

FY 2018 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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Developing the DOST-PCAARRD Innovation and Technology Center e-Library (DPITC e-Library)	Rapid, inclusive and sustained economic growth	Generally the project aims to: 1. Make DOST-PCAARRD the pioneering partner agency of DOST-STII on transforming traditional libraries into e-library/digital library in the DOST system; 2. To equip DOST-PCAARRD with customized digital tools and knowhow on library resource management in establishing an operational DPITEC E-library. Specific objectives: 1. Customize the current modules of the ScINET Integrated Library Management System (SILMS) of DOST-STII into Science Library Integrated Management System (SLIMS). 2. Set-up DOST-PCAARRD's digital library database using the customized SLIMS. 3. Capacitate DPIT E-library personnel on the administration and utilization of the customized SLIMS. 4. Train DPITC E-library personnel on digitization process and technologies. 5. Establish digital archives for DPITC E-library. 6. Capacitate DPITC E-library personnel on the standardized classification and cataloging library resources and content build-up to enable resource sharing and networking with other libraries in the DOST system. 7. Assess the technical and personnel library resources of DOSTPCAARRD regional consortium for potential deployment and implementation of SLIMS in their libraries in the future.	Year 1 ☐ Requirements Evaluation Report ☐ Template Design ☐ Database structure ☐ Systems Design ☐ Training on RDA and other library classification and cataloguing standards Year 2 ☐ A fully functional SLIMS website with customized modules for DPITC E-library. ☐ Established DPITC E-library digital database. ☐ Equipped DPITC E-library staff who will manage and administer the digital assets and access of the e-library. ☐ Digitized library resources for data banking and archiving. ☐ Library technical and personnel evaluation report of DOSTPCAARRD regional consortium. ☐ Installed STARBOOKS with special content on Agriculture, Aquatic Natural Resources (AANR) resources at the DPITC E-Library. ☐ Monitoring and evaluation process of the SLIMS using the System Requirements Specification (SRS), System Design Specification (SDS) and User's Manual.	STII	The project benefits all who have a stake and interest in the AANR sector (including students and the general public) but would be more relevant and appropriate for those working and involved in the sectors such as researchers, R&D administrators, policy makers (executive and legislative).	01-Oct-17	31-Mar-19	ONGOING	7,483,104	1,933,860
	Design and Development of a Programmable Dehydrator Machine for Herbal Tea Materials	Rapid, inclusive and sustained economic growth	General The project aims to design and develop a programmable dehydrator machine for herbal tea materials powered by solar energy with electric power back-up Specific • Determine the effect of the drying method presently used by local tea producers on the ideal chemical markers (ideal chemical markers include bioactive compounds with therapeutic effects e.g. alkaloids, flavonoids, saponins, and tannins) present on the herbal tea raw materials; • Design and develop a programmable dehydrator machine for herbal tea materials; • Evaluate the performance of the programmable dehydrator machine for herbal tea materials; and • Determine the organoleptic, physicochemical and microbiological characteristics of the finished products.	The expected output for this project will be a dehydrator machine prototype designed for herbal tea drying which can be electric or solar powered. In the absence of solar radiation, the drying process can still be possible using the available electric power. Embodied in this dryer is a programmable circuit system to control and monitor the temperature and humidity of the drying system.	ISTU	The developed dehydrating machine will be utilized by the local tea producers of Iloilo specifically the Ephrathah Farms (EF). The EF will be used as model for other entity engage in similar works wherein they can do bench marking on the dehydrator machine powered by electric and solar energy.	01-Oct-17	30-Sep-19	ONGOING	4,983,905	1,301,405
	Development and Use of Nanobiopesticide for the Control of Fusarium Wilt on High Value Crops	Rapid, inclusive and sustained economic growth	General: To develop a nanobiopesticide using metabolite/s from plant growthpromoting bacteria (PGPB) against Fusarium sp. for the production of banana, tomato and cucumber. Specific: 1. To formulate and characterize a polymer-based nanobiopesticide for Fusarium sp.; 2. To determine the efficacy and effectiveness of the formulated nanobiopesticide on different high value crops; 3. To optimize the formulation of nanobiopesticide using tomato, cucumber and banana as test crops; 4. To evaluate the toxicological effects of nanobiopesticide; 5. To determine the financial viability on the production and utilization of nanobiopesticide; and 6. To apply for patent protection of nanobiopesticide	Product: ☐ Formulated nanobiopesticide for Fusarium wilt control ☐ Application protocol of optimized nanobiopesticide formulation Patent: ☐ IP application of developed nanobiopesticide People Services: ☐ One trained personnel in nanotechnology through training at SIUCarbondale; 10 farmer-cooperators trained Publication: ☐ At least two (2) publications submitted to refereed journals ☐ Three brochures/ flyers (Utilization of nanobiopesticide for the control of Fusarium Wilt on tomato, cucumber and banana) Places and Partnerships: ☐ Collaboration with UPLB-IPB, SIU-Carbondale, Lapanday Foods Corp. and farmers' group/s	UPLB	☐ Farmers, researchers, students	01-Dec-17	30-Nov-19	ONGOING	5,000,000	980,965
	Development of Multiple Strains of Plant Growth Promoting Rhizobacteria-based Biofertilizer for Sustainable Lowland Rice Production	Rapid, inclusive and sustained economic growth	The project will utilize biochemical and molecular biology techniques for profiling the soil microbial community diversity and for selecting the most competent PGPR strains that may be combined with organic and inorganic fertilizers.  To develop multiple strains of PGPR-based biofertilizer for sustainable rice production and soil fertility in line with integrated plant nutrition management strategies in lowland ecosystem,	1. Developed multi-strain biofertilizer for lowland rice in Central Luzon 2. Decreased fertilizer usage by 25-35% 3. Recommended method and rate of application of developed biofertilizer 4. Quantified economic benefits of using the multi-strain biofertilizer technology 5. Trained 15 farmers on the developed biofertilizer technology 6. 1 publishable technical paper	PhilRice	Irrigated lowland rice farmers; biofertilizer producers; researchers and student; government agencies and academic institutions	01-Dec-16	31-Aug-19	ONGOING	4,999,706	1,494,698

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	Development of Nano-Biosensor Technology in Disease Surveillance and Diagnosis of Economically Important Crops (Old Title: Plant Disease Outbreak Prevention of Important Diseases in Selected High Value Crops through Nano-Biosensor-Based Biosurveillance)	Rapid, inclusive and sustained economic growth	<p>To develop a nano-biosensor technology for field use for the early detection of important diseases of banana, tomato, white potato, peanut and mungbean.</p> <p>Specific Objectives</p> <ol style="list-style-type: none"> <li>1. To demonstrate bio-based surveillance approach in detecting, monitoring, and understanding disease outbreak</li> <li>2. To develop biosensor for the rapid, affordable, and portable detection of diseases of agricultural importance</li> <li>3. To develop forecasting model based on input from biosensor data, weather data, environmental data for predicting potential disease outbreak</li> <li>4. To establish regional capacity building for disease identification, assessment, monitoring, and control.</li> </ol>	<ol style="list-style-type: none"> <li>1. Publications <ul style="list-style-type: none"> <li>② Development of RNA/DNA probe design for the different diseases and pests included in the project (at least 5)</li> </ul> </li> <li>2. Patents <ul style="list-style-type: none"> <li>② IP of the Gold nanoparticles with specific RNA/DNA probe (Au probe)</li> </ul> </li> <li>3. People Services <ul style="list-style-type: none"> <li>② At least 5 graduate students</li> </ul> </li> <li>4. Places and Partnerships <ul style="list-style-type: none"> <li>② Concerned agencies like LGUs, DA, and academic institutions</li> </ul> </li> <li>5. Policy <ul style="list-style-type: none"> <li>② Policy brief governing the spread of invasive plant pathogens and their insect vectors</li> </ul> </li> </ol> <p>Year 2</p> <ol style="list-style-type: none"> <li>1. Publications <ul style="list-style-type: none"> <li>② Quick on-site detection of plant pathogens using nanobased kits (at least 2)</li> </ul> </li> <li>② Manuals, Guide, IEC materials for on-site detection (at least 3)</li> <li>2. Patents <ul style="list-style-type: none"> <li>② Au-probe Process for each disease</li> </ul> </li> <li>3. Products <ul style="list-style-type: none"> <li>② The Nano-Biosensor Technology to be developed by this proposed project will produce a Biotechnology Product with a tentative product name as</li> </ul> </li> </ol>	DLSU	farmers, agricultural technicians, pest clinic laboratories	01-Jul-18	30-Jun-20	NEW	12,300,000	7,504,665
	Development of Rainwater and Fog Harvesters in Bagoio-Benguet Areas (Survey, Designing, Prototyping, and Piloting of Rainwater and Fog Harvesters in Bagoio-Benguet Areas)	Rapid, inclusive and sustained economic growth	<p>General: to develop rainwater/fog harvesting technologies for agricultural use in Bagoio-Benguet areas</p> <p>Specific:</p> <ol style="list-style-type: none"> <li>1. Ascertain community knowledge and local preferences on rainwater harvesting and water conservation</li> <li>2. Explore potential areas where rainwater harvesting techniques are most needed and feasible and identify and assess potential obstacles needed in the development and implementation of a rainwater harvesting technique</li> <li>3. Design and fabricate a modular prototype rainwater harvester using locally available raw materials for efficient rainwater harvesting for Bagoio-Benguet areas</li> <li>4. Design and fabricate a modular prototype fog water harvester using locally available raw materials for efficient rainwater harvesting for Bagoio-Benguet areas</li> <li>5. Pilot the refined rainwater and fog harvesters in the farming communities</li> </ol>	<p>Products: one portable rainwater harvester, one fog water harvester</p> <p>Publications: at least 2 refereed articles submitted in recognized journals</p> <p>Patent: at least 2 utility models submitted to IPOPHIL</p> <p>People &amp; Services: 4 graduate students mentored; 1 faculty researcher equipped with social research skills; community members engaged in discussions given affirmation of IKSPs in water resources management</p> <p>Policies: a) Policy briefs on water resources and conservation and water harvesting</p> <p>b) Policy input to mainstream rainwater harvesting in AIP and LCCAP</p>	BSU	Farmers and farming communities in Benguet; stakeholders involved in the conservation of biodiversity, and advocates for rainwater harvesting; scientific community (faculty, researchers, students); industries involved in water conservation; women farmers	16-Sep-18	15-Sep-20	NEW	5,000,000	3,210,212
	Effect of Nanomaterials on the Soil Microbial Community and Microbial Inoculants	Rapid, inclusive and sustained economic growth	<p>General:</p> <p>To assess the impact of nanomaterials on the soil microbial community and microbial inoculants.</p> <p>Specific:</p> <ul style="list-style-type: none"> <li>• To assess the effect of nanomaterials on the soil microbial community using culture-dependent and independent analysis</li> <li>• To assess the effect of nanomaterials on the survival of gusA-labelled PGPB inoculum strain in the soil and in the rhizosphere</li> <li>• To assess the effect of nanomaterials on the efficacy of microbial inoculants on high value crops.</li> </ul>	<p>Y1: Changes in the bacterial and fungal populations in the soil</p> <p>Molecular profile of the soil bacterial community</p> <p>Gus-A labelled microbial inoculum strain</p> <p>Y2: Molecular profile of the soil fungal community.</p> <p>Identified microorganisms that were affected by the nanomaterials</p> <p>Information on the effect of nanomaterials on the survival of PGPB inoculum strain in the soil and in the rhizosphere</p> <p>Information on the effect of nanomaterials on the efficacy of microbial inoculants</p> <p>Safety assessment of soil microbial community and microbial inoculants as affected by nanomaterials</p> <p>At least two scientific publications on the results of the research project</p>	UPLB	<ul style="list-style-type: none"> <li>• Regulatory agencies</li> <li>• Nanomaterials producers</li> <li>• Researchers, student</li> </ul>	01-Nov-16	28-Feb-19	ONGOING	4,954,985	302,920

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	Improving Production Efficiency and Cane Yield in a Sugarcane Block Farm Using an Automated Furrow Irrigation System	Rapid, inclusive and sustained economic growth	General: The project is aimed at introducing to farmers a robust, alternative option to facilitate precision irrigation in sugarcane production for 20% increased in water application efficiency and productivity. Specific: 1. Develop an affordable and functional automated furrow irrigation system for sugarcane block farms; 2. Develop a flexible design package for automated furrow irrigation system for varying combination of furrow length and furrow intake to achieve optimum efficiency; 3. Compare the actual performance of automated furrow irrigation with traditional furrow irrigation practice; 4. Assess the economic and technical feasibility of utilizing a cost-effective automated furrow irrigation system in sugarcane production; 5. Develop the capability to locally fabricate sensors, automated flow gates and control system for application in smart farming system. 6. Provide training to technicians and planters on the use of automated furrow irrigation system technologies for sugarcane.	1. Accurate water deliveries and applications with an increase in water savings of 20% from manual furrow irrigation 2. Involvement of two (2) undergraduate/graduate students in the project 3. MOA with Sugar Regulatory Administration, DAR, ARBOs, BSWM, and DA RFOs 4. Publication in refereed journal 5. Patent application for the automated furrow irrigation system 6. Trainings conducted for the application of automated furrow irrigation system and fabrication of sensors and automated gates 7. Policy recommendation on the conversion of rainfed cultivation into irrigated cultivation	CLSU	1. Sugarcane Planters 2. Sugarcane Technicians 3. Researchers on Smart Farming Applications 4. Students	16-Apr-18	15-Jul-20	NEW	5,000,000	3,013,227
	Pilot Testing of a Local Riding-Type Transplanter	Rapid, inclusive and sustained economic growth	General: To conduct pilot testing and assess the acceptability of the local riding-type rice transplanter performance in rice farmer's fields. Specifically the project aims to: To assess the actual field performance of the local ridingtype rice transplanter allowing the farmers to operate the commercial prototype. To Fine tune the commercial prototype based on the actual field performance, durability test results, and the preference of the farmers in terms of operation. To Determine the appropriate materials needed for reliable and quality unit. To determine technical viability (machine performance), economic viability (benefit-cost) and social acceptability (machine operation and cost) of the prototype; and To identify and accredit manufacturers for mass production.	A technically efficient, economically viable, and socially acceptable riding-type rice transplanter that is being manufactured by accredited manufacturers. Drafted IPR claims ready for submission to IPO Philippines prior to deployment to pilot areas Deployed at least 3 (three) prototype units in the pilot areas (Luzon, Visayas, Mindanao) Determined the readiness of cooperators to operate and maintain the transplanter Determined the technical performance and cost of operation of the technology Improved initial design of the developed technology Detailed engineering drawing of the different parts and components of the transplanter Trained at least 3 cooperators	PhilRice	Farmers/Seed Growers Seed Centers/Cooperatives Irrigators Association NGO's Private Company (Local Manufacturers)	01-Nov-16	31-Oct-18	COMPLETED	4,527,613	510,160
	Pilot Testing of Actinomycetes Biocontrol Agents (ACTiCon Against Fusarium oxysporum TR4 in Cavendish Banana	Rapid, inclusive and sustained economic growth	To validate and optimize the application of ACTICON agent against Foc TR4 in Cavendish banana.	1. Best application method, optimum dosage and frequency of application of ACTiCon™ biocontrol formulation against Foc TR4 (Y1) 2. Validated technical and economic viability of using ACTiCon;packaging of ACTiCon™ (Y2) 3. Registration of ACTiCon™ with concerned government agency. (Y2)	UPLB	Banana growers, banana plantation managers, entrepreneurs, researchers	01-Mar-18	29-Feb-20	NEW	5,000,000	2,921,256
	Pilot Testing of Combined Conduction and Far Infrared Radiation Dryer (Old Title: Pilot Testing of Far-infrared Radiation Paddy Dryer)	Rapid, inclusive and sustained economic growth	To pilot test the FIR paddy dryer using rice hull husk gasifier as a heat source.	1. 3 pilot testing sites established 2. 3 manufacturers trained on fabrication, assembly and installation 3. trained dryer operator farmers 4. Filed IPR claims and licensing of local manufacturers 5. detailed engineering drawings 6. cost-benefit and break even analysis	PhilRice	Farmers, farmer cooperatives, rice traders, millers, local manufacturers	01-Oct-17	30-Sep-19	ONGOING	4,997,557	1,003,290
	Pilot Testing of Peanut Postharvest Mechanization and Bulk Storage Technologies in Selected Regions in the Philippines	Rapid, inclusive and sustained economic growth	To test and evaluate the technical, economic performance and socio-cultural acceptability of the developed peanut postharvest mechanization technology prototypes in selected peanut growing regions in the Philippines	1. one unit of commercial model of peanut stripper cum pod sorting machine 2. one unit of commercial model of peanut sheller cum sorter machine 3. one unit of commercial model of automated aerated bulk storage system for peanut pods	CSU	peanut farmers and one peanut processor.trader	01-Jul-18	30-Jun-20	NEW	5,000,000	3,155,909

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	Pilot Testing of Pre-, On-, and Post-, Harvest Facilities for Mango Production in Island Garden City of Samal (IGACOS), Davao del Norte	Rapid, inclusive and sustained economic growth	General To pilot-test and assess the acceptability and viability of the innovative technologies (spray nozzle, fruit picker and integrated postharvest facility) to the mango farmers, contractors and other agencies in IGACOS Specific ① conduct a verificatory field survey that determines pre-, on, and post-, harvest needs of mango growers in the Island Garden City of Samal; ② conduct hands-on training on the operation and maintenance of the developed technologies; ③ fabricate the developed technologies and prototypes; ④ conduct field testing to selected farmer-cooperators to further enhance or fine-tune the developed technologies; and ⑤ determine and improve the economic and technological viability, and social acceptability of the mango tools and equipment/facilities	a. Trained export mango producing farmers – One (1) regional mango producers cooperative based in Samal and another Cooperative to be helped to develop to become an exporting entity in Davao Oriental b. Exportable volume of mangoes shall increase from baseline data of around 4Mt to an estimated volume of 6 MT per annum, effect of nozzle application of flower induction increases number flowers, Moreover, the technology reduced the volume of chemical spray losses by as much as 50% of the conventional loss. For harvesting, latex stain reduces by 73.00 % (27.4 to 7.3%) for the trigger type picker and 69.00 % (27.4 to 8.5%) for the pull type picker with insignificant number of fallen and mechanically damaged fruit. Reduce the anthracnose infestation by 85 to 94% using hot water treatment and increase the volume of exportable mango in IGACOS. c. Aware mango farmers of the technologies for its massive adoption and implementation d. Export-quality mangoes that would increase the value of cultivar “Carabao” for economic upsurge that will lead to less and minimal rejected mangoes therefore increasing the export-quality mangoes for 90%. e. Established technologies for mango production in IGACOS: The technologies in IGACOS are from the PAO tin tandem with the City Agriculturist Office of IGACOS and the Mango producers Cooperative in the Island. A memorandum of agreement shall be made between the Cooperative and the LGUs of the Province and IGACOS. f. Filed Patent/Utility Model for Mango Power Sprayer Nozzle	USEP	① LGUs of IGACOS ② Mango farmers in IGACOS ③ Mango contractual/ cooperators in IGACO	01-May-17	31-Dec-18	COMPLETED	2,862,359	330,416
	Pilot Testing of WiltCure as a New Biocontrol Agent Against Fusarium Wilt of Solanaceous Crops	Rapid, inclusive and sustained economic growth	The project is the continuation of the project on Development and Promotion of New and Enhanced Biofertilizers, Biostimulants and Biopesticides for Increased Crop Productivity. It will deal wtig the utilization of Wiltcure as a new biocontrol agent against fusarium wilt of tomato, hot pepper and eggplant in multilocation trials over two cropping seasons. Field testing will be done in Laguna, Quezon, Nueva Ecija, which are major producers of the solanaceous crops that will be studied.	① Year 1: Best application method, optimum dosage and frequency of application of WiltCure as a biocontrol agent against Fusarium wilt of solanaceous crops ② Year 2: Validated technical and economic efficiency of WiltCure; increased capacities of stakeholders including farmers and technicians through conduct of trainings.	UPLB, CLSU	① Farmers, consumers, entrepreneurs, researchers, students	01-Oct-17	30-Sep-19	ONGOING	5,000,000	1,177,813
	Production of Quality Planting Materials of Selected Vegetables, Legumes, Herbs and Fruits Trees(Old Title:Technology Demonstration on Organic Production of Lowland Vegetables and Legumes)	Rapid, inclusive and sustained economic growth	1. To establish techno demo area on organic production of lowland vegetables, selected field legumes and fruit trees; 2. To showcase nursery management on seedling production of lowland vegetables, herbs and fruit trees; 3. To disseminate organic vegetable production technologies to farmers, students, technicians and interested individuals	1. A Technology Demonstration Area for package of technologies on selected lowland vegetables, legumes, herbs and fruits; 2. Conducted at least 2 field days	BPI-LBNCRDPSC	Local and international organizations, local government technicians, farmers and individuals	01-Mar-17	28-Feb-19	ONGOING	3,911,990	1,272,491
	Toxicological Study and Pilot Testing of Nutrio™ Biofertilizer for Improved Production of Sugarcane in Regions III and VI(Old Title: Toxicological Studies of Newly Developed Biofertilizers for Various Crops)	Rapid, inclusive and sustained economic growth	General: To conduct toxicological study of Enterobacter sacchari S18, the microbial component of NutrioTM to ensure the biosafety of the inoculant and to validate under field condition the NutrioTM biofertilizer’s performance for improved production of sugarcane in Regions III and VI. Specific: ① To assess the safe use of NutrioTM for sugarcane production; ② To conduct pilot testing of NutrioTM for sugarcane production in Regions III and VI; ③ To introduce NutrioTM to farmers, agricultural technicians and other interested stakeholders; and ④ To evaluate the technical and economic viability on the use and adoption of the technology	① Year 1: Data/Information generated from the results of toxicity test of NutrioTM ② Year 2 and 3: Validated technical and economic efficiency of Nutrio biofertilizer; increased capacities of stakeholders including farmers and technicians through conduct of trainings; package of Nutrio biofertilizer technology for sugarcane.	UPLB	① Farmers, consumers, entrepreneurs, researchers, students	16-Nov-17	15-May-20	ONGOING	5,000,000	1,225,330
	Use of Carrageenan Plant Food Supplement (PFS) for Selected Cool-Season Crops (lettuce, broccoli, cabbage, and strawberry) in Protected Production System	Rapid, inclusive and sustained economic growth	General: To determine the effect of foliar carrageenan PFS and synthetic fertilizer combinations on the growth, quality, and yield of selected cool-season crops (lettuce, broccoli cabbage, and strawberry) under greenhouse conditions. Specific: 1. To evaluate the effects of various levels and frequency of carrageenan PFS applications on the growth and yield of selected cool-season crops; 2. To identify the optimum levels and frequency of carrageenan supplement application to maximize yields of the test crops; 3. To evaluate the effects of carrageenan PFS on the incidence of major insect pests and diseases of selected crops; 4. To determine the effect of carrageenan PFS on the quality of produce; 5. To validate preliminary test results in selected farmers’ fields; and 6. To conduct a benefit-cost analysis on the use of carrageenan PFS in the production of the selected crops	a. Increased yields of the test crops by at least 20% per cropping b. Reduced quantity of chemical fertilizer use by as much as 25% c. Reduced requirement and use of insecticides by as much as 25% d. Improved quality of produce in terms of sugar and nutrient contents without any contamination e. Benefit-cost analysis of the proposed intervention f. IEC materials and scientific paper on the use of carrageenan PFS in production of selected crops g. Conducted training of farmers on the use of carrageenan PFS	BSU	① local farmers engaged in the production of cool-season crops ② seaweed farmers and processors who could benefit from the increased demand for their products ③ consumers who would gain access to safer and better quality fruits and vegetables	01-Oct-16	30-Sep-18	COMPLETED	5,000,000	491,904

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Citrus Resources Research for Development in Cagayan Valley (CRR4DCV)	Project 5: Development and Verification of Soil and Water Management Strategies for Citrus	Rapid, inclusive and sustained economic growth	The overall goal of the project is to develop and fine-tune sciencebased organic and inorganic fertilization rates for citrus, with combined optimum irrigation rates for the different fruit development stages of bearing citrus under Nueva Vizcaya conditions. Specifically, the project aims to accomplish the following: a. Determine present soil- and irrigation-related practices in citrus farms; b. Determine optimum inorganic and organic fertilizer rates for fruiting citrus trees; c. Determine optimum soil moisture condition and drip irrigation application rates at various stages of fruit development; and d. Fine-tune fertilizer and irrigation rates determined from the convergence experiment	1. Optimized fruit production through application of technology on the proper and appropriate cultural management on pruning, detopping, flower and fruit thinning of durian for optimum production of quality durian fruits for domestic and export market, as well as on height and fruiting branches; 2. Increased yield and improvement of durian fruit quality; 3. Optimum fertilizer recommendation for durian based on leaf analysis validated and verified; 4. GIS-aided suitability maps for durian in Davao and Cotabato Provinces; and 5. Extended harvesting season by two months.	NVSU	1. Commercial durian growers 2. Small scale-durian farmers 3. Farm Contractors 4. Wholesaler/retailers/exporters Research institutions 5. Researchers 6. LGUs 7. Planners	01-Nov-17	31-Oct-20	ONGOING	4,999,322	797,572
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 1.1. Using Crop Simulation Models for Issuing Crop Advisories to Farmers	Rapid, inclusive and sustained economic growth	The proposed project includes the development of reliable crop forecast and farm advisories, and Early Warning Systems (EWS) based on process-based crop simulation models (CSM) for cereal crops and downscales location-specific seasonal climate forecast (SCF). The research regimens the generation of crop genetic coefficients for the development of databases of weather and climate forecasts so as to develop dynamic crop modeling and the implementation of Monitoring and Evaluation systems or (EWS). Specifically, the project component aims to: 1. To consolidate all relevant agro-ecological and crop production datasets and information for each of the land evaluation units (LEUs) within the major corn growing provinces in the Philippines for easy access and reference, and use in decision-making in corn production; 2. To integrate and synthesize the scientific data and information generated from SARAI Project 1 to come up with science-based recommendations on some crop production decision questions at the farm- and local government unit (LGU)- levels for smarter and resilient corn production systems; and 3. To develop and implement an automated or computer-based decision-support system that involves sciencebased procedures or protocols on crop yield gap analysis, crop forecasting, determining best planting date(s) or window, and optimal dosage and timing of fertilizer applications in corn production.	1. Crop variety-specific crop genetic coefficients for corn; 2. Validated crop simulation models for selected crops for specific locations (can be used to estimate crop yields), i.e. yield calculator; 3. Estimated crop yields (i.e. potential; nutrient-limited; water-limited yields) for specific crops in selected areas/ locations under different environmental and climatic conditions (i.e. average/ normal year; wet/ La Niña year; dry/ El Niño year); 4. Estimated cropped areas for specific crops in selected areas/ locations under different environmental and climatic conditions (i.e. average/ normal year; wet/ La Niña year; dry/ El Niño year); 5. Crop forecasting system and advisories for cereals for selected locations/ areas; 6. Location-specific crop simulation model, crop yield gap analysis; 7. Site-specific crop and water management protocols and advisories; 8. Site-specific of crop protection protocols and advisories given seasonal climate information.	UPLB	DA RFO personnel; LGU agricultural officers; Extension workers and technicians; SUC researchers; Farmer leaders; NGOs working with farmers	01-May-18	30-Apr-21	NEW	8,087,511	2,250,608
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 1.2. Phenology Studies, Crop Management, and Model Development for Sugarcane and Coconut	Rapid, inclusive and sustained economic growth	The objective of this study are: 1. To characterize the phenological growth stages of coconut and sugarcane under local growing conditions as influenced by the environment and climate ; 2. To determine critical stages of the crops in terms of production; and 3. To develop coconut and sugarcane yield models using empirical and/or adopting process-based models that have already been developed for other crops in other countries	Year 1 1. Database for upscale yield prediction models 2. Database for the development of site-specific nutrient manager 3. Database of crop phenology Year 2 1. Yield prediction model for Coconut and Sugarcane 2. Validation and field-testing of site-specific nutrient manager Year 3 1. Capacity-building to sustain the R&D activities over the medium- and long-term. 2. Site-specific nutrient manager for Coconut and Sugarcane 3. Scientific papers and other publications	UPLB	Policy and decision makers, academe (e.g. students, researchers, faculty members), private organizations, business community engaged in agro-industrial enterprises, smallholder farmers, local government units	01-May-18	30-Apr-21	NEW	8,557,191	2,826,851
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 1.3. Phenology Studies, Crop Management, and Model Development for Coffee and Cacao	Rapid, inclusive and sustained economic growth	The objective of this study are: 1. To characterize the phenological growth stages of coffee and cacao using the BBCH scale; 2. To determine how the stages of the trees' phenology and phenophases and fruit quality and yield are influenced by the environment in different climatic zones in existing farms; and 3. To determine the maturation period of berries and cacao pods; 4. To determine and characterize the growing conditions in the representative farms and their effect on production and phenology in coffee and cacao in selected climatic zones in the Philippines	Year 1-Year 3 1. Characterized phenological growth stages of coffee and cacao; 2. Identify the crop maturation period of coffee and cacao; 3. Determine the effects of climate change on the phenology of coffee and cacao; 4. Scientific papers and other publications 5. Support to student research 3 MS/PhD students (Horticulture) 3 BS students (Horticulture)	UPLB	Policy and decision makers, academe (e.g. students, researchers, faculty members), private organizations, business community engaged in agro-industrial enterprises, smallholder farmers, local government units	01-May-18	30-Apr-21	NEW	8,140,995	2,760,665

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Smarter Approaches to Reinvalidate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 1.4. Phenology Studies, Crop Management, and Model Development for Banana	Rapid, inclusive and sustained economic growth	The objective of this study is to develop banana models using empirical and process-based models that have been developed in other countries. Process-based models requires specific cultivar parameters which vary from cultivar to cultivar and thus need to be estimated under local conditions to raise the quality of calibration in these crop models. Specifically, the project aims to determine the specific crop coefficients of banana cultivars Lakatan and Saba (Musa acuminate and Musa balbasiana) in experiments under semi-controlled environments which shall cover a diverse range of planting dates, soil characteristics, pest environment and water availability using existing crop growth simulation models;	Year 1 1. Database for yield prediction models 2. Database of crop phenology Year 2 1. Model development Year 3 3. Yield prediction model for Banana cultivars 4. Scientific papers and other publications	UPLB	Policy and decision makers, academe (e.g. students, researchers, faculty members), private organizations, business community engaged in agro-industrial enterprises, smallholder farmers, local government units	01-May-18	30-Apr-21	NEW	10,919,994	4,091,498
Smarter Approaches to Reinvalidate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 1.5. Evaluation of Crop Growth Simulation Model for Soybean and Tomato	Rapid, inclusive and sustained economic growth	The main objective of the proposed project is to evaluate the existing crop growth simulation models in developing a crop yield forecasting system for soybean. Specifically, the project aims to: 1. Determine the specific crop genetic coefficients of soybean using the existing crop growth simulation model; 2. Validate the crop growth simulation models for soybean using a different data set; and 3. Determine appropriate integrated crop management methods from crop yield projections in a given climate change scenario using the validated crop growth simulation models for soybean	1. Crop genetic coefficients of at least two local varieties of soybean using the existing crop growth simulation model 2. Validated crop growth simulation model for soybean 3. Integrated crop management protocol for specific local varieties of soybean generated from validated crop growth simulation models 4. Published scientific papers and technical papers 5. Individuals trained to use the validated crop growth models for soybean	UPLB	academe, researchers, students, farmers and farming communities, agro-industries, policy and decision makers, private organizations, local government units	01-May-18	30-Apr-21	NEW	6,122,896	2,449,233
Smarter Approaches to Reinvalidate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.1. Community-Level SARAI-Enhanced Agricultural Monitoring System (SEAMS) and Dissemination of Crop Advisories	Rapid, inclusive and sustained economic growth	The main objective of the project is to develop a community-based SEAMS. Specifically, it aims to 1. Integrate GIS/RS technology with indigenous knowledge from farming communities to: a. establish the characteristics of selected farming communities in terms of the historical and present farming systems, land use/land cover, landscape, water resources, and weather and climate; b. develop a community level monitoring, advisory and yield forecasting system; c. develop a community level DRRM; 2. Integrate the community-based SEAMS with SARAI; and 3. Train the communities and SARAI partners on the use of the community-based SEAMS	1. GIS-format database on historical and present characteristics of eight (8) farming communities in terms of farming systems, land use/land cover, landscape, water resources, and weather and climate; 2. Eight (8) community level monitoring, advisory and yield forecasting system incorporated into a GIS/RS structure; 3. Eight (8) community level DRRM incorporated into a GIS/RS structure; 4. Eight (8) community-based SEAMS integrated into the SARAI-ICMF network; and 5. Trained communities and partners on the use of CB SEAMS.	UPLB	PCAARRD Regional Consortia, Department of Agriculture, Regional Agricultural Officers, Municipal Agricultural Officers, eight (8) Farming Communities, two each for the four climatic types	01-May-18	30-Apr-21	NEW	61,051,546	20,637,755
Smarter Approaches to Reinvalidate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.2. Enhanced Operation and Connectivity of AWS and UAV units under DOST-PCAARRD	Rapid, inclusive and sustained economic growth	Automatic Weather Stations (AWS) and Soil Sensor Stations (SSS) and build an interconnected network of weather stations of projects under DOST-PCAARRD. The project also intends to use the Near-infrared Reflectance (NIR) imagery together with the Unmanned Aerial Vehicle (UAV) for crop monitoring and data validation of remotely-sensed and plant-specific data. Specifically, the project aims to: 1. Continue the maintenance of the SARAI AWS and SSS units 2. Set up additional AWS and SSS units at identified sites 3. Conduct regular calibration of the AWS and soil sensors 4. Conduct capacity building activities for weather and soil data and crop monitoring among partner agencies 5. Interconnect various newly installed and non-SARAI AWS and SSS units to the existing SARAI AWS network 6. Collate all the AWS and sensor data in a common database to be used for weather forecasting 7. Provide weather information and forecasts to different program components 8. Monitor state of identified SARAI crops using RGB and multispectral imaging mounted on UAV 9. Determine vegetation index values of the identified SARAI crops to create a database of spectral crop signatures for further processing 10. Compare the NDVI values of the various SARAI crops taken by the multispectral camera mounted on UAV with satellite-derived and ground sensor values	Automatic Weather Station (AWS) - AWS set up, installation, maintenance - Capacity building on AWS/SSS among partner agencies - Interconnection of SARAI AWS, additional SARAI AWS and non-SARAI AWS under DOST-PCAARRD to SARAI network Near Infra-Red (NIR) Imagery and Unmanned Aerial Vehicle (UAV) - Capacity building on NIR/UAV among partner agencies - Crop monitoring - Validation studies - Development of protocol for nutrient and crop protection applications of UAV	UPLB, ISU, CLSU, MinSCAT, WPU, BU, WVSU, CTU, CMU, USTP, USM, MMSU	PCAARRD Regional Consortia, Department of Agriculture, Regional Agricultural Officers, Municipal Agricultural Officers, Farming Communities and Academe	01-May-18	30-Apr-21	NEW	11,075,929	4,000,143

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.3. Smarter Technologies for Crop-Water Management	Rapid, inclusive and sustained economic growth	This project aims to establish a site-specific crop water management through the use of precision agriculture technologies. Specifically, it aims to: 1. Improve the performance of capacitance-type soil moisture sensors 2. Calibrate and evaluate the performance of atmometers for estimating evapotranspiration 3. Establish spectral reflectance database of priority crops under different water stress conditions 4. Develop and test web-based/mobile irrigation water management system 5. Establish a demonstration site for the integrated precision agriculture technologies for crop water management	<ul style="list-style-type: none"> <li>Ⓐ Wireless SARAI Soil Moisture Monitoring System</li> <li>Ⓐ Web-based version and mobile application of Water balance-Assisted Irrigation Scheduler (WAIS)</li> <li>Ⓐ Locally fabricated atmometers that are adapted for use in many fields to assist in irrigation scheduling</li> <li>Ⓐ Field Demonstration site featuring wireless soil moisture sensors, web-based decision support tool (WAIS) and automated irrigation system</li> <li>Ⓐ Spectral reflectance database of priority crops under different water stress condition</li> <li>Ⓐ Water management recommendations and advisories using web-based/mobile WAIS</li> <li>Ⓐ Conduct of Trainings and Workshops</li> <li>Ⓐ Paper presentations and publications</li> <li>Ⓐ Student involvement</li> <li>Ⓐ Patent</li> </ul>	UPLB	Agricultural producers, field technicians, and researchers will benefit from the project. The use of sensors and irrigation decision support tool will give end users quick access to information on soil moisture status and irrigation recommendations. This will allow agricultural producers to better utilize water resources and reduce the impact of climate change and variability.	01-May-18	30-Apr-21	NEW	10,967,294	3,605,598
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.4. Insect Pest and Disease Advisory System	Rapid, inclusive and sustained economic growth	The main objective of the project is to develop and implement a comprehensive IPM decision support system to reduce the risk of pest and disease (of SARAI focus crops) progression as influenced by their changing physical environment. The following are the specific objectives: 1. Create a detailed database of pest and diseases of SARAI focus crops; 2. Develop and validate pest and disease models; 3. Develop and operationalize a reliable pest and disease risk forecasting systems; 4. Formulate management and control protocols; 5. Map regional pest and disease incidences.	<ul style="list-style-type: none"> <li>1. Predictive models</li> <li>Models for several major insect pests and diseases will be developed to provide risk prediction and management advisories.</li> <li>Study 1 - RICE - Rice tungro virus disease, Rice black bug, locust, armyworm, stem borer</li> <li>Study 2 - CORN - Locust, Corn borer, corn leafhopper, armyworm</li> <li>Study 3 - SUGARCANE - Stem borer, White grub, locust</li> <li>Study 4 - COCONUT - Coconut hispine beetle (Brontispa sp. ) Coconut scale insect, Coconut bud rot</li> <li>Study 5 - BANANA - Banana Sigatoka, Fusarium wilt, Hispodonta sp., thrips, mealybug</li> <li>Study 6 - COFFEE and CACAO - Cacao pod rot, Vascular Streak dieback, helopeltis, Coffee rust, coffee berry borer</li> <li>Study 7 – SOYBEAN – brownspot, leaf blight, downy mildew, pod feeders and defoliators</li> <li>2. Detailed database of common pests and diseases for the all the identified crops in various regions.</li> <li>3. Region-specific maps of possible pest and disease outbreak areas for certain crops.</li> <li>4. Pest management protocols</li> </ul>	UPLB	PCAARRD Regional Consortia, Department of Agriculture, Regional Agricultural Officers, Municipal Agricultural Officers, Farming Communities	01-May-18	30-Apr-21	NEW	8,315,245	2,703,665
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.5. Soil Profiling and Characterization of SARAI Sites	Rapid, inclusive and sustained economic growth	The main objective of this study is to establish a soils information database of the various study sites. The specific objectives are as follows: 1. To determine data requirements and gaps through collaboration with researchers and by collecting and organizing existing data on soils. 2. To establish baseline soil information (physical, chemical, pedological, mineralogical, and geology) through soil sampling and analysis. 3. To build technical competence of collaborators in soil characterization, sampling, and analysis through on-the-job trainings and workshops. 4. To write a paper for publication in a journal.	<ul style="list-style-type: none"> <li>1. Soils database</li> <li>2. Trained collaborators</li> <li>3. Journal article</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>1. Farmers</li> <li>2. LGU's and government agencies</li> <li>3. scientists, researchers, and students</li> </ul>	01-May-18	30-Apr-21	NEW	7,082,564	3,439,438

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 2.6. Drought and Crop Assessment and Forecasting (DCAF) Phase 2	Rapid, inclusive and sustained economic growth	<ul style="list-style-type: none"> <li>To facilitate the integration of DCAF Phase 1 outputs to DA-BSWM's and DOST-PAGASA's operational activities</li> <li>To collect and manage database of ground and remotely sensed temperature, rainfall, vegetation, ET and soil moisture as inputs in developing agricultural drought index.</li> <li>To enhance interpretation of data products (soil moisture, rainfall, temperature, vegetation, etc.) through comparative analysis with high resolution satellite data, airborne images and field data</li> <li>To establish agricultural drought index in the Philippines for assessing, monitoring and forecasting drought,</li> <li>To complement current drought forecasts with statistically downscaled dynamical models for agricultural drought forecasts</li> <li>To assess and apply SARAI and other existing algorithms on crop yield estimates while considering drought forecast parameters as inputs</li> <li>To develop protocol in disseminating agricultural drought warnings.</li> </ul>	1. Database of satellite-derived and ground data of temperature, rainfall, evapotranspiration and vegetation indices, and soil moisture 2. Seasonal Forecast (temperature, rainfall, evapotranspiration, soil moisture, vegetation indices) 3. Crop damage estimate 4. Agricultural Drought Assessment, Monitoring and Forecasting 5. Agricultural Drought index	UPD		16-May-18	15-May-21	NEW	10,887,192	5,199,264
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 3.1. Knowledge Portal and Mobile Application Development for Digital Agriculture	Rapid, inclusive and sustained economic growth	The main goal of this project component is to develop, deploy and maintain a knowledge portal infrastructure that will enable access to the program's crop-climate farming and management solutions in web and mobile applications. Specifically, the project component's objectives are the following: 1. to provide an online data sharing platform for the monitoring and forecasting system of real-time weather data and other SARAI-generated information; 2. to develop web and mobile applications for crop-climate monitoring, forecasting and decision support systems; and 3. to develop, deploy and align the program's knowledge grid with PCAARRD's knowledge management system to support community sharing of knowledge, collaboration among experts and innovation of croplimate farming solution.	1. Real-time weather, climatic, and other environmental data monitoring and data storage system 2. Comprehensive data management (databases, data warehousing and knowledge bases) platform 3. Enhanced SARAI knowledge portal 4. Knowledge management system 5. Agricultural mobile applications 6. Capacity building to sustain the networking and systems development initiatives 7. Scientific papers and other publications	UPLB	Farmers, LGU Policy and Decision Makers, Agricultural Officers, Academe, Researchers, DA, PSA, Extension Workers, Students, K-12 STEAM Program	01-May-18	30-Apr-21	NEW	8,454,291	2,818,097
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 3.2. Knowledge and Capacity Building	Rapid, inclusive and sustained economic growth	This project is being proposed to serve as the encompassing activity that will bind all the independent studies of this research program to ensure that their outputs are translated into building abilities, relationships and values that will enable the farming communities to improve their productivity. Specific objectives: 1. Diagnose the communities' learning needs and develop a framework for addressing the identified issues; 2. Enhance the ability of the various stakeholder communities to evaluate and address crucial questions related to choices (technical, socio-cultural and policy) and modes of implementation among the various options to be presented, based on an understanding of their area's potentials; and 3. Ensure that outputs from the various projects of this program are translated into meaningful information and tools that will meet the identified learning criteria.	1. Established links with partner SUCs, government agencies, LGUs and farming communities 2. Analyzed Training Needs Analysis for priority crops 3. Generated Information and Education Communication materials (print and electronic) 4. Developed training modules/manuals relevant to the crops and crop production system 5. Conducted capacity building activities 6. Developed training programs, and 7. Analysis of data collected from the field and validation activities	UPLB	Regional Agricultural Officers, Provincial Agricultural Officers, Municipal Agricultural Officers, Agricultural Extension Workers, Farming Communities, Academe, Private Sector	01-May-18	30-Apr-21	NEW	13,792,653	4,232,051
Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines (SARAI) - Phase 2	Project 3.3. Integrating Research Results, Communication Planning, and Linking Science to Policy	Rapid, inclusive and sustained economic growth	The main objective of Project 3.3 is to facilitate the creation of an active network consisting of the academe, NGAs, LGUs, and farming communities which will work towards seamless agricultural information sharing and processing protocols. Specifically, the project components aims to: 1. Maintain and expand the network of partners to ensure the sustainability of the program; 2. Facilitate the integration of all research results of the various project components; 3. Craft policy recommendations, and publish research results in peer-reviewed journals; 4. Develop and implement a communication plan to promote the scientific results of the program to various stakeholders in layman's terms and popular formats; and 5. Serve as the program management component of the program to ensure that the timelines are met, and that the outputs are delivered.	Systems/Networks: 1. SARAI network of partner agencies and SUCs 2. Information sharing protocols Publications/Documents: 1. Policy briefs 2. Scientific papers, books, and other publications 3. Communication materials (videos, story books, magazines, etc.) 4. ICT platforms (in collaboration with Project 3.1) 5. Communication plan	UPLB	PCAARRD Regional Consortia, Department of Agriculture, Regional Agricultural Officers, Municipal Agricultural Officers, Farming Communities	01-May-18	30-Apr-21	NEW	12,295,447	3,998,149



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Abaca Genomics: Whole Genome Sequencing and Genome-wide Association Studies (GWAS) of the Philippine Endemic Abaca (Musa textilis Nee)	Poverty reduction and empowerment of the poor and vulnerable	This project will establish the whole-genome of the Philippine endemic abaca and provide wide-association between phenotype and genotype by employing NGS and GWAS.	<ol style="list-style-type: none"> <li>1. Whole genome sequence of at least five (5) species: cv Abuab, Pacol, natural hybrid, traditional hybrid (Inosa) and BC2 hybrid (Y1)</li> <li>2. Discovery of at least five (5) genetic variations contributing to economically important traits-fiber quality and disease resistance (Y1)</li> <li>3. At least one (1) experimental protocol on tissue culture and in silico design of CRISPR/Cas9 guide-RNA system and other CRISPR/Cas9-related vectors, specific to Musa textilis (abaca) (Y3)</li> <li>4. At least two (2) journal publications (Y3)</li> <li>5. At least three (3) local conference paper presentation (Y2 and Y3)</li> <li>6. At least one (1) international conference paper presentation (Y2 and Y3)</li> <li>7. At least one (1) training and IEC awareness campaign for abaca farmers (Y3)</li> </ol>	UPLB	plant breeders, abaca farmers, abaca exporters, fiber industry stakeholders	01-Jul-18	30-Jun-21	NEW	26,464,960	17,596,668
	Advanced Evaluation of Abaca Hybrids with High Fiber Yield and Resistance to Bunchy Top Virus Selected Areas in Catanduanes, Bicol	Poverty reduction and empowerment of the poor and vulnerable	<p>General: This proposal aims to evaluate the hybrid abaca planting stocks produced through tissue culture technique and disseminate to interested abaca farmers in Catanduanes area to meet the potential demand for abaca fibers for pulp and paper industry.</p> <p>Specific Objectives:  <ol style="list-style-type: none"> <li>1. To produce 10,000 seedlings of abaca hybrids through tissue culture.</li> <li>2. To establish two (2) hectares of abaca hybrids plantation and to determine the performance in three (3) selected municipalities in Catanduanes province.</li> <li>3. To train abaca farmer cooperators and other abaca farmers on proper abaca production, fertilization, fiber harvesting, grading and baling.</li> <li>4. To develop, produce and disseminate information, education and communication (IEC) materials and conduct promotional activities for abaca farmers and other stakeholders.</li> </ol> </p>	<ol style="list-style-type: none"> <li>1. Production and distribution of 10,000 abaca seedlings in 2 hectares plantation in each of the 3 participating municipalities of Catanduanes province (Y1)</li> <li>2. Establish 2-hectare abaca plantation (Y1)</li> <li>3. Fifteen farmer's cooperators and at least 100 abaca farmers trained for abaca production, fertilization, fiber harvesting, grading and baling (Y4)</li> <li>4. Developed IEC materials (200 leaflets, 200 brochures, 2 video recordings) and conducted promotional activities (Y4)</li> <li>5. One publication in refereed journals (Y4)</li> </ol>	UPLB, CatSU	<ol style="list-style-type: none"> <li>1. Abaca Farmers</li> <li>2. Stakeholders</li> <li>3. Abaca Processors</li> </ol>	01-Nov-16	30-Apr-19	ONGOING	4,998,429	2,102,593
	Biological Control Potential of Bacteriophages for Soft Rot Disease of High Value Vegetable Crops in the Philippines (old title: Bacteriophage-mediated Management Approach for Soft-rot Disease of High Value Crops in the Philippines)	Poverty reduction and empowerment of the poor and vulnerable	The main objective of this project is to explore the potential of bacteriophages as biological control agents for soft rot disease of high value vegetable crops from various growing environments in the Philippines. The proposed research aims to: i) assess the diversity of soft-rot causing bacterial strains and their associated phages, ii) determine the lytic activity of these associated phages against a spectrum of soft rot associated enterobacteriaceae, and iii) iii) assess the bio efficacy of the isolated bacteriophages in greenhouse and confined plots	<ol style="list-style-type: none"> <li>1. At least two (2) publications in ISI-indexed journal</li> <li>2. Baseline data on the diversity of bacterial pathogens associated with soft rot of high value vegetables in the Philippines</li> <li>3. Baseline data on the diversity and specificity of bacteriophages associated with soft rot Enterobacteriaceae in the Philippines</li> <li>4. Trained manpower in the form of students BS (2 BS Agriculture – Plant Pathology, 2 BS Agricultural Biotechnology, 2 BS Biology – Microbiology) and 2 MS (Plant Pathology, Microbiology) and their thesis research supported by the project</li> <li>5. Upgraded 1 laboratory for teaching, research and extension through equipment acquisition and research collaborations</li> </ol>	UPLB	Researchers will benefit from the generated scientific information about the potential of bacteriophages as bio-control agent against soft rot diseases of high value vegetables in the Philippines Government extension agencies (DA, SUCs) will benefit from the gained scientific information for the management of soft rot diseases in vegetables Students and government agencies will benefit from the trained manpower that will be one of the outputs of this project.	01-Aug-17	31-Jul-19	ONGOING	4,999,478	1,011,514
	Confirmatory Testing of Protein-based Marker Kit for Detection of Philippine 'Carabao' Mango in Commercial Mango Nurseries and Germplasm Collection (Old Title: Pilot Testing and Validation of Protein-based Marker Kit for Detection of Philippine 'Carabao' Mango in Commercial Mango Nurseries and Germplasm Collection)	Poverty reduction and empowerment of the poor and vulnerable	<p>General Objective:</p> <p>To conduct confirmatory testing of the developed protein-based kit for detection of Philippine 'Carabao' Mango in commercial mango nurseries and germplasm collection.</p> <p>Specific Objectives:</p> <ol style="list-style-type: none"> <li>1. To produce antisera from protein markers isolated from Philippine 'Carabao' Mango.</li> <li>2. To develop a dipstick kit for detection of Philippine 'Carabao' mango.</li> <li>3. To test and validate the effectivity and sensitivity of the developed detection kit in commercial mango nurseries and germplasm collection in the country.</li> </ol>	<ol style="list-style-type: none"> <li>1. 'Carabao' mango specific antisera.</li> <li>2. Working dipstick for identification of Philippine Carabao Mango.</li> <li>3. Results of confirmatory testing in commercial mango nurseries and germplasm collection.</li> <li>4. Trained 10 nursery operators and BPI personnel on the use of the dipstick kit.</li> </ol>	VSU	Mango growers and nursery operators, researchers and extension workers	01-Oct-18	30-Sep-20	NEW	5,000,000	2,591,375

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Cytological Mapping of DNA Markers for Insect Resistance and Other Important Genes in Coconut (Cocos nucifera L.) Through Fluorescence In Situ Hybridization	Poverty reduction and empowerment of the poor and vulnerable	<p>In 2014, the coconut industry experienced the coconut scale insect infestation that affected approximately 1.2 million coconut trees in CALABARZON. This infestation had a huge impact on the livelihood of the farmers, and the coconut industry itself. To minimize loss of yield due to infestation and other related plant diseases, identification of varieties or accessions with resistant genes are needed.</p> <p>Fluorescent In Situ Hybridization (FISH) is a molecular cytogenetic technique that enables the detection and localization of specific DNA or RNA sequence on the chromosome allowing a fluorescently labeled DNA or RNA sequence (DNA or RNA probes) to specifically bind to complimentary site on the chromosome thereby pinpointing its chromosomal location. This will then result to the direct visualization of hybridization sites that may either mark the position of gene(s) or the regions closely linked to the gene of interest. Information gathered in FISH can be used in chromosome mapping, which is the assignment of genes to specific location on a chromosome.</p> <p>The DNA markers for insect resistance and other markers of significance for coconut improvement identified or developed from the "Coconut Genomics Program Project 8" will be used as probe to locate the position of the DNA markers on the chromosomes. FISH would allow early screening of genes to specific location on a chromosome.</p> <p>Coconuts are difficult crops to to breed as they have long generation interval (about 8-10years), cross pollinating behavior of tall coconut varieties, inability to undergo vegetative propagation,, low number of seeds produced by palm,, and massive stature of the palm (Gupta, 2015). But with the aid of molecular techniques, specifically FISH, varieties with insect resistance genes and good agronomical traits can be identified at early stages as well as the selection for the potential breeding population.</p>	Identified coconut accessions with genes for insect resistance and other important genes that are important in improving coconut varieties.	UPLB	Molecular biologists and molecular breeders, coconut farmers	01-Aug-18	31-Jul-20	NEW	5,000,000	3,886,074
	Development of Biofungicide for the Control of Alternaria solani and other Fungal Pathogens of Tomato and Eggplant	Poverty reduction and empowerment of the poor and vulnerable	<p>General</p> <p>This proposal aims to develop a biofungicide composed of a concoction of the microbial enzymes, laminarinase and chitinase, that targets the fungal pathogens, Alternaria solani and other major fungal pathogens of tomato and eggplant.</p> <p>Specific:</p> <ol style="list-style-type: none"><li>1. To screen and identify microorganisms capable of producing high levels of chitinase enzyme and to optimize for production of chitinase.</li><li>2. To characterize chitinase enzyme for temperature and pH optima and molecular weight and determine enzyme stability under varying conditions of temperature.</li><li>3. To determine ability of a concoction of enzymes laminarinase and chitinase, in their various stages of purification, and/or combinations of the live producing cells to kill fungal cultures of Alternaria solani, Fusarium oxysporum, Cladosporium fulvum, Leveillula taurica and Schlerotium rolfisii.</li><li>4. To test the ability of the developed biofungicide to control disease of tomatoes and eggplants caused by Alternaria solani under screenhouse conditions.</li></ol>	<ul style="list-style-type: none"><li>• A formulated preliminary concoction of the biofungicide containing preparations of laminarinase and chitinase enzymes as main ingredients</li><li>• 2 journal articles</li></ul> <p>Working titles of possible publications:</p> <ol style="list-style-type: none"><li>1. Characterization of a chitinase enzyme with antifungal activity against tomato fungal pathogens</li><li>2. Development of an enzyme-based biofungicide against Alternaria solani</li></ol> <ul style="list-style-type: none"><li>• 2 oral papers or poster papers presented in scientific conferences (see below for titles)</li><li>• 1 MS Microbiology student and 2 undergraduate BS Biology students with thesis conducted on sections of the project</li></ul>	UPD	<ol style="list-style-type: none"><li>1. Organic/conventional farmers and vegetable growers who wish to use alternative pesticidal agents which are neither toxic nor harmful to the environment.</li><li>2. Academicians, scientists and students</li><li>3. General consumers</li></ol> <p>Initial results of the concoctions will serve as basis for other formulations of enzymes for other vegetable fungal pathogens.</p>	01-Jul-18	30-Jun-20	NEW	4,999,283	3,431,854

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	Development of Improved Eggplant Varieties with New Plant Defense Genes for Multiple Insect Resistance using Innovative Technologies	Poverty reduction and empowerment of the poor and vulnerable	<p>The long-term goal of this project is to develop and deploy improved eggplant varieties with effective EFSB and LH resistance derived from plant defense genes using innovative technologies. The project will be implemented for five years, in two phases, with the following objectives:</p> <p>Specific:</p> <p>Phase I (Year 1 to 3)</p> <ol style="list-style-type: none"> <li>1. To identify and discover plant defense mechanisms, genes/alleles against FSB and LH in the eggplant germplasm using phenotyping techniques, genomics tools and molecular marker technology;</li> <li>2. To develop specialized mapping populations (training populations, RILs, NAM, MAGIC) with various combination of defense genes/alleles against EFSB and LH to facilitate gene discovery and breeding;</li> <li>3. To develop computer-aided apps for EFSB and LH resistance screening for application in high throughput phenotyping techniques;</li> <li>4. To develop platforms for efficient eggplant breeding thru markerassisted selection (MAS), genomic selection (GS) and/or new breeding techniques (NBT);</li> <li>5. To characterize Philippine populations of EFSB and LH using functional genomics; and,</li> <li>6. To contribute to human resource and institutional capacity building, IEC, policy, and regulation on NBT.</li> </ol> <p>Phase 2 (Year 4 to 5)</p> <ol style="list-style-type: none"> <li>1. To validate defense mechanisms identified in eggplant germplasm using specialized mapping populations;</li> <li>2. To develop advanced breeding lines and improved varieties with</li> </ol>	<p>database for local and global eggplant community</p> <p>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;</p> <p>3) Eggplant R&amp;D resources and tools for scientists and academics: molecular maps and markers, genome/genes sequences of eggplant and target pests associated with plant defense mechanisms; NBT-related eggplant protocols</p> <p>4) IT-based validated phenotyping apps and HTP screening technique for components of EFSB and LH resistance for entomologist, breeders, genebank researchers, students, extension workers; other relevant govt agencies;</p> <p>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;</p> <p>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</p> <p>7) IEC materials and training activities specifically on NBT for other stakeholders and the general public.</p>	UPLB, UPD	<p>The target beneficiaries of the project research results are:</p> <ul style="list-style-type: none"> <li>Ⓐ Public and private sector institutions – academic and research institutes, SMEs involved in eggplant industry</li> <li>Ⓑ Eggplant researchers – plant breeders, gene bank managers, entomologists, geneticists, molecular biologist,</li> <li>Ⓒ Students interested in plant breeding, entomology and agricultural sciences</li> <li>Ⓓ Policy makers, regulators, agricultural extension workers -</li> <li>Ⓔ Farmers/consumers – long-term beneficiaries of profitable, less costly and safe varieties</li> </ul>	01-Jul-18	30-Jun-23	NEW	36,668,412	14,297,299
	Documentation of Indigenous Vegetables in the Philippines	Poverty reduction and empowerment of the poor and vulnerable	<p>General</p> <p>The main objective of this project is to assemble and document on-the-ground information and available printed and electronic resources on indigenous vegetables from 25 provinces in the Philippines.</p> <p>The proposed research specifically aims to:</p> <ol style="list-style-type: none"> <li>i) Document the interspecific and intraspecific diversity, utilization, maintenance, and seed supply of indigenous vegetables in selected barangays in municipalities with history of traditional production, utilization and consumption of the crop commodity;</li> <li>ii) Compile available printed and electronic information on indigenous vegetables of the Philippines from all accessible sources; and</li> <li>iii) Store and maintain information on indigenous vegetables of the Philippines in a simple database for easy access and retrieval.</li> <li>iv) Promote indigenous vegetables of the Philippines through publication of a compendium of publications in physical and electronic form, popularized pamphlets, a book, articles in national newspapers, a feature in national broadcast media and videos in social media on indigenous vegetables of the Philippines</li> </ol>	<p>2. At least 1 scientific paper published in an ISI-indexed scientific journal (Year 2)</p> <p>3. Survey of diversity, historical cultivation and production, traditional and novel uses, seed supply, published and unpublished printed and electronic resources on indigenous vegetables of the Philippines in 50 municipalities in 25 provinces for 2 years</p> <p>4. Compilation of published and unpublished, printed and electronic resources on indigenous vegetables of the Philippines from relevant agencies</p> <p>5. Accessible database of published and unpublished, printed and electronic resources on indigenous vegetables of the Philippines</p> <p>6. Compendium of literature on indigenous vegetables of the Philippines (Year 2)</p> <p>7. 20 popularized pamphlets on indigenous vegetables of the Philippines</p> <p>8. 1 book on indigenous vegetables of the Philippines</p> <p>9. 2 articles on indigenous vegetables of the Philippines in national newspapers</p> <p>10. 1 feature on indigenous vegetables of the Philippines in national</p>	UPLB	<p>Government agencies, researchers, and students will benefit from the compiled scientific information about indigenous vegetables in the Philippines</p> <p>Government agencies will benefit from the manpower trained on indexing, abstracting and summarizing publications for inclusion in a database</p> <p>The general public will benefit from popularized publications on indigenous vegetables of the Philippines</p>	16-Jan-18	15-Jan-20	NEW	11,816,179	6,133,090

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	Efficacy Evaluation of Biopesticides Derived from Entomopathogenic Fungi Against Rind Borer (RB) and Twig Blight Disease for Citrus(Old Title: Potential of two entomopathogenic fungi, Beauveria bassiana and Isaria fumosorosea as biological control agents against Citrus Rind Borer (CRB) and Twig Blight Disease (TBD) of citrus)	Poverty reduction and empowerment of the poor and vulnerable	The general objective of the study is to develop a biological control agents derived from entomopathogenic fungi against rind borer and twig blight disease of citrus under field condition. Specifically the project aims to: 1. Formulate two organic-based biopesticides in the form of bioinsecticide and biofungicide; 2. Mass produce the formulated organic-based biopesticides under laboratory condition; 3. Investigate the shelf life of formulated organic-based biopesticides; 4. Test the efficacy of two formulated organic-based biopesticides (mycelial-free extract dosage and spore concentration) in the form of bioinsecticide and biofungicide under field condition in three geographic locations of Kasibu, Nueva Vizcaya using two cultivars of Mandarin; 5. Gather yield and yield component as affected by applications of formulated organic-based biopesticides; 6. Conduct two (2) farmer's field day showcasing the effect of the formulated organic-based biopesticides; 7. Record the inputs and expenses rendered in the experiment and compute for partial budget analysis; 7. Train one (1) laboratory assistant in mass production of the formulated two organic-based biopesticides in collaboration with the Nueva Vizcaya Experimental Station (NVES) of DA at Diadi, Nueva Vizcaya; and 8. Conduct three (3) trainings and workshops to citrus growers on proper application of formulated organic-based biopesticides formulated two organic-based biopesticides (mycelial-free extract dosage and spore concentration) in the form of bioinsecticide and biofungicide.)	Publication - 1 scientific paper to be published in ISI journal Patent - 2 utility models for mass production of bioinsecticide and biofungicide respectively; 1 brochure Product - 1 formulated mycelial-free extract with effective dosage; 1 formulated spore with effective concentration People Services - Two (2) undergraduate students and trained five (5) NVSU personnel Places and Partnership - Municipal Agriculture Office, Kasibu, Nueva Vizcaya, Malabing Valley Multipurpose Cooperative, Kasibu, Nueva Vizcaya and Diamantina, Aurora Isabela	NVSU	Researchers and agricultural scientists, professor and students, and citrus growers and consumers	16-Apr-18	15-Apr-20	NEW	4,993,912	2,955,356
	Establishment of Ten Hectares Abaca Hybrid Plantation at VSU and Evaluation of Fiber Quality for the Pulp Industry	Poverty reduction and empowerment of the poor and vulnerable	General: The general objective is to reinvigorate the abaca industry through enhanced and sustained development of abaca hybrids for the pulp industry. Specific: 1. To establish a ten hectare production area of hybrids (2 and 7). 2. To evaluate their fiber quality for the pulp industry.	Established 10 hectare area for the abaca hybrids. Produced 16,000 abaca hybrid seedlings for the 10 hectare area. Assessed and evaluated the abaca hybrids as to their fiber quality specifically its pulping properties.	VSU	Farmers/Farmer Cooperatives Nursery Operators Local Government Units Abaca Processor	01-Nov-16	31-Oct-19	ONGOING	4,893,698	1,936,535
	Field Verification Testing of Carrageenan Plant Food Supplement Technology for Enhanced Growth and Induced Pest and Disease Resistance in Rice in Regions 2 and 3	Poverty reduction and empowerment of the poor and vulnerable	a. Efficacy of the product as inducers of resistance against tungro in inbred rice under location-specific field conditions. 3 b. Efficacy of the product as inducers of resistance in hybrid rice against bacterial leaf blight (BLB); c. Efficacy of the product as inducers of resistance in rice insect pests such as green leaf hopper (GLH), brown plant hopper (BPH), rice stemborer, climate change pests (cutworm and armyworm) and its influence on the population density of beneficial arthropods. d. To conduct carrageenan multi-location demonstration trials at farmers' field in Cagayan, N. Vizcaya, Quirino, Isabela, Bulacan, and Nueva Ecija for two rice cropping seasons. e. To facilitate product registration at the Fertilizer and Pesticide Authority (FPA) of carrageenan based on established best nutrient management practices for dry and wet cropping seasons. f. To conduct technology promotion/commercialization of carrageenan.	a. Patentable plant growth promoter b. Suitable crop management practices for rice through application of radiation-modified carrageenan c. Patentable process on application of radiation-modified carrageenan d. Induced resistance against tungro, cutworm, and armyworm of selected rice varieties due to growth promoting potentials of radiation-modified carrageenan. e. Scientific papers and technology bulletins	UPLB, PNRI, DOST II, DOST III	Rice farmers, researchers, millers, traders, processors and other rice industry stakeholders.	15-Nov-16	14-May-18	COMPLETED	4,965,985	1,407,290
	Improved Resource-use Efficient (IRUE) Rice Varieties for the Philippines	Poverty reduction and empowerment of the poor and vulnerable	The project aimed to achieve the development of improved resource use efficient (IRUE) rice varieties that will require less N P K fertilizers and irrigation water for resource-poor farmers. This requires screening of already developed RUE 220 introgression lines (ILs) in the background of newly released high yielding RUE weed-tolerant rice cultivar. The project will also identify the most suitable ILs and have them nominated into national trials in the Philippines.  Specifically, the project aims to:  a. Develop improved resource use efficient (IRUE) rice varieties b. Identify the genes/QTLs responsible for improved RUE. c. Understand the underlying molecular and physiological mechanism for RUE related traits. d. Conduct adaptive trials to validate and release the RUE materials in the target sites e. Develop crop management practices suitable for RUE released varieties. f. Disseminate the RUE rice varieties along with crop management practices To conduct technology promotion/commercialization of carrageenan among selected areas in the Philippines.	Most suitable ILs nominated into national trials for access by resource-poor farmers.	UPLB	Rice farmers, researchers, millers, traders, processors and other rice industry stakeholders.	16-Sep-16	15-Sep-19	ONGOING	15,674,496	4,678,292

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	Intervening Pest Management Strategy for Coconut Scale Insect, Aspidiotus rigidus, in Zamboanga Peninsula	Poverty reduction and empowerment of the poor and vulnerable	General To develop rapid and efficient pest response to A. rigidus infestation in Zamboanga Peninsula using Integrated Pest Management Strategy Specific 1. To develop combination of control measures based on the level of CSI infestation; 2. To establish satellite rearing facility of C. calaunica in strategic locations in Zamboanga Peninsula; and, 3. To assess the efficiency of the CSI pest response in Zamboanga Peninsula.	The deliverable of this proposed project is the development of a system that will provide the necessary information to launch a response on detection of CSI in Zamboanga Peninsula.	DLSU	Coconut farmers, extension workers, academe, researchers, other stakeholders, and decision makers in Zamboanga Peninsula.	16-Dec-17	15-Dec-19	ONGOING	5,000,000	1,247,836
	Multi-location Trials of Oligo-carrageenan for Improved Productivity of Mungbean and Peanut in Regions II, III, VII, and X	Rapid, inclusive and sustained economic growth	In general, the project aims to increase crop yield, reduce damages due to insect pests and diseases, and sustain the availability of quality seeds of mungbean and peanut in major growing areas in Regions 2,3,7 and 10 through foliar application of oligo-carrageenan as plant bio-stimulant. Specifically, the project aims to: 1. To determine the effects of oligo-carrageenan on insect pest infestation (pod borer and cutworm) and disease infection (Cercospora leaf spot and rust) on mungbean and peanut; 2. To determine the effects of inoculant; fertilizer and oligocarrageenan on the production time or cropping cycle of mungbean and peanut 3. To evaluate the stability and efficacy of oligo-carrageenan on mungbean and peanut as plant bio-stimulant after storage (3 months to 1 year) under ambient room conditions; 4. To promote the use and application of oligo-carrageenan as plant bio-stimulant for mungbean and peanut and a new Package of Technology (POT) for farmers' adoption in Regions 2,3,7 and 10; and 5. To register the carrageenan as plant bio-stimulant for mungbean and peanut with FPA.	1. New POT on the use and application of carrageenan as plant biostimulant in Regions II, III, VII and X for mungbean and peanut to increase seed yield by 25-30%, and shorten the production period by 7-14 days; 2. Reduced insect pest and disease damages by at least 25% and improved crop protection systems for management of insect pests (pod borer and cutworm) and diseases (Cercospora leaf spot and rust); 3. Technical Bulletins (i.e., cultural and management practices on 3 mungbean and peanut production incorporating foliar application of carrageenan --- rates and modes of application); 4. Articles published in scientific journals; 5. Cost-Benefit Analyses on the use of Oligo-carrageenan on mungbean and peanut as Plant Bio-stimulant; and 6. Carrageenan product registration as plant bio-stimulant for mungbean and peanut.	PNRI, PSAU, DA II, DA III, DA VII, DA X	1. Rice and corn farmers (legumes as sequential crops) 2. Mungbean and peanut growers 3. Seed producers 4. Researchers and scientists	16-Nov-16	15-May-19	ONGOING	4,995,497	2,040,270
	Mutation Breeding in Alocasia (Araceae) and other Aroids through Gamma irradiation and Chemical Treatments (Colchicine, Oryzalin, and/or EMS)	Rapid, inclusive and sustained economic growth	Development of new or improved varieties of Alocasia and other aroids through gamma irradiation and chemical mutagen	1. Selection of Philippine Alocasia and other aroids with potential as ornamental plants 2. Putative Alocasia mutants with improved horticultural characteristics (variation in leaf color/variegation, size and shape, exotic form and texture, compact habit for indoor/pot plants, higher suckering ability, hardness and adaptability). 3. Publications on genetic diversity, radiosensitivity study, tissue culture, and mutation induction of Alocasia species and other members of Araceae	PNRI, DLSU-Dasmariñas	Agriculture/ornamental industry, private nurseries and plant exporters; plant breeders/researchers	01-Oct-18	30-Sep-20	NEW	5,000,000	2,907,490
	Performance Evaluation of the 2-PRONGED Coconut Hybridization Scheme in CALABARZON	Poverty reduction and empowerment of the poor and vulnerable	To ensure the production of coconut hybrids through the 2-pronged strategy (Assisted and Directed Natural Hybridization Scheme) for PCA's coconut planting and replanting program in CALABARZON. Specifically, 1. ASSESS the economic and technical viability of on-farm S&T-based hybridization scheme (Assisted Hybridization and Directed Natural Hybridization); 2. DEMONSTRATE the on-farm hybridization modality in 3 coconut-growing provinces of CALABARZON; 3. EVALUATE the potentials of selected parent materials for hybridization and expand the coconut genetic diversity in CALABARZON; 4. PRODUCE good quality planting materials (hybrids) for planting and replanting program; and, 5. TRANSFER Research Generated Technologies (AHS and DNHS) on hybridization directly to end users.	1. Identified 2 project sites in Quezon for the conduct of AHS and established 3 farms in Quezon, Laguna, and Batangas for DNHS; 2. Established 3 hybrid nurseries for AHS and distributed hybrid seedlings for ACPRP in CALABARZON; 3. Established field-planted DNHS parental trees and adopt Good Agricultural Practices for management of DNHS farms; 4. Evaluated field performance of the parent materials for DNHS and conducted hybridity testing for selected mother trees; and, 5. Produced hybrid seednuts in AHS project sites, - 76,800 hybrid nuts/year to be planted in 500 ha in Quezon; - 384,000 hybrid nuts within 5 years to be planted in CALABARZON.	PCA-IVA	The project will benefit coconut farmers, as well as stakeholders and processors.	01-May-18	30-Apr-22	NEW	4,981,298	1,499,387
	Pilot Testing and Utilization of Rapid Bioassay for Pesticide Residues (RBPR) System in the Philippines	Poverty reduction and empowerment of the poor and vulnerable	1.) Adopt the RBPR technology for acetylcholinesterase and pyrethroid tests for pesticide residues; 2.) Set up production areas of RBPR test kits for utilization and training of core analysts to be based on identified major trading posts; 3.) Develop protocol for pesticide residue monitoring of vegetables for pre and post harvest monitoring for vegetables using RBPR; 4.) Pilot test RBPR stations in strategic areas of vegetable trade in Metro Manila, Benguet, Laguna, and Quezon; 5.) Establish the utilization of RBPR technology in monitoring the pesticide residue of vegetables in the Philippines for farmer growers; and 6.) Promote the RBPR technology to appropriate regulatory bodies.	Ⓙ 10 agricultural technicians and 6 market inspectors trained for monitoring vegetables in farms and markets; Ⓙ 10 vegetable researchers and chemists trained for monitoring pesticide residues as pre and postharvest test; Ⓙ Proposed system for pesticide residue monitoring of vegetables in the Philippines for policy adoption;  Ⓙ Guidelines on the implementation of RPBR in the Philippines; Ⓙ Pilot tested RBPR kits for use in trading posts in Benguet, Quezon, and Laguna markets and for Government Regulatory Agencies and organic certifying bodies; Ⓙ Data on pesticide residues in vegetables in Benguet, Laguna, and Quezon farms using the different farming practices; Ⓙ Data on pesticide residues in major trading posts in Benguet, Laguna and Quezon; and Ⓙ Scientific publication and IEC material on RBPR	BSU, UPLB	Target beneficiaries are vegetable consumers in general, researchers and extension workers who work closely with vegetable farmers. If RBPR will be adopted by BAFS and require organic certifying bodies to use RBPR to monitor the accredited organic farms and farmer groups for self-regulation. The data generated can also be a basis for policy or regulation by government agencies dealing with food safety	01-Sep-15	31-Aug-18	COMPLETED	8,000,000	147,162

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	Pilot Testing and Validation of SSR Marker Kit for Philippine Mango Germplasm in Commercial Mango Nurseries	Rapid, inclusive and sustained economic growth	1. To pilot test the utility of identified and selected markers in assessing the identity and authenticity of a particular mango variety especially carabao strains/germplasm. 2. To collect secondary data on mango nurseries i.e. area planted, location, and varietal/strains commercialized 3. To review and assess the accuracy of the identity of mango varieties/strains as labelled. 4. To capacitate BPI accreditors, RFU personnel and farmers in assessing the genetic identity of the commercial mango planting material. 5. To develop a catalogue of mango cultivars (IEC material) for distribution.	1. Validated and certified SSR marker for identification of mango cultivars 2. Standard protocol for mango SSR Analysis 3. 25 nurseries with accurate label for mango cultivars. 4. Training module and actual training done 5. Catalogue of mango cultivars.	USM	mango growers, nursery owners, BPI NSQCS (BPI Accreditation Unit), NSIC, researchers, breeders	01-Jun-18	31-May-20	NEW	5,000,000	2,500,067
	Revitalizing the Abaca Industry through S&T Interventions for Higher Crop Productivity Using High-Yielding and Virus-Resistant Abaca Hybrids	Poverty reduction and empowerment of the poor and vulnerable	The general objective is to reinvigorate the abaca industry by improving the farm productivity to 1.2 mt/ha/year through the use of high-yielding and virus-resistant abaca hybrids and its package of production technologies, thus improving income of abaca farmers. Specific: To assess the agronomic and economic performance of new BTV-resistant abaca hybrids in the multi-location trials; to promote and distribute nationwide the propagated 2.5 million seedlings of the new BTV-resistant abaca hybrids, including in the Yolanda-hit areas; to further characterize and evaluate reaction of new BTV-resistant abaca hybrids to the other abaca virus diseases â€” mosaic and bract mosaic; and to determine the performance of the hybrids if employed with different package of technologies, including drip irrigation and fertilization/fertigation.	☐ Assessed the abaca hybrids against other major diseases ☐ Established 11 nurseries and 4 demonstration farms/trials ☐ Demonstrated abaca hybrids and POT including drip irrigation/fertigation ☐ Distributed 2.5M seedlings to 1,568 abaca farmer	BU, CarSU, CatSU, PhiFIDA V, PhiFIDA VIII, PhiFIDA XI, UEP, USEP, USM, UPLB, VSU, WMSU	Farmers/Farmer Cooperatives, nursery operators, Local Government Units (LGUs), and abaca processors	01-Mar-16	28-Feb-19	ONGOING	45,670,799	9,513,970
	Targeted Genome Editing using CRISPR-Cas9 Technology: Capacity Building and Proof-of-Concept in Rice, Corn, and Tomato (Old Title: Application of CRISPR-Cas9 Genome Editing Technology Towards Improvement of Economically Important Philippine Crops)	Rapid, inclusive and sustained economic growth	General: This program aims to build the capability of UPLB faculty and researchers in the judicious application of the genome editing tool, CRISPR-Cas9 in agricultural and basic biological research. The projects are tailored to develop the manpower and the infrastructure to utilize CRISPR-Cas9 in the Philippines for investigations in molecular breeding and functional gene analyses. Specific 1. To train university faculty, staff and students on the use of CRISPR-Cas9 technology (Research Component 1) 2. To conduct proof-of-concept experiments on gene editing using CRISPR-Cas9 on rice, corn, and tomato (Research Component 3, 4, 5, 6) 3. To produce plant materials for transformation experiments and regenerate plants through micropropagation techniques (Research Component 2) 4. To optimize relevant protocols for gene editing in rice, corn, and tomato (Research Component 3,4,5,6) 5. To establish screening parameters for identifying transformants for target genes (Research Component 3, 7) 6. To design target-specific CRISPR-Cas9 constructs and single guide RNAs (sgRNAs), and be able to analyze and assess the results from the CRISPR-Cas9 system using	Expected Output 1. Seminars, trainings and workshops on CRISPR-Cas9 for capacity-building of University faculty, staff and students 2. Trained faculty, research staff, and students capable of conducting researches on CRISPR-Cas9 3. Conduct proof-of-concept experiments on gene editing using CRISPR-on rice, corn, and tomato 4. Protocols for gene editing using CRISPR-Cas9 technology 5. At least two (2) publications in a peer-reviewed journal	UPLB	Target Beneficiaries • Molecular biologists and molecular breeders • Young professionals and student researchers	01-Jul-18	30-Jun-21	NEW	40,550,717	19,003,964

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, 2018*	Total Project Cost	2018 PCAARRD GIA
	Validation of Microsatellite Markers for Pest and Disease Resistance, Yield and Aroma derived from RAD Sequencing of Philippine Specialty Coffee	Rapid, inclusive and sustained economic growth	<p>At present, local production is at 30,000 metric tons per year (The Philippine Coffee Board, 2012). A number of problems have plagued the local coffee industry, such as, low yield due to mismatch between the varieties planted and environmental conditions, limited information on nutrient and water requirements, low quality beans and the occurrence of pests. The insufficiency of high-yielding planting materials for expansion and replanting areas and the limited selection of coffee varieties of known horticultural characteristics as well as the lack of proper identification of the varieties have aggravated the situation.</p> <p>Marker-assisted distribution and planting of resistant varieties and strains will ensure a good harvest of the crop as losses due to infestations have greatly reduced yields in agriculture. The identification of molecular markers for yield and aroma, which are important characteristics in coffee, will also enhance the selection of varieties and strains for the development of the specialty coffee industry in the country.</p> <p>Markers that will be developed and identified in this study will be given to plant breeders for the long-term genetic improvement of varieties used in Philippine specialty coffee.</p>	<p>1. Designed and synthesized putative primers mined from the C. canephora genome for pest and disease resistance, yield and aroma.</p> <p>2. SSR profiles of putative markers for pest and disease resistance, yield and aroma of NSIC varieties and strains.</p>	UPD	Coffee farmers, breeders, researchers and scientists from academe and industry	19-Jan-18	18-Oct-18	NEW	2,000,000	2,000,000
Citrus Resources Research for Development in Cagayan Valley (CRR4DCV)	Project 2. Genebank and Database Profile of Citrus Genetic Resources	Poverty reduction and empowerment of the poor and vulnerable	<p>General The aim of the project is to conserve and document citrus cultivars and available local citrus genetic resources for the purpose of breeding, research and utilization in the Philippines.</p> <p>Specific: 1. To collect, characterize, identify, evaluate and conserve citrus genetic resources/germplasm throughout the country especially promising accessions for breeding, research and utilization; 2. To develop a database profile of citrus cultivars and germplasm with standard descriptions and produce DNA fingerprints for selected germplasms; 3. To design an initial online resource system for managing all information about citrus resources in the Philippines with standard descriptions and the database to be linked to the National Plant Genetic Resources Laboratory's (NPGRL) documentation system; 4. To conduct capability building by organizing training programs on PGR conservation and management, computer and information systems; and 5. To develop and produce/reproduce Information, Education and Communication (IEC) materials on citrus genetic resources.</p>	<p>1. A total of thirty-one (31) citrus species collected and characterized; of this total, 1-3 accessions per species collected in twenty two (22) species while 5-15 accessions collected for each of the remaining nine (9) citrus species averaging to 134 accessions; 2. At least three (3) mother trees grown, and maintained/conserved in large earthen pots for each distinct germplasm for an average of 402 mother trees maintained in the genebank; 12</p> <p>3. Molecular fingerprints of at least five (5) for each native and backyard cultivars and local citrus collections; 4. A database profile of citrus cultivars and germplasm with standard descriptions; 5. A central database system for citrus genetic resources linked with NPGRL's documentation system; 6. At least two (2) training programs organized and sponsored on PGR conservation and management, molecular characterization, computer and database systems and operations; and 7. Published at least one (1) article per component study in refereed scientific journal and three (3) IEC materials on citrus cultivars and germplasm conservation and management.</p>	NVSU	1. Citrus Growers in Nueva Vizcaya and Cagayan Valley 2. Traders, processors and input providers 3. Researchers/ Breeders 4. Nursery owners/operators 5. Agricultural Technicians 6. R&D planners, researchers, policy makers	16-Nov-16	15-Nov-19	ONGOING	11,863,916	1,346,011
Citrus Resources Research for Development in Cagayan Valley (CRR4DCV)	Project 3. Establishment of Quality Planting Materials Production System for Citrus in Nueva Vizcaya	Poverty reduction and empowerment of the poor and vulnerable	<p>General To establish and implement a quality planting materials production system for citrus in Nueva Vizcaya. Specific</p> <p>1. To enhance the foundation/budwood increase block of NVSU and nurseries of the university and MAGRO, Kasibu for the production of HLB- and CTV-free planting materials; 2. To increase seedling production of NVSU (from 3,000/year to at least 7,000/year) and of the Municipal Agriculture nursery (from 1000 to at least 2,000/year); 3. To index 200 mother trees in NVSU and in other production areas for HLB and CTV; 4. To develop a web-based map from geotagging of citrus mother trees serving as budwood sources for production of planting materials; 5. To train at least 10 nursery operators/owners and interested individuals on disease-free planting material production, rapid propagation techniques, and effective nursery management; 6. To establish a techno-demo farm that will utilize NVSU disease-free planting materials, and provide assistance to an existing citrus orchard on management of pests and diseases and improved production technologies; and 7. To publish at least one (1) article in a refereed scientific journal and produce at least two (2) kinds of IEC materials on management of pests and diseases and improved production technologies.</p>	<p>1. A model system for production of quality planting materials of citrus 2. Improved one (1) foundation and budwood increase blocks and two (2) citrus nurseries 3. Increased seedling production of NVSU (from 3,000/year to at least 7,000/year) and of the Municipal Agriculture nursery (from 1000 to at least 2,000/year) 4. 200 indexed citrus mother trees in the NVSU Foundation and Budwood Increase Blocks and 90-100% indexed budwood sources in production areas 5. Developed web-based map based on geotagging of infected and non-infected citrus mother trees 14</p> <p>6. BPI-accredited NVSU and MAGRO nurseries 7. Established one (1) new orchard established with NVSU citrus planting materials; one (1) existing orchard adopting improved production and pest and disease management practices 8. Published at least one (1) article in scientific refereed journal and produced at least two (2) IEC materials on nursery management and orchard establishment 9. Trained at least ten (10) nursery operator on production of disease-free planting materials, rapid propagation technique, and nursery management 10. Conducted at least two (2) farmers' field day</p>	NVSU	1. Citrus Growers in Nueva Vizcaya and Cagayan Valley 2. Traders, processors and input providers 3. Researchers/ Breeders 4. Nursery owners/operators 5. Agricultural Technicians 6. R&D planners, researchers, policy makers	16-Nov-16	15-Nov-19	ONGOING	7,851,442	1,419,319

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
Citrus Resources Research for Development in Cagayan Valley (CRR4DCV)	Project 4. Development of Pests and Diseases Management Systems for Sustainable Citrus Production in the Philippines	Poverty reduction and empowerment of the poor and vulnerable	General: The project aims to develop pest and disease management systems for sustainable citrus production in Cagayan Valley. Specific: 1. To establish current incidence and severity of major diseases and population dynamics of vectors and major insect pests; 2. To develop a system for monitoring and forecasting of major insect pests and diseases; 3. To verify and modify current practices for control and management of major insect pests and diseases; and 4. To validate on-farm the most effective and sustainable control and management strategies for major pests and diseases which can increase yield by 20-30%.	1. Data on current disease prevalence of (e.g. HLB, CTV etc.) 2. Population dynamics of the Asian citrus psyllid, aphid 3. Document with description of local citrus diseases and insect pests 4. One (1) integrated and systematic spraying schedule to control major pests and diseases of citrus 5. At least seven (7) control strategies employing IPM and IDM techniques 6. At least seven (7) IPM/IDM organic-based control tactics against pests and diseases of citrus 7. Seven (7) verification trials or demonstration trials harnessing the best control tactics identified 8. Seven (7) demonstration trials combined with good agricultural management practices as well as IPM and IDM strategies 9. At least five (5) organic-based biopesticides 10. Four (4) pilot testing showcasing the most effective organic-based biopesticides	NVSU	1. Citrus Growers in Nueva Vizcaya and Cagayan Valley 2. Traders, processors and input providers 3. Researchers/ Breeders 4. Nursery owners/operators 5. Agricultural Technicians 6. R&D planners, researchers, policy makers	16-Nov-16	15-Nov-19	ONGOING	9,506,255	2,265,186
Development of Integrated Crop Management (ICM-Tomato) for Increasing the Productivity of Fresh and Processing Tomato Production	Project 1. Development of Disease Management Technologies for Fresh and Processing Tomato Production	Rapid, inclusive and sustained economic growth	General: The project aims to develop an integrated crop management for fresh and processing tomato production involving the use of adaptable technologies for disease management.  Specific: To establish the disease profile in fresh and processing tomato production; To determine the efficacy of healthy seedling technology; and carrageenan technology for tomato leaf curl management; To formulate ICM recommendation and validate for field application using the effective disease management together with insect pest, weed and nutrient management recommendation for fresh and processing tomato production.	1.At least two (2) publications in ISI-indexed journal 2.Disease profile in fresh and processing tomato production 3.Efficacy of healthy seedling technology for leaf curl management in fresh and processing tomato production 4.Determined the effective concentration and induction time of carrageenan application, and efficacy of the carrageenan technology for leaf curl management for fresh and processing tomato production 5.IEC materials on healthy seedling and carrageenan technologies, and ICM recommendation. 6.Trained manpower in the form of students BS (1 BS Agriculture - Plant Pathology and 1 MS (Plant Pathology) and their thesis research supported by the project	UPLB, NFC	Researchers will benefit from the generated scientific information about integrated crop management for fresh and processing tomato production using adaptable technologies and site specific disease management.	01-Nov-17	31-Oct-20	ONGOING	6,726,305	1,402,386
Development of Integrated Crop Management (ICM-Tomato) for Increasing the Productivity of Fresh and Processing Tomato Production	Project 2. Development of Insect Pest and Weed Management Technologies for Fresh and Processing Tomato Production	Rapid, inclusive and sustained economic growth	To develop an improved integrated crop management for fresh and processing tomato production using effective and site- specific insect pest and weed management technologies. 1.To characterize the succession of insect pests in a given production system under a specific crop growing environment; and determine the factors (climatic; crop and insect pest management practices) associated with insect pest occurrence; 2.To capacitate farmers and promote adoption of village level production of biological control agents in their farms; 3.To determine the efficacy of modified release strategy of biological control agents and carrageenan technology for insect pest management in fresh and processing tomato production; 4.To test the suitability of the stale seedbed technique in reducing the weed population in fresh and processing tomato production systems; 5.To formulate ICM recommendations for future field validation and application using effective and adaptable disease, insect pest, weed and nutrient management technologies for fresh and processing tomato production.	environment (climatic and edaphic factors) and pest management (biological, cultural, behavioral and chemical control) in fresh and processing tomato production 2.Efficacy of modified release strategy of biological control agents and carrageenan technology to manage insect pests of fresh and processing tomatoes 3.Improved weed management strategies in fresh and processing tomato production 4.Field validated ICM recommendation 5.At least 3 scientific paper published in ISI-indexed journals and IEC materials on insect pest succession pattern and emerging insect pests, training materials on village-level mass production of biological control agents, crop protection technology recommendations (insect pest & weeds) 6.Trained at least 20 farmers in village-level mass production and utilization of Trichogramma, earwigs and NPV for fresh and processing tomato production for each site; Enhanced capability of RCPC biocon laboratory in mass production 7.Enhanced the capability of trained farmer leaders, extension and project personnel on information campaign strategies of biologically-based insect pest management 8.MOA with SUC, LGU and Cooperative. 9.Enhanced the capability of RCPC I in mass production of BCAs 10.Established network and collaboration with partners such as Mariano Marcos State University, Northern Foods Corporation, Regional Crop Protection Center I, local government units, Farmer's Leaders, Cooperators and Cooperative.	UPLB	Researchers and students will benefit from the generated scientific information about the site specific succession pattern of insect pests and biological control based crop protection technologies for fresh and processing tomato. Tomato growers and government extension agencies (DA-RCPCs, SUCs) will benefit from technologies, recommendations, and trainings on mass production of biological control agents.	01-Nov-17	31-Oct-20	ONGOING	4,199,098	800,200



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, 2018'	Total Project Cost	2018 PCAARRD GIA
Development of Integrated Crop Management (ICM-Tomato) for Increasing the Productivity of Fresh and Processing Tomato Production	Project 3. Development of Site-Specific Nutrient Management Program for Tomato Production	Rapid, inclusive and sustained economic growth	The project aims to develop site-specific nutrient management program for fresh and processing tomato production in Ilocos Norte and Ilocos Sur. Specifically: (1) To characterize soil fertility status, farmers' nutrient and water management practices and yields in selected tomato farms; (2) To formulate site-specific nutrient management program for tomato cultivation based on on-farm trials; and (3) To formulate ICM recommendation that incorporates site-specific nutrient management and effective and adaptable disease, insect pest, and weed management technology and validate its field application.	<ul style="list-style-type: none"> <li>•Networking and coordination with NFC, LGUs, MMSU and farmers in the selected sites</li> <li>•Baseline profiling of farmers nutrient and soil management practices/production systems</li> <li>•Profiling, collection and laboratory analysis of soil characteristic</li> <li>•Consolidated baseline data for use in the formulation of SSNM</li> <li>•Set-up MOET and OPT in selected farmers' fields</li> <li>•Identified yield-limiting nutrients in farmers field</li> <li>•Estimated yield and various nutrient use efficiency parameters</li> <li>•Estimated soil nutrient supplying capacity</li> <li>•Determined/formulated fertilizer rates for the SSNM treatment plot</li> <li>•Formulated ICM incorporating specific fertilizer recommendation and disease, insect pest and weed management</li> </ul> Year 2 <ul style="list-style-type: none"> <li>•Set-up ICM experiment in farmers' fields</li> <li>•Monitored crop response to the integrated crop management strategy</li> <li>•Estimated yield and various nutrient use efficiency parameters</li> </ul> Year 3 <ul style="list-style-type: none"> <li>•Field validated ICM strategy and evaluation crop responses to the recommendation</li> <li>•Estimated various nutrient use efficiency parameters</li> <li>•Fine-tuned and calibration of ICM strategy</li> <li>•Prepared manual and IEC materials on site-specific nutrient management technology</li> <li>•Prepared and submitted articles on the result of the experiment for publication</li> </ul>	UPLB	NFC which is the only processing company for tomato in the country will benefit from this technology as well as their farmer cooperators. Researchers will benefit from the generated scientific information and datasets that are basic inputs in the development of site-specific nutrient management program for tomato in selected tomato growing areas/domains in the Philippines.	01-Nov-17	31-Oct-20	ONGOING	4,074,592	797,307
Enhancing Competitiveness of Philippine 'Carabao' Mango through Varietal Improvement Program "Molecular Markers in 'Carabao' Mango Associated with Peel Color and Thickness, and Resistance to Anthracnose and Fruit Fly- old title"	Project 1. Characterization of 'Carabao' and other Mango Varieties with Red Blush and Thick Peel, and Development of Hybrids	Poverty reduction and empowerment of the poor and vulnerable	To identify 'Carabao' and other mango varieties with red blush and thick peel and develop mango hybrids	<ol style="list-style-type: none"> <li>1. Identified 3 potential 'Carabao' mango strains/selections with red blush and 1 with thick peel from other mango varieties</li> <li>2. Identified at least 1 stop-gap mango cultivar/variety for 'Carabao' mango</li> <li>3. Produced 3 more putative hybrids by pairing/clipping method of hybridization</li> <li>4. Established breeding blocks for mango hybridization program</li> <li>5. GBS data and gene annotations</li> <li>6. Published at least 6 papers in scientific journals</li> </ol>	UPLB	<ol style="list-style-type: none"> <li>1. Mango growers/exporters</li> <li>2. Researchers</li> <li>3. Breeders</li> </ol>	01-Nov-15	30-Oct-21	ONGOING	15,949,890	3,638,300
Enhancing Competitiveness of Philippine 'Carabao' Mango through Varietal Improvement Program "Molecular Markers in 'Carabao' Mango Associated with Peel Color and Thickness, and Resistance to Anthracnose and Fruit Fly- old title"	Project 2. Characterization of 'Carabao' and other Mango Varieties with Resistance to Fruit Fly and Anthracnose	Poverty reduction and empowerment of the poor and vulnerable	To identify 'Carabao' and other mango varieties with resistance to anthracnose and fruit fly	<ol style="list-style-type: none"> <li>1. Identified 2 'Carabao' and 1 other mango variety resistant to fruit fly</li> <li>2. Identified 3 'Carabao' and 2 other mango varieties resistant to anthracnose</li> <li>3. Published at least 6 papers in scientific journals</li> </ol>	UPLB	<ol style="list-style-type: none"> <li>1. Mango growers/exporters</li> <li>2. Researchers</li> <li>3. Breeders</li> </ol>	01-Nov-15	30-Oct-21	ONGOING	10,411,430	2,804,103
Enhancing Competitiveness of Philippine 'Carabao' Mango through Varietal Improvement Program "Molecular Markers in 'Carabao' Mango Associated with Peel Color and Thickness, and Resistance to Anthracnose and Fruit Fly- old title"	Project 3. Identification of Molecular Markers in 'Carabao' and other Mango Varieties Associated with Red Blush, Thick Peel, and Resistance to Anthracnose and Fruit Fly	Poverty reduction and empowerment of the poor and vulnerable	To identify molecular markers associated with specific traits in mangoes through the application of Genotype by Sequencing technology	<ol style="list-style-type: none"> <li>1. Identified markers associated with specific traits</li> <li>2. Identified true hybrids</li> <li>3. Database for mango</li> <li>4. Publish at least 6 papers in scientific journals</li> </ol>	UPLB	<ol style="list-style-type: none"> <li>1. Mango growers/exporters</li> <li>2. Researchers</li> <li>3. Breeders</li> </ol>	01-Nov-15	31-Jan-19	ONGOING	14,498,868	2,401,722
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Program Management and Coordination (PMC)	Poverty reduction and empowerment of the poor and vulnerable	To coordinate the conduct of M&E activities such as mid-year and annual program reviews, field visits; financial report and serves as repository of documents about the program		VSU		01-Apr-16	31-Mar-19	ONGOING	2,575,996	762,499
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Project 1. Comparative Field Performance of Tissue Culture Derived Plantlets and Suckers of Queen Pineapple	Poverty reduction and empowerment of the poor and vulnerable	General: To improve the productivity and quality of Queen pineapple under coconut intercropping scheme. Specific: 1. To optimize a micropropagation technique via direct multiple shoot induction 2. for Queen pineapple. 3. To evaluate two somatic embryogenesis protocol for queen pineapple. 4. To assess somaclonal variation in important traits of queen pineapple. 5. To evaluate the field performance of tissue culture-derived planting 6. materials in comparison with suckers under coconut intercropping scheme in 7. Leyte and Camarines Norte conditions	Optimized micro-propagation technique for Queen pineapple via direct multiple shoot induction Efficient somatic embryogenesis protocol for Queen pineapple identified/developed Adaptive, productive and high yielding Queen pineapple populations suitable for coconut intercropping	VSU	1. Pineapple growers in 2. Pineapple traders (local and export) 3. Pineapple processors 4. Research institutions 5. LGUs/SUCs	01-Apr-16	31-Mar-19	ONGOING	3,944,511	1,047,175

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, 2018'	Total Project Cost	2018 PCAARRD GIA
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Project 2. Assessment and Variability in Growth, Yield and Biochemical Characteristics of Queen Pineapple (Ananas comosus var. comosus) Populations in Camarines Norte and Leyte	Poverty reduction and empowerment of the poor and vulnerable	General: To characterize existing Queen pineapple populations and do selection among individuals within populations where considerable variability exists Specific: 1. To identify important characteristics of Queen pineapple that are related to yield, fruit quality, market acceptability and processing potential 2. To determine the range of phenotypic variability and possible correlations among important growth, yield and biochemical characteristics of 'Queen' pineapple populations in Camarines Norte and Leyte 3. To select good plants that can be used as (a) sources of planting materials to develop an improved population in terms of yield, market acceptability and suitability to processing and (b) parents for genetic improvement 4. To establish two reproduction/conservation sites for selected 'Queen' pineapple plants in Camarines Norte State College (CNSC) and Visayas State University (VSU) 4 5. To determine the effect of fruit maturity and growing conditions on the biochemical characteristics of 'Queen' pineapple 6. To identify possible processed products that may be developed based on biochemical characteristics of 'Queen' pineapple	1. Established ranges of values of important growth and yield parameters of 'Queen' pineapple in Camarines Norte and Leyte 2. 'Queen' pineapple plants with fruit size of at least 15 centimeters long and 10 centimeters diameter, fruit weight between 0.8 to 1.2 kg and with normal fruit shape identified 3. Plants with the highest fiber yield identified and leaf characteristics associated with high fiber yield determined 4. Growing conditions (soil moisture, fertilized, grown in open field or under coconut) affecting yield (fiber and fruit) and market acceptability determined 5. Baseline information on the physico-chemical, biochemical and sensory qualities of 'Queen' pineapple fruit planted in Camarines Norte and Leyte. 6. Established relationship between coconut fruit maturity and its biochemical characteristics. 7. Established relationship between the varying degrees of light exposure condition of the pineapple plant and the biochemical characteristics of its fruit. 8. Two reproduction/conservation sites (one in Camarines Norte and one in Leyte) for selected 'Queen' pineapple plants established.	VSU, CNSC	1. Commercial 'Queen' pineapple growers/farmers in Camarines Norte and Leyte 2. Research and Educational institutions (CNSC and VSU) 3. Pineapple fiber industry stakeholders 4. Pineapple breeders 5. Coconut- and 'Queen' pineapple-based product processors and consumers 6. LGUs	15-Apr-16	31-Dec-18	COMPLETED	4,148,335	370,277
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Project 3. Optimization of Planting Density Regulation for Queen Pineapple in Intercropped System	Poverty reduction and empowerment of the poor and vulnerable	General: To determine the optimum plant population of queen pineapple under intercropped systems in Regions 5 and 8. Specific: Component 1: 1. Determine optimum plant population of Queen pineapple under pili-based cropping system 2. Assess performance and effect of fertilizer management on the yield of pili. Components 1 and 2: 3. Determine optimum plant population of Queen pineapple on open upland area, coconutbased at 10m x 10m density and coconut-based with irregular spacing. 4. Verify the response of queen pineapple planted under coconut-based cropping system with different planting densities in terms of a) Agronomic performance; b) Fruit yield quality; c) Leaf harvest and d); Economic performance. 5. Assess performance and effect of fertilizer management on the yield of coconut.	A technology recommendation or protocol on the optimum population density of queen pineapple under different intercropping systems in Region 5 and Region 8	DA Regional Field Unit V, VSU	Queen pineapple farmers, Agricultural technicians, LGU's, Farmers associations and cooperatives and other institutions involved in queen pineapple, coconut or pili production or industry.	01-Apr-16	31-Mar-19	ONGOING	7,371,852	1,936,385
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Project 4. Development of Site-specific Integrated Pest Management of Queen Pineapple under different cropping schemes in Region 8 and Region 5	Poverty reduction and empowerment of the poor and vulnerable	General: To develop a site specific sustainable pest management strategy of Queen pineapple under different cropping systems in Leyte and Camarines Norte Specific: 1. To survey, assess and identify the major arthropod pests and diseases of queen pineapple planted under different cropping schemes in selected localities in Leyte and Camarines Norte; 2. To monitor the abundance and dynamics of the major pests and prevalence of disease; 3. To conduct biological studies of major insect pests collected and isolation and characterization of diseases that will be observed 4. To identify and assess potential naturally occurring biocontrol agents that can be utilized to develop control/ and management strategies of major pests of queen pineapple under different cropping schemes selected project sites; and 5. To produce IEC materials for pests and diseases associated with pineapple as field guide for their sustainable management	1. Identification of major pests and diseases of queen pineapple under different cropping schemes 2. Identify potential naturally occurring biocon agents against major pests and diseases of pineapple under different cropping schemes 3. Establish the population dynamics of major insect pests of pineapple 4. Data base on diseases severity, incidence and prevalence of pineapple in order to develop effective management strategies 5. IEC materials for pests and diseases associated with pineapple as field guide for identification, diagnosis and surveillance and their sustainable management.  1. List and documentations of indigenous, conventional and traditional pests and diseases control strategies; 2. Identification of potential biological control agents and antagonists to be used in the development of effective pest control strategies; 3. Effective mass production techniques for insect arthropod biocon agents and antagonists; 4. Field delivery techniques/system of potential biocon agents, including entomopathogens and antagonists; and 5. Site-specific sustainable strategy/package for pineapple planted under various cropping schemes in Leyte and Camarines Norte	VSU	Local farmers and stakeholders, academe, researchers, policymakers; development planners of the pineapple industry	01-Apr-16	31-Mar-19	ONGOING	3,672,708	1,370,554

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Evaluation of Coconut Wrinkle 1 Gene Expression and its Effect in Oil Biosynthesis in a Model Monocot Zea mays L. (Project 5- Phase 2)	Poverty reduction and empowerment of the poor and vulnerable	The project aims to express and evaluate the Coconut Wrinkle 1 (CnWR1) gene in association with oil biosynthesis in an experimental monocot model system Zea mays L. (corn). 1. To transfer the CnWR1 cassette into a selected yellow corn inbred line using the gene gun (microparticle bombardment) 2. To regenerate transformed corn tissues into plantlets under contained laboratory and greenhouse conditions. 3. To analyze expression of the transgene CnWR1 in GM corn by Quantitative Reverse Transcriptase Polymerase Chain Reaction (qRT-PCR) 4. To analyze the total oil content of the GM corn (whole plant) in comparison to control maize materials 5. To analyze the fatty acid profile of GM corn kernels to validate changes of fatty acid composition in comparison to control maize samples and coconut	1. Plant tissue culture products, regenerating transformed tissues, whole plantlets in bottles, plantlets in the process of hardening/acclimatization and plants in the BL2 greenhouse and transgenic corn seeds. 2. Validation of CnWR1 as a positive or negative effector molecule in the oil biosynthesis pathway by correlating the result of qPCR, total fat content and fatty acid profile in the corn kernels 3. Development of a working protocol for other selected/novel coconut genes for validation and functional analysis	UPLB	Direct beneficiaries will be plant physiologists and agronomist/agriculturists who will adopt the developed tissue culture protocols for other related or unrelated studies such as further improvement/enhancement of the protocols, use of the protocols for mutation induction using embryogenic cell suspensions, etc. Knowledge and development of techniques for enhanced gene expression studies for undergraduate (BS ABT) and graduate students (MS and PhD in MBB).  Industry stakeholders who might invest in the maturation of the technology developed for the production of coconut oil and other products derived from the corn grains for food and industrial applications.	01-Oct-17	30-Sep-19	ONGOING	4,830,408	1,159,085
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project 2. Biomarker Development and Molecular Mapping for Coconut Genetic and Varietal Improvement	Poverty reduction and empowerment of the poor and vulnerable	Generate molecular markers from the assembled genomes of Tall/Dwarf coconut varieties and map the biomarkers, genes, QTL loci on coconut linkage map	At least 10 molecular markers associated with early flowering, fast growth, oil and nut yield, and water content and quality; one (1) linkage map of coconut	UPD, PCA	Coconut farmers, coconut organizations and communities extension workers, LGUs	15-Jan-14	14-Apr-19	ONGOING	30,470,378	4,953,596
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project 4 -Phase II: Comparative Transcriptomics of Normal, Makapuno and Lono Coconut Endosperms	Poverty reduction and empowerment of the poor and vulnerable	To determine the genetic and molecular mechanisms involved in coconut oil biosynthesis and inmakapuno and lono phenotypes.	1. Identified genes and gene networks associated with normal, makapuno, and lono phenotypes; 2. Gene expression patterns of selected endosperm-related genes across developmental stages of normal Laguna Tall, makapuno and lono endosperms; 3. Cytochemical patterns across developmental stages of normal Laguna Tall, makapuno, and lono endosperm; 4. Reassembled and re-annotated transcriptome data via reference-guided assembly; and, 5. Developed DNA markers targeting differentially expressed genes.	UPLB, PCA-ARC	Direct beneficiaries will be molecular biologists and molecular breeders, as well as coconut farmers.	01-Jun-18	31-May-20	NEW	4,999,195	3,066,230
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project 6. Marker-assisted breeding in coconut targeting productivity and major industrial traits	Poverty reduction and empowerment of the poor and vulnerable	Identify and select for San Ramon Tall cy Orgullo and single cross-hybrids for regional release using marker assisted selection	At least two (2) synthetic varieties developed through MAS for dissemination to farmers; three (3) varieties—Outstanding Tall, San Ramon and PCA Hybrid, selected through MAS for dissemination to farmers	UPLB, PCA	Coconut farmers, coconut organizations and communities extension workers, LGUs	15-Jan-14	14-Jul-19	ONGOING	26,943,679	3,600,025
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project 7. QTL mapping in coconut for high yield outstanding quality of copra oil and other coconut majoy by-products	Poverty reduction and empowerment of the poor and vulnerable	Identify QTL and develop sequence-specific DNA markers for yield and copra quality from an advanced PCA mapping population	a) Polymorphic DNA markers between parental population b) Genetic linkage map of coconut c) Mapped QTLs for coconut productivity, and yield/quality of copra oil and other nut major by-products d) Validated coconut QTLs e) Robust DNA markers for routine marker-assisted breeding derived from validated coconut QTLs and underlying candidate genes	UPLB, PCA	Coconut farmers, coconut organizations and communities extension workers, LGUs	15-Jan-14	14-Apr-19	ONGOING	22,188,646	3,225,878
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project 8. Development of web-based breeding resource and Eco-TILLING towards insect resistance breeding	Poverty reduction and empowerment of the poor and vulnerable	Construct a genome-based database for coconut with breeder tools/browser and develop molecular markers targeting glandular trichomes and scale insect resistance	a) Password protected web-based genome database of Cocos nucifera consisting of sequence assemblies and annotations, genome-wide SSR markers and pre-installed breeder tools and genome browser. b) Characterized coconut glandular trichome loci/genes tagged with sequence-specific DNA markers. c) NGS-EcoTILLING platform in coconut for glandular trichome genes and related genetic factors. d) Coconut plant/s that exhibit differential reaction against scale insect infestation and SNP markers tagging the candidate resistance loci. e) At least one (1) publication of significant research finding in ISI journal	UPLB, PCA	Coconut farmers, coconut organizations and communities extension workers, LGUs	15-Jan-14	14-Jan-19	ONGOING	62,511,670	6,972,395
Improvement of Coconut Varieties through Genomics, Genetics and Breeding for a Competitive and Sustainable Philippine Coconut Industry	Project Management and Coordination	Poverty reduction and empowerment of the poor and vulnerable	To determine the genetic and molecular mechanisms involved in coconut oil biosynthesis and in makapuno and lono phenotypes.	a) Technical Progress Report; b) Reviewed project accomplishment; c) Monitored the project implementation; d) Terminal Report	UPLB, PCAARRD	Coconut farmers, coconut organizations and communities extension workers, LGUs	15-Jan-14	14-Jul-19	ONGOING	8,518,420	934,036

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 2. Soybean for Higher Income and Enhanced Soil Health Under Different Cropping Systems	Poverty reduction and empowerment of the poor and vulnerable	General Objective: To improve farm income through soybean intercropping in major growing areas of Regions 02 and 13  Specific Objectives: 1. To determine the profitability and optimum productivity of soybean under different cropping systems (soybean after rice, after corn, and intercrop with cassava) using sustainable cultural management; and 2. To monitor the impact of standard and optimum cultural management practices in soybean production under different cropping systems on biological, physical, and chemical soil health indicators	Publications(10),Different cropping system practices (corn-based, rice-based & cassava-based) and soil health •Refereed (2) •Non-refereed (3) •IEC materials (leaflets, posters, radio program) – (5) Products (3) --- Technologies for optimum yield management under different cropping systems (rice-based, corn-based, cassava-based) for Regions 02, 10, 11 & 13 - (3) People & Services --- Trained farmers/stakeholders on the developed technology (900)	UPLB, DA-RFO 2, DA-RFO 10, DA-RFO 11, DA-RFO 13	a. Farmers in corn, rice, cassava- based farming communities will see the benefit of including soybean in their cropping system specifically its impact on soil health. b. Agri-entrepreneurs (SMEs)	01-May-18	30-Apr-21	NEW	15,744,919	6,078,051
Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 3. Enhancing the Sustainability of the Informal Soybean Seed Sector	Poverty reduction and empowerment of the poor and vulnerable	General Objective: To develop a strategy for improving the informal soybean seed system.  Specific Objectives: 1. To develop social sustainability mechanisms that would enhance the informal seed system; 2. To improve on-farm recommendations for seed postharvest handling, packaging, and storage system to extend seed storability while maintaining seed quality; and 3. To improve seed selection and variety maintenance by farmers.	a. Sustainability mechanisms i) Refereed papers: 1 ii) Conference papers: 2 iii) Guides, factsheets, technical info: 1 iv) Leaflets, posters, and related IECs in English and 1 local language: 1 b.On-farm seed processing and storage i)Refereed papers: 1 (shared with on-farm seed selection) ii)Conference papers: 2 iii)Guides, factsheets, technical info: 1 iv)Leaflets, posters, and related IECs in English and 1 local language: 2 c.On-farm seed selection i)Refereed papers: (shared with on-farm seed processing and storage) ii)Conference papers: 1 iii)Guides, factsheets, technical info: 1 iv)Leaflets, posters, and related IECs in English and 1 local language: 1 •Patents •Products (3) a.On-farm Seed Processing and Storage: 1 system recommended b.On-farm Seed Selection: 2 varieties purified, multiplied, and distributed •People Services – training a.Sustainability mechanisms: 3 farmer organizations assisted (related to partnerships) b.On-farm seed processing and storage: 100 farmers trained c.On-farm seed selection: the same farmers as in trained in seed processing and storage •Partnerships: 3 MOAs with farmer organizations and LGUs	UPLB, DA-RFO 2, DA-RFO 10, DA-RFO 11, DA-RFO 13	1.DA and LGU policy makers might be encouraged to enhance support to informal seed systems for all crops 2.Farmers growing soybean and saving their own seeds will be assisted in saving better quality seeds 3.Agricultural technicians and extension workers promoting soybean production will have better understanding of soybean seed saving 4.Researchers and experts working on soybean and other difficult-to-store orthodox seed crops will be assisted in proper seed processing and storage 5.Entrepreneurs who may want to engage in the business of high quality soybean seeds 6.Genebanks (all crops) will benefit from the additional detailed information on seed anoxia	01-May-18	30-Apr-21	NEW	14,566,795	5,048,448
Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 4. Soybean Variety Development for Large Seed Size, Higher Yields, and Enhanced Functional Properties	Poverty reduction and empowerment of the poor and vulnerable	General Objective To develop varieties for soybean varieties with large seed size, high yields and enhanced functional properties  Specific Objectives: 1. To develop populations of soybean with large seed size, good processing quality, high yields, enhanced functional properties (isoflavones and lunasin), and good adaptation to different agro-ecological zones 2. To select for soybean lines suitable to the different growing areas 3. To develop marker-assisted selection system for adaptability and functional properties in soybean	a.Two (2) variety recommendations for the 2 major agro-climatic zones b.Ten (10) stable soybean lines with large seeds, good processing quality, high yields and tolerance to diseases c.Two (2) soybean lines with enhanced levels of functional properties (isoflavones and lunasin) d.Three (3) publications e.Two (2) thesis students mentored	UPLB, DA-RFO 2, DA-RFO 10, DA-RFO 11, DA-RFO 13	a. Rice farmers with potential to grow soybean after the rice crop b. Corn farmers with potential to grow soybean after the corn crop c. Upland farmers	01-May-18	30-Apr-21	NEW	13,627,821	5,302,278
Improving Productivity and Local Utilization of Mungbean	Project 1. Development of Varieties for Drought and Shade Tolerance	Poverty reduction and empowerment of the poor and vulnerable	To develop varieties of mungbean for drought and partial shade conditions.  Specific Objectives: 1. To develop populations of mungbean with potential for drought tolerance; 2. To develop populations and lines of mungbean for partial shade tolerance; 3. To evaluate the lines under drought and partial shade conditions; and 4. To conduct genetic diversity analysis of selected mungbean genotypes	Year 1 1. Varieties selected for drought and shade tolerance. 2. Tolerant populations developed. Year 2 1. Population/ lines screened for drought and shade (on-station and onfarm) Year 3 1. F4 to F6 populations tolerant to shade and drought 2. Secondary (20) traits identified	UPLB	Rice farmers with potential to grow mungbean after the rice crop, upland farmers, coconut farmers, cassava farmers	01-Aug-15	31-Jul-18	COMPLETED	13,101,161	1,237,630

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Improving Productivity and Local Utilization of Mungbean	Project 2. Improvement of Mungbean Seed Production and Management System in Region 2, 3, 6 & 11	Poverty reduction and empowerment of the poor and vulnerable	This study generally aims to sustain availability of high quality seeds of improved mungbean varieties in major growing areas in Regions 2, 3, 6 and 11 coupled with improved seed storage technologies. Specific Objectives: 1. To evaluate and determine the most effective and economical hermetic seed storage technology for certified and farm-saved mungbean seeds; 2. To pilot test the improved hermetic seed storage technology; 3. To promote seed saving technology to 100-200 farmers per region; 4. To ensure local availability of 6,050 kg Foundation Seeds (FS) and 61,250 kg Registered Seeds (RS)/ Certified Seeds (CS) of improved mungbean varieties in Regions 2,3,6 and 11 (or a total of 67,300 kg of quality seeds); and 5. To support commercial production of improved varieties in expansion areas of at least 6,800 hectares in Regions 2,3,6 and 11.	Year 1 1. Established seed storage facilities in participating DA-RIARCs (DACVRC, DA-CLIARC, DA-WESVIARC and DA-SMIARC) 2. Produced 67.30 tons of high quality and improved seeds varieties 3. Trained, organized and accredited seed growers Year 2 1. Improved hermetic seed storage technology for certified and farmsaved seeds 2. Assisted 50-100 farmers per region on seed production Year 3 1. Established one rural seed center/ region (Regions 2, 3, 6 and 11) 2. 100-200 farmers-adopters per region on seed storage technologies 3. A total of 6,800 ha seed production expansion area 4. Production and distribution of IEC materials on seed production	DA-CVRC, DA-RFO 3, DA RFU 11, DA-WVIARC	Low-income farmers in corn, rice, cassava, sugarcane, & coconut-based farming communities Agri-entrepreneurs (SMES)	01-Aug-15	31-Jul-18	COMPLETED	9,841,488	968,032
Improving Productivity and Local Utilization of Mungbean	Project 3. Improvement of Integrated Crop Management System for Mungbean	Poverty reduction and empowerment of the poor and vulnerable	The project generally aims to reduce pest damages of mungbean by 20% through adoption of improved Integrated Crop Management (ICM) systems in order to increase crop yield. Specific Objectives: 1. To increase mungbean yield through reduced infestation/ damage of pod borer and use of available BCAs and botanical extracts; 2. To reduce Cercospora leaf spot disease of mungbean through application of organic extracts, Trichoderma, 3 Vermitea and Radiation-Modified Carraegenan (RMC) in rice and corn-based cropping systems; 3. To evaluate the efficacy of different fertilizers in maize, rice, sugarcane cropping systems in increasing crop yield ; and 4. To promote and transfer the improved ICM systems for farmers' adoption.	Year 1 1. Screened BCAs (for pod borer and Cercospora leaf spot) 2. Fertilizer management and Rhizobium inoculation for mungbean Year 2 1. Tested (on-farm) BCAs and nutrient management systems 2. 30 farmers assisted per region (total of 120 farmers-adopters) Year 3 1. Produced and distributed IEC materials on BCAs and ICM 2. Trained at least 30 farmers/ region (a total of 120 farmers-adopters) 3. Developed and promoted ICM (BCAs, BEs, Organic Fertilizers, 10 Carageenan) for mungbean for different cropping systems	DA-CVRC, DA-RFO 3, DA RFU 11, DA-WVIARC, PAC	Mungbean farmers; rice, corn and sugarcane farmers; researchers, students and other stakeholders	01-Aug-15	31-Jul-18	COMPLETED	6,724,411	1,063,701
Regional Durian R&D Program: Enhancing Productivity and Sustainability of the Durian Industry in Southern Mindanao (Phase 2)	Project 1. Optimum Durian Tree Management for Increased Productivity	Poverty reduction and empowerment of the poor and vulnerable	General: To cross validate the thinning and pruning techniques of durian for optimum yield and quality of durian. Specific: 1. To determine the best and appropriate thinning and pruning techniques of different varieties of durian; 2. To determine the economic benefits of pruning and flower-fruit thinning in durian; 3. To determine the peak of production of different durian varieties, and; 4. To determine the quality characteristics of different durian varieties	1. Optimized fruit production through application of technology on the proper and appropriate cultural management on pruning, detopping, flower and fruit thinning for optimum production of quality durian fruits for domestic and export market, as well as on height and fruiting branches. 2. Extended harvesting season by two months 3. Increased yield by 20% and improved quality of fruits.	BPI-DNCRDPSC	1. Commercial durian growers 2. Small scale-durian farmers 3. Farm Contractors 4. Wholesaler/retailers/exporters Research institutions 5. Researchers 6. LGU's 7. Planners	01-Oct-17	30-Sep-19	ONGOING	4,812,643	1,036,898
Regional Durian R&D Program: Enhancing Productivity and Sustainability of the Durian Industry in Southern Mindanao (Phase 2)	Project 2. Optimum Fertilization to Enhance Yield and Quality of Fesh Duran in Southern Mindanao	Poverty reduction and empowerment of the poor and vulnerable	General: Improve the yield and quality of fresh durian in Southern Mindanao through of the use of a fertilization guide developed based on the optimum nutrient standards. Specific: 1. Validate across location the formulated fertilizer recommendation in durian derived from the established leaf nutrient concentration standards; 2. Verify at farmer's field across location the adaptability of validated fertilizer recommendation of durian in Southern Philippines, and; 3. Generate a GIS-aided soil suitability classification for durian in Davao and Cotabato provinces.	1. Increased yield and improved durian fruit quality; 2. Optimum fertilizer recommendation for durian based on leaf analysis validated and verified, and; 3. GIS-aided suitability maps for durian in Davao and Cotabato provinces.	USM, UseP, BPI-DNCRDPSC	1. Commercial durian growers 2. Small scale-durian farmers 3. Farm Contractors 4. Wholesaler/retailers/exporters 5. Research institutions 6. Researchers 7. LGU's 8. Planners	01-Oct-17	30-Sep-19	ONGOING	6,761,011	1,310,254
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 1a. Mass propagation and pilot utilization of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Batangas and Quezon	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	UPLB	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	29,293,247	4,539,641
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 1b. Mass propagation and pilot utilization of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Laguna, Rizal and Cavite	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	UPLB	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	28,593,331	3,920,444
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 2. Mass propagation of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Region VI, VII, and VIII	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	VSU	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	25,538,489	3,567,229

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 3. Mass propagation of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Davao Oriental and Davao del Norte	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	UPMin	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	25,394,301	3,661,511
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 4. Mass propagation and pilot utilization of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Camarines Sur, and Masbate	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	PCA-Albay	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	26,434,280	3,770,835
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 5. Mass propagation and pilot utilization of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Camarines Norte, Catanduanes and Sorsogon	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	BU	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	25,262,092	3,324,138
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 6. Mass propagation and pilot utilization of plumule-derived plantlets of Tall and Dwarf coconut varieties through CSet for Zamboanga del Norte, ARMM and Region XII	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	PCA	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	27,691,134	4,033,597
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project 6b. Nursery Establishment and Distribution of Coconut Seedlings in Mindanao	Poverty reduction and empowerment of the poor and vulnerable	The project will initiate establishment of screenhouse and nursery at AROMAN Seed Garden, Carmen, North Cotabato. The establishment of seedling nursery shall be done accordingly to cater the coconut farmers that need replanting in their farms following the target production and distribution of somatic-derived plantlets of the program. The hardened seedlings from the nursery will be used primarily for planting in coastal locations as expansion areas, partly replacing senile palms and typhoon damaged palms in support to the 10-year replanting program of PCA. Identified varieties with resistance to diseases such as cadang-cadang and insect pest such as coconut scale insect shall be used in areas where infestations are prevalent.		PCA		01-Oct-18	30-Sep-20	NEW	6,560,449	3,338,813
Reinvigorating the Philippine Coconut Industry through Coconut Somatic Embryogenesis Technology	Project Management Coordination	Poverty reduction and empowerment of the poor and vulnerable	The project aims to mass propagate plumule-derived coconut planting materials primarily to establish new planting in coastal zones and replant the typhoon-damaged, and coconut scale insect- infested palms. It also aims to advance the agricultural biotechnology capability in the Philippines on the rapid mass propagation of coconut planting materials	Technology transfer & adoption of CICY-Mexico's protocol for in vitro culture of coconut using somatic embryogenesis Identified high yielding Tall & Dwarf coconut varieties/hybrids responsive to the protocol Tissue culture laboratory upgraded and equipped for effective mass propagation of high yielding coconut varieties/hybrids	PCA	Smallhold coconut growers who are dependent on coconut farming as their livelihood.	01-Oct-14	30-Sep-19	ONGOING	20,474,300	1,292,392
S&T-BASED SWEETPOTATO VALUE CHAIN DEVELOPMENT FOR FOOD IN TARLAC, ALBAY, AND TYPHOON YOLANDA-AFFECTED AREAS IN LEYTE AND SAMAR	Program Management and Coordination (PMC)	Poverty reduction and empowerment of the poor and vulnerable	The component aims to coordinate all the monitoring and evaluation activities of the different projects under the program, integrate the plans, strategies and accomplishments. It will coordinate gathering of all the necessary information and extension materials, ensure acceptability of all reports (technical and financial) and closely coordinate the project leaders and personnel involved for smooth implementation of the program	Information database; Geo models for predicting fishponds at risk	VSU	tilapia pond operators	01-Jan-16	31-Dec-18	COMPLETED	3,043,125	520,293
S&T-BASED SWEETPOTATO VALUE CHAIN DEVELOPMENT FOR FOOD IN TARLAC, ALBAY, AND TYPHOON YOLANDA-AFFECTED AREAS IN LEYTE AND SAMAR	Project 1. Support Systems for Sweetpotato Value Chain Development	Poverty reduction and empowerment of the poor and vulnerable	1. To improve the design and implementation of the SP value chain through geo-referenced mapping and scenario analysis. 2. To improve the viability of the SP value chains through continuing R&D for innovations in production (aeroponics system), product development, mechanized processing systems, and consumer and market research. 3. To strengthen capacities of partners, sustain partnerships and contribute to an enabling policy environment and the provision of Business Development Services (BDS).	⌚ At least four (4) SP food value chains with value chain analysis ⌚ At least five (5) SP varieties adopted by farmers for use in value chains ⌚ Employment generated in rural communities ⌚ Increase in SP area, ca. 300 has ⌚ Strengthened capacities of researchers/development workers, farmers, entrepreneurs, partners through the (1) Farmer Business School (FBS); (2) provision of Business Development Services (BDS); (3) market linkage; and (4) improved partnerships ⌚ Established and pilot-tested a zero-waste SP processing system with feasibility analysis ⌚ Knowledge products: IEC materials, VCA guide with VC mapping guide, publications; at least 5 papers ⌚ Established Communication platform established: FB, SP SuperFood	VSU	â€¢ Farmer-households/entrepreneurs (enterprises in urban locations engaged in peri-urban agriculture) â€¢ Researchers/ Scientists â€¢ LGUs and farmers in typhoon-affected areas in Leyte-Samar â€¢ SP growers in general Micro and small entrepreneurs	01-Jan-16	31-Dec-18	COMPLETED	20,811,532	2,467,120

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, 2018'	Total Project Cost	2018 PCAARRD GIA
S&T-BASED SWEETPOTATO VALUE CHAIN DEVELOPMENT FOR FOOD IN TARLAC, ALBAY, AND TYPHOON YOLANDA-AFFECTED AREAS IN LEYTE AND SAMAR	Project 2. Sweetpotato Value Chain Development for Food in Tarlac	Poverty reduction and empowerment of the poor and vulnerable	1. To enhance the SP value chain and scale-out the SP micro-enterprises (wine, pastries/cookies, jam/jelly, noodles) in Tarlac and target expansion areas. 2. To promote an enterprise culture to farmers, cooperatives and private enterprises for improved productivity and competitiveness.	☑ At least four (4) SP food value chains with value chain analysis ☑ At least five (5) SP varieties adopted by farmers for use in value chains ☑ Employment generated in rural communities ☑ Increase in SP area, ca. 1000 has ☑ Provided BDS to the SP value chains ☑ Knowledge products: SP product flyers, publication; at least 3 papers	Department of Agriculture Regional Field Unit III	â€œ Local entrepreneurs (Farmer-Trader-Processors) â€œ Farming households (engaged in production of sweetpotato roots and planting materials whose livelihoods are limited by lahar-laden growing environment, insect pest and disease pressure) â€œ Local organizations, including farmersâ€™ cooperatives and womenâ€™s associations engaged in enterprises for processing and marketing of value-added swetpotato products â€œ Consumers of quality sweetpotato products â€œ Local R & D institutions for new knowledge, linkages and support groups â€œ Local BDS Providers	01-Jan-16	31-Dec-18	COMPLETED	6,531,270	1,744,510
S&T-BASED SWEETPOTATO VALUE CHAIN DEVELOPMENT FOR FOOD IN TARLAC, ALBAY, AND TYPHOON YOLANDA-AFFECTED AREAS IN LEYTE AND SAMAR	Project 3. Sweetpotato Value Chain Development for Food in Albay	Poverty reduction and empowerment of the poor and vulnerable	1. To enhance the SP value chain for products (fresh-based MP products, noodles, ice cream, specialty breads, pastries) with high potentials for commercialization and access to wider market niche. 2. To strengthen the capacities of SP entrepreneurs, and the linkages/ partnerships with the BDS providers.	☑ At least four (4) SP food value chains with value chain analysis ☑ At least five (5) SP varieties adopted by farmers for use in value chains ☑ Employment generated in rural communities ☑ Increase in SP area, ca. 500 has. ☑ Provided BDS to the SP value chains ☑ Knowledge products: SP flyers, publication, at least 3 papers	DA Regional Field Unit V	â€œ Local entrepreneurs (farmer-traders-processors) â€œ Farming households (engaged in production of sweetpotato roots and planting materials whose livelihoods are limited by lahar-laden growing environment, insect pest and disease pressure) â€œ Local organizations (including farmersâ€™ cooperatives and womenâ€™s associations engaged in enterprises for processing and marketing of value-added sweetpotato products) â€œ Consumers of quality sweetpotato products; threat of changing climate; â€œ Local R & D institutions (Researchers/Scientists) for new knowledge and linkages â€œ LGUs	01-Jan-16	31-Dec-18	COMPLETED	6,164,410	577,813
	Anatomical, Physical, Mechanical and Veneering Properties of Young-Aged Falcata (Falcataria moluccana (Miq.) Barneby & J. W. Grimes) and Yemane (Gmelina arborea Roxb.) (Old Title: Mechanical and Veneering Products of Falcata (Paraserianthes falcata L. Neilsen) and Yemane (Gmelina arborea Roxb.) from Known Seed Source in Caraga Region)	Rapid, inclusive and sustained economic growth	GENERAL: To determine the suitability of young-aged falcata and yemane for veneer, plywood and construction materials. SPECIFIC: 1. Determine the anatomical, physico-mechanical and veneering properties of falcata and yemane at 3-, 5-and 7- year-old; 2. Determine the effect of various parameters on the recovery and quality of veneer such as; rotary cutting using traditional lathe and spindles lathe, optimum combination of lathe setting, pre-treatment (soaking in hot water and steaming, veneer thickness, knife angle and nosebar compression); 3. Recommend the most financially viable harvesting/ rotation age of falcata and yemane, for veneering, based on financial indicators; and 4. Generate v 4. Generate veneer and lumber processing technologies for younger age falcata and yemane.	☑ Determined the anatomical, physical, mechanical and veneering properties of falcata. ☑ Determined the effect of various parameters on the recovery and quality of veneer such as rotary cutting using traditional lathe and spindles lathe, optimum combination of lathe setting, pre-treatment (soaking in hot water and steaming, veneer thickness, Knife angle and nosebar compression). ☑ Determined the benefit-cost analysis of producing veneer at different ages. ☑ Prepared report/brochures on veneer processing technologies for young-aged falcata Year 2 ☑ Determined the anatomical, physical, mechanical and veneering properties of yemane. ☑ Determined the effect of various parameters on the recovery and quality of veneer such as rotary cutting using traditional lathe and spindles lathe, optimum combination of lathe setting, pre-treatment (soaking in hot water and steaming, veneer thickness, Knife angle and nosebar compression). ☑ Determined the benefit-cost analysis of producing veneer at different ages. ☑ Prepared brochures on veneer processing technologies for young-aged	FPRDI	Farmers/plantation growers, wood-based industry (furniture, construction), academe and the general public as well.	01-Apr-18	31-Mar-20	NEW	4,998,999	2,651,128
	Assessment of Nursery and Field Growth Performance of Native and Exotic Plantation Tree Species in CARAGA Region	Rapid, inclusive and sustained economic growth	To identify native species that have the potential for plantation development and can perform as well as as the fast growing exotic species in growth performance, good morphological properties and resistance to pests and diseases.	1. Best performing native species in terms of growth performance with respect root collar diameter (RCD), height and clear having the potential for commercialization as an ITP species; 2. Protocol on planting stock production and plantation development and management of native tree species identified as ITP species; 3. IEC material on native tree species with potential for plantation development (ITP species) 4. Native tree species' plantations developed to serve as seed orchards for further studies.	ERDB	Tree farmers, DENR, Wood industry	01-Feb-18	31-Jan-21	NEW	4,997,301	1,693,405



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Assessment of the Growth and Yield Performance of Rubber Planted in Non-Traditional Areas of the Philippines	Rapid, inclusive and sustained economic growth	To document the growth and yield performance of rubber grown in non-traditional areas in support to the envisioned rubber development and expansion initiatives of the Philippine Rubber Industry Roadmap	<p>Publications (No. of papers published/peer reviewed and IEC materials, citations) Information bulletin on the (1); manuscript for publication to ISI/Scopusindexed journal (1); Technical papers presented in scientific conference (2); Manual/GAP production guide for rubber in NTAs (1)</p> <p>People services (# of MS and PhD graduated, # of trained personnel, value of public service contributed) Involvement of Project Staff as exposure and experience in the conduct a collaborative of the study : 1 PhD/MS (with experience on rubber research) 4 MS/Trained personnel (project staff) 2 BS Agriculture (with experience on rubber research)</p> <p>Places and Partnership (MOA/MOU signed) MOAs/MOUs re Collaboration with DA-RFOs in Regions 2, 4A/B; NIR; VII; LGUs and rubber farmers/owners;</p> <p>Policies Advocacy on the recommended GAP (including recommended clones, etc) for rubber planted in the NTAs. Policy incentives to farmers to invest in rubber farms establishment in non-traditional areas</p>	DA-RFO 9 ZAMPIARC	Rubber stakeholders, research institutions	01-Oct-17	30-Sep-19	ONGOING	4,647,401	1,157,672
	Bamboo Jointing System Using Octagonal-shaped Connector	Rapid, inclusive and sustained economic growth	A modern type of jointing system consisting of metal components for connecting bamboo shall be developed in order to create a versatile bamboo structure for various applications.	Innovative and novel technologies (products and processes) and scientific methods (services) developed; tangible measure of innovation (technology transfer and/or development of technology, patents and intellectual property (IP)); publications in recognized scientific journals	FPRDI	Housing sector, farmers and traders	01-Jul-18	30-Jun-19	NEW	3,256,184	3,256,184
	Biological Studies of Economically Important Forest Vines in Camarines Sur and Albay Provinces (Old Title: Resource Survey, Inventory and Regeneration Study of Philippine Commercial and Potentially Commercial Forest Vines for the Handicraft and Furniture Industry)	Rapid, inclusive and sustained economic growth	<p>1. To determine the availability and volume of forest vines;</p> <p>2. To determine the factors affecting the natural regeneration of forest vines in selected provinces of the country;</p> <p>3. To provide RD based IEC materials on availability, volume, and regeneration cycle of forest vine to the men and women in the furniture and handicraft industry</p>	<p>Year 1: A list of forest vines and volume per project sites Year 2: Partial data on phenology and ecology of forest vines, as well as, increase in stem length and diameter of regenerants. Statistical analysis of factors affecting the growth and survival of forest vines.</p> <p>Year 3: A database of forest vines inclusive of photos, description, volume, maps, phenology, ecology, nutritional requirements, favorable environmental condition.</p>	FPRDI	DENR, LGU's, PO's, Academe/Universities, handicraft manufacturer, producers and collectors, general public	01-Apr-18	31-Mar-21	NEW	8,493,464	4,308,059
	Development of Botanical Pesticides from Indigenous Plants in Selected Forest Ecosystems in Central Luzon (Old Title: Development of Botanical Pesticides from Indigenous Plants in the Forest Ecosystems and Use of Biotechnology-based Propagation and Conservation)	Rapid, inclusive and sustained economic growth	The project generally aims to develop botanical pesticides from indigenous plants derived from selected forest ecosystems in Pantabangan Carranglan Forest Reserve (PCFR), Aurora Forest Reserve and Bataan National Park.	6 scientific paper for publication; 4 patentable methods in control; 5 products regarding potential and components of botanical pesticides, green technology, cloning, micropropagation and botanical pesticides from indigenous plants; mentored 1 BS Biology and 1 BS Agriculture and conservation of indigenous plants for people services; for places and partnership are the establishment of cloning facility, ramet garden as ex-situ conservation parks, mou/partnership with selected local barangays; local policy formulation and recommendation, 1 policy brief for policy aspect	CLSU	<p>1. Farmers residing in the project areas and Central Luzon.</p> <p>2. Indigenous people residing near the project areas</p> <p>3. Students of state universities/colleges</p> <p>4. Non-government organizations (NGOs)</p> <p>5. Local Government Units (LGUs)</p> <p>6. People's Organizations (POs)</p> <p>7. Faculty members/researchers</p>	01-Aug-18	31-Jul-21	NEW	4,999,977	2,302,109
	Development of Decision Support System for Enhancing Climate Change Resiliency of Smallholder Upland Farmers in Selected Communities in CALABARZON, Philippines	Rapid, inclusive and sustained economic growth	<p>The main objective of this project is to develop a decision support system that will lead towards building climateresilient farming communities in CALABARZON. Specifically, the project aims to:</p> <p>1) Assess biophysical and socioeconomic characteristics of the selected watershed areas in CALABARZON; 2) Develop a GIS-based agroforestry land capability mapping scheme (ALCAMS); 3) Determine potential impacts of climate change on land capability distribution; 4) Enhance technical capabilities of selected LGUs in climate proofing of GIS-based ALCAMS 5) Recommend adaptation strategies to farming communities for higher climate change-resiliency</p>	<p>- Baseline Information on biophysical and socio-economic characteristics</p> <p>- GIS-based land capability maps</p> <p>- Validated land capability maps</p> <p>- GIS-based land capability maps with climate change scenario</p> <p>Turn-over (i.e. gain and loss) Maps of land capability</p> <p>- Capacitated members of selected LGUs and local community in climate proofing</p> <p>- Publishable research outputs</p>	UPLB	<p>The beneficiaries of this Research and Development activity will include the following:</p> <p>1) National Agencies and Local Government Units (LGUs) – results of the project can serve as zoning of land uses for better planning 2) Residents of Target study sites (i.e. Smallholder Upland Farmers) – well informed community for enhance resiliency 3) Policy Makers and Decision Makers – results of the project can serve as zoning of land uses for better planning 4) Private institutions and individuals – results of the project can serve as basis for future investments 5) Academe and other scientific/research institutions – results of the project can serve as basis/reference for conducting similar research in other sites</p>	01-Feb-17	31-Jan-20	ONGOING	4,980,220	1,149,309



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Development of Micro-propagation Protocol for Four Economically Important Bamboo Species in the Philippines	Rapid, inclusive and sustained economic growth	This project generally aims to develop an efficient, reliable and cost effective in vitro micro-propagation protocol for mass propagation of four economically important bamboo species in the country. Specifically, it aims to: 1. To determine most suitable sterilization procedure for each bamboo species. 2. To determine most appropriate culture media/hormonal combination for explant establishment and shoot proliferation for each bamboo species. 3. To determine most effective hormonal combination/culture media for rooting each bamboo species. 4. To determine most suitable acclimatization procedure for better survival of plantlets for each bamboo species when transferred to ex vitro conditions. 5. To determine the impact of different fertilizers on the growth performance of the tissue-cultured plants under natural conditions. 6. To determine the cost of producing bamboo using tissue culture.	⌚ Micropropagation protocol developed for the four economically important bamboo species. ⌚ Sterilization procedure developed for each bamboo species. ⌚ Culture media capable of generating maximum number of shoots per explant per subculture cycle per year for each bamboo species. ⌚ Culture media capable of generating maximum number of roots per explant per subculture cycle per year for each bamboo species. ⌚ Acclimatization procedure developed to establish seedlings capable of surviving in the field for each bamboo species. ⌚ Most appropriate fertilizer for optimum growth of tissue-cultured plants under natural conditions and field performance of tissuecultured bamboo and their genetic stability. ⌚ Cost of producing tissue culture plantlet, nursery grown plantlets and cost of field outplanting and maintenance for each bamboo species.	ERDB	1. Bamboo Farmers – Provision of quality planting materials at low cost 2. Bamboo Industries – Provision of adequate supply of raw materials 3. Researchers – Provision of information on tissue culture of the 4 bamboos	01-Nov-16	31-Oct-19	ONGOING	4,664,165	1,021,326
	Development of Strategies for propagules and Shoot Production of Three Bamboo Species in Pampanga	Rapid, inclusive and sustained economic growth	This project generally aims to develop strategies and establish baseline information for propagules and bamboo shoot production. Through this project, it is expected to have enough supply of bamboo planting materials and a year-round supply of bamboo shoots in Magalang and nearby areas. Specifically, it aims to: 1. Determine the best method of propagating bamboo propagules; 2. Increase survival rate of propagules from 50% to 70%; 3. Develop a suitable thinning regime for shoot production; 4. Determine suitable irrigation method for shoot production during the dry season; 5. Increase bamboo shoot production of kawayantinik (Bambusa blumeana Schultes) from 6-7 edible shoots per clump in a year (Virtucio and Roxas, 2003) to about 10 shoots per clump per year; 6. Determine the best storage material and practices to prolong the shelf life of bamboo shoots prior to processing; and 7. Determine the cost of improving propagule survival rate and in DC Meeting, June 21 2016 Improving shoot production as well as producing shoots off-season	⌚ Identified the best method of propagating propagules ⌚ Improved survival rate by 50 to 70% ⌚ Determined the most appropriate method of irrigation for shoot production ⌚ Identified the suitable thinning regime for shoot production ⌚ Increased the bamboo shoot production from 6-7 shoots per clump per year to 10 shoots per clump per year ⌚ Identified the best material and method to prolong the shelf life of newly harvested bamboo shoots ⌚ Produced IEC materials (1,000 copies) on propagules propagation, thinning and water regime for shoot production and prolonging shelf life of newly harvested shoots	PSAU	Bamboo is a marvelous resource that provides a myriad of benefits for billions of people. Development of bamboo resources is economically assisting impoverished people while at the same time stabilizing erodible slopes and flood-prone watersheds. The ability to substantially accentuate rapid growth through intensive management for commercialization purposes magnifies its many benefits.	01-Aug-16	31-Jul-19	ONGOING	4,757,622	1,585,874
	Etiology and Management Strategies for Tapping Panel Dryness and Stem Bleeding of Rubber	Rapid, inclusive and sustained economic growth	This project aims to investigate the etiology of tapping panel dryness and stem breeding conditions in rubber. It seeks to establish the causes of these two conditions as it relates to nutrition, weather patterns and genetics (types of clones deployed in the field). The project in the end shall formulate management recommendations to avoid tapping panel dryness and stem bleeding in plantation.	1. Generation of knowledge on the cause of TPD and stem bleeding development of rubber. 2. A comprehensive documentation on the practices of local farmers in managing the TPD and stem bleeding syndrome. 3. Establishment of comprehensive strategies to manage TPD and stem bleeding of rubber. 4. Better collaboration among private rubber growers and concerned government agencies on developing strategies against TPD and stem bleeding of rubber.	JRMSU - Tampilisan	This study may benefit the farmers by letting them understand and avoid the factors concomitant to the development of TPD and stem bleeding diseases. Furthermore, the results of this study will boost the theoretical knowledge of students on disease management of rubber. In addition, concerned government offices, such as DA, and other research institutions will be provided with correct information to enable them to devise scheme to manage TPD and stem bleeding diseases of rubber	01-Jul-16	31-Dec-18	COMPLETED	4,845,400	957,800
	Evaluation of the Physical and Mechanical Properties of Economically Important Forest Woody Vines	Rapid, inclusive and sustained economic growth	the project aims determine the physical and mechanical properties of economically important forest woody vines.	Publications - Two (2) publications: 1. Leaflet on physical and mechanical properties of economically important forest woody vines 2. A booklet on forest woody vines in Quezon and Bicol Provinces for dissemination.  Product – Basic information on “Physical and mechanical properties of Forest Woody Vines”  Patent - A copyrighted booklet on forest woody vines after project completion.  People Services - At least 10 personnel trained on property testing of vines  Places and Partnership (MOA/MOU) signed - Collaboration between and among industries, academe, government, and communities strengthened.  Policies - Research results can serve as significant inputs in the formulation of policies for identifying/classifying and utilizing forest woody vines species for furniture and handicrafts.	FPRDI	(a) Handicraft industry (b) Furniture industry (c) Researchers (d) Farmers (e) Academe (d) General public	01-Jul-18	30-Jun-20	NEW	4,301,246	2,658,123
	Field Verification of Natural Fungicide from <i>Tasmania piperita</i> (Hook. F.) Miers against <i>Alternaria brassicae</i> of Lettuce and <i>Phytophthora infestans</i> of Tomato (Field Testing and Piloting of Fungicide)	Rapid, inclusive and sustained economic growth	To propagate <i>Tasmania piperita</i> , patent and pilot the fungicide.	The biopesticide products can be recommended in use in Regions 10, 11, 12	CMU	Farmers, EDC personnel, vegetable and sugarcane planters	01-Oct-17	30-Sep-19	ONGOING	4,998,214	954,645

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
	Germplasm Conservation of Select Indigenous Forest Tree Species in Mt. Makiling Forest Reserve	Rapid, inclusive and sustained economic growth	In order to conserve germplasm of indigenous (endangered and threatened) forest trees found in Mt. Makiling Forest Reserve, the project specifically aims: 1. To identify and select quality mother trees of indigenous forest tree species as potential sources of superior quality seeds for germplasm collection; 2. To produce quality planting materials of selected 25 indigenous forest tree species in Mt. Makiling Forest Reserve; and 3. To establish seedling seed orchards (SSO) for the selected 25 indigenous forest tree species at the UP Land Grant (Laguna-Quezon), including monitoring and evaluation.	<ul style="list-style-type: none"> <li>250 mother trees geo-tagged from the 25 selected species and seeds collected from 15 species based on phenology schedule (please refer to Table 3)</li> <li>MOA between UPLB CFNR and NPGRL for germplasm conservation of indigenous forest tree species</li> <li>Year 2</li> <li>Seeds collected from additional 10 species</li> <li>Spatial distribution maps of mother trees per species, with their phenology schedule, generated</li> <li>Protocols for germplasm conservation of the initial 15 species collected (e.g. Seed viability and germination in relation to MC and storage time, Seed anatomy)</li> <li>Year 3</li> <li>Protocols for germplasm conservation for the remaining 10 species collected (e.g. Seed viability and germination in relation to MC and storage time, Seed anatomy)</li> <li>(Collection for next batch of selected species as commitment of CFNR)</li> <li>15 000 quality seedlings propagated from the 15 species</li> <li>10 000 additional seedlings propagated from 10 species</li> <li>Distribution of 14400 quality seedlings to be planted in 36 hectares</li> <li>Commitment of UPLB CFNR to institutionalize a germplasm conservation program for indigenous forest tree species</li> <li>Distribution of 9400 quality seedlings to be planted in 23 hectares</li> <li>MOA between UP Land Grant and UPLB CFNR</li> <li>GIS map for Seedling Seed Orchards location</li> <li>15 hectares SSO established for the 15 species</li> <li>GIS map of geo-tagged planted seedlings</li> <li>10 hectares SSO established for the 10 species</li> </ul>	UPLB	Forestry and Natural Resources through provision of scientific basis for conservation of select indigenous species in the MMFR. To a larger extent, the vision to establish a viable seedling seed orchard threatened indigenous forest tree species will help the conservation of these genetic resources and later will be the source improved quality seeds for tree breeding programs for these species.  The proposed project specifically targets various stakeholders of the Mt. Makiling Forest Reserve and the UP Land Grants. Other than UPLB as a whole, approximately 50 researchers, including faculty, of the CFNR-UPLB, 4 local government units (Sto. Tomas, Los Baños, Bay, and Calamba), may utilize the scientific information generated by the project and around 5-10 students may be involved in a number of specific areas of the project as their subject/site for thesis or practicum.  Seedlings produced by the project will also be used to provide planting materials for conservation and restoration projects of the UPLB CFNR and LGUs. A Memorandum of Understanding between UPLB CFNR with LGUs (Laguna and Batangas) will be executed. The MOA will primarily stipulate the use and management of quality seedlings for reforestation and rehabilitation projects by the respective LGU	01-Mar-16	28-Feb-19	ONGOING	4,990,000	717,991
	Gluing and Finishing Characteristics of Thermally Modified Bamboo	Rapid, inclusive and sustained economic growth	Thermal modification (TM is a technology for wood modification that has been commercialized European countries and has spread in North Americas and Asia such as in China, Malaysia and Thailand. The use of TM technology in the Philippines utilizing bamboo has been studied by FPRDI and has a utility model for the process.	Reconditioned experimental TM chamber using steam; Fabricated hot oil-bath equipment (prototype); Determined the physic-mechanical properties of bamboo thermally modified in hot air in steam environment; determine the extractives content of the bamboo thermally modified in hot air in steam environment; determine the gluing and finishing characteristics of bamboo thermally modified in hot air in steam environment; started the exposure of the modified and control bamboo for field test against decay and insect attacks, prepared one publication for submission to ISI Journal	FPRDI	Bamboo Industry	01-May-18	30-Apr-20	NEW	4,997,422	3,421,611
	Greenhouse Gas (GHG) Inventory of Industrial Tree Plantation Production Chain in Caraga Region, Mindanao (Old Title: Greenhouse Gas Accounting in the Industrial Tree Plantation Sector in Selected Sites in Mindanao)	Rapid, inclusive and sustained economic growth	To conduct GHG accounting of the ITP sector in selected sites in Mindanao to promote sustainable forest management ans help mitigate climate change	<ul style="list-style-type: none"> <li>2 Journal articles on GHG inventory in ITP sector</li> <li>Process on the GHG inventory of ITP production chain</li> <li>Reference data on GHG emissions on various ITP harvesting operations and stored C on harvested wood products (HWP)</li> <li>1 PhD student mentored; Train 20 selected DENR and forestry school's research staff, and wood producers/WPPs on GHG inventory in Caraga Region</li> <li>Signing of memorandum of agreement/ understanding between DENR and tree farmers, ITP owners, IFMA holders, and collaborating wood processing plants (WPPs)</li> <li>Inputs to the guidelines for the reduction of GHG emissions from the ITP sector</li> <li>Provided data necessary in decision making that will help identify management practices and opportunities in reducing GHG emissions</li> </ul>	UPLB	DENR, WPA, HEIs, small-hold farmers, local communities, sawmilling wood processing industries	01-Jul-18	30-Jun-19	NEW	1,700,000	1,700,000
	Plantation Management Strategies for Natural Stands and Newly Established Stands of Sago Palm in Visayas and Mindanao	Rapid, inclusive and sustained economic growth	The project aims to conserve and sustain the productivity of existing natural sago stands in Mindanao through appropriate management practices and evelop pilot scale sago plantation in selected areas in Visayas and Mindanao for sustained productivity and support dwindling supply of sago starch from natural stands	Established 6 hectares of new sago plantation. - Rehabilitated 9 hectares of natural sago stands - Trained at least 40 sago growers/LGU technicians - Develop 1 type of IEC material (print) on protocol for managing natural sago stand and developing new sago plantations - Policy recommendation on the management of natural and established sago stands/plantations	VSU, ASU, CarSU	sago palm farmers	01-Mar-16	28-Feb-19	ONGOING	4,996,810	1,591,654

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Practices of Entomophagy and Entomotherapy of Manobo Dulangan, Teduray and Tboli Ethnolinguistic Groups in Sultan Kudarat and South Cotabato, Mindanao, Philippines (Old Title: Practices of Entomophagy and Enotmotherapy by the Members of Manobo T'duray and T'boli Tribes in Sultan Kudarat and South Cotabato, Mindanao, Philippines)	Rapid, inclusive and sustained economic growth	The project aims to expand the study on entomophagy along with entomotherapy particularly among the ethnolinguistic groups from Sultan Kudarat and South Cotabato, Philippines	<p>Year 1</p> <ul style="list-style-type: none"> <li>ethno-entomological data</li> <li>Partnership with the three tribal groups</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>IEC Materials on the IKS in the use of insects for food and medicine</li> <li>Research paper and brochure</li> <li>1 patent on tribe's knowledge particularly on the preparation of insect for food and medicine</li> <li>Documented list of insects for food and medicine used by the Manobos, T'durays and T'bolis</li> <li>Information dissemination/awareness on the potential of insects as source of food and medicine through LGUs</li> <li>1 policy recommendation on the protection and conservation of the three IP sites</li> </ul>	SKSU	Local communities of Senator Ninoy and Esperanza, Sultan Kudarat as well as T'boli, South Cotabato; Local Government Units; NCIP; DENR Region XII; and Academe	01-Jun-18	31-May-20	NEW	4,702,224	2,968,384
	Processing and Wood Quality Evaluation of Paper Mulberry (Broussonetia papyrifera L.) L'Herit ex Vent) for Furniture, Handicrafts, and other by-products	Rapid, inclusive and sustained economic growth	<p>General: Establish potential utilization of paper mulberry wood based on physico-mechanical and processing properties. The utilization of this invasive species can be a potential strategy to regulate the invasiveness of the species as well as take advantage of the opportunity to make use of the species as a resource and raw material for the wood-based industry and for livelihood and enterprise of community where the species abound.</p> <p>Specific: 1. Determine the wood density, shrinkage and strength properties of paper mulberry; 2. Establish an appropriate sawmilling technique for optimum lumber recovery; 3. Develop a suitable kiln drying schedule; 4. Determine the bending quality of paper mulberry for handicrafts and furniture production; 5. Develop prototype furniture and test performance based on ISO standards; 6. Assess the suitability of the species for handmade paper, charcoal/briquette and pyroigneous liquor production; and 7. Prepare a pamphlet/primer on wood properties and potential utilization of paper mulberry.</p>	<p>Year 1: GIS base map of potential sources of log supply Data on lumber recovery and grading Data on physic-mechanical properties Wood bending quality rating for paper mulberry Bentwood components for furniture and handicrafts Kiln drying schedule for paper mulberry Evaluated machining properties of paper mulberry Production of paper mulberry for handmade paper , charcoal and pyroigneoud liquor Year 2 Production and analysis on charcoaling/ briquetting and handmade paper making Consolidated data/information on properties and processing of paper mulberry Terminal report with primer on paper mulberry processing and utilization</p>	FPRDI	Furniture, handicrafts, handmade paper and charcoal producers; private tree farmers	01-Apr-17	31-Dec-18	COMPLETED	1,584,826	438,909
	Production of Bamboo Composite Boards from Bambusa blumeana J.A. Schultes and J.H. Schultes (kawayan tinik) and Dendrocalamus asper (Schultes f.) Backer ex Heyne (giant bamboo)	Rapid, inclusive and sustained economic growth	<p>forest resources which are the prime source of wood could not be further exploited as environmental stability depends on it. Nevertheless, plantation forests functioned to narrow the gap of the demand. However, the national total timber production from the plantations of only about 0.008 cubic meters per capita has been very low compared to the world average production of about 0.5 cubic meters per capita (FAO 2002). Thus, consequently, construction material derived from timber is expected to continually rise and will be relatively costly in the future. Moreover, an increase in the demand for construction materials is projected as the current administration envisioned an intensive infrastructure development to take place, hence the sustainable source of raw materials will still continue to be a challenge. Although alternative sources have been exploited in the past, for instance, the "coco-lumber" however, because rotation period is comparatively similar to trees, sustainability still then becomes the problem.</p> <p>Bamboo-based industry offers a very promising solution to the declining wood supply in the country. When processed properly, bamboo can compete with solid wood in terms of strength, figure and finishing properties, making bamboo the best substitute for wood or even replacement for wood. The relatively abundant supply and shorter rotation period of bamboo also constitute the major advantage of bamboo over timber. It has fibers that are stiff and strong, making it a very suitable substitute for wood for the production of composite materials that are needed in construction where medium to high strengths are the requirements. However, the economic gains of bamboo resources in the Philippines are still not fully optimized despite the rising</p>	<p>At least 1 paper will be published in ISI-indexed or peer reviewed journal (Y1)</p> <p>1 primer on production including the cost and return analysis at the termination of the research (Y2)</p> <p>At least 1 or 2 products will be applied for patenting at the end of the research.(Y 2)</p> <p>Shavings board (1 ft x 2 ft x 8 ft ) (Y1)</p> <p>Strip board (1 ft x 2 ft x 8 ft ) (Y2)</p> <p>At least 1 undergraduate student will be tapped to conduct related study (Y1)</p> <p>50 individuals (i.e. project laborers and bamboo furniture makers/carpenters) will be trained on actual production. (Y1 and Y2)</p> <p>It is expected that at the end of the research new partnership will be forged particularly DTI, cooperatives, and people's organization (Y2)</p> <p>For technology and product promotion, it is expected that a policy pertaining to the use and incorporation of the developed bamboo products to the university's construction projects whenever is applicable.(Y2)</p> <p>Policy recommendation on the control of harvesting particularly on bamboos planted in public lands and PA's</p> <p>Policy recommendation on the permit and collection of government charges</p>	CMU	<p>1. Bamboo furniture makers/carpenters in the municipalities of Maramag, Manolo Fortich, and Don Carlos in Bukidnon;</p> <p>2. Farmers with existing bamboo plantations/stands; and</p> <p>3.Unemployed individuals willing to undergo skills development training</p>	01-Aug-18	31-Jul-20	NEW	4,999,928	4,255,691

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Rehabilitation Strategies for Critical Mangrove and Coastal Forests in Coastal Communities of Western and Northwestern Leyte (COASTAL FORESTS REHAB PROJECT)	Rapid, inclusive and sustained economic growth	<p>Assess the current socio-economic and biophysical condition of the prospective mangrove and coastal forest areas which will serve as a basis in the identification and implementation of alternative rehabilitation strategies</p> <p>Identify and develop through participatory process site- and situation specific mangrove and coastal forest rehabilitation approaches</p> <p>Adopt and implement IEC approaches to increase awareness, understanding; and appreciation of coastal communities on service value of mangrove and beach forests to mitigate climate change and for conservation of biodiversity</p> <p>Identify and evaluate possible gender roles of and responsibilities affecting men's and women's participation in the rehabilitation efforts</p> <p>Determine the impact of the project on the ecological and socioeconomic condition of covered communities</p> <p>Make policy recommendations for responsive and sustainable management and protection of critical mangrove and coastal forests while providing livelihood opportunities to local communities</p>	<p>and coastal forests sites produced to include maps and situation analysis.</p> <p>2. Local mangrove and coastal forests rehabilitation and management plan put in place in every partner local community.</p> <p>3. Established mangrove and coastal forests Rehabilitation cum demo sites in selected coastal communities which are expected to serve as effective protective greenbelt against strong winds, big waves and storm surges, and as training-demo sites for local communities.</p> <p>4. Creation of mangrove and beach forests-based livelihood opportunities for local communities</p> <p>5. Created and/or strengthened local POs for coastal and mangrove forests management and protection</p> <p>6. IEC materials (such as booklets and videos) on mangrove and coastal forests rehabilitation developed and disseminated</p> <p>7. Established local mechanisms and/or governance alternatives for sustainable management and protection of critical mangrove and coastal forests sites (eg. local declaration of critical mangroves as protected mangrove sanctuary, local ordinance for coastal forest protection and sanctuary establishment, etc.)</p> <p>8. Established and/or strengthened linkages with LGUs of Baybay City and Isabel, Leyte, DENR-CENROs in Baybay City and Albuera, Leyte, BFAR, DILG, DOST 8, NGOs/POs, and private companies such as PASAR Smelting Plant</p> <p>9. Improved ecological and socio-economic value of critical mangrove and coastal forests sites for coastal community protection, biodiversity conservation and livelihood.</p> <p>10. Improved awareness and appreciation of local communities on the protective, ecological, and economic value of mangrove and coastal forests.</p> <p>11. Improved local capability and sustained participation on mangrove and</p>	VSU	The target beneficiaries of this proposed project will be the typhoon affected coastal communities of Baybay City in Western Leyte, and Isabel in Northwestern part of Leyte. Local governments at the barangay, municipal and city levels will also be benefited in terms of technical support through the capacity-building activities of the project such as training and in planning and/or program development for mangrove and coastal forests rehabilitation, management and protection. Owners and operators of economic establishments in the coastal areas such as beach resorts, coastal ecotourism parks and restaurants, and industrial establishments are part of the stakeholders who will be directly benefited. This project will also serve as support activity to the coastal resources management programs of line agencies such as the Department of Environment and Natural Resources (DENR), Bureau of Fisheries and Aquatic Resources (BFAR) and the Department of Interior and Local Government (DILG).	01-Aug-15	31-Jul-18	COMPLETED	3,500,000	364,720
	Rubber, Coffee and Cacao: Building Site Matching Functions for Improved Upland Development	Poverty reduction and empowerment of the poor and vulnerable	<p>The project aims to develop site matching functions for four economically important tree crops to aid farmers in selecting the best sites in planting these crops. Specific objectives include a) Assessment of the performance of rubber, cacao and coffee in different parts of the country; b) Identify and determine the site condition favorable for the growth, survival and good yield of these species; c) Develop site matching functions of each of the species/varieties and to use these functions in developing a site-matching software.</p>	<p>1. Assessment of the performance (growth, survival and yield) of selected species in different areas in the Philippines;</p> <p>2. Environmental information of site favorable for the plantation establishment of selected tree species;</p> <p>3. Computer software for species-site matching of selected species; and</p> <p>4. Set of policy recommendations regarding species-site compatibility.</p>	ERDB	Rubber, cacao and coffee farmers, processors and traders	16-Nov-16	15-Nov-18	COMPLETED	3,473,853	725,917
	S&T Interventions on the Production of Quality Planting Materials of Two Important Forest Tree Species [Makaasim (Syzygium nitidum Benth) and Batikuling (Litsea leytensis Merr.)] Indigenous in Mt. Banahaw de Lucban	Rapid, inclusive and sustained economic growth	<p>The project aims to generate and promote S&amp;T interventions in the production of quality planting materials of selected indigenous forest trees species of Mt. Banahaw de Lucban to support the quality planting materials needs of the wood-based industry and in support to the National Greening Program of the government.</p>	<ul style="list-style-type: none"> <li>Rooting protocol for cloned Batikuling and Makaasim</li> <li>Production of high quality planting stocks of IFTS</li> <li>Maintained hedge garden of target species</li> <li>Data on root and shoot growth per species</li> <li>Detailed production cost for nursery production of planting stocks</li> <li>Information bulletin for clonal nursery (i.e. technologies on cloning, pest and diseases management, clonal economics (production/ maintenance cost)</li> <li>100 pax trained on planting materials production and nursery management (nursery mangers, nursery staff and workers, tree farmer cooperators or POs trained on clonal nursery management)</li> </ul>	SLSU	Students, researchers, and forestry and environmental science faculty members; Barangay and municipal LGU personnel; People's organizations; Community residents; Tree farmers	01-Aug-18	31-Jul-19	NEW	2,600,000	2,600,000

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	The Use of Geospatial Analysis of Gall Rust (Uromycladium falcatarium) in Falcata (Falcataria moluccana) to Determine Diseases Occurrence in Compostela Valley, Philippines (Old Title: Geospatial Analysis of Gall Rust (Uromycladium tepperianum) in Falcata (paraserianthes falcataria L. Nielsen) and its attempt to Reduce Pest Occurrence at Pantukan, Compostella Valley Philippines)	Rapid, inclusive and sustained economic growth	the areas near the University of Southeastern Philippines, Tagum-Mabini Campus, like the municipalities of Mabini, Pantukan, Maco and Maragusan, wherein gall rust infestation has likely caused economic losses on their part. In spite of the NGP's distribution of Falcata seedlings, an assistance in addressing this dreaded disease is what they needed most. Since there is an insufficient or lack of studies on the technical species-site compatibility especially biophysical conditions that trigger pest occurrence, this study will help the tree farmers to consider biophysical conditions and provide technical do's and don'ts on planting Falcata. The works of Lacandula et.al (2017) which employed geospatial analysis in determining the influence of biophysical factors to the prevalence of gall rust in Falcata plantation in Gingoog City, CARAGA Region showed the relevance and necessity of using various statistical methods that quantitatively define the spatial pattern of disease which will provide additional information on the extent of disease damage. The Philippine government, through Executive Order 23 or the 'National Greening Program', allocates huge amount to reforest bare/open areas in the country. Investment in this endeavor in the form of financial resources, human resources have been poured out to realize the greening activity in the Philippines and to attain the target of planting 1.5B trees. Through this study, attempting to reduce pest occurrence through silvicultural treatments may save the government economic investments in any forms. Moreover, the proponents of this proposed project had not actually come across a local study in Region XI that deals with planting Falcata intercropped with native species or employing agroforestry system. Hence, the findings of this study could not only fill the gap in the literature regarding these topics, but as well as bring forth a scientific	<ul style="list-style-type: none"> <li>② MOU/MOA with DENR, LGUs and POS</li> <li>② GIS Map indicating locations of NGP areas affected/not affected of gall rust</li> <li>② Identify biogeophysical characteristics which favor or prohibit gall rust occurrence</li> <li>② GIS map indicating pest occurrence per elevation ranges (low, medium, high)</li> <li>② Generate potential control measures against gall rust in Falcata</li> <li>② Identify resistant Falcata planting materials from provenance field trial planting test</li> </ul>	USEP-Tagum-Mabini	Forest Tree growers, National Greening Program Beneficiaries, DENR Field Men, DENR Program Implementers, Researchers, Students, and Philippine Economic Gain	01-Nov-18	31-Oct-20	NEW	3,500,000	2,173,385
Biodiversity and Vulnerable Ecosystems Research (BIVER) Program	Project 1. Biodiversity and Systematics Study of Organisms in Vulnerable Ecosystems	Rapid, inclusive and sustained economic growth	<ol style="list-style-type: none"> <li>1. To study and document vulnerable ecosystems biodiversity and environmental quality;</li> <li>2. To create geospatial maps and document anthropogenic activities of the different study sites;</li> <li>3. To create a computational model of the dynamics of a river system</li> <li>4. To create a database system</li> </ol>	Publication: <ol style="list-style-type: none"> <li>a. Monograph publication</li> <li>b. Indexed publication</li> <li>c. Abstract in conferences</li> <li>d. Website</li> </ol> Products: <ol style="list-style-type: none"> <li>a. Knowledge base</li> <li>b. Module for workshop</li> </ol> Services and People: <ol style="list-style-type: none"> <li>a. Conference presentation</li> <li>b. Training</li> </ol> Partnerships: <ol style="list-style-type: none"> <li>a. DENR</li> <li>b. LGUs</li> </ol> Policy: <ol style="list-style-type: none"> <li>a. Policy advisory</li> <li>b. Policy recommendation</li> </ol>	PSHS-Eastern Visayas Campus	Fishing communities in Inopacan, Palompon and Tacloban City LGUs (Inopacan, Palompon, Panaon Island, Hilongos, McArthur, Ormoc) CENRO/DENR PSHS Scholars	01-Jul-18	30-Jun-20	NEW	1,642,890	929,200
Biodiversity and Vulnerable Ecosystems Research (BIVER) Program	Project 2. Assessment of Quality of Water Systems in Eastern Visayas	Rapid, inclusive and sustained economic growth	<ol style="list-style-type: none"> <li>1. To study and document vulnerable ecosystems biodiversity and environmental quality;</li> <li>2. To create geospatial maps and document anthropogenic activities of the different study sites;</li> <li>3. To create a computational model of the dynamics of a river system</li> <li>4. To create a database system</li> </ol>	Publication: <ol style="list-style-type: none"> <li>a. Monograph publication</li> <li>b. Indexed publication</li> <li>c. Abstract in conferences</li> <li>d. Website</li> </ol> Products: <ol style="list-style-type: none"> <li>a. Knowledge base</li> <li>b. Module for workshop</li> <li>c. Geospatial maps</li> </ol> Services and People: <ol style="list-style-type: none"> <li>a. Conference presentation</li> <li>b. Training</li> </ol> Partnerships: <ol style="list-style-type: none"> <li>a. DENR</li> <li>b. LGUs</li> </ol> Policy: <ol style="list-style-type: none"> <li>a. Policy advisory</li> <li>b. Policy recommendation</li> </ol>	PSHS-Eastern Visayas Campus	Fishing communities in Inopacan, Palompon and Tacloban City LGUs (Inopacan, Palompon, Panaon Island, Hilongos, McArthur, Ormoc) CENRO/DENR PSHS Scholars	01-Jul-18	30-Jun-20	NEW	1,629,230	986,840

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Biodiversity and Vulnerable Ecosystems Research (BIVER) Program	Project 3. A Computational Model of the Characteristics of the Binahaan River Ecosystem (Old Title: Computational Modelling of the Binahaan River System in Leyte for Flood Forecasting)	Rapid, inclusive and sustained economic growth	1. To study and document vulnerable ecosystems biodiversity and environmental quality; 2. To create geospatial maps and document anthropogenic activities of the different study sites; 3. To create a computational model of the dynamics of a river system 4. To create a database system	Publication: a. Monograph publication b. Indexed publication c. Abstract in conferences d. Website Products: a. Knowledge base b. Module for workshop c. Geospatial maps d. River morphology measuring device Services and People: a. Conference presentation b. Training Partnerships: a. DENR b. LGUs Policy: a. Policy advisory b. Policy recommendation	PSHS-Eastern Visayas Campus	Communities around the Binahaan Watershed/River LGU (Dagami, Jaro, Pastrana) NDRRCC	01-Jul-18	30-Jun-20	NEW	991,375	574,500
Biodiversity and Vulnerable Ecosystems Research (BIVER) Program	Project 4. Development of database and website for biodiversity & vulnerable ecosystems research in Eastern Visayas (Old Title: Development of the BIVER Database System and Website)	Rapid, inclusive and sustained economic growth	1. To study and document vulnerable ecosystems biodiversity and environmental quality; 2. To create geospatial maps and document anthropogenic activities of the different study sites; 3. To create a computational model of the dynamics of a river system 4. To create a database system	Publication: a. Abstract in conferences b. Website Products: a. Knowledge base b. Module for workshop c. Database Services and People: a. Conference presentation b. Training Partnerships: a. DICT b. ASTI	PSHS-Eastern Visayas Campus	Researchers in biodiversity and environmental science Students Public PSHS scholars	01-Jul-18	30-Jun-20	NEW	695,520	347,760
Biodiversity Assessment for Sustainable Management in Key Biodiversity Areas of Central Visayas (Old Title: Biodiversity Assessment for Long-term Ecological Research in Key Biodiversity Areas of Central Visayas)	Project 1. Flora and fauna inventory and habitat characterization and assessment of ecologically important and highly threatened species in selected key biodiversity areas of Central Visayas (Old Title: Habitat Characterization and Assessment of Ecologically Important and Highly Threatened Flora and Fauna in Selected Key Biodiversity Areas of Central Visayas)	Rapid, inclusive and sustained economic growth	This research program aims to assess the biodiversity and characterize ecologically important flora and fauna in selected KBAs of Central Visayas.	Publication • Initial draft layouts of flyer, brochure and other IEC materials 2 Conference proceeding papers (50%)  Products • Initial flora and fauna assessment reports of KBAs/project sites (50%) • Initial identification of selected KBAs/forests for rehabilitation (50%) • Initial identification of rehabilitation strategies (50%) • Initial list of selected and geo-tagged mother trees for seeds collection (50%) • Initial IEC materials for a more effective and enhanced biodiversity conservation education campaign (50%)  People Services • 11 trained research personnel/team members • At least 40 students trained on flora and fauna ID and field survey protocols • At least 5 trainings conducted (flora and fauna inventory and field survey protocol; biodiversity and habitat characterization and assessment; photo documentation protocol and field guide preparation; data processing and analysis; and basic GIS and map layout.)  Places and Partnership • MOA with selected stakeholders (LGUs, Academe, and NGOs) • MOA/MOU/Commitment agreement between and among stakeholders, LGUs	BISU	1. Academic and Research Institutions of Central Visayas (CV); 2. Provincial and concerned Municipal LGUs in CV; 3. DENR (BMB and ERDB) and other government agencies; 4. Community Residents in KBAs; 5. Environmental Non-Government Organizations and Private Groups in CV; 6. PAMB and Watershed Management Councils in KBAs of CV; and 7. Other various stakeholders	01-Sep-18	31-Aug-20	NEW	10,981,369	6,930,067

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
Biodiversity Assessment for Sustainable Management in Key Biodiversity Areas of Central Visayas(Old Title: Biodiversity Assessment for Long-term Ecological Research in Key Biodiversity Areas of Central Visayas)	Project 2. Cave-dependent Bats Survey and Assessment in Key Biodiversity Areas of Central Visayas	Rapid, inclusive and sustained economic growth	This research program aims to assess the biodiversity and characterize ecologically important flora and fauna in selected KBAs of Central Visayas.	<ul style="list-style-type: none"> <li>• Six (6) peer reviewed journal articles (ISI-indexed, SCOPUS, Thomson Reuters, etc.)</li> <li>• At least 6 IEC materials (3 Field Guides to Flowering Plants and Ferns of the selected study sites/KBA sites; 3 Field Guides to Faunal Diversity of KBAs)</li> <li>• Final copies of flyers, brochures, posters, etc.</li> </ul> <p>Patents</p> <ul style="list-style-type: none"> <li>• Copyrights of the IEC materials, including field guides/guidebooks, brochures, leaflets, etc.</li> </ul> <p>Products</p> <ul style="list-style-type: none"> <li>• Updated data and information on floral and faunal diversity, population abundance, richness and habitat profile from the various KBAs</li> <li>• Updated database of information for Central Visayas KBA/IBA flora and fauna featuring conservation status</li> <li>• Provincial and regional maps of native, threatened and ecologically important flora and fauna of all KBAs (e.g. distribution and resources);</li> <li>• Three (3) Flora and fauna assessment reports of KBAs/project sites</li> <li>• Three (3) draft Sustainable Forest Biodiversity Management Plans for selected KBAs</li> <li>• Selected KBAs/forests for rehabilitation</li> <li>• Identified rehabilitation strategies</li> <li>• Selected and geo-tagged mother trees for seeds collection</li> <li>• IEC materials for a more effective and enhanced biodiversity conservation education campaign</li> </ul>	CTU	Beneficiaries of this Proposed Program include:  1. Academic and Research Institutions of Central Visayas (CV); 2. Provincial and concerned Municipal LGUs in CV; 3. DENR (BMB and ERDB) and other government agencies; 4. Community Residents in KBAs; 5. Environmental Non-Government Organizations and Private Groups in CV; 6. PAMB and Watershed Management Councils in KBAs of CV; and 7. Other various stakeholders	01-Sep-18	31-Aug-20	NEW	3,565,443	2,078,822
Multilocation Trial of Ten (10) Promising Varieties of Cacao in Different Agro-Climatic Zones in the Philippines	Project 1. Evaluation and Characterization of Ten (10) Promising Varieties of Cacao in Type II and III Agro-climatic Zones in Northern and Southern Mindanao	Poverty reduction and empowerment of the poor and vulnerable	Cacao production is one of the researchable areas under ISP of PCAARRD through identification of superior varieties in terms of yield and its tolerance to pests and diseases adapted to specific locations. Moreover, production of good bean characteristics and their availability to local cacao growers appear to be the best short term- strategy to genetically improve cacao and ensure increase local productivity	Establishment of seven cacao demo farms in different locations; Initial data on agronomic characteristics of ten cacao varieties; Gather morphological data of ten cacao varieties, Assess occurrence of pests and diseases; Data on yield, horticultural characteristics, chemical analysis nutritional and sensory evaluation of ten cacao varieties; Recommendation of new varieties in different agro climatic zones; Dissemination of new technology to farmers	USM, SKSU, ASSCAT	Cacao farmers, researchers, investors, agriculture students and other cacao stakeholders.	16-Apr-18	15-Apr-21	NEW	8,696,384	3,886,778
Multilocation Trial of Ten (10) Promising Varieties of Cacao in Different Agro-Climatic Zones in the Philippines	Project 2. Evaluation and Characterization of Ten (10) Promising Varieties of Cacao in Types I and II Agro-Climatic Zones in Luzon	Poverty reduction and empowerment of the poor and vulnerable	Cacao production is one of the researchable areas under ISP of PCAARRD through identification of superior varieties in terms of yield and its tolerance to pests and diseases adapted to specific locations. Moreover, production of good bean characteristics and their availability to local cacao growers appear to be the best short term- strategy to genetically improve cacao and ensure increase local productivity	Establishment of seven cacao demo farms in different locations; Initial data on agronomic characteristics of ten cacao varieties; Gather morphological data of ten cacao varieties, Assess occurrence of pests and diseases; Data on yield, horticultural characteristics, chemical analysis nutritional and sensory evaluation of ten cacao varieties; Recommendation of new varieties in different agro climatic zones; Dissemination of new technology to farmers	BSU, CBSUA	Cacao farmers, researchers, investors, agriculture students and other cacao stakeholders.	16-Apr-18	15-Apr-21	NEW	4,651,808	2,139,936
Multilocation Trial of Ten (10) Promising Varieties of Cacao in Different Agro-Climatic Zones in the Philippines	Project 3. Evaluation and Characterization of Ten (10) Promising Varieties of Cacao in Types of IV Agro-Climatic Zones in Visayas and Southeastern Mindanao	Poverty reduction and empowerment of the poor and vulnerable	To conduct adaptability trials on the performance of different cacao varieties and identify recommended high yielding cacao varieties specific to various locations and environmental conditions of the country.	Establishment of seven cacao demo farms in different locations; Initial data on agronomic characteristics of ten cacao varieties; Gather morphological data of ten cacao varieties, Assess occurrence of pests and diseases; Data on yield, horticultural characteristics, chemical analysis nutritional and sensory evaluation of ten cacao varieties; Recommendation of new varieties in different agro climatic zones; Dissemination of new technology to farmers	DA-RFU XI, VSU	Cacao farmers, researchers, investors, agriculture students and other cacao stakeholders.	16-Apr-18	15-Apr-21	NEW	4,651,808	2,139,936
Nationwide Clonal Adaptation Trial and Innovation of Propagation Techniques of Newly Introduced High-Yielding and Promising Rubber Clones	Project 1. Technology Adaptation and Performance Trial of Recommended Rubber and Other Promising Rubber Clones in the Philippines	Poverty reduction and empowerment of the poor and vulnerable	The general objective is to enhance production of rubber through adoption of suitable rubber clones in the Philippines. Specific Objectives: To determine the performance of different rubber clones under different locations; to showcase rubber production technology for the adoption of rubber stakeholders in the Philippines; to know and determine the profitability and other potentials of planting rubber in non-traditional rubber growing areas; to evaluate the yield and growth including its resistance to major pests and diseases performance of different rubber; and to identify problems and constraints (if any) and provide recommendations for rubber production in six (6) project locations.	1. Conducted adaptability trial of high yielding clones for specific locations across the country; 2. Recommended high yielding clones suitable for various environmental conditions of the country;	USM, WPU, ISU, SLSU, CMU, DA-ZPIARC	Farmers, farmer leaders, rubber stakeholders, nursery operators, researchers, students, policy makers, and the whole rubber industry in the Philippines.	01-Mar-15	28-Feb-18	COMPLETED	20,525,431	1,410,269

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Nationwide Clonal Adaptation Trial and Innovation of Propagation Techniques of Newly Introduced High-Yielding and Promising Rubber Clones	Project 3. Development of Efficient Techniques on Tissue Culture, Somatic Embryogenesis and In-Vivo for Rapid Propagation in Rubber	Poverty reduction and empowerment of the poor and vulnerable	The use of rubber plants derived from somatic embryogenesis and other tissue culture techniques offer good promise because plants developed from this method will eliminate the problem of stock and scion incompatibility. Budding, which is the most tedious work in the nursery, will also be eliminated and the supply of rubber seedlings could be programmed if not available at all times. Specific Objectives: To develop an efficient tissue culture for rapid propagation in rubber through micro cutting, somatic embryogenesis and in vivo; to test the performance of tissue cultured rubber in terms of root development and anchorage, resistance to lodging, growth and branching habit and yield potential; to identify high yielding rubber that could be propagated by tissue culture without changing the genetic potential and field performance of such clones; and to produce appropriate publication materials for dissemination to concerned industry stakeholders.	Developed techniques on mini-seedling budding, hypocotyl grafting, and early green, grafting of rubber; Trained propagators in using these innovative techniques for commercial innovative techniques for commercial production of rubber QPM	WMSU, USM	Farmers, farmer leaders, rubber stakeholders, nursery operators, researchers, students, policy makers, and the whole rubber industry in the Philippines.	01-Mar-15	31-May-18	COMPLETED	7,514,797	401,336
Philippine Forest Vines for Handicraft and Furniture Industry	Treatability and Performance of Commercial Forest Woody Vines Using Chemical and Organic Preservatives	Rapid, inclusive and sustained economic growth	This study will apply alternative source of wood preservatives from natural materials like the cashew nut shell liquid. Samples of forest woody vines will be treated with formulated organic preservative from CNSL and chemical preservatives.	This project is expected to come up with data and information on the appropriate preservative treatments for commercial forest woody vines and its products which includes among others the treatment time and preservative concentration suitable to forest woody vines.	FPRDI	non-wood using industries, collectors/farmers, researchers	01-Jun-18	31-May-20	NEW	4,999,456	3,220,278
Value Adding and Waste Recovery for Industrial Tree Plantation Species (ITPS): Forest Nanotechnology Interventions and Bioplastics Production	Project 1. Production and Application of Cellulosic Nanocrystals from the Wood and Processing Wastes of ITPS	Rapid, inclusive and sustained economic growth	To determine using nanotechnology possible new products and applications of nanocellulose from solid wood or waste materials derived from 3 ITPS widely planted in the Philippines	Publications - 2 articles in ISI journals - 1 technical bulletin - citations of peer-reviewed articles - project terminal report Patents - invention disclosure/patent for extraction/production of nanocellulose from fast growing timber - invention disclosure/patent for fabricating nanocellulose-reinforced composite Products - invention disclosure/patent for extraction/production of nanocellulose from fast growing timber - invention disclosure/patent for fabricating nanocellulose-reinforced composite People services - 1 MS Forest Products Utilization with specialization in Forest Nanotechnology by 2019 - 2 BS Chemical Engineering and 2 BS Chemistry students (2017-18) - 1 trained personnel (project staff) Places and partnership - upgrading of FPPS Wood Chemistry laboratory; - MOU signed with 1 company in need of nanocellulose as feedstock for a start-up project on nanocellulose-reinforced composites Policies - Draft policy that provides incentives for the utilization of wastes from plantationgrown timber	UPLB	Farmers planting fast-growing timber - Industries in need of raw materials for novel composite products - Downstream manufacturing enterprises using novel composite materials	15-May-17	14-May-19	ONGOING	2,774,840	586,850
Value Adding and Waste Recovery for Industrial Tree Plantation Species (ITPS): Forest Nanotechnology Interventions and Bioplastics Production	Project 2. Bioplastics from ITPS: Production, Characterization and Potential Applications	Rapid, inclusive and sustained economic growth	This project will deal with the utilization of lignin as a by-product of pulping ITPS which is a pre-treatment step in the production of cellulosic nanocrystals  1. Extract and characterize lignin from black liquor 2. Modify and characterize the extracted lignin 3. Produce bio-based plastic using the unmodified and modified lignin in the form of composite film	Publications: Manuscript for publication to ISI/Scopus-indexed journal; Production of information bulletin; Technical papers presented in scientific conference Patents: One patent/utility model for filing for the protocol for the production of bioplastic with unmodified/modified lignin Products: Lignin-based bioplastic (film/board) People Services: Involvement of at least one BS Chemical Engineering student as mentee/ thesis advisee; 1 MS Forestry/Chemistry/Chemical Engineering student as RA or advisee; Involvement of one junior faculty as Project Staff Places and Partnerships: Collaboration with PhilFIDA, wood processors and/or its association Policies: Advocate the use of bioplastic from lignin derived from ITP logging wastes	UPLB	Forest-based industries, tree plantation farmers, manufacturers of polymers and plastics	15-May-17	14-May-19	ONGOING	2,255,115	418,097



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Amaranthus spinosus Leaf Meal as Potential Protein Source for Nile Tilapia (Old Title: Utilization of Amaranthus spp. Weed as an Alternative Feed Ingredient for Tilapia Aquaculture)	Poverty reduction and empowerment of the poor and vulnerable	The utilization of Amaranths spp. as promising sources of lowcost feeds ingredients will play a major role in increasing aquaculture productivity. The protein content of Amaranth grain is much higher than other grains like wheat and rye (Torane et al., 2017). It has been estimated that amaranth leaves have similar nutritional composition than green leafy plants such as spinach and many others (Mujica and Berti, 1997), and it contains an appreciable amount of proteins, fat, fiber, carbohydrate and calorific value, mineral elements, vitamins, amino acids (Akubugwo et al., 2007). The chemical analysis of this plant shown that it has high amount of protein (30-32%) with lysine constituting as much as 5.9% (Emokaro and Ekunwe, 2007). In addition, Amaranth is gaining acceptance, and it is being rediscovered due to its nutritional characteristics (Borneo and Aguirre, 2008) and one of the rich sources of organic resources, has received attention for its control as well as utilization. The proposed research is expected to produce quantitative result on the nutritional quality of Amaranthus spinosus Leaf Meal (ASLM) for growth performance, nutrient utilization, carcass quality, proximate composition and digestibility of Nile tilapia (Oreochromis niloticus).	1. Publication 4 Scientific papers for ISI/Scopus and other International refereed journals 1 Paper Presentation to scientific conference 2. Products 1 Amaranthus spinosus Leaf Meal 1 Amaranthus spinosus Protein Concentrates 3. People and Services 30 Fishfarmers trained on the utilization of Amaranthus spinosus leaf meal in feed for Nile tilapia 2 MS students 2 Ph.D. students 4. Places and Partnership 1 MOU 2 Experimental sites established	ISU, USC	Research and Academic Fisheries Institutions, Extensionist, Tilapia hatchery operators/growers and policy makers	01-Oct-18	30-Sep-20	NEW	4,950,318	2,563,852
	Application of exogenous metabolites in improving soft-shell mangrove crab production (Old Title: Biotechnological Strategies in Improving Soft-shell Mangrove Crab Production)	Rapid, inclusive and sustained economic growth	1. Establish protocols and technologies using metabolites directly involved in the monitoring process to hasten and synchronize mangrove crab molting for soft-shell crab production. 2. Determine basal amounts of applied exogenous metabolites for induced molting (for food safety/quality concerns) 3. Elucidate the effect of applied exogenous metabolites on the overall metabolic pathways involved in molting for better stock management 4. Test developed molting strategies with identified adaptors for soft-shell crab technology developed by SEAFDEC-AQD	1. Protocols and technologies for the mode of delivery, and frequency of application of exogenous biological metabolites for optimum molting rates. 2. Formulated feed with identified compound with the most active effect on precocious molting of soft shelled crabs. 3. Increased precocious molting rate of marketable size soft-shell mangrove crabs (50-80 grams) by 50% 4. Acceptable levels of residual exogenous compound application for human consumption 5. Rapid method for determining product quality (UV-VIS) 6. Trained fisherfolk (KASAMA members) involved in soft-shell crab production to use developed strategies 7. Improved production rate of soft-shell crabs (~40-50%)	UPV	1. Small scale farmers/fisherfolk as future adaptors of soft-shell crab technologies. 2. Current adaptors of soft-shell crab technologies.	01-Dec-18	30-Nov-20	NEW	4,997,018	3,037,509
	Development of Colloidal Gold Nanoparticles (AuNPs) Immune Assay for Rapid Detection of Bacterial Pathogens in Freshwater Tilapia Aquaculture (Old Title: Development of Colloidal Gold Nanoparticles (AuNPs) Immune Assay for Rapid Detection of Different Bacterial Pathogens Causing Disease Problems in Nile Tilapia Industry)	Poverty reduction and empowerment of the poor and vulnerable	General objective: To develop Rapid Diagnostic Kit (RDK) using colloidal gold nanoparticles (AuNPs) for early detection of bacterial pathogens affecting tilapia aquaculture. Specific objectives: 1. To isolate bacterial pathogens infecting tilapia; 2. To standardize and optimize protocol in the production of polyclonal antibodies of each isolated pathogenic bacteria infecting tilapia; 3. To develop and optimize protocol in the biofunctionalization and on the use of colloidal gold nanoparticles as Rapid Detection Kit for bacterial pathogens in tilapia; 4. To conduct laboratory and field testing of the developed Rapid Detection Kit for bacterial pathogens in tilapia; and 5. To determine the economics of production on the use of the developed product (RDK) for bacterial pathogens in tilapia	1. Publication 1 Paper for presentation in the Scientific Forum 1 Paper for publication in the Scholarly Journal 2. Patent 1 Patent on Colloidal Gold Nanoparticle Immune Assay Detection Kit 3. Products 1 Rapid Detection Kit against specific bacterial pathogens in tilapia 4. Places/Partnership 3 Partnerships (DMMMSU, ISU, and BFAR) 5. People/Services 2 Undergraduate Students 1 Graduate Student	CLSU	Tilapia farmers, researchers, educators, extension workers, students, consuming public	01-Jun-18	31-May-20	NEW	4,996,472	3,199,661

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	Development of Cost-effective nano(zeolite-silica) Composites for the Removal of Pollutants from Water and Soil for Freshwater Tilapia Aquaculture (Old Title: Development of Cost Effective Nano Materials for the Removal of Pollutants from Water and Soil Tilapia Aquaculture Production)	Poverty reduction and empowerment of the poor and vulnerable	To develop cost effective nanoactivated carbon for the removal of pollutants in water and soil for tilapia aquaculture production.	1. Publication 1 Publication in a scholarly journal (ISI , Scopus Journal 1 Paper presentation to scientific Conferences 1 IEC on Production of nanoremediation of soil and water for better tilapia production 2. Product 1 Pelletized nano (zeolite-silica) composite Char 3. Patent 1 Nanochar product 4. People and Services 2 MS and 1 PhD 5. Places and Partnership ISU Experimental Station, CLSU-CF BFAR	CLSU	Tilapia farmers, researchers, educators, extension workers and students	01-May-18	30-Apr-20	NEW	4,998,937	3,427,231
	Ecology and distribution of the invasive mussel species, Mytella charruana, in the Philippines(Old Title: Ecology, Distribution and Potential Uses of Invasive Mussel Species in the Philippines)	Poverty reduction and empowerment of the poor and vulnerable	This study aims to determine the distribution and ecology of the invasive mussel species (M. charruana) in Philippine waters.	1. GIS maps on the distribution and occurrence of invasive bivalve species in the Philippines 2. Information on some aspects of the biology and ecology of Mytella charruana 3. Information on utilization of the potentially invasive species 4. Information/inputs to the Management Plant/S&T Plant for Invasive mussel species	UPV	mussel farmers, LGUs, NGAs, policy makers, academic, research institutions, and consuming public	01-Mar-18	31-Aug-19	NEW	4,250,712	3,035,376
	Enhanced Aquaculture System for Genetically-Improved farmed tilapia (GIFT) Towards Improved reproductive Performance of Broodstock and Sustainable Supply of Quality Fry and Fingerlings	Poverty reduction and empowerment of the poor and vulnerable	General Objective: This study aims to develop an enhance culture system for improved reproductive performance of the Genetically Improved Farmed Tilapia (GIFT) strain towards sustainable supply of fry and fingerlings not only in Region IVA but also the entire country. Specific Objectives: 1. Formulate enriched aquafeeds for broodstock using potent feed supplements; 2. Assess the efficacy of enriched aquafeeds in improving the immune status, growth, and reproductive performance of broodstock; 3. Optimize a culture system for improved broodstock maintenance and seed production; 4. Develop alternative diet formulations for fry and fingerlings using non-conventional raw materials as main feed component and/or supplements; 5. Evaluate the potential of alternative aquafeeds in improving the immune status and survival of fry and fingerlings; and 6. Establish a culture management for improved survival of fry and fingerlings for stocking.	Publications: 1 Peer-reviewed journal articles 1 Manual on Broodstock Management (1) 1 Manual on Culture System for Fry/Fingerling Product: 1 Enriched aquafeed formula for broodstock 1 Alternative aquafeed formula for fry/fingerling Patent Utility Models: 1 Enriched broodstock aquafeed 1 Alternative fry/fingerling aquafeed People and Services Student Mentorship Training of broodstock operators Places and Partnerships: UP Visayas/UPLB-Biotech Central Luzon State University GIFT-Feed Mix Broodstock Hatcheries	LSPU	Hatchery & Grow-out Operators/ Fishfarmers, Students, Researchers, and Extensionists	01-May-18	30-Apr-20	NEW	4,994,854	3,147,552
	Evaluation of mussel longline culture technology in non-traditional areas	Rapid, inclusive and sustained economic growth	This project will generally refine the longline technology applicable to different water conditions. Specifically it aims to: 1. Determine yield performance of mussels cultured in longline at varying water productivity and depth. 2. Determine the economic viability and social acceptability of using the refined technology. 3. Develop IEC materials	⌘ Refined longline technology applicable to different water conditions ⌘ Cost and return analysis of the longline technology at different productivity ⌘ Trained 20 collaborators ⌘ IEC materials – training manual and pamphlets	SSU	Multi-takers beneficiaries of the research are, shellfish industry players/fisherfolks/shellfish farmers; planners/policy makers/regulators/researchers (DENR/BFAR/DOST/LGUs/SUCs, etc.). But basically all Filipinos are potential beneficiaries of a greater supply of affordable animal protein.	01-Jul-16	30-Sep-18	COMPLETED	3,997,336	342,238
	Evaluation of provitamin B1 as agent to reduce feed cost of practical diet of the Nile Tilapia and Milkfish (Old Title: Evaluation of Benfotiamine as Agent to Increase Carbohydrate Utilization in the Nile Tilapia and Milkfish)	Poverty reduction and empowerment of the poor and vulnerable	The project will be done in two years. During the first year, initial evaluation will be conducted on the Nile tilapia and milkfish. Fish fry will be fed the control diet with a normal carbohydrate amount of 30%, a diet with high carbohydrates (HC, 45%) and a diet with HC (45%) supplemented with provitamin B1. The control diet will contain about 30% protein, 30% carbohydrates and 4000 kcal kg-1 energy while diets HC and HCB with 45% carbohydrates. All the rest of the ingredient will be similar except carbohydrate content and the provitamin B1 added at 3.0 %. Parameters to be estimated will be growth (final body weight, weight gain and specific growth rate), feed utilization efficiency (food conversion efficiency, protein efficiency ratio, lipid and protein deposition), glucose tolerance test (GTT) and stress test (ammonia, extreme salinities, temperature) to know whether provitamin B1 also results in enhanced immune response in the Nile tilapia and milkfish. Changes between the transcriptome of each treatment will also be monitored by RNA-seq.	1. Publication 2 Publications in an ISI or peer-reviewed journals 2 Paper presentations to scientific Conferences 2. Product Formulated feeds with provitamin B1 3. Patent (none yet) 4. People and Services 1 MS Student 5. Places and Partnership (none yet) 6. Policy (none yet)	UPV	Tilapia and milkfish fish farmers, researchers, extension workers, and students	01-Jul-18	30-Jun-20	NEW	4,819,091	2,499,546

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	Evaluation of vinegars as growth promoter and immunostimulant in the Pacific white shrimp	Rapid, inclusive and sustained economic growth	1. Characterize the native vinegars in terms of organic acid contents, proximate analyses and bacterial composition; 2. Determine the effects of incorporating a small amount of native vinegars tuba and sasa and apple cide vinegar on the gorwth and feed efficiency performance of the Pacific white shrimp; 3. Determine the effects of the 3 vinegars incorporated in the basal diet on the immune response of the white shrimp against the pathogen <i>Vibrio parahaemolyticus</i> 4. Determine the effects of the 3 vinegars on the digestive enzymes of the Pacific white shrimp 5. Determine the effects of the 3 vinegars on the transcriptome profile in the hepatopancreas of the white shrimp; 6. Determine the effects of each vinegar profile after challenge with <i>Vibrio parahaemolyticus</i>	1. Information on total phenolic, flavonoid and volatile compounds; 2. Optimum dietary levels of TV and SV 3. Effects of the two vinegars on the immune response of the white shrimp against the pathogen 4. Effects of the two vinegars on the genes of the digestive enzymes trypsin, chymotrypsin and a:pha amylase of the white shrimp 5. Effects of the 2 vinegars on the transcriptomic profile of the white shrimps following challenge tests	UPV	Fisherfolks, feed industry, researchers, scientists, general public and science	01-Aug-17	31-Jul-19	ONGOING	4,178,548	1,177,273
	Field Testing of LAMP Detection Kit for AHNPD	Rapid, inclusive and sustained economic growth	This study aims to facilitate the use of a practical and cost-effective heating apparatus to be used in the application of LAMP in shrimp farms. Specifically, the project will: 1. Produce and test the prototype kit and heatblock machines 2. Identify the hatcheries and farms that can use the technology in broodstock and culture screening Figure 1.0 A locally fabricated heat block machine (A) and AHPND-infected samples have brighter and more intense color under UV illuminator 3. Introduce the LAMP kit and heatblock to shrimp hatcheries and farms 4. Conduct the application of LAMP and heat block on the shrimp hatcheries and farms	1. Production of the kit and fabricated heatblock apparatus 2. Nine (9) adoptors of the LAMP kit and heatblock apparatus 3. Field testing and a technology manual with costs and returns analysis 4. A low cost diagnostic technology mature for commercialization	UST	1. Shrimp hatchery operators – the optimized PCR and LAMP protocols can be used for screening of wild broodstock for the presence of the pathogens prior to their use for spawning; thus, asymptomatic carriers can be easily identified and discarded. 2. Shrimp farmers – these molecular diagnostics protocols can be used for routine screening of the culture stock to detect early signs of disease; thus, immediate management procedures can be undertaken to mitigate heavy losses due to heavy infection. 3. Diagnostic laboratories – these protocols particularly the publication of how-to-manuals will be of significant use to these laboratories since these have been tested under Philippine conditions. In addition, these how-to-do manuals on disease detection in shrimp will facilitate the establishment of mobile disease diagnostic laboratories, which the government plans to do in the future. Hence will ensure the sustainability of the industry.	01-Jul-18	30-Jun-20	NEW	4,999,996	2,973,018
	Fish Kill Mitigation Measures for Cage Aquaculture Systems in Buhi Lake and Magat Reservoir	Integrity of the environment and climate change adaptation and mitigation	To develop a practical and low cost mitigation measures for cage aquaculture systems in lake and reservoir.	☑ Early warning system ☑ Fishkill mitigation protocols ☑ Manual of operation for fishkill mitigation and good aquaculture practices ☑ Trainings conducted for Local Government Units and fish cage operators/fishfarmers in Albay and Isabela	BU, ISU	Aquaculturist, researchers, academe, policy makersand fisherfolks in target sites: Buhi lakeandMagat reservoir, etc.	15-Oct-16	14-Oct-18	COMPLETED	10,000,000	516,693
	Improvement in the Hatchery and Nursery Production of Green Mussel ( <i>Perna viridis</i> ) (Old Title: Project 4. Increasing Survival of the Green Mussel ( <i>Perna viridis</i> ) Larvae and Juveniles through Improved Water and Food Facilities)	Poverty reduction and empowerment of the poor and vulnerable	To improve survival of the hatchery-produced mussel through improved water and food facilies to augment mussel population	1. Improved natural food and water facilities in mussel hatchery; 2. Increased survival of the green museel from fertilized eggs 3. Improved technology of holding spats in the nursery prior to seedling them to grow-out farms; 4. Improved mass production of apparently healthy hatchery-produced green mussel seeds 5. Evaluated the growth and survival of the F1 hybrid	UPV	mussel growers	01-Oct-17	30-Sep-19	ONGOING	4,999,980	1,236,307
	Improvement of Philippine <i>Penaeus vannamei</i> for Enhanced Growth and White Spot Syndrome Virus Resistance through Selective Breeding	Rapid, inclusive and sustained economic growth	a. Establish nucleus breeding population in the Philippines of 4 family founder lines of <i>P. vannamei</i> coming from the US of A b. Develop optimized broodstock maturation, breeding and efficient hatchery production protocols for <i>P. vannamei</i> adapted to Philippine settings. c. Produce broodstock lines of <i>P. vannamei</i> selected for growth enhancement and resistance against WSSV infection	1. Culture of foundation families of <i>P. vannamei</i> 2 from North America (1 from Philippines) established in the Philippines. 2. Optimized broodstock rearing, breeding, and hatchery protocols for <i>P. vannamei</i> in the Philippines developed. 3. <i>P. vannamei</i> broodstocks exhibiting traits of better growth performance, and enhanced resistance against WSSV, produced for distribution to shrimp hatchery operators in the Philippines.	UPV	The target beneficiaries of the project are the various sectors of the shrimp industry such as shrimp growers and hatchery operators.	01-Dec-18	30-Nov-21	NEW	29,881,443	5,124,481

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	Low Salt Fermented Mussel Sauce as a Potential Functional Food and Ingredient	Poverty reduction and empowerment of the poor and vulnerable	The project intends to adapt and change traditional fish sauce made by methods like fermentation into health product with functional and bioactive properties. As a final product, packaging requirements will be determined to protect the nutritional components and properties of the product as as its shelf stability at ambient conditions.  1. Develop processing method in the production of low-salt mussel sauce and its by-product; 2. Establish product characteristics (proximate, sensory) and nutritional composition (amino acid, lipid minerals) profile; 3. Assess functional and bioactive properties; 4. Determine packaging and shelf stability requirements of the developed products	1. Low salt fermented mussel sauce with functional and bioactive properties; 2. Product nutritional profile, shelf-life and packaging requirements	UPV	Food industry, consumers, mussel farmers	01-Apr-17	31-Mar-19	ONGOING	4,994,318	1,666,132
	Mangrove Crab (Scylla serrata) Production in Alabat Island, Quezon Province Using an Aquasilviculture System	Rapid, inclusive and sustained economic growth	1. Evaluate the productivity and profitability of mangrove crab culture in Aquasilviculture systems in terms of growth, survival, yield; 2. Analyze impacts of Aquasilviculture of mangrove crab on the water quality 3. Describe the acceptability of Aquasilviculture system by the coastal communities in Alabat, Quezon	A. Benefits of aquasilviculture technology B. Profitability analysis of the production performance of mangrove crab in aquasilviculture system C. Acceptability of aquasilviculture technology by the community	SLSU	Coastal communities, marginal fishers of Alabat, Quezon, farmers, environmentalist, researchers, medical practitioners, different sectors of the community	01-Sep-17	31-Aug-19	ONGOING	4,466,737	922,657
	Padina sp. (Lap-lapayag) as an Alternative Immunobooster for Tilapia Health Management	Poverty reduction and empowerment of the poor and vulnerable	General Objective: to develop cost effective formulated diet using Padina sp. for improved growth and health of tilapia. Specifically, it aimed to: 1. Screen and evaluate the bioactive compounds or phytochemicals properties of Padina sp.; 2. Determine the antibacterial and anti-fungal activities of the extracts of Padina sp.; 3. Determine the growth and survival rate of tilapia fed with diets containing Padina extracts; 4. Examine the immune response of different stages of tilapia (i.e. fry/fingerlings and marketable size) and analyze the haematological parameters of tilapia that received diets with Padina extracts; 5. Determine the most effective method of introducing Padina extracts as immunobooster for tilapia; 6. Determine the cost and return analysis of formulated tilapia diet with Padina sp	1. Product a. Hot-water Extracts of Padina 2. Publication a. Produce 4 research article for publication for ISI/Scopus and other International refereed journals b. At least two paper presentation to scientific conference 3. People and Services a. Trained at least 30 fisherfolk on the utilization of Padina sp. as an Alternative Immunobooster for Tilapia Health Management 4. Partnership a. Forged at least one linkage/partnership 5. Places a. Established 1 concrete experimental set-up	ISU	Fish farmers, researchers, consuming public	01-Apr-18	31-Mar-20	NEW	4,939,332	3,207,716
	Pilot Scale Production of Primary Processed Philippines Green Mussel, Perna viridis	Poverty reduction and empowerment of the poor and vulnerable	This study aims to verify the developed technologies in Mussel C- Project 2 (i.e., low temperature live handling; and blanching and citric acid pre-treatment for the production of chilled and frozen mussels) in order to come up with a protocol for commercial scale production.	Year 1 1. Verified and optimized protocols at pilot scale production (100-200kg mussel input per production cycle) of chilled (blanched, in shell) and frozen (blanched, in shell; and blanched, half-shell);  Year 2 2. Information on mussel product quality at pilot scale production; 3. Time and motion data for 100 kg and 200 kg mussel inputs per cycle per product; 4. Product quality and nutritional profile of chilled and frozen blanched mussels; 5. Product shelf life/'Best before date' of each product optimized; 6. Financial and economic viability of the products (Cost and return sensitivity analyses); and 7. Verified business plan for the establishment of small-scale mussel processing plant engaged on primary processed chilled and frozen mussel products	UPV	The results of the project will be beneficial to improve the Export Market, Food Processing Industry (Medium/Large-scale), Small-scale Enterprise or Village Processors, Hotels, Restaurants, and Fish & Fishery Product Retailers	01-Apr-18	31-Mar-20	NEW	4,999,828	3,230,736
	Pilot Testing of Longline Method for Green Mussel Culture in Traditional Areas	Poverty reduction and empowerment of the poor and vulnerable	The project will pilot test the longline culture method of P. viridis in traditional culture areas in the Philippines.	Year 1 1. Comparative analysis of the production and economics of mussel using stake and longline culture methods in different pilot sites 2. Comparative analysis of the environmental effect of stake and longline mussel culture farms Year 2 1. Enhanced protocol, manuals and IEC's for establishment of longline 2. Information on the medium-term impact/effect of mussel longline method on yield 3. Information on the factors that influence adoption of mussel longline method 4. Information on the inputs that influence production efficiency 5. Policy recommendations for mussel culture 6. Publications	UPV	Private investors, fisherfolks, BFAR extension personnel, LGUs, educators, researchers	01-Sep-17	30-Apr-19	ONGOING	4,721,300	1,492,594
	Pilot Testing of Probiotics and Prebiotics from Agricultural Wastes for Improved Tilapia Pond Culture (Old Title: Pilot Testing of Probiotics and Prebiotics from Agricultural Wastes for Improved Tilapia Culture and Management)	Poverty reduction and empowerment of the poor and vulnerable	To determine the feasibility, viability and acceptability of probiotics and prebiotics under on-farm application.	1. The feasibility and economic viability of probiotics and prebiotics in on-farm application (cost and return analysis) 2. Growth performance and survival rate of tilapia under farmer's condition 3. Number of farmers willing to use the product as feed/water additive	CLSU, PSAU, DMMMSU	Hatchery and grow-out farmers	01-Jan-18	30-Jun-19	NEW	3,625,917	2,736,194

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Pilot tests on incorporating the filamentous green algae Rhizoclonium riparium in the diet of Nile tilapia (Old Title: Farm Trials on Incorporating the Green Seaweed Rhizoclonium in the Diet of the Nile Tilapia)	Poverty reduction and empowerment of the poor and vulnerable	The objective during the first year is to evaluate whether or not the incorporation of Rhizoclonium riparium var implexum meal into the diet of tilapia in two farm areas increases profitability in terms of either making the growth faster, or the feed efficiency better, or survival higher because of better welfare of fish or the combination of these factors in comparison with the commercial diet alone. The objective in the second year will be the refinement of feeding scheme pertinent to the technology of incorporating Rhizoclonium riparium var implexum. This will entail the refinement of daily feeding rate and also the effect of cyclic feeding of low and high RRM levels during production of the Nile tilapia.	1. Profitability of incorporating the filamentous green algae meal in the diet of cultured Nile tilapia at two farm sites; 2. Optimized feeding rate and cyclic feeding scheme for the diet with the algae meal with the greatest profitability increase.	UPV	The aquaculture industry, particularly tilapia growers will benefit in terms of reduced costs of feed inputs	01-Apr-18	31-Mar-20	NEW	4,684,433	2,342,217
	Species composition and seasonality of eels in the river systems of Northeastern, Luzon (Old Title: Species Biodiversity of Philippine Eel (Anguilla sp.): A Precursor for Management and Prospect for Sustainable Aquaculture)	Rapid, inclusive and sustained economic growth	The project will be undertaken to provide benchmark data for the status of eel biodiversity in the country. Data that will be gathered in this project will be a strong instrument in the formulation or recommendation of policies for management and conservation for sustainable utilization of this fishery resource.	• Maps on species abundance, plankton abundance, hydrological and physicochemical water quality of the different sites for eel gathering. • Catch data and CPUE of different gear for eel gathering • Protocol on eel conditioning and transport • Policy recommendation on eel gathering and conservation	CagSU	coastal and estuarine communities, eel gatherers, policymakers	01-Apr-18	31-Mar-20	NEW	4,996,676	3,190,157
	Sustainable Nile Tilapia Culture with Challenges Posed by Climate Change (Old Title: Sustainable Nile Tilapia Culture in the Cordillera Amidst Climate Change)	Poverty reduction and empowerment of the poor and vulnerable	1. To evaluate the performance of 4 Nile tilapia strains in varying conditions in CAR; 2. To monitor and identify the tilapia species found in various water bodies in CAR through morphometry and morphological characterization; 3. To document the role of women in tilapia production 4. To correlate the effects of CC on the performance of 4 strains in CAR 5. To compare the economic benefits from the culture of the different Tilapia strains	NULL	BSU, IfSU, MPSPC	tilapia growers	01-Apr-18	30-Sep-19	NEW	4,143,339	3,008,171
	The eel fishery in tributaries along Lagonoy Gulf: Implications for conservation and management (Old Title: Eel Fry Fishery along Lagonoy Gulf)	Poverty reduction and empowerment of the poor and vulnerable	This project is a pioneering work to explore and understand the eel fishery in the Gulf, specifically on the knowledge on the geographic and seasonal distribution of the species. The project will address the lack of baseline data as basis for management of eel fry resources in LG.	<ul style="list-style-type: none"> <li>Eel fishing grounds</li> <li>Eel resource map</li> <li>Species identification,</li> <li>Information on peak and lean season</li> <li>Catch and volume by lunar phase</li> <li>Gear inventory and catch data by gear, CPUE</li> <li>Post harvest handling practices</li> <li>Supply and value chain report</li> </ul>	BU	Eel fry gatherers, traders, LGUs, BFAR, scientific community and conservation agency	01-Apr-18	30-Sep-19	NEW	4,464,314	3,492,428
	Utilization of plant-based natural anti and pro-oxidants for farmed tilapia	Rapid, inclusive and sustained economic growth	The project will produce plant-based products a anti and pro-oxidants for farmed	Protocols for improved health management of Tilapia. Products for better performing tilapia.	ISU	(a) 4 hatchery operators in Nueva Ecija and Isabela; and 10 Tilapia growers in Isabela; 10 fishfarmers in Cagayan Valley Region	01-Oct-16	31-Jul-19	ONGOING	4,702,008	752,036
Genomic applications in Mud Crab Aquaculture and Resource Management	Project 1. Developing Genomic Resources for Stock Delineation and Sustainable Development of mud crabs	Rapid, inclusive and sustained economic growth	The general objective of the project is employ genomic resources to generate information and technologies towards the sustainable development of capture- and culture-based production of mudcrabs, <i>S.serrata</i> , <i>S.olivacea</i> , and <i>S. tranquebarica</i> . Specific objectives: 1. Develop genomic resources based on SNP markers for <i>S.serrata</i> , <i>S.olivacea</i> , and <i>S. tranquebaricato</i> facilitate studies of genetic stock delineation of natural populations across the Philippine archipelago; 2. Identify management units for <i>S.serrata</i> , <i>S.olivacea</i> , and <i>S. tranquebarica</i> in selected marine biogeographic regions, with a focus on areas with existing and emerging mudcrab hatcheries.	1. Genomic resources for genetic stock delineation (SNP markers) for three Scylla species: <i>S. serrata</i> , <i>S.olivacea</i> , and <i>S. tranquebarica</i> . 2. Identification of management units for natural populations of <i>Scylla serrata</i> and <i>S. olivacea</i> . 3. Developing SNP markers for traceability of <i>S. serrata</i> to biogeographic region or hatchery of origin. 4. Technical inputs for development of policies for culture and capture mudcrab fisheries towards international certification/recognition of the Philippine mudcrab fisheries as compliant and a model for best practices.	UPD	1. Stakeholders in the mudcrab industry (government and private sector) may benefit from the development of markers for molecular selection for phenotype and certification of best aquaculture and fishery practices. 2. Resource managers, e.g. LGUs and other government agencies may benefit for policy recommendations potentially resulting from stock delineation studies. 3. Fishers, traders, and other direct users of natural (wild) mudcrab stocks, as increased hatchery production may in the long-term contribute to reducing fishing pressure on, and for stock enhancement of natural mudcrab populations. 4. Local researchers particularly graduate students research provided opportunities to develop capabilities in interdisciplinary studies and use of advanced methods for resources management 5. Research/Scientific community as results from these studies will provide further avenues for research related to mudcrab genomics, biology, ecology, and resource management.	01-Oct-15	31-Mar-19	ONGOING	13,304,828	1,029,282

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Program C. Post Harvest Program for Sustainable, High Quality and Safe Mussel Products	Evaluation of depuration and relaying technologies for Philippine green mussel at higher loading capacity	Rapid, inclusive and sustained economic growth	<p>This project aims to pilot test the protocols in relaying and depuration of mussels in other culture areas in the country and at various conditions. It intends to improve the developed protocols for the elimination of microbial content for safe and high quality Philippine green mussels (<i>Perna viridis</i>)</p> <p>Specifically, it intends to do the following: 1. Evaluate the performance of relaying protocols at different conditions of mussel growing areas 2. Evaluate the performance of depuration facility at pilot scale (80, 100 and 120 kg input per tank)</p> <p>3. Determine the economic viability (including social acceptability) of using refined relaying and depuration technologies 4. Develop a generic HACCP-based mussel depuration quality assurance program</p>	<p>Year 1</p> <p>1. Refined relaying protocols</p> <p>Year 2</p> <p>2. Table on relaying time based on bacterial load in mussel meat 3. Refined depuration protocols using recirculating system/flow-through system with 80, 100 and 120 kg mussel input per tank) 4. Table on depuration time based on bacterial load in mussel meat 5. Business Plan (based on the technical and financial feasibility) including social acceptability of the technologies 6. Generic HACCP Manual for mussel depuration</p>	UPV	Beneficiaries include mussel farmers, entrepreneurs, vendors, middleman, processors, researchers, technicians/extensionists, policy makers, shellfish processors-exporters, and the consuming public	01-Jul-16	30-Jun-18	COMPLETED	4,225,344	784,541
R&D Program on Assessment and Implementation of Control and Management Strategies for Invasive Knifefish in Laguna de Bay	Project 1. Mark- Recapture Strategy to Estimate Population Size and Track Site Fidelity of Invasive Knifefish ( <i>Chitala ornata</i> ) in Laguna de Bay	Poverty reduction and empowerment of the poor and vulnerable	<p>The general objective of this project is to estimate population size and structure using mark and recapture surveys at six sites . The specific objectives are:</p> <p>1) Determine/estimate knifefish population size and density using mark and recapture methods</p> <p>2) Determine movement patterns of knifefish</p> <p>3) Determine /estimate natural population traits from length and weight data</p> <p>4) Assess most efficient gear for catching knifefish</p>	<ul style="list-style-type: none"> <li>Map showing density of knifefish population at six selected sites</li> <li>Map showing movement range</li> <li>Policy recommendation on population control strategies based on population characteristics</li> <li>Protocol or method on most efficient fishing gear to catch knifefish/optimal fishing techniques for reducing knifefish population</li> </ul>	UPLB	Direct target beneficiaries of the results from this study is the Interagency Technical Working Group on the Containment of Knifefish, the Local Government Units and FARMCs involved in the control of knifefish.,	01-Jun-18	31-May-20	NEW	2,547,446	1,246,848
R&D Program on Assessment and Implementation of Control and Management Strategies for Invasive Knifefish in Laguna de Bay	Project 2. Distribution, Habitat Characterization and Control Strategies for Juvenile Knifefish ( <i>Chitala ornata</i> ) in Laguna de Bay	Poverty reduction and empowerment of the poor and vulnerable	<p>To locate and characterize knifefish schooling sites and develop and assess the efficiency of fish netting of juvenile knifefish in Laguna de Bay.</p> <p>1. Determine and characterize schooling sites of knifefish juveniles in Laguna de Bay;</p> <p>2. Determine the length of residence of juvenile knifefish in each schooling areas within a spawning season;</p> <p>3. Assess the efficiency and selectivity of fish netting in schooling sites as control measure for knifefish juveniles</p>	<ul style="list-style-type: none"> <li>Map with plotted GPS coordinates of confirmed schooling sites.</li> <li>Detailed biological and physico-chemical profile of confirmed schooling sites.</li> <li>Information on site fidelity and transitioning of juvenile knifefish from schooling lifestyle to solitary.</li> <li>Optimized fishing gear specific to knifefish juveniles.</li> </ul>	UPLB	Policy makers and environmental managers from both national and global conservation agencies (e.g. Task force on knifefish, BMB, etc.) would benefit from the information (juvenile distribution and control strategies) derived from this study.	01-Jun-18	31-May-20	NEW	2,437,365	1,207,932
Tiger Shrimp ( <i>Penaeus monodon</i> ) Genomics Program.	Genomic Markers for Assessment of Inbreeding and Morphophenotype-genotype Association Mapping in <i>Penaeus monodon</i>	Rapid, inclusive and sustained economic growth	<p>The general goal of this project is to expand the genetic resources necessary for sustaining a genetic improvement program for <i>P. monodon</i> in the country.</p> <p>The specific objectives are the following:</p> <p>☐ assess the variation of key morphometric and morphological traits in local stocks of <i>P. monodon</i> ☐ generate genotypes from the same samples used in phenotyping (Objective 1) using next generation sequencing, and search for SNP markers that are correlated with selected traits ☐ use the data generated (Objective 2) to improve the quality of the reference genome of <i>P. monodon</i></p>	<p>☐ results of statistical analysis of morphological/morphometric data from <i>P. monodon</i> samples ☐ preliminary list of correlated SNP markers ☐ improved reference genome for <i>P. monodon</i></p>	UPD	shrimp farming industry, shrimp export industry	01-Jul-15	30-Apr-18	COMPLETED	7,834,454	319,806
	Agronomic Performance and Feeding Value of Mulato II and Mombasa Grasses for Dairy Cattle	Rapid, inclusive and sustained economic growth	<p>The main objective of this project is to evaluate the yield performance and feeding values of Mulato II and Mombasa grasses in dairy calves and growing heifers, and their influence on milk production of milking cows and their profitability as feed for dairy cattle.</p> <p>B. Specific Objectives</p> <p>1. To determine the herbage yield and quality of Mulato II and Mombasa in pure stand and as mixture with Pinto peanut or Centrosema at two cutting intervals during the wet season and dry season;</p> <p>2. To measure the adaptability and persistence of Mulato II and Mombasa in pure stand and when mixed with Pinto peanut or Centrosema at two cutting intervals during the wet season and dry season;</p> <p>3. To determine the effects of feeding either Mulato II or Mombasa in comparison with Napier on the ADG and body condition of heifer calves and growing heifers;</p> <p>4. To determine the effects of feeding either Mulato II or Mombasa in comparison with Napier on feed consumption of milking dairy cattle;</p> <p>5. To determine the effects of feeding either Mulato II or Mombasa in comparison with Napier on yield and quality of milk of dairy cattle;</p> <p>6. To determine the yield and quality of Mulato II and Mombasa grasses as materials for silage production;</p> <p>7. To determine the effects of feeding Mulato II or Mombasa silage on yield and quality of milk of dairy cattle;</p> <p>8. To determine the cost of establishing and maintaining Mulato II and Mombasa pastures for silage for silage production;</p> <p>9. To determine the cost of milk from cows fed with Mulato II or Mombasa compared to those fed with conventional roughages; and</p>	<ul style="list-style-type: none"> <li>Information on agronomic properties and characteristics of Mulato II and Mombasa grasses</li> <li>Information on herbage yield of Mulato II and Mombasa grasses</li> <li>Information on in-vitro digestibility of Mulato II and Mombasa grasses</li> </ul> <p>Activity 2</p> <ul style="list-style-type: none"> <li>Growth performance of grower calves and heifers fed fresh Mulato II or Mombasa grasses</li> </ul> <p>Activity 3</p> <ul style="list-style-type: none"> <li>Milk quality and milk production performance of cows fed with fresh Mulato II and Mombasa grasses</li> </ul> <p>Activity 4</p> <ul style="list-style-type: none"> <li>Milk quality and milk production performance of cows fed with Mulato II and Mombasa grasses silage</li> </ul> <p>Activity 5</p> <ul style="list-style-type: none"> <li>Information on the cost of production of the 3 grass species based on DM basis</li> <li>Information on the cost of production of the silage using Mulato II or Mombasa compared with silage using Napier grass.</li> <li>Information on the cost of milk based on the actual cost of the DM content of Mulato II, Mombasa and Napier</li> <li>Information on the costs incurred for growing heifer calves fed with the Mulato II, Mombasa and Napier</li> </ul>	UPLB	The project beneficiaries are the dairy cattle farmers, SCUs, Researchers and Extension Workers. This will provide data and information on Mulato II and Mombasa for dairy cattle feeding.	01-Oct-16	30-Apr-19	ONGOING	4,934,996	1,454,088

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	Deployment and operationalization of Swine Cart: An E-Commerce System for Breeder Swine and Boar Semen (Old Title: Operationalization and Popularization of an E-commerce System for Breeder Swine and Boar Semen)	Rapid, inclusive and sustained economic growth	<ul style="list-style-type: none"> <li>design and implement a highly available cluster to host the e-commerce system;</li> <li>collect breeder swine data form accredited breeder farms through the e-commerce system;</li> <li>develop additional modules of the e-commerce system depending on the knowledge, attitudes, and practices of the breeder swine producers and consumers;</li> <li>develop collaborative capacity building and learning materials for the key stakeholders for the utilization and sustainability of the system;</li> <li>develop a mobile application for the e-commerce system; and</li> <li>integrate the e-commerce system with the purebred swine registry system.</li> </ul>	<ul style="list-style-type: none"> <li>Web-accessible e-commerce system for breeder swine and boar semen that is highly available for use of the breeder swine producers and consumers (Year 2)</li> <li>Initial breeder swine data from breeder farms (Year 1)</li> <li>List of breeder farms that can access the breeder portal and can upload breeder swine data (Year 1)</li> </ul> <p>Assessment of knowledge, skills, and practices of stakeholders</p> <ul style="list-style-type: none"> <li>Training needs analysis tools such as questionnaire, focus group discussion guides, and interview schedule (Year 1)</li> <li>Comprehensive training needs analysis report and learning modules (Year 1)</li> </ul> <p>Capacity building and extension</p> <ul style="list-style-type: none"> <li>Letter of understanding with the target agencies and institutions (Year 1)</li> <li>Training program design and actual conduct of training and capacity building activities (Year 1)</li> <li>Information, education, and communication materials such as but not limited to brochures, leaflets, and videos (Year 2)</li> <li>Policy brief and journal articles (Year 2)</li> </ul> <p>Monitoring and evaluation of the e-commerce system</p> <ul style="list-style-type: none"> <li>System usability test results (Year 1)</li> <li>A dashboard that shows a summary of the user activity in the e-commerce system (Year 2)</li> <li>A dashboard that shows a summary of the performance of the e-commerce system (Year 1)</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>Swine industry (in general)</li> <li>Breeder farms</li> <li>Academe and researchers</li> </ul>	01-Jun-18	30-Nov-19	NEW	3,910,490	2,738,768
	Development of a Dry Format RT-Lamp and Test Kits for Classical Swine Fever Virus (CSFV) and Porcine Reproductive and Respiratory Syndrome Virus (PRRSV)	Rapid, inclusive and sustained economic growth	To formulate a dry format RT-LAMP protocols for CSFV and PRRS that could differentiate infected from vaccinated animals.	<ol style="list-style-type: none"> <li>Information/knowledge on the genetic strain of CSF and PRRS virus field strain and the viruses used in the current vaccination of CSF and PRRS.</li> <li>Developed the CSFV and PRRSV RT-LAMP dry format protocols</li> <li>Validated CSFV and PRRSV RT-LAMP protocols</li> <li>CSFV and PRRSV RT-LAMP test kits for easy handling and applied for IPR.</li> <li>At least 3 paper presentations and 2 peer reviewed journal publications</li> </ol>	CLSU	<ol style="list-style-type: none"> <li>RADDLs, SUCs and PVOs</li> <li>Selected private animal disease diagnostic laboratories</li> <li>Quarantine officers of the government</li> <li>Pig raisers that have access to international trade on export market</li> </ol>	01-Jan-17	31-Dec-18	COMPLETED	3,551,929	1,400,832
	Development of Caraga Black Native Chicken through Selection and Breeding as Potential Niche Product of Caraga Region	Poverty reduction and empowerment of the poor and vulnerable	<p>economic potential contribution for farmers and entrepreneurs who engaged in native chicken raising which is a potential niche in the region. With its high demand in poultry meat due to its taste, texture, health benefits, and aroma, its supply are very limited within the region. Productivity, feed efficiency, availability of breeding stocks, and cost effectiveness are factors that will affect the production and management system. In addition, its major challenges are climate change where environmental conditions are extreme affecting performance in the production system, thus reducing its productivity.</p> <p>With the development of Caraga black native chicken, it can strengthen its capacity and capability in terms of productivity and efficiency through proper breeding and selection. Moreover, Caraga black chicken can provide a healthier option to consumers. The project is expected to produce breeding true-to-type population of black native chicken which is resilient to climate change condition in Caraga and can perform good traits in growth, hatchability, taste preference, and disease tolerance. These can also serve as genetic pool where target beneficiaries can avail on it through dispersal program. Target users of the generated output of the study are: farmers, people's</p>	<ul style="list-style-type: none"> <li>Two (2) scientific journal publications (ISI/CHED refereed) (Y2)</li> <li>IEC materials on technology options of Caraga black native chicken breeding and production (Y2)</li> <li>Presentation of results to scientific for a (Y2)</li> <li>Caraga black native chicken breeding and production training module (Y2)</li> <li>Patents</li> <li>Copyright of IEC materials developed (Y2)</li> <li>Trademark registration of Caraga black native chicken (Y2)</li> <li>Product</li> <li>500 breeder Caraga black native chickens (Y2) in each station</li> <li>Caraga black native chicken breeder flock with at least 80% uniformity established in 2 units (Y2)</li> <li>2,000 hd quality Breeder stocks of Caraga black chicken (Y2)</li> <li>People Services</li> <li>50 farmer entrepreneurs trained in science – based native chicken breeding and selection (Y2) Places and Partnerships</li> <li>At least 20 Materials transfer agreements (MTA) with adopters of Caraga black native chicken (Y2)</li> </ul>	CarSU, DA-CARAGA	<ul style="list-style-type: none"> <li>Native chicken raisers in Caraga Region and nearby provinces.</li> <li>Native chicken domestic and institutional consumers</li> <li>Faculty, researchers, students, NGO's, Cooperatives and other organizations who wish to engage in native chicken production</li> <li>Native chicken enthusiast in the Province and in the Region.</li> </ul>	01-Sep-18	31-Aug-20	NEW	4,999,915	3,086,920
	Development of Philippine Native Chicken and Itik Pinas Breed Information System	Rapid, inclusive and sustained economic growth	Develop a web-based native chicken (Darag, Boholano, Camarines, and ZamPen) and layer duck (IP Itim, IP Khaki, and IP Kayumanggi) genetic groups information system that would be available to all stakeholders.	Searchable online database containing baseline information on the overall flock performance of Darag, Boholano, Camarines, and ZamPen native chickens, and IP Itim and IP khaki layer ducks.	UPLB	<ul style="list-style-type: none"> <li>Native chicken/layer duck breeders and raisers</li> <li>Entrepreneurs</li> <li>Academe/Researchers</li> <li>Students</li> <li>Policy makers</li> </ul>	01-Apr-17	31-Mar-19	ONGOING	4,999,075	3,174,140

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	Development of Philippine Native Pig Breed Information System	Rapid, inclusive and sustained economic growth	The project aims to develop a web-based information system on Philippine native pigs accessible to Philippine native pig stakeholders	<ul style="list-style-type: none"> <li>Standardized data collection and submission</li> <li>Online database containing information on physical characteristics and overall herd performance of native pigs from Kalinga, Benguet, Isabela, Nueva Vizcaya, Marinduque, Bondoc Peninsula, and Samar</li> <li>At least 1 scientific paper publication</li> <li>Presentation of findings in scientific conference</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>institutional farms/collaborator farms</li> <li>policy makers</li> <li>community development practitioners</li> <li>researchers</li> <li>livestock keepers/small hold farmers</li> <li>entrepreneurs</li> </ul>	01-Apr-17	31-Mar-19	ONGOING	4,999,958	848,240
	Establishment of breed registry system for purebred swine	Rapid, inclusive and sustained economic growth	<p>General Objective: To established breed registry system for purebred swine in the Philippines that will ensure the supply and quality of breeder pigs for the local pig industry.</p> <p>Specific Objectives: 1. To develop a national database for pedigree and performance information of breeder pigs 2. To establish a national breed performance registry system for local purebreds that would allow ranking of individual breeder pigs within a breed. 3. To develop breed verification system and parentage testing protocols for purebred swine 4. To promote the breed registry system to swine breeders and pork producers to enhance accessibility for superior breeder animals.</p>	<p> Breed Registry System and database for Purebred Landrace, Largewhite and Duroc</p> <p> Pedigree certificates</p> <p> Breeder identification (ID) and verification system</p> <p> Training module for farm data recorders</p> <p> Protocol for system operations</p> <p> Selection indices</p> <p> Identification and ranking of genetically superior pigs within a breed</p>	UPLB	ASBAP members (Breeder Farms) Academe Researchers Students Pork producers Consumers	01-Jun-16	30-Nov-18	COMPLETED	10,000,000	764,008
	Establishment of Dairy Cattle Foundation Breeder Herd Thru ET Using Imported Pedigreed Frozen Embryos	Rapid, inclusive and sustained economic growth	<p>The proposed R&amp;D project that will be implemented thru a public/private partnership between and among the NDA, PCC and private dairy industry players is envisioned to:</p> <p>1) Catalyze the establishment of local dairy cattle foundation breeder populations that will sustainably supply high milk-producing dairy heifers and cows needed by the Filipino dairy farmers. 2) Customize the ET technology using pedigreed frozen dairy cattle embryos to suit to local dairy farm conditions. 3) Determine the technical and economic feasibility of using imported genetically superior frozen embryos in beefing up the dairy cattle population inventory of the country. Encourage private dairy industry players to actively participate in R&amp;D activities and promote the adoption of S&amp;T-based methods of enhancing sustainability, productivity and production efficiency of the Philippine dairy industry.</p>	<p>1) Initial inventory of pedigreed dairy cattle to form the foundation breeder herd 2) Customized ET protocol using frozen embryos 3) More proficient technicians to service dairy farms 4) Functional private-public partnership in technology verification and application</p>	NDA, PCC	1) Dairy farm owners 2) Dairy industry practitioners 3) Researchers 4) Professors 5) Students	01-Dec-16	30-Nov-19	ONGOING	4,881,567	935,657
	Establishment of Zampen Native Chicken Breeding Population with Improved Egg Production and Growth Performance	Poverty reduction and empowerment of the poor and vulnerable	This project envisions to establish a ZamPen native chicken breeding population with improved egg production and growth performance	25,000 quality Zampen hardened chicks; 5,000 breeder ZamPen native chicken; improved reproductive and growth performance of ZamPen native chicken; ZamPen native chicken breeding and hatchery management technology; Native chicken breeding and production module and IEC materials; Technical personnel and farmer entrepreneurs capacitated on organized breeding and selection and production; established Zampen breeding units	JHCSC, WMSU	Native chicken raisers; native chicken domestic and institutional consumers; researchers/students	01-Apr-18	31-Mar-20	NEW	4,972,440	3,059,470
	Pilot Testing of Protein Enriched Copra Meal (PECM): A Valuable Protein Feed for Swine and Poultry (Phase II)	Poverty reduction and empowerment of the poor and vulnerable	<p>The general objective of this project is to establish a bioprocess system for the pilot scale production of Protein Enriched Copra Meal (PECM) and determine its feeding value in swine and poultry.</p> <p>Specific Objective:</p> <p>1. To establish and develop the process design for the pilot scale production of PECM 2. To test and optimize process conditions for the production of PECM at pilot scale level 3. To produce PECM at pilot scale level and evaluate quality control parameters 4. To perform shelf life studies and stabilization methods for PECM 5. To carry out distribution and commercial testing of PECM to collaborating farms 6. To evaluate production cost based on business models generated 7. To develop sustainability strategies for the procured equipment and facility enhancements made</p>	<p>Year 1</p> <ul style="list-style-type: none"> <li>Established optimum level for pilot scale production of PECM</li> <li>Established upstream and downstream processes of the pilot scale production of PECM</li> </ul> <p>Year 2</p> <ul style="list-style-type: none"> <li>Product quality data and performance of PECM in swine and poultry</li> <li>Intellectual Property (IP) protection for the technology and product</li> <li>Promotion of PECM technology and commercialization initiatives</li> <li>Generated business models for producing PECM</li> <li>Developed sustainability strategies for the equipment purchased and facility enhancements made</li> </ul> <p>Publication: At least 3 published papers</p> <p>Patent: 1 patent for pilot scale production of PECM 1 patent for PECM microbial inoculant</p> <p>Product: At least 24 tons of PECM produced (after optimization) At least 500 kg PECM powder inoculant</p> <p>People and Services: Organized 2 trainings and 2 seminars for the technology 1 PECM Pilot Plant Facility</p> <p>Places and Partnership: 1 Established quality control and testing laboratory</p> <p>At least 4 MOAs for feeding trial experiments At least 1 Technology transfer agreement</p>	UPLB	<p>Swine and Poultry Farmers</p> <p>Feed Millers and Processors</p> <p>Copra producers</p>	01-Nov-17	31-Oct-18	COMPLETED	24,355,676	1,029,890
	Piloting a Profitable and Sustainable Commercial Scale Zampen Native Chicken Breeding Operation	Rapid, inclusive and sustained economic growth	<p>The proposed project aims to evaluate the economic potentials and sustainability of commercial scale production of breeder Zampen native chickens.</p> <p>Specifically, the project aims to:</p> <ul style="list-style-type: none"> <li>validate the breeding efficiency and production performance of breeder quality Zampen native chickens in larger scale at SRPPF and JHCSC.</li> <li>establish and evaluate the economic viability of Zampen native chicken in commercial scale operations.</li> <li>enhance the capability of native chicken farmer-cooperators, SRPPF employees and inmates and JHCSC animal science faculty in establishing a sustainable native chicken production units.</li> </ul>	<p>30,000 quality day-old Zampen native chicks</p> <p>3,000 quality breeder Zampen native chickens</p> <p>30 soon-to-be released inmates trained in science-based native chicken breeding and selection</p>	WMSU	<p>The project beneficiaries are:</p> <ul style="list-style-type: none"> <li>SRPPF soon to be released prisoners</li> <li>Student, staff and researchers of WMSU</li> <li>Student, staff and researchers of JHCSC</li> <li>Native chicken raisers in Zamboanga peninsula</li> </ul>	01-Nov-16	31-Oct-18	COMPLETED	4,499,812	987,766



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Utilization of DNA Marker Selection in Breeder and Commercial Swine Farm Units	Rapid, inclusive and sustained economic growth	<p>The proposed R&amp;D project that will be implemented thru privatepublic partnership aspires to promote the utilization of the newly developed gene marker technology in breeding and selection in local swine population to increase productivity and improve production efficiency of the Philippine swine industry.</p> <p>1) Promote the utilization and adoption of molecular methods of selection by local swine raisers to improve prolificacy and production efficiency thru the use of a private-sector operated swine genomics service laboratory. 2) Validate and estimate the effect of favorable genotype on different traits both at the level of nucleus (purebred GGP, GP) and commercial herds. 3) Provide assistance in the use of genomic information in the breeding program for individual herds.</p>	<p>1) Adoption of the gene marker technology by the swine industry 2) Fully operational swine genetic analytical service laboratory for the identification of positive genes and screening genetic defects of swine 3) Laboratory to screen swine genetic diseases 4) Science based data for the formulation of enabling policies for the swine industry to improve its productivity and efficiency</p>	PCC	<p>1) Swine Breeder Farms 2) Pork producers (Commercial Farms) 3) Academe and Researchers 4) Students</p>	01-Oct-16	30-Sep-18	COMPLETED	4,998,389	499,447
	Utilizing Web-based Technology for Monitoring and Performance of Philippine Swine Farms	Rapid, inclusive and sustained economic growth	<p>Web-based platform for the online submission and collection of swine farm productive and reproductive performance data. The technology will generate performance reports and will develop a mobile-application for the offline recording and collection of swine farm data for swine farms that do not have continuous internet access.</p>	<p>• Data Collection. A mobile application that allows swine farm personnel to collect farm data even without internet connect, and then to submit the collected data through the web portal once connection is available.</p> <p>• Swine Management. A web-based application that allows swine farm operators to encode their farm operation data using online forms, and to upload data from their mobile applications following a specified format. Farm operators can also view data that they have previously submitted. Submission of farm data can be done daily, weekly, or monthly.</p> <p>• Report Generation. A web-based interface that allows swine farm operators to view monthly, quarterly or annual reports about their farm performance. PCAARRD Project Management Group (include the SPPM Project members) can also view monthly, quarterly or annual reports about the performance of the Philippine swine industry at various levels of granularity -- national, regional and individual farm.</p> <p>2. Deployment of the swine management platform in PCAARRD-managed server (thru the DPITC) to allow swine farm operators to use the applications</p> <p>3. Training and capacity building of key players in the swine farm industry</p> <p>4. Documentation of the experience in the deployment of the swine management platform in various sites as basis for making recommendations for the adaptation of the system in all swine farms in the country, and for the enhancement of relevant policies to support the swine farm industry.</p> <p>5. Published papers on the design and development of the web-based platform, validation and deployment in Philippine swine farms; and user manuals/guides for using the system.</p> <p>6. Establish partnership with PSIRDFI and commercial swine farms.</p>	DLSU	<p>• Commercial Swine farms and SPPM Project</p> <p>• Swine farm association</p> <p>o Philippine Swine Foundation (PSIRDFI)</p> <p>o Accredited Swine Breeders of the Philippines</p> <p>o National Federation of Hog Farmers, Inc.</p> <p>o Pork Producers Federation of the Philippines</p> <p>• Other stakeholders of the swine industry</p>	01-Jul-18	30-Jun-19	NEW	3,998,319	3,998,319
Assisted Reproduction, Nutrition and Health Interventions for Enhancing Dairy Cattle Productivity and Milk Safety (Old Title: Science and Technology-based Interventions to Improve Dairy Cattle Productivity and Profitability in the Philippines)	Project 1. Application and Improvement of Embryo Transfer (ET) and Artificial Insemination Technologies as Tools Toward Achieving the Desired Number of Genetically Superior Breeder Dairy Cattle(Old Title: Value Chain Improvement and Sustainability for Dairy Cattle Value Chain Players)	Rapid, inclusive and sustained economic growth	<p>produced for the past few years to cater the increasing demand of the Filipino people. However, increase in volume of milk produced has been slow with the low number of good quality dairy stocks as one of the main reasons. Introduction of Embryo Transfer and artificial insemination technologies to Philippine dairy farms are possible solutions to improve the quality of our breeding stocks to increase the production of good milk producers at a faster and more efficient rate given the long generation interval of dairy cattle. Embryo transfer (ET) is a technique wherein embryos are collected from superior donor cows' reproductive tract and transferred to other females which will serve as surrogates until end of gestation. With this, we will be able to get multiple calves out of one donor cow in a year compared to only one or two calves. Embryo transfer is already being practiced in other countries to take advantage of the good genetics of superior cows. In the Philippines, however, due to insufficient finances wherein majority of the dairy farmers are smallholders, the technology is not adapted in the country (Personal communication with PCC at CSU Director, Franklin Rellin).</p>	<p>⑦ 3,555 Pregnant dairy heifers/ cows through ET and AI</p> <p>⑦ 3,200 hd genetically improved calves</p> <p>⑦ Technical Manual on improved ET and AI technologies</p> <p>⑦ Trained personnel to perform ET and AI</p>	UPLB, CagSU, BISU, CMU, UseP, CLSU,	<p>Dairy farmers</p> <p>⑦ Researchers</p> <p>⑦ Students</p>	01-Jul-18	30-Jun-23	NEW	91,154,627	40,324,631

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Assisted Reproduction, Nutrition and Health Interventions for Enhancing Dairy Cattle Productivity and Milk Safety (Old Title: Science and Technology-based Interventions to Improve Dairy Cattle Productivity and Profitability in the Philippines)	Project 2. Genetic Quality Assessment and Production Performance Evaluation of Dairy Cattle in the Philippines(Old Title: Developing a Sustainable Dairy Cattle Genetic Stock in the Philippines)	Rapid, inclusive and sustained economic growth	sector in order contribute towards improving food security and reducing the incidence of malnutrition particularly among the children and as a direct support to generating employment and improving income among the rural poor. These efforts should anchor on massive genetic improvement and herd build-up, support to post-production infrastructure, sustainable market, and human resource development. The Philippine dairy industry produces only 1% of the country's total dairy needs, while the rest is imported. The major forms of dairy import are milk and cream valued at \$645M annually (National Dairy Authority, 2016). Imported liquid milk is mostly available as UHT (Ultra Heat Treatment) processed milk, which is not suitable for children due to nutrient loss during heat treatment (Liu & Holden, 2015). On the other hand, pasteurized milk is not readily available due to its limited volume and its perishable nature. The primary dairy cattle breed is a cross of the Sahiwal and Holstein-Friesian breeds, which are not suitable under Philippine conditions. The Sahiwal-Holstein cattle produces only 10 L of milk per day in the Philippines. Considering it is a large- framed cattle it requires	<ul style="list-style-type: none"> <li>Baseline performance data on existing dairy animals in the target regions</li> <li>Information on the genetic quality of existing dairy animals in the target regions</li> <li>Breeding strategy for genetic improvement formulated</li> <li>Database/ Institutionalized recording system for dairy farm performance</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>Dairy farmers</li> <li>Dairy cooperatives</li> <li>NDA</li> <li>Researchers</li> </ul>	01-Jul-18	30-Jun-20	NEW	6,204,835	2,526,167
Assisted Reproduction, Nutrition and Health Interventions for Enhancing Dairy Cattle Productivity and Milk Safety (Old Title: Science and Technology-based Interventions to Improve Dairy Cattle Productivity and Profitability in the Philippines)	Project 3. Development of Farm-Specific Precision Feeding System and Forage Production Protocols for Increased Productivity and Profitability of Dairy Farms(Old Title: Utilization of Indigenous Forages as a Component of the Feed Ration in the Dairy Cattle)	Rapid, inclusive and sustained economic growth	monogastric animals. Adjustment to feed changes requires the re-equilibration of microbial consortia in response to change in substrates from the ration. Unlike monogastric which will only adjust their voluntary feed intake and gastro-intestinal secretions, ruminants require an additional 7-day ruminal adjustment. In addition, since dairy animals are ideally bred to have lower fat stores (to minimize nutrient requirement for maintenance), its daily nutrient needs must be supplied primarily through the diets. Failure to provide consistent quality and quantity of essential nutrients will lead to poor milk production and quality, short lactation period, delayed rebreeding and poor subsequent reproductive performance. For example, a typical dairy farmer giving poor nutrition to his dairy cow can produce only 1540L per lactation (220 lactation days, 7 liters of milk/day) while a progressive farmer mindful of nutrient intake of its animals can produce 6000L of milk per lactation (300 lactation days, 20L milk/day). Assuming similar genetic potential of the animals and husbandry conditions, dairy cattle productivity can be increased by nearly 4 times. This does not include the quality of calves produced that may have higher	<p>It is expected that after the completion of the project, cost-effective and precise rations (total mixed rations, TMRs) for specific dairy herds in different regions. Manufacturing protocols, quality assurance procedures, feeding systems and waste disposal systems will be made available to dairy farmers to increase their farm productivity and standard of living. After 1.5 years, the technology will be shared to pilot farms such as Samahang Maggagatang Batangas Cooperative (eg. SAMABACO) and other NDA assisted dairy farmers for onfarm trials. With SAMABACOs members, the TMRs developed at DTRI will be applied in different farms considering the available feed resources and different husbandry conditions. A policy that will promote feed supply reliability and reduced cost will be drafted and proposed.</p>	UPLB	<ul style="list-style-type: none"> <li>Ruminant farmers</li> <li>dairy processors</li> <li>researchers</li> <li>students</li> </ul>	01-Jul-18	30-Jun-21	NEW	17,394,746	5,787,404

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Assisted Reproduction, Nutrition and Health Interventions for Enhancing Dairy Cattle Productivity and Milk Safety (Old Title: Science and Technology-based Interventions to Improve Dairy Cattle Productivity and Profitability in the Philippines)	Project 4. Development of Farm-specific Protocols for the Reduction of Subclinical Mastitis in a Dairy Enterprise(Old Title: Influence of Milking Preparation Procedures in the Degree of Subclinical Mastitis Levels in Selected Dairy Farms in South Luzon and Batangas - Development of Farm-specific Protocols for the Reduction of Subclinical Mastitis in the Small-Scale Dairy Enterprise)	Rapid, inclusive and sustained economic growth	low production in a typical dairy operation. There is an estimated loss of 1,500 pounds of milk per cow testing positive for the first time for subclinical mastitis (Kirkpatric, 2015). In the Philippines where dairying remain a fledgling industry, the main source of non-UHT milk are the small-holder farms, which keep from 1-100 head of dairy cows (BOI Report, 2011). The production of high quantities of good quality milk is hindered by constraints amongst which is subclinical mastitis. Contributory to this is the disparity of milking management practices amongst dairy producers. Poor udder health as related to high somatic cell counts ranks third as a major cause of involuntary culling in a dairy herd. Subclinical mastitis infections have no overt signs thus making it difficult to identify and detect. The milk remains visually normal and unaccompanied by udder changes such as pain and inflammation. Of the three major dairy herd problems, i.e. mastitis, fertility and lameness, mastitis is the disease that a well-planned health program can have the most economic impact on (Laven, 2013). However, to maximize effectivity of such a program, there is a need for a thorough recording	<ul style="list-style-type: none"> <li>Reduced incidence of mastitis in dairy cattle</li> <li>Increased milk production through practice of the recommended management programs for farmers</li> <li>Increased income of farmers from buffalo milk production</li> <li>Developed protocols for the detection of mastitis</li> <li>Enhanced capability of local researchers, scientists and dairy technicians in the diagnosis and control of mastitis</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>Animal Breeders of private and government farms</li> <li>Researchers, professors and students in animal science and veterinary medicine</li> <li>Field Veterinarians/Animal Extension Workers</li> <li>Dairy Farmers</li> </ul>	01-Jul-18	30-Jun-21	NEW	5,976,584	1,887,153
Assisted Reproduction, Nutrition and Health Interventions for Enhancing Dairy Cattle Productivity and Milk Safety (Old Title: Science and Technology-based Interventions to Improve Dairy Cattle Productivity and Profitability in the Philippines)	Project 5. Establishment of a Farm to Consumer Milk Quality and Safety Assurance Systems(Old Title: Establishment of Milk Quality and Safety System from Farm to Consumers)	Rapid, inclusive and sustained economic growth	and government-assisted dairy farms accounted for 75.43% or a total of 15,373 MT. Gross earnings in the dairy sector recorded at 5.07% increase from PHP621.5 Million in 2014 to PHP652.98 Million in 2015. The modest increase in dairy production was brought about by the increase in the number of dairy animals on the milk line particularly from cattle and higher volume of dairy production from the National Dairy Authority dairy multiplier farms. Safe milk is an important aspect that is being taken into account by all consumers. Its safety is also greatly considered around the world because milk can harbor food borne pathogens that could be due to unsafe and incorrect collection practices and improper processing of milk. The microbial load determines the value of milk. According to Republic Act No. 10611, an act to strengthen the food safety regulatory system in the country to protect consumer health and facilitate market access of local foods and food products of the Food Safety Act of 2013, the Department of Agriculture and the Department of Health shall arrange the obligatory food safety standards and the standards that was set by the Philippine National Standards (PNS) and the Codex Alimentarius Commission as the guide.	<ul style="list-style-type: none"> <li>Profile on the quality of the locally produced raw and processed dairy products.</li> <li>Manual for the production of safe and quality milk.</li> <li>Interventions to address issues on milk safety.</li> </ul>	UPLB	<ul style="list-style-type: none"> <li>Dairy cattle farmers in the target regions</li> <li>Dairy processors</li> <li>Distributors of raw milk and processed dairy products</li> </ul>	01-Jul-18	30-Jun-21	NEW	9,256,459	2,015,236
Conservation, Improvement and Profitable Utilization of the Philippine Native Pigs	Program Management Coordination	Rapid, inclusive and sustained economic growth	The project will develop improved postharvest technologies for coffee. Specifically, the project will develop the following: 1) mechanical and sensor-based machine for quality and color sorting of coffee beans; 2) medium-scale prototype coffee mechanical depulper with 20% increased capacity and pulp-parchment separation efficiency by at least 20%; 3) fabricated greenhouse solar dryer retrofitted with biomass furnace; 4) prototype unit of non-destructive moisture meter for dried coffee beans	Developed machineries for coffee postharvest activities (depulper, dryer, moisture meter, sorter)	MSC	Coffee farmers	01-Jul-15	30-Jun-20	ONGOING	2,150,000	424,625
Conservation, Improvement and Profitable Utilization of the Philippine Native Pigs	Project 1. Organized breeding and selection for the establishment of breeding true to type native pig populations in the Cordillera Administrative Region, Cagayan Valley, Calabarzon and Mimaropa regions	Poverty reduction and empowerment of the poor and vulnerable	Establish phenotypic and genetic characteristics of native pigs in Reg. CAR, 2 4a & 4b; Establish variations and heritability of economically important traits.; and Test selection and breeding methods for breed development. Develop community-based breeding and production model.	4 breeding true to type genetic groups of Philippine native pigs.	MSC, KASC, NVSU, BAI, BSU, MPSPC, ISU, UPLB	native pig raisers	01-Jul-14	30-Jun-19	ONGOING	39,336,853	4,086,266



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, 2018'	Total Project Cost	2018 PCAARRD GIA
Enhancing Milk Production of Water Buffaloes through S&T Interventions	Project 3. Development of Health Care Technologies and Practical Farm Practices in Support of Increasing Buffalo Milk Production	Rapid, inclusive and sustained economic growth	<p>☐ To establish epidemiological data (temporal and spatial data) for risk factor analysis including identification of predisposing causes affecting decreased milk production ☐ To develop technologies and effective farm management practices to reduce the incidence and economic impact of these diseases in dairy buffaloes</p> <p>4</p> <p>☐ To disseminate information and encourage farmers to adopt new and improved disease prevention and control measures as part of their routine farm practices ☐ To develop quick and reliable diagnostic protocols for early detection of infectious pathogens affecting milk production in water buffaloes</p>	<p>☐ Reduced incidence of fasciolosis, trypanosomiasis and mastitis in water buffaloes ☐ Increased milk production through practice of the recommended management programs for farmers ☐ Increased income of farmers from buffalo milk production ☐ Enhanced capability of local researchers, scientists and dairy technicians in the diagnosis and control of mastitis, fasciolosis and trypanosomiasis ☐ Developed protocols for the detection of infectious diseases</p>	PCC	<p>☐ Animal Breeders of private and government farms</p> <p>☐ Academe/Researchers</p> <p>23</p> <p>☐ Field Veterinarians/Animal Extension Workers ☐ Farmers</p>	01-Jan-16	31-Oct-19	ONGOING	10,695,839	3,559,009
Enhancing Milk Production of Water Buffaloes through S&T Interventions	Project 4. Milk Quality and Safety Assurance from Farm to Milk Processing Plant	Rapid, inclusive and sustained economic growth	<p>☐ To assess current collection and handling practices in relation to quality and safety of milk produced by smallholder dairy farmers ☐ To establish milk quality information at the farm level that will serve as guide for farmers in making adjustments of their feeding and management practices to maintain consistent milk quality throughout the lactation period of 300 days. ☐ To develop a milk quality testing protocol that can be performed by farmers at the farm level ☐ To generate milk quality data that will be used as inputs in establishing buffalo milk quality standards and as inputs in developing policies on buffalo milk pricing, marketing and distribution. ☐ To evaluate the socio-economic impact of S&amp;T interventions that promote buffalo milk quality and safety assurance.</p>	<p>☐ Baseline information on existing milk handling practices and farm level milk quality ☐ Farm level milk quality testing protocol ☐ Milk quality information as input to milk quality standards for buffalo milk ☐ Improved milk quality (as revealed by milk test results) compared to that at the start of the project (e.g. number or % samples with reduced microbial count, reduced acidity, increased specific gravity, etc.)</p>	PCC	<p>☐ All key actors in the value chain will benefit from the project. Direct beneficiaries include the smallhold milk producers, dairy cooperatives, federations, associations, milk collectors/transporters, milk quality control staff at the Milk Collection Center, milk processors and dairy plant managers. ☐ Extension workers, and those in the academe and researcher can be indirect beneficiaries of the project</p>	01-Jan-16	31-Oct-19	ONGOING	17,222,390	1,358,655
Enhancing Milk Production of Water Buffaloes through S&T Interventions	Project 5. Strengthening San Agustin Crossbred Carabao-based Enterprise Development (CBED) Model	Rapid, inclusive and sustained economic growth	<p>☐ To evaluate the effectiveness of science-based technology options in feeding, disease control, milk collection and handling and dairy farm management in strengthening the San Agustin Dairy Cooperative (SADACO) and in revitalizing the 13 organized groups of San Agustin who are engaged in enterprises based on milk production from crossbred and native carabaos. ☐ Develop a practical system of providing technical support services that would lead to the establishment of an 860 hd breedable female crossbreds (12% of which in the milk line) in the 13 organized groups by the end of 2018. ☐ Develop enabling strategies and mechanisms for SADACO and appropriate partner investors to operate the existing processing facility at about 300 liters raw milk per day; ☐ Create opportunities for SADACO to promote its products to wider markets and to enter into marketing agreements with established milk marketing and distribution businesses or groups. ☐ Generate science based-information that would be used as inputs to a resolution seeking inclusion of a municipal dairy development program in the Executive Legislative Agenda (ELA) of San Agustin LGU-.</p>	<p>☐ Information on the success drivers and innovation on the CBED model in San Agustin ☐ Novel technology transfer options for the adoption of breeding, feeding and management, health care and milk handling, transport, processing and pricing and marketing practices and systems by dairy buffalo farmers ☐ Four (4) clusters of functional production network covering the 13 dairy associations revitalized and actively engaged in the dairy supply chain – production, collection, processing and marketing with SADACO performing the pivotal role ☐ Inventory of breedable healthy female crossbreds reached a total of 868 heads by the end of 2018 (an increase of 15% from project start up to completion period) and 12% of breedable females in the milking line by 2018 ☐ Gross milk production of 10,920 liters by the last quarter of 2016, 76,650 liters in 2017 and 109,500 liters raw milk by 2018. Total gross milk production of 197,070 liters which is valued at Php8,868,150.00 within the three year period, if the milk per litter cost is set at Php45.00 ☐ The processing facility is put into operation with at least 300 liters raw milk per run, which will be translated into a value adding intervention ☐ Market links with at least 2 Institutional buyers ☐ Institutionalize the local dairy development program with the support of LGU-San Agustin</p>	PCC	500 carabao CB owners that own initially the 750 breedable female CBs	01-Jan-16	31-Oct-19	ONGOING	9,523,234	2,173,078
Feeds and Feeding Systems for the Improved Mallard Ducks	Project 3: Establishment of Feeding Sysytem for the Improved Philippine Mallard Duck Raised under Range Management System	Rapid, inclusive and sustained economic growth	to be able to establish feeding system of PMD at different stages under free management system	<p>1. Feeding program for the improved breed of Philippine mallard duck under range management system 2. Identified feed form that is most efficient to use at growing and laying stages under range management system 3. Identified stocking density for optimum performance of PMD at growing and laying stage raised under range management system 4. Identified effects of madre de agua supplementation on performance of PMD on range. 5. Identified levels of mixed feed supplementation for PMD on range. 6. Evaluation of different fauna and flora in the herd. 7. Publications</p>	CLSU	Duck Raisers, duck breeders, feed millers	01-Jul-17	31-Dec-18	COMPLETED	3,141,265	615,571
Innovative Marketing and Distribution Strategies for Balut and New Products	Project 1. The Culture of Balut Production and Consumption (Oldt Title: Ethnography of Philippines' Balut Culture)	Poverty reduction and empowerment of the poor and vulnerable	The efficiency of marketing strategies for Philippine ethnic delicacies is highly dependent on understanding the processes, rituals, and human intersections with relation to Balut as a cultural product.	<p>1. History of Balut making and consumption in the country</p> <p>2. Description of the organizational culture (formal and informal) within the Balut industry</p> <p>3. Comprehensive information and analysis on balut as a cultural product based on consumer's perspective</p>	UST	Duck egg industry players, producers and consumers	01-Jul-18	31-Dec-19	NEW	857,671	700,398

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Innovative Marketing and Distribution Strategies for Balut and New Products	Project 2. Analysis of Nutraceutical Contents of Balut (Old Title: The Potential of Balut for Health and Human Nutrition)	Poverty reduction and empowerment of the poor and vulnerable	Provide empirical evidence on the nutritional significance of balut. Chemical analysis of balut will be carried out in accordance to standard published methods	<ul style="list-style-type: none"> <li>Quantification of energy, protein, fatty acids, moisture, ash, dietary fiber, beta carotene, iron, calcium, phosphorus, ascorbic acid, total reducing sugars, total carbohydrate, Vitamin D, Vitamin E, Vitamin K, Vitamin B6, Vitamin B12, pantothenic acid, biotin, folate, choline, cholesterol, saturated fats, monounsaturated and polyunsaturated fats, DHA, EPA, calcium, phosphorus, iron, thiamin, riboflavin, niacin, chloride, cobalt, sulphur, copper, manganese, selenium, zinc, and iodine</li> <li>Percent contribution to recommended energy and nutrient intake</li> <li>Comparative analysis of whole balut and its separate components – yolk, duck embryo and white</li> </ul>	UST	local balut producers, Consumers and researchers	01-Jul-18	31-Dec-19	NEW	1,179,398	1,042,013
Innovative Marketing and Distribution Strategies for Balut and New Products	Project 3. Innovative Marketing and Distribution System of Ethnic Duck Egg Delicacies and New Products (Old Title: Innovative Marketing and Distribution System for Ethnic Duck Egg Delicacies and New Products and Prototype Development of Balut Vending Machine and Packaging Material for Duck Egg Product)	Poverty reduction and empowerment of the poor and vulnerable	A marketing plan and a distribution plan are relevant in providing effective strategies that promote industry growth and better resource allocation. It is imperative that this research develops a marketing and distribution plan for the balut industry, as this can create backward and forward linkages that foster local employment and increase economic activity.	<ul style="list-style-type: none"> <li>Established historical context to the processes and agents that have allowed for the creation of balut as a cultural icon</li> <li>Established niche of balut in the street food sector that could be a basis for marketing plans of the product</li> <li>Established organizational context to the production and sale of balut</li> <li>Narrative report on the country's balut culture</li> <li>Established consumer-based context on the patronage of balut</li> <li>Established information for exploring marketing strategies to increase demand for balut</li> <li>Established information to aide marketing studies on balut to avoid failure studies</li> <li>Established database of balut industry's supply and distribution rate in the country</li> <li>Established information to aide in rebranding of duck egg products</li> </ul>	UST	Duck raisers, duck egg industry, and other related duck industry stakeholders	01-Jul-18	31-Dec-19	NEW	2,962,931	2,455,048
Innovative Systems in Advancing Halal Goat Production in Region 12 and ARMM	Project 2. Establishment of Halal Goat Enterprises thru the FLS-Halal GEM in Region XII	Rapid, inclusive and sustained economic growth	This project will promote the halal assurance protocols to farmers, certifying bodies, LGU counterparts as well as DA, ATI and NCMF representatives from Region 12 and ARMM using the FLS-Halal GEM. This is to ensure the “halalness” or halal integrity of products from production to processing.	<p>Year 1 ☐ Optimized LAMP assays for swine, horse and dog meat (Q3) ☐ 50 Regional FLS facilitators trained on FLS-Halal GEM implementation (Q3) ☐ 100 farmers trained via FLS -Halal GEM (Q4) ☐ SKSU Agro-Mechanic Building as Halal Small Ruminants</p> <p>Slaughterhouse and Processing Center (Q4) ☐ Local ordinance on the use of the slaughterhouse (Q4)</p> <p>Year 2 ☐ PNS on halal goat husbandry &amp; quality assurance (Q1) ☐ Philippines recommends for halal goat production, processing and marketing (Q2) ☐ Ordinance on the establishment of the halal gateway in GenSan (Q2) ☐ Marketing strategy for halal goat (Q2) ☐ Positive control or reference template for swine, horse and dog meat (Q2) ☐ Rapid test kit for haram detection (Q3) ☐ 1 Field day - Techno clinic (Q2) ☐ Media and stakeholders' forum (Q2) ☐ Data on Sensitivity and specificity of LAMP with PCR (Q3) ☐ Data on adulterated meat products using the LAMP assay (Q3) ☐ 150 farmer-graduates from FLS -Halal GEM (Q4)</p>	SKSU	Goat raisers; Processors, Halal certifying bodies, NCMF, Livestock policy-making bodies (DA-PCAF, BAI, NMIS)	01-Jul-16	28-Feb-19	ONGOING	1,803,884	425,248
Innovative Systems in Advancing Halal Goat Production in Region 12 and ARMM	Project 3. Institutionalizing Innovations on Halal Goat Production, QA and Processing thru Policy and Marketing Schemes	Rapid, inclusive and sustained economic growth	Project 3 will address the need to institutionalize policies to push halal goat enterprise development in Region 12 and ARMM.	<p>Year 1 ☐ Optimized LAMP assays for swine, horse and dog meat (Q3) ☐ 50 Regional FLS facilitators trained on FLS-Halal GEM implementation (Q3) ☐ 100 farmers trained via FLS -Halal GEM (Q4) ☐ SKSU Agro-Mechanic Building as Halal Small Ruminants</p> <p>Slaughterhouse and Processing Center (Q4) ☐ Local ordinance on the use of the slaughterhouse (Q4)</p> <p>Year 2 ☐ PNS on halal goat husbandry &amp; quality assurance (Q1) ☐ Philippines recommends for halal goat production, processing and marketing (Q2) ☐ Ordinance on the establishment of the halal gateway in GenSan (Q2) ☐ Marketing strategy for halal goat (Q2) ☐ Positive control or reference template for swine, horse and dog meat (Q2) ☐ Rapid test kit for haram detection (Q3) ☐ 1 Field day - Techno clinic (Q2) ☐ Media and stakeholders' forum (Q2) ☐ Data on Sensitivity and specificity of LAMP with PCR (Q3) ☐ Data on adulterated meat products using the LAMP assay (Q3) ☐ 150 farmer-graduates from FLS -Halal GEM (Q4)</p>	SKSU	Goat raisers; Processors Halal certifying bodies, NCMF and local laboratories Livestock policy-making bodies (DA-PCAF, BAI, NMIS)	01-Jul-16	28-Feb-19	ONGOING	1,574,008	589,760

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
Innovative Systems in Advancing Technology-Based Goat Production	Project 1.1 Organized Breeding and Selection of Individuals with Similar Morphometric Characteristics	Poverty reduction and empowerment of the poor and vulnerable	To produce 500 goats with uniform morphometric characteristics thru an organized breeding & selection program in selected farms in Region 2	Established breeding program Uniform quality of stocks 1 Breed registration for CV signature goat 1 Liquid nitrogen gas plant 10 Multiplier farms for CV goat breed 2 New nucleus/ breeder farms for selected elite CV goats	ISU	Goat raisers;Livestock policy-making bodies	01-Apr-17	31-Mar-20	ONGOING	13,442,928	1,613,548
Innovative Systems in Advancing Technology-Based Goat Production	Project 1.2. Application of Assisted Reproduction Protocols in Support of the Establishment of CV Signature Goat Populations	Poverty reduction and empowerment of the poor and vulnerable	To develop an optimized protocol on ET in support of the establishment of CV signature goat populations	1 utility model (UM) for pregnancy detection kit 1 prototype goat pregnancy detection kit	ISU	Goat raisers FGASPAPI	01-Apr-17	31-Mar-20	ONGOING	6,306,420	1,374,001
Innovative Systems in Advancing Technology-Based Goat Production	Project 2. Development of Non-Invasive Pregnancy Detection Kit for Goat	Poverty reduction and empowerment of the poor and vulnerable	To develop portable pregnancy detection kit for goat	1 utility model (UM) for pregnancy detection kit 1 prototype goat pregnancy detection kit	ISU	Goat raisers FGASPAPI	01-Apr-17	31-Mar-19	ONGOING	2,415,312	807,544
Innovative Systems in Advancing Technology-Based Goat Production	Project 4. Roll-out of Technology-based Options in Region I, II, III, V, VII, VIII, XI, XII and CAR	Poverty reduction and empowerment of the poor and vulnerable	To promote goat-based technologies using FLS-GEM to Regions 1,2,3,5,7,8,10,11, 12 and CAR	1 copyright for FLS-GEM manuals Revised FLS-GEM manuals Vol 1&2 10 MOUs signed with various stakeholders for FLS implementation 6000 farmers trained on GEM 300 facilitators trained on FLS-GEM implementation	ISU	Goat raisers FGASPAPI LGUs and AEWs	01-Apr-17	31-Mar-20	ONGOING	16,377,296	11,481,031
Strategic Interventions for Sustainable Production of Marinduke Native Pigs (Old Title: S&T Based Intensification and Pilot Demonstration of Integrated Services and Systems to Native Pig Production in Marinduke)	Project 1. Improvement of productive and reproductive performance of nucleus Marinduke breeders(Old Title: Enhancement of Nucleus Breeding Operation for Ensured Supply of Grandparental Stock of Marinduke Pig)	Rapid, inclusive and sustained economic growth	<ul style="list-style-type: none"> <li>Establish breeding strategies (selection criteria and mating system) for improved litter size, growth, carcass quality, and adaptation ability,</li> <li>Establish the economic and breeding values of litter size, growth, carcass quality, and adaptation ability,</li> <li>Establish predictive reproduction and production parameters and models</li> </ul>	<ul style="list-style-type: none"> <li>Breeding and selection protocols/strategies for improved litter size, growth, carcass quality, and adaptation ability</li> <li>Economic and breeding values of litter size, growth, carcass quality, and adaptation ability</li> <li>Predictive production and reproduction parameters and models</li> <li>250 Breeder Marinduke pigs</li> <li>Performance data of breeder Marinduke pigs in the nucleus farm</li> </ul>	MSC	☒ Native pig farmers and Entrepreneurs ☒ Native pig consumers ☒ Institutional markets ☒ Academic professionals (Researchers and Faculty) and students ☒ Development planners and policy makers	01-Jul-18	30-Jun-21	NEW	15,939,040	6,164,518
Strategic Interventions for Sustainable Production of Marinduke Native Pigs (Old Title: S&T Based Intensification and Pilot Demonstration of Integrated Services and Systems to Native Pig Production in Marinduke)	Project 2. Performance and profitability testing of Marinduke pig at farmers field(Old Title: Proj. 2 Establishment of Multiplier Farms for Mass Production of Parental Stock and Commercial Stock of Marinduke Pig)	Rapid, inclusive and sustained economic growth	<ul style="list-style-type: none"> <li>Establish the institutional and private multiplier farms for mass production of parental stocks and slaughter native pig,</li> <li>Establish the production and reproduction performances of Marinduke pig under private multiplier farms condition</li> <li>Establish the breeding strategies (selection criteria and mating system) for improved litter size, growth, carcass quality, and adaptation ability under multiplier farms condition,</li> <li>Establish the economic and breeding values of litter size, growth, carcass quality, and adaptation ability under multiplier farms condition,</li> <li>Establish the genetic combining ability and degree of heterosis in commercial stocks (terminal stocks) of Marinduke pig</li> <li>Establish the socio-economic contribution of native pig production to farmers</li> <li>Develop a mobile application for online marketing of native pigs and its products</li> <li>Conduct technology and livelihood seminars and trainings, and develop IEC materials on native pig production, forage crop production, and feed quality enhancement technology</li> </ul>	<ul style="list-style-type: none"> <li>Institutional and private multiplier farms established for mass production of parental stocks</li> <li>Production and reproduction performance data of Marinduke pig under multiplier farms</li> <li>Breeding and selection strategies (selection criteria and mating system) applicable in multiplier farms</li> <li>Data on economic and breeding values of litter size, growth, carcass quality, and adaptation ability under multiplier farms</li> <li>Information on genetic combining ability and degree of heterosis in commercial stocks (terminal stocks) of Marinduke pig</li> <li>Performance data of breeder Marinduke pigs in the nucleus farm</li> <li>Parental/commercial stocks of Marinduke pig</li> <li>Slaughter native pig for Lechon</li> <li>Data on socio-economic contribution of native pig production in Marinduke</li> <li>Linkages and networks established among academic and industry partners</li> <li>Mobile application for online marketing of native pigs</li> <li>Conducted technology and livelihood seminars and trainings</li> <li>Trained MSC R&amp;D workers, farmers, private entrepreneurs and LGU agri workers</li> <li>IEC materials on native pig production, forage crop production, and feed quality enhancement technology</li> </ul>	MSC	☒ Native pig farmers and Entrepreneurs ☒ Native pig consumers ☒ Institutional markets ☒ Academic professionals (Researchers and Faculty) and students ☒ Development planners and policy makers	01-Jul-18	30-Jun-21	NEW	5,905,329	2,032,860
Strategic Interventions for Sustainable Production of Marinduke Native Pigs (Old Title: S&T Based Intensification and Pilot Demonstration of Integrated Services and Systems to Native Pig Production in Marinduke)	Project 3. Sustainable production of feeds in support to Marinduke pig production (Old Title: Proj. 3 Large-scale and Consolidated Feed Resources Production and Range Management System for Marinduke Pig)	Rapid, inclusive and sustained economic growth	<ul style="list-style-type: none"> <li>Establish a five–hectare forage plantation in the nucleus farm, and at least one-hectare forage plantation in multiplier farms,</li> <li>Establish the land carrying capacity and biomass production of forage crops in multiplier farms,</li> <li>Develop silage and nutrient-enhanced feed resources for Marinduke pig,</li> <li>Establish the nutrient requirements and recommended feed formulation of Marinduke pig</li> </ul>	<ul style="list-style-type: none"> <li>Nutrient requirement and feed formulations for Marinduke pig</li> <li>Established five–hectare forage plantation in the nucleus farm, and at least one-hectare forage plantation in multiplier farms</li> <li>Data on land carrying capacity and biomass production of forage crops in multiplier farms</li> <li>Silage processing and other nutrient-enhanced feed resources technologies for Marinduke pig</li> </ul>	MSC	☒ Native pig farmers and Entrepreneurs ☒ Native pig consumers ☒ Institutional markets ☒ Academic professionals (Researchers and Faculty) and students ☒ Development planners and policy makers	01-Jul-18	30-Jun-21	NEW	13,895,079	5,016,780
Sustainable Production, Marketing and Utilization of Established and Improved Bolinao Chicken in Ilocos Region	Project 1. Genetic Improvement Porgram for Bolinao Chicken through Conventional and Molecular Approaches	Poverty reduction and empowerment of the poor and vulnerable	To develop an improved true-to-type Bolinao chicken in Ilocos through phenotypes, molecular markers and preferences of potential users.	a. A compendium of the phenotypic characters of Bolinao chicken in Ilocos. b. Description of the population structure of Bolinao chicken in Ilocos. c. Baseline information of the existing indigenous practices.	MMSU	a. Policy makers b. Breeders c. Geneticist d. Researchers e. Livestock Farmers f. Students	01-Jan-18	31-Dec-20	NEW	5,571,619	1,928,873

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Sustainable Production, Marketing and Utilization of Established and Improved Bolinao Chicken in Ilocos Region	Project 2. Sustainable Feeding and Management Systems for Bolinao Chicken	Poverty reduction and empowerment of the poor and vulnerable	To optimize the performance of Bolinao chicken through improved nutrition and management.	A. 1 Utility model for feed formulation and patent for feed ingredients B. Improved cultural management practices for Bolinao native chicken C. 2 Publications related to feeding and brooding and hatchery management for Bolinao native chicken	DMMMSU	a. Policy makers b. Breeders c. Geneticist d. Researchers e. Livestock Farmers f. Students	01-Jan-18	31-Dec-20	NEW	5,514,810	1,838,270
Sustainable Production, Marketing and Utilization of Established and Improved Bolinao Chicken in Ilocos Region	Project 3. Market Analysis and Product Development of Bolinao Native Chicken	Poverty reduction and empowerment of the poor and vulnerable	To develop a marketing strategy for Bolinao chicken through market analysis and product development.	A. Evaluated the supply chain of native chicken in Region I B. Gathered primary and secondary data of key players. C. Developed interventions marketing strategies and value-adding techniques D. Developed various marketing strategies and value-adding techniques. E. Established marketing channels of native chickens.	MMSU	a. Policy makers b. Breeders c. Geneticist d. Researchers e. Livestock Farmers f. Students	01-Jan-18	31-Dec-20	NEW	4,494,420	1,498,140
Sustainable Production, Marketing and Utilization of Established and Improved Bolinao Chicken in Ilocos Region	Project 4. Technology Transfer and Partnership with the Private Sector towards Sustainable Production of Bolinao Chicken (Old Title: Establishment of Model Farms Implementing the Package of Technology for the Production of Bolinao Chicken	Poverty reduction and empowerment of the poor and vulnerable	To establish nucleus and multiplier farms using the technologies developed for the sustainability of supply of Bolinao chicken in Ilocos	A. Characterized prospect private partners in terms of their resources and trainings needed. B. Conducted training to capacitate farmers on how to mangae Bolinao chicken. C. Establish demo farm from Package of technology. D. Prepared training modules and conducted hands-on demonstration to farmers. E. Implemented the Package of technology and Monitored the dispersal of the Bolinao Native Chicken.	MMSU	a. Policy makers b. Breeders c. Geneticist d. Researchers e. Livestock Farmers f. Students	01-Jan-18	31-Dec-20	NEW	3,784,317	1,261,439
	Capacity Building for Reef Assessment and Coral Taxonomy (Old Title: Training on Reef Assessments and Coral Taxonomy (TRACT))	Rapid, inclusive and sustained economic growth	1. Provide training and capacity building on coral taxonomy and the conduct of full reef assessments and monitoring methods; 2. Update and upgrade the existing reference collections (for specimens of coral skeletons) 3. Complete the Red List of Philippine corals for the implementation of relevant provisions under RA 10654.	1. Training modules 2. Updated Coenomap website 3. Electronic field guides on 9 families 4. Refined Coenomap website 5. Refines survey manual and protocol booklet for reef assessments 6. Posters 7. Survey manual and protocol booklet for reef assessments 8. Red list of Philippine corals and an identification guide for these species	DLSU	Beneficiaries include primarily those involved in assessments and monitoring of coral reefs most especially those in LGUs who have coral reef related work.	01-Oct-17	30-Sep-19	ONGOING	4,999,555	1,176,854
	CEPA (Communication, Education and Public Awareness) and policy review towards improving coastal erosion management in the Philippines	Integrity of the environment and climate change adaptation and mitigation	1. To promote awareness of various stakeholders on the problem of coastal erosion; 2. To enhance knowledge, awareness and capacity for coastal erosion management through the development of appropriate communication, education and public awareness materials for specific target audiences; 3. To review existing policies related to coastal erosion; and, 4. To identify policy gaps and recommend new policies for coastal erosion management	End of the project Outputs • CEPA materials (leaflets, posters, modular primers, teaching materials) • Capacitated tertiary teachers (members of the PCAARRD Consortia and other SUCs) • Policy recommendations for coastal management that PCAARRD can advocate before a legislative body  Year 1 • Webpage • Policy Review • Training • Pre-tested CEPA materials  Year 2 • Final drafts of CEPA materials • Finalized website • Policy recommendations	UPD	Tertiary teachers and students, NGAs, LGUs, DRRRM practitioners, stakeholders, coastal residents, PCAARRD	15-Sep-16	14-Dec-18	COMPLETED	4,999,357	931,345



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Current Status and Resilience of Coral Reefs in Lagonoy Gulf, Eastern Bicol	Rapid, inclusive and sustained economic growth	<p>The general objective of this project is to assess the current status and resilience of coral reefs taking note of the three key functional groups (herbivores, algae, and corals) and two environmental variables (habitat complexity and water depth) that are noteworthy in light of recovery potential (resilience) of coral reefs against future disturbances and the socio-economics characteristics in each study sites.</p> <p>The specific objectives are to conduct:</p> <ol style="list-style-type: none"> <li>1. Quantitative assessment on the three key functional groups, herbivores (fishes, sea urchins and gastropods), algae (macro and filamentous algae), and reef-building corals (adults and juveniles) at 10 selected reef sites in Bicol region.</li> <li>2. Comparative assessment of the three key functional groups inside and outside MPAs to evaluate the role of MPAs and coral reef resilience in six selected MPAs in Bicol region.</li> <li>3. Describe the socio-economic characteristics in the study sites and determine its influence on the overall resiliency of the coastal ecosystem.</li> </ol>	<ul style="list-style-type: none"> <li>Ⓐ IEC on coral reef resiliency</li> <li>Ⓐ Maps and databases Publication</li> <li>Ⓐ 2-3 research paper in ISI or peer reviewed journal</li> <li>Ⓐ Submission of Abstract and presentation in two (2) prestigious International Coral Symposium <ul style="list-style-type: none"> <li>o Asia Pacific Coral Reef Symposium on June 2018 at Cebu City, Philippines.</li> <li>o International Coral Reef Symposium on June 2020 at Bremen Germany</li> </ul> </li> <li>Ⓐ At least 2-3 National conference presentation <ul style="list-style-type: none"> <li>o PAMS</li> <li>o NRS</li> <li>o FIMFS</li> </ul> </li> <li>Ⓐ Patents</li> <li>Ⓐ At least 5 copyrights on Maps and IEC materials produced</li> <li>Ⓐ People Services</li> <li>Ⓐ 4 University personnel trained on reef assessment methodologies, data processing and analyses especially in relation to reef resiliency.</li> <li>Ⓐ 1 seminar-workshop organized (at least 50 participants) for LGUs and CRM practitioners on reef resilience and establishment of MPA.</li> <li>Ⓐ Places and Partnerships</li> <li>Ⓐ 10 – MOA (between Bicol University and the 10 Municipalities covered in this study).</li> <li>Ⓐ Partnership and collaboration with Partido State University (PaRSU) in Camarines Sur, Catanduanes State University (CatSU) and Bicol University</li> </ul>	BU	Regulatory Bodies such as BFAR and DENR, LGU's of 9 municipalities and 1 city and Researchers and Academicians of Partido State University (PaRSU) in Camarines Sur; Catanduanes State University (CatSU) and Bicol University	01-Nov-17	31-Oct-20	ONGOING	4,989,572	743,398
	Deep Fish 360: Development of a Mesophotic Reef Fish Imaging System	Rapid, inclusive and sustained economic growth	<p>This project will contribute in addressing limitations in the conduct of research activities in the mesophotic areas by developing a reef fish imaging technology that would allow researchers to gather fisheries data using photo transects. A stereo camera system will be mounted on an ROV for conducting video transect measurements of fish assemblages and the associated video analysis software that can estimate fish count, population density, size, species distribution and biomass. This system is intended for baseline measurements to provide permanent visual records that can be analyzed by experts for long term studies of mesophotic ecosystem changes across spatial and temporal scales. Further it will allow the conduct of longer and more frequent transect surveys in both horizontal and vertical directions at lower costs and without the diver risks inherent in deep dives (e.g. risk of deep decompression diving).</p>	<ul style="list-style-type: none"> <li>Ⓐ Publications</li> <li>Ⓐ 2 peer reviewed papers</li> <li>Ⓐ Patents</li> <li>Ⓐ 1 copyright or patent on the ROV and software</li> <li>Ⓐ Products</li> <li>Ⓐ ROV with software for counting, identification and biomass estimation of fishes found at mesophotic depths</li> <li>Ⓐ People and Services</li> <li>Ⓐ Training of personnel (5) in the use of the ROV: researchers from UP MSI and UP Mindanao</li> <li>Ⓐ Year 1 Outputs</li> <li>Ⓐ A mesophotic reef fish imaging system for efficient image capture of underwater video sequences of mesophotic fish species through a custombuild</li> <li>Ⓐ ROV-mounted camera rig system</li> <li>Ⓐ Year 2 Outputs</li> <li>Ⓐ Software for semi-automated estimation of fish count, size, biomass and species identification of mesophotic fish</li> </ul>	UPD	Researchers/scientists LGUs and NGOs tasked with monitoring the marine ecosystem	01-Sep-18	29-Feb-20	NEW	4,999,481	3,758,780
	Establishing patterns between Harmful Algal Blooms and weather phenomena in support of early-warning systems (Old Title: Linkages between HAB and Weather Phenomena)	Integrity of the environment and climate change adaptation and mitigation	<p>The primary objective of this project is to determine the linkage of harmful algal blooms with weather phenomena, particularly this current ENSO. In particular, the project aims to:</p> <ul style="list-style-type: none"> <li>• Analyze plankton succession, including the potential increase and decline of HAB organisms during the ENSO phenomenon (i.e., during and after the El Nino; before, during and after the La Nina; reversion to normal conditions)</li> <li>• Analyze the physico-chemical conditions co-occurring with increases and declines of HAB organisms during the ENSO phenomenon</li> <li>• Establish patterns between HABs and ENSO and/or weather phenomena that can be used for developed or to-be developed HAB models for early-warning systems</li> </ul>	<ul style="list-style-type: none"> <li>• Time series data on HAB organisms, other phytoplankton and physico-chemical conditions through weather phenomena, particularly the ENSO</li> <li>• Time series data on physico-chemical conditions in the target sites through weather phenomena, particularly the ENSO</li> <li>• Increased understanding of HABs in relationship to recurrent weather phenomena such as ENSO that can be used to refine the existing biophysical and early-warning models for HABs and inform HAB response and management efforts</li> <li>• Validated and refined SeAHABS</li> </ul>	UPD	Bureau of Fisheries and Aquatic Resources (BFAR) • LGUs & NGAs • Shellfish industry, mariculture industry • Academe, researchers/scientists	03-Jan-17	02-Jan-19	ONGOING	4,989,376	2,380,070

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Harvesting and Utilization of the Green Tide Algal Mass in Boracay	Rapid, inclusive and sustained economic growth	The project will harvest the algal mass and provide alternative livelihood to displaced Boracay workers, and converting the algal mass, initially into biocharcoal. Biocharcoal is a product with a lot of functional utilities.	1. The algal product, or an ingredient to the product characterized as to its suitability and limits; and 2. Algal product performance, or algal ingredient to the product, evaluated against the product standard performance.	UPV	1. Local people dependent on or who derived their livelihood from the Boracay tourism industry (cleaner beaches); 2. Local residents for alternative livelihood opportunities from the research results; and 3. Researchers and scientists	01-Sep-18	31-Aug-19	NEW	1,600,000	1,600,000
	Kuroshio Current Observing System in the Philippines: Remote observations of the interactions of the Kuroshio with Internal Tides and Mesoscale Currents in Luzon Strait by High Frequency Doppler Radio Scatterometer	Rapid, inclusive and sustained economic growth	The main objective of the project is to deploy two systems of land-based High Frequency Doppler Radio Scatterometers (HFDRS) on the North coast of Luzon, with the eventual aim of mapping the surface currents, surface waves and wind direction hourly over a three-year period. Specifically, the proposal seeks to: • Generate key information on the horizontal structure of internal wave trains and the interactions of the Kuroshio with internal tides and mesoscale currents in southern Luzon Strait such as meanders and eddies formation; • Provide information about internal tide generation, propagation and energetics over topography between the Batanes and Babuyan Group of Islands; and • Evaluate the HFDRS data based on existing ocean observing means, and to verify the HFDRS products with sea-truth and remote sensing data.	Products • Database of surface currents and in-situ data • Time-series oceanographic data Publication • 3 Scientific Journals People Services • 10 Trained Personnel • 5 Graduate Students - 4 MS Marine Science students - 1 PhD student Partnerships • MOA with University of Hawaii and Woods Hole Oceanographic Institution Policy • S&T based information that will input into policy or guidelines for conservation and management of marine resources for Southern Luzon Strait	UPD	Philippine government agencies/ academe/ researchers who use surface current maps for maritime safety, search and rescue operations, weather forecasting, maritime enforcement, marine science, oceanographic research and fisheries.	16-Dec-17	15-Dec-20	ONGOING	35,609,106	11,031,362
	Optimization and Pilot Testing of the Developed Drying System for Seaweeds	Rapid, inclusive and sustained economic growth	The project is about the optimization and pilot testing of a developed village-level seaweed dryer (floating and permanent prototype) which will provide the optimum operating parameters of the developed drying system for a more efficient drying operations.	Product: Commercial prototype of the seaweed drying system Publication: 1 Operator's Manual; 2 Technical Brochure (floating and permanent type); 1 Published Technical Paper; and 3 Paper presentations People: 4 Trainings on Operations Repair and Maintenance (ORM) Places and Partnerships: Partnership with BFAR 4A and DOST 4B; & Licensing Agreement	UPLB	Small to Medium-Scale farmers and farmers' groups that lack of the technology to properly dry their seaweed harvest.	16-Jun-18	15-Jun-20	NEW	4,968,142	2,666,571
Assessing the Status of Giant Clams and Advancing Culture Techniques	Project 1. Evaluating the status of giant clams in Luzon and Visayas	Rapid, inclusive and sustained economic growth	The main objectives of the project are to examine the status of giant clam restocking efforts, especially on replenishing local stocks, and assess the adaptation of reseeded and naturally occurring giant clams to environmental changes  The specific objectives are to: 1. Survey giant clam recruitment in selected restocking sites 2. Assess giant clam biodiversity in selected sites in selected Philippine biogeographic regions differentially impacted by climate change induced thermal stress 3. Examine the zooxanthellae composition of wild and restocked giant clams in selected biogeographic regions 4. Conduct information dissemination activity to coastal communities and other stakeholders	selected sites in selected Philippine biogeographic regions differentially impacted by climate change induced thermal stress 2) Status of giant clams especially on giant clam recruitment 3) Zooxanthellae clades in Tridacna gigas and T. crocea or T. squamosa identified and mapped against thermal regimes of selected biogeographic regions 4) Information, Education, and Communication (IEC) materials distributed and biodiversity and climate change knowledge of communities enhanced 5) Online updates and press releases about project activities and outputs 6) Training workshop on biodiversity survey and thermal stress impact assessment and information dissemination activity (at least one at each of the twelve sites) to coastal community 7) Trained at least two staff in molecular techniques 8) Training and thesis support for at least one (1) MSc or PhD graduate student 9) At least one (1) manuscript prepared for publication on giant clam restocking and impact of thermal stress on giant clams 10) Manual on monitoring of giant clam populations and identification of zooxanthellae clades 11) Video production summarizing the output of the Program 12) Policy recommendations for giant clam aquaculture approaches and giant clam conservation policies in the Philippines that may be utilized by other government agencies, such as DENR and BFAR End of the project deliverables/outputs by 6Ps Publications ISI Publication ☐ Biodiversity of giant clams in selected sites representing Philippine biogeographic regions differentially impacted by climate change induced thermal stress ☐ Impact of past giant clam restocking efforts especially on giant clam recruitment ☐ Zooxanthellae clades in Tridacna gigas and T. crocea identified and mapped against thermal regimes of selected biogeographic regions Non-ISI Publications Primer ☐ Giant clam restocking and impact of thermal	UPD	1. Local communities including the local government units (LGUs) that will be involved in the monitoring and conservation efforts. The results of the proposed project will be disseminated through information, education and communication (IEC) materials to help promote giant clam restocking, monitoring and conservation efforts to relevant coastal communities and government agencies. 2. Fishers and other direct users of goods from coral reef ecosystems: giant clams contribute to reef restoration and will in the long-term contribute to the delivery of valuable goods and ecosystem services. 3. Research/scientific community: data obtained from these studies will provide further avenues for research related to understanding the biodiversity and growth of giant clams 4. Students: the project will support graduate student research and serve as a platform for the training of students in giant clam culture techniques and transcriptome data generation and analysis	01-Feb-18	31-Jan-21	NEW	19,161,341	4,853,999

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Assessing the Status of Giant Clams and Advancing Culture Techniques	Project 2. Evaluating the status of giant clams in Palawan	Rapid, inclusive and sustained economic growth	<p>The main objectives of the project are to examine the status of giant clam restocking efforts, especially on replenishing local stocks, and assess the adaptation of reseeded and naturally occurring giant clams to environmental changes</p> <p>The specific objectives are to: 1. Survey of giant clam recruitment in selected restocking sites 2. Assess giant clam biodiversity in selected sites in Palawan 3. Conduct information dissemination activity to coastal communities and other stakeholders</p>	<p>selected sites in selected Philippine biogeographic regions differentially impacted by climate change induced thermal stress (in connection with project 1) 2) Status of giant clams especially on giant clam recruitment 3) Information, Education, and Communication (IEC) materials distributed and biodiversity and climate change knowledge of communities enhanced 4) Online updates and press releases about project activities and outputs 5) Training workshop on biodiversity survey and thermal stress impact assessment and information dissemination activity to coastal community 6) Training and thesis support for at least one (1) undergraduate or MSc or PhD graduate student 7) Video production summarizing the output of the Program (in connection with Project 1) 8) Policy recommendations for giant clam aquaculture approaches and giant clam conservation policies in the Philippines that may be utilized by other government agencies, such as DENR and BFAR</p> <p>End of the project deliverables/outputs by 6Ps</p> <p>Publications ISI Publication ☐ Biodiversity of giant clams in selected sites representing Philippine biogeographic regions differentially impacted by climate change induced thermal stress (in connection with Project 1)</p> <p>Non-ISI Publications Primer ☐ Giant clam restocking and impact of thermal stress on giant clams Manual ☐ Manual on monitoring of giant clam populations and identification of zooxanthellae clades (in connection with Project 1) Video Production ☐ Video production summarizing the output of the Program ☐ Press releases about project activities and outputs</p> <p>Products Knowledge ☐ Giant clam populations ☐ Biodiversity of giant clams as differentially impacted by climate change induced thermal stress (in connection with Project 1)</p> <p>People and Services ☐ Undergraduate/Graduate student research supported</p>	WPU	<p>1. Local communities including the local government units (LGUs) that will be involved in the monitoring and conservation efforts. The results of the proposed project will be disseminated through information, education and communication (IEC) materials to help promote giant clam restocking, monitoring and conservation efforts to relevant coastal communities and government agencies.</p> <p>2. Fishers and other direct users of goods from coral reef ecosystems: giant clams contribute to reef restoration and will in the long-term contribute to the delivery of valuable goods and ecosystem services. 3. Research/scientific community: data obtained from these studies will provide further avenues for research related to understanding the biodiversity and growth of giant clams 4. Students: the project will support graduate student research and serve as a platform for the training of students in giant clam culture techniques and transcriptome data generation and analysis</p>	01-Feb-18	31-Jan-21	NEW	3,803,277	723,341
Assessing the Status of Giant Clams and Advancing Culture Techniques	Project 3. Evaluating the status of giant clams in Mindanao	Rapid, inclusive and sustained economic growth	<p>The main objectives of the project are to examine the status of giant clam restocking efforts, especially on replenishing local stocks, and assess the adaptation of reseeded and naturally occurring giant clams to environmental changes</p> <p>The specific objectives are to: 1. Survey giant clam recruitment in selected restocking sites 2. Assess giant clam biodiversity in selected sites in Mindanao 3. Conduct information dissemination activity to coastal communities and other stakeholders</p>	<p>selected sites in three sites in Mindanao differentially impacted by climate change induced thermal stress (in connection with project 1) 2) Status of giant clams especially on giant clam recruitment 3) Information, Education, and Communication (IEC) materials produced/utilized and biodiversity and climate change knowledge of communities enhanced 4) Online updates and press releases about project activities and outputs 5) Training workshop on biodiversity survey and thermal stress impact assessment and information dissemination activity (at least one at each of the three sites) to coastal community 6) Establishment of Biodiversity Monitoring 7) Training or thesis support for at least one (1) MSc or PhD graduate student 8) Video production summarizing the output of the Program 9) Policy recommendations for giant clam aquaculture approaches or giant clam conservation policies in the Philippines that may be utilized by other government agencies, such as DENR and BFAR</p> <p>End of the project deliverables/outputs by 6Ps</p> <p>Publications ISI Publication ☐ Biodiversity of giant clams in selected sites representing Philippine biogeographic regions differentially impacted by climate change induced thermal stress (in connection with Project 1)</p> <p>Non-ISI Publications Primer ☐ Giant clam restocking and impact of thermal stress on giant clams Manual ☐ Manual on monitoring of giant clam populations and identification of zooxanthellae clades (in connection with Project 1)</p> <p>Video Production ☐ Video production summarizing the output of the Program ☐ Press releases about project activities and outputs</p> <p>Products Knowledge ☐ Giant clam populations ☐ Biodiversity of giant clams as differentially impacted by climate change induced thermal stress (in connection with Project 1)</p>	DNSC	<p>1. Local communities including the local government units (LGUs) that will be involved in the monitoring and conservation efforts. The results of the proposed project will be disseminated through information, education and communication (IEC) materials to help promote giant clam restocking, monitoring and conservation efforts to relevant coastal communities and government agencies.</p> <p>2. Fishers and other direct users of goods from coral reef ecosystems: giant clams contribute to reef restoration and will in the long-term contribute to the delivery of valuable goods and ecosystem services. 3. Research/scientific community: data obtained from these studies will provide further avenues for research related to understanding the biodiversity and growth of giant clams. 4. Students: the project will support graduate student research and serve as a platform for the training of students in giant clam culture techniques and transcriptome data generation and analysis.</p>	01-Feb-18	31-Jan-21	NEW	6,653,102	1,603,866

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Assessing the Status of Giant Clams and Advancing Culture Techniques	Project 4. Development of molecular resources for enhancement of culture and rearing techniques	Rapid, inclusive and sustained economic growth	The general objective of the project is to examine genetic diversity and reveal the molecular mechanisms underlying the growth and development of giant clams, to enhance giant clam restocking and conservation efforts. The specific objectives of the project are as follows: 1. Develop transcriptome sequence resources for two (2) species of giant clams (Tridacna gigas and T. crocea or T. squamosa). 2. Compare the gene complement and gene expression profiles of two (2) species of giant clams representing different phenotypes. 3. Identify genes for giant clam development, growth, symbiosis, biomineralization, and stress response.	molecular resources for two giant clam species 2. Comparison of the gene content and gene expression profiles for two giant clam species representing different growth phenotypes 3. Identification of genes important for giant clam development, growth, symbiosis, biomineralization, and response to stress 4. Training and thesis support for at least one (1) MSc or PhD graduate student 5. Training of at least two (2) students in giant clam culture and transcriptome analysis 6. At least one (1) manuscript prepared for publication 7. Recommendations for giant clam aquaculture approaches and giant clam conservation policies in the Philippines End of the project deliverables/outputs by 6Ps Publications ISI Publication ☐ Comparison of the first reference transcriptomes of 2 giant clam species ☐ Developmental transcriptome for identification of genes relevant to giant clam growth, development, biomineralization, symbiosis and stress response Video Production ☐ Video production summarizing the output of the Program Products Knowledge ☐ Optimized protocols for total RNA extraction ☐ Giant clam genetics ☐ Genetic responses to stress Database ☐ Sequence database for 2 giant clam species People and Services ☐ Graduate student research supported ☐ De novo reference transcriptome assembly and comparative analysis ☐ Developmental transcriptome analysis ☐ 2 graduate students trained in giant clam culture and transcriptome analysis ☐ Training ☐ Training and information dissemination on biodiversity survey and molecular mechanism of response to thermal stress Policy ☐ Inputs to Policy recommendations for giant clam aquaculture	UPD	1. Fishers and other direct users of goods from coral reef ecosystems: giant clams contribute to reef restoration and will in the long-term contribute to the delivery of valuable goods and ecosystem services. 2. Research/scientific community: data obtained from these studies will provide further avenues for research related to understanding the biodiversity and growth of giant clams 3. Students: the project will support graduate student research and serve as a platform for the training of students in giant clam culture techniques and transcriptome data generation and analysis	01-Feb-18	31-Jan-21	NEW	16,971,166	4,932,933
Coastal Acidification: How it Affects the Marine Environment and Reosources in the Philippines	Project 1: Spatio-temporal trends in pH, CO2, and related parameters	Rapid, inclusive and sustained economic growth	The objectives of the project are: (1) To define the spatio-temporal variation of carbonate and other environmental parameters in the study sites i. Determine pH, pCO2, total alkalinity, aragonite saturation rates in sites across space and seasons (wet and dry, spring and neap, diurnal) to obtain baseline information on carbonate parameters. ii. Determine nutrients, oxygen, chlorophyll, carbon in the selected sites and examine degree to which changes in organic load and nutrient dynamics affect the carbonate parameters. iii. Map out seawater pH and aragonite saturation state of Philippine waters using existing data and from additional sampling in reef sites in the country. iv. Monitor carbonate and relevant parameters in the experimental setup of Projects 2 and 3 that are designed to examine the effects of stressors (acidification, eutrophication, sedimentation) on marine organisms. (2) To define the relationship between growth rate of corals on an interannual to multidecadal time scale and the reconstructed environmental parameters such as SST, SSS, and upwelling i. Obtain coral skeletons for measurement of extension rates, density, calcification rates ii. Use O and C stable isotopes, and some metals to reconstruct past SST and upwelling events	the general public Products • Map of pH for Philippine waters • Map of aragonite saturation for Philippine waters People & Services • 3 Graduate student research supported End of the project (Year 3) deliverables/outputs 1) Spatio-temporal variation in carbonate parameters (pH, pCO2, total alkalinity, aragonite saturation rates) in the study sites (Bolinao, Mabini) 2) Map of pH and aragonite saturation for Philippines waters 3) Variation in carbonate and other parameters under various stressors (acidification, eutrophication, sedimentation) the marine organisms are exposed to 4) Historical information on the relationship between coral growth and changes in environmental conditions in the sites Year 1 deliverables/outputs 1) Spatial and temporal (wet and dry, spring and neap, diurnal) variation in carbonate and other parameters (e.g. nutrients, organic carbon) in the study sites (Bolinao, Mabini) 2) Initial set of coral cores acquired in all three sites 3) Cores are cut, x-rayed and extension rates measured; selected cores are used for density measurements 4) Carbonate and other parameters are monitored in the experimental setups of Projects 2 and 3 Year 2 deliverables/outputs 1) Carbonate and other parameters determined in 3 other reef sites in the country 2) Second set of coral cores obtained 3) Cores cut, x-rayed and extension rates measured; selected cores used for density measurement 4) Selected cores subjected to XRF scanning and O and C isotope work 5) Carbonate and other parameters are monitored in the experimental setup of Projects 2 and 3 Year 3 deliverables/outputs 1) Carbonate and other parameters determined in 3 other reef sites in the country 2) Correlation of acquired data with secondary environmental parameters such as SST and rainfall 3)	UPD	Target beneficiaries are local and national government offices concerned with coral reefs and the communities that depend on them. Other beneficiaries are resource planners, local state colleges and universities who can be trained to monitor changes in pH, carbonate and other relevant parameters.	01-Feb-18	31-Jan-21	NEW	18,251,855	3,506,071

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Coastal Acidification: How it Affects the Marine Environment and Reosurces in the Philippines	Project 2: Impacts of acidification on the base of the matine food web and their effects on marine production	Rapid, inclusive and sustained economic growth	<p>The main objective of this project would be to determine the potential cascading effects of shifts in ocean chemistry on the marine food web at various trophic levels. Specifically, this project aims to:</p> <ol style="list-style-type: none"> <li>1. Determine the effects of ocean chemistry shifts on the biomass and structure of the base of the food web (phytoplankton) and intermediate consumers (zooplankton);</li> <li>2. Understand the potential link between effects of ocean chemistry shifts on lower trophic levels and food web dynamics to key fisheries; and</li> <li>3. Develop methods for rapid assessments of marine trophic levels through molecular biotechnology, and imaging and optical approaches.</li> </ol>	<p>Services • Formal Training ☐ 3 Graduate student research supported • Informal Training ☐ 1 Students trained in molecular tools for looking at plankton ☐ 3 Students trained in the fields of ocean acidification and plankton research, and mesocosm experiments</p> <p>End of the project deliverables/outputs 1) Characterization of primary and secondary producers in sites within the Philippines with a pH gradient 2) Determination of potential changes in primary and secondary production due to acidification and other stressors and their implications for fisheries 3) Understanding of mechanisms and processes involved in food web changes due to acidification and other stressors 4) Methods and tools for rapid assessment of key marine food web indicators</p> <p>Year 1 deliverables/outputs 1) Field sampling in at least one study site for plankton. 2) Initial laboratory analysis of field samples. 3) Acquisition of mesocosm materials and equipment. 4) Set-up of mesocosm experiments.</p> <p>Year 2 deliverables/outputs 1) Initial characterization of primary and secondary producers across the pH gradients in at least one study site 2) Protocols for genomic characterization of plankton assemblages 3) Initial gut content analysis results from higher trophic levels from the pH gradient sites 4) Runs of ocean acidification and eutrophication mesocosm experiments 5) Initial assessment of effect of ocean acidification on primary to higher trophic levels</p> <p>Year 3 deliverables/outputs 1) Characterization of primary and secondary producers across the pH gradients in the targeted study sites 2) Protocols for imaging and genomic technique characterization of primary and secondary producers 3) Results from the ocean acidification mesocosm treatments 4) Assessment of effects of ocean acidification in relation to other stressors on primary producers to higher trophic levels and</p>	UPD	Fisheries managers, Resource planners, local and global scientists	01-Feb-18	31-Jan-21	NEW	23,559,779	9,704,991
Coastal Acidification: How it Affects the Marine Environment and Reosurces in the Philippines	Project 3: Possible influence of acidification on specific reef resources	Rapid, inclusive and sustained economic growth	<p>The objectives of this project are to: 1. Determine the response of coral reef-associated calcium carbonate-producing macroalgae to decreased pH and associated stressors a. Community composition in relation to environmental parameters b. Physiological effects of specific stressors on selected macroalgae</p> <p>2. Determine response of coral reef-associated biofilm communities to decreased pH and associated stressors a. Effect of environment on biofilm community composition b. Effect of marine biofilm community on settlement of larvae of selected calcifying organisms (e.g. sea urchin)</p> <p>3. To determine the effect of decreased pH and associated stressors on the physiology, growth, and survival of selected reef organisms a. Effect of variable environments on giant clam growth and physiology b. Effect of variable environments on sponge growth and physiology 4. To determine the effect of environmental stressors on the gene expression responses of selected organisms (e.g sponge)</p>	<p>Expected Outputs (By 6 Ps) Publications • 1 ISI publications Products • Knowledge/information on reef community shifts under changing environmental conditions • Knowledge/information on link between eutrophication (e.g. from mariculture) and acidification • Knowledge/information on reef community shifts under changing environmental conditions. • Knowledge/information on primary producers and plankton biomass and community shifts under changing environmental conditions. • Knowledge/information on gene markers that are linked to stress response of sponges • Faster methods for quantification of plankton through pigment analysis and genomics People &amp; Services • Formal Training ☐ 4 Graduate student research supported • Informal Training ☐ DENR, BFAR, LGU personnel in the study sites trained in monitoring coral cover and diversity, algal and sponge community composition, giant clam handling, pH and other parameters</p> <p>End of the project deliverables/outputs 1) Data on the community shifts and physiology of coral reef-associated calcium carbonate-producing macroalgae under different conditions 2) Data on the biofilm community shifts in response to decreased pH and associated stressors 3) Assessment of the effects of biofilm community on settlement of larvae of selected calcifying organisms (e.g. sea urchin) 4) Assessment of physiology, growth, and survival of giant clams under low pH conditions and associated stressors 5) Assessment of physiology, growth, and survival of sponge under variable environmental conditions 6) Assessment of the genetic responses to decreased pH of selected organisms (e.g. sponge)</p>	UPD	Conservation biologists, Fisheries resource managers, Environmentalists, Ecologists, Ecotoxicologists	01-Feb-18	31-Jan-21	NEW	24,816,356	6,886,236

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Coastal Acidification: How it Affects the Marine Environment and Reosurces in the Philippines	Project 4: Acidification impacts on the demography of corals (ACID Corals)	Rapid, inclusive and sustained economic growth	The proposed project has the following objectives: 1. Quantify the effects of acidification on the abundance, size-structure of select coral species and communities. 2. To project future impacts of ocean acidification on coral communities at a wider scale (based on various scenarios to be defined along with the other components of this proposed research program) and likely consequences of these impacts on local communities.	Publications • 1 ISI publication Products • 1 simulation model with several scenarios People & Services • Formal Training • 3 graduate research supported • 2 BS, possibly two MS, one PhD degree graduates in the sciences Places & Partnerships • Partnership agreement with LGUs, DENR, BFAR, other stakeholders in the study sites • DENR, BFAR, LGU personnel in project sites trained in monitoring coral cover and diversity, algal and sponge community composition, giant clam handling, pH and other parameters  End of the project (Year 3) deliverables/outputs 1) Description and analysis of the changes in abundance, size-structure (and possibly growth) of select coral species and communities in the locations listed above, and the climate change and human impact drivers of these changes 2) Model projections of future impacts of ocean acidification and climate change on coral communities Year 1 deliverables/outputs 1) Validation of the statistical power of the proposed layout and analysis of the changes in abundance, size-structure 2) Implementation and testing of the projection matrix model Year 2 deliverables/outputs 1) Initial analyses as described above 2) Scenario building and initial projections from the matrix model for validation with Year 3 field data	DLSU	Local and national government offices concerned with coral reefs and the communities that depend on them.	01-Feb-18	31-Jan-21	NEW	10,900,215	3,052,181
ENHANCING SEA CUCUMBER PRODUCTION: UNCOVERING AND UTILIZING GENETIC RESOURCES FOR SUSTAINABLE DEVELOPMENT	Project 1. Developing Genomic Resources for Holothuria scabra in Support of Broodstock Selection and Stock Delineation	Rapid, inclusive and sustained economic growth	The development of genomic resources for the sandfish is required to further efforts towards increasing hatchery production by broodstock improvement, and genetic stock delineation for management and conservation of wild populations and stock enhancement initiatives. The general objective of the project is to develop genomic resources for Holothuria scabra which will be useful towards enhancement of hatchery production and stock delineation for management of capture fisheries.	1. Draft linkage map for Holothuria scabra based on SNP markers. 2. Genomic resource for phenotype selection based on growth: SNP markers associated with variability in growth rate. 3. Genomic resource for genetic stock delineation: SNP loci for screening and validation.	UPD	Government and private sectors engaged in sandfish industry; fishers, traders and other direct users of sea cucumber stocks; researchers	01-Aug-15	31-Jan-19	ONGOING	12,900,000	1,208,237
ENHANCING SEA CUCUMBER PRODUCTION: UNCOVERING AND UTILIZING GENETIC RESOURCES FOR SUSTAINABLE DEVELOPMENT	Project 2: Identifying management units for high value sea cucumber species, Holothuria scabra and Stichopus horrens	Rapid, inclusive and sustained economic growth	The general objective of the project is to identify ecologically meaningful management units for two high-valued sea cucumber species, Holothuria scabra and Stichopus horrens, by integrating information on species biology with biophysical connectivity studies, and focusing on selected areas across the Philippine archipelago where sea cucumber hatcheries are being developed. The specific objectives are: (1) Examine cryptic genetic diversity in Stichopus horrens, integrating information on ecology, genetics, and chemistry to accelerate the development of culture technologies for this high-value genera; and (2) Infer management units for Holothuria scabra and Stichopus horrens in selected marine biogeographic regions anchored on focal hatcheries.	1. Characterization of cryptic diversity in Stichopus horrens based on reproductive behavior, genetic differentiation, and chemical profiles, and its implications to identifying management units in the species. 2. Novel molecular markers for stock delineation in Holothuria scabra and Stichopus horrens. 3. Identify ecologically-meaningful management units in H. scabra and S. horrens based on genetic and biophysical connectivity information. 4. Technical inputs for development of policies for culture and capture sea cucumber fisheries towards international certification/recognition of the Philippine sea cucumber fisheries as compliant and a model for best practices.	UPD	Stakeholders in sandfish industry (government and private sector); LGUs, fishers, traders and other direct users of natural (wild) sea cucumber; local researchers from academe	01-Aug-15	31-Jan-19	ONGOING	18,300,000	2,242,460
Hazard Detection and Mitigation Tools for Algal Blooms in a Changing Marine Environment	Project 1. Development of detection tools for algal blooms to enable rapid responses from organism to environment (Old Title: Enhanced Detection and Mitigation of HABs: from Organism to Environment)	Integrity of the environment and climate change adaptation and mitigation	To help answer the challenges of the variable and expansive HABs our country experiences by developing means for more rapid and increased scale of detection of algal blooms, and developing robust early warning systems that would allow for more pro-active mitigation and enhanced understanding of HABs	Maps on water quality and HAB organisms • Prototype sensor for HAB organism detection using spectral signature • Optimized toxin detection capability through SPATT • Revised remotely-sensed early-warning system • Enhanced dynamic models for HABs for previous and new HAB-affected sites • Comprehensive database on HABs; Statistical models on HABs for forecasting • Database of plankton in relation to HAB occurrences • Decision-support system for HAB management centralizing observations and models • Scale-up production method for authentic standards of HAB toxins • at least 2 authentic standards of HAB toxins Publication • 7 ISI manuscripts for Scopus / ISI-indexed publication • Primer on the HAB informatics/decision-support system • Manual on low-cost sensors People and Services • 13 researchers trained in marine sensor development, HAB cyst dynamics, hydrodynamic surveys, phytoplankton analysis, biological modeling, hydrodynamic modeling, HAB statistical analysis, remote sensing modeling, decision support-system development, consortium-building • At least 7 MSc/PhD students • 40 trained in the use of water quality sensors developed • 5-10 on the job trainees/interns trained • Trainings/Workshops on HAB monitoring using low-cost sensors Partnerships • Partnerships for water quality/HAB monitoring with academe, government agencies (BFAR/LGUs) and stakeholders (mariculture) • Potential partners within DOST regional consortium: Region V (BCAARRD), Region VI (WESVAARRDEC), Region VIII (VICAARP), Region XI (SMAARRDEC) on water quality/HAB monitoring that can be used not just for research but also for interactive teaching modules Policy • Input into the guidelines for monitoring and management of harmful algal blooms and mariculture practices	UPD	National agency, LGUs, Coastal communities, coastal managers, researchers	01-Apr-18	31-Mar-21	NEW	8,676,484	3,861,428

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Hazard Detection and Mitigation Tools for Algal Blooms in a Changing Marine Environment	Project 2. Fine Scale Characterization of Plankton Community Composition Dynamics for Enhanced Modelling of Harmful Algal Blooms	Integrity of the environment and climate change adaptation and mitigation	1) Determine the community composition of the plankton community (including prokaryotic and eukaryotic forms, phytoplankton, zooplankton, and meroplankton) and its temporal variability at 3 sampling stations in Bolinao, Pangasinan via weekly sampling (or daily during algal blooms) for 3 years 2) Determine the community composition of the plankton community and its temporal variability at two other sites - Maqueda Bay and Cambatutay Bay (both in Western Samar) via quarterly sampling for 3 years 3) Determine the community composition of the sediment microbial community and its temporal variability at 2 sampling stations in Bolinao, Pangasinan (sites that potentially serve as sources/sinks for planktonic dinoflagellate populations) via quarterly sampling for 3 years 4) Integrate these data sets and infer patterns in the spatial and temporal variability of plankton community composition within and among sites, especially in relation to major HAB-forming species, timing of occurrence of algal blooms, and effects of other parameters	<ul style="list-style-type: none"> <li>High-resolution data on the taxonomic composition of the phytoplankton community and its temporal variability at 3 sampling stations in Bolinao, Pangasinan</li> <li>High-resolution data on the taxonomic composition of the phytoplankton community and its temporal variability at sampling stations in Western Samar</li> <li>High-resolution data on the taxonomic composition of the sediment microbial community and its temporal variability at sampling stations in Bolinao, Pangasinan</li> <li>Information on (or model of) the taxonomic composition of phytoplankton communities (water column, sediment) at the three sites and the influence of environmental variables on the community composition and (if data are available) occurrence of algal blooms</li> </ul>	UPD	National agency, Local Government Units, Coastal communities, coastal managers, researchers	01-Apr-18	31-Mar-21	NEW	13,905,189	7,804,730
Hazard Detection and Mitigation Tools for Algal Blooms in a Changing Marine Environment	Project 3. Dynamics of Protein and Small Molecule Chemistry in HAB Causative Organisms	Integrity of the environment and climate change adaptation and mitigation	1. Determine the protein and toxin profiles in various life stages of selected HAB causing organisms 2. Purify and determine the structure of toxins from selected HAB organisms 3. Analyze the expression of identified key proteins from proteomic analysis (Aim #1) in selected environmental samples of HAB causing organisms 4. Correlate the changes in protein and toxin profiles in response to life stages, community structure and physico-chemical conditions	<ul style="list-style-type: none"> <li>Identified target proteins in selected HAB organisms</li> <li>Identified the structure of purified toxins and optimized the protocol for large scale extraction and purification</li> <li>Determined the variability of the identified key proteins in environmental samples</li> <li>Information on key determinants for life cycle changes and toxin biosynthesis</li> </ul>	UPD	LGUs, BFAR, general public, Network partners (Consortia) SUCs, mariculture industry	01-Apr-18	31-Mar-21	NEW	12,696,856	6,599,952
Hazard Detection and Mitigation Tools for Algal Blooms in a Changing Marine Environment	Project 4. Integrated harmful algal bloom detection and information system for adaptive responses	Integrity of the environment and climate change adaptation and mitigation	1) Obtain high resolution ecosystem (physical, chemical, geological and biological) information on HAB occurrences in specific sites 2) Enhance the robustness to changing conditions of the previously developed components (SeAHABs, models) for an early warning system by improving resolution and coverage 3) Determine HAB occurrences in different climatic types in the Philippines while expanding the database on HAB biological and environmental conditions 4) Development of a HAB information technology system that can serve as decision-support 5) Engage the local communities, SUCs and agencies in rapid detection through the deployment of low-cost detection technologies and contribution to the HAB information system 6) Improved integration of detection and mitigation technologies with BFAR monitoring and response protocols	<p>Fine-scale characterization and maps of bloom conditions and transport at the target sites - Fine-scale characterization and maps of phytoplankton/HAB organisms, cyst beds, rates of encystment and excystment in relation to bloom initiation and decline - Improved SeAHABs system through feedback and validation from users - More robust biophysical and statistical models addressing changing conditions - New site-specific models for HAB-affected areas - HAB triggers and patterns under different climate types - HAB informatics system: storage, retrieval and usage systems for use in decision-support and early-warning for HABs - Expanded network and capability for HAB monitoring with increased spatial and temporal coverage of affected sites - Engaged local communities and agencies for monitoring and research - New detection and monitoring technologies and informatics system coordinated with BFAR - Capacities of BFAR/ LGU /HEI for HAB monitoring and research enhanced T867</p>	UPD	National agency, Local Government Units, SUCs, Coastal communities, coastal managers, researchers	01-Apr-18	31-Mar-21	NEW	24,702,489	9,536,496
	Assessing the Efficiency and Prospects of the Tunnel Ventilation Technology for the Swine and Poultry Industries in the Philippines (Phase 2)	Rapid, inclusive and sustained economic growth	The general objective of this proposed study is to assess the efficiency and prospects of the tunnel ventilation technology for the swine and poultry industries in the Philippines during dry season.	Report on the knowledge on the technical and environmental performance of tunnel ventilation tehnology in the swine and poultry sector	UPLB	The study will provide valuable information to swine and poultry industry operators in the Philippines and government regulators such as Department of Agriculture (DA) and the Department of Environment and Natural Resources (DENR).	01-Apr-18	31-Mar-19	NEW	3,945,734	3,945,734
	Assessment of the Impacts of the Program on the Development of Sustainable Production System for the Darag Chicken in Western Visayas	Rapid, inclusive and sustained economic growth	The proposed impact assessment will cover the whole program except project 4 on the production and distribution of oil emulsion New Castle Disease (NCD) vaccine for free range chickens. The vaccine is yet to be developed. The study will look into the impacts of the projects to determine their contributions to the socio-economic and environmental well being of Western Visayas and propose some measures towards exploiting full potential of DArag.	<ul style="list-style-type: none"> <li>bulletin - publication</li> <li>LGUs, NGOs - partnership recommendations - policy</li> <li>documentation - product</li> </ul>	UPV	policy and decision makers, researchers, funding agencies, evaluators, darag native chicken producers, breeders and consumers	01-Aug-18	31-Oct-19	NEW	1,592,010	1,592,010

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Cooperative-led Green Value Chain Development for Selected Commodities	Rapid, inclusive and sustained economic growth	<p>dimensions of development. A kind of development that does not have a balance among the three dimensions is not sustainable and transformational. Environmental goals and targets are embedded in the SDGs as an affirmation that the problem exists and is urgent. At Rio+20, countries emphasized the inclusive green economy as one of the important tools available for achieving sustainable development. Conservation and sustainable use of ecosystem services and natural capital are the kinds of transformative changes that SDGs could and should catalyze (UNEP 2013).</p> <p>It is in this context that a green value chain development project through a cooperative approach is being proposed. "Greening" is defined as the processes by which suppliers, producers, processors, buyers and consumers reduce their negative social, economic and environmental impact by using less energy and water and decreasing waste and emissions, while also treating waste, promoting fair-trade and/or adopting appropriate quality and safety and other standards of corporate social responsibility (ESCWA and GIZ 2013)</p> <p>For the purpose of this research, the working definition of greening in a value chain will show any one of the following criteria:</p> <ul style="list-style-type: none"> <li>-Increase in recycling inputs</li> <li>-Maximization of processes such that material inputs are efficiently used; and/or</li> <li>-Reduction in the environmental impacts along the different stages of the chain</li> </ul> <p>Particular focus is given to cooperatives in the green value chain development, given their inherent nature as builders of sustainability and promoters of green development. Based on the above premises, the project's general objective is to develop green value chains for highland vegetables, milkfish, mango and banana, through cooperative-led greening activities. To this end, willingness, capability, and effective implementation of green practices, especially in the environmental hotspots along the value chain, are important for the development of green</p>	<p>a. publications (e.g. journal articles, monograph)</p> <p>b. a model of a cooperative-led green value chain of selected agricultural products</p> <p>c. linkages developed between cooperative and local government units with applicable green technologies</p> <p>d. Policy agenda in "greening" a cooperative-led value chain of selected agricultural products</p>	UPLB	<p>Selected Agrifood producers and other stakeholders</p> <p>Decision-makers at PCAARRD, DOST</p> <p>Grantees of PCAARRD/DOST funding</p>	01-Apr-18	31-Mar-20	NEW	5,000,000	2,643,416
	Development of Framework for Harmonizing Biosafety Guidelines and Research Protocols on Biosafety in the ASEAN Region(Old Title: Harmonizing Biosafety Guidelines and Research Protocols on Biosafety in the ASEAN Region)	Transparent, accountable, and participatory governance	To assess the existing biosafety regulatory system and research protocols on biosafety being implemented by ASEAN member countries to establish for the region, a harmonized system of standards and protocols on biosafety.	Harmonized framework and guidelines, research protocols on biosafety and standards for the ASEAN region	STRIVE	policy makers, research community	01-Feb-18	31-Aug-18	NEW	4,659,413	3,781,472
	Enhancing the Various Policy Initiatives on Bamboo: Developing a Harmonized System for Community-based Inventory of Bamboo Resources in Key Production Areas in the Philippines	Transparent, accountable, and participatory governance	<p>The general objective is the development of a harmonized system for the inventory of bamboo that will engage communities to ensure sustainability and timeliness of inventory information in selected key bamboo production areas in the country, namely Pangasinan (for Luzon), Iloilo (for Visayas) and Bukidnon (for Mindanao).</p> <p>Specifically, the project aims to:</p> <ol style="list-style-type: none"> <li>1. Develop a harmonized, remote-sensing enhanced participatory inventory system for bamboo resources;</li> <li>2. Implement the bamboo inventory system in the three selected key production areas in the country;</li> <li>3. Engage communities through people's organizations or local barangay units in mapping bamboo resources in their respective areas;</li> <li>4. Develop a field guide for bamboo identification tailored for the local communities;</li> <li>5. Prepare a draft policy that will institutionalize the regular conduct of bamboo inventory among POs and local government units.</li> </ol>	<ol style="list-style-type: none"> <li>1. Policies: Draft policy to support the institutionalization of community-based bamboo inventory system</li> <li>2. People services: Trained community members on the inventory and identification of bamboo</li> <li>3. Publication: Journal article, at least 1 policy brief</li> <li>4. Product: Maps showing distribution of bamboo in 3 selected key production areas, field guide for proper identification of bamboo, harmonized community-based bamboo inventory system</li> <li>5. Places and Partnership: LGUs, DENR, People's organizations, Local barangay units</li> </ol>	UPLB	<ol style="list-style-type: none"> <li>1. farmers and communities engaged in planting bamboo</li> <li>2. potential investors in bamboo plantation development and bamboo-based enterprises</li> <li>3. operators of manufacturing plants using bamboo as raw materials</li> <li>4. local government units with bamboo resources</li> </ol>	16-Feb-18	15-Feb-20	NEW	5,000,000	2,930,454
	Impact Assessment of the Filipinnovation Coral Rehabilitation Program in the Philippines	Transparent, accountable, and participatory governance	<p>The general objective of the study is to assess the impacts of the coral transplantation technology using asexually reproduced corals on previously degraded coral reef ecosystem in selected sites in the Philippines.</p> <p>Specifically, the study aims to:</p> <ol style="list-style-type: none"> <li>1. Validate the performance of the Filipinnovation Coral Restoration Program specifically the coral transplantation technology that utilized asexually reproduced coral fragments.</li> <li>2. Assess the impacts of the transplantation technology on the biophysical, economic, and social aspects of the study sites particularly in terms of fish biomass and recreational value.</li> <li>3. Develop a monitoring protocol in conducting impact assessment of coral restoration projects particularly using the asexual coral reproduction technology</li> </ol>	<p>Year 1</p> <ol style="list-style-type: none"> <li>1. Report on the performance of the Filipinnovation Program after a year of its implementation;</li> <li>2. Impact assessment report of the coral transplantation technology on the biophysical, economic, and social aspects, along with valuation specifically in terms of increased fish biomass and recreational value</li> </ol> <p>Year 2</p> <ol style="list-style-type: none"> <li>1. Synthesis Report of the prospects of coral transplantation technology as applied in the Philippines and a monitoring protocol on the process of conducting IA of rehabilitation projects.</li> <li>2. At least 1 draft journal articles for publication in ISI journals</li> </ol>	UPLB	<p>Local fisher folks and local tourism</p> <p>Local Government Units of the study sites, NGOs and associations</p> <p>Government regulators such as Department of Tourism e (DOT) and the Department of Environment and Natural Resources (DENR)</p>	01-Nov-16	31-Jan-19	ONGOING	4,944,507	984,662



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Market Study of Selected Technologies for Commercialization under PCAARRD's Technology Commercialization Program (Batch 2)	Transparent, accountable, and participatory governance	In the Philippines, the economic aspect of the innovation is often neglected by technology developers. The market for the product is often not identified and the cost-competitiveness is normally not given much importance. On the other hand, businesses are actively looking for products that will provide higher profits. The innovation becomes unattractive to investor because of the lack of a sound business plan. It is apparent that there is a need to demonstrate the economic viability of new technologies and products developed by research institutions in the country.	Publication – At least 4 Technical Bulletins/ Advisories  People services – Profile of potential target market of the technologies  Policy- Recommendation to address market-related challenges to technology commercialization	UPLB	The study will be primarily conducted for DOST-PCAARRD's guidance on determining which among the subject technologies are to be prioritized in terms of support and further improvement. Further, this study will provide valuable information to potential investors of the technologies. In the end, it is hoped that the producers and processors in the agriculture and fishery sectors for which the subject technologies were intended for.	16-Mar-18	15-Jun-19	NEW	4,992,792	4,992,792
	Policy Studies and Development to Promote the Resiliency of Philippine Watersheds	Transparent, accountable, and participatory governance	This study will identify and assess major policy issues and concerns crucial to resilience and sustainability of watersheds: 1) Identify and assess facilitating and constraining factors related to 4 key areas of concern 2) Explore potential interventions and reforms needed to enhance enabling policy environment 3) Devise institutional mechanisms that will facilitate institution of policy reforms 4) Identify resources required to implement needed policy actions 5) Formulate and package identified major policy actions crucial to resilience and sustainability of watersheds	1. Policy on institutionalization of Payment of Environmental Services (PES) 2. Policy institutionalization of Formation of Multi Sectoral Management Council 3. Guidelines for Promotion and Development of watershed-based comprehensive land use, allocation, development planning and regulation 4. Watershed Policy Forum 5. Two (2) scientific journal publications	UPLB	DENR, LGUs, stakeholders	01-Jun-17	31-May-19	ONGOING	4,844,232	1,381,813
	S&T Based Social Enterprise Development and Piloting for the Marginalized Sectors of Los Baños	Transparent, accountable, and participatory governance	General Objective: Develop and pilot test S&T-based Social Enterprises for the drug related vulnerable populations  Specific Objectives 1. Describe the socio-economic profile and specific circumstances of selected respondents from the identified marginalized sectors of Los Baños 2. Determine their values, aspirations, skills and knowledge 3. Identify S&T based social enterprise that match their aspirations, skills and knowledge 4. Assess the social enterprise landscape in Los Baños; 5. Identify the existing S&T based social enterprises which match the values, attitude, skills, and knowledge of the selected respondents of the identified marginalized sectors, or establish new S&T based SE 6. Develop and pilot test S&T-based business models or enhance existing ones 7. Foster multi-stakeholder partnerships and linkages including policy makers for social enterprises in Los Baños 8. Ensure the sustainability of the project by fostering multi-stakeholder partnership and including linkages particularly with the LGU of Los Baños	1. Socio-economic profile and specific circumstances of those considered vulnerable to illegal drugs; 2. Assessment of needs and opportunities of economic productivity and social integration of those considered vulnerable to illegal drugs; 3. Documentation of the values and aspirations of those considered vulnerable to illegal drugs; 4. Profile of social enterprise landscape in Los Baños; 5. Identification of the needs and opportunities of the social enterprises in Los Baños; 6. Number of trainings and workshops conducted for capacity building of social enterprises; 7. Business models developed and pilot tested for enhancing existing or new social enterprises; 8. Establishment or enhancement of multi-stakeholder partnerships and linkages for social enterprises in Los Baños 9. At least one paper for journal publication	UPLB	1. People who surrendered due to illegal drug use and drug trading, including their family members 2. Municipal government of Los Baños, and especially the village study sites 3. Local NGO's People's or community-based organizations 4. Government agencies such as DSWD, PNP, DA, DOST	15-Nov-16	14-Jan-19	ONGOING	4,992,454	1,083,364
	Supply Chain Improvement of Commercially Important Forest Vines in Selected Areas in the Philippines (Old Title: Value Chain Assessment of Commercially Important Forest Vines)	Transparent, accountable, and participatory governance	In general, the study will assess the supply chain of commercially important vines in the Philippines and identify areas for improvement. Specifically, it attempts to: 1- Provide an overview of the current state of the forest vines industry in selected areas in the Philippines; 2- Map out the supply chain of commercially important forest vines showing the a) key customers and their product requirements; b) key players and their roles; c) activities and processes involved; d) flow of product, payment, and information; e) logistic concerns; and f) external influences; 3- Analyze the performance of the supply chain of forest vines in terms of efficiency, flexibility and overall responsiveness; and 4- Provide recommendation for improvement in the supply chain towards efficient and effective production and marketing of forest vines.	People: Vine gatherers and handicraft producers  Product: Report on the current performance of the forest vine industry in Regions 2, 4, 5, 7 and CARAGA; Qualitative and quantitative baseline data on the product requirements of the key customers, flow of product, payment and information along the chain, activities and key players involved, logistic issues, and factors influencing the chain; Supply Chain Maps; Analysis of the forest vine supply chain performance of each supply chain in terms of efficiency, effectiveness, and responsiveness; and Evaluated and identified areas of improvement in forest vine chain.  Partnerships: At least 1 trade association and 2 government institutions partnered in supply chain mapping activities; forum with stakeholders  Policy: Policy recommendations for the improvement of the forest vine industry  Publications: Information Bulletin on Forest Vines	FPRDI	Handicraft producers vine gatherers/collectors, DENR and DTI regional offices, NGOs, POs Researchers PCAARRD Management	01-Jun-18	31-May-19	NEW	1,824,657	1,824,657

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Valuing Forest Bio-Resources and Ecosystems Services for Access Benefit Sharing and Payment for the Ecosystem Services: The Case of Bataan Natural Park	Transparent, accountable, and participatory governance	To assess the economic benefits of bio-resources and forest ecosystems services in support to developing policy options for access benefit sharing and payment for ecosystem services mechanisms. Specific objectives: 1. To determine how bio-resources and ecosystem services affect the socioeconomic conditions of the households considering their current access and benefits from these resources; 2. To assess the awareness and attitudes of households towards issues concerning the conservation and management of Bataan Natural Park; 3. To estimate the use and non-use values of selected ecosystem services in the study area; 4. To identify the factors affecting the willingness-to-pay for conservation of Bataan Natural Park; and 5. To identify policy options for biodiversity conservation and sustainable management of forest ecosystems with focus on innovative financing through payment for ecosystems services as well as on access and benefit sharing schemes	1. People: Capacity building on valuing non-market resources (analytical methods and framework suitable to the Philippine context); Inclusion of value, preference, and attitude as well as status of access and benefit sharing of off-site and on-site communities in the decision-making 2. Partnership: Involvement of the local community, LGUs, and NGAs in valuing and management of protected areas 3. Policies: Analysis of policy options on PES and access benefit sharing, ABS mechanisms, PES mechanisms 4. Publication: Minimum of one journal publication	UPLB	The target beneficiaries of the knowledge products expected from this project are the environmental and socio-economic researchers, policy makers, decision-makers involved in the biodiversity conservation, ecosystem-based management, payment for ecosystem services development, and private-public partnerships on forest management and biodiversity conservation. Local communities are also expected to benefit from the study in the long-run through PES implementation and appropriate resource access and benefit sharing schemes	01-Jan-18	31-Dec-19	NEW	5,000,000	2,543,660
Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Selected Agricultural Production Systems; Implications for Agricultural Policies and Innovation	Project 1. Changing patterns in social, demographic and economic conditions of farmers in rice production: Implications for Agricultural Policies and Innovation	Transparent, accountable, and participatory governance	General Objective: Analyze the changes in the social, demographic and economic characteristics of farmers in selected agricultural production system for more relevant and effective agricultural policies and appropriate agricultural innovation programs. Specific Objectives: 1. establish the social, demographic and economic profile of farmers in selected agricultural production system; 2. determine the technology used by farmers in the selected agricultural production system; 3. analyze the pattern of changes in social, demographic and economic characteristics of the farmers; 4. relate the social, demographic and economic characteristics with the farmers' technology adoption behavior; and 5. provide specific recommendations for improved agricultural policies and agricultural innovation program.	Publication: ☐ 18 journals/policy brief (at least 1 publication per commodity) ☐ Book highlighting the social, demographic and economic conditions of farmers in selected agricultural production system  Places and partnerships: ☐ Partnership with key government agencies (e.g. NEDA, DBM, DA, DOST and DENR) and local government units ☐ Partnership with POs and RBOs  Policy: ☐ Policy forum for advocacy initiatives ☐ Policy recommendations in relation to agricultural innovations and policies  Product: ☐ Database on social, economic and demographic characteristics of farmers in different production systems  People: ☐ Improvement of welfare of Filipino farmers and other rural stakeholders	UPLB	☐ Researchers and extension workers ☐ Research managers and funding and monitoring agencies ☐ Policy and decision makers ☐ Government institutions and research agencies ☐ Local government units ☐ Farmers and other rural stakeholders	01-Nov-17	30-Apr-19	ONGOING	5,752,154	962,414
Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Selected Agricultural Production Systems; Implications for Agricultural Policies and Innovation	Project 2. Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Corn and Vegetable Production: Implications for Agricultural Policies and Innovation	Transparent, accountable, and participatory governance	General Objective: Analyze the changes in the social, demographic and economic characteristics of farmers in selected agricultural production system for more relevant and effective agricultural policies and appropriate agricultural innovation programs. Specific Objectives: 1. establish the social, demographic and economic profile of farmers in selected agricultural production system; 2. determine the technology used by farmers in the selected agricultural production system; 3. analyze the pattern of changes in social, demographic and economic characteristics of the farmers; 4. relate the social, demographic and economic characteristics with the farmers' technology adoption behavior; and 5. provide specific recommendations for improved agricultural policies and agricultural innovation program.	Publication: ☐ 18 journals/policy brief (at least 1 publication per commodity) ☐ Book highlighting the social, demographic and economic conditions of farmers in selected agricultural production system  Places and partnerships: ☐ Partnership with key government agencies (e.g. NEDA, DBM, DA, DOST and DENR) and local government units ☐ Partnership with POs and RBOs  Policy: ☐ Policy forum for advocacy initiatives ☐ Policy recommendations in relation to agricultural innovations and policies  Product: ☐ Database on social, economic and demographic characteristics of farmers in different production systems  People: ☐ Improvement of welfare of Filipino farmers and other rural stakeholders	UPLB	☐ Researchers and extension workers ☐ Research managers and funding and monitoring agencies ☐ Policy and decision makers ☐ Government institutions and research agencies ☐ Local government units ☐ Farmers and other rural stakeholders	01-Nov-17	30-Apr-19	ONGOING	4,096,154	609,728

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Selected Agricultural Production Systems; Implications for Agricultural Policies and Innovation	Project 3. Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Plantation Crops Production: Implications for Agricultural Policies and Innovation	Transparent, accountable, and participatory governance	<p>General Objective: Analyze the changes in the social, demographic and economic characteristics of farmers in selected agricultural production system for more relevant and effective agricultural policies and appropriate agricultural innovation programs.</p> <p>Specific Objectives: 1. establish the social, demographic and economic profile of farmers in selected agricultural production system; 2. determine the technology used by farmers in the selected agricultural production system; 3. analyze the pattern of changes in social, demographic and economic characteristics of the farmers; 4. relate the social, demographic and economic characteristics with the farmers' technology adoption behavior; and 5. provide specific recommendations for improved agricultural policies and agricultural innovation program.</p>	<p>Publication: 18 journals/policy brief (at least 1 publication per commodity) 1 Book highlighting the social, demographic and economic conditions of farmers in selected agricultural production system</p> <p>Places and partnerships: 1 Partnership with key government agencies (e.g. NEDA, DBM, DA, DOST and DENR) and local government units 1 Partnership with POs and RBOs</p> <p>Policy: 1 Policy forum for advocacy initiatives 1 Policy recommendations in relation to agricultural innovations and policies</p> <p>Product: 1 Database on social, economic and demographic characteristics of farmers in different production systems</p> <p>People: 1 Improvement of welfare of Filipino farmers and other rural stakeholders</p>	UPLB	<p>1 Researchers and extension workers 1 Research managers and funding and monitoring agencies 1 Policy and decision makers 1 Government institutions and research agencies 1 Local government units 1 Farmers and other rural stakeholders</p>	01-Nov-17	30-Apr-19	ONGOING	6,195,886	896,696
Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Selected Agricultural Production Systems; Implications for Agricultural Policies and Innovation	Project 4. Changing patterns in social, demographic and economic conditions of farmers in aquaculture and fishery: Implications for Agricultural Policies and Innovation	Transparent, accountable, and participatory governance	<p>General Objective: Analyze the changes in the social, demographic and economic characteristics of farmers in selected agricultural production system for more relevant and effective agricultural policies and appropriate agricultural innovation programs.</p> <p>Specific Objectives: 1. establish the social, demographic and economic profile of farmers in selected agricultural production system; 2. determine the technology used by farmers in the selected agricultural production system; 3. analyze the pattern of changes in social, demographic and economic characteristics of the farmers; 4. relate the social, demographic and economic characteristics with the farmers' technology adoption behavior; and 5. provide specific recommendations for improved agricultural policies and agricultural innovation program.</p>	<p>Publication: 18 journals/policy brief (at least 1 publication per commodity) 1 Book highlighting the social, demographic and economic conditions of farmers in selected agricultural production system</p> <p>Places and partnerships: 1 Partnership with key government agencies (e.g. NEDA, DBM, DA, DOST and DENR) and local government units 1 Partnership with POs and RBOs</p> <p>Policy: 1 Policy forum for advocacy initiatives 1 Policy recommendations in relation to agricultural innovations and policies</p> <p>Product: 1 Database on social, economic and demographic characteristics of farmers in different production systems</p> <p>People: 1 Improvement of welfare of Filipino farmers and other rural stakeholders</p>	UPV	<p>1 Researchers and extension workers 1 Research managers and funding and monitoring agencies 1 Policy and decision makers 1 Government institutions and research agencies 1 Local government units 1 Farmers and other rural stakeholders</p>	01-Nov-17	30-Apr-19	ONGOING	4,859,653	691,152
Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Selected Agricultural Production Systems; Implications for Agricultural Policies and Innovation	Project 5. Changing Patterns in Social, Demographic and Economic Conditions of Farmers in Livestock and Forestry: Implications for Agricultural Policies and Innovation	Transparent, accountable, and participatory governance	<p>General Objective: Analyze the changes in the social, demographic and economic characteristics of farmers in selected agricultural production system for more relevant and effective agricultural policies and appropriate agricultural innovation programs.</p> <p>Specific Objectives: 1. establish the social, demographic and economic profile of farmers in selected agricultural production system; 2. determine the technology used by farmers in the selected agricultural production system; 3. analyze the pattern of changes in social, demographic and economic characteristics of the farmers; 4. relate the social, demographic and economic characteristics with the farmers' technology adoption behavior; and 5. provide specific recommendations for improved agricultural policies and agricultural innovation program.</p>	<p>Publication: 18 journals/policy brief (at least 1 publication per commodity) 1 Book highlighting the social, demographic and economic conditions of farmers in selected agricultural production system</p> <p>Places and partnerships: 1 Partnership with key government agencies (e.g. NEDA, DBM, DA, DOST and DENR) and local government units 1 Partnership with POs and RBOs</p> <p>Policy: 1 Policy forum for advocacy initiatives 1 Policy recommendations in relation to agricultural innovations and policies</p> <p>Product: 1 Database on social, economic and demographic characteristics of farmers in different production systems</p> <p>People: 1 Improvement of welfare of Filipino farmers and other rural stakeholders</p>	UPLB	<p>1 Researchers and extension workers 1 Research managers and funding and monitoring agencies 1 Policy and decision makers 1 Government institutions and research agencies 1 Local government units 1 Farmers and other rural stakeholders</p>	01-Nov-17	30-Apr-19	ONGOING	4,096,153	637,574

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Citrus Resources Research for Development in Cagayan Valley (CRR4DCV)	Project 1. Value Chain Analysis for Citrus in Cagayan Valley	Poverty reduction and empowerment of the poor and vulnerable	General The study aims to analyze the citrus value chain and suggest areas of interventions to upgrade the chain. Specific 1. To analyze the nature and structure of the industry that include value chain mapping, description of key players and their functions, nature of interfirm relationships, market and market opportunities, and price and cost structures; 2. To identify the support services, enabling environment such as formal rules and regulations, socio-cultural norms and behavior in the industry; 3. To determine constraints and opportunities; and 4. To recommend S&T interventions and policy reforms for addressing gaps/constraints. In general, the project aims to develop a mixed method approach to impact evaluation which will be applied in assessing the impacts of the Landcare program in the Philippines. Specifically, it will: 1. Review, identify, adapt/develop, and mix appropriate methods for a mixed-method approach in impact assessment of agricultural research for development projects; 2. Apply and fine-tune the mixed-method approach to the impact assessment of the Landcare program in the Philippines; and 3. Develop capacity among key research partners in conducting impact assessments incorporating a mixed-method approach.	27. Value chain map of selected citrus commodities 28. Key players and their functions 29. Market and price and cost structure 30. Constraints and opportunities of the selected commodities 31. S&T and policy recommendations to enhance the citrus industry in the region	NVSU	1. Citrus Growers in Nueva Vizcaya and Cagayan Valley 2. Traders, processors and input providers 3. Researchers/ Breeders 4. Nursery owners/operators 5. Agricultural Technicians 6. R&D planners, researchers, policy makers	16-Nov-16	15-Nov-18	COMPLETED	2,256,048	468,866
Development of Mixed Method Approaches to Impact Assessment of Philippine Research Projects	Project 1. Development of Mixed Method Approaches to Impact Assessment of Selected Research Projects in Southern Philippines	Transparent, accountable, and participatory governance	In general, the project aims to develop a mixed method approach to impact evaluation which will be applied in assessing the impacts of the Landcare program in the Philippines. Specifically, it will: 1. Review, identify, adapt/develop, and mix appropriate methods for a mixed-method approach in impact assessment of agricultural research for development projects; 2. Apply and fine-tune the mixed-method approach to the impact assessment of the Landcare program in the Philippines; and 3. Develop capacity among key research partners in conducting impact assessments incorporating a mixed-method approach.	Product: Mixed-method approach to impact assessment Publication: Mixed-method approach, workshop reports, terminal report Partnership: ACIAR and CSIRO; partnership with regional impact assessment stakeholders People Services: researchers trained on the mixed-method approach	UPLB	The beneficiaries of the project will include researchers pursuing impact assessment activities, Landcare stakeholders, and agencies and policymakers concerned with innovations in research and technology transfer	01-Mar-18	29-Feb-20	NEW	4,865,872	2,256,091
Development of Mixed Method Approaches to Impact Assessment of Philippine Research Projects	Project 2. Development of Mixed Method Approaches to Impact Assessment of Selected Research Projects in Cenral Philippines	Transparent, accountable, and participatory governance	The project aims to develop a mixed method approach to impact evaluation which will be applied in assessing the impacts of the selected R&D programs in the Philippines. Specifically, it aims to: 1. Review, identify, adapt/develop, and mix appropriate methods for a mixed-method approach in impact assessment of agricultural research for development projects; 2. Apply and fine-tune the mixed-method approach to the impact assessment of the selected R&D programs implemented in the Philippines; and 3. Develop capacity among key research partners in conducting impact assessments incorporating a mixed-method approach.	1. Products, mixed method approaches to impact assessment; 2. Publications, including guidelines for the mixed method approaches to impact assessment, 2 journal articles, workshop reports, and terminal report; 3. People and services, in terms of researchers trained on mixed method approaches; and 4. Places and partnerships, including partnership with ACIAR and CSIRO; partnership with regional impact assessment stakeholders; Landcare implementers (LGUs and Landcare Foundation)	VSU	policy-makers, administrators of R&D agencies, researchers pursuing impact assessment activities, and stakeholders of each of the selected research programs.	01-Mar-18	29-Feb-20	NEW	3,134,128	1,411,021
ENHANCING THE PRODUCTIVITY AND MARKETABILITY OF QUEEN PINEAPPLE	Project 6. Evaluation of Queen Pineapple Grade Standards and Assessment of Implementation and Compliance in Camarines Norte as Basis for Policy Reforms and Formulations	Transparent, accountable, and participatory governance	General: The project will evaluate the Queen pineapple (QP) grade standards and assess the implementation of and compliance in Camarines Norte as basis for policy reforms and formulations. Specific: 1. Determine the QP grade standards implementation in terms of technical assistance, capability building, monitoring and supervision, policy support and organization of farm groups and compliance; 2. Identify the factors affecting the QP grade standards implementation and compliance; 3. Determine the farmer's advantages and disadvantages of utilizing the ladder type pricing (with grading system) vis-à-vis the straight pricing scheme through cost and return analysis. 4. Identify marketability index for QP as benchmark of the pineapple farmers 5. Evaluate the QP grade standards, propose policy-reforms and formulate policies on QP grade standards and trading; and 6. Validate the level of acceptability of the provisional policies in pineapple grading and trading.	1. Database on implementation of and compliance on Queen Pineapple (QP) Grade Standards in Camarines Norte. 2. Cost and Return Analysis in utilizing QP Grading System 3. Marketability index for QP 4. Proposed policy interventions on pineapple grading and trading	CNSC	Queen Pineapple Farmers, LGUs, QP Program implementers	15-Apr-16	14-Oct-18	COMPLETED	7,439,527	327,619
Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 1.1 Supply Chain Improvement of Soybean in Northern Philippines (Phase I: Evaluation Research)	Transparent, accountable, and participatory governance	The project aims to assess the supply chain of soybean in Northern Philippines (Regions 2 and 3) and identify areas of improvement.	1. Report on the current performance of the soybean industry in Northern Philippines (Regions 2 and 3); 2. Qualitative and quantitative baseline data on the product requirements of the key customers, flow of product, payment and information along the chain, activities and key players involved, logistic issues, and factors influencing the chain; 3. Analysis of the soybean supply chain performance of each supply chain in terms of efficiency, effectiveness and responsiveness; 4. Evaluated and identified areas of improvement in the soybean chain; 5. Collaboration with SUCs and DA Research Centers; 6. Policy recommendations for the improvement of the soybean industry; and 7. Information Bulletin on soybean in Regions 2 and 3	NVSU	soybean industry	01-May-18	31-Mar-19	NEW	1,275,263	1,275,263

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Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 1.2 Supply Chain Improvement of Soybean in Southern Philippines (Phase I: Evaluation Research)	Transparent, accountable, and participatory governance	A supply chain analysis of soy bean in two significant soybean production areas in Mindanao (Davao and Caraga Regions) is necessary to identify appropriate key entry points of intervention, develop an optimal mix of value chain upgrading interventions and design policy sequencing for its intervention.	People: Farmers, processors and other soybean stakeholders Product: Report on the current performance of the soybean industry in Northern Philippines (Regions 2 and 3); Qualitative and quantitative baseline data on the product requirements on the key customers, flow of product, payment and information along the chain, activities and key players involved, logistics issues, and factors influencing the chain; analysis of the soybean supply chain performance of each supply chain in terms of efficiency, effectiveness and responsiveness; and evaluated and identified areas of improvement in the soybean chain. Partnerships: Collaboration with SUCs and DA Research Centers Policy: Policy recommendations for the improvement of the soybean industry Publications: Information Bulletin on Soybean in Regions 11 and Caraga	UPMin, CarSU	Soybean industry stakeholders (e.g. farmers, traders, processors, consumers) Researchers LGUs of Regions 11 and Caraga PCAARRD Management	01-May-18	31-Mar-19	NEW	1,999,306	1,999,306
Improvement of Soybean (Glycine max (L.) Merr.) for Better Nutrition, Higher Income, and Enhanced Soil Health	Project 1.3 Analysis of the Competitiveness, Productivity and Technical Efficiency of Soybean as Food in the Philippines	Transparent, accountable, and participatory governance	There is a need to improve soybean production in the Philippines to be competitive. The country's current programs showed increasing interest in the development of the domestic soybean industry and explore its potential as food. The current effort is in the form of inter-agency collaborations of government agencies, state universities and colleges, the private sector and other stakeholders. Given all these efforts, the challenge is to assess whether the local soybean industry is achieving technical efficiency and at par globally.	Product: Significant information of the following: 1. Description of growers, production areas, management practices and resources used in soybean production in major producing areas; 2. Yield and production function model to present productivity in soybean production; 3. Estimate of individual farm's technical efficiency; 4. Inefficiency models analyzed; 5. Profitability analysis of soybean focused on food; and 6. Competitiveness analysis of soybean as food Publication: 2 journal articles (1 for technical efficiency and 1 for competitiveness) Partnerships: Collaborations with SUCs, DA, private sector (e.g. farmer cooperatives, POs and processors) Policies: Recommendations to improve potential competitiveness of soybean.	CLSU, UPLB	Soybean industry stakeholders (e.g. farmers, traders, processors, consumers) Researchers R&D managers Policy makers	01-May-18	30-Apr-19	NEW	2,151,056	2,151,056
Value Chain Development and Piloting of Conventional Production and Marketing of Eggplant and Cabbage that meet Food Safety Standards Through Adoption of Internal Control System (ICS)(Old Title: Value chain development and piloting of conventional vegetable production and marketing that meet food safety standards through adoption of internal control system (ICS) (Assessment of the Viability of Conventional Vegetable Production and Marketing through Internal Control System (ICS) for Food Safety Standards))	Development of internal control system (ICS) for conventional vegetable production that meet food safety standards (Old Title: Pesticide Management and Monitoring of Residues as a basis for an Internal Control System for Conventional Production of Selected Vegetables to Address Food Safety)	Transparent, accountable, and participatory governance	It aims to plan and monitor pest and pesticide management strategy to be adopted as an internal control system for farmer cluster poroducing selected vegetables to address food safety concerns.	Publication 1) Article about pesticide residues 2) Article about safe pesticide management 3) ICS protocol Places and Partnerships 1) Partnership with the LGUs, barangay officials  People 1) Farmers trained on pesticide management and use of tools for pesticide residue assessment 2) Increased consumer awareness on safe vegetables  Policy 1) Adoption of ICS in the formulation of local policy for safe vegetable production 2) Development of municipal ordinance for the promotion of safe vegetable production and sustainability program to ensure long-term adoption  Product 1) Pesticide Management Plan for selected vegetables 2) Internal Control System (ICS) for conventional vegetable production	UPLB	Farmers, consumers, and other stakeholders	01-Oct-17	31-Mar-19	ONGOING	2,563,621	324,443
Value Chain Development and Piloting of Conventional Production and Marketing of Eggplant and Cabbage that meet Food Safety Standards Through Adoption of Internal Control System (ICS)(Old Title: Value chain development and piloting of conventional vegetable production and marketing that meet food safety standards through adoption of internal control system (ICS) (Assessment of the Viability of Conventional Vegetable Production and Marketing through Internal Control System (ICS) for Food Safety Standards))	Establishment of a sustainable and viable value chain for conventionally-produced safe vegetables (Old Title:Project 2. Profitability assessment of adopting an internal control system (ICS) in the production and marketing of fresh and safe vegetables)	Transparent, accountable, and participatory governance	It aims to assess the profitability of conventional production and marketing of fresh and safe vegetables using ICS.	Product/Process ⌚ Alternative models for production and marketing of conventionally-produced safe vegetables; ⌚ Traceability system for conventionally-produced safe vegetables; ⌚ Packaging materials sample with printed brand and labels;  Places and partnerships ⌚ Farm clusters ⌚ Institutional market (e.g., supermarkets, hospitals, etc.)  Publication ⌚ Report on the complete documentation of the processes involved in the project. ⌚ Articles	UPLB	Vegetable farmers, farmer organizations, potential entrepreneurs, vegetable consumers, policy and decision makers, technology adoptors, potential investors and regulatory organizations and industry associations.	01-Oct-17	31-Mar-19	ONGOING	2,463,379	349,301

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Bamboo Grove Establishment for Climate Change Resiliency on Quinali "A" Sub-watershed in the Province of Albay	Rapid, inclusive and sustained economic growth	<p>The general objective of the project is to rehabilitate the vulnerable segments of the Quinali "A" Sub-Watershed through the SAFE project.</p> <p>Specific objectives</p> <ol style="list-style-type: none"> <li>1. To reassess the vulnerable river/streams banks;</li> <li>2. To mobilize the LGUs, DENR and DA, that are the direct stakeholders of the Quinali "A" Sub-Watershed for the rehabilitation activities;</li> <li>3. To produce bamboo seedlings and other appropriate planting materials for stabilizing the river/stream banks;</li> <li>4. To establish the bamboo grooves and ensure its maintenance beyond the project;</li> <li>5. To merge an alliance of stakeholders for policy directions towards sustainability of the project.</li> <li>6. To produce IEC materials as part of an awareness and advocacy campaign.</li> </ol>	<p>YEAR ONE:</p> <ol style="list-style-type: none"> <li>1. Reassessment of the river vulnerable river/streams banks; producing maps and proper documentation;</li> <li>2. MOAs forged between and among concerned stakeholders;</li> <li>3. Action plans of the respective LGUs, including policy drafts;</li> <li>4. One bamboo nursery established at BUCAF site, with 27,500 QPMs and 25,000 potted vetiver grass;</li> <li>5. 100 bamboo grooves established, protected and maintained;</li> <li>6. IEC materials published and distributed.</li> </ol> <p>YEAR TWO:</p> <ol style="list-style-type: none"> <li>1. Municipal ordinances to directly support the project;</li> <li>2. 4-6 additional bamboo nurseries established at LGU sites;</li> <li>3. 100 bamboo grooves established, protected and maintained;</li> <li>4. IEC materials published and distributed;</li> </ol> <p>YEAR THREE:</p> <ol style="list-style-type: none"> <li>1. 1-2 additional bamboo nurseries established at other LGU sites;</li> <li>2. Additional 100 km bamboo grooves established, protected and maintained... for a total of 210 km;</li> <li>3. Project sustainability and development plan prepared; and</li> </ol> <p>IEC materials published and distributed.</p>	BUCAF	The target beneficiaries of the project are basically the stakeholders of the six LGUs that have their respective jurisdiction of the Quinali A sub-watershed, namely, the municipalities of Camalig, Guinobatan, Oas, Polangui, Libon and the City of Ligao. In totality, the Quinali A sub-watershed has about 330 kilometers stretch of rivers including its streams and creeks.	01-Oct-16	30-Sep-19	ONGOING	5,870,013	75,734
	Capability Building on Tapping and Use of Appropriate Coagulant for Improved Rubber Latex Yield	Rapid, inclusive and sustained economic growth	<p>General: To optimize productivity of rubber latex harvest and cup lump yield through capability building of 500 farmers and 70 LGU technicians/extensionists from the 5 major rubber-producing provinces of the Philippines. Specific: 1) To provide trainers' training to 70 trainer-tappers from the 7 major rubber producing provinces of the Philippines. 2) To train additional 500 competent farmer-tappers from the 7 major rubber producing provinces of the Philippines for two years. 3) To develop printed IEC materials on the documented best practices of rubber latex harvesting, coagulation and handling.</p>	<p>Year 1 @ 300 additional tappers (230 farmer-tappers and 70 trainer-tappers) from Zamboanga Sibugay, Agusan del Sur, North Cotabato, Zamboanga del Norte, Basilan, Bukidnon and Laguna, trained at a maximum of 30 participants per training in 11 training sessions</p> <p>Year 2 @ 270 additional farmer-tappers from Zamboanga Sibugay, Basilan and Laguna, trained at a maximum of 30 participants per training in 7 training sessions</p> <p>@ Print IEC materials on best practices rubber latex harvesting, coagulation and handling in English, Filipino, Ilongo and Cebuano at 1,000 copies per version</p>	FPRDI	About 570 households from the 7 top rubber-producing provinces in the Philippines	01-Apr-17	31-Mar-19	ONGOING	7,613,331	1,958,948
	Enhancing and Operationalizing Intellectual Property (IP) Management and Business Development Office in Consortia Member Agencies	Transparent, accountable, and participatory governance	To establish and strengthening the capacities of technology transfer offices of RDIs in the AANR sector	<ol style="list-style-type: none"> <li>1. 9 ITSO strengthened to become TTOs in RDIs in Luzon</li> <li>2. 9 TTOs established</li> <li>3. At least 20 technology transfer staff trained on IP management and commercialization</li> <li>4. 5 IP protection applications filed per TTO per year</li> <li>5. Inventory matured technologies</li> <li>6. 2 networking events and product matching</li> <li>7. 1 technology per RDI commercialized</li> <li>8. TTO offices institutionalized</li> </ol>	CvSU	technology transfer offices and officers	01-Oct-17	30-Sep-19	ONGOING	24,224,458	6,196,452
	Enhancing PCAARRD's Intellectual Property Management through Prior Art Search and Patent Landscape Assessment	Rapid, inclusive and sustained economic growth	<p>IPOPHI's patent analysis and landscaping efforts and its provision of expertise in patent search are a means to assist innovative enterprises, R&amp;D institutions as well as PCAARRD. The patent analytics and landscape portion of the project will be performed on the identified priority commodities of PCAARRD. The Patent Landscape Reports are envisioned to serve as a reliable reference in crafting priority R&amp;D programs and evaluating future proposals to be funded by PCAARRD. The prior art search and assessment portion of the project will focus on the technology generating ongoing R&amp;D projects of PCAARRD. The search reports will help determine early IP management strategies needed for the technologies in the pipeline.</p> <p>Specifically, the project aims to</p> <ol style="list-style-type: none"> <li>a. Assist PCAARRD in the evaluation and assessment of quality R&amp;D outputs and help increase the possibility of patent grant through prior art search.</li> <li>b. Provide patent data to support decisions on the levels of future PCAARRD R&amp;D funding</li> <li>c. Generate PLRs showing the patenting activities and areas of technology concerning the priority commodities identified by PCAARRD</li> <li>d. Integrate patent information as an essential part of technology evaluation and assessment for quality and non-duplicated output by providing seminars and training modules on prior art search</li> </ol>	<p>Year 1: 6 PLRs generated and 75 technologies assessed using prior art analysis.</p> <p>Year 2: 6 PLRs generated and 75 technologies assessed using prior art analysis.</p>	IPO	PCAARRD and RDIs	01-Feb-17	31-Jan-19	ONGOING	4,977,210	1,398,565

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Enhancing the Commercial Potential of Downy Mildew Resistant Corn Varieties (Old Title: Plant Variety Protection of Downy Mildew Resistant Corn and Patent Application of Related Technologies)	Rapid, inclusive and sustained economic growth	<p>This proposed was initiated on 14 may 2016 during the DOST-PCAARRD site visit to R&amp;D Infrastructure for the Seaweed Industry established by PSU-MSL. The said projects will address the inherent challenges and technological gaps in seaweed production; develop priority interventions to improve the market linkage and enhance competitiveness; develop prototypes to modernize and scale up upstream production; and initiate the expansion into downstream products to enhance the value chain.</p> <p>The project will complement the ongoing projects currently being conducted by PSU-MSL through the implementation of the project, "Establishment of Seaweed laboratories and Sea-Based Seaweed Nurseries: P/A/P Code 40101002" authorized through RA 10651 (GAA, FY 2015).</p>	At least one (1) Prototype of low-cost "Amphibious Utility Vehicle" (AUV) One (1) Prototype of Seaweed Harvester One (1) Prototype of Tie-Line Planting Table and Mechanical Line Planter Atleast two (2) Applications for IPR Protection (e.g. patent, utility model or industrial desings) filed with IPOPHL	UPLB	Seaweed industry, Seaweed farmers, Bureau of Fisheries and Aquatic Resources (BFAR), Academe, Researchers/Scientists, LGUs and NGAs	01-Jun-18	31-May-20	NEW	4,999,816	2,896,368
	Establishment of Forage Production Modules for Slaughter Goats in Bongabon and Lupao, Nueva Ecija: A S&T Community-based Approach	Rapid, inclusive and sustained economic growth	<p>General: To project aims to establish community-based forage production modules to ensure year-round supply of quality feeds for goats and support the raw materials needs of the Technomart project on pelletized feeds in Bongabon, Nueva Ecija. Specific: 1. To promote wider adoption of science-based technologies on forage production for goat through the STCBF modality in Bongabon, Nueva Ecija; 2. To strengthen the capabilities of goat farmers on recommended technologies to produce forage for a 5-doe level (1.82t DM/year) goat module farm and 1.7t leaf meal/year as raw material for forage-based pellet production; and 3. To enhance active participation and empower the community particularly the LGU of Bongabon in promoting the establishment of 2ha forage modules as a goat-based enterprise capable of producing 54.68t DM/year to provide feed for a 50-doe level goat farm and raw materials for foragebased pellet production.</p>	<p>1) Trained at least 30 goat farmers. 2) Conducted at least 9 trainings (Technologies on the establishment and maintenance of forage/seedling production modules; Technologies on improved goat management/ enterprise). 3) Established two nurseries with a total production of 300,000 seedlings; 4) Established 2 community-based and 1 LGU-based forage production modules with a total of 8 ha forage farm. 5) Produced 108.4 tons/ha of fresh forages and 23.84 tons/ha of leaf meal 6) Produced IEC materials. 7) Documentation and performance monitoring of the project. 8) Established 2 farm clusters composed of 30 goat farmers.</p>	CLSU	30 goat farmers	01-Nov-15	31-Oct-18	COMPLETED	3,488,475	410,242
	Establishment of Rubber Nursery, Budwood Garden and Demonstration Farm in Cavinti, Laguna: An STCBF Approach	Rapid, inclusive and sustained economic growth	<p>General Objective: The project aims to increase the productivity of rubber farms owned by farmer-members of the Southern Tagalog Rubber Producers' Cooperative (STRPC) in Cavinti, Laguna and the independent rubber farmers in the neighboring municipalities of the area within the provinces of CALABARZON (especially Laguna, Rizal, and Quezon) by promoting Science and Technology interventions through the Science and Technology Community-Based Farms Approach .</p> <p>Specific Objectives: 1. To establish one (1) hectare nursery from seeds of existing rubber stand for seedling production to serve as root stocks; 2. To establish one (1) hectare budwood garden to ensure the availability and promote the use of superior and high yielding rubber clones (PB 217, PB 235, PB 260, PB 211, PB 330, RRIM 600 and USM 1) in the region; 3. To establish one (1) hectare of pure rubber plantation for demonstration, training ground and showcasing the NSI/Recommended HYRC's; and 4. To empower local members of STRPC, LGUs and other stakeholders in promoting the recommended technologies by providing them training and source of livelihood.</p>	<p>a. Established one accredited rubber nursery (1ha) and budwood garden (1ha) as an IncomeGenerating Program under the management of STRPC; b. Organized five clusters (one in every province of CALABARZON) of rubber farmers who are interested to pursue rubber clonal plantation and processing; c. Established and maintained linkages with various rubber stakeholders, namely: BatSU, CavSU, URS, SLSU, LGU Laguna, DOST-IVA, DENR-IVA, DTI-IVA, PCAARRD; d. Developed, translated and/or distributed 200 copies of IEC materials on rubber nursery and</p> <p>f. Capacitated 50 nursery operators, rubber farmers and LGU technicians on various skills related to nursery and budwood garden management and establishment; g. Established one (1) hectare demonstration farms for rubber plantation in Cavinti, Laguna; h. Promoted various rubber nursery, budwood garden and plantation technologies through Technology Field Day and cross visits to established farms; i. Developed, translated and/or distributed 200</p> <p>budwood garden establishment; and e. Collaborated with stakeholders regarding the expansion of rubber plantations, establishing a shared service facility much later for rubber processing, and developing other support mechanisms for the rubber industry in CALABARZON.</p> <p>copies of IEC materials on rubber plantation and production; j. Developed a gendersensitive sustainability plan to ensure project continuity; k. Initiated and/or developed a gender-sensitive policy recommendation related to the promotion of rubber plantation in CALABARZON; m. Drafted two journal publications through the IRNR REPS Support Services.</p>	UPLB	1. Southern Tagalog Rubber Producers' Cooperative (STRPC) members; 2. Residents of communities within Laguna and neighboring provinces o CALABARZON; 3. DTI, DENR, and the LGUs of Laguna and Cavinti; 4. Private institutions and individuals who will venture on rubber production and marketing;	01-Sep-16	31-Aug-18	COMPLETED	5,000,000	891,436
	Intellectual Property Rights (IPR) Protection of PCAARRD-Funded Research Projects	Rapid, inclusive and sustained economic growth	<p>As a Government Funding Agency (GFA) mandated to fund projects to develop technologies in agriculture, aquatic and natural resources, there is a need for PCAARRD to ensure that appropriate ownership of research products are accorded to its projects through applicable IPR. This will also provide adequate leverage for it as a GFA and its R&amp;D institutes (RDIs) as technology generators in technology transfer, which can also be appreciated when a proposed technology transfer agreement shall be evaluated by the Fairness Opinion Board pursuant to Republic Act No. 10055, otherwise known as the "Philippine Technology Transfer Act of 2009" .</p> <p>To provide IPR protection for PCAARRD-funded research projects</p>	<p>Year 1: 20 patents/utility model applications and 5 industrial design applications</p> <p>Year 2: 5 patents/utility model applications and 5 industrial design applications</p>	TAPI	Research Partners/Network of PCAARRD	01-Oct-16	31-Mar-19	ONGOING	5,773,374	929,098

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	Management and Commercialization of Technologies Generated from PCAARRD-funded Research Projects in UPLB	Rapid, inclusive and sustained economic growth	The general objective of this study is to manage and to commercialize the technologies generated from PCAARRD-funded research projects from Year 2010 to Year 2015. Specifically, the study aims to: 1. To determine the status and level of development of the IP protection of PCAARRD-funded projects from Year 2010 to Year 2015 for prioritization for commercialization; 2. To evaluate the potential of each technologies based on prioritization for IP generation and protection; 3. To determine the different IP protection applications and value of the prioritized technologies generated from PCAARRD-funded projects and; 4. To commercialize the prioritized technologies generated from PCAARRD-funded projects	Stage 1. Audit and Prioritization @ Research with Technology Potential Assessment Report @ Priority list of technologies for protection and for commercialization Updated IP/Technology Profile Database @ Capacity building for researchers and staff through IP management and technology commercialization trainings @ Initial IP protection (copyright and/or trademarks) applications and filings Stage 2. IP Creation and Protection @ PAS report @ University fairness opinion report @ IP Protection Draft and Application (copyright, trademark, utility model, patent and plant variety) @ Invention Disclosures Assignment of Deed @ Royalty sharing agreement @ Technology Valuation Report @ IP application receiving documents Stage 3. Technology Commercialization @ Business plans @ DOST Fairness opinion report @ Licensing agreements or commercialization contracts Standard forms, contracts, and other templates @ Monitoring report of commercialized IPs @ Investment kits and other marketing collaterals @ Journal publications on technology commercialization	UPLB	University Researchers and Agriculture Sector	25-Oct-16	24-Jan-19	ONGOING	4,954,655	1,008,702
	Market Matching of PCAARRD-Funded Technologies in Support to the Technology Transfer Activities of DOST	Rapid, inclusive and sustained economic growth	General Objective: The project aims to fast-track technology transfer and commercialization of PCAARRD-funded technologies Specific Objectives: 1. To introduce PCAARRD-funded technologies to prospective technology adoptors; 2. To improve or develop aesthetic design/feature of technologies; 3. To improve the quality of technology portfolios; 4. To provide stakeholders with information on best practices, and new technologies through technology pitching and exhibits; and 5. To provide a venue where technology generators and potential adoptors could conduct market matching.	Products @ 10 Technology Portfolios produced @ 20 Animated Technology Videos produced @ At least 4 improved 3D/Prototype Model developed Patents @ 20 Copyrights of Animated Videos Publication @ 10 Technology Flyers produced @ 1 Compendium of Potential AANR-sector Investors produced People @ At least 10 Tech Generator trained on technology pitching @ 25 DOST Personnel and SUC Researchers trained on Technology Portfolio Preparation @ At least 500 beneficiaries/stakeholders reached Partnership @ At least five (5) collaboration agreement with Trade Associations, GOs, NGOs, and Academe	TAPI	The academe, private sectors, farmers and fisher folks, professional organizations and other government agencies arte the intended beneficiaries of the project	01-Apr-18	30-Jun-19	NEW	4,999,581	4,999,851
	Pre-Commercialization Services of Rice Transplanter Attachment (RTA) and Rice Harvester Attachment (RHA) for Hand Tractor	Rapid, inclusive and sustained economic growth	General: To support the commercialization of the RHA and RTA technologies through the conduct of pre- commercialization activities.  Specific: - To facilitate the filling of IP protection for the RHA technology and prosecution of the patent application for the RTA technology; - To evaluate the potential and determine the commercial viability of the RHA and RTA technologies through the conduct of a feasibility study and business plan analysis; - To determine the market viability of the RHA and RTA technologies through the conduct of a full blown market study; - To promote the technology to potential adopters/investors through participation in various trade events, technology fora and exhibits	People: 1 Market Study Report prepared, 1 Feasibility Study Report prepared, 1 Business Plan prepared Patent: RHA technology applied for IP protection Publication: At least 2 IEC materials developed for promotional activities	MIRDC	Farmers, rice field owners and planters, agri-cooperatives and local fabricator shops	01-Jun-17	31-Dec-18	COMPLETED	4,508,333	954,005



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, 2018'	Total Project Cost	2018 PCAARRD GIA
	S&T Action Frontline Emergencies (SAFE) on Flood Prone and Soil Erosion Intensive Areas Using Bamboo in the Province of Maguindanao, ARMM	Integrity of the environment and climate change adaptation and mitigation	To demonstrate how to reduce soil erosion along Rio Grande de Mindanao in the province of Maguindanao by plpanting bamboo along the riverbanks	Products: 30,000 bamboo seedlings produced in the central nursery and sub-nurseries Publications: 3 New IEC materials published and distributed to different beneficiaries (for barangay officials, for the peoples organizations and another one for the high school students) about essentials of bamboo for riverbank rehabilitation, soil erosion and flood control and manual on the propagation and growing of bamboo @ One video documentation on the status in terms of riverbank erosion and flooding and of Rio Grande De Mindanao @ Five training module written People and Services: 90 persons trained on bamboo appreciation for riverbank rehabilitation and nursery establishment, maintenance and utilization Places and Partnerships: 3 MOAs signed between the barangay and MSUMaguindanao on the establishment of sub-nurseries. @ Established linkage with major projects that utilize bamboo for riverbank rehabilitation Policy: Policy on riverbank stabilization through bamboo technology  Year 2: Products: 30,000 bamboo seedlings produced Publications: 3 new IEC materials written and distributed for bamboo entrepreneurs (shoot for food, handicrafts and furniture). @ 2 PCAARRD IEC material on the bamboo utilization translated on the local dialect @ Production of one page flyer Patents: Developed methods and mechanisms for preservation of bamboo shoots for food People and Services: 60 persons trained on bamboo for food preservation	MSU- Maguindanao	The target beneficiaries of the project are the farmers, fishermen and residents along the 78 km Rio Grande de Mindanao traversing within the political boundary of the Province of Maguindanao and the small scale bamboo entrepreneurs in the province.	01-Apr-17	31-Mar-20	ONGOING	4,874,434	942,938
	S&T Based Farm on the Use of Trichoderma Microbial Inoculant (TMI) for Increased Survival and Early Establishment of Tree Crops in Cacao-Coffee Agroforestry System for the Aytas (Magbukun Tribe) in Kanawan Negritos Reservation Area in Morong, Bataan (Old Title:Establishment of Species-based Cacao-Coffee Agro-forestry System in Kanawan Negritos Reservation Area (KNRA) in Morong, Bataan)	Rapid, inclusive and sustained economic growth	General: To integrate the use of compost and Trichoderma microbial inoculant (TMI) in Aytas agroforestry system to ensure higher survival rate and establishment of tree crops in reforestation site and in farm lots of Ayta families in Kanawan Negrito Reservation Area in Morong, Bataan, thereby presenting a long term livelihood option for the IPs as well as conserving and expanding the remaining forest in the reservation Specific: 1) To Improve the coffee, cacao and other tree seedlings' survival and establishment in the grassland site (10 ha) and increase Ayta farmers' annual crop yields (200 m2) with the use of TMI and Trichoderma-generated compost; 2) To engage the Aytas to plant coffee and cacao and maintain their tree crops in their family farm lots; and 5 3) To continue reforestation of brush land (10 ha) contiguous to the remaining forest patches in KNRA.	Year 1 1. Change in attitudes and responses of the Aytas to the agricultural interventions presented by the project; 2. Strategy for Ayta families' adoption of planting of coffee and cacao in their farm lots; 3. 30% increase of yield of Aytas annual agricultural crops; 4. expansion of forest cover in the reservation from 28 ha sec forest to 30 ha; viable agroforestry system in the reservation; Year 2 5. 20% increase of growth rate of cacao and coffee from the model Aeta farm (2ha farm lot) in comparison to the performance of trees in the other farmer's farm lots 6. 20% increase in survival rate, growth and shorter gestation period of planted coffee/cacao on grassland site 7. expansion of forest cover in the reservation from 30 ha sec forest to 38 ha; viable agroforestry system in the reservation; 8. Publishable journal article drafted;	UPLB	The Magbukún Aytas in the KNRA in Morong, Bataan	27-Oct-16	26-Oct-18	COMPLETED	3,151,235	519,014
	S&T Community-Based Farm for Oyster Mushroom Production as an Alternative Source of Livelihood in Disaster Vulnerable Areas in Region 1	Poverty reduction and empowerment of the poor and vulnerable	To provide alternative source of livelihood to the disaster vulnerable communities of Region 1 using the Mushroom production technology through STCBF approach.	Product: 5 technologies transferred; 9000 fruiting bags (3000 per province); 10,500 kg mushroom (3x3500 kgs) People and Services: 3 farm clusters (1 per province); 15 technicians trained (from PLGU and MLGU) 15 trainings (5 trainings per province); 225 trainees; 3 laboratories established (1 per province) Places and Partnerships: 4 MOA/MOU signed (1 per province: SUC-LGU-Cluster; and 1 MOA among SUCs); Publications: 3 IEC materials developed, translated and distributed (3 x 1000 = 3000 copies); 5 training modules; Patents: 3 publication with copyright Policies: 1 marketing policy/guidelines	UNP	-Farmers - Fishermen - Women's Organizations	15-Apr-17	14-Apr-19	ONGOING	4,043,006	1,124,001

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>8</sup>	Total Project Cost	2018 PCAARRD GIA
	S&T Community-based Farms (STCBF) for a Sustainable Cacao Production in Bukidnon	Rapid, inclusive and sustained economic growth	General objectives: This project aims to promote cacao HYV new plantations for a Climate Change-Primed and Sustainable Cacao Production in Bukidnon / Northern Mindanao through the Science and Technology Community-Based Farms (STCBF) approach. Specific Objectives: a) To establish one hectare organic cacao HYV bud-wood garden and nursery (accredited by BPI) in CMU, Bukidnon; b) To capacitate the rural people of Bukidnon in organic cacao HYV budwood garden and nursery operations and intercropping with annuals; c) To showcase and encourage wider adoption of organic HYV budwood garden and nursery and intercropping with annual crops for cacao; d) To enhance the active participation of and empower the community, particularly, the LGU/s and local organizations in promoting HYV budwood garden and nursery, intercropping with annuals, and water impounding for cacao production; and e) To identify and evaluate the norms, roles and responsibilities of men and women in the production of cacao	a. Established and maintained at least eight linkages with various cacao stakeholders; b. Organized four (4) clusters of 37 cacao farmers from four (4) municipalities; c. Capacitated at least 42 cacao farmers, CMU staff, and LGU technicians on cacao nursery, budwood garden and plantation establishment and management; d. Established onehectare accredited cacao nursery and budwood garden under the CMU management; e. Promoted cacao nursery-budwood garden technologies thru Technology Field Day and/or cross visits; f. Developed, translated and/or distributed at least one IEC materials/ training modules and videography; Year 2 g. Maintained at least eight linkages with various cacao stakeholders; h. Maintained the onehectare accredited cacao nursery and budwood garden under the CMU management; i. Capacitated at least 42 cacao farmers, CMU staff, and LGU technicians on new cacao plantation establishment and management with intercropping; j. Established 9.25 hectares of new cacao plantation cum demo farm (0.25 hectare per farmer) with intercropping in four (4) municipalities; k. Promoted cacao plantation technologies thru Technology Field Day and/or cross visits; l. Developed, translated and/or distributed at least one IEC materials/ training modules and videography; m. Conducted an initial gender-sensitive business and sustainability planning; n. Conducted gendersensitive policy consultation for cacao industry Year 3 o. Established and maintained at least nine linkages with various cacao stakeholders; p. Maintained the onehectare accredited cacao nursery and budwood garden under the CMU management; q. Maintained 9.25 hectares of new cacao plantation cum demo farm (0.25 hectare per farmer) with	CMU	Cacao tree growers and other farmers	01-Aug-16	31-Jul-19	ONGOING	4,724,073	935,710
	S&T Community-based Model Farm on Bamboo and Bamboo Woven Products: An Eco/Agri Tourism Theme Park in Maasin, Iloilo City	Rapid, inclusive and sustained economic growth	General objective: Showcase tourism-technology convergence through the demonstration of S&T-based technologies on increasing bamboo production in Maasin, Iloilo as an ecotourism destination; Specific Objectives: 1. Develop a model that would showcase S&T-based technologies in managing bamboo farm for increased and sustained production of bamboo poles as a special feature in Maasin, Iloilo as an ecotourism destination; 2. Promote wider adoption of science-based technologies on bamboo rehabilitation and plantation development; 3. Enhance active participation of local community members adjacent to Maasin, Iloilo, particularly farmers from the municipalities of Alimodian and Janiuay; 4. Identify the gender roles and responsibilities of men and women participating in the production of woven bamboo products in Maasin, Iloilo.	1. Established the following model farms, each with its own special feature: a. Model bamboo nursery of Buntalan; b. Model farm of Daja featuring rehabilitated bamboo plantation; c. Model farm of Abay for a newly-established bamboo plantation in plain/flat areas; d. Model farm of Dagame for a newly-established bamboo plantation in hilly/sloping areas; and e. Model facility of Bolo for bamboo post-harvest processing and weaving. 2. Established and/or strengthened six (6) linkages --- namely, DOST-PSTU-Iloilo, DOT R6, DTI-Iloilo, LGU-Maasin, LGU- Alimodian and LGU-Janiuay 3. Launched and established the eco-/agri- tourism business development plan for Maasin, Iloilo 4. Promoted the "ISP-based technology convergence" as a techno tourism or techno radiation program to at least two neighbouring municipalities 5. Developed at least one local (gender-sensitive) policy/ordinance relevant to the bamboo ISP 6. Conducted at least two capacity building activities; 7. Developed at least one video documentation for bamboo; 8. Documented the roles of men and women in the production of woven bamboo products in Maasin ,Iloilo.	ERDB	Bamboo growers/ Weavers	01-Mar-16	31-Dec-19	ONGOING	3,758,812	425,154
	SAFE Project on Philippine Native Animals for Disaster Risk Reduction in Hazard-Prone Areas of Benguet (SAFE-PNADRRHAB) (Old Title: SAFE Project on Philippine Native Animals for Disaster Risk Reduction with the Integration of RFID System for Identification, Traceability and Tracking of Distributed Stock in Hazard-Prone Areas of Benguet)	Integrity of the environment and climate change adaptation and mitigation	The provision of livestock to rehabilitate livelihoods after humanitarian disasters has been practiced regularly for over thirty years. This is often in the form of herd reconstitution for those largely dependent upon livestock following massive animal mortality.  This SAFE project is proposed in an attempt to provide assistance to disaster-prone communities in Benguet both to prevent large damages and massive animal losses as well as to support in faster rebuilding following a major crisis event caused by natural hazards and climate-related disasters. The SAFE project will utilize the initial outputs of the PCAARRD funded program on Philippine Native Pig Conservation, Improvement and Profitable Utilization. It will operationalize a paradigm shift from reactive emergency relief to pro-active disaster risk reduction measures.	Publications - 6 different IEC material topics, 2 training modules Patent - 1 geographic indication filed; 1 Trademark/Collective mark filed Product- 1 native pig strain developed; People and services - 1 native animal facility for breeding and conservation; At least 30 farmer cooperators involved in SAFE project; At least 10 technical personnel trained  Places and Partnership- 1 MOA signed among stakeholders; 15 breeders distributed to established SAFER farms Policy - 3 policy recommendations developed	BSU	Indigenous people and women in disaster-prone upland communities	01-Mar-18	29-Feb-20	NEW	4,883,288	2,949,144

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Science and Technology Community-Based Farm (STCBF) on Spray Chrysanthemum Production	Rapid, inclusive and sustained economic growth	General To upscale the S & T intervention found to be profitable in the regular STBF that would increase income and uplift economic status of small scale farmers. Specific: 1. To promote wider adoption of the recommended technologies for chrysanthemum production through the community-based STBF modality 2. To increase production of Class AA (80 cm length) quality spray-type chrysanthemum cutflower by 50% (at least 2 dozen per square meter) 3. To produce at least one (1) Technoguide on spray type chrysanthemum production 4. To enhance the active participation and empower the farming communities and local organizations of La Trinidad in promoting the application of recommended technologies to improve mum cutflower productivity	Product: Improved quality of spray mum cutflower People and Services: Clustered & trained farmers Places and Partnerships: Stronger partnership with LGU- La Trinidad, LATCOGA and BSU-CCAARDEC Publications: Spray-mum cutflower production technoguide (1) Policies: Advocate to the LGU adoption of good agricultural practices (GAPS) for spray chrysanthemum production	BSU	La Trinidad Cutflower and Ornamental Growers Association (LATCOGA)	01-Apr-17	31-Mar-19	ONGOING	3,855,963	1,040,048
	Science and Technology Community-based Farms (STCBF) on Improved Nursery Management, Budwood Garden Establishment, and Intercropping Schemes to Promote and Expand Rubber Farming in Cotabato Province	Rapid, inclusive and sustained economic growth	General objectives: This project aims to showcase the recommended budwood garden and nursery management and intercropping schemes to improve the productivity and profitability of the rubber smallholders in selected pilot areas of Makilala and Kidapawan City in Cotabato province through the S&T Community-Based Farm (STCBF) approach. Specific Objectives: 1. To integrate S&T interventions into existing budwood garden and nursery management practices of the nursery operators to produce at least 100,000 quality planting materials (QPMs) of the HYRCs per year (or 10,000 per nursery cooperator) to augment the needed planting materials for the expansion of rubber plantations in the province and in other potential areas in the region; 2. To promote the superior and high-yielding rubber clones, namely: PB217, PB235, PB260, PB311, PB330 and USM1 for adoption by prospective rubber farmers in the region in particular, and in the country in general; 3. To showcase the best practices in nursery and budwood garden establishment and management, in plantation management; and in rubber latex production; 4. To introduce high-value crops, particularly, banana (Lakatan and Latundan), coffee and cacao as intercroppings of rubber to provide supplemental sources of higher income among farmers not only during their waiting period but also over a longer period of time; 5. To increase farm productivity (or income) per unit area by more than 50% with the existence of the HYRCs in tandem with the high-value intercroppings; and 6. To identify and optimize gender norms, roles and responsibilities of men and women participating in the local rubber production.	cooperatives) from the municipalities of Makilala and Kidapawan City into two clusters with 5 members each; 2) Organized the 5 rubber farmers from the municipality of Kidapawan City into one cluster to showcase the three modules of intercropping technology; 3) Capacitated and accredited the said 10 nursery operators from the municipality of Makilala and Kidapawan City on the establishment & management of budwood garden and nursery; 4) Capacitated at least 30 rubber farmers on intercropping technology for rubber trees with banana, coffee and cacao as sources of supplemental income ----- at least 15 rubber farmers per year; 5) Established at least ten linkages with rubber stakeholders, namely: PLGUCotabato; LGUs: Kidapawan City and Makilala; Platinum Rubber Dev't, Inc., DTI-Kidapawan City, PCIEERD, DABPI, and three rubber cooperatives; 6) Established 5 hectares of budwood garden with nursery at Makilala and Kidapawan City; 7) Provided the nursery operators with additional production of more or less 3,000 rubber seedlings of HYRCs per beneficiary or additional income of PhP75,000.00 per season; 8) Established 5 hectares of rubber plantation cum demo farm for intercropping with three high-value crops (lakatan / latundan banana, coffee and cacao) as sources of supplemental income; 9) Provided initial income of more or less PhP5,000 from banana after 9 months and additional supplemental income after 2-3 years from other intercroppings; 10) Provided more or less 50% increase in yield per hectare from the HYRCs by the end of the fifth year as compared to current or local yields; 11) Conducted Technology Field Day (a.k.a. farmers' field day) every year starting year two to showcase all the S&T interventions to other farmers in the province for possible replication; 12) Developed (or translated) and distributed 1,000 copies of IEC materials on nursery & budwood garden management and on rubber intercropping; 13) Developed	USM	Rubber nursery operators and Rubber tree growers/farmers	01-Jan-16	31-Dec-20	ONGOING	4,993,620	337,600
	Science and Technology Interventions to Enhance Spray-Type Chrysanthemum Production through GAP Options	Rapid, inclusive and sustained economic growth	General Objective: To upscale the Science and Technology interventions to enhance spray-type chrysanthemum production through GAP Options that would increase income and uplift economic status of small scale farmers. Specific: 1. To produce disease-free mother plants from in-vitro for nursery production of quality spray-type chrysanthemum planting material. 2. To facilitate the upgrading of a GAP learning center for spray-type chrysanthemum production. 3. To facilitate the packaging of GAP procedure for spray-type Chrysanthemum production. 4. To develop and produce knowledge products (multimedia) on spray-type chrysanthemum production.	Product: Produced quality mother plants of 4 varieties; Radost white, Radost yellow, remix 4 varieties for additional 15 beneficiary Improved quality of spray mum cutflower GAP procedure manual for spray-type chrysanthemum production  People and Services: GAP Learning Center for spray-type chrysanthemum production  Places and Partnerships: Facilitated and upgraded one (1) Learning Center for GAP on spray-type chrysanthemum Established stronger partnership with four (4) institutions: PLGU-Benguet, MLGU-La Trinidad, LaTCOGA, ATI-CAR  Publications: 5 video documentaries developed and produced Knowledge product on spray-type chrysanthemum cut flower Facilitated & packaged GAP procedure for spray-type Chrysanthemum production  Policies: Recommended and facilitated one (1) policy on the adoption of good agricultural practices (GAPs) for spray-type chrysanthemum production to the LGU-Municipal and Barangay levels.	BSU	La Trinidad Cutflowers and Ornamentals Growers Association (LaTCOGA) and other stakeholders	16-May-18	15-May-19	NEW	3,000,000	3,000,000
	Support to the Issuance of Fairness Opinion Report for Technology Transfer Activities of PCAARRD	Rapid, inclusive and sustained economic growth	To provide support to RDIs in their request for fairness opinion by the DOST Secretary as a legal requirement for technology transfer activities of government-funded research projects by covering the costs associated in the expert engagement of the Fairness Opinion Board	Year 1: Seven (7) proposed transactions granted with fairness opinion by the DOST Secretary  Year 2: Seven (7) proposed transactions granted with fairness opinion by the DOST Secretary	TAPI	Research Partners/Network of PCAARRD	01-Oct-16	31-Dec-18	COMPLETED	5,891,968	1,156,654

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, 2018*	Total Project Cost	2018 PCAARRD GIA
	Sustaining Crop Productivity in Climate Vulnerable Areas in Ilocos Norte through STCBF on Climate Resilient Technologies	Poverty reduction and empowerment of the poor and vulnerable	The project is envisioned to lead to a more effective and efficient production of climate resilient crops, PH and marketing for the commodity crops for sustainable production. Developed, refines and user-friendly crop-based technologies will be extended and adopted by the beneficiaries to help farm production.	1. Established 10 demo projects to showcase the potential of varios crops resilient varieties; 2. Increased farm productivity through utilization of integrated appropriate crop-based farming technologies; 3. Enhanced the capability of 500 stakeholders 4. Produced, translated and distributed 5 titles of POT on various climate resilient crops; 5. Conducted one school on the air on climate change 6. Enhanced participation and empowerment of the community members 7. Assisted 400 technology adoptors on recommended technologies 8. Initiated policy development and advocacy together with various stakeholders; 9. Conducted M&E on technology adoption	MMSU	community members from the different drought, typhoon flood-stricken municipalities in Ilocos Norte.	01-Jul-17	30-Jun-19	ONGOING	4,915,348	1,750,038
	Sustaining the Development of Core Satellite Milkfish Hatchery Network in the Philippines	Rapid, inclusive and sustained economic growth	In order for the Philippines to be self-sufficient in meeting the fry requirements of the milkfish industry, there is a need to maximize fry production though the satellite system by utilizing the existing vacant facilities of abandoned shrimp hatcheries. This system is estimated to produce ±50-100 M/year (Year 1), whereby filling up part of the gap in fry production resulting to reduced fry importation.	Trained at least 36 hatchery operators and staff in milkfish satellite hatchery management. Trained at least 20 participants from additional seminars as well as hands-on and practical trainings conducted to replicate the scheme in other identified suitable areas of the country (Zambales, Cebu, Misamis Occidental and Oriental, Gen. Santos). Promoted the technology on Core Satellite technologies to other major milkfish producing provinces in the country. Printed and distributed manual on Milkfish Satellite Hatchery Management	UPV	The target beneficiaries of the project are the various sectors of milkfish industry: the complete hatchery operators (core hatcheries), small-scale hatchery owners (satellite hatcheries), growers (nursery, grow-out ponds, pens & cages) and feed millers — researchers can also use the results as basis for further study on milkfish physiology.	01-Apr-18	31-Mar-19	NEW	3,500,000	3,500,000
	Technology Assessment of PCAARRD-Funded Research Projects	Rapid, inclusive and sustained economic growth	In general, the project aims to assess the research outputs from projects that received funding support from PCAARRD on the stage or level of readiness for commercialization.  Specifically, to determine if PCAARRD-funded research projects have potentials for: (1) intellectual property protection; (2) commercialization; and (3) further research.	Year 1: 20 projects and 30 technologies assessed as to the stage or level of readiness for commercialization potentials.  Year 2: 20 projects and 30 technologies assessed as to the stage or level of readiness for commercialization potentials.	TAPI	PCAARRD Management and Secretariat / Research Partners/Network of PCAARRD	01-Oct-16	31-Mar-19	ONGOING	5,782,794	1,207,052
	Testing and Evaluation of Machinery Generated from PCAARRD-funded Projects	Rapid, inclusive and sustained economic growth	machinery generated from PCAARRD-funded projects.  Specific: 1. To classify the machines funded by PCAARRD-funded projects that are ready for commercialization with existing Philippine Agricultural Engineering Standards, those with international standards, and those with no standards yet.  2. To develop standard test methodologies for machines without national of international standards.  3. To test and assess the performance characteristics of the following machines ready for commercialization using the available standards or developed standards methodology: a. Milkfish Automatic Fry Counter b. Milkfish Mechanical Bottom Feeder c. Milkfish and Shrimp Automatic Surface Feeder d. Superheated Steam Treatment System for Stabilized Brown Rice Production e. Fluidized Bed Dryer for the Stabilized Brown Rice Production f. Compact Rice Mill Impeller g. Hand Tractor attached Rice Harvester (9 Hp) h. Hand Tractor Rice Transplanter (7 Hp) i. Portable Mango Power Sprayer Nozzle j. Mechanical Fruit Picker k. Integrated Mango Postharvest Facility l. Rice Transplanter (riding-type) m. Rice Seeder (riding-type) n. Rice Combine Harvester (riding-type)	on Specifications and Methods of Test for the following machinery shall be developed: a. Milkfish Automatic Fry Counter b. Milkfish Mechanical Bottom Feeder c. Milkfish and Shrimp Automatic Surface Feeder d. Mango Hot Water Treatment e. Drip Irrigation System f. Peanut Stripper g. Bulk Storage for Peanut h. Feed Pelletizer  People and Services: 2. Test reports of the following machines that were generated from the PCAARRD-funded projects shall be prepared: a. Superheated Steam Treatment System for Stabilized Brown Rice Production b. Fluidized Bed Dryer for the Stabilized Brown Rice Production c. Compact Rice Mill (Impeller-type) d. Rice Combine Harvester (attached to hand tractor) e. Rice Combine Harvester (riding-type, self-propelled) f. Rice Transplanter (attached to hand tractor) g. Rice Transplanter (riding-type, self-propelled) h. Rice Seeder (riding-type, self-propelled) i. Portable Mango Sprayer Nozzle j. Mechanical Fruit Picker k. Integrated Mango Postharvest Facility l. Infrared Grain Dryer m. Drip Irrigation (for peanut and sugarcane)	UPLB	1. Technology Generators (SUCs, RDIs) 2. Technology Adopters (Machinery users, Manufacturers/Fabricators) 3 Other Agricultural Machinery Industry Stakeholders	16-Jun-17	15-Mar-19	ONGOING	2,126,931	1,178,966

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, 2018'	Total Project Cost	2018 PCAARRD GIA
	Towards a Strengthened Technology Commercialization Process through Facilitation and Preparation of Business Plan of PCAARRD-Generated/Assisted Technologies	Rapid, inclusive and sustained economic growth	General: To strengthen the technology commercialization process through the development of appropriate market-responsive business plans for specific agriculture/aqua industry-based technologies funded/generated by DOST through PCAARRD.  Specifically, the project aims to: 1. Ensure appropriate matching and engagement between consultancy firms and innovators, following pertinent government rules and processes in acquiring and involving consultancy services of firms; 2. Serve as liaison channel amongst concerned stakeholders for the delivery of outputs; and 3. Ensure the timely and quality preparation of business plan and technical reports through efficient monitoring and validation activities.	People and Services: At least 15 Business Plans for PCAARRD-generated/assisted Technologies; at least five project staff trained on procurement process Publications: 15 house business plans published in-house Patents: 15 copyrights Partnerships: PCAARRD-TAPI partnership; at least four TAPI-service providers partnership	TAPI	- Technology Adopters/Investors - Technology Generators - Research and Development Institutes/State Colleges and Universities - DOST (particularly PCAARRD and TAPI)	01-Jun-17	30-Nov-18	COMPLETED	4,920,085	435,676
	Valuation of Technologies Generated from PCAARRD-Funded Research Projects	Rapid, inclusive and sustained economic growth	This project forms part of PCAARRD's Technology Transfer Pathway, wherein outputs of which would determine the fate of the subjected research projects and technologies whether they shall be commercialized or can only be disseminated, promoted, or rolled out for free to intended beneficiaries.  If technologies would be commercialized, the value of the technologies which will be offered to potential adopters should be determined. Together with appropriate IP protection this would provide great leverage to PCAARRD and/or its R&D institutes (RDI) during licensing negotiations.  Likewise, the Fairness Opinion Board (FOB), specifically requires technologies to be valued prior to securing a Fairness Opinion Report (FOR).  As such, this project will cater to valuation of IPs in partnership with the private firms conducting technology valuation.  Objectives: To assess the value of the research outputs from projects that received funding support from PCAARRD.	16 technologies valued within 2 years	TAPI	PCAARRD Management and Secretariat / Research Partners/Network of PCAARRD	01-Oct-16	31-Dec-18	COMPLETED	5,916,899	1,021,732
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	IP-TBM Coordination and Capacity Building	Transparent, accountable, and participatory governance			FPRDI		01-Jun-18	31-May-20	NEW	7,435,830	5,349,844
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 1. Enhancing the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations in Ifugao State University (IFSU)	Transparent, accountable, and participatory governance	To develop the Intellectual property (IP) and Technology Business Management of Ifugao State University Specifically, the project aims to: 1. Capacitate the technology transfer personnel of Ifugao State University; 2. Enhance the technology promotion and commercialization activities of Ifugao State University; Intensify linkages with various agencies to enhance activities on intellectual property protection and management and technology transfer and commercialization.	Y1 - 1 inventory of IP assets - At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series - At least 1 IP-TBM staff attended a local IP workshop - At least 1 promotional IEC for SUC/RDI technologies - At least 2 IP (patent and utility model only) applications - 1 IP-TBM established/enhanced - 1 Letter of Commitment from SUC/RDI - 1 Memorandum of Agreement signed - At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions - 1 Institutional IP Policy reviewed/ crafted - 1 Technology Transfer Protocol reviewed/ crafted Y2 - At least 1 Technology Commercialized - At least 1 IP-TBM staff attended a foreign IP workshop - At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker - At least 2 networking events and technology promotion conducted by the SUC/RDI - At least 1 technology taker/adopter - At least 1 promotional IEC for SUC/RDI technologies - At least 3 IP (patent and utility model only) applications - 1 IP-TBM institutionalized - At least 1 commercialization agreement executed	IFSU	Ifugao State University its Counterpart and the Different stakeholder of the University	16-Jul-18	15-Jul-20	NEW	2,210,069	992,122

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 10. Strengthening the Capacity of Bohol Island State University (BISU) on Intellectual Property and Technology Business Management (IP-TBM) for Sustained Technology Commercialization	Transparent, accountable, and participatory governance	<p>General: To strengthen the capacity of BISU IP-TBM for IPR protection and effective technology commercialization.</p> <p>Specific: 1. To capacitate the Technology Transfer Personnel of BISU; 2. To enhance the university's technology promotion and commercialization activities; 3. To intensify linkages with various agencies to enhance activities on intellectual property protection &amp; management and technology transfer &amp; commercialization.</p> <p>General: To strengthen the capacity of BISU IP-TBM for IPR protection and effective technology commercialization.</p> <p>Specific: 1. To capacitate the Technology Transfer Personnel of BISU; 2. To enhance the university's technology promotion and commercialization activities; 3. To intensify linkages with various agencies to enhance activities on intellectual property protection &amp; management and technology transfer &amp; commercialization.</p>	<p>Year 1:            @ At least 1 inventory of IP assets            @ At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series            @ At least 1 IP-TBM staff attended a local IP workshop/fora            @ At least 1 promotional IECs for SUC/RDI technologies            @ At least 2 IP (patent and utility model only) applications            @ 1 IP-TBM established/enhanced            @ 1 Institutional IP Policy reviewed/ crafted</p> <p>Year 2:            @ At least 1 Technology Commercialized            @ At least 1 IP-TBM staff attended a foreign IP workshop/for a            @ At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IPTBM staff as trainer/speaker            @ At least 2 networking events and technology promotion conducted by the SUC/RDI            @ At least 1 promotional IECs for SUC/RDI technologies            @ At least 3 IP (patent and utility model only) applications            @ 1 IP-TBM institutionalized</p>	BISU	The project will benefit the Intellectual Property Office of the University, primarily. This represents the staff, the researchers, and the recipient of the seminar sponsored by the Office through the project, thus enhancing the technology transfer in the University. Indirect beneficiaries will go to the students of the University as the function of the Office will also encourage the students to participate in the objective of the Office through their studies. The community through technology adapters may also serve as potential beneficiaries.	16-Jul-18	15-Jul-20	NEW	3,232,007	999,811
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 11. Strengthening the IP-TBM Operations in Samar State University (SSU)	Transparent, accountable, and participatory governance	<p>The project aims to strengthen the capacities of Intellectual Property and Technology Business Management (IP-TBM) Operations of Samar State University, Catbalogan City, Samar. Moreover, its goal is also to enhance their technology commercialization activities. Outputs of the project shall include training of at least one of IP-TBM staff under the IP Master Class and Technology Commercialization Mentorship Series which will be echoed to fellow researchers, publications, commercialization of at least one technology, industry partnerships and crafting or review of policies.</p>	<p>1 inventory of IP assets At least 1 Technology Commercialized</p> <p>People and Services At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series</p> <p>At least 1 IP-TBM staff attended a local/foreign IP workshop/fora</p> <p>At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker</p> <p>At least 2 networking events and technology promotion conducted by the SUC/RDI</p> <p>At least 1 technology taker/adopter</p> <p>Publications At least 4 promotional IECs for SSU technologies</p> <p>Patents At least 8 IP (patent and utility model only) applications</p> <p>Places and Partnerships 1 IP-TBM enhanced/established and institutionalized 1 Letter of Commitment from SSU</p>	SSU	Intellectual Property and Technology Business Management (IP-TBM) of Samar State University SSU Technology transfer officers/managers SSU Researchers/Inventors	16-Jul-18	15-Jul-20	NEW	2,333,354	894,002

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 12. Enhancing the IP-TBM Operations in Western Mindanao State University (WMSU)	Transparent, accountable, and participatory governance	Establishment of a unit/ center that will facilitate the commercialization of technologies generated in the AANR sectors. It will be stationed at the University Research Center that would provide Institutional arrangement orientation and collaboration to different stakeholders; conduct of Policy review and IP audit; Training, mentorship, IP protection; Branding, technology promotion and advocacies, and Manage in business network, partnership and institutionalization. The implementation of the project is expected to impact to society in terms of technologies commercialized, jobs and income generated, products available at lower cost and the facilitation of R.A.10055.	<p>1 inventory of IP assets At least 1 Technology Commercialized</p> <p>People and Services At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series At least 1 IP-TBM staff attended a local/foreign IP workshop/fora At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker At least 2 networking events and technology promotion conducted by the SUC/RDI At least 1 technology taker/adopter</p> <p>Publications At least 2 promotional IECs for SUC/RDI technologies</p> <p>Patents At least 5 IP (patent and utility model only) applications</p> <p>Places and Partnerships 1 IP-TBM enhanced/established and institutionalized 1 Letter of Commitment from SUC/RDI 1 Memoranda of Agreement signed At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions</p>	WMSU	Intellectual Property and Technology Business Management (IP-TBM) of the University; Technology transfer officers/managers SUC/RDI Researchers/Inventors	16-Jul-18	15-Jul-20	NEW	2,409,594	915,502
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 13. Enhancing the IP-TBM Operations in Central Mindanao University (CMU)	Transparent, accountable, and participatory governance	Strengthening the capacity of CMU's IPLO for the Intellectual Property and Technology Business Management (IP-TBM) Operations, to be an operational one-stop-shop for technology owners and generators, investors, end users and other stakeholders to facilitate the commercialization of technologies generated, preferably along the AANR sectors	<p>1 inventory of IP assets At least 1 Technology Commercialized</p> <p>People and Services At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series  At least 1 IP-TBM staff attended a local/foreign IP workshop/fora  At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker  At least 2 networking events and technology promotion conducted by the SUC/RDI  At least 1 technology taker/adopter</p> <p>Publications At least 2 promotional IECs for SUC/RDI technologies</p> <p>Patents At least 5 IP (patent and utility model only) applications</p> <p>Places and Partnerships 1 IP-TBM enhanced/established and institutionalized 1 Letter of Commitment from SUC/RDI</p>	CMU	Intellectual Property and Technology Business Management (IP-TBM) of CMU Technology transfer officers/managers CMU Researchers/Inventors	16-Jul-18	15-Jul-20	NEW	2,489,284	915,502

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 14. Revitalizing the IP-TBM Operations in the University of Southern Mindanao (USM)	Transparent, accountable, and participatory governance	1) capacitate the technology transfer personnel of the University of Southern Mindanao through the IP-TBM office; 2) enhance the technology promotion and commercialization activities through the IP-TBM office in University of Southern Mindanao; 3) promote intellectual property awareness among the students of the University both in undergraduate and post-graduate level 4) Intensify linkages with various agencies to enhance activities on intellectual property protection and management and technology transfer and commercialization.	Year 1: ☑ At least 1 inventory of IP assets ☑ At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series ☑ At least 1 IP-TBM staff attended a local IP workshop/fora ☑ At least 1 promotional IECs for SUC/RDI technologies ☑ At least 2 IP (patent and utility model only) applications ☑ 1 IP-TBM established/enhanced ☑ 1 Institutional IP Policy reviewed/ crafted Year 2: ☑ At least 1 Technology Commercialized ☑ At least 1 IP-TBM staff attended a foreign IP workshop/for a ☑ At least 20 SUC/RDI 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 SUC/RDI ☑ At least 1 promotional IECs for SUC/RDI technologies ☑ At least 3 IP (patent and utility model only) applications ☑ 1 IP-TBM institutionalized	USM	The project will benefit the Intellectual Property Office of the University, primarily. This represents the staff, the researchers, and the recipient of the seminar sponsored by the Office through the project, thus enhancing the technology transfer in the University. Indirect beneficiaries will go to the students of the University as the function of the Office will also encourage the students to participate in the objective of the Office through their studies. The community through technology adapters may also serve as potential beneficiaries.	16-Jul-18	15-Jul-20	NEW	2,368,297	987,447
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 15. Enhancing the IP-TBM Operations in Caraga State University (CarSU)	Transparent, accountable, and participatory governance	This project aims to capacitate and provide resources for the establishment and operationalization of the Intellectual Property and Technology Business Management (IP-TBM) in Caraga State University to pursue IP protection and technology transfer & commercialization activities	At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series  At least 1 IP-TBM staff attended a local/foreign IP workshop/fora At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker  At least 2 networking events and technology promotion conducted by the SUC/RDI  At least 1 technology taker/adoptor  Publications At least 2 promotional IECs for SUC/RDI technologies  Patents At least 5 IP (patent and utility model only) applications  Places and Partnerships 1 IP-TBM enhanced/established and institutionalized  1 Letter of Commitment from SUC/RDI  1 Memoranda of Agreement signed	CarSU	Direct Beneficiaries: 1. CSU Researchers/inventors 2. Intellectual Property and Technology Business Management (IP-TBM) Team in CSU 3. CSU ITSO Technical Staff/Experts  Indirect Beneficiaries: 4. MSME's in Caraga Region 5. Inventors in Caraga Region	16-Jul-18	15-Jul-20	NEW	3,611,304	918,727



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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 16. Enhancing the IP-TBM Operations in Maguindanao State University - Iligan Institute of Technology (MSU-IIT)	Transparent, accountable, and participatory governance	The project focuses on the establishment of Intellectual Property and Technology Business Management (IP-TBM) that mirrors DPITCs initiatives to strengthen the capacities of Mindanao State University - Iligan Institute of Technology (MSU-IIT) with sustainability interventions to enhance its technology commercialization activities.	<p>1 inventory of IP assets At least 1 Technology Commercialized</p> <p>People and Services At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series</p> <p>At least 1 IP-TBM staff attended a local/foreign IP workshop/fora</p> <p>At least 20 researchers of MSU-IIT/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker</p> <p>At least 2 networking events and technology promotion conducted by MSU-IIT/RDI through the IP-TBM</p> <p>At least 1 technology taker/adopter</p> <p>Publications At least 2 promotional IECs for MSU-IIT/RDI technologies</p> <p>Patents At least 5 IP (patent and utility model only) applications</p> <p>Places and Partnerships 1 IP-TBM enhanced/established and institutionalized 1 Letter of Commitment from MSU-IIT/RDI</p>	MSU-IIT	Intellectual Property and Technology Business Management (IP-TBM) of MSU-Iligan Institute of Technology Technology Transfer personnel, officers, managers, researchers/inventors in MSU-IIT	16-Jul-18	15-Jul-20	NEW	2,731,771	915,502
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 2. Strengthening and Sustaining the IP-TBM of Mariano Marcos State University (MMSU)	Transparent, accountable, and participatory governance	<p>General: To strengthen and sustain the Intellectual Property Management and Business Development Office of the Mariano Marcos State University</p> <p>Specific: 1. To capacitate the technology transfer personnel of MMSU 2. To enhance the technology promotion and commercialization activities of MMSU. Intensify linkages and partnership with various agencies and industries.</p>	<p>Ⓢ At least 1 inventory of IP assets Ⓢ At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series Ⓢ At least 1 IP-TBM staff attended a local IP workshop/fora Ⓢ At least 1 promotional IECs for SUC/RDI technologies Ⓢ At least 2 IP (patent and utility model only) applications Ⓢ 1 IP-TBM established/enhanced Ⓢ 1 Institutional IP Policy reviewed/ crafted Year 2: Ⓢ At least 1 Technology Commercialized Ⓢ At least 1 IP-TBM staff attended a foreign IP workshop/for a Ⓢ At least 20 SUC/RDI 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 SUC/RDI Ⓢ At least 1 promotional IECs for SUC/RDI technologies Ⓢ At least 3 IP (patent and utility model only) applications 1 IP-TBM institutionalized</p>	MMSU	Mariano Marcos State University's Faculty and Full-time Researchers and Inventor 3. Potential target technology adopters	16-Jul-18	15-Jul-20	NEW	2,166,895	997,907

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 3. Enhancing the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations of Isabela State University (ISU)	Transparent, accountable, and participatory governance	<p>General Objectives:</p> <p>To strengthen the capacities of Intellectual Property (IP) Management and Business Development Office of ISU and RDIs to enhance their technology commercialization activities.</p> <p>Specifically, the project aims to:</p> <ol style="list-style-type: none"> <li>1. Capacitate the Technology Transfer Personnel of ISU and RDIs;</li> <li>2. Enhance the technology promotion and commercialization activities of identified campuses of ISU and RDIs in Cagayan Valley, R02; and</li> <li>3. Intensify linkages with the nine (9) campuses of ISU and various agencies to enhance activities on intellectual property protection &amp; management and technology transfer &amp; commercialization.</li> </ol>	<p>Year 1</p> <ol style="list-style-type: none"> <li>1. At least (one) 1 IP Management and Business Development Office Staff extensively trained on IP</li> <li>2. At least (one) 1 Technology Transfer Office Personnel attended an IP-TBM workshop/fora (local/foreign).</li> <li>3. One (1) Technology Transfer Office Institutionalized</li> <li>4. At Least 12 campus IP-TBM Coordinators trained (short duration) on IP management and Tech Commercialization (with TTO as trainer).</li> <li>5. One (1) institutional IP Policy; One (1) Technology Transfer Protocol</li> <li>6. One (1) inventory of IP assets</li> </ol> <p>Year 2</p> <ol style="list-style-type: none"> <li>1. At least five (5) IP applications</li> <li>2. At least two (2) promotional IECs for SUC/RDI technologies</li> <li>3. At least one (1) technology taker/adopter</li> <li>4. At least two (2) networking events and product promotion conducted by SUC/RDI</li> <li>5. One (1) letter of commitment from ISU Officials/RDI; one (1) RFA; at least one (1) commercialization agreement forged; At least one (1) partnership agreement with Philippine Chamber of Commerce Inc./ Marketing/Trade Institution</li> </ol>	ISU	<ol style="list-style-type: none"> <li>1. Intellectual Property (IP) and Technology Business Management offices of ISUE/RDIs</li> <li>2. Technology transfer officers/managers</li> <li>3. ISUE/RDIs Researchers/Inventors</li> <li>4. Farmers, Entrepreneurs/private organization</li> </ol>	16-Jul-18	15-Jul-20	NEW	3,769,914	928,957
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 4. Enhancing the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations of theNueva Vizcaya State University (NVSU)	Transparent, accountable, and participatory governance	<ol style="list-style-type: none"> <li>1. Strengthen capacities of technology transfer personnel of NVSU;</li> <li>2. Enhance the technology promotion and commercialization activities of NVSU; and</li> <li>3. Intensify linkages with various agencies to enhance activities on intellectual property management and technology commercialization.</li> </ol>	<ul style="list-style-type: none"> <li>☑ Conducted Inventory of IP assets</li> <li>☑ One (1) Technology Commercialized</li> <li>☑ One (01) IP-TBM Staff extensively trained under the IP Master class and Technology Commercialization Mentorship Series</li> <li>☑ 1 IP-TBM staff attended IP workshop/fora (foreign/local)</li> <li>☑ At least 20 SUC staff trained on IP management and technology commercialization (echo seminar) with IP-TBM staff as trainor/speaker</li> <li>☑ 1 technology transfer office institutionalized</li> <li>☑ 1 networking events and product promotions conducted by the SUC</li> <li>☑ 1 technology taker/adopter</li> <li>☑ At least 2 promotional IECs for NVSU technologies</li> <li>☑ 5 IP applications (patent and UM only)</li> <li>☑ 1 PMM-BDO established/enhanced and institutionalized</li> <li>☑ At least 1 commercialization agreement executed</li> <li>☑ 1 Letter of Commitment from NVSU</li> <li>☑ 1 Memorandum of Agreement signed</li> <li>☑ At least 1 partnership agreement with the Philippine Chamber of Commerce Inc. / Business Groups/marketing or trade institutions</li> <li>☑ 1 Institutional IP Policy reviewed/crafted</li> <li>☑ 1 technology transfer Protocol reviewed/crafted</li> </ul>	NVSU	Inventors, scientists, entrepreneurs, writers, innovators, and students in the province of Nueva Vizcaya	16-Jul-18	15-Jul-20	NEW	2,639,990	972,217

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 5. Establishment of the Intellectual Property and Technology Business Management (IP-TBM) in the Philippine Carabao Center (PCC)	Transparent, accountable, and participatory governance	The general objective of this project is to establish an Intellectual Property (IP) Management and Business Development Office (IP-TBM) at PCC that will promote and enhance technology generation, protection, and commercialization activities of the Agency. Specifically this aims to: 1. To create an IP and technology transfer committee that will spearhead and facilitate the necessary IP activities; 2. To create an approved Intellectual Property Policies and technology transfer guidelines/ protocols; 3. To capacitate the technology transfer personnel of PCC; 4. To promote knowledge dissemination resulting from research studies, and technology transfer and its eventual commercialization; and 5. To intensify partnership with the collaborating agencies to enhance activities on IP protection and management and technology transfer, and commercialization.	Y1 - 1 inventory of IP assets - At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series - At least 1 IP-TBM staff attended a local IP workshop - At least 1 promotional IEC for SUC/RDI technologies - At least 2 IP (patent and utility model only) applications - 1 IP-TBM established/enhanced - 1 Letter of Commitment from SUC/RDI - 1 Memorandum of Agreement signed - At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions - 1 Institutional IP Policy reviewed/ crafted - 1 Technology Transfer Protocol reviewed/ crafted Y2 - At least 1 Technology Commercialized - At least 1 IP-TBM staff attended a foreign IP workshop - At least 20 SUC/RDI 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 SUC/RDI - At least 1 technology taker/adoptor - At least 1 promotional IEC for SUC/RDI technologies - At least 3 IP (patent and utility model only) applications - 1 IP-TBM institutionalized - At least 1 commercialization agreement executed	PCC	The target beneficiaries of the Project, such as but not limited to: PCC's technology transfer manager/officers and researchers, inventors, students and farmer-clients	16-Jul-18	15-Jul-20	NEW	2,793,104	855,727
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 6. Enhancing the Intellectual Propoerty and Technology Business Management (IP-TBM) of Pampanga Agricultural State University (PSAU)	Transparent, accountable, and participatory governance	General: To capacitate and strengthen the Intellectual Property and Technology Business of Pampanga State Agricultural University in order to enhance its technology commercialization activities. Specific Objectives: a) Harmonize the existing IP policies of the University to the existing National Intellectual Property Policies b) Capacitate the Technology Transfer Personnel of Pampanga State Agricultural University on various IP Management and Business Development protocols, c) Identify and protect the Intellectual Property Rights of the University to promote and embolden quality, ingenuity and novelty in research and other scholarly works d) Enhance the technology promotion and commercialization activities of Pampanga State Agricultural University e) Collaborate with various agencies to enhance activities on intellectual property protection & management and technology transfer and commercialization	a) 1 institutional IP Policy reviewed/ crafted b) 1 Technology Transfer Protocol reviewed/ crafted c) At least 1 IP Mgt. and Business Development Office Staff extensively trained on IP d) At least 1 Technology Transfer Office Personnel attended an IP-TBM workshop/for a e) At Least 20 SUC staff trained (short duration) on IP mngt. And Tech Commercialization(with TTO as trainer) f) 1 inventory of IP assets g) At least 2 IP applications h) At least 1 promotional IECs were published and disseminated i) at least 1 commercialization agreement; At least 1 partnership agreement with Philippine Chamber of Commerce Inc./ Marketing/Trade Institution Y2: a. At Least 20 SUC staff trained (short duration) on IP mngt. And Tech Commercialization(with TTO as trainer) b. At least 3 IP applications c. At least 1 promotional IECs were published and disseminated d. At least 1 Technology Commercialized e. At least 1 technology taker/adoptor	PSAU	The University, researchers, students and other interested individuals	16-Jul-18	15-Jul-20	NEW	2,369,104	950,177

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 7. Enhancing and Strengthening the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations in Forest Products Research and Development Institute (FPRDI)	Transparent, accountable, and participatory governance	<p>General</p> <p>To enhance and strengthen institutional capacity for IP management and commercialization of FPRDI developed technologies</p> <p>Specific Objectives</p> <p>1. Capacitate the technology transfer personnel of FPRDI;</p> <p>2. Enhance technology promotion and commercialization activities of FPRDI; and,</p> <p>3. Strengthen linkages with industry and community stakeholders to enhance activities on intellectual property management and technology commercialization.</p>	<p>Products: 1 inventory of IP assets At least 1 Technology Commercialized People and Services: At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series At least 1 IP-TBM staff attended a local/foreign IP workshop/fora At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IPTBM staff as trainor/speaker At least 2 networking events and technology promotion conducted by the SUC/RDI At least 1 technology taker/adopter Publications : At least 2 promotional IECs for SUC/RDI technologies Patents: At least 5 IP (patent and utility model only) applications Places and Partnerships: 1 IP-TBM established/enhanced and institutionalized At least 1 commercialization agreement executed 1 Letter of Commitment from SUC/RDI 1 Memorandum of Agreement signed At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions</p> <p>Policies: 1 Institutional IP Policy reviewed/ crafted 1 Technology Transfer Protocol reviewed/ crafted</p>	FPRDI	<p>At least 2 FPRDI technology transfer personnel</p> <p>At least 2 FPRDI researchers and scientists with patentable and/or commerciable technologies</p> <p>Prospective adoptors of IP-protected and/or commerciable technologies in the local forest-based indsutries and communities</p>	16-Jul-18	15-Jul-20	NEW	2,296,417	744,917
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 8. Reestablishment and Enhancement of the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations in Laguna Polytechnic State University (LSPU)	Transparent, accountable, and participatory governance	<p>There is not yet established technology transfer system in LSPU as the role of intellectual property and technology transfer office needed to be defined further, thus a need to re-establish and enhance the technology transfer system.</p>	<p>- At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series</p> <p>- At least 1 IP-TBM staff attended a local IP workshop</p> <p>- At least 1 promotional IEC for SUC/RDI technologies</p> <p>- At least 2 IP (patent and utility model only) applications</p> <p>- 1 IP-TBM established/enhanced</p> <p>- 1 Letter of Commitment from SUC/RDI</p> <p>- 1 Memorandum of Agreement signed</p> <p>- At least 1 partnership agreement with the Philippine Chamber of Commerce Inc./Business Groups/Marketing or Trade Institutions</p> <p>- 1 Institutional IP Policy reviewed/ crafted</p> <p>- 1 Technology Transfer Protocol reviewed/ crafted</p> <p>Y2 - At least 1 Technology Commercialized</p> <p>- At least 1 IP-TBM staff attended a foreign IP workshop</p> <p>- At least 20 SUC/RDI trained (short duration/echo seminar) on IP Management and Technology Commercialization with IP-TBM staff as trainor/speaker</p> <p>- At least 2 networking events and technology promotion conducted by the SUC/RDI</p> <p>- At least 1 technology taker/adopter</p> <p>- At least 1 promotional IEC for SUC/RDI</p>	LSPU	<p>University personnel, school stake holders, extension community, research and development department, students</p>	16-Jul-18	15-Jul-20	NEW	1,917,844	853,647

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Developing the Intellectual Property and Technology Business Management (IP-TBM) Operations in Consortia Member Agencies - Batch 2	Project 9. Enhancing the Intellectual Propoerty and Technology Business Management (IP-TBM) Operations in Western Philippines University (WPU)	Transparent, accountable, and participatory governance	The ultimate goal is to establish the IP-TBM office in the campus. The IP-TBM will be the venue for intellectual property assistance and guide for researches, technology, and products generated in the university. Specifically, it will provide technical services on how to patent technologies or products for commercialization. The first quarter will cover review of previous guidelines existing in the University and its modification to cope up and associate with the recent improvements and issues on patenting, finalization of involved personnel, capacitating the technology transfer personnel of the University, and IP assets inventory. The succeeding months will be allotted for the improvement of the office, processing legalization documents and sealing of by-laws and newly-amended IP guidelines as well as delivery of outputs as means of assessment of objective realizations. Series of capacity building activities to enhance personnel on IP patenting processes and as well as echo-seminars in the academe level will be implemented. In this matter, the seminars will extend to students for them to inculcate awareness of the IP system in the university. In a way, this can also serve as a form of networking or promotional activities that could enhance responsiveness of IP awareness in the University. The second year of the project shall be focused on patent applications, establishment of technology transfer protocol, exploration and establishment of possible business partnerships and technology commercialization.	1 inventory of IP assets At least 1 Technology Commercialized  People and Services At least 1 IP-TBM staff extensively trained under the IP Master Class and Technology Commercialization Mentorship Series  At least 1 IP-TBM staff attended a local/foreign IP workshop/fora  At least 20 SUC/RDI 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 SUC/RDI  At least 1 technology taker/adopter  Publications At least 2 promotional IECs for SUC/RDI technologies  Patents At least 5 IP (patent and utility model only) applications  Places and Partnerships 1 IP-TBM enhanced/established and institutionalized	WPU	Intellectual Property and Technology Business Management (IP-TBM) of WPU Technology transfer officers/managers WPU Researchers/Inventors	16-Jul-18	15-Jul-20	NEW	2,344,846	894,002
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 1. Disaster Risk Reduction of Climate Change Impacts on Vegetable Farms in Abra	Integrity of the environment and climate change adaptation and mitigation	1. To develop pool of champions and empower communities on disaster risk reduction and climate change mitigation and adaptation; 2. To improve resiliency of vegetable farms against adverse impacts of climate change 3. To develop IEC materials on disaster preparedness	Product: -2 structural windbreak; 1 training module People and Services: - 2 farmer leaders and 7 LGU officials/employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group capacitated Publication: - 3 IEC materials; 2 popular articles; 1 video clip Places and Partnerships: 2 MOA forged DRR/CCAM sustainability Policy; 1 Policy recommendation on DRR/CCA for agriculture (barangay & municipal Level)	Abra State Institute of Science and Technology (ASIST)	LGUs and Abra farmers	01-Oct-17	30-Sep-19	ONGOING	6,991,032	2,335,777
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 2. Disaster Risk Reduction of Climate Change Impacts in Agricultural Farms in Apayao Province	Integrity of the environment and climate change adaptation and mitigation	To promote S&T interventions for mitigation and adaptation measures to the disaster vulnerable communities in Apayao province	Product: 2 Structural Windbreak; 2 Simple Drip Irrigation; 2 rain water harvesting tanks; BSU crop shelter; 1 training module People and Services: - 2 farmer leaders and 7 LGU officials/employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group capacitated Publication: 3 IEC materials; 2 popular articles; 1 video clip; Places and Partnerships: 2 MOA forged DRR/CCAM sustainability Policy; 1 Policy recommendation on DRR/CCA for agriculture (barangay & municipal Level)	Apayao State College (ASC)	Farmers and LGUs	01-Oct-17	30-Sep-19	ONGOING	6,289,950	1,846,688
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 3. Disaster Risk Reduction of Climate Change Impacts on Vulnerable Terrace Farms in Benguet	Integrity of the environment and climate change adaptation and mitigation	To introduce S&T interventions on mitigation and adaptation measures at the farm level and increase the capacity of farmers and communities in the 6 provinces of CAR to mitigate adverse impacts of climate change	Product: 2 interlinked reinforced farms; 2 structural windbreaks; 2 tunnel type rain shelters; 2 training modules People and Services: 2 farmer leaders and 7 LGU officials/employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group capacitated Publication: 3 IEC materials; 2 popular	BSU	LGUs and Farmers of Benguet	01-Oct-17	30-Sep-19	ONGOING	10,299,555	3,790,624
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 4. Disaster Risk Reduction of Climate Change Impacts on Legumes and Vegetable Farms in Ifugao	Integrity of the environment and climate change adaptation and mitigation	To introduce S&T intervention on mitigation and adaptation measures at the farm level and increase the capacity of farmers and communities in the provinces of Ifugao to mitigate the adverse impacts of climate change	Product: 2 rain water harvesting tanks; 2 training modules People and Services: 2 farmer leaders and 7 LGU officials/employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group capacitated Publication: 3 IEC materials; 2 popular articles; 1 video clip Places and Partnerships: 2 MOA forged DRR/CCAM sustainability Policy; 1 Policy recommendation on DRR/CCA for agriculture (barangay & municipal Level)	IFSU	LGUs and farmers	01-Oct-17	30-Sep-19	ONGOING	6,109,614	1,875,117
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 5. Disaster Risk Reduction of Climate Change Impacts on Vulnerable Coffee Farms in Kalanga	Integrity of the environment and climate change adaptation and mitigation	To introduce S&T interventions on mitigation and adaptation measures at the farm level and increase the capacity of farmers and communities in the provinces of Ifugao	Product: 2 rejuvenated coffee plantations; 2 rain water harvesting tanks; 1 training module People and Services: 2 farmer leaders and 7 LGU officials employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group capacitated Publication: 3 IEC materials; 2 popular articles; 1 video clip Places and Partnership: 2 MOA forged DRR/CCAM Sustainability Policy; 1 Policy recommendation on DRR/CCA for agriculture (barangay municipal Level)	KSU	Coffee farmers	01-Oct-17	30-Sep-19	ONGOING	6,312,229	1,847,149

Program Title	Project Title	Key Result Areas (KRA)	Description of Program/Project/Objectives	Expected Output/Target	Implementing Agency	Beneficiaries	Start	End	Status <sup>1</sup> As of December 31, 2018 <sup>2</sup>	Total Project Cost	2018 PCAARRD GIA
Disaster Risk Reduction of Climate Change Impacts on Agricultural Farms in the Cordillera Administrative Region Program	Project 6. Disaster Risk Reduction of Climate Change Impacts on Vulnerable Farms in Mountain Province	Integrity of the environment and climate change adaptation and mitigation	To promote S&T interventions on mitigation and adaptation measures at the farm level and increase the capacity of farmers and communities in Mt. Province	Product: 2 rain water harvesting tanks; 2 tunnel type crop shelters; 2 training modules People and Services: - 2 farmer leaders and 7 LGU officials/employees trained as DRR pool of champions; 56 farmer cooperators trained; 2 women's group trained Publication: 3 IEC materials; 2 popular articles; 1 video clip Places and Partnership: 2 MOA forged DRR/CCAM sustainability Policy: 1 Policy recommendation on DRR/CCA for agriculture (barangay & municipal Level)	MPSPC	Farmers, LGUs	01-Oct-17	30-Sep-19	ONGOING	7,097,847	2,071,652
DOST-PCAARRD Technology Business Incubation (TBI) Program	DOST-PCAARRD-BSU Agriculture and Food Technology Business Incubator	Rapid, inclusive and sustained economic growth	Component 1: General Objectives: To encourage, support and nurture the development of mature agri-aqua-based technologies into viable agribusiness commercial ventures for the creation of wealth, employment and economic development. Specific objectives: 1. To improve the national agri-aqua TBI program and ecosystem by establishing new & strengthening existing TBIs; 2. To fast-track the incubation of start-ups through the active support of allied agencies and the private sector; 3. To organize and strengthen the different Agribusiness TBIs into a national network of Agribusiness TBIs; 4. To promote the soft-landing of foreign incubators in the local TBIs as well as the sale/licensing of technologies in other foreign TBIs. Component 2: General Objective: The project aims to strengthen the ATBI's capacity to assist its incubatees by enhancing its program and capacitating its human resources – management team and its incubatees. Specific Objectives: 1. To review and enhance the existing BSU ATBI/IC business plan; 2. To enhance the capabilities of the ATBI team on TBI management and operations, including among others, innovation and entrepreneurship; 3. To enhance the technical and entrepreneurial skills and competencies of incubatees; 4. To transfer six technologies; 5. To strengthen partnerships with public and private sectors; 6. To capacitate students on entrepreneurial skills and competencies; and 7. To disseminate information generated through the project.	Publications: At least 1 training module prepared, At least 2 publication IEC material on TBI best practices developed Patents: At least 3 publications for copyright People and Services: At least 2 Local Training attended by TBI Management Staff per year, At least 2 Local Training attended by TBI Management Staff per year in the 1st 2 years, At least 1 International Training attended TBI Managers, At least 2 program reviews conducted per year, Agribusiness TBI Accelerator Program of SUCs Partnerships: Revive Partnerships and Linkages, 1 National Network Association of AgriAqua TBI formed, Minutes of organization meetings, Bylaws, Articles of Incorporation, SEC Registration, At least 2 membership in international TBI association, At least 2 Foreign companies endorsed for potential incubation Places: At least 6 TBI facilities provided with assistance	BSU	Component 1. MSMEs, spin-offs and start-ups in AANR enterprises; AFNR Graduates, Cooperatives. Component 2. Smallholder farmers and food processing entrepreneurs, students	01-Oct-17	30-Sep-19	ONGOING	10,113,468	2,114,914
DOST-PCAARRD Technology Business Incubation (TBI) Program	DOST-PCAARRD-CLSU Agriculture and Food Technology Business Incubator	Rapid, inclusive and sustained economic growth	General: The goal of this project is to enhance the performance of CLSU-AFTBI operation. Specific: The goal will be realized through the following specific objectives: 1. Assist entrepreneur-clients to commercialize agriculture and food-based products and produce two (2) graduate incubatees in the next 2 years; 2. Assist AFNR students, Graduates, and Technology generators to start their MSMEs; 3. Enrich the capability of the employees and strengthen the workforce; and 4. Establish CLSU-AFTBI product showroom for incubatees.	Products: Tilapia – fingerling, dried, smoked, canned Goat – upgraded goat, canned, ready to eat Mushroom – fresh, dried, pickled, wine energy drink, capsule Mango – production, pickled, dried, puree, wine, juice Onion – fresh (organic), pickled, dried, powder Vegetables – fresh (organic), vacuum packed, canned, bottled, pickled Rice – aromatic rice, organic rice, rice byproduct Dairy Carabao – processed milk products  People and Services: No. of Incubatees accepted as start-up 9 No. of Incubatees trained/monitored 9 No. of incubatees graduated 9  Partnerships: (Signed MOA) No. of Government Agencies 18 No. Private Agencies/Financial Institutions 4  Places: Number of communities involved in incubation 8	CLSU	AFNR Graduates, MSMEs	01-Oct-17	30-Sep-19	ONGOING	9,826,839	1,523,980

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, 2018*	Total Project Cost	2018 PCAARRD GIA
DOST-PCAARRD Technology Business Incubation (TBI) Program	DOST-PCAARRD-CvSU Agriculture and Food Technology Business Incubator	Rapid, inclusive and sustained economic growth	A business incubator’s main objective is to produce successful individuals that leave the program financially viable and freestanding. Incubator graduates commercialize technologies, create jobs, and strengthen local economies. It helps to stimulate economic development benefits for the province in terms of jobs and tax revenues by producing successful entrepreneurs through equipping them with the necessary knowledge, attitude and skills on entrepreneurship, production, processing, marketing, resource generation and business analysis of various agricultural and fishery commodities. Specific objectives are: 1. To identify potential incubatees to undergo the program 2. To train these incubatees and provide support and services needed 3. To produce successful incubator graduates contributing to the economy through employment and revenues	A total of 10 incubatees every year from the 3 components Four (4) graduates by end of Year 2	CvSU	Entrepreneurs in agri-aqua based enterprises	01-Oct-17	30-Sep-19	ONGOING	8,037,036	1,678,140
DOST-PCAARRD Technology Business Incubation (TBI) Program	DOST-PCAARRD-ISU Livestock Technology Business Incubator	Rapid, inclusive and sustained economic growth	The general objective of the project is to establish a Technology Business Incubation (TBI) facility intended for the promotion of knowledge-based livestock production and post-production activities, technology transfer and commercialization. Specifically, the project aims to: 1. Establish and operate the ISU-TBI on various agriculture and food-based products; 2. Develop AFNR students and graduates to start their MSMEs and be competitive in local, national and global markets; 3. Assist entrepreneurship and enterprises in the commercialization of agriculture and food- based technologies; 4. Assist technology generator to position their technology and products in the market place; 5. Generate employment among entrepreneurs.	1. Publications - At least 3 curriculum of the offered courses finalized (Y1) 2. Patents - 3. Products - 4. People and Services - At least 3 Formalized trainings on business incubation offered (Y1) - At least 10-15 enrollees with increased awareness on technology and business management (Y1) - At least 10 Potential incubatees identified (Y1-Y2) - At least 3 Trainings for entrepreneurs conducted and skill and knowledge enhanced (Y1-Y2) - At least 10-15 Enterprises established (Y1-Y2) - At least 3 Existing products and newly developed products commercialized (Y1-Y2) - At least 3 Market studies conducted (Y1-Y2) - At least 3 Products are positioned to market (Y1-Y2) - At least 10 Enterprises monitored (Y1-Y2) - Profit from enterprises determined (Y1-Y2) 5. Places and Partnership - At least 3 MOUs forged with industry partners (Y1) - Office space for TBI repaired (Y1) - 18 Additional equipment purchased to increase production rate (Y1) 6. Policies - IRR on TBI Operation approved by ISU Board (Y1)	ISU	AFNR Graduates, MSMEs	01-Oct-17	30-Sep-19	ONGOING	16,592,766	884,808
DOST-PCAARRD Technology Business Incubation (TBI) Program	DOST-PCAARRD-UPV Fisheries Technology Business Incubator	Rapid, inclusive and sustained economic growth	General Objective: To foster a culture of innovation and entrepreneurial ecosystem by providing a venue for dynamic interactions among the academe, industry and the private sector to develop technology-based enterprises. The FTBI shall have the following specific objectives: 1. To maximize and advance the potential technologies and innovations generated by the faculty, researchers and students in UPV through technology transfer and commercialization, by spin-off, licensing, or start-ups development; 2. To promote the creation of new technology business startups and graduates from FTBI; 3. To provide an innovative and entrepreneurial ecosystem through business creations capability building trainings and workshops, innovation events, business pitching and matching, and industry trend talks, technology fairs, etc., and participation to externally organized technology and innovation events; 4. To provide a business enabling environment by offering a physical facility and access to the resources of the University pertinent to technology business incubation, e.g. knowledge, physical facilities, talents and networks; and, 5. To provide opportunities for employment and resource generation, esp. among graduates students and the local community.	a) Technology Transfer and Commercialization b) Technology-based Business Creation c) Business Incubation Capability Building d) Innovation and Entrepreneurial Ecosystem Promotion e) FTBI Team, Industry and Funding Partnership Formation f) FTBI Facility Development g) FTBI Socio-economic Development	UPV	UPV Community LGU Miagao – Fisherfolks and the community Province of Iloilo Fishery industry sector General public consumers	01-Oct-17	30-Sep-19	ONGOING	18,223,777	3,010,555
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 1. TBI Program Management, Networking, and Capacity Building	Rapid, inclusive and sustained economic growth	To encourage, support and nurture the development of mature agriaqua technologies into viable agri-business commercial ventures for the creation of wealth, employment and economic development.	1 training module prepared 1 Annual Report prepared 2 IEC materials on TBI best practices developed At least 3 publications for copyright filed At least 2 national trainings attended by TBI management and staff At least 16 TBI personnel trained on TBI management At least 2 program reviews conducted At least 4 partnerships/linkages developed/enhanced 8 TBIs joined 1 National Network/Association of Agri-Aqua TBI At least 8 TBIs provided with assistance	BSU	For this Project: 8 TBIs For the 8 TBIs: MSMEs, spin-offs and start-ups in AANR enterprises, AFNR graduates, cooperatives, associations	16-Aug-18	15-Aug-20	NEW	5,169,824	1,080,656

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, 2018*	Total Project Cost	2018 PCAARRD GIA
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 2. DOST-PCAARRD-CAPSU Agri-Aqua Technology Business Incubator	Rapid, inclusive and sustained economic growth	To establish a Technology Business Incubation facility for Agriculture and Aquaculture technologies that will serve as tool for entrepreneurship development and enhancement, including establishment of new enterprises, creation of new jobs and development of new ideas and innovations.	2 partnerships established and developed through MOA or MOU At least 7 ATBI-related IEC Materials Developed and disseminated At least 7 technology incubatees mentored/supported in the ATBI 7 Awareness Seminars/Promotional Activities Conducted for the ATBI 70 Participants/Attendees to the Awareness Seminars/ Promotional Activities At least 7 ATBI-related IEC Materials Developed and disseminated At least 7 ATBI trainings conducted for incubatees At least 7 technology incubatees recruited and mentored/supported in the ATBI At least one of technology matching/pitching activities 1 Networking Event conducted per year with at least 30 participants 15 jobs generated (direct or indirect) 2 Technologies Packaged on the 2nd year with at least 30% increase every year on the next 3 years. 7 technologies with IP Protection	CapSU	CAPSU Community (9 campuses) Municipalities in the Province of Capiz Agri-Fishery Industry sector SMEs NGOs	16-Aug-18	15-Aug-20	NEW	4,832,040	2,843,520
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 3. DOST-PCAARRD-CMU Agriculture Technology Business Incubator	Rapid, inclusive and sustained economic growth	To establish and institutionalize the ATBI to support the commercialization of research-based technologies generated by the university.	Operational Procedure prepared 1 List of ATBI Offerings prepared 1 ATBI Curriculum prepared 1 Training Modules prepared 6 ATBI Business Plan prepared 1 List of Technologies for Incubation prepared 1 M&E Instrument prepared 1 ATBI Organization Structure with TOR developed 1 Publication: Operations Manual published 1 ATBI Service Offering published 1 ATBI Curriculum published 1 Training Modules published/printed 6 ATBI Business Plan printed/published 1 List of Technologies for Incubation printed/published 1 IEC Material printed 2 IEC Material disseminated 2 Product: Equipment purchased 4 Places and Partnership: TBI Facility set up 1 Experts Pool established 1 1 MOA/MOU forged 2 Networking Activities conducted 1 1 People and Services: 2 2 Capability Building attended by ATBI Personnel 6 6 Personnel capacitated 5 5	CMU	Municipalities in the Province of Bukidnon Agri-Fishery Industry sector SMEs NGOs	16-Aug-18	15-Aug-20	NEW	4,730,270	2,745,135
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 4. DOST-PCAARRD-DMMMSU Agri-Aqua and Food Technology Business Incubator	Rapid, inclusive and sustained economic growth	To establish a Technology Business Incubator facility that promotes techno-based enterprise development.	Products 4 Curricula 40 Modules People and Services 10 Pre-Commercialization Services Provided 5 Incubatees accepted/trained/mentored 15 faculty/staff experts in training and mentoring Places and Partnerships 1 TBI facility established 2 Farming Communities 5 MOAs executed 2 Funding institutions 4 National Agency Partners 2 Private Sector Partners Policies 3 Business plans 1 Operational manual 3 TBI curricula 1 Techno-preneurship Manual Publications 3 Business plans 1 Operational manual 3 TBI curricula 1 Techno-preneurship Manual	DMMMSU	Incubatees such as: a. Private individuals b. Goat Farmers and processors c. Seaweed Farmers and processors d. Mango farmers and processors e. Banana Farmers and Processors f. Farmers and fishermen cooperative, and g. Peoples organizations (POs) h. Technology generators from DMMMSU	16-Aug-18	15-Aug-20	NEW	7,798,712	3,822,118



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, 2018'	Total Project Cost	2018 PCAARRD GIA
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 5. DOST-PCAARRD-FPRDI Technology Business Incubator for Wood and Non-wood Processing Technologies	Rapid, inclusive and sustained economic growth	To enhance the technology commercialization activities of FPRDI through the establishment and maintenance of a Technology Business Incubator (TBI) for MSME adopters of FPRDI technologies	<p>printed/published</p> <ul style="list-style-type: none"> <li>- 1 List of technologies for potential adoption</li> <li>- 1 list of TBI service offerings published</li> <li>- 1 TBI Business Plan enhanced</li> <li>- 1 curriculum published</li> <li>- 3 IEC materials developed</li> <li>- IEC materials disseminated to 150 individuals</li> <li>- At least 1 Business Plan developed for an incubate</li> <li>- 3 IEC materials reviewed and revised</li> <li>- IEC materials disseminated to 150 individuals</li> </ul> <p>Places &amp; Partnerships</p> <ul style="list-style-type: none"> <li>- 1 TBI office/facility enhanced</li> <li>- 3 FPRDI personnel involved in providing services</li> <li>- At least 2 consultants involved in mentoring</li> </ul>	FPRDI	Start-up MSMEs in the wood and non-wood processing industry	16-Aug-18	15-Aug-20	NEW	5,827,545	3,658,266
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 6. DOST-PCAARRD-LSPU Technology Business Incubation (TBI) Hub for Agri-Fishery and Natural Products Micro-Enterprises in Eastern Laguna	Rapid, inclusive and sustained economic growth	This project involves the establishment of a TBI hub in the LSPU Siniloan Campus with the aim of promoting potential agri- and fishery-based products towards sustainable commercialization. The TBI will primarily aid the promotion of certain agri-fishery products of the University (i.e., fish canton and mushroom noodles, herbal tea, and symbiotic-enriched aquafeeds). This TBI hub initiative will also provide rural partner micro-entrepreneurs with a portfolio of venture support infrastructure, including: business services, networking, access to professional services and university resources. The intent is to help start-ups by providing enabling linkages to help the new businesses survive, scale up, and grow	<p>Commercially competitive:</p> <p>Agri-based product /Natural oil product Aqua-based product Incubatees Accepted as Start-Up Incubatees Trained/Mentored Incubatees Graduated Faculty Involved Trained/Mentored Private Sector Trained/Mentored Pre-commercialization Services Offered TBI Facility Hub RDIs Involved in TBI Private Sector Partners National Gov. Agency Partners Funding Institution Partners MOAs Executed TBI Operations Manual TBI Curriculum TBI Business Plan Technopreneurship /manual/guidelines Patents/UMs/Trademarks Filed Patents/UMs/Trademarks Approved Licensed Technologies Operational and Procedural Framework</p>	LSPU	Disadvantaged rural inhabitants (farmers, fisherfolks), microentrepreneurs, food processors in the province of Laguna, techdevelopers and industry researchers, students and graduates through employment/OJT opportunities, faculty through the TBI as "living laboratory". Direct Beneficiaries: 3-4 potential business incubatees (SMVA, SKEA, Yul's chicharon, Mushroom Growers Association) 10 faculty trained/mentored; More student-entrepreneurs who will be doing the On-the-Job Training like: Senior High School students, Business Administration students and BS Agribusiness students in the Siniloan campus and nearby colleges in the province of Laguna.	16-Aug-18	15-Aug-20	NEW	6,737,558	3,116,890
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 7. DOST-PCAARRD-Sultan Kudarat State University (SKSU) Agri-Aqua Technology Business Incubator	Rapid, inclusive and sustained economic growth	The general objective of the project is to establish an AgriAqua technology business incubator that will improve the commercialization of SKSU-developed technologies by enhancing the business sustainability of the target clientele/enterprises	<p>At least 10 incubatees for business incubators extensively trained by technical experts At least 5 faculty/technical experts involved in the capacity building At least 3 Private Sector Involved in Training &amp; Mentoring At least 6 Trainings Conducted At least 2 Promotional Activities conducted At least 2 TBI Personnel Trained 2 Networking activities conducted/participated At least 1 Technopreneurship Manual At least 2 IEC Materials developed At least 1 Technology Guide/ Operations Manual developed A least 1 Curricula developed</p> <p>At least 1 business plan developed At least 1 Technology Guide/ Operations Manual copyrighted A least 1 Curricula copyrighted At least 1 business plant copyrighted 1 echnopreneurship manual copyrighted 1 Technology Business Incubator established 1 Mushroom Laboratory enhanced At least 2 partnership agreement with private sector/private individual At least 2 MOU with technical experts At least 10 MOAs with incubatees 1 TBI Operational Guidelines developed At least 1 TBI Curriculum developed 1 TBI Business Plan developed</p>	SKSU	Meat processors, meatshops, goat raisers, Agrarian Reform Beneficiaries' Organization, BAT graduates, Fishermen's Housewives Association	16-Aug-18	15-Aug-20	NEW	6,541,040	2,421,260

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, 2018'	Total Project Cost	2018 PCAARRD GIA
DOST-PCAARRD Technology Business Incubation (TBI) Program Batch 2	Project 8. DOST-PCAARRD-WMSU Agriculture and Food Technology Business Incubator	Rapid, inclusive and sustained economic growth	<p>1) Train and equip key personnel with skills for managing TBIU of the university</p> <p>2) Provide managed workspace with facilities, focused advisory and technical services among incubatees</p> <p>3) Provide IP related services to the incubatee</p> <p>4) Establish linkages with industries and communities</p> <p>5) Develop operation manuals, feasibility study and curriculum</p> <p>6) Conduct benchmarking activities to institutions with agriculture and food TBI</p>	<p>People and Services</p> <p>Ⓜ No. of incubatees recruited</p> <p>Ⓜ No. of TBI personnel trained</p> <p>Ⓜ No. of incubatees trained</p> <p>Ⓜ No. of trainings conducted for TBI personnel</p> <p>Ⓜ No. of trainings conducted for incubates</p> <p>Ⓜ No. of networking activities</p> <p>Ⓜ No. of benchmarking activity conducted</p> <p>Publications</p> <p>Ⓜ No. of IEC materials developed (Native Chicken, Vermicast, Oyster Mushroom, and Organic Vegetables)</p> <p>Patents</p> <p>Ⓜ No. of copyright</p> <p>Places and Partnerships</p> <p>Ⓜ No. of partnerships established</p> <p>Ⓜ No. of pool of experts established</p> <p>Ⓜ No. of Agriculture and Food TBI Hub Policies</p> <p>Ⓜ No. of Operational Guidelines Prepared</p> <p>Ⓜ No. of TBI Curriculum Developed</p> <p>Ⓜ No. of TBI Business Plan Prepared</p> <p>Ⓜ No. of WMSU Board Resolution</p> <p>Products</p> <p>Ⓜ No. of database system developed</p>	WMSU	The target beneficiaries are the start-up and spin-off companies, farmers and inventors/generators of agriculture and food technology, university graduates	16-Aug-18	15-Aug-20	NEW	4,546,532	1,285,852
Enhancing Livelihood Opportunities in Conflict-Vulnerable Areas in Mindanao through the LIFE (Livelihood Improvement through Facilitated Extension) Model	Project 1. Scaling Out the LIFE Model to Improve the Productivity of Select Upland Farmers Group in Surallah, South Cotabato	Rapid, inclusive and sustained economic growth	<p>General Objective:</p> <p>To improve productivity and income of select farmers in Barangay Canahay, Surallah, South Cotabato through the LIFE Model.</p> <p>Specifically, the project aims to: 1. Improve farmers' productivity and income by using sustainable and appropriate farming, post-production and marketing practices; 2. Strengthen farmer groups and promote gender equality and cultural sensitivity; 3. Enhance link between farmers and both government and non-government institutions relevant to improving their productivity and strengthening their groups; 4. Document and analyse the adoption, productivity and welfare improvement of farmers in these conflict-vulnerable communities that use the LIFE model.</p>	<p>Places and Partnerships: MOA/MOU with Brgy Canahay, Surallah to implement the LIFE model, Expanded networks of farmer Brgy Canahay cooperators</p> <p>People and Services: Conducted capacity building/mentoring for new facilitators o Organized at least 30 farmer cooperators into one cluster o Conducted at least one cross visit and one other capacity building activity for cooperators o Improved access of farmer groups to government programs thru Barangay, Municipal/City LGU; as well as agencies such as PCA, DA, DTI and DOST o Established at least one learning area, Registered the farmercooperators group with DOLE o Conducted at least 2-3 other capacity building activities for cooperators, One Field Day</p> <p>Products: Increased farmers' income by 30% (based on results of the baseline data)</p> <p>Policies: Initiated stakeholders' consultation with cooperators for policy development , Ordinance or Resolution passed in the local government unit</p> <p>Publication: One video material for experience of implementing the LIFE Model , At least 2 papers published that are peer reviewed o Training module published o Terminal report</p>	UPMin	The target beneficiaries of the project include extension service providers, local government units, farmer partners, policy makers and even the R&D community.	16-Dec-17	15-Dec-20	ONGOING	7,449,037	1,186,991

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Enhancing Livelihood Opportunities in Conflict-Vulnerable Areas in Mindanao through the LIFE (Livelihood Improvement through Facilitated Extension) Model	Project 2. Scaling Out the LIFE Model to Improve the Productivity of Select Lowland Farmers Group in Datu Abdullah Sangki, Maguindanao	Rapid, inclusive and sustained economic growth	<p>General Objective: To improve productivity and income of select farmers in Datu Abdullah Sangki, Maguindanao through the LIFE Model.</p> <p>Specifically, the project aims to: 1. Improve farmers' productivity and income by using sustainable and appropriate farming, post-production and marketing practices; 2. Strengthen farmer groups and promote gender equality and cultural sensitivity; 3. Enhance link between farmers and both government and non-government institutions relevant to improving their productivity and strengthening their groups; 4. Document and analyse the adoption, productivity and welfare improvement of farmers in these conflict-vulnerable communities that use the LIFE model.</p>	<p>Places and Partnerships: MOA/MOU with one barangay of DAS, Maguindanao to implement the LIFE model, Expanded network of farmer cooperators of Barangay of DAS, Maguindanao cooperators and at least one other govt agency</p> <p>People and Services: Conducted capacity building/mentoring for new facilitators o Organized at least 30 farmercooperators into one cluster o Conducted at least one cross visit and one other capacity building activity for cooperators o Improved access of farmer groups to government programs thru Barangay, Municipal/City LGU; as well as agencies such as PCA, DA, DTI and DOST o Initiated to establish at least one demo farm o Conducted at least 2-3 other capacity building activities for cooperators, Registered/Enhanced the farmercooperators group with DOLE o Conducted at least 23 other capacity building activities for cooperators o Established at least one demo farm o One Field Day</p> <p>Products: Increased farmers' income by 20%, Increased farmers' income by 30% (based on results of the baseline data)</p> <p>Policies: Initiated stakeholders' consultation with cooperators for policy development</p> <p>Publication: One video material for experience of implementing the model , At least 2 papers published that are peer reviewed and ISI o Training module published o Terminal report</p>	UPMin	The target beneficiaries of the project include extension service providers, local government units, farmer partners, policy makers and even the R&D community.	16-Dec-17	15-Dec-20	ONGOING	7,270,702	1,337,204
Enhancing Livelihood Opportunities in Conflict-Vulnerable Areas in Mindanao through the LIFE (Livelihood Improvement through Facilitated Extension) Model	Project 3. Scaling Out the LIFE Model to Improve the Productivity of Select Coastal Community Group in Ipil, Zamboanga Sibugay	Rapid, inclusive and sustained economic growth	<p>General Objective: To improve productivity and income of select seaweed growers/farmers in Ipil, Zamboanga Sibugay through the LIFE Model.</p> <p>Specifically, the project aims to: 1. Improve seaweed growers/farmers' productivity and income by using sustainable and appropriate production, post-production and marketing practices; 2. Strengthen farmer groups and promote gender equality and cultural sensitivity; 3. Enhance link between farmers and both government and non-government institutions relevant to improving their productivity and strengthening their groups; 4. Document and analyse the adoption, productivity and welfare improvement of farmers in these conflict-vulnerable communities that use the LIFE model.</p>	<p>Places and Partnerships: MOA/MOU with Ipil, Zamboanga Sibugay to implement the LIFE model, Expanded networks of farmer cooperators of Ipil, Zamboanga Sibugay</p> <p>People and Services: Conducted capacity building/mentoring for new facilitators o Organized at least 30 farmercooperators into one cluster/association o Conducted at least one cross visit and one other capacity building activity for cooperators o Improved access of farmer groups to government programs thru Barangay, Municipal/City LGU; as well as agencies such as BFAR, PCA, DA, DTI and DOST o Established at least one learning area, Registered the farmercooperators group with DOLE o Conducted at least 2-3 other capacity building activities for cooperators, One Field Day</p> <p>Products: Increased farmers' income by 30% (based on results of the baseline data)</p> <p>Policies: Initiated stakeholders' consultation with cooperators for policy development , Ordinance or Resolution passed in the local government unit</p> <p>Publication: One video material for experience of implementing the LIFE Model , At least 2 papers published that are peer reviewed o Training module published o Terminal report</p>	UPMin	The target beneficiaries of the project include extension service providers, local government units, farmer partners, policy makers and even the R&D community.	16-Dec-17	15-Dec-20	ONGOING	7,008,952	1,031,217

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, 2018*	Total Project Cost	2018 PCAARRD GIA
Establishment of DOST-PCAARRD Science for the Convergence of Agriculture and Tourism (SciCAT)	Project 1. Providing Interventions and Accelerating Capability through Assessment & Mentorship Towards Science for the Convergence of Agriculture & Tourism (PinACA-SciCAT) (Old Title: Science and Technology-based Tourism for Agri-Aqua & Natural Resources (STAR))	Rapid, inclusive and sustained economic growth	The Project CBM Program for SciCAT will be focusing on the transformation of the identified potential MS farm sites. This project will facilitate the building of entrepreneurial and managerial skills of the MSF. It will require soft (i.e. marketing and financial competence) and hard (i.e. physical structure and landscape) components. The transformation of the traditional farm into SciCAT will require the following key activities: 1. Profiling – Determine baseline data, current condition/status of multi sectors that may affect the proposed site. 2. Feasibility Study – Determine products, organization, business model, POT, etc. that will yield the best profit margin and most sustainable. 3. Business Planning – Determine strategies for establishing the SciCAT Farm and how to transform known risks and weaknesses into opportunities. 4. Mentorship Program – MS / beneficiaries will be guided and coached from starting the SciCAT Farm to operation and sustainability. 5. Landscape and Construction- MS will be guided in the art of modifying their traditional farm into a farm tourism site thru landscape planning and construction of tourism facilities inside their farm. Data will be gathered through focus group discussion, surveys, secondary data from national and local government, and experts’ knowledge/advise.	1. Established 7 SciCAT sites in the following areas: 1.1 La Trinidad, Benguet 1.2 Sto. Tomas, La Union 1.3 Los Banos, Laguna 1.4 Indang, Cavite 1.5 Bilar, Bohol 1.6 Banay-banay, Davao Oriental 1.7 Malaybalay City, Bukidnon 2. 6 MS and 1 institutional farm Trained and Mentored; 3. Align 7 SciCAT sites to the DOT initial accreditation requirements; 4. Demonstrated optimal farm productivity and profitability in each SciCAT site; 5. SciCAT owner established linkages with co-farmers, marketing associations, students, government institutions, among others; 6. Developed 7 Profiling Reports, Feasibility Studies, Farm Enterprise plan, and Layout & Design plan; 7. Developed 12 Mentoring Reports for the whole duration of the program;	UPD	MSF community of chosen sites	01-Aug-18	31-Jul-21	NEW	17,230,253	7,099,575
Establishment of DOST-PCAARRD Science for the Convergence of Agriculture and Tourism (SciCAT)	Project 2. Transforming Silan's Farm in Indang, Cavite into Science for the Convergence of Agriculture and Tourism (SciCAT) - Batch 1 (Old Title: Transforming Silan Farm in Indang, Cavite into a Science and Technology-based (S&T-Based) Agri-tourism Site)	Rapid, inclusive and sustained economic growth	in the Philippines based on its poverty incidence value of 34.3% in the report by Philippine Statistics Authority (PSA) in 2015. One of the interventions done by the government to address this issue is the creation of the Republic Act No. 10816, also known as the “Farm Tourism Development Act (FTDA) of 2016” which provides a comprehensive program for the development and promotion of farm tourism in the Philippines. Farm tourism in the country will serve as a viable means to diversify income of farmers. It will also serve as a venue for information sharing and technology transfer for capacitating farmers and for orienting tourists of the importance of agriculture. More than just enhancing the country’s potential as an agricultural nation, agri-tourism is proven to be of aid in the economic growth of a community providing vast employment opportunities along with its social benefits as an educational training area and an effective mechanism towards ecological conservation. This project is anchored on United Nation’s Sustainable Development Goal on Sustainable Cities and Communities and on Industry, Innovation and Infrastructure promotes participatory, integrated and sustainable development projects that can solve economic and environmental challenges through investments in scientific research and innovation. This is also anchored on the socio-economic agenda of President Rodrigo Duterte which involve promotion of rural tourism and the use of science and technology in the development of such communities. The support of the local government unit of Indang is also expected as the municipality envisions itself to be the Center of	Publications 1 customer satisfaction survey report 1 journal article Patent/IP 3 copyrighted IEC materials 1 trademark Products 2 promotional videos At least 10 IEC materials At least 2 POTs downloaded People & Services 5 capability and skills training for 200 beneficiaries 50 technology adopters Places & Partnerships 1 learning/recreational site 1 farm tourism site 1 MOA for project sustainability Policies 1 municipal ordinance recognizing the SciCAT site as municipal tourist destination	CvSU	<div> <div> Magsasaka Siyentista and workers Farmer cooperatives/organizations Farming communities in Indang, Cavite Entrepreneurs LGUs Visitors who want to escape urban/city life and want to experience actual farm activities while appreciating the value of farm produce </div> </div>	01-Aug-18	31-Jul-20	NEW	4,703,278	2,638,139

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, 2018'	Total Project Cost	2018 PCAARRD GIA
Establishment of DOST-PCAARRD Science for the Convergence of Agriculture and Tourism (SciCAT)	Project 3. The Making into a SciCAT of the Seeds and Seedling (S&S) Plaza - Batch 1(Old Title: The Making into a STAR of the Seeds and Seedlings (S&S) Plaza)	Rapid, inclusive and sustained economic growth	<p>In support to agri-tourism, BPI-LBNCRDPSC proposed and established the S&amp;S Plaza which is strategically situated at the back of DOST-PCAARRD Technology Innovation Center (DPITC) building. The plaza generally aims to promote different technologies on planting material preparation as showcased in different edible landscape designs.</p> <p>Since its launching on June 28, 2017, it has already accommodated a total of 930 visitors and has provided lectures on seedling establishment and management to 337 individuals. It also catered to the needs of various individuals for planting materials of herbs and ornamental plants. A total of 540 planting materials of herbs and ornamentals were sold while 692 assorted herbs and 330 assorted varieties of mayana were distributed to different clienteles and beneficiaries.</p> <p>The plaza have accomplished significantly and have served its purpose, however, more can still be achieved. It has high potential to exhibit the objectives of a Science and Technology-based Convergence of Agriculture and Tourism (SciCAT) farm. Hence this proposal.</p>	<ol style="list-style-type: none"> <li>1. Documentation of the entire realignment and or transformation phase (including experiences, best practices and lessons learned) of the S&amp;S Plaza into a SciCAT;</li> <li>2. Provided information to UP ISSI in the preparation of the farm profile of the S&amp;S Plaza</li> <li>3. Participated in the preparation of the Feasibility Study (FS) and Business Plan (BP) of UP ISSI for the S&amp;S Plaza</li> <li>4. Established showcase of selected POT's at the S&amp;S Plaza</li> <li>5. IEC materials (10 Flyers/brochures/ Videos</li> <li>6. Demonstrated optimal farm productivity and profitability at the S&amp;S Plaza</li> <li>7. Established linkages with other government and private institutions, agritourism farms, marketing associations, farmers, entrepreneurs, students, among others.</li> <li>8. Trained 350 farmers and farming enthusiasts</li> <li>9. Identified 20 potential and 4 actual adopters</li> <li>10. Established linkages and networks of potential SciCAT sites in terms of production, postharvest and marketing activities</li> <li>11. Increased visibility and market awareness of the S &amp; S Plaza</li> <li>12. Initial DOT accreditation of the S&amp;S Plaza</li> </ol>	BPI-LBNCRDC	Farmers, farm entrepreneurs, private and government agencies/organizations, SUCs, students, farming enthusiast and the like	01-Aug-18	31-Jul-20	NEW	6,683,086	3,383,293
Establishment of DOST-PCAARRD Science for the Convergence of Agriculture and Tourism (SciCAT)	Project 4. Mt. Kitanglad Agro Eco-Tourism Farm, Science for the Convergence of Agriculture and Tourism (SciCAT) Project of Bukidnon, Region 10- Batch 1 (Old Title: Mt. Kitanglad Agri Eco-tourism Farm, a Science and Technology-based Tourism for Agri-Aqua and Natural Resources (STAR) Project of Bukidnon, Northern Mindanao)	Rapid, inclusive and sustained economic growth	<p>Farm Tourism program is an offshoot of RA 10816 known as the Farm Tourism Development Act (FTDA) of 2016, which provides a comprehensive program for the development and promotion of farm tourism in the Philippines to maximize the benefits that can be derived from agriculture and tourism combined. The combination of these two major sectors can effectively elevate awareness of the importance of agriculture, promote environment-friendly and sustainable farm practices, and generate more job opportunities in the agriculture and fishery communities.</p> <p>"Farm tourism attracts visitors and travelers to farm areas, generally for educational and recreational purposes that encourage economic activity to provide farm and community income," (Sen. Cynthia Villar).</p> <p>As of September 2017, there are 35 farm tourism sites accredited by the DOT across the country. In Region 10, the Binahon Agro Forestry Farm (BAFF) of Sungco, Lantapan, Bukidnon was the only MS Farm accredited by DOT owned by Magsasaka Syentista Henry Binahon. He is one of the 16 pioneering MS of Region 10 when the Techno Gabay Program under PCAARRD – DOST was implemented vigorously starting in 2006. There are a lot of potential sites among the MS to be developed as additional Farm Tourism sites; hence this proposal for the Mt. Kitanglad Agri-Eco Farm of MS Benjamin Maputi Sr. as additional SciCAT Farm being one of the pioneering MS Farm supported is pursued.</p>	<p>1 MS trained</p> <p>At least 50 farmers/farming enthusiasts trained</p> <p>At least 10 additional employment opportunities</p> <p>At least 2 Laboratory services facilitated for citronella oil products</p> <p>At least 1 copyrighted IEC materials</p> <p>1 Trademark (logo, signage, etc.)</p> <p>At least 2 POTs downloaded</p> <p>At least 3 abaca based handicrafts</p> <p>At least 3 indigenous HandLooms modified</p> <p>4 progress reports</p> <p>1 terminal report</p> <p>1 set of IEC materials</p> <p>At least 1 social media site</p> <p>3 Progress Report</p> <p>1 Terminal report</p> <p>At least 4 signed MOA</p> <p>1 Municipal ordinance recognizing SciCAT site as municipal tourist destination</p>	DOST X	Mt. Kitanglad Agri-Eco Farm (MS Benjamin Maputi), JP Women RIC of Imbayao, Malaybalay City, Out of School Youth and High Value Crop Farmers within the Mt. Kitanglad Natural Range Natura Park.	01-Aug-18	31-Jul-20	NEW	4,704,422	2,762,211
Establishment of DOST-PCAARRD Science for the Convergence of Agriculture and Tourism (SciCAT)	Project 5. A SciCAT of ORGANIC CHAMPION: A Science for the Convergence of Agriculture and Tourism (SciCAT) for Organic Farming of a Champion Family in Banay-banay, Davao Oriental - Batch 1 (Old Title: A STAR for ORGANIC CHAMPION: A Science and Technology-based Tourism for Agri-Aqua and Natural Resources (STAR) for Organic Farming of a Champion Family in Davao Oriental)	Rapid, inclusive and sustained economic growth	To transform MSF into a SciCAT site that will serve as the community's main tourist farm attraction leading to the creation of employment and entrepreneurship opportunities in the community.	<ul style="list-style-type: none"> <li>• 1 MS trained/mentored</li> <li>• At least 100 trained farmers</li> <li>• At least 100 farm visitors per month</li> <li>• At least 20 identified potential POT Adopters and 4 actual adopters</li> <li>• At least 3 Copyrighted IEC Materials</li> <li>• At least 1 Trademark (logo or signage)</li> <li>• At least 3 POT Implemented</li> </ul> <ul style="list-style-type: none"> <li>• At least 4 IEC Materials</li> <li>• At least 10 Promotional campaign and materials</li> <li>• At least 1 FB page</li> <li>• 6 quarterly reports</li> <li>• At least 3 MOA signed</li> <li>• 1 SciCAT site</li> <li>• @ At least 1 Municipal ordinances supporting SciCAT sites as Farm Tourism sites</li> </ul>	USEP	Magsasaka Syientista (MS) Naomi Dimpas, PLGU/LGU, Local Community/Farmers, Students and Tourists	01-Aug-18	31-Jul-20	NEW	4,702,755	3,001,378

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, 2018'	Total Project Cost	2018 PCAARRD GIA
S&T Community Based Program for Inclusive Development (STC4ID)	Project 1. Capacity Development and Program Monitoring and Evaluation for STC4ID State Universities and Colleges (SUCs) Partners (Old Title: Capacity Development Program for Science and Technology for Inclusive Development (STC4ID) Partners)	Rapid, inclusive and sustained economic growth	To evaluate the effectiveness and efficiency of STC4ID projects and capacitate the project team members towards inclusive development of the GESDA communities in the Philippines.	1 capacity building activities for STC4ID project team members conducted 30 project team members capacitated 1 Training Modules developed 5 Community enterprise sustainability plan developed 1 IEC material produced 1 publishable paper submitted 1 AVP Produced	UPLB	Project Team Members of STC4ID in five SUCs partners	01-Oct-18	30-Sep-21	NEW	11,207,578	4,548,723
S&T Community Based Program for Inclusive Development (STC4ID)	Project 2. S&T Community-Based Project For Inclusive Development (STC4ID) for Bukidnons Thru Project CLImB (Old Title: S&T Community-based Livelihood Improvement for Bukidnons (PROJECT CLImB))	Rapid, inclusive and sustained economic growth	In general, the project aims to apply an extension delivery service for Geographically, Economically and Socially Disadvantaged (GESDA) community in Bukidnon in order to establish a sustainable and resilient AANR-based livelihood to promote inclusive development.	1 MOA signed with government agency/NGO partner 1 PO registered at DOLE 2 new capability building activities to at least 30 farmers 1 Techno Field Day conducted 2 new commodities produced and marketed Farmer's income increased by at least 10-20% 1 Enabling and/or support policy identified and recommended 1 LGU resolution/ordinance formulated 1 Terminal Report submitted 1 publishable paper submitted	CMU	The target beneficiaries of the project are the AANR households in upland Brgy. Kiharong who are below poverty and food threshold levels.	01-Oct-18	30-Sep-21	NEW	6,941,722	2,251,719
S&T Community Based Program for Inclusive Development (STC4ID)	Project 3. S&T Community-Based Project for Inclusive Development (STC4ID) For Upland Farmers in Salangsang, Lebak, Sultan Kudarat (Old Title: Enhancing Vegetable Production thru S&T Community-based Organic Farming Interventions for Marginalized Upland Farmers)	Rapid, inclusive and sustained economic growth	The overall objective of the project is to establish a sustainable and resilient AANR-based S&T Community Livelihood, and promote inclusive development for the men and women F/fs of the Geographically, Economically and Socially Disadvantaged (GESDA) community of Barangay Salangsang, Lebak, Sultan Kudarat through the STC4ID approach.	☐ Sustained linkage with LGU and other partners Increased number of market linkages to 4 ☐ Increased the land area for vegetable production by 10% ☐ Increased number of stakeholders trained to 20% ☐ At least 2 Valueadded products are commercialized ☐ Farmers' income increased to at least 60% to 100% of the food threshold and toward poverty threshold. ☐ 3 publications filed for copyright ☐ 1 policy on vegetable farming practices developed, and advocated ☐ 1 paper presented in scientific fora ☐ At least 3 IEC materials translated in local dialects	SKSU	The target beneficiaries of the project are the farmer-cooperators themselves, academe, research and extension institutions, vegetable growers, LGUs, and food processors.	01-Oct-18	30-Sep-21	NEW	6,783,635	2,401,239
S&T Community Based Program for Inclusive Development (STC4ID)	Project 4. S&T Community-Based Project for Inclusive Development (STC4ID) For Selected IDPs and Farmers in Sulu (Old Title: Science and Technology Community-based Project for Inclusive Development in Barangay San Raymundo, Jolo, Sulu)	Rapid, inclusive and sustained economic growth	The goal of this three-year extension project is to establish a sustainable and resilient S&T Community Livelihood, and promote inclusive development for the Cassava Farmer Association and IDPs of Barangay San Raymundo, Jolo, Sulu through the STC4ID approach.	MOA/MOU signed with new gov't agency- or NGOpartner market agreement signed 1 initial livelihood program initiated 1 Techno Field Day conducted At least two processed cassava produced and marketed 1 policy advocacy plan developed; 1 LGU resolution/ordinance formulated 1 Terminal Report submitted 1 publishable paper submitted	MSU-Sulu	Cassava farmers and IDPs who came from the Municipality of Indanan, Patikul, Parang, Talipao, Maimbung, and Luuk Sulu who are now living in San Raymundo, Jolo, Sulu	01-Oct-18	30-Sep-21	NEW	5,938,012	2,216,004
S&T Community Based Program for Inclusive Development (STC4ID)	Project 5. S&T Community-Based Project for Inclusive Development (STC4ID) For Selected Farmers in Siquijor (Old Title: Agri-Fishery Program Initiatives for Livelihood Enhancement Services (Agri-Fishery PILES) in Selected Communities in the Six Municipalities of Siquijor Province)	Rapid, inclusive and sustained economic growth	The general objective of this three-year research-based extension project is to establish a sustainable AANR-based S&T Community Livelihood and promote inclusive development for the selected farmer community in the low-income barangay in the municipality of Enrique Villanueva, Province of Siquijor	1 MOA/MOU signed with new gov't agency or NGO-partner market agreement signed ☐ At least 2 more capacity building activities for 30 farmers conducted ☐ 2 Technology Field Day conducted ☐ More commodities produced and marketed ☐ Farmers income increased to meet at least 75% of food threshold ☐ 1 policy advocacy plan developed; ☐ 1 LGU resolution/ordinance formulated 1 publishable paper submitted	Siquijor State College	AANR Households from Barangay Bitaug, Enrique Villanueva, Siquijor	01-Oct-18	30-Sep-21	NEW	5,593,920	1,799,139
S&T Community Based Program for Inclusive Development (STC4ID)	Project 6. S&T Community-Based Project for Inclusive Development (STC4ID) For Selected Farmers and Fisherfolks in Magallanes, Sorsogon (Old Title: Technology Roll-out, Extension and Deployment - S&T Community-based Project for Inclusive Development (ST4ID) in Biga, Magallanes, Sorsogon)	Rapid, inclusive and sustained economic growth	The overall goal of this three-year extension project is to establish a sustainable AANR-based S&T Community Livelihood and promote inclusive development for the men and women F/fs of the Geographically, Economically and Socially Disadvantaged (GESDA) community of Magallanes, Sorsogon through the STC4ID approach.	o At least 2 MOA/MOU signed with new gov't agency- or NGOpartner o At least 2 market agreement signed o At least 2 capacity building activities for ≥30 F/F-cooperators conducted o 1 Techno Field Day conducted o F/Fs' income increased to at least 60-100% of food threshold o 1 commodity produced with valueaddition initiated o 1 CESP developed; o 1 policy advocacy plan developed; o ≥1 LGU resol'n/ordinance formulated o 1 Terminal Report submitted o 1 publishable paper submitted	Sorsogon State College	AANR households from Barangay Biga, Magallanes, Sorsogon (Community partner: Biga Farmers and Fishermen Association)	01-Oct-18	30-Sep-21	NEW	6,986,287	2,340,029