ANNUAL ACCOMPLISHMENT REPORT
FY 2020

I. COVID-19 Response PPAS

A. Research and Development Activities

a. Piloting of Rubber Based Farming Technologies

Description: This program has two components: (1) Rubber-Based Farming System: Crop+Livestock Integration under Mining Areas; and (2) Rubber-Based Farming System: Crop+Livestock under Cooperative Management. This was conducted in order to showcase and commercialize matured technologies derived from the result of rubber research and development activities. New existing technologies in rubber production, management, and harvesting will be introduced to rubber farmers for possible adaptation of rubber technology practices to increase their production.

Actual Accomplishments: Component 1 was initially established in two sites (Sitio Canatuan, Brgy. Tabayo, Siocon, Zamboanga del Norte and Brgy. Guintolan, Payao Zamboanga Sibugay). Component 2 was also established in two sites (Naga, Zamboanga Sibugay and Brgy. Tambanan, Naga, Zamboanga Sibugay) and Component 2 was also initially established at two sites (i.e. Sitio Jo Rubber, Brgy. Sulo, Naga, Zamboanga Sibugay and Brgy. Tambanan, Naga, Zamboanga Sibugay).

A total of 9,806 pieces of rubber budded seedlings, 1,775 grams of vegetable seeds, 1,920 pieces of coffee seedlings, 1,920 pieces of cacao seedlings, 1,000 banana suckers, and 2,000 abaca suckers were planted in different sites. Four chicken coop, and 2 goat house were constructed. Six heads cockerels and 40 heads of pullets were also raised. (*See attached file for the breakdown of each cooperator).*

Measured Impact: Initial data from June to December showed that the Average Mean Growth (Cockerel) of native chickens had an increased growth from 1.14% to 2.59% while pullets with 1.06% to 1.58%, respectively. Considering the Average Mean Growth of hardened chicks released from 0.44% to 1.07% as of September to November, data also showed that from the initial number of native chickens raised, there are 134 chicks produced. In terms of production, data showed that yield (kg) of raw rubber (cup lump) increased from 1,390 kg to 1,531 kg in July to October, 2020. With the increase in yield, there is also an expected rise in the farmer's income.

B. Production Support Services

a. Production and Distribution of Quality Rubber Planting Materials

Description: PRRI will produce quality planting materials to be distributed to rubber farmers association and cooperatives. This is also one of the functions of the PRRI as stated in Section 5 of Implementing Rules and Regulation of PRRI (Administrative Order No. 16, series of 2013) which is to enable rubber producers, processors, especially the smallholders, to have access to quality rubber buddings, modern production techniques, and other support services from production to marketing of rubber.

Actual Accomplishments: PRRI propagated and distributed a total of 16,533 pieces of high-quality rubber planting materials (budded rubber) to eleven (11) rubber farmer cooperatives/associations, including the distribution of 1,250 pieces to former communist red rebel organization in Brgy. Lacnapan, Kabasalan, Zamboanga Sibugay

Province as part of PRRI's support intervention to the "End Local Communist Armed Conflict (ELCAC) Program of the government. Part of that, the PRRI also distributed 3,000 pieces of planting materials to the Subanen Indigenous People (IPs), who were also engaged in rubber, abaca farming and small-scale mining activities near the mining reserved areas in Siocon, Zamboanga del Norte Province. Clones released include USM 1, PB 260, PB 235, PB 330, PB 311, USM 1, PB 217, RRIM 600, RRIM 2024, RRIM 2025, RRIM 3001, RRIM 2027, and RRIM 2000 series. (*See attached document for national and provincial breakdown)*

Measured Impact: Impact of this project will be determined when the rubber was already tapped (5-7 years from date of planting). This project is expected to (1) increase rubber production and income of rubber farmers in the Philippines by 10% using these quality planting materials (i.e. NSIC recommended rubber clones); (2) increase the replanting/rehabilitation of senile rubber plantations in traditional (Mindanao) and non-traditional (Luzon and Visayas) rubber-producing areas in the country by 10%; (3) increase the adoption rate of rubber farmer-recipients by 20% on the Philippine National Standards on Good Agricultural Practices (PNS-GAP) of Rubber; and (4) increase carbon sequestration in the atmosphere to at least 36.7 tons of carbon dioxide (CO_2)/hectare of rubber plantation/year (Satakhun et al, 2019).

C. Gulayan sa Gumahan

Description: Gulayan sa Gomahan is a PRRI initiative amidst global pandemic brought by COVID – 19. It is a Rubber-Based Intervention project which provides assistance to the rubber farmers by giving them vegetable seeds. This intervention primarily aims to create an additional food supply and a possible income during this Covid-19 pandemic. This activity is in collaboration with HVCDP of DA-RFO IX in order to support different rubber farmers in Zamboanga Sibugay.

Actual Accomplishments: The project was able to cater four associations/cooperatives namely Province of Zamboanga Sibugay Rubber Farmers Association, Province of Zamboanga Sibugay Rubber Farmers Association, Tambanan Agrarian Reform Beneficiaries Cooperative, and Jo Rubber Agrarian Reform Beneficiaries Cooperative. A total of 47 farmers served as beneficiaries for the 2,000 grams of seeds composed of 10 kinds of vegetable crops (i.e. eggplant, pechay, bitter gourd, cucumber, squash, gourd, tomato, okra, upland spinach, and string beans) that were distributed. These seeds were planted under rubber plantations in Brgy. Dalisay, Titay, Zamboanga Sibugay; Brgy. San Pedro, Tungawan, Zamboanga Sibugay; Brgy. Tambanan, Naga, Zamboanga Sibugay; Sitio Jo Rubber, Brgy. Sulo, Naga, Zamboanga Sibugay and Brgy. Guintolan, Payao, Zamboanga Sibugay. (*See attached document for national and provincial breakdown)*

Measured Impact: As a result, the piloted "Gulayan sa Gomahan Project" increased smallholder rubber farmers' income by 10%, which directly contributes to the DA's "Ani and Kita Approach" especially in poverty alleviation measures in rural communities; and increased food security in the rubber-growing communities by 10% which is coherent with the Philippine Development Plan Strategies (Ambisyon Natin 2040) particularly in "Zero Hunger" especially in this global health pandemic.

II. Other Programs/Projects/Activities

A. Technology Developed

a. Best Performing Rubber Clones and its Morphological Characteristics during Juvenile Stage

Description: Thirty-nine (39) rubber clones were tested for the conduct of the study "Phenotypic Diversity of Small-Scale *Hevea* Germplasm Grown in PRRI Nursery at their Juvenile Stage" where its morphological charateristics and growth performance were tested. Principal component analysis utilized nineteen (19) morphological descriptors (leaf storey, leaf apex, separation of leaflet, leafstorey spearation, leaf color, disease incidence, leaf storey density, petiole shape, leaf scar, auxillary bud, longitudinal section, stem features, leaf base, leaf shape, petiole orientation, leaf margin, girth size, tree height, and cross section).

Actual Accomplishments: Among thirty nine (39) clones, clone RRIM 3000 showed unique morphological features like hemispherical leaf storey. It also has fast growing latex timber clone in terms of height and girth during its immature stage of growth. It means that the clones can have tappable girth within 3 years instead of 5 years.

Measured Impact: Other studies shall be conducted to establish its performance in large scale area (plantation site) to determine its impact. Best performing rubber clone(s) will be tappable within 3 years compared to other clones which can be tapped after 5 to 7 years.

b. Soil Conservation Pits Applied with Organo-Inorganic Fertilizers on Matured Rubber Plantation

Description: This project studies the application of appropriate soil conservation management strategies to enhance plant nutrient and water conservation, control runoff and reduce erosion on rubber farms in the Philippines.

Actual Accomplishments: Results revealed that girth increment of rubber are consistently increasing indicating positive response on soil conservation pits applied with fertilizers. Based on the findings and conclusions, conservation pits, with a size 0.75m width x 0.35 m depth and 1.2m length in between 4 rubber trees in alternate arrangement applied with pure vermicast and complete fertilizers in rubber plantation is highly recommended since the results revealed that using these fertilizer amendments has obtained the highest latex yield per (kg)/tree and the highest return of capital.

Measured Impact: The application of cheap, locally available organic fertilizers (i.e. vermicast) placed in soil conservation pits, provided economically and environmentally-sustainable alternative cultural management strategy for rubber as it helps in minimizing the loss of soil nutrients (i.e. leaching, soil erosion, etc.) in their rubber plantations. This also helped farmers reduce their cost of production, particularly in reducing the overdependence of using expensive inorganic/synthetic fertilizers in rubber farming, thereby an increase in rubber production by 15% and increase in long-term income of the rubber farmers by 10%, which greatly contributes on the DA's "Ani and Kita Approach" to the Filipino farmers.

B. Research and Development

a. Performance of IRRDB Exchange Clones under Nursery Condition

Description: This research project is composed of three (3) studies: (1) *Rubber Rootstock Production Applied with Different Root Growth Enhancer and Production Technique*, (2) *Molecular Characterization of Promising and Introduced Clones Planted in PRRI Germplasm Collection*, and (3) *Performance Evaluation of Introduced Clones as Affected by Drought at Nursery Stage Condition* which aims to evaluate IRRDB exchange rubber clones under nursery condition taking into account the suitability of each rubber clones against biotic and abiotic stresses as well as the environmental factors.

Actual Accomplishments: The study was able to propagate 750 pcs budded rubber of exchanged clones in PRRI Nursery, Tambanan, Naga, Zamboanga Sibugay for drought performance evaluation. It also propagated 300 pieces seedlings for root growth enhancer trial. Currently, terminal report of this study is still on its drafting stage.

Measured Impact: Rubber production and income of farmers are expected to increase once it is established which among the exchange clones tested are high yielding, resistant to stress, and are suitable to the agro-climatic conditions where they are exposed to.

b. Influence of Different Coagulants on the Quality of Rubber Sheets

Description: Latex is coagulated by acid in order to prepare the sheets or cup lumps for the production process. The commercially used acids for coagulation purpose are formic and acetic acid. These chemicals are synthesized using petrochemicals which makes them highly susceptible to price increase due to raise in the value of petrol products. Thus, this study was conducted to explore alternative coagulants from abundant and readily available resources.

Actual Accomplishments: The study was conducted in Ipil, Zamboanga Sibugay. Primarily, the project was able to prepare rubber sheets using two (2) types of coagulants – formic acid and coconut vinegar. On-going initial observations were made since the sheets will be pre-dried at room temperature for 7 days followed by drying for 48 hours at 50-60 °C in a conventional oven.

Measured Impact: The success of this project would help minimize production cost of cuplump as these alternative coagulants are cheap and readily available. With lower production cost, farmers are expected to have higher net income.

c. Maintenance of Research Facility

Description: The Zamboanga Peninsula "Zampen" Rubber Testing Laboratory was constructed and renovated from an existing establishment in 2009 as a support of the thriving rubber industry of the Zamboanga Peninsula and the country at large. It embodies the commitment and dedication of both the government and private sectors to complement efforts and resources with the end in view of improving the socio-economic condition of the rubber stakeholders. Maintenance of the ZamPen Rubber Testing Laboratory is a preliminary step towards functional testing laboratory which can offer rubber testing services in support to the different research and development activities of PRRI. Also, it is one of the initial steps in the preparation of ISO/IEC accreditation.

Actual Accomplishments: ZamPen Rubber Testing laboratory was maintained.

Measured Impact: With the Zamboanga Peninsula "Zampen" Rubber Testing Laboratory, testing of rubber raw products which will determine the quality of rubber raw products is made possible. This is necessary in the development of technology, through research and development, where the dry rubber content (DRC) is constantly

monitored. Moreover, DRC is also the basis for rubber marketing system, thus a higher DRC content will increase the income of rubber farmers.

d. Design, Fabrication and Field Trial of Rubber Tree Guards for Improved Latex Yield

Description: This study will assess four (4) different fabricated utility model rubber tree guards, namely: DA-PRRI RS I, DA-PRRI RS II, DA-PRRI III, and DA-PRRI RS IV. This will help the rubber farmers in minimizing effects of rain which includes washout and dilution of natural rubber latex. Further, this will also lessen interruption of the regular tapping schedule panel during rainy season, and infections in the tapping panel can also be prevented.

Actual Accomplishments: This study was conducted in nine (9) sites (3 in Zamboanga Sibugay, 3 in Zamboanga del Sur and 3 in Zamboanga del Norte). A total of 180 rainguards were installed per site.

Measured Impact: The highest total gross income/ha/mo of the rubber tree installed with DA-PRRI RS-IV rain guard was 16,520 kgs compared 12,600 kgs with no rain guards. Therefore, there was an increase of 31% of production and income in the application of rainguard.

C. Extension Support, Education and Training Services

a. Strengthening of Rubber Farmers Association and Cooperatives

Description: Training was conducted with the following modules: (1) Leadership Skills and Organization Management; (2) Rubber Nursery and Plantation Establishment and knowledge and skills of rubber farmers' association and cooperative to improve the productivity of their rubber plantation - from planting of rubber trees to processing of rubber products.

Actual Accomplishments: Fifteen trainings were conducted in each site. Participants were from 15 rubber farmers associations and cooperatives with a 385 total number of participants. (*See attached document for national and provincial breakdown)*

Measured Impact: Through the training, farmers who are not yet organized will be assisted by PRRI in forming them into association. An improved system as organized by the Associations and Cooperatives will have an opportunity in accessing different programs of the Department of Agriculture and other government agencies. However, for the already conducted training, further assessment will be done in order to determine its impact to the lives of the rubber farmers.

D. Other Activities

a. Maintenance of PRRI *Hevea* Germplasm Collection, Conservation, Preservation and Utilization

Description: The collection was initiated by PRRI in 2016 which led to the successful collection and conservation of ninety-seven (97) genotypes from private and government sectors. It is conserved in different locations of the Philippines. Its purpose is to broaden the existing gene pool and establishment of the core collection of germplasm. It aims to enable a more rapid and effective utilization of these diverse genetic materials in the rubber breeding program.

Actual Accomplishments: Nursery facilities, irrigation system, storage room, potting shed, and compost pit were already installed. Existing clones were maintained and new clones were also added to the collection.

Measured Impact: Maintaining genetically diverse genotypes serves as buffer against stress and exhibit greater adaptability to changing environments providing materials

for plant breeders for achieving a systematic breeding in rubber clone improvement. Collection and conservation of ninety-seven (97) introduced clones helps widen the genetic base of crops in order to develop desired characteristics.

b. Distribution of IEC Materials

Description: A total of 4,562 pieces of the IEC materials on Establishment and Management of Immature Rubber, Establishment and Management of Rubber Nursery, Rubber Insect Pest and its Management, Natural Rubber Processing, Latex Harvesting, Status, Challenges and Prospects of Philippine Rubber Industry, and Intercropping of Immature Rubber Plantation, were distributed to the participants of the trainings and PRRI walk-in clients.

c. Consultative Meeting with City/Municipal Agriculturist Of Zamboanga Del Norte

Description: Collaboration with the Local Government Unit is one way to reach our valued rubber farmers and identify their particular needs. This would be the first step in achieving the office's goal to help grow our rubber famers and give them value in rubber and economic industry. A strong coordination with government agencies, DA-Units, LGUs and Rubber Coordinators must first be undertaken in order to provide every rubber farmer with the development that we aim.

e. Daily Price Monitoring

Description: PRRI daily publishes the Daily Price Reference of Rubber which is called "Bantay Presyo" of rubber cuplump. This is set by the Philippine Rubber Technical Working Group on PRRI Official Facebook page to help the farmers across the country in accessing reliable price of rubber.

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