing resource cannot cope up with the demands of these investors both in the quality and quantity of the resources. The Philippine Bamboo Foundation reported that up to 52,000 hectares of land in the country are planted with bamboo but this could not meet the increasing market demand. As of 2010, the market needs 575,000 handicraft poles and 3.5 million furniture poles.</p> <p>Giant bamboo (Dendrocalamus asper) is among the ten commercially-important bamboo species identified by the Philippine Bamboo Industry. It is a very large, dense-clumping, evergreen species native to Southeast Asia. It grows up to 20 m tall and 12 cm in diameter. Younger plants are covered with fine velvety brown hairs. It is widely cultivated for its highly valued culms that are used as a building material and its shoots that are used as a vegetable. Upper internodes of the culm are used as containers for water or to collect juice being tapped from palm inflorescence. In Bukidnon, these are used as tomato stakes, poultry floors, and in making engineered bamboo products.</p> <p>Moreover, PCAARRD has identified improved nursery, plantation, and post-harvest management practices for bamboo as one of the important technologies in their Industry Strategic Science and Technology Plans (ISPs). Also, the Farm and Industry Encounter through the Science and Technology Agenda (FIESTA) conducted last 2018 highlighted bamboo production as one of the technologies for extension/adoption. This has increased the interest of the farmers because of the promising benefits they will gain from this commodity. Thus, there is a need to focus on S & T activities to support the development of the Philippine Bamboo Industry through a community-based approach. The S & T Community-based</p>	<p>Products</p> <p>25,000 planting materials from selected bamboo stands in the established S&T community-based bamboo nursery produced</p> <p>80 bamboo shoots from 10 established demonstration plots produced</p> <p>People and Services</p> <p>1 S&T community-based bamboo nursery established</p> <p>3 ha S&T bamboo demo plantation established</p> <p>15 ha S&T community-based bamboo expansion plantation established</p> <p>value added products for bamboo shoots (bood processed bamboo shoots)</p> <p>1 farmer group with at least 15 cooperators organized</p> <p>2 capacity building and capacitated 45 bamboo farmers conducted</p> <p>1 Farmer's Forum on Bamboo-Industry Development to be attended by 70 participants conducted</p> <p>Publications</p> <p>1 technology guide on Bamboo Planting, Harvesting, and Processing and produced 100 copies for distribution packages produced</p> <p>1 documentary video material highlighting the STCBF modality</p> <p>Places and Partnerships</p> <p>1 MOA with project partners forged</p> <p>Policies</p> <p>1 policy recommendation to the LGU to intensify the support to bamboo related activities drafted</p> <p>Patent</p> <p>Copyright of the technology guide filed/registered</p>	Ecosystems Research and Development Bureau (DENR-ERDB)	Bamboo growers in Dalwangan, Malaybalay City, Bukidnon	1-Aug-2021	31-Jul-2024	Ongoing	4,999,998	1,476,173

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status / As of December 31, 2023	Total Project Cost	2023 PCAARRD GIA
	Science and Technology Community Based Farm (STCBF) on The Production of Sweetpotato Flour as Substitute for Wheat Flour	Integrity of the environment and climate change adaptation and mitigation	The project focused on the production of sweetpotato for processing into sweetpotato flour.	<p>Publication Year 1:</p> <ul style="list-style-type: none"> One (1) Flyer One (1) research publication <p>Year 2:</p> <ul style="list-style-type: none"> One (1) Video of success stories One (1) Magazine Patent Year 1: Filed Utility Models for 2 Products <p>Year 2:</p> <ul style="list-style-type: none"> Filed Utility Models for 3 Products Product Year 1: <p>99,000 planting materials produced</p> <p>6 tons of SP harvested/hectare</p> <p>24,000kg of SP tubers harvested for processing (2 ha with 2 croppings)</p> <p>3,600 kg of SP flour produced (30%)</p> <p>Two (2) processed bread and pastries products with 10-15% SP flour content as substitute to wheat flour</p> <p>Year 2:</p> <ul style="list-style-type: none"> 200,000 planting materials produced 8 tons of SP harvested/hectare 32,000 kg of SP tubers harvested for processing (2 ha with 2 croppings) 8,600 kg of SP flour produced (30%) Three (3) processed bread and pastries products with 10-15% SP flour content as substitute to wheat flour prepared by the selected bakers <p>People: Year 1:</p>	Samar State University (SSU)	Sweet Potato Farmers and Women's Associations in Basey, Samar	1-Oct-2022	30-Sep-2024	Ongoing	5,000,000	942,478
	Sustainable Mangroves through Innovations and Livelihood Enhancement Promoting Growth and Climate Resilience (SMILE-Growth)	Integrity of the environment and climate change adaptation and mitigation	This project will look into the socio-ecological, socio-economic and socio-institutional systems of the mangrove communities and understand how these lead to sustainable and climate-resilient mangrove management. Potential S&T-based livelihood and social enterprise innovations that will further promote socio-ecological and economic well-being will be explored. Strategies for their technology transfer and effective adoption will likewise be pursued and applied.	<p>Products</p> <ul style="list-style-type: none"> Characterized 2 mangrove social-ecological system Produced 2 mangrove cover maps Characterized 2 livelihood systems/activities Produced 1 training module <p>Places and Partnerships</p> <ul style="list-style-type: none"> Established 2 partnerships and linkages (i.e. LGUs, SUCs, NGAs) Conducted 2 benchmarking activities in successful mangrove CBFMs Conducted 1 cross-visit <p>People and Services</p> <ul style="list-style-type: none"> Identified 30 farmer cooperators Conducted 1 workshop/focus group discussion with PO, LGU and other relevant stakeholders per site Trained 30 farmer cooperators Conducted 2 trainings on S&T-based livelihood development Supported 2 student researches (1 PhD and 1 undergrad) <p>Publications</p> <ul style="list-style-type: none"> Produced 1 journal article/ chapter-in-a-book published in a reputable international publisher Produced 2 IEC materials Produced 1 AVP Produced 1 training module <p>Patents</p> <ul style="list-style-type: none"> Filed 3 copyrights (2 for IEC materials and 1 for training module) 	University of the Philippines Los Baños (UPLB)	The following are the target beneficiaries of the project: CBFM members Other mangrove communities Government agencies such as the DENR, DA, BfAR, etc Non-government agencies LGUs SUCs and academes Private organizations Policy makers	16-Oct-2023	15-Oct-2025	Ongoing	5,000,000	2,428,836
	Toxicity Testing, Product Registration, and Packaging and Labelling of Locally-Developed Bioinsecticide for Eggplant	Integrity of the environment and climate change adaptation and mitigation	The project will be implemented for 1 Year and 6months November 16, 2021 - May 15, 2023 (18 months) by Nueva Vizcaya State University in Quezon Street, Bayombong, 3700 Nueva Vizcaya with a total PCAARRD-GIA funding of Php 3,093,077.60. The project aims to be more readily utilizable by the farmers, improve the formulation process into a larger scale as mass production and commercialization, the use of chemical insecticides will be lessened	<p>Publication : 1 IEC</p> <p>Material produced and distributed</p> <p>Products : produced 100 kgs bioinsecticide</p> <p>Toxicity test conducted</p> <p>CCCP certificate acquired</p> <p>Field Testing result generated</p> <p>BAFS certificate issued</p> <p>Places and Partnerships : 2 cooperators (Collaboration with LGU-Bayombong and LGU Solano for pilot testing) Contract with BAFS Certified Researcher, Dr. Marilyn G. Parricio Contract with UPLB Foundation, Inc. Fairness Opinion report</p>	Nueva Vizcaya State University (NVSU)	The target beneficiaries are the eggplant farmers in Nueva Vizcaya and the whole Cagayan Valley region. The target beneficiaries are the eggplant farmers in Nueva Vizcaya and the whole Cagayan Valley region.	1-May-2022	31-Oct-2023	Completed	3,049,136	346,764
	Upscaling and Market Expansion of IF Green Technologies	Integrity of the environment and climate change adaptation and mitigation	Ensuring food supply within one's reach has been the very objective of IF Technologies. Turning a hidden talent to hobby to engaging into a business venture with a cause. IF Technologies started before the on-set of COVID 19 pandemic and became popular at its height when the lockdown took place and food security had become a threat too. Urban farming, container garden, and backyard garden concepts have become in demand which is carried until now. It has become one of the easiest ways to engage in agriculture within your reach that does not require a big amount of land, inputs and skills. Furthermore, this supports the UN's SDG on zero hunger, responsible consumption and productions, and promoting sustainable cities and communities through urban farming. IF Technologies develops the A&H Farming System composed of a portable or modular aquaponics and hydroponics set up which is easy to install garden structure that makes it handy and accessible to anyone who is interested to start their very own backyard gardening, start-up kit and livelihood guide, among others. But, IF Technologies main target are institutions and communities, especially those areas who are in need to augment their livelihood opportunities aiming to improve their quality of lives in their own communities. The IF Green Technologies will provide training and seminar with Free Seeds thru "SEEDS of HOPE " for the support of the project. This will make it possible to produce fresh, nutritious food with low carbon and water footprints, while conserving land, reducing emissions and waste and providing healthy, affordable, accessible food to the less fortunate. The company aims to continuously improve the products and services offered. The company started with a few numbers of personnel within the area of the former repair shop.	<p>Publications: - One Manual Guide and livelihood Kit: Enhanced and maintained 1 FB page</p> <p>Patents: - One IP Application (Trademark/Utility Model)</p> <p>Products: - 50 Aquaponics & Hydroponics Farming System Packages produced and marketed</p> <p>2 demo farms established</p> <p>People and Services: - 20 Farmers per community (2 communities) adopted the A&H Farming System</p> <p>Places and Partnerships: - Forged partnerships in 2 Barangays in farming, fish</p> <p>Policies: - 1 local ordinance for the promotion of the Aquaponics System for livelihood and food security</p>	IF Green Technology Farm Mgt. Services	Household-Restaurants-Fresh Market- Food Processors	1-Jul-2023	30-Jun-2024	Ongoing	1,330,000	1,330,000

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	Waste to Feed/Fertilizer: Bioconversion of Market, Food, Household Wastes, and Agricultural By-products into High-Value Feed and Organic Fertilizer using Black Soldier Fly.	Integrity of the environment and climate change adaptation and mitigation	INSIKLO, aInsekto and aasiklo, is an innovative and sustainable upcycling venture that harnesses insects'™ potential in transforming organic wastes into high energy and protein-rich feed suitable for livestock, poultry, and aquaculture production while producing organic soil conditioner (frass). Our mission at INSIKLO is to transform organic wastes into feed and food by harnessing insect life cycles in producing high-value products using innovative and sustainable ways driven by our core values: Innovation, Nature, Sincerity, Impact, Knowledge, Leadership, and Organic. Our goal is to inform the general public: our consumers, and our farmers, the producers, that there exist the Beneficial Super Flies or the Black Soldier Flies (BSF) that possess the potential in bio converting large biomass into high-value products with its larvae as animal feed and frass, exoskeleton and excreta of BSF, as organic fertilizer. Well-informed farmers can assess and bring reforms to their current practices which may lead to higher yield and profit thereby transforming their lives through newly optimized production systems using BSF technology. We are located in Brgy. bayog and Brgy Tuntungin-Putho and currently operating at a potential monthly capacity of 900-1000 kilos of larvae and aiming to expand our production to a higher volume to cater to industry demands.	Publications: -1 BSF Modular Farming Guide-1 INSIKLO Brochure-1 Scientific paperPatents: Filed 2 Utility models: Bioconversion techniques and by-products processing Filed TrademarkProducts: -Produced 1000 kilos of fresh larvae and BSF larvae derived products for product registration and promotion -Produced 1000 kilos of frass/compost from municipal organic waste for product registration and promotion - Registered compost/frass at DAF/SFFA and feeds at BAI-Acquired LTO certification from BAI-Improved product packaging-Demo Farm establishedPeople and Services: -Conducted four (4) trainings with 1 agri-tourism farm, 1 community group, 1 livestock farmer association, and 1 crop/vegetable association (quarterly) on BSF production and waste processing as well as its application in vegetable/urban gardening -Conducted 4 promotional activities (quarterly)Places and Partnerships: -Signed and implemented MOU with 2 LGUs for waste collection and transportation to INSIKLO's facilityPolicy: -At least one (1) local ordinance or executive order for separate segregation of organic wastes	Insiklo Sustainable Agriventures Corporation (INSIKLO)	Local Government Units for their organic waste managementLivestock, Poultry, Swine, and Aquaculture Industry for their locally sourced feedBackyard and commercial organic farms/farmers	1-Jul-2023	30-Jun-2024	Ongoing	2,425,000	2,425,000