



ANNUAL REPORT

2019

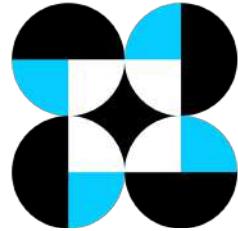


DEPARTMENT OF SCIENCE AND TECHNOLOGY
REGIONAL OFFICE NO. I

Quality Policy

We are committed to provide products and services to both government and private sectors in Region 1 with highest standards of quality and reliability within our capabilities and resources according to customer and all regulatory and statutory requirements; and, to continually improve the effectiveness of our QMS at all times by ensuring the risks and opportunities, that can affect conformity of products and services, are determined and addressed to enhance customer satisfaction.





**DEPARTMENT OF
SCIENCE AND TECHNOLOGY**

REGIONAL OFFICE I



Foreword

For years, the Department of Science and Technology Region 1 has executed impactful and significant S&T projects, programs, and activities. It is with much pride that we banner our 2019 milestones, as we have once again successfully engaged our stakeholders, provided S&T innovations, improved capacities, and granted numerous opportunities to the people of Region 1.



In boosting our S&T programs, projects and activities this year, DOST capacitated the micro, small and medium with skills and knowledge to further enhance their operations, improve the quality of their products and develop other services. We also supported them and other clienteles with technical and consultancy services on label design and packaging, technology trainings, and laboratory analysis and testing services. Furthermore, DOST 1 made sure that no one is left behind. We reached disenfranchised communities in far-flung areas and empowered them through our community empowerment through science and technology services.

DOST scholar-graduates have proliferated in the teaching of STEM subjects in secondary public schools in the region. Likewise, we have also delivered our commitment to encourage more students to become a part of the S&T workforce by investing in their studies through the various S&T Scholarship Programs. With budding scholar-future partners in our region, we look forward to more years of productive S&T developments in Region 1.

Finally, we brought science and technology to the doorsteps of communities in the countryside, in close coordination with the local leaders, to promote S&T to all sectors of the populace. This annual report is a consolidation of our efforts to improve the Filipino life through science, technology and innovation. Guided by our core values of Innovation, Excellence, Leadership, Integrity, Teamwork and Empowerment, the Department of Science and Technology Region 1 has been relentless in ensuring strengthened efforts in our S&T-based innovations and services. We have improved our work systems and boosted our workforce's capacities to deliver services that are of excellent quality without fail.

Our success this year is both a celebration and a challenge for the organization. We dedicate our triumphs to our clients, partners and stakeholders, who have been with us to realize our targets. Same honor is given to the management of DOST, thru the able leadership of Secretary Fortunato T. De La Peña and guidance of Regional Operations Undersecretary Brenda L. Nazareth-Manzano for the full support to the programs and activities of DOST Region 1. As 2019 comes to an end, we are excited and motivated to advance further our efforts in fostering an improved and empowered S&T innovation and practices, all for the benefit of our people, especially in Region 1.


ARMANDO Q. GANAL
Regional Director

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DIRECTORY



EXECUTIVE SUMMARY

This executive summary presents the Department of Science and Technology – Region I's (DOST I) efforts in enhancing customer satisfaction through strong leadership in Science, Technology, and Innovation (STI) - based products and services for the year 2019.

DOST I has continued its pursuit to achieve excellence in performing its mandate to the public. Its accomplishments focused on relevant science and technology (S&T) programs, projects, and activities (PPAs) in support to regional sustainable development as emphasized in Chapter 14 of the Philippine Development Plan 2017-2022.

These efforts were supported with operational excellence through continual improvement of quality management system, promotion of learning capacities and culture for organizational transformation, and financial sustainability through judicious management of financial resources.

I. ENHANCING CUSTOMER SATISFACTION

Support to R&D Agenda and STI Infrastructure

The creation of the Regional Research, Development, and Innovation Committee (RRDIC) is a manifestation of the recognition and support to research, development, and innovation (RDI) for regional progress and development.

As Chair of RRDIC, DOST I led in the implementation and monitoring of the Harmonized Regional Research and Development Agenda (HRRDA). The HRRDA was presented during the NRCP Regional Basic Research Caravan held in Candon City last September 2019. RRDIC also received completed research studies from UNP, MMSU and DMMMSU where 11 papers reviewed and eventually 3 papers passing the panel review. DOST 1 also promoted 3 technologies (Biotech-M, Vigormin, Iron Fortified Rice) where resolutions were approved by the RDC 1. The resolutions encourage all concerned government instrumentalities to patronize and promote the above-mentioned technologies. RRDIC also reviewed the proposal of MMSU under Niche Centers in the Regions for R&D (NICER).

Likewise, DOST I is involved in setting the direction of the three R&D consortia (ILAARRDEC, ICIEERD, and R1HRDC) in the region through its active membership in their respective coordinating councils. A total of 49 R&D proposals were evaluated and endorsed for funding in 2019. On

the other hand, 194 technologies were promoted in various promotional activities leading to the adoption/use of 29 technologies with 3,661 adoptors.

DOST I continuously supported the operations of the food innovation centers (FICs) located in Pangasinan State University (PSU) in Bayambang, Pangasinan and Mariano Marcos State University (MMSU) in Batac City, Ilocos Norte. The FICs serve as hub for product development, innovations and other support services that can add more value to fresh produce and existing processed foods of MSMEs in the region.

For 2019, a total of 250 concepts generated and 8 prototypes of innovative food products were developed. There were two packages of technology (POT) translated to licensing agreement and 6 IPs (patent, utility model and copyright) filed.

Technology Adoption Promoted and Accelerated

To accelerate the transfer and utilization of local R&D outputs, several initiatives to promote these technologies were implemented in the region. DOST-1 celebrated the annual regional S&T week (RSTW) in Laoag City showcasing various technologies generated by DOST and partner agencies that address common concerns in the society. There were 17,844 viewers and participants to the various activities conducted.

On the other hand, the Provincial S&T Centers organized seven S&T Caravans to bring DOST products and services closer to the people in selected municipalities. Collaborations and partnerships with LGUs and other non-government organizations were sealed through the creation of Municipal S&T Coordinating Council (MSTCC).

The Regional Invention Contest and Exhibits (RICE), R&D Symposium and Technology Transfer Day, both participated by the academe, research institutions and local inventors, were also conducted to build social atmosphere in advocating invention and research.

Various technologies were also promoted through S&T Fora, the regional website, and social media.

II. PRODUCTIVITY AND EFFECIENCY OF COMMUNITIES AND MSMEs IMPROVED

Technology Transfer and Commercialization

A total of 108 S&T interventions were provided to 40 firms assisted under the Small Enterprise Technology Upgrading Program (SETUP) for the year. The innovation system supports provided enable MSMEs to significantly improve productivity by 23% and significantly contribute to the regional GDP through gross sales reaching to P1.16B and generating employment for 415 individuals.

There were also 23 beneficiaries under the Community-based Projects (CBPs) providing 94 S&T interventions. The projects will help communities to develop high value products out of the commodities abounding their area.

The Community Empowerment thru Science and Technology (CEST) program started its implementation year in Dumalneg, Ilocos Norte. Along with Mariano Marcos State University (MMSU), DOST 1 conducted several activities to address identified gaps in health and nutrition, human resource and economic enterprise. A 120-day complementary feeding utilizing DOST-FNRI development products were served to 25 undernourished children ages 6-59 months old. DOST 1 also awarded educational equipment and tools (STARBOOKS, DOST-SEI modules and augmented reality tools) to San Isidro Elementary School. Enrichment Program was also conducted for 16 Grade 12 students from the municipality

to help them prepare for the DOST-SEI undergraduate qualifying examination. The review was in partnership with the PSHS IRC and 3 patriot scholars of Ilocos Norte. There were also technology trainings conducted utilizing the abundant resources/commodities in the area. Seventeen residents from Dumalneg were introduced to wine and vinegar making.

DOST 1 also sustained the S&T interventions provided to municipalities of Alilem and Sugpon, Ilocos Sur. Several machineries and production equipment were turned over to Apang Food Processors Association and Alilem's Kiat Bamboo Handicraft and Designers Association. Their products were showcased through trade fairs and caravans.

Science and Technology Services

The DOST 1 Regional Standards and Testing Laboratory (RSTL) has provided 11,397 testing and calibration services serving 4,666 customers and earning P7,863,550.00 for the government. On the other hand, the Regional Metrology Laboratory (RML) extended 2,059 free calibration services to 1,473 customers with value of assistance of P603,420.00.

To assist MSMEs in the improvement of their product packaging and labeling designs, DOST 1 commissioned 47 product label designs and completed packaging executions for 17 firms. Moreover, 62 trainings for MSMEs and communities were provided to 2,116 participants and 212 firms.

A total of 87 firms were also provided with 117 technical assistance and consultancy services resulting in the reduction of waste generation, savings in raw materials, lower energy cost, and compliance to good manufacturing practices, leading to higher productivity.

Critical Mass of Globally Competitive STI Human Resources Developed

The government's commitment to enhance the country's S&T human resources is reflected in S&T Scholarships provided to deserving students.

DOST-1 is assisting 428 ongoing scholars under the DOST-SEI Undergraduate Scholarship Program. Moreover, 413 graduating Grade 12 students from Region 1 qualified in the undergraduate scholarship program for the year 2019.

With the increasing awareness on STI, 5,786 senior high school students, an increase of 29% from last year's number of applicants, took the qualifying examination last October 20, 2020.

The DOST-1 Scholarship Unit maintained its strong networks and linkages with various stakeholders to effectively provide S&T learning assistance to ongoing and incoming scholars.

Resiliency to Disaster Risks and Climate Change Ensured

DOST-1 assists DOST-PAGASA in the maintenance of the deployed Hydrometeorological Stations through the projects: "Optimization of the Operational Capabilities of Hydromet Sensors with International Standards (WMO) for Effective Weather, Flood Early Warning System (CBFEWS) and Application to Research (Optimization Project)", in response to improving integrity of the environment and climate change adaptation and mitigation.

In CY 2019, DOST 1 managed to install additional five (5) warning stations, making the total number of installed FEWS to 22. These initiatives served as enhanced data gathering tools for LGUs to easily monitor flood capability in their respective areas.

As Vice-Chair for Prevention and Mitigation in the Regional Disaster Risk Reduction and Management Council (RDRRMC), DOST-1 actively participated in all pre- and post-disaster risk assessment meetings and activities, evaluation of Gawad Kalasag entries, crafting of DRRM plans for Region 1, dissemination of information materials, and conduct of earthquake drills.

DOST-1 has started drafting the Public Continuity Service Plan (PCSP) to deliver products and services to the public despite any calamity/hazard that will be experienced by the agency.

III. ATTAINED OPERATIONAL EXCELLENCE THROUGH

Sustaining QMS and Other Recognitions/ Accreditations

DOST-1 sustained its quality management system, the ISO 9001:2015, to consistently provide products and services that meet customer delight and applicable statutory and regulatory requirements. This was manifested in the 98.09% of served customers who rated DOST services with

very satisfactory and better ratings.

Moreover, the Regional Standards and Testing Laboratory (RSTL) also maintained its ISO 17025 accreditations with PAB, accreditation as regional laboratory for drinking and food from DOH and FDA, respectively, and recognition as regional laboratory for wastewater from the DENR-EMB.

DOST-1 also strictly complied with the state requirements in the implementation of Gender and Development, Freedom of Information (FOI), Person with Disability (PWD) Law, Senior Citizens Law, Data Privacy and Citizens Charter or Anti-Red Tape Act.

Continuous Improvement of Innovative Work Processes

The continuous innovations in information systems enhances operational efficiency of the organization in the management of human resource, budget and finance, program, and projects.

DOST-1 maintained its website, Facebook page, and group chat messaging thru messenger app, to enable wider dissemination/promotion of technologies among stakeholders and faster communication among staff.

Gawad Kalasag entries, crafting of DRRM plans for Region 1, dissemination of information materials, and conduct of earthquake drills.

IV. PROMOTED LEARNING CAPACITIES AND CULTURE FOR ORGANIZATIONAL

DOST-1 had a total manpower complement of 81 staff during the year, comprising of 29 permanent, 38 Contract of Service and 14 Job Order personnel, distributed in the Field Operations, Technical Services and the Administrative Services Divisions.

Personnel learning and development were also enhanced. A total of 132 trainings were attended by 70 personnel in 2019.

V. ACHIEVED FINANCIAL SUSTAINABILITY THROUGH JUDICIOUS MANAGEMENT OF FINANCIAL RESOURCES

DOST-1's operations were supported with financial resources amounting to Php183,285,480.57 with 32.81% of the budget externally generated.

TECHNOLOGY TRANSFER & COMMERCIALIZATION



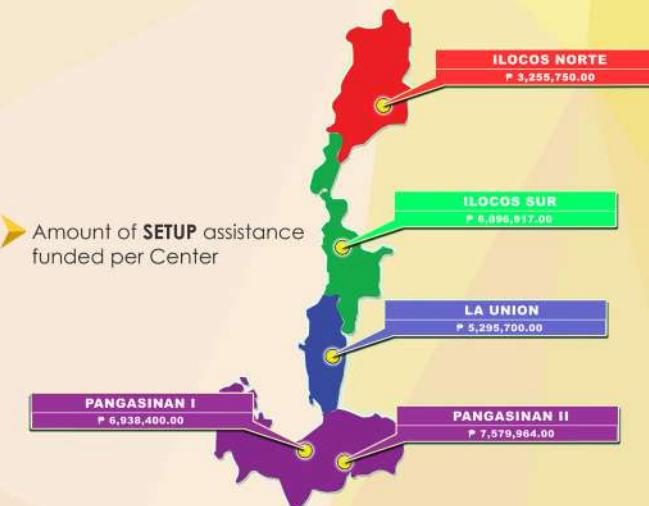
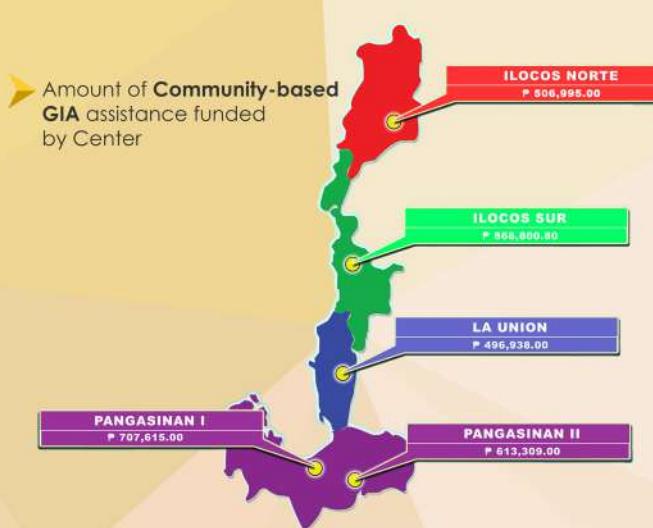
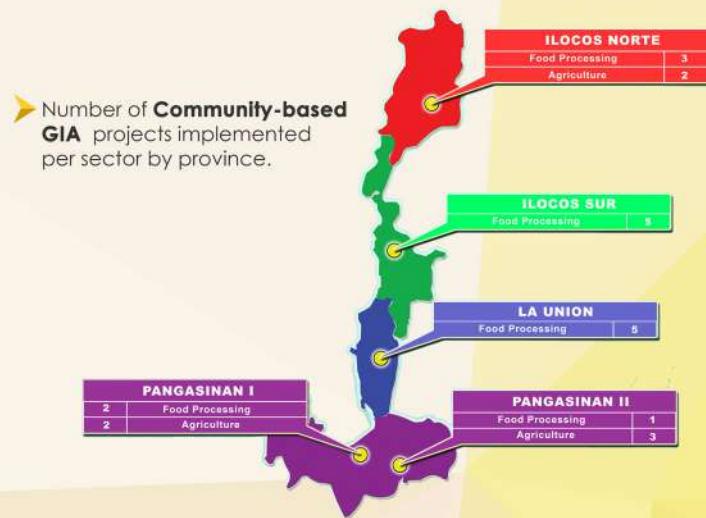
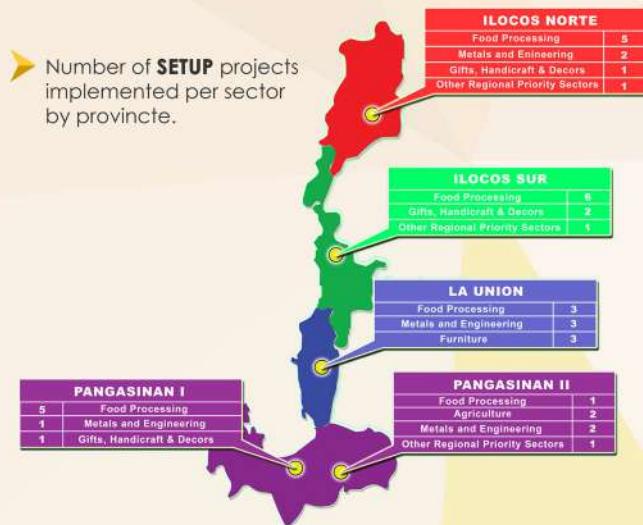
TECHNOLOGY TRANSFER AND COMMERCIALIZATION

Recognizing the pivotal role of micro, small and medium enterprises (MSMEs) in accelerating economic growth, SETUP continues to provide assistance to MSMEs in Region 1 through technological innovations that will enable them to enhance the quality of their products and services and boost their productivity and competitiveness.

Tagged as one of the flagship programs of the DOST, SETUP aims to support MSMEs through the provision of seed funds for the acquisition of technology interventions, manpower trainings, technical assistance and consultancy services and design of appropriate product label and packaging.

With its endeavor to address the technology needs of MSMEs in the region, DOST-1 has funded the technology requirements of forty (**40**) micro and small enterprises under the SETUP worth ₱29,966,731.00 and twenty-three (**23**) enterprises assisted through the community-based Grants-in-Aid (GIA) Program amounting to ₱3,193,657.80.

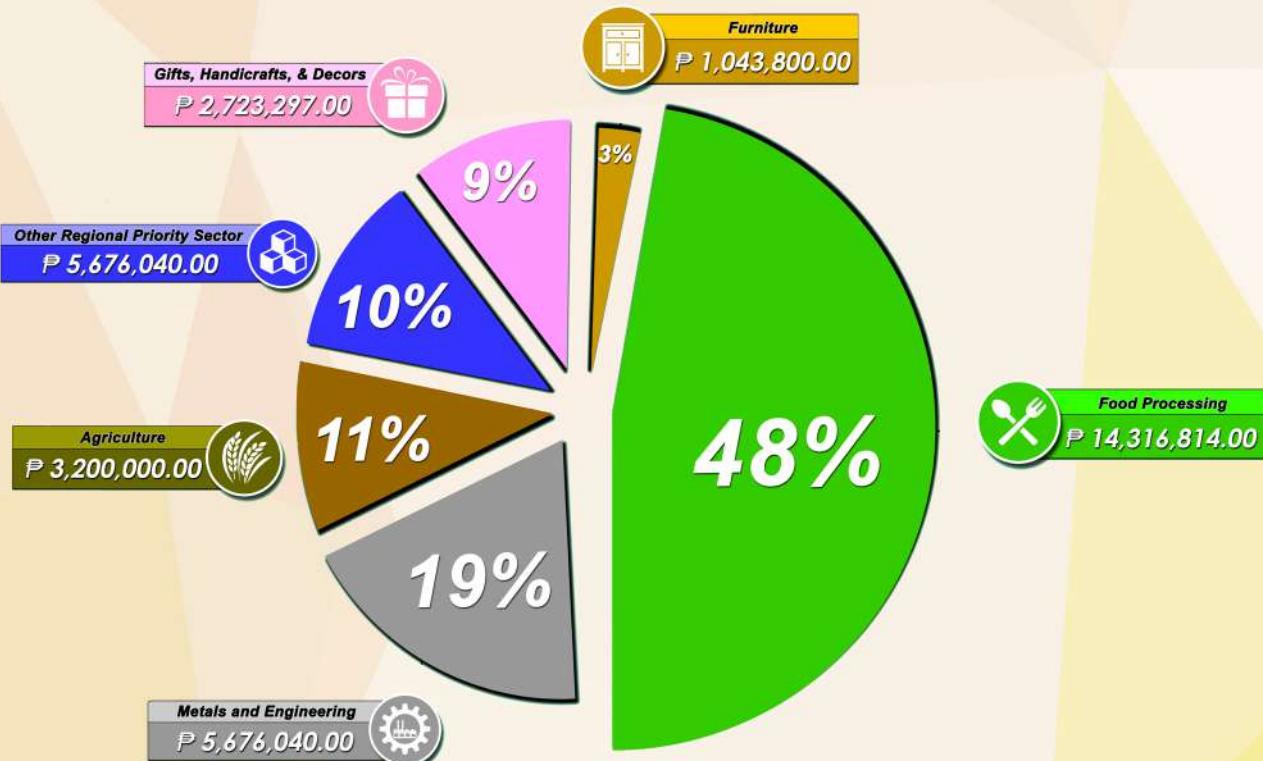
The interventions granted to these MSMEs comprised of upgrading of technologies and facilities used in the production line; product label design and packaging execution, human resource trainings; technical assistance and consultancy services.



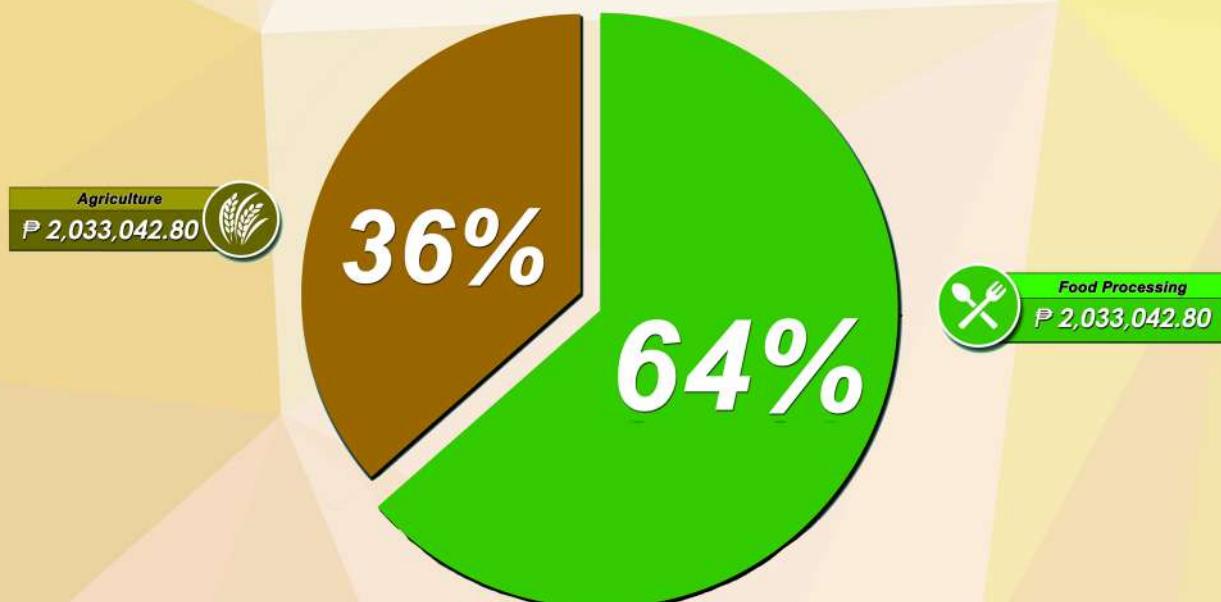


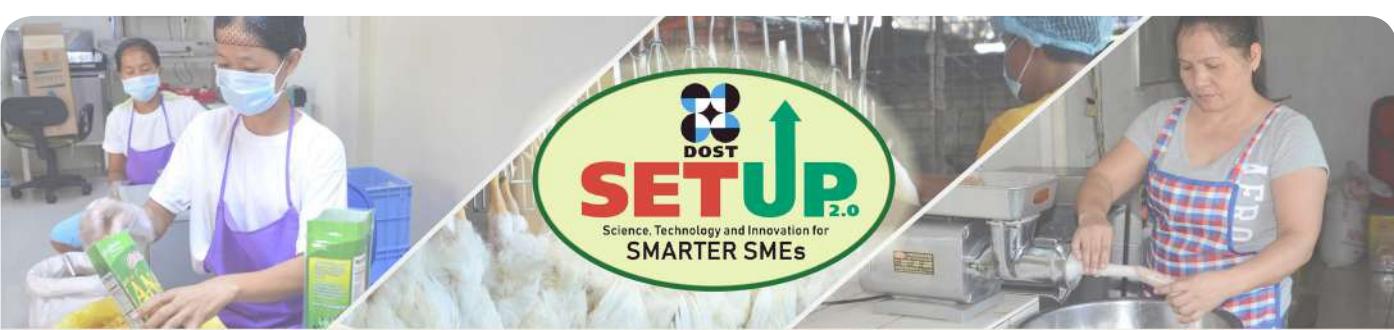
TECHNOLOGY TRANSFER AND COMMERCIALIZATION

- Amount and percentage distribution of firms assisted by DOST investments under **SETUP**



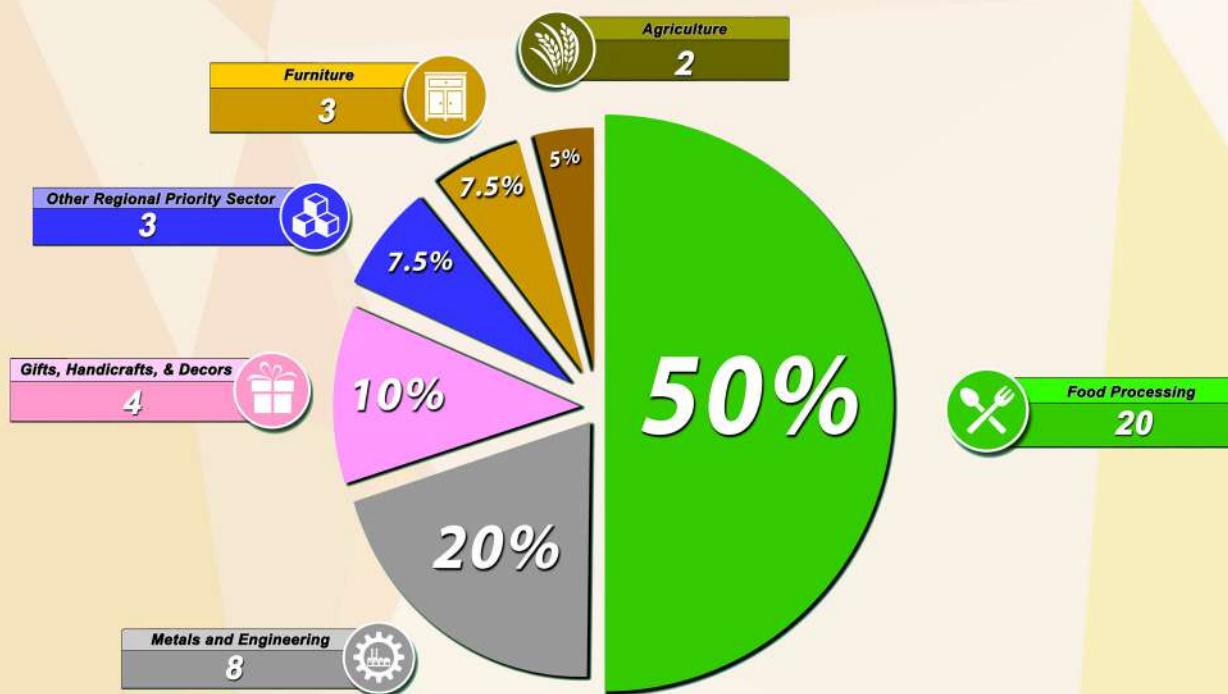
- Amount and percentage distribution of firms assisted by DOST investments under **GIA**



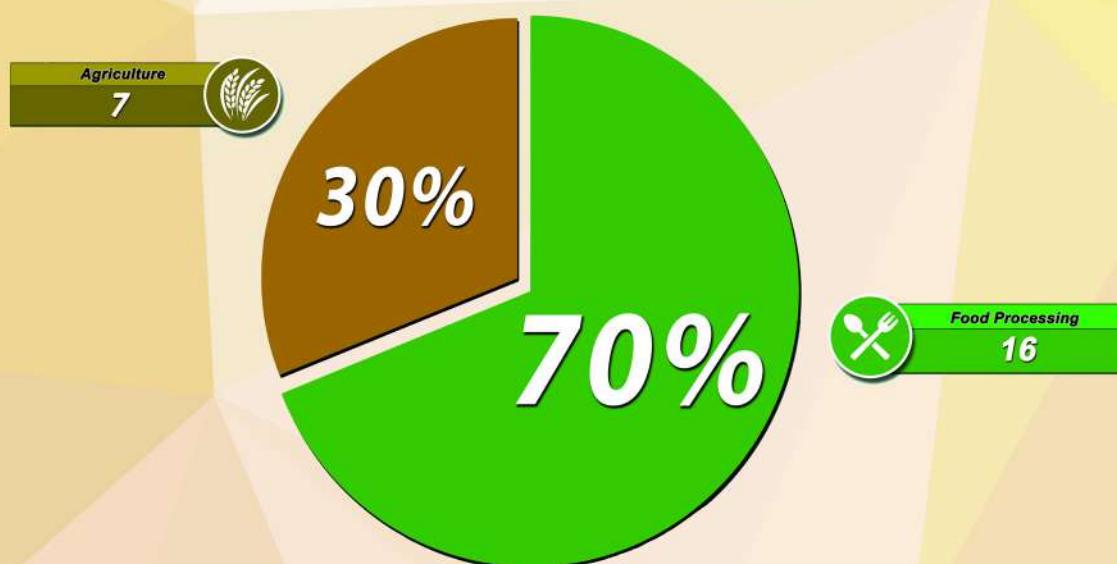


TECHNOLOGY TRANSFER AND COMMERCIALIZATION

- Number of projects and percentage distribution of firm assisted by sector under **SETUP**



- Number of projects and percentage distribution of firm assisted by sector under **GIA**



Food Processing



Upgrading of Production Facilities and Packaging Enhancement of Ambelita's Meat Products

Implementing Firm: **AMBELITA'S MEAT PRODUCTS**
 Project Cooperator: **Mr. Merickson Jann R. Dancel**
 Project Location: **Airport Ave., Brgy. 46, Nalbo, Laoag City, Ilocos Norte**
 Project Cost: **Php441,900.00**

"Naimas pay pati panait na", (Even the thread tastes good!) was the tagline of the Mercy's Longganisa founded in 1986 by Mrs. Merica "Mercy" Reyes Dancel. With an initial capital of Php3,000.00, Mrs. Dancel thought of an extra income as she formulated her recipe of longganisa and started selling it to her friends and colleagues. In the later months, she established her first stall at Laoag City Public Market, and because of its authentic taste, her business started to grow in the 1990s.

In 2018, Mrs. Mercy instilled to his son the mixtures of her recipe and transferred her business to his son and named the firm Ambelita's Meat Products. Now, the firm capitalization is Php500, 000.00 with 10 workers.

In 2019, the firm availed of the DOST-SETUP innovation system support that upgraded the firm's equipment and packaging to conform to FDA-LTO requirements.



Longganisa product of Ambelita's Meatshop



Meat Stuffer

INTERVENTIONS

- Acquisition of the following equipment and facilities:
 - SS Meat Mixer
 - SS Meat Stuffer
 - Vacuum Packaging Machine
 - Labeling and Packaging Execution including Nutritional Analysis & Microbial Test
- Seminar on cGMP with emphasis to Food Safety

OUTCOMES

- Followed the food safety assessment recommendations
- Improved production area



Implementing Firm: **BAKERS PH**
 Project Cooperator: **Mr. Daniel B. Borja**
 Project Location: **Airport Road, Brgy. 44 Zamboanga, Laoag City, Ilocos Norte**
 Project Cost: **Php5,334,000.00**

Equipment and Production Process Upgrading for Pauline's Percent Bakery

INTERVENTIONS

- Acquisition of the following equipment and facilities:
 - Water Chiller
 - Planetary Mixer
 - Sheet-Reversible
 - Rack Oven
 - 3-Deck Gas Oven
 - Multi-Function Bread/Paratha Forming Machine with Shutter and Cutter Function
 - Metal Detector
- Seminar on current Good Manufacturing Practices (cGMP) with emphasis to Food Safety

Bakers Percent is a family business established in 2001, operated in Cagayan, and managed by Mrs. Paulina Borja. In 2014, it established the Ilocos Norte Branch and is managed by Mr. Daniel Borja, covering Northern Luzon. The bakery produces freshly baked hopia, ensaymada, bibingka, bichos, and other pastry products. The bakery has become known for its delicious hot pizza bread and hopia. Later, it is producing buns for burgers of Jollibee in the entire Region 1.

In 2016, the business availed of SETUP assistance. With the increasing opportunities and demand of its customers, the firm sought for another round of assistance to adopt technology innovations to improve business operations, boost productivity, and competitiveness. With Bakers PH as its new business name, it has acquired license to operate from FDA.

OUTCOMES

- After the intervention, the firm improved from small to medium enterprises.
- The production area is compliant to good manufacturing practices and food safety.
- Water chiller acquired for the accuracy and consistency of water temperature to cool down the same volume of water to dough in the production of bread and pastry products.
- Planetary mixer decreases the production time by 20% and increased volume of the produced products by 50%
- Sheet reversible reduces the production time by 20% and minimizes bare hand contact.
- Rack-oven increases the volume of production by 25%.
- 3-Deck gas oven automatically control the temperature to save on LPG gas consumption and the desired consistency of temperature and quality of baked products are achieved.
- Multi-Function Bread/Paratha Forming Shutter and Cutter Function helps the hopia product standard size and weight to be consistent. It also minimizes bare hand contact.
- Metal Detector ensures food safety and achieves quality standards/assurance.



Two of the workers of Bakers Ph put in the fillings of Pan de Coco using the Multi-Function Bread/Paratha Forming Machine with Shutter and Cutter Function



Production Facilities Upgrading of Manang Luz Meatshop

Implementing Firm: **MANANG LUZ MEATSHOP**
 Project Cooperator: **Mr. Julius R. Padilla**
 Project Location: **Public Market, Dingras, Ilocos Norte**
 Project Cost: **Php499,950.00**

Manang Luz Meat Shop processes meat such as tocino, longganisa and marinated porkchop. Established in 1988, Mrs. Luz Padilla started the firm with an initial capitalization of Php10,000.00.

Since 2011, the business is being managed by her son, Mr. Julius Padilla. In 2018, Mr. Padilla participated in the seminar on current good manufacturing practices with emphasis to food safety. One of the activities tackled in the workshop was the layout of the production area. With that, he asked the assistance of DOST through the SETUP to adopt technology innovation and improve his production area and comply with FDA regulation requirements.



Meat Mixer

INTERVENTIONS

- Acquisition of the following equipment and facilities:
 - Floor type Meat grinder
 - SS Meat Mixer
 - Chest freezer
 - Vacuum packaging machine
- Labeling and packaging execution including nutrition facts, microbial test, and packaging materials
- Seminar on good manufacturing practices with emphasis to food safety
- Training on financial management

OUTCOMES

- Ongoing printing of the packaging and labeling intervention
- Established a separate production area complying to GMP
- Provided a chest freezer for finished products to maintain quality and minimize any possible contamination when air drying
- The grinding time increase by 60-70% (30 mins. /280 kg)
- Acquired vacuum packaging for the products to eliminate the air inside the package thus it minimizes the growth and multiplication of microorganisms that can cause deterioration of the quality of the finished products.



Meat Grinder

Implementing Firm: **GLOMY'S EMPANADA AND FOODHOUSE**
Project Cooperator: **Mr. Mark Anthony C. Rigonan**
Project Location: **Brgy. 7, Caunayan, City of Batac, Ilocos Norte**
Project Cost: **Php302,400.00**

Production Process and Sachet Sauce Packaging Improvement of Glomy's Empanada

Packaging machine

Glomy's Empanada is one of the known empanada producers in the City of Batac with Mrs. Glomelynn Rigonan, its originator. Mr. Mark Anthony, her son, wanted to expand their empanada family business. Thus, he established and registered his sole proprietorship empanada business.

Mr. Rigonan actively participated in different fairs and bazaars of various government agencies and provincial affairs to promote its authentic empanada. With increasing demand, Mr. Rigonan sought for DOST's assistance to improve its production of sauce to comply with good manufacturing practices and FDA regulations. Thus, he offers a total package of empanada including the sauce.

INTERVENTIONS

- Provision of 1-unit vertical paste packaging machine for empanada sauce.

OUTCOMES

- Acquired vertical paste packaging machine to comply with GMP
- Established a separate production area solely for sauce packaging as required by the food safety assessors during the food safety assessment
- Trial operation of the machine is ongoing



Newly constructed production area for sauce packaging of Glomy's Empanada and Foodhouse.

SS Double Deep Sink used in cleaning the raw materials



Enhancement of Production Facilities of Choylin Fried Station

Implementing Firm: **CHOYLIN FRIED STATION**
 Project Cooperator: **Ms. Iline R. Tolentino**
 Project Location: **Sitio Calawaan, Brgy. Tamorong, Sta. Catalina, Ilocos Sur**
 Project Cost: **Php1,984,900.00**

Choylin Fried Station started in 2012 as a food cart business selling crispy pata and crispy chicken at Unit 103 Benjo's Bldg. along Bonifacio St. in Vigan City. The company was established as a partnership between Mr. Gilbert "Choy" Llandelar (a former OFW) and Ms. Iline "Lin" Tolentino (a business management graduate). Demand for the firm's products rapidly increased because of the continuous support and patronage of clients, positive customer satisfaction feedback, and additional walk-in customers. In 2014, the firm introduced other product lines like crispy ulo ng baboy, crispy itik, lechon kawali, crispy dila, and pork sisig. The firm also established branches in Laoag City (2014), Bangued, Abra (2015), Batac City (2018), and Candon City (2018).

Demand for the products is still increasing, and supply is usually not enough especially during peak months (September – December; January – March), where three branches frequently close because of "no-inventories to sell." Thus, in 2019, the firm availed of DOST-SETUP assistance that upgraded the firm's equipment and facilities, and addressed the food safety and energy audit concerns.

INTERVENTIONS

- Acquisition of the following equipment and facilities:
 - 2 units SS Preparation Table with Double Deep Sink
 - 2 units SS Working Table with Undershelf
 - 1 unit SS Packaging Table with Undershelf
 - 3 units SS Mobile Tray Rack
 - 1 set Walk-in Freezer
- Technical Assistance on plant layout
- Seminar on cGMP with Emphasis on Food Safety

OUTCOMES

- 14.61 % increase in annual volume of production (from 83,167 kg to 95,314 kg)
- 18.18 % increase in annual gross sales (from P16,486,070.00 to P19,482,720.00)
- 20 % increase in number of market outlets (from 5 outlets to 6 outlets)
- 32.16 % increase in daily production capacity (from 227 kg raw mat to 300 kg raw mat)
- Generated additional 6 employment
- 700 % increase on freezer storage capacity of raw materials (from 1 ton to 8 tons)
- Php70,000 – Php80,000 monthly savings on travel expenses
- Renovated production area and improved working process
- 5.7 % initial improvement of productivity (from 1.58 to 1.67)
- FDA-LTO on-process of acquisition
- New product lines: skinless longganisa and embutido



Choylin Fried Station Finished Products



Improved Production Area

Production Facilities Upgrading of Señorita Dulce House of Foods

Implementing Firm: **SEÑORITA DULCE HOUSE OF FOODS**
 Project Cooperator: **Ms. Maria Jennifer A. Padre**
 Project Location: **Taleb, Bantay, Ilocos Sur**
 Project Cost: **Php2,898,000.00**

Señorita Dulce House of Foods established on May 2011 was conceptualized and established by Chef Maria Jennifer A. Padre thru the help and guidance of her mother Clemencia A. Padre, owner of Ilocos Food Products. The firm is a sole proprietorship business engaged in the production of various native delicacies, pastries and baked products, namely Royal Bibingka, Meringue, Butterscotch, Brownies, Torta, Spanish Bread, Leche Flan, Banana Muffin, Cinnamon Roll, Ensaymada, Cheese Roll, Macaroons, Cheese Bread, Butter Pandesal, Butter Cookies, Sable, Apricot Cookies, Puto Seko, Oatmeal Cookies, Choco Crinkles, and Cream Puff.

The overwhelming demand of their products forced the firm to operate 24/7 with their existing equipment, but such production-output can only supply its two market outlets located in Bantay and Vigan City and supply a maximum of five (5) local resellers daily.

To address this problem, the firm sought the assistance of the Department of Science and Technology (DOST) through the Small Enterprise Technology Upgrading Program (SETUP).



A production worker removing cooked products from the SS Rotary Tray Rack Oven

INTERVENTIONS

- Acquisition of:
 - 1 unit SS Heavy Duty Cookie Depositor
 - 1 unit SS Heavy Duty Tray Rack Rotary Oven

OUTCOMES

- 22.79% initial increase in monthly volume of production (from 10,465 assorted packs to 12,850 assorted packs)
- 18.74% increase in monthly gross sales (from P1,640,150.00 to P1,947,550.00)
- 42.86% increase in number of market outlets (from 7 outlets to 10 outlets)
- 25% additional increase in production capacity (from 144 planchas capacity/batch to 180 planchas capacity/batch)
- 97.91% reduction in molding/ forming/ filling process using the cookie depositor (from 1,000 pcs for 4 hours manual process to 5 minutes using the cookie depositor)
- 70.83% decrease on cooking time using the Rotary Oven (from 2 hours to cook 1,152 pcs. bibingka/batch using 3 standard type oven, it now takes only 35 minutes using the rotary oven)
- Eliminated the risk of overcooking/ burning of products since it has an automatic temperature control and automatic movement/ rotation mechanism of products being baked/ cooked (from 600 pcs. overcooked products to 0.)
- At least Php94,500 potential income per month from the significant reduction of reject products plus savings on LPG consumption
- Generated additional 6 employment
- Reduced human handling as a source of contamination
- • 6.4 % initial improvement in productivity (from 1.25 to 1.33)
- •



Mr. Jomar Rosetes, Pastry Chef operating the Cookie Depositor



Finished products of Señorita Dulce House of Foods using the interventions: assorted cookies (left) and packaged cookies (right)



Implementing Firm: **WYNN'S FOOD PRODUCTS**
 Project Cooperator: **Mrs. Emmylou A. Jomero**
 Project Location: **Poblacion Sur, Salcedo, Ilocos Sur**
 Project Cost: **Php253,000.00**

Upgrading of Production Facilities and Packaging of Cacao Tablea and Chocolate Bar

The abundance of cacao trees in their municipality gave Mr. and Mrs. Jomero the idea to process the cacao fruits. They started to make cacao tablea for home consumption only until one of their relatives suggested for them to venture into business.

Wynn's Food Products was established in 2015 with its main facilities coming from the Shared Service Facility (SSF) of DTI. As the market demand for cacao products increased. Mrs. Jomero sought the assistance of the Department of Science and Technology in upgrading her production facilities. Food safety assessment, technical assistance, and provision of labelling were also provided to the firm.

Today, the firm's product line expanded to cacao jam and other flavors of chocolate bar such as chili and mint.

INTERVENTIONS

- Acquisition of:
 - Three (3) units Melanger
 - One (1) unit Induction Sealer
- Label Design and 7,700 pcs Packaging Materials for Cacao Tablea
- Label Design and 10,000 pcs Packaging Materials for Chocolate Bar
- Food Safety Assessment

OUTCOMES

- Improved quality of finished products
- New Product Lines: Cacao Jam and new flavors for chocolate bar (Chili and mint)
- Doubled the annual production volume (from 9,100 to 19,731 products)
- Doubled the annual gross income (from PHP 587,000.00 to PHP 1,169,190.00)
- 50% decrease in processing time (from 12 hrs/kg to 8 hrs/kg beans)
- Penetrated two (2) additional markets - Candon Trade Center and a Distributor from Manila
- Generated one (1) additional direct employment



Finished Products: Chocolate Bar (Left) and Cacao Tablea (Right)

Mr. Jomero sealing Pure 100% Cacao Tablea using the Induction Sealer

Production Facilities Upgrading of Jeff and Liza's Pastries Shop

Jeff and Liza's Pastries Shop is a product of Mrs. Annaliza Kililit's creativity and passion in making pastries and baked products. It was in 2015, when she started baking cakes in small volumes which surprisingly caught the sweet palate of customers. In 2018, the firm was formally registered to DTI with a starting capital of Php 200, 000 with two workers aside from her and her husband.

As demand for the product increased, the management realized that upgrading their present production equipment and facilities is necessary. Right away, Mrs. Kililit made a bold move to seek assistance from the Department of Science and Technology, Ilocos Sur Provincial Office to resolve the needs of Jeff and Liza's Pastries Shop.

Implementing Firm: **JEFF AND LIZA'S PASTRIES SHOP**
Project Cooperator: **Mrs. Annaliza R. Kililit**
Project Location: **Bissayot, Comillas North, Cervantes, Ilocos Sur**
Project Cost: **Php201,000.00**

INTERVENTIONS

- Acquisition of:
 - 1-unit 12 planchas Gas Fired Oven
 - 1-unit 2 Door Chiller
 - 1-unit Display Chiller

OUTCOMES

- Generated 5 additional employment
- 2 additional market established (Sadanga and Tadian in Mountain Province)
- 288 % Increase in daily production (from 8-10 kgs of flour to 30 – 40 kgs)
- 126 % increase in monthly gross sales (Php197,500 to Php447,500.000)
- 3 additional product lines (Hopia, Cheese bread and Buns).



Jeff and Liza's Pastries Shop's 1 unit 2-door chiller left, 1 unit 12 planchas gas oven (top) and 1-unit display chiller (bottom) acquired with the project.

Implementing Firm: **ANN'S FOOD PRODUCTS MANUFACTURING**
 Project Cooperator: **Ms. Joann M. Casil**
 Project Location: **927 Brgy. Buenlag, Calasiao, Pangasinan**
 Project Cost: **Php117,000.00**

Equipment and Process Improvement for Cassava Crisps Production

INTERVENTIONS

- Acquisition of:
 - 1 unit Mechanized Cassava Grinder
 - 2 units Stainless Steel Tables (3x6 ft.)
- Technical Assistance on plant layout improvement
- Food Safety Assessment
- Generic label design for cassava crisps
- Training on Mango Value-Adding
- Accounting for Non-Accountants Training-Workshop
- Awareness Seminar on cGMP with Emphasis on Food Safety for Food Processors/Handlers

The main product of the enterprise, the cassava crisps, was inspired by the owner's grandfather, a farmer who often prepares cassava as comfort food for them. The owner wanted to give a different approach and taste to the food so he started experimenting on it, making it more likeable and crunchier. Gone through numerous trial and error processes, she came out with a product that is unique, perfectly thin and crispy and has the flavorful taste of the cassava without any artificial flavors or preservatives. She started selling her newly discovered product in carnivals and fiestas. The cassava chips gathered so much attention and became a crowd favorite snack.

Today, the cassava crisps have reached halfway across Pangasinan, reaching municipalities such as Binalonan, Mangaldan, San Carlos City, and Dagupan City. Demand for its products continue to increase, but due to the manual process during grinding, the firm could not accept and supply all its clients.

OUTCOMES

- One (1) sack (75 kg) of cassava is processed for 30 minutes. Before, it takes 4 hours to process 1 sack
- Seven (7) days processing was cut to only 3-4 days
- Production volume increased by 20% from 1,200 cassava crisps to 2,500 cassava crisps.
- Gross sales increased by 316% from P500.00-P1,200.00 per day to P5,000.00 per day
- Additional markets established: Jamboree in Nueva Ecija, Andangan, Baracbac, Mangatarem and La Union



Upgrading of Production Process, Label and Packaging for Cassava Pudding and Other Bakery Products (Phase II)

Quality baking has been a family tradition since the establishment of Mayfair in 1945 at San Carlos City, Pangasinan. It was initially established by Mr. Abelardo Samson's mother and became famous for its delectable native cassava cake later known as cassava pudding. After her demise, her son Abelardo and wife Caroline put up a bakery shop and named it after Mayfair – the Mayfair Bakeshop.

With the growing demand of their products, Mayfair Bakeshop sought the assistance of DOST in 2013 and applied for the Small Enterprise Technology Upgrading Program (SETUP) for the upgrading of its machinery and equipment to conform to THE Food Safety Standards as well as improve the label design and packaging of its different product lines. Consultancy Services like Food Safety Assessment and Cleaner Production Assessment and related Trainings and Seminars were also extended to improve the production area and its over-all operation and competitiveness.

The firm offers various baked products and delicacies, but due to the lack of equipment meant to store the finished products in before delivery, their market outlet is limited. Unaccommodated finished products are immediately packed and delivered to outlets after every batch of processing which exposes to heat, thus shortens the shelf life of the finished products and increases risks and hazards of food contamination.

Implementing Firm: **MAYFAIR BAKESHOP**
 Project Cooperator: **Mrs. Caroline A. Samson**
 Project Location: **Brgy. Agdao, San Carlos City, Pangasinan**
 Project Cost: **Php709,000.00**

INTERVENTIONS

- Acquisition of 1 unit Upright Confectionery Chiller
- Packaging and Labeling Execution
- Food Safety Consultation on how to prolong shelf life
- Training on:
 - Equipment Operation, Maintenance and Troubleshooting
 - Occupational Safety and Health
 - Productivity Improvement through 5S Practice
 - cGMP with Emphasis on Food Safety for Food Processors Handlers
 - Disaster Resiliency and Management

OUTCOMES

- Volume of production increased by 30% during peak season (from 2,500 boxes of cassava pudding to 3,250 boxes and from 500 pcs pichi-pichi to 700 pcs per month)
- Improved label design and packaging with the inclusion of Nutritional Facts
- Prolong products' shelf life from 3 days to 5 days using the chiller
- 200% increase in gross sales from P82,500.00 to P248,000.00 per month
- Employed 12 additional workers
- Accepted On-the-Job Trainees from the near High School in the area
- Penetrated 4 additional markets (including Nepo Mall in Dagupan City)



Implementing Firm: **ELISHA BAY DAGUPAN BANGUS & SEAFOODS**
 Project Cooperator: **Mrs. Raiisa G. Vargas**
 Project Location: **Mangin District, Dagupan City, Pangasinan**
 Project Cost: **Php269,530.00**

Technology Innovation Support for the Production Processes of Dagupan Bangus Products

INTERVENTIONS

- Technical Assistance on:
 - Food Safety Assesment
 - Label Design
- Awareness on cGMP/Food Safety
- Heat Penetration Testing for bottled Bangus
- Nutritional analysis and Microbial tests
- Acquisition of the following equipment and facilities:
 - 1 unit vacuum packaging machine
 - 1 unit pressure cooker
 - 1 unit chest freezer
 - 1 SS table
 - 1 SS table with backflush

Amazed by the backyard boneless Bangus businesses in Dagupan, the couple, Mr. and Mrs. Vargas concluded that there is a big market for processed Bangus. With the encouragement of friends, they decided to convert a portion of their house into a processing facility and become social entrepreneurs offering gourmet flavoured Bangus in different variants like boneless Bangus in pesto, garlic, Hainanese, Asian steak, and spicy masala. They are also making Bangus sardines Portuguese style in corn oil, Portuguese style in olive oil, adobo chunks, and pesto in Olive oil. They continue the venture to provide jobs for mothers and PWDs in their area.

In 2018, Elisha Bay Dagupan Bangus & Seafoods applied for DOST's innovation system support through SETUP and was provided with equipment needed in their production as well as food safety consultancy and training on cGMP. To broaden their market, products had undergone microbial tests, nutritional facts analysis, and heat penetration test. They also availed of label design assistance and are now aiming to process Bangus by-products through innovation.

OUTCOMES

- 100% increase in sales (from Php150,000.00 to Php300,000.00 a month)
- 4 additional markets established in Quezon City, Mandaluyong, Manila and Baguio
- Grant of License to Operate from FDA
- Additional 4 regular production workers employed
- New product lines introduced:
 - 'Tuyo Delizioso' and 'Ba-Yo (Bangus and Tuyo)



Implementing Firm: **MAVY'S NATIVE CAKES HOUSE**
Project Cooperator: **Mrs. Rosemarie A. Libatique**
Project Location: **Brgy. Pagdalagan Norte, City of San Fernando,
La Union**
Project Cost: **Php190,500.00**

UPGRADING OF PRODUCTION PROCESS AND EQUIPMENT OF MAVY'S NATIVE CAKES HOUSE

INTERVENTIONS

- Acquisition of:
 - 1 Unit Single Deck Gas Oven
 - 1 Unit Planetary Mixer (20 L Capacity)
 - 1 Unit Stainless Steel Table, 3 ft x 6 ft
 - 1 Unit Stainless Steel Table, 3 ft x 3 ft
- Technical Assistance
 - Plant Layout
 - Food Safety Assessment

Mavy's Native Cakes House started from Mr. Libatique's passion in baking. Mrs. Libatique supported her husband's endeavor and earned money to buy a second hand oven and chiller. With the positive feedback from their first few clients, they started a home-based rice cake business and promoted this to their relatives and friends as their first customers. From their recommendations and connections, Mrs. Libatique received various orders. Later on, they rented a stall in Bauang Arcade and Bauang Public Market to be able to sell their products.

With the desire to meet customer requirements and compliance to food safety standards, the firm sought the assistance of DOST to upgrade its production equipment and facilities.

OUTCOMES

- 27% increase in monthly volume of production (from 2,520 to 3,200 various native cakes per month)
- 22% increase monthly average gross sale (from P164,112.50 to P200,000.00)
- 14% increase productivity (from 1.94 to 2.22)
- Production time decreased from 7 hours (7 pm to 2 am) to 4 hours (7pm to 11 pm)
- 100% increase in production for bibingka (from 1 pail bibingka mixture to 2 pails of bibingka mixture per production)
- Additional product line: Cassava Cake, Cheesy Pie
- Acquisition of FDA-LTO Certification



Mr. Libatique preparing the trays of bibingka mixture inside the oven.



Newly baked bibingka ready for packing.

UPGRADING OF PRODUCTION, PROCESS AND EQUIPMENT OF RRV DELICACIES AND FOOD PRODUCTS

RRV Delicacies and Food Products is a single proprietorship business engaged in banana and camote chips production. Mrs. Rosalina Tenorio is a graduate of the Kapitid Mentor Me Program of DTI and Philippine Center for Entrepreneurship (PCE) in 2017.

A year after, Mrs. Tenorio established her production area in Brgy. Central East, Bauang, La Union. DOST La Union provided the proper plant layout conforming to good manufacturing practices (GMP), and also conducted a food safety assessment of its processes.

In 2019, Mrs. Tenorio availed of the DOST SETUP Program to upgrade the existing production equipment and sought technical assistance in her application for FDA License to Operation.

Implementing Firm: **RRV DELICACIES AND FOOD PRODUCTS**
 Project Cooperator: **Mrs. Rosalina D. Tenorio**
 Project Location: **Brgy. Central East, Bauang, La Union**
 Project Cost: **Php243,000.00**

INTERVENTIONS

- Provision of:
 - 1 Unit Vegetable Cutting machine TD-330
 - 1 Unit Single Deck Gas Oven
 - 1 Unit Planetary Mixer with 3 Attachments (20L Capacity)
- Technical Assistance in:
 - Plant Layout
 - Food Safety Assessment

OUTCOMES

- 10% increase in monthly volume of production (from 3,620 to 4,000 various delicacies)
- 63% increase in monthly average gross sale (from P40,850.00 to P66,500.00)
- 11% increase in productivity (from 1.50 to 1.67)
- Additional product line: Cassava Chips
- Acquisition of FDA-License to Operate Certification



On-going Operation of Vegetable Cutting Machine



On-going Operation of Single Deck Gas Oven



Cooling Rack

Metals and Engineering



TECHNOLOGY UPGRADING FOR MALATE MACHINE SHOP

Implementing Firm: **MALATE MACHINE SHOP**
 Project Cooperator: **Mr. Nolie A. Malate**
 Project Location: **Brgy. 11, P. Gomez St., Laoag, Ilocos Norte**
 Project Cost: **Php528,040.00**



INTERVENTIONS

- Acquisition of the following equipment:
 - Lathe Machine
 - Milling Machine
 - Reborning Machine

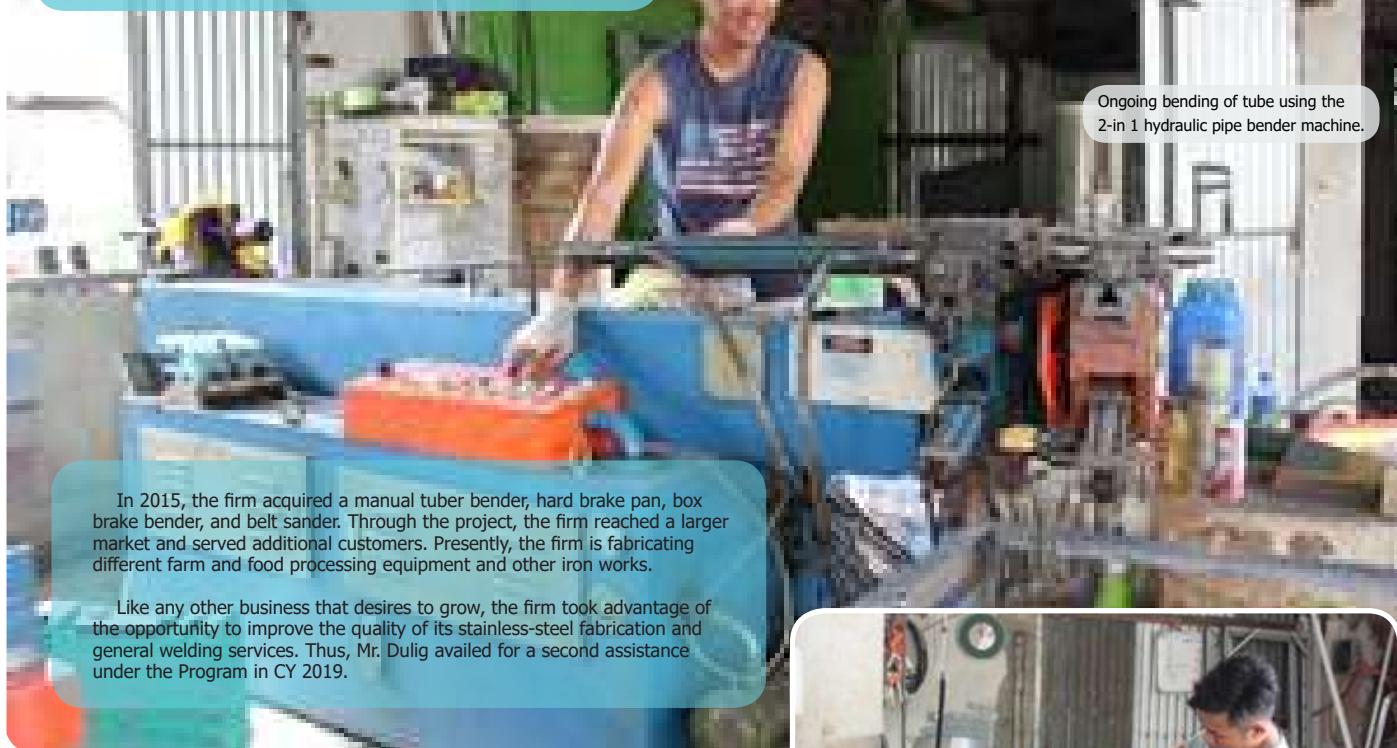
OUTCOMES

- The desired quality of the finished products is achieved using the lathe machine acquired by the firm.
- Faster fabrication time (from 5 days gear fabrication to 2 days).
- Eliminated outsourcing cost, saving for the firm up to Php12,000/month.
- High quality service output-even and fine surface cutting finish.



Implementing Firm: **CITIPOINT METALCRAFT**
 Project Cooperator: Mr. Sharon Dulig
 Project Location: 16-N Quiling Norte, City of Batac,
 Ilocos Norte
 Project Cost: Php612,400.00

TECHNOLOGY UPGRADING OF CITIPOINT METALCRAFT



INTERVENTIONS

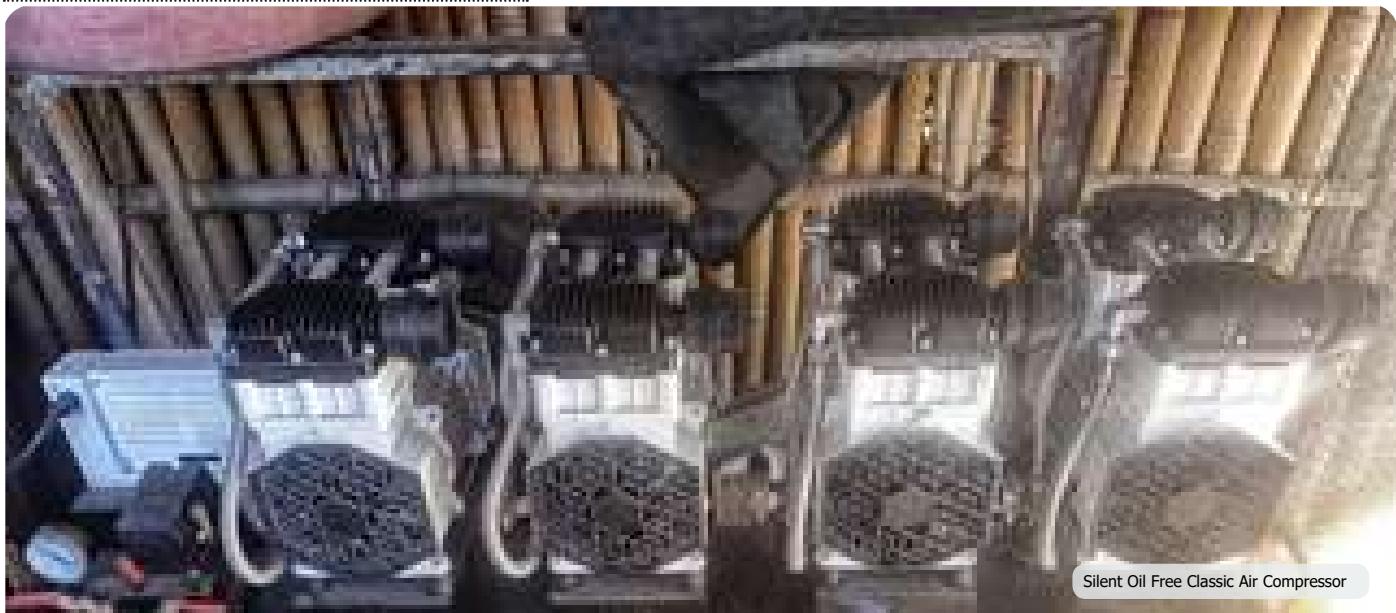
- Acquisition of:
 - Sheet Metal Bending Machine
 - Hydraulic Metal Bending Machine



OUTCOMES

- Eliminated the cost of outsourcing for bigger pipe bending process (Php100.00/meter) for the hydraulic pipe bender.
- Achieved the desired quality of the finished products.
- Minimized the production time (from 3 panels to 4-5 thin panels for a single bending process).
- Provided additional income (Php500.00/bend) by accepting thick bend works for the sheet metal bending machine bender.





PROCESS ENHANCEMENT FOR MARBLE PRODUCTS MANUFACTURING

Implementing Firm: **GNR MARBLE PRODUCTS MANUFACTURING**
Project Cooperator: **Ms. Cheryl N. Reyes**
Project Location: **Brgy. 1, San Nicolas, Ilocos Norte**
Project Cost: **Php112,300.00**

The GNR Marble Products Manufacturing engaged in the engraving of markers since 2007.

In 2014, the first phase of the DOST assistance was under the Grant-in Aid project through the acquisition of CNC router engraver and cutting machine. Since then, many customers are patronizing GNR Marble Products due to its high quality of products and services. Presently, the firm needs to supply 15 regular funeral parlors with 15 pieces of lapida each, monthly. Their market outlets also include 2 private memorial parks/sanctuary gardens in Paoay and Laoag City.

In 2019, due to the eagerness to sustain the increasing demand of its products, Mrs. Reyes, requested for its second round of assistance to enable the firm to improve and sustain the quality of the finished products.



Heat Press Machine

INTERVENTIONS

- Acquisition of the following equipment:
 - cutter plotter
 - 6 in 1 Heat Press Machine
 - Silent Oil Free Classic Air Compressor

OUTCOMES

- Precise cutting results of high-quality design in sandblasting.
- Reduced production time (from 1 day to 1 hour) using the air powered sandblasting.
- High quality service output-even and fine surface engraving finished products.

Implementing Firm: **BESTMARK AGRO-INDUSTRIAL ENTERPRISES**
 Project Cooperator: **Mr. Marcos M. Aquino**
 Project Location: **Brgy. Banaoang, Santa Barbara, Pangasinan**
 Project Cost: **Php706,025.00**

UPGRADING OF PRODUCTION FACILITIES FOR AN AGRO-INDUSTRIAL MACHINERIES FABRICATION SHOP

INTERVENTIONS

- Acquisition of the following equipment:
 - 1 unit Air Compressor
 - 1 unit Plasma Cutter
 - 1 unit Box Bender
 - 1 unit TIG Welding
 - 1 unit MIG Welding
- Technical Assistance on:
 - Plant layout improvement for metals and fabrication shop
 - Energy Audit
 - Seminar-Workshop on Productivity Improvement through 5S Practice
 - Accounting for Non-Accountants Training-Workshop
- Training on:
 - Training on Disaster Resiliency and Management
 - Calibration of Blending Machine for Iron Fortified Rice
 - Adoption and Commercialization of Dual-drum Composter Technology of DOST-ITDI

The firm started as a small fabrication shop for inventions and fabrication. With natural talent, plus a lot of handwork, the firm began to become well-known in Sta. Barbara area. As satisfied customers grow, Mr. Aquino needed to expand its production area and hire additional workforce to cater to his job orders.

Today, BestMark Agro-Industrial Enterprises is one of the largest fabricators of agricultural equipment in Pangasinan- supplying the needs of various National Government Agencies such as the Department of Agriculture. The firm also provides agricultural machinery of different firms like Lakas Agri-Tech, Tayas Hardware and Daz-U Enterprises in Dagupan City.

With its network to various clients, the firm hardly meets the target delivery date of its products due to limited and inappropriate equipment used to come-up with a well-design and functional equipment or machinery.

OUTCOMES

- In the absence of proper equipment, the firm takes more production time (4-8 hours) in manual cutting. With the use of Plasma Cutter, the firm can cut most types of metal in most thicknesses with ease- reducing the cutting time from 4-8 hours to 1-2 hours or at least 50% decreased and eliminated additional production cost of up to Php12,500.00 a month because of buying cutting disc.
- Before, the welding process takes 1 day using conventional type of welding machine, with the used of appropriate machines like TIG and MIG welding the firm only takes 6 hours or 75% decreased in welding time with fine-finished output without making use of excessive clean up by sanding or grinding
- Outsourcing practice for bending plates/sheets is eliminated thus the firm saved P5,000.00 per month and reduced production time by 2 days
- Production volume increased by 200% from 4 units to 12 units per month
- Sales increased by 200%, from Php120,000.00 per month to Php360,000.00 per month
- Generated 2 additional employment
- Established 8 additional institutional markets/clients



TECHNOLOGY UPGRADING OF DIZON'S WELDING SHOP (PHASE II)

Implementing Firm: **DIZON'S WELDING SHOP**
 Project Cooperator: **Mr. Edwin M. Dizon**
 Project Location: **Erfe St., Poblacion, San Fabian, Pangasinan**
 Project Cost: **Php187,000.00**

Dizon's Welding Shop is a family operated firm established in 1997 but is owned by Mr. Edwin Dizon. Together with his son, a trained welder, they manufacture motorcycle sidecars; fabricate steel windows, fences and trusses; and cater to repair, welding, and alignment services.

The firm was first assisted in 2012 and was provided with a mechanical pipe bender and pipe cutter to enhance their metal craft facilities. After this, the firm once again availed of SETUP Innovation Fund for the upgrading of equipment to deal with their customers' demands. With their new equipment, customers are more satisfied with the output and production time. Dizon's Welding Shop is now offering motorcycle stainless accessories like handlebars, bullet pipes, seat frames, carrier and crash guards as well as stainless terrace grills and other customized accessories.

INTERVENTIONS

- Acquisition of the following equipment:
 - 1 unit Hydraulic Bender
 - 1 unit TIG Welding
 - 1 unit Drill Press

OUTCOMES

- Elimination of outsourcing bending job orders
- 15% decrease in production cost
- 20% increase in monthly gross sales (from Php330,000.00 to Php396,000.00)
- 75% increase in monthly production of sidecar (from 4 units to 7 units)
- New bending services offered



Implementing Firm: **TRIPLE S. METAL FABRICATION AND WELDING SHOP**
 Project Cooperator: **Mr. Bosco N. Mirador**
 Project Location: **Pantal Centro, Dagupan City, Pangasinan**
 Project Cost: **Php417,400.00**

UPGRADING OF TRIPLE S. METAL FABRICATION AND WELDING SHOP PRODUCTION EQUIPMENT

INTERVENTIONS

- Acquisition of:
 - 1 Unit Lathe Machine
 - 1 Unit Roller Bender

OUTCOMES

- New clients established from Pantal, Dagupan City, and Municipality of Calasiao
- Elimination of outsourcing services
- Decrease in production time for a single sidecar:

 - Machining – from 3 days to 30 minutes
 - Roller bending – from 1 week to 1.5 days

- 100% increase in production volume
- (from 3 sidecars/month to 6 sidecars/month)
- 1 additional worker hired

Mr. Mirador started his Tricycle for Rent business with 8 units in Dagupan City. Years later, he had an idea of designing and manufacturing his own tricycle sidecar. Imbued with skills and a ready capital of Php 25,000, Triple S. Metal Fabrication and Welding Shop was established in 2010. Eventually, his firm and its products gained customers' trust and is now being sold in other parts of Pangasinan.

Through the SETUP program, the firm acquired a lathe machine for the machining process and roller bender for the bending of pipes. He no longer outsources these processes to other machine shops, the cause of delay in the completion of job orders.



AUTO-REPAIR SHOP TECHNOLOGY UPGRADING (PHASE II)

Implementing Firm: **AMERH PAUL AUTO REPAIR SHOP**
 Project Cooperator: **Mr. Verlito A. Yapit**
 Project Location: **Brgy. Urbiztondo, San Juan, La Union**
 Project Cost: **Php345,000.00**

Amerh Paul Auto Repair Shop is a single proprietorship firm that is engaged in engine overhauling, electrical wiring, machining, and heavy equipment services. The firm, which is owned and managed by Mr. Verlito Yapit, was a beneficiary of DOST assistance in 2015 and was completed in 2018.

However, the firm cannot compete with other bigger automotive shops as it still offers manual inspection of car engines and based its recommendations through visual check-ups. This method has high human error which significantly affects service quality. With this predicament, the firm availed of SETUP assistance in 2019 to acquire a diagnostic computer scanner.

INTERVENTIONS

- Acquisition of:
 - 1 Unit Vehicle Diagnostic Computer Scanner
- Technical Assistance in Plant Lay-out

OUTCOMES

- 19% increase in monthly volume of production (from 42 to 50 monthly services)
- 24% increase in average monthly gross sale (from Php83,400.00 to Php103,500.00)
- 26% increase in productivity (from 1.98 % to 2.50 %)
- Faster detection of car malfunctions (engine, brake system, transmission)





UPGRADING OF AUTO GLASS AND ALUMINUM WORKS (PHASE II)

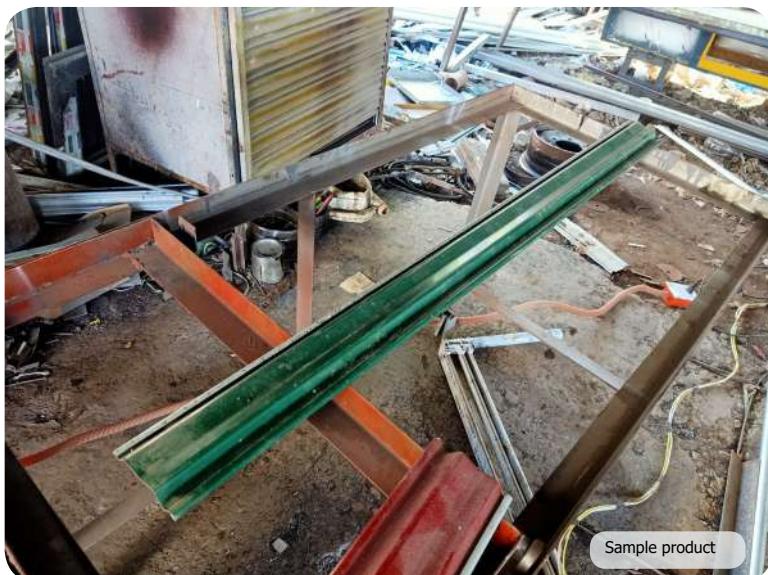
INTERVENTIONS

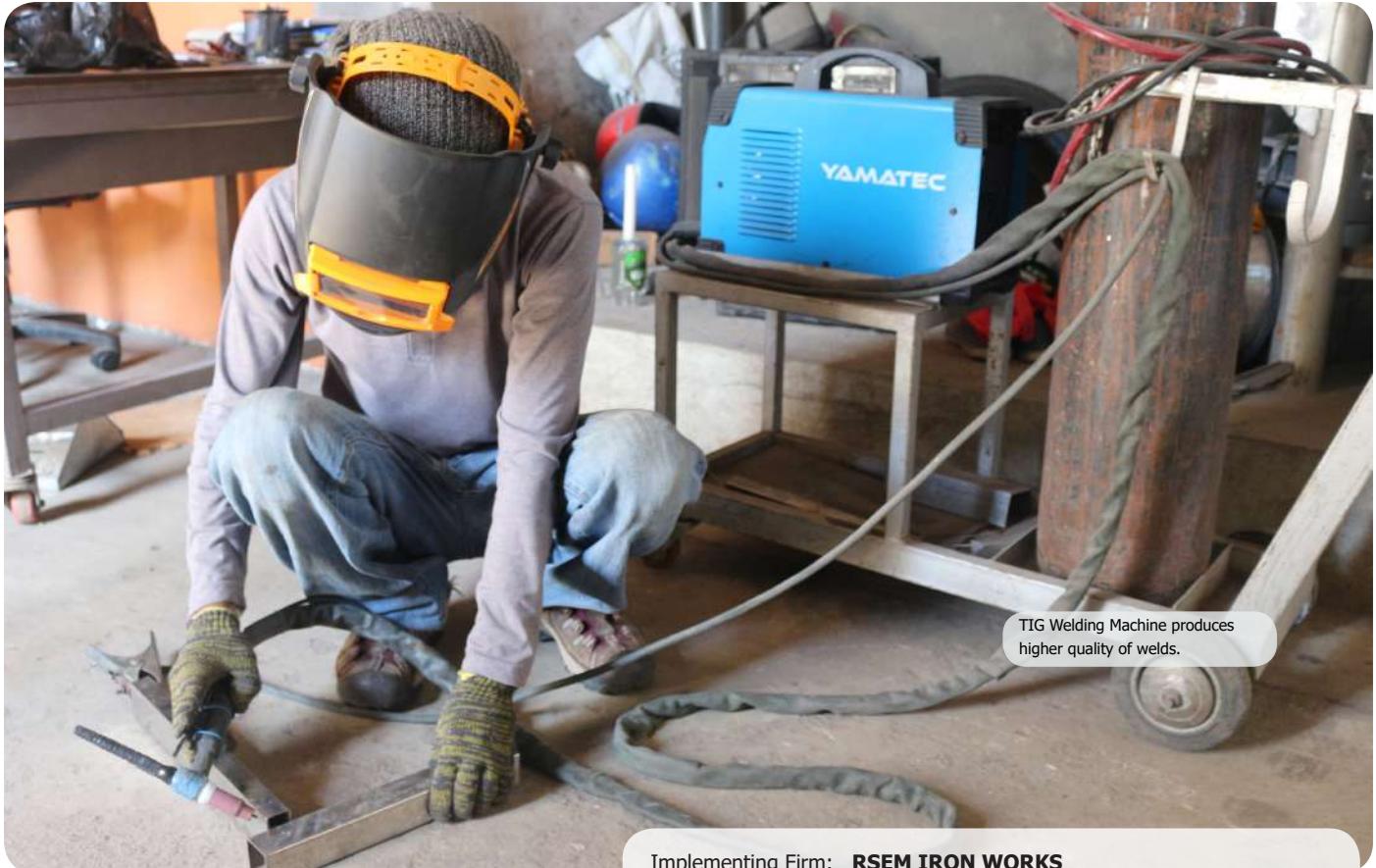
- Acquisition of:
 - 1 Unit Roll Up Machine
 - 1 Unit Side Guide Machine
- Technical assistance in Plant Lay-out

Lawin 2010 Auto Glass & Aluminum Supply & Iron Works was established in 2010 as a single proprietorship enterprise owned and managed by Mr. Edgar Q. Ricohermoso. The firm provides various fabrication products/services such as windows, doors, door glass, tint, aluminum cladding and roll up doors. The firm was assisted by DOST in 2015 and has recently graduated from the project. In their pursuit to meet the increasing demands of clients, he decided to seek for another SETUP assistance.

OUTCOMES

- The equipment were acquired last December 2019
- Immediate impacts were the following:
 - eliminated the outsourcing process
 - additional service/product line (roll up carts and side guide)





UPGRADING OF EQUIPMENT FOR RSEM IRON WORKS (PHASE II)

Implementing Firm: **RSEM IRON WORKS**
Project Cooperator: **Mr. Eduardo Madriaga**
Project Location: **Brgy. Pagdalagan Norte, City of San Fernando La Union**
Project Cost: **Php91,200.00**

RSEM Iron Works is a single proprietorship that produces assorted steel products such as steel window, assorted steel gate, steel fence, stainless railings, and steel sliding doors.

From an initial capitalization of Php60,000.00, the business has grown through Mr. Madriaga's sheer hard work and now has a present capitalization of Php 580,000.00. The firm plans to gain more job contracts with government offices, and establish alliances with building contractors. Mr. Madriaga was beneficiary of DOST 1in CY 2015 and has recently graduated from the program.

INTERVENTIONS

- Acquisition of:
 - 1 Tig Welding Machine
 - 1 Unit Plasma Cutter
 - 1 Unit Air Compressor
- Technical Assistance in Plant Lay-out

OUTCOMES

- 53% Increase in monthly volume of production (from 15 to 23 assorted steel products)
- 42% increase in average monthly gross sale (from Php63,358.33 to Php90,000.00)
- 8% increase in productivity (from 1.85% to 2.0%)
- Higher quality of welds



On-going Operation of Plasma Cutter



The Air Compressor makes faster painting job and more quality finish.

Furniture



Implementing Firm: **BANDULF INDUSTRIES**
 Project Cooperator: **Mr. Randulf De Vera**
 Project Location: **Baldog, San Carlos City, Pangasinan**
 Project Cost: **Php130,000.00**

UPGRADING OF PRODUCTION PROCESS FOR A FURNITURE SHOP



INTERVENTIONS

- Provision of 1 unit Overhead Router
- Technical assistance on improvement of plant layout
- Training on Equipment Operation, Maintenance and Troubleshooting
- Seminar on Cleaner Production Technology
- Forum on Intellectual Property Rights
- Forum on OneExpert and OneStore
- Seminar-Workshop on Productivity Improvement through 5S Practice

Bandulf Industries was established as a family business in 1985, with "bakya" manufacturing or wooden clogs as its primary product. In 1992, the firm expanded its product line to making wooden kitchen wares and furniture and was successfully accepted by the market.

With a name in the wood furniture industry, Bandulf Industries is known for its high-quality wood furniture, kitchen wares, and decorative products. Its patrons, clients, and customers continue to grow. They acquired loyalty from their institutional clients like Sandwood Export, TOIA Manufacturing and Zaragoza Justin Park to name a few. They continue to expand their market as they are actively participating in different national exhibits. They also manage to visit exhibits abroad to be updated with their designs and know the latest trends in international market.

With its market reached, fast production and quality product is a must. However, the firm experiences slow production and rejects due to the usage of improved carving and shaping machine.

OUTCOMES

- Decrease in production time by 80% (from 5 minutes to 1 minute for drilling, carving, and shaping)
- Less rejects from 8% to 2% (25-30 wooden plates to 5-6 plates)
- 100% increase in production volume from 200 wooden plates to 400 per day
- 40% increase in annual gross sales (from P250,000.00 to P350,000.00 average per month)

UPGRADING OF TECHNOLOGY FOR FURNITURE PRODUCTION

Implementing Firm: **FAME CONSTRUCTION AND SUPPLIES TRADING**
Project Cooperator: **Mr. Ferdinand Soriano, Sr.**
Project Location: **Brgy. Garcia, Tubao, La Union**
Project Cost: **Php416,900.00**



INTERVENTIONS

- Acquisition of:
 - 1 Unit Shaper
 - 1 Unit Mortiser
 - 1 Unit Tenoner
 - 1 Unit Knife Grinder
- Technical Assistance in Plant Lay-out

OUTCOMES

- 20% increase in monthly volume of production (from 25 to 30 produced assorted wooden furniture)
- 200% increase in monthly board foot usage (from 5,000 bt. ft to 10,000 bt. ft. per month)
- 128% increase in monthly average gross sale (from Php169,291.65 to Php386,666.67)
- 6% increase in productivity (from 1.61% to 1.71%)



Implementing Firm: **LENNIE'S FURNITURE**
 Project Cooperator: **Mr. Moises M. Labaddan**
 Project Location: **Brgy. Bangar, Rosario, La Union**
 Project Cost: **Php386,900.00**

UPGRADING TECHNOLOGY FOR LENNIE'S FURNITURE

INTERVENTIONS

- Acquisition of:
 - 1 Unit 3-in-1 Machine with Phase Inverter
 - 1 Unit Tenoner
 - 1 Unit Knife Grinder
- Technical Assistance in Plant Layout

Lennie's Furniture is a single proprietorship enterprise engaged in the production of furniture such as beds, panel doors, door jambs, dining set, sala set, bed swing, bar counters, and tables. The shop, which had an initial capitalization of Php 50,000.00 in 2008, grown to Php 2,000,000.00 with twelve (12) regular workers. Contractual workers are hired during peak season and when there are big orders/projects.

The shop expanded its market by putting up two showrooms in Tagaytay & Cavite to cater the middle income earner. With its growing market, the firm needs to upgrade its production equipment to meet the requirements of its customers in terms of quality and timeliness in delivering their orders.

OUTCOMES

- 15% increase in monthly volume of production (from 52 to 60 produced various wooden furniture)
- 67% increase in monthly board foot usage (from 6,000 bt. ft to 10,000 bt. ft. per month)
- 18% increase in monthly average gross sale (from Php566,333.00 to Php670,000.00 monthly average gross sale)
- 7% increase in productivity (from 1.33% to 1.43%)





UPGRADING OF TECHNOLOGY FOR PAKLIW ANTIQUES AND FURNITURE

Implementing Firm: **PAKLIW ANTIQUES AND FURNITURE**
Project Cooperator: **Mr. Abimael B. Pakliw**
Project Location: **Brgy. Bautista, Caba, La Union**
Project Cost: **Php240,000.00**

Pakliw Antiques and Furniture is a maker of beds, sala sets, dining sets, panel doors, door jambs, and other wooden home furnishings. It was established and registered as a single proprietorship business in 2014 with initial capitalization of Php 50,000.00.

At present, it has nine (9) regular workers and two (2) on-call workers and Php 75,000.00 capitalization.

The firm sought the assistance of DOST to improve and shorten its production process, and meet the growing demand of its customers.

INTERVENTIONS

- Acquisition of:
 - 1 Unit 3-in-1 Machine with Phase Inverter
 - Technical Assistance in Plant Lay-out

OUTCOMES

- Reduced planning time for 100 bd. ft. by 67% (from 3 hours to 1 hour)
- 33% increase in monthly board foot usage (from 1,500 bt. ft to 2,000 bt. ft.)
- 20% increase in monthly average gross sale (from Php200,000.00 to Php240,000.00)

Agriculture



Implementing Firm: **V.S. BALTAZAR RICE, PALAY & CORN TRADING**
 Project Cooperator: **Ms. Victoria S. Baltazar**
 Project Location: **Sto. Domingo, San Manuel, Pangasinan**
 Project Cost: **Php1,540,000.00**

UPGRADING POSTHARVEST PROCESS THROUGH THE USE OF MECHANIZED DRYER



INTERVENTIONS

- Acquisition of:
 - 1 Unit Multigrain Dryer (12 ton capacity)

OUTCOMES

- Enabled the firm to dry during the wet season
- Increase in monthly income due to decrease in production cost (from P4,800,000.00 to P6,000,000.00)
- Up to 50% decrease in drying time (From 12 hrs. to 6 hrs. of grain drying)
- 6 additional employees hired





AVP Dressing Plant availed the DOST SETUP assistance in 2013 and was granted the needed set of equipment for a semi-automated chicken dressing operation. However, the firm retained its existing de-feathering process.

After completing the phase 1 of SETUP, the firm again sought the help of DOST, this time, to fully automate the dressing plant.

The growing market for dressed chicken has pushed the firm to this aggressive effort in order to improve standards on their production processes. To attain this, the firm plans to complete the needed tools, machineries and equipment.

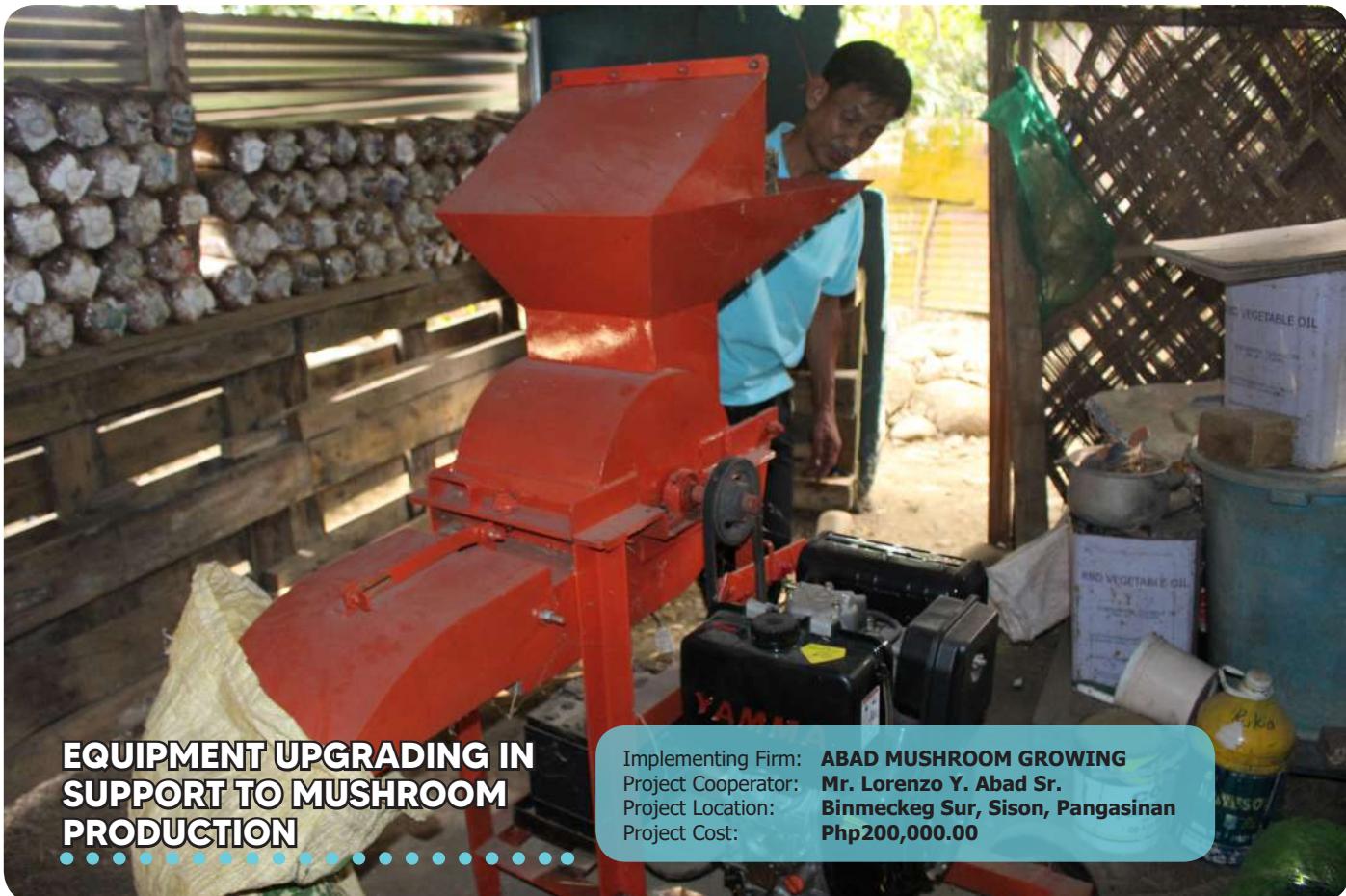
INTERVENTIONS

- Technical Assistance on:
 - 1 Unit De-feathering (Model 4x6) with Overhead Conveyor Modification Technical Assistance in Plant Layout



OUTCOMES

- 18% increase in monthly volume of production (from 51,000 birds to 60,000 birds)
- 15% increase in monthly average gross sale (from P8,839,235.42 to P10,200,000.00)
- 7% increase in productivity (from 1.33 to 1.43)
- 100% decrease in rejects (from 50 to 0 bird per day)



Mr. Abad ventured in mushroom growing in 2003 and served as a demo trainer to a group of pastors in the provinces of Quirino and Nueva Ecija, and different organizations.

The firm supplies oyster mushroom and fruiting bags within Sison, Rosario, and to other municipalities in Pangasinan, including organizations that request for training.

With the equipment provided through SETUP program, the time for the sterilization of substrate bags and shredding of raw materials were reduced.

INTERVENTIONS

- Acquisition of:
 - 1 Unit Mechanical Shredder
 - 1 Unit Autoclave

OUTCOMES

- 12 new markets in Sison established (NICE Eatery, 6 Elementary Schools and 5 households)
- 80% increase in monthly gross sales (from Php35,000.00 to Php63,000.00)
- 75% decrease in production time (from 8 hours to process 600 fruiting bags manually to 2 hours)
- 150% increase in production volume (from 120 bags to 300 bags per 6 hours cooking)



Gifts, Decors & Handicrafts



TECHNOLOGY UPGRADING FOR DIGITAL PRINTING

Implementing Firm: **OWEN'S TAILORING AND PRINTING SHOP**
 Project Cooperator: **Ms. Debbie B. Julian**
 Project Location: **P. Gomez St., Brgy. 8, Laoag City, Ilocos Norte**
 Project Cost: **Php500,000.00**

Owen's Tailoring and Printing Shop is a sole proprietorship business engaged in of t-shirt printing and customization of different sports and school uniforms, polo shirts, t-shirts, and many more.

Due to the increasing orders on jerseys, the owner of the firm was forced to outsource the printing especially the fully printed jerseys to its partner tailoring and printing shop in Ilocos Norte.

In 2019, the firm sought for Innovation System Support for the acquisition of a full-sublimation printer and heat press in order to be capable of accepting a total packaged order from customization to full sublimation.

INTERVENTIONS

- Acquisition of:
 - Full sublimation printer
 - Heat press 80x110 cm

Printing of design using the sublimation printer

OUTCOMES

- Increase the number of clients (from contracts to new customers) Capable in printing fully printed shirts and large sized designs through the acquired equipment
- Savings realized from outsourcing services for full-sublimation printing

Sublimation machine

Heat Press

Basketball jersey products using the sublimation printer and heat press acquired by Owens Tailoring and Printing Shop.

Implementing Firm: **AGP SAILOR'S SOUVENIR AND GENERAL MERCHANDISE**
 Project Cooperator: **Mr. Aldwin G. Pagaoa**
 Project Location: **Brgy. Calaoa-an, Candon City, Ilocos Sur**
 Project Cost: **Php270,297.00**

PRODUCTION FACILITIES UPGRADING OF A SOUVENIR MANUFACTURER

INTERVENTIONS

- Acquisition of:
 - 1 Unit 3D Printer Machine
 - 1 Unit Bandsaw

OUTCOMES

- 25% increase in production volume of ship models (from 300 pcs to 375 pcs of ship models per month)
- 25% increase in gross sales (from Php450,000 to Php562,500 per month)
- 17% increase in productivity (from 1.29 to 1.51)
- Generated one (1) employment
- Savings of up to Php17,000 per month on brass etches ordered from Korea (one A4 sized brass etched railings costs Php1,800 while the 3D printed railings approximately of same size only costs Php100); No more delays in production time due to shipping of brass etches from Korea
- 75% decrease in production time of ship models (from four weeks to one week to finish ten ship models)
- Rejects are eliminated with the use of the bandsaw

Established by Aldwin G. Pagaoa, AGP Sailor's Souvenirs and General Merchandise, an enterprise mainly engaged in the manufacturing of ship models based in the City of Candon, Ilocos Sur.

Before venturing into business, Mr. Pagaoa was a seaman whose pastime was creating simple ship models from scrap. The ship models impressed his co-workers and ship captain, who ended up buying one for a decent price. Thus, the birth of his ship models manufacturing business.

With the business performing profitably, Mr. Pagaoa decided to quit as a seaman and focused on his new venture instead.

Aside from ship models, the firm also makes wall clocks with designs inspired by his profession, which also fetched high demand in the market.

The firm gained customers locally and abroad through Mr. Pagaoa's connections. In a span of four years, its capitalization increased by 150% from Php 200, 000 to Php 500, 000.

In 2018, he approached the Department of Science and Technology for possible assistance in acquiring appropriate equipment for the firm's ship model manufacturing, to increase his firm's productivity and product quality.



Mr. Pagaoa cuts wood using the bandsaw.



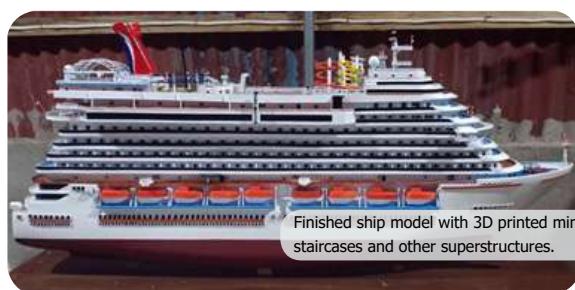
Mr. Pagaoa setting up the 3D printer to print railings.



A worker installs the 3D printed mini lifeboats to the ship model.



3D printed mini lifeboats and railings.



Finished ship model with 3D printed mini lifeboats, railings, staircases and other superstructures.

INNOVATION SYSTEM SUPPORT FOR THE ENHANCEMENT OF PAGLUANAN GARMENTS & GENERAL MERCHANDISE

Pagluanan Garments & General Merchandise is a family-owned business managed by Nenita Pagluanan. It is located in San Isidro, Candon City and started operation on August 2004. The idea of putting up such business came from Nenita's friend who had a tailoring business in Sta. Cruz, Ilocos Sur. With the guidance of her friend, the business was established with an initial capital of Php350, 000 for 7 units of sewing machine, raw materials especially fabrics and rent for stall, with 8 initial workforce. The firm became the first manufacturer of personalized garments in Candon City and this opportunity gave the firm the first edge on the local market serving reputable bulk-ordering clients like six (6) campuses of Ilocos Sur Polytechnic State College (ISPSC), Northern Luzon Philippines State College (NLPSC) and Northern Ilocandia College of Science and Technology (NICOSAT), and various local and adjacent high schools and elementary schools, and numerous local governments.

Due to the increasing orders especially on full sublimation garments, the firm was forced to outsource a monthly average of 45 sets of shirt and jersey printing in Sta. Maria, Ilocos Sur where a large format dye-sublimation printing machine and a large format heat press are available. With this practice, the firm spends up to PhP15,750.00 in order to meet deadlines.

Hence, the firm requested assistance from the Department of Science and Technology (DOST) to upgrade and improve its facility as well as efficiency and to meet the increasing market demand.

Implementing Firm: **PAGLUANAN GARMENTS & GENERAL MERCHANDISE**
 Project Cooperator: **Mrs. Nenita G. Pagluanan**
 Project Location: **San Isidro, Candon City, Ilocos Sur**
 Project Cost: **Php563,000.00**

INTERVENTIONS

- Acquisition of:
 - 1 Unit Large Format Dye Sublimation Printer
 - 1 Unit Large Format Heat Press Machine

OUTCOMES

- 66.67% increase in annual volume of production of printed full sublimation garments (from 1,500 sets to 2,500 sets)
- 136% increase in annual gross sales (from Php900,000 to P2,125,000)
- 8.33% increase in number of clients/markets (from 60 regular clients to 65 clients)
- 83% decrease on stencil/design preparation (from overall garment printing with maximum width of 44 inches can be executed once thus eliminating the tedious and timely process of creating 6-9 stencils at 30 mins./stencil)
- 300% increase in production capacity/rate of jerseys (from 15 sets/day to 45 sets/day)
- Savings of up to PhP15,750 outsourcing costs per month
- Generated additional 4 direct employment
- Improved quality (full colored graphic designs), capability on intricate designs and precise output can be achieved repetitively (from manual sketching on silk screen to computerized layouting)
- 41.67 % improvement of productivity (from 1.2 to 1.7)



Mrs. Nenita Pagluanan cuts the printed full sublimation paper



A worker using the large format heat press machine

Implementing Firm: **BHOG'S TAILORING 1125**
 Project Cooperator: **Ms. Lorna S. Maglalang**
 Project Location: **San Miguel, Calasiao, Pangasinan**
 Project Cost: **Php1,390,000.00**

TECHNOLOGY INNOVATION SUPPORT FOR AN EMBROIDERY AND TAILORING SHOP

INTERVENTIONS

- Acquisition of:
 - 1 Unit Buttonhole Machine
 - 1 Unit 4-Heads Embroidery Machine
- Technical Assistance on:
 - Plant layout improvement for sewing and embroidery production
- Training on Disaster Resiliency and Management

OUTCOMES

- Before the intervention was provided, the firm outsources the embroidery of the logo which costs Php50.00 per logo for 500 orders and they have to wait for 2-3 months for the orders to be delivered. With the intervention provided, the embroidery of logos takes 5 days to 1 week. The price of the logos ranges from Php30.00, Php70.00-Php100.00
- With regards to the buttonholing process, the Buttonhole Machine can do the job in 2 minutes per piece compared to 10 minutes per piece before
- Sales increased by 50% (from Php200,000.00 per month to Php300,000.00)
- Generated 4 additional employment
- Established 7 additional institutional markets/clients

Bhogs' Tailoring 1125 was established in December 1993. Ms. Lorna S. Maglalang, together with her husband, Roberto started their business with a capital of Php 4,500.00. They loaned 6 units of second-hand sewing machines and paid it within one year.

Soon, the firm started receiving orders from walk-in clients that they had to replace their old sewing machines into high-speed sewing machines. The firm is the first tailoring shop in Calasiao, Pangasinan that used high-speed sewing machines which became their advantage from others as they produce high-quality, tailored products. With this, they were able to get their first institutional client, Coca-cola. Other companies like Honda, Toyota, Mitsubishi, Chevrolet branches based in Pangasinan and La Union, DECORP, San Roque Power Plant, The Medical City, Nazareth, Pangasinan Provincial hospital, Matutina's Restaurant, Aboitiz Company, and Philippines College of Science and Technology are now ordering from them for their uniforms and company jackets.

The firm became a one-stop-shop for tailoring needs. However, the embroidery process is being outsourced in San Fernando City, La Union or in Metro Manila, which makes the production time longer and entails high production cost.





TECHNOLOGY INNOVATION SUPPORT FOR THE PRODUCTION PROCESSES OF PRINTING SERVICES

Implementing Firm: **CLICK-IT! PRINTS N' BROWSING CAFE**
 Project Cooperator: **Ms. Jennifer S. Marquez**
 Project Location: **257 Maharlika Highway, Poblacion Zone 5, Villasis, Pangasinan**
 Project Cost: **Php1,200,000.00**

Click-It! Prints N' Browsing Café is owned and managed by Ms. Jennifer S. Marquez, with proficient experience in the business for almost twenty years. The firm started as a computer shop and seller of inks and photo papers in 2009. Promoted by printing shops nearby, Click-It! Prints N' Browsing Café expanded its operation into a studio for rush IDs. From operating a studio, they started to make event souvenirs, which eventually led them into the digital printing industry.

Ms. Fernandez sought the assistance of DOST through SETUP in 2018 and acquired new equipment to cater to new market trends and demand for higher-quality digital printing.

The firm now offers various products like corporate giveaways, event souvenirs, plaques, medals, signages, product label stickers, among others printed in any flat surface in different mediums like acrylic, wood, metals, plastics, cloths, ceramics and the like.

INTERVENTIONS

- Acquisition of:
- 1 Unit UV Flatbed Digital Printer

OUTCOMES

- 13 additional new clients established (Rotary, Tiptop, LGU Villasis, 10 Milktea Shops)
- Digitally printed products improved and new items are offered printed directly in any flat surface medium that are unique in the area and more appealing to customers
- 20% increase in sales (from Php115,000.00 to Php138,000.00 a month)
- 3 on-call workers hired
- Eliminated outsourcing



Sample products produced using the UV printer



Implementing Firm: **NET ATLAS PRINTERS PLUS**
 Project Cooperator: **Mr. Nelson Morales**
 Project Location: **Arellano St., Dagupan City**
 Project Cost: **Php2,565,000.00**

TECHNOLOGY INNOVATION SUPPORT FOR THE PRODUCTION PROCESSES OF NET ATLAS PRINTERS PLUS PRINTING SERVICES

INTERVENTIONS

- Acquisition of:
 - 1 Unit UV Printer

OUTCOMES

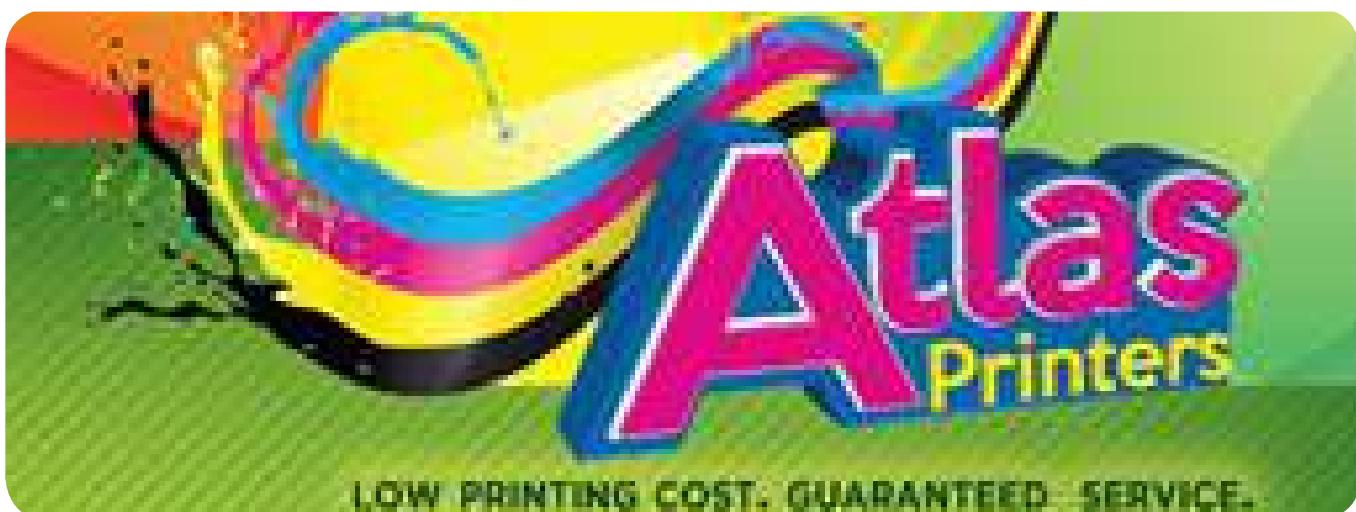
- 25% increase in gross sales (from Php450,000.00 to Php562,500)
- New additional product lines: Panaflex Fabric Backlit, Poster (outdoor & indoor), Sticker Labels (print & cut),
- 8 additional clients established (Sta. Barbara Gourmet, Huawei, Leona's Portrait, Naks-Naks, LGU-Dagupan, LGU-Bayambang, Roshan, Mang Peping)
- 1 employee hired

Net Atlas Printers Plus started as an internet café offering minimal services like PC rentals and printing. Due to the demand on printing services, they focused on upgrading their existing machines and became able to accept more printing services, from document and photo printing to promotional materials, production of school learning materials, and publications. Later the firm ventured into large format printing like tarpaulin, acrylic, Sintra, vinyl, and posters as well as offset printing of marketing flyers and brochures.

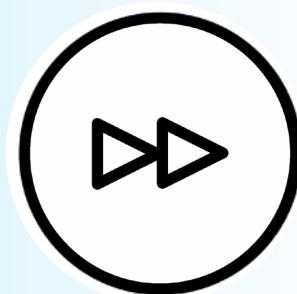
With the growing operation and expansion, they applied for SETUP Assistance of DOST and requested a UV Printer to cope with the demands of customers, and offer better outputs. The firm now caters to a variety of customers for its new products but maintaining low printing cost and guaranteed service.



Sample products produced using the UV printer: Sticker labels (print & cut), panaflex fabric backlit



Other Priority Sectors



INNOVATION SYSTEM SUPPORT FOR THE IMPROVEMENT OF PRODUCTION EFFICIENCY OF ROSREY MANUFACTURING ENTERPRISE

Rosrey Manufacturing Enterprise is a local distributor of food and non-food products. It was in the year 2015 when the firm started distributing a local brand of liquid dishwashing soap. Surprisingly, the firm was amazed by how high the demands for this kind of product that they can even reach Php1 million gross sales in a month on liquid dishwashing soap alone. In 2016, a close relative conducted training on liquid dishwashing soap making.

Production of liquid dishwashing soap is done using plastic containers and improvised manual mixer made from PVC. The manual production of soap limited the firm's capacity. With the need to upgrade its production facilities, the owner sought the assistance of Department of Science and Technology Ilocos Sur office for possible intervention that will make business operation better and will result in higher production rate and productivity.

Implementing Firm: **ROSREY MANUFACTURING ENTERPRISE**
Project Cooperator: **Mrs. Rianna R. Pilot**
Project Location: **Bayubay Sur, San Vicente, Ilocos Sur**
Project Cost: **Php454,720.00**

INTERVENTIONS

- Acquisition of:
 - 1-unit 1000 L Stainless Steel Liquid Soap Mixer
 - 2-units 1000 L Stainless Steel Filling Tank
 - 1-unit Stainless Steel Transfer Pump

OUTCOMES

- Generated 2 additional employment
- Filling time for 1,000 liters reduced by 50% (from 8 hours to just 4 hours)
- Daily production volume increased by 100% (from 1000 liters to 2000 liters)
- 60% decrease in mixing time (from 2 ½ hours to 1 hour)
- The interventions minimized the potential hazards to the workers posed by the existing method



Workers of Rosrey Manufacturing Enterprise during the production of liquid dishwashing soap using the S&T interventions

Community-Based Project



Technology Innovation Support for Coconut Candy Desserts of Caunayan Multi-Purpose Cooperative

Implementing Firm: CAUNAYAN MULTI-PURPOSE COOPERATIVE
 Project Cooperator: Mr. Valeriano M. Roldan
 Project Location: Brgy. Caunayan, Pagudpud, Ilocos Norte
 Project Cost: Php101,000.00



Caunayan Multi-Purpose Cooperative was established in 1994 and was registered by the Cooperative Development Authority on January 16, 2016 under the RA 9520 or the Philippine Cooperative Code of 2008. At present, the cooperative is chaired by Mr. Valeriano Roldan and its members comprised of farmers, members of Pantawid Pamilyang Pilipino Program (4Ps), housewives, and barangay officials.

In the year 2019, through the partnership of the Ilocos Norte Science and Technology Center in the City of Batac and the Municipality of Pagudpud through the conduct of the Science and Technology Caravan, the cooperative was introduced to the center and sought for assistance through the Grant-in-Aid or the Community-based project to improve their production of coconut candy, coco jam, curls, and buko pie and to comply with FDA requirements.



The newly renovated production area of Caunayan MPCI

INTERVENTIONS

- Provision of:
 - Oven
 - Molder for candy
 - Cooking mixer
- Food safety assessment
- Seminar on GMP with emphasis to food safety

OUTCOMES

- The S&T interventions were completed end of October 2018. Trial operation is ongoing.
- Established separate production area complying to GMP.



Corn Crafter's Association of Basista, Inc. was registered with the Securities and Exchange Commission Baguio Office on June 2016. It was earlier registered with the Department of Labor and Employment Regional Office in May 2016 and has also been approved and registered as a Barangay Micro Business Enterprise (BMBE) in August 2016.

The crafters worked for a manufacturing company producing hand-crafted cornhusk products. The workers thought that it is high time for them to create an association since their number has grown to almost 300 crafters as of the last count. Thus, the birth of the Corn Crafters' Association of Basista, Inc.

Aside from crafting cornhusk handicrafts, the members also produced salted eggs and value-adding it with cornhusk. Every after the harvest time, the duck raisers from different towns and cities of the Province of Pangasinan and Tarlac bring their flocks to Basista to raise on the newly harvested fields. This brought about the idea of salted egg production to the members.

From the production of salted duck eggs came the idea of value-adding the eggs with the cornhusk, which made the "for breakfast only" salted eggs as a "pasalubong" and gift for different occasions. It has also become a conversational piece.

Without a doubt, the production of salted eggs became the primary source of income of the association, thus propelling its members to focus not only on duck eggs but also on making salted chicken eggs.

With one stainless steel pot, the association cannot supply the demand of their salted egg resulting in less income.



Implementing Firm: **CORN CRAFTERS' ASSOCIATION OF BASISTA, INC.**

Project Cooperator: **Mr. Jonathan Paolo O. Perez**

Project Location: **15 Magsaysay Avenue, Poblacion, Basista, Pangasinan**

Project Cost: **Php45,000.00**



INTERVENTIONS

- Acquisition of 5 unit Stainless Steel Pots
- Technical Assistance on plant layout improvement
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Awareness Seminar on cGMP with Emphasis on Food Safety for Food Processors/Handlers
- Training on Disaster Resiliency and Management

OUTCOMES

- 80% decrease in cooking time (daily) through Stainless Steel Pot resulting to 480 eggs each per batch
- 100% increase in production from 7,500 eggs (at P15.00/egg) to 15,000 eggs (at P20.00/egg) per month
- 50% increase in productivity
- Salted egg can be stored for 30 days (shelf life)
- Employed 2 additional workers
- Established 10 additional markets

Implementing Firm: **GABAY SA BAGONG PAG-ASA, INC. (BANABAN CHAPTER)**
 Project Cooperator: **Mr. Marlon Malong**
 Project Location: **Brgy. Banaban, Bayambang, Pangasinan**
 Project Cost: **Php47,500.00**

PROCESS IMPROVEMENT FOR THE PRODUCTION OF RED RICE, VIOLET RICE, BLACK RICE AND AROMATIC WHITE RICE



Organized by the Social Action Foundation for Rural and Urban Development Incorporated (SAFRUDI), a Non-Government Organization that helps local farmers of the agriculture industry, the Gabay sa Bagong Pag-asa started in the year 2002. The members of the group are all rice farmers from Banaban, Bayambang, who were encouraged to plant a healthier variety of rice. The group was given initial seedlings of Red, Violet, Black, and Aromatic White Rice and started producing the same variety. They attended training on 'Sustainable Agriculture' and Organization Management.

The association outsourced the milling process of the harvested rice that cost them P9.00 (3-pass) per kilogram. The special variety of rice like red, violet, and black rice were milled differently from ordinary rice for some of the natural health benefits that may be removed if it runs through the natural milling process, and this results in reduced quality rice products output.

INTERVENTIONS

- Provision of 1 unit Mini Rice Mill
- Training on Equipment Operation, Maintenance and Troubleshooting
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Disaster Resiliency and Management



OUTCOMES

- With the use of the intervention provided, milling of 2 cavans of rice takes only 1 hour (single pass) prized at Php2.50-Php3.00 per kilogram. Before, milling process takes 3-4 times prized at P7.50 per kilogram
- 70% milling recovery rate (from 92 kilogram of palay to 61 kilogram of rice) and 30% darak
- Net income in milling is Php2,410.00 per harvest season which is an additional revolving fund for the association
- 40% increase in net income from Php5,000.00 to Php7,000.00 from selling of rice per harvest season
- Saved at average of Php2,110.00 from outsourcing
- Established 15 additional markets



UPGRADING OF PRODUCTION FACILITIES FOR FISH PROCESSING INDUSTRY

In 2015, the Municipality of Binmaley encouraged all its barangays to form an association and help its members to generate income for their families. So the ladies were trained in fish processing by the Bureau of Fisheries and Aquatic Resources (BFAR). After the training, they registered with SEC.

They started producing boneless marinated Bangus, smoked Bangus, shanghai Bangus. They also added rellenenong Bangus to their products, and distribute their products in Binmaley and nearby towns.

The members of the association only process 30 kilograms of Bangus per day because of the limited capacity of their chest freezer. Moreover, they cannot accommodate more orders due to this constraint. They also lack adequate labeling and design for their packaging.

Implementing Firm: **LADIES GROUP OF BINMALEY RESIDENTS – CALOOCAN NORTE CHAPTER**
 Project Cooperator: **Mrs. Daisy Makiling**
 Project Location: **Brgy. Caloocan Norte, Binmaley, Pangasinan**
 Project Cost: **Php93,309.00**

INTERVENTIONS

- Acquisition of the following equipment:
- 1 unit Chest Freezer
- 1 unit Impulse Sealer
- Execution of packaging and labeling
- Food Safety Assessment
- Nutritional Facts Analysis
- Technical Assistance on plant layout improvement
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Disaster Resiliency and Management
- Awareness Seminar on cGMP with Emphasis on Food Safety for Food Processors/Handlers

OUTCOMES

- 100% increase in production (from 30 kg to 60 kg of bangus in a day)
- Additional product line such as bangus sisig
- The products are properly sealed, thus minimize risk for contamination or bad orders
- Products of the firm have their Nutritional Facts and tested for Microbial Analysis which ensure safe consumption of their products
- 100% increase in monthly gross sales (from P30,000.00 to P60,000.00)
- Employed/added 5 additional workers/members
- Established 7 additional markets



Implementing Firm: **MAMARLAO MULTI-PURPOSE COOPERATIVE**
 Project Cooperator: **Mr. Rex Richardson Dauz**
 Project Location: **Brgy. Mamarlao, San Carlos City, Pangasinan**
 Project Cost: **Php195,000.00**

TECHNOLOGY INNOVATION SUPPORT FOR MAMARLAO MULTI-PURPOSE COOPERATIVE IN SUPPORT FOR MUSHROOM INDUSTRY



The residents of Mamarlao started the organization to help their co-barangays improve their socio-economic status. Looking for a new business and an additional income for the organization, the cooperative started the production of mushroom fruiting bag.

All the processes are done manually which takes 5-6 days. The firm plans to acquire modern and mechanized equipment to further enhance their production process. Thus, assistance to obtain such technology is being sought to DOST through the GIA Program.

With the help of these new machines, the firm can increase their production and cater more orders, creates more jobs for their members, and increase the organization's income.

INTERVENTIONS

- Acquisition of the following equipment:
- 1 unit Mechanized Mixer
- 1 unit Automated Bagging Machine
- Technical Assistance on Plant layout improvement
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Disaster Resiliency and Management
- Awareness Seminar on cGMP with Emphasis on Food Safety for Food Processors/Handlers
- Training on Disaster Resiliency and Management



OUTCOMES

- Preparation of mushroom fruiting bag takes 1 and ½ hours compared to 8 hours before
- Mixing of 200-250 kilograms substrate (2.5 sacks) only takes 5 minutes that can yield to 80 fruiting bags as compared to 1 hour before
- Preparation of fruiting bags from 500 bags per month to 1,500 bags per month, an increase of 200%. Each fruiting bag costs P20.00-P25.00
- 25% increase in monthly gross sales (from P30,000.00 to P37,500.00)
- Employed/added 2 additional workers/members and accepted On-the-Job Trainees from nearby High School and University
- Established 12 additional markets



PROCESS AND PRODUCT IMPROVEMENT OF SALTED EGGS AND TUGI CHIPS OF INABAAN NORTE AGRICULTURAL MULTI-PURPOSE COOPERATIVE

The cooperative was established in the year 1991, starting with a consumer's store but declared bankruptcy in 2000 because of poor management.

In 2015, Mr. Jose Laroya reorganized the cooperative and started again through the shared capitals of almost 20 members. They are now into trading of pork meat, sourcing out live pigs from the backyard growing of their members. Mr. Judie Laroya, the son of Mr. Jose Laroya gained an idea on salted egg processing after viewing an episode of "Agri Tayo Dito" television program. In January 13, 2018, they started salted egg processing with an average of 700 eggs a month and distributed the processed products to the market vendors of Baguio, canteen of DAR LU, Olive Bus Line, and retailers in Sison, Pangasinan & walk-in clients. Due to limited tools/equipment however, they cannot proceed into larger production volume.

Moreover, tugi (root crop) is abundant in their community. During the peak season, detached tugi parts during cultivation are not saleable, instead of considering it as a waste, the cooperative asked DOST a training on tugi processing (chips, puto) to address the problem as well as to convert this into an additional source of income and acquisition of tools/equipment to sustain production.



Awarding of cheque to the members of association with Dr. Armando Q. Ganal — DOST 1 Regional Director, Ms. Racquel M. Espiritu — PSTD, La Union, Mr. Heisaboy T. Tubaang — Project Assistant I, PSTC-La Union



Products of the Association

Implementing Firm: **INABAAN NORTE AGRICULTURAL MULTI-PURPOSE COOPERATIVE**
 Project Coperator: **Mr. Jose U. Laroya**
 Project Location: **Brgy. Inabaan Norte, Rosario, La Union**
 Project Cost: **Php50,000.00**

INTERVENTIONS

- Acquisition of:
 - 1 Unit Heavy-duty Stock Pot (585 eggs capacity)
 - 1 Unit Heavy-duty Burner with LPG
 - 1 Unit Stainless Steel Table (2x4)
 - 2 Units Multi-Function Vegetable Slicer
 - 1 Unit Large Strainer Ladle
 - 1 Unit Impulse Sealer
 - 1 Unit Digital Weighing Scale
 - 1 Unit Large Cooking Vat (24 inches diameter)
- Food Safety Assessment
- Technical Assistance on Plant Layout
- Training on Tugi Chips Processing

OUTCOMES

- The cooperative now produces 45 salted egg trays per month compared before with 40 trays.
- Introduced new product line
- Started coordinating with Inabaan Elementary School & Rosario Integrated School, school canteens as market outlets



During the orientation on Basic Gender Sensitivity Concepts, and Training on Basic Food Hygiene and Tugi Chips Processing (Puto & Chips)

POSTHARVEST EQUIPMENT UPGRADING OF RICE SEED PRODUCTION

Implementing Firm: **URDANETA CITY SEED GROWERS MARKETING COOPERATIVE**
 Project Cooperator: Mr. Jorge B. Delos Reyes
 Project Location: Brgy. Camantiles, Urdaneta City, Pangasinan
 Project Cost: Php199, 975.00



INTERVENTIONS

Established in 2016, the Urdaneta City Seed Growers Marketing Cooperative has been engaged in rice seed production and trading. It has an area of more than 200 hectares of farmland with twenty members active in seed production.

The coop is accredited by the Bureau of Plant Industry- National Seed Quality Control Services (BPI- NSQCS) as a producer of high quality certified seeds with two cropping schedules observed for the whole year.

DOST provided financial assistance in acquiring the needed equipment for the improvement of operations.

- Acquisition of the following equipment and facilities:
 - 1 unit Seed Cleaner
 - 5 units Bag Sealer
 - 5 units Weighing Scales
 - 35 units Plastic Palettes

OUTCOMES

- Transacted with PhilRice as certified seed producer through Pangasinan Organic as new additional market
- 300% increase in capacity of seed cleaning (from 100 bags/day to 400 bags/day)
- 13% increase in production (from 3,000 bags per cropping to 3,400 bags)





Actual operation of equipment



Implementing Firm: **SAMAHANG PANGKABUHAYAN NG SASABA AT SAPDAAN ASSOCIATION**
 Project Cooperator: **Mr. Rosendo A. Tulabis**
 Project Location: **Brgy. Sasaba, Santol, La Union**
 Project Cost: **Php217,946.00**

PROCESS AND PRODUCT IMPROVEMENT OF GROUND COFFEE OF SAMAHANG PANGKABUHAYAN NG SASABA AT SAPDAAN ASSOCIATION

INTERVENTIONS

- Acquisition of:
 - 1 Unit Coffee Pulper
 - 1 Unit Portasol
 - 1 Unit Unit Grain Moisture Meter
 - 1 Unit Coffee Huller
 - 1 Unit Large Cooking Vat
 - 1 Unit Heavy-duty Burner with LPG
 - 1 Unit Coffee Grinder
 - 1 Unit Digital Weighing Scale
 - 1 Unit Stainless Steel Table (2x4)
 - 1 Unit Impulse Sealer
- Packaging and Labeling
- Food Safety Assessment
- Technical Assistant on Plant Layout
- Training on Coffee Production

OUTCOMES

- The interventions were just awarded last October 2019, and their coffee harvest season starts from the fourth week of December to February.

In the upland areas of Santol, La Union specifically in Brgy. Sasaba and Sapdaan, growing and brewing their own coffee has been their native tradition over the years. Most of their backyards were planted with coffee trees for their own consumption. Some farmers turned them into plantation which enables the community to start commercializing their local produce. But because of the temptation to earn more, some of the people in Sasaba and Sapdaan engaged themselves into planting and shipping marijuana. Complying to the orders of Pres. Duterte, the LGU intensified its "tokhang kontra droga" program. This prompted the people in the upland areas to surrender themselves which was accepted by the authority. The surrenderees had undergone six months base camp rehabilitation at Poblacion, Santol under the supervision of their municipal Mayor Engr. Wailan.

After the counseling and trainings, the people of Sasaba and Sapdaan united and organized into an association. Since coffee has been a native and abundant commodity in their area they decided to intensify their production of ground coffee for commercial purposes with the support of DSWD and LGU Santol. Their products are now available at the Negosyo Center of Santol, La Union. However, due to the crude traditional way of processing coffee, production is limited and cannot meet the demand of customers. Hence the association sought the assistance of DOST to acquire appropriate tools and equipment, and skills trainings that will improve the processing and quality of coffee.



Awarding and turn-over ceremony of equipment to the members of SPSSA



Awarding of cheque to the members of association with Dr. Armando Q. Ganal — DOST 1 Regional Director, Ms. Racquel M. Espiritu — PSTD, La Union, Mr. Heisaboy T. Tubaang — Project Assistant I, PSTC-La Union, and representative from LGU Santol.



During the training on the Package of Technology on Coffee Production cum Good Agricultural Practices for the members of SPSSA last December 5-6, 2019. Mr. David John T. Rondal of Department of Agriculture Regional Office No. 1 served as Resource Speaker.

UPGRADING OF PRODUCTION FACILITIES AND PACKAGING OF A ROASTED PEANUT MANUFACTURER

Implementing Firm: **QUIMMARAYAN RURAL IMPROVEMENT CLUB**
 Project Cooperator: **Mrs. Perpetua R. Pita**
 Project Location: **Brgy. Quimmarayan, Sto. Domingo, Ilocos Sur**
 Project Cost: **Php199,991.00**

Quimmarayan Rural Improvement Club is a group composed of 147 members operating in Brgy. Quimmarayan, Sto. Domingo, Ilocos Sur. This group manufactures roasted peanut and peanut polvoron, which is the One Barangay One Product (OBOP). With an initial capital of Php11,000.00 and production area built by the Local Government of Sto. Domingo, the group was able to manage and maintain their production and presence in the market. However, due to the limited fund of the group, upgrading of its production facilities is hard to attain. Poor packaging and labelling of the finished product especially the roasted peanut needs to level-up to enhance its marketability or be able to compete with other producers.

With the determination to keep their existence in the market and to sustain their livelihood, the group came to the DOST-1 Ilocos Sur office for technical assistance. After the technology assessment and on-site visit to the group's production area, the DOST-1 Ilocos Sur Provincial office recommended/proposed interventions that will significantly have a positive impact on the group.



Label and Packaging of roasted peanut before (left) and after (right) interventions



Polvoron for cooling & hardening being placed inside the upright freezer



Packaging of roasted peanut using the SS Working Table

INTERVENTIONS

- Acquisition of:
 - 1 Unit 8 cu.ft Upright Freezer
 - 1 Unit 4'x 8' Stainless Steel Preparation Table with Stainless Steel Undershelf
- Improvement of Label Design and Packaging Materials

OUTCOMES

- 10 % increase in production of roasted peanut (from 480 packs to 550 packs and from 468 assorted packs of peanut polvoron to 510 packs)
- 17.91% increase in gross sales (from Php44,100.00/semester to Php52,000.00/semester)
- The improved label design enhanced the marketability and competitiveness of the finished products.
- Improved cooling/hardening process of peanut polvoron brought about by the acquisition of the 8 cu.ft. upright freezer. The intervention did not just enable the workers to be more productive and more efficient, but also minimized the possible contamination that can occur during the said process.

Community-based Project

Implementing Firm: **AYUSAN NORTE-PANTAY AGRARIAN REFORM COMMUNITY MULTI-PURPOSE COOPERATIVE (ANPARC MPC)**
Project Cooperator: **Mrs. Elvira Racsa**
Project Location: **Ayusan Norte, Vigan City, Ilocos Sur**
Project Cost: **Php149,000.00**

UPGRADING OF PRODUCTION FACILITIES AND PACKAGING OF VIGAN LONGGANISA

INTERVENTIONS

- Acquisition of:
 - 1 Unit SS stuffing table
 - 1 Unit SS grinding table
 - 1 Unit SS longganisa hanger
 - 1 Unit Chest Freezer
- Improved Label Design and 25,000 pcs packaging materials
- Technical assistance on Plant Layout

OUTCOMES

- 23% increase in volume of production (from 520 packs to 640 packs per month)
- 23% increase in monthly gross income (from Php 67,600.00 to Php 83,200.00)
- Improved Packaging and Labeling
- Improved Plant Layout
- With the provision of one more freezer, raw materials and finished products are already stored separately (which is necessary in proper meat handling)
- cGMP Compliance



Label and Packaging of ANPARC MPC Longganisa before (left) and after intervention (right).

The Ayusan Norte-Pantay Fatima MPC, now Ayusan Norte-Pantay (ANPAC) was organized in 1992 through the assistance of the Department of Agrarian Reform (DAR). It started with 15 Agrarian Reform Beneficiaries (ARB). In 1996, the cooperative was launched to cover three barangays namely: 1) Pantay-Fatima, 2) Pantay-Laud and 3) Pantay Laud.

In 2003, ANPARC MPC was one of the recipients of DAR's Asian Development Bank-Agrarian Reform Project (ADP-ARCP), a foreign-funded project to provide agri-business such as swine fattening and meat processing to ARCs. The components of the project were the following: a start-up capital of PHP 50,000.00, 1-unit meat grinder, and 1-unit chest freezer as basic equipment to start the longganisa-making venture.

While numerous help was given, the cooperative still finds it necessary to upgrade its existing facilities to cope with the trends on Vigan longganisa as competition intensifies. With that, they sought assistance from the Department of Science and Technology.



Mr. Ramon Sumabat, Provincial S&T Director, explains the possible intervention during the Technology Needs Assessment



SS Hanger to drain longganisa before packaging (left)



(right)



Grinding table (left) and Stuffing table (right) being used by members of the association



ENHANCEMENT OF PRODUCTIVITY, NUTRITIONAL AND MICROBIAL ANALYSIS OF CLAMS IN OIL (ROSANGIS)

Established in 2012, the Fuerte Rosangis Association composed of 25 members headed by Mr. Victorino B. Castañeda processes fresh clams, locally known as "Rosangis", to bottled clams in oil in a production area constructed for the group by the LGU-Caoayan and BFAR.

Expansion of market has been the predicament of the group. The product cannot penetrate more significant markets such as groceries and supermarkets due to the absence of License-to-Operate (LTO) from the Food and Drug Administration (FDA). Having difficulties in complying with the requirements of the FDA, the group requested assistance from the Department of Science and Technology for the upgrading of the firm's facilities and nutritional analysis of the product.

The project, however, was proposed and approved in the last quarter of 2018. Thus, the proposed interventions were implemented in 2019 — the project generated savings which were used in the improvement of its existing label design.

Implementing Firm: **FUERTE ROSANGIS ASSOCIATION**
 Project Cooperator: **Mr. Victorino B. Castañeda**
 Project Location: **Pandan, Caoayan, Ilocos Sur**
 Project Cost: **Php75,217.00**

INTERVENTIONS

- Acquisition of:
 - 1 Unit Brand New 41.5 Quarts Heavy Duty Pressure Cooker
 - 1 Unit Heavy Duty Triple Ring Gas Burner
- Laboratory Analyses for Clams in Oil (Rosangis): Microbial, Chemical & Nutrition Analysis
- Improvement of Label Design

OUTCOMES

- Sterilization time shortened by as much as 50% (from 4 hours/batch to 2 hours per batch)
- 13.93% increase in annual volume of production (from 1,536 bottles to 1,750 bottles)
- 14% increase in annual gross sales (from Php307,200.00 to Php350,000.00)
- Incorporated nutrition facts on the improved label in compliance to FDA requirements



Workers of Fuerte Rosangis Association using the 1-unit Pressure Cooker and 1-unit Triple Ring Gas Burner



Label design before intervention



Improved label design

Community-based Project

Implementing Firm: **KABULIG FARMERS ASSOCIATION ITI SANTOL LA UNION INC.**
Project Cooperator: **Ms. Ralyn N. Zambrona**
Project Location: **Brgy. Lettac Sur, La Union**
Project Cost: **Php67,134.00**

PROCESS AND PRODUCT IMPROVEMENT OF BANANA CHIPS OF KABULIG FARMERS ASSOCIATION ITI SANTOL LA UNION INC.

INTERVENTIONS

- Acquisition of:
 - 1 Unit Stainless Steel Table, 2.5 x 6 ft.
 - 1 Unit Stainless Steel Table, 2.5 x 4 ft.
 - 1 Unit Stainless Steel Sink, 2 x 3 ft.
 - 2 Units Multi-Function Vegetable Slicer
 - 1 Unit Large Cooking Vat
 - 1 Unit Impulse Sealer
 - Digital Weighing Scale (5 kg capacity)
 - Digital Weighing Scale (10 kg capacity)
 - 1 Unit Heavy-duty Burner with LPG
 - Packaging Materials
- Technical Assistance in Plant Layout
- Food Safety Assessment

The association was organized by kagawad Pedro Navaera with the guidance of Municipal Councilor William Agtarap. The members of the association united to create a good camaraderie in the community and elected Ms. Ralyn Zambrona as the President of the Association from 2014 up to present.

The association took the opportunity of processing banana chips due to its abundance in the community. Banana chips were made upon order. Joining trade fairs and events in the municipality is one way of generating-income and promotion as well. The association acquired a land for their processing and requested financial assistance from the local government unit of Santol, which granted Php 15,000.00 for the renovation of the processing area.

To further enhance their skills on banana chips processing, they sought the assistance of DOST and received the training last September 28, 2018. Due to lack of tools and equipment, however, the association can only produce limited quantity of banana chips. They are also afraid to market the products in the lowland municipalities due to fear of being confiscated by FDA for not having license-to-operate (LTO).

OUTCOMES

- The interventions were just awarded last November 2019. Their drive to process banana chips has increased because they now have their own processing tools. They will start their processing this coming January 2020 and are planning to boost their productivity by taking the opportunity of joining trade fairs during festival and other events. The interventions were just awarded last November 2019. Their drive to process banana chips has increased because they now have their own processing tools. They will start their processing this coming January 2020 and are planning to boost their productivity by taking the opportunity of joining trade fairs during festival and other events.



Members of the Association proudly present their Banana Chips



During the training on the Banana Processing for the members of the Association last September 2018.



Production Equipment



Implementing Firm: **SAN CORNELIO INTEGRATED LIVELIHOOD FOR MEN AND WOMEN**
 Project Cooperator: **Ms. Carmencita B. Maglaya**
 Project Location: **Brgy. San Cornelio, Caba, La Union**
 Project Cost: **Php65,358.00**

PROCESS AND PRODUCT IMPROVEMENT OF BANANA CHIPS OF SAN CORNELIO INTEGRATED LIVELIHOOD FOR MEN AND WOMEN

INTERVENTIONS

- Acquisition of:
 - 2 Units Stainless Steel Table, 3 ft x 5 ft
 - 2 Units Multi-Functional Vegetable Slicer
 - 1 Unit Heavy-duty Burner with LPG
 - 2 Units Large Strainer Ladles
 - 3 Units Large Mixing Bowls
 - 1 Unit Heavy-duty Impulse Sealer
 - 2 Units Digital Weighing Scales (109-20 kgs)
 - 2 Units Large Colanders
- Food Safety Assessment
- Technical Assistant on Plant Layout
- Training on Banana Chips Processing

OUTCOMES

- The equipment and facilities were awarded last December 2019



During the training on the Banana Processing for the members of the Association

In 1995, the Local Government Unit of Caba selected the barangay for a livelihood training by the Technical Education and Skills Development Authority (TESDA). It was participated by 22 members including men and women, most of which are farmers. They adopted the training and sold tamarind candy, camote cue and ube jam at San Cornelio Elementary School for almost a decade.

In 2004, DILG staff assigned in Caba advised them to register their association at the Department of Labor and Employment (DOLE) named San Cornelio Integrated Livelihood Association for Men and Women (SCILAWME). The application was granted on November 12, 2014. SCILAWME is now a registered association under SEC.

Brgy. San Cornelio is abundant with banana (dipping and cantong). Unfortunately, residents don't know that these commodities can be processed into various products like chips, wine, juice and jam, and not just boiled. Through the initiatives of Mayor Crispino III, skills training on banana chips and basket weaving were provided by the Provincial Science and Technology Center – La Union to uplift the well-being of the members and provide them with additional income as well. At present, the processing of chips continues as they sell chips at San Cornelio Elementary School and at SCILAWME Sari-sari Store.



During the awarding ceremony of Science and Technology Assistance for the Association



Members of the Organization proudly presenting their products



ESTABLISHMENT OF MEAT PROCESSING ENTERPRISE FOR ROSARIO SPECIAL PERSON ORGANIZATION

Implementing Firm: **ROSARIO SPECIAL PERSON ORGANIZATION**
 Project Cooperator: **Mr. Felix Q. Baliclic**
 Project Location: **Brgy. Poblacion East, Rosario, La Union**
 Project Cost: **Php96,500.00**

Rosario Special Person Organization (ROSPO) was established years ago, but did not develop into a well-grown organization. In 2017, Mr. Felix Baliclic Jr. reorganized the association to further strengthen the confidence of the persons with disability (PWDs) in Rosario. He organized each barangay to have their community leaders to represent the PWDs. Mr. Baliclic requested various assistance to both private and government sectors such as supply of medicines, assistive devices (prosthetics, wheel chair, crutches, and walker), and even trainings and scholarship programs that for the members of the organization. Unfortunately, the association had no capital to establish a livelihood activity for income generation. Mr. Baliclic sought assistance from LGU Rosario which committed to provide a small amount of capital and a room to do their business (meat processing/eatery). Due to the May 2019 election, however, the business was delayed but the construction of the processing area is now on-going as committed by the LGU.

To further support the endeavours of ROSPO, Engr. Quinto, MPDO of Rosario asked DOST for any technology assistance program that may help the organization to establish the business. Members of the organization attended the "Seminar-Workshop on Current Good Manufacturing Practices and Sanitation & Standard Operating Procedure" conducted by DOST-1 through the PSTC-LU last June 24-25, 2019.

INTERVENTIONS

- Acquisition of:
 - 1 Unit Meat Grinder/Mincer
 - 1 Unit Stuffer
 - 1 Unit Meat Slicer
 - 1 Unit Chest-type Freezer (7 cu.ft.)
- Food Safety Assessment
- Technical Assistance on Plant Layout
- Training on Meat Processing
- Seminar on cGMP

OUTCOMES

- The delivery of S&T interventions were completed in December 2019.
- Trial operation is on-going.



During the awarding ceremony of Science and Technology Assistance for the Association



During the skills training on meat processing and awareness seminar on Current Good Manufacturing Practices for the members of the association. Ms. Princess P. Abuan of PSTC-La Union served as resource speaker/trainer.



Products of the Association

Implementing Firm: **CERVANTES, ILOCOS SUR WOMEN DEVELOPMENT, INC.**
 Project Cooperator: Ms. Genoveva F. Paet
 Project Location: #160 Alejandrino St., Rosario, Cervantes Ilocos Sur
 Project Cost: Php199,999.80

PACKAGING AND LABELLING IMPROVEMENT OF CISWDCI LONGGANISA

INTERVENTIONS

- Provision of label designs and packaging materials for Cervantes Longganisa (Classic, Turmeric, Sweet and Spicy)
- Food Safety Assessment

OUTCOMES

- 33.34% increase in monthly volume of production (from 2,150 assorted packs to 2,867 assorted packs)
- 33.34% increase in monthly gross sales (from P301,000.00 to P401,380.00)
- 27.27 % increase number of clients/markets (from 11 regular outlets/ resellers to 14 outlets/ resellers)
- Generated additional 3 employment
- Improved the appearance of finished products due to its new packaging
- 5.41% initial improvement of productivity (from 1.11% to 1.17%)

Cervantes, Ilocos Sur Women Development Center (CISWDC) is a group of 34 women located at Rosario, Cervantes, duly registered to and accredited by the Securities and Exchange Commission on March 11, 2008, with an initial members-paid-off capital amounting to Php 3,500.00. One of the purposes for which the association was incorporated is to promote self-reliant, self-sufficient, and self-propelling women. Moreover, to create employment to those who are unfortunate to receive formal schooling, which is considered as a road to the improvement of the quality of life of the people in the community. In order to make this feasible, the organization develops and sharpens the skills and abilities of its members, especially in entrepreneurship. To date, the association focuses on longganisa production with a revolving capital of Php 20,000.00.

In 2019, the firm availed of DOST Community-based program that improved the packaging of Cervantes Longganisa.



Before: Packaging with Sticker Label



After: Packaging with Direct Print

Equipment and Facility Acquisition for the Improvement of Cassava Processing

The Calapugan Agrarian Reform Cooperative (Care.Co) was established in 2013 to provide employment to the neighborhood. Rogelio Pagal is the president of the organization who is a former OFW. When he settled, he donated 750 square meters of his land for the establishment of the co-op's office and food processing area. They have a 3-hectare source of cassava.

The women member-workers produce cassava chips, cassava cheese rolls, and cassava cakes that are delivered to schools, households, government and private offices, and to other barangays in Natividad.

To comply with food safety requirements, the co-op sought financial assistance from the DOST in acquiring food processing facilities.

Implementing Firm: CALAPUGAN AGRARIAN REFORM COOPERATIVE (CARE.CO)
Project Cooperator: Mr. Rogelio Pagal
Project Location: Calapugan, Natividad, Pangasinan
Project Cost: Php46,501.28

INTERVENTIONS

- Acquisition of:
 - 1 Unit SS Table
 - 1 Unit Gas Oven (2-layer)
 - 52 Units Baking pans

OUTCOMES

- Established new customers in Tayug
- 61% increase in monthly gross sales (from Php9,312.00 per month to Php15,000.00)
- 1 worker hired



Implementing Firm: **MUNICIPAL FEDERATION OF RURAL IMPROVEMENT CLUBS OF STO. DOMINGO INC.**
 Project Cooperator: **Mrs. Nilda M. Romias**
 Project Location: **Food Terminal, San Pablo, Sto. Domingo, Ilocos Sur**
 Project Cost: **Php199,810.00**

UPGRADING OF PRODUCTION FACILITIES AND PACKAGING OF A LONGGANISA MANUFACTURER

INTERVENTIONS

- Acquisition of:
 - 1 Unit 8 cu.ft Chest Freezer
 - 1 Unit 4x8 Stainless Steel Preparation Table with Stainless Steel Undershelf
- Improvement of Label Design and Packaging Materials
- Nutritional Analysis of Longganisa

OUTCOMES

- Compliance to CGMP in the firm's operation and improvement of production area
- Nutritional Analysis on-going
- Final approval of label design on hold while awaiting the result of the Nutritional Analysis which will be incorporated to the new packaging and label of the product.

Located at the Food Terminal in San Pablo, Sto Domingo, Ilocos Sur the Municipal Federation of Rural Improvement Clubs of Sto. Domingo Inc., is an organization composed of RIC presidents of all barangays in Sto. Domingo, Ilocos Sur. In 2016, the Provincial Government released a fund to the Local Government of Sto. Domingo for the procurement of piglets and was given to every Barangay for their livelihood. In support of this project, the MFRCI Sto. Domingo buys hogs that are processed into longganisa.

The product was initially sold to each members of the group who commented positively. One of the suggestions is the packaging and labeling of the longganisa which is inappropriate or is non-compliant to national and international standards. Another concern the compliance to Food Safety since regulatory agencies are very strict when it comes to this matter.

Looking for solution to these suggestions and with the goal to comply to all statutory and regulatory requirements, they sought the Ilocos Sur Science and Technology Center for any technical assistance that will solve their problems.



Processing of longganisa on the SS Working Table (top) and storing of finished products in the Chest Freezer (right)



PRODUCT QUALITY IMPROVEMENT OF CALAMANSI JUICE READY-TO-DRINK AND CALAMANSI JUICE CONCENTRATE

Implementing Firm: TAGUDIN SAMAHAN NG MAGKAKALAMANSI PRODUCERS COOPERATIVE
 Project Cooperator: Mrs. Añolina A. Battad
 Project Location: Brgy. Bitalag, Tagudin, Ilocos Sur
 Project Cost: Php38,150.00



Republic of the Philippines
 Department of Health

FOOD AND DRUG ADMINISTRATION

Civic Drive, Filinvest Corporate City, Alabang, Muntinlupa City



LICENSE TO OPERATE

as
Food Manufacturer

is hereby granted to

TAGUDIN SAMAHAN NG MAGKAKALAMANSI PRODUCERS COOPERATIVE

BITALAG, Tagudin, Ilocos Sur

Owner:

TAGUDIN SAMAHAN NG MAGKAKALAMANSI
 PRODUCERS COOPERATIVE

License Number:

LTO-3000004856886

Application Type:

Initial

Validity of License:

12 November 2021



This LTO shall be renewed within **90 days** before its expiration, upon compliance with relevant laws, rules and regulations and the payment of fees. This LTO may be suspended, cancelled or revoked by this Office for cause if found violating RA 9711 and related issuances.

Furthermore, with this LTO, the FDA allows the establishment to apply for a market authorization [i.e. registration (CPR) or notification] for health products prior to manufacture, importation, sale or offer for sale, distribution, transfer, advertisement and/or promotion as the case may be.

BY AUTHORITY OF THE DIRECTOR GENERAL

PILAR MARILYN M. PAGAYUNAN
 Director IV
 Center for Food Regulation and Research

DISPLAY IN PUBLIC VIEW

Additional information required under FDA Circular 2016-006 are reflected at the second page of this LTO.

This electronic-LTO (eLTO) is computer generated and does not require signature.
 Verify at <http://www.fda.gov.ph/industry-corner/e-lto/0-LTO-3000004856886>

FDA issued License-To-Operate of TSMPC

Tagudin Samahan ng Magkakalamansi Producers Cooperative (TSMPC), formerly the ASAP Tagudin Samahan ng Magkakalamansi Development Cooperative, was reorganized and established in 2007 with a paid-up capital of Php19,000.00 and is registered to the Cooperative Development Authority.

Primary product lines of the cooperative include Calamansi Juice Ready-to-Drink and the Calamansi Juice Concentrate being processed in their newly constructed production plant.

Since the Calamansi juice products were introduced to the consumers, the cooperative penetrated various marketing channels including hotels, schools, local grocery stores, and other private and public offices in the province.

However, the cooperatives lack of license-to-operate from the Food and Drug Administration (FDA) restricted it from getting into other potentially profitable markets in the province because of the requirement for an FDA – LTO.

Thus, Mrs. Añolina A. Battad, Chairperson of the cooperative, sought assistance from the Department of Science and Technology for the laboratory testing and analyses of their products to finally acquire an FDA – LTO.

INTERVENTIONS

- Provision of Laboratory Analyses (Microbial, Chemical & Nutrition Analysis) for Calamansi Juice Ready-to-Drink and Calamansi Juice Concentrate

OUTCOMES

- Acquired Microbial and Nutrition Analyses for Calamansi Juice Ready-to-Drink and Calamansi Juice Concentrate
- Acquired FDA-LTO
- 28% increase in markets/outlets supplied (from 14 to 18) aside from increased walk-in customers

IMPROVEMENT OF PRODUCT LABEL AND PACKAGING OF TUPIG

Implementing Firm: **TOCOK TUPIG MAKERS ASSOCIATION**
 Project Cooperator: Ms. Flora P. Itliong
 Project Location: Tocok, San Fabian, Pangasinan
 Project Cost: Php70, 000.00

With the new packaging label (box-type)



San Fabian is known for its tupig, a native delicacy made of coconut meat, glutinous rice and brown sugar. Initially, about 3-5 residents started selling tupig along the highway of Barangay Tocok. Passers-by in the area like the flavorful and distinct taste of the tupig compared to other municipalities. At present, there are more than 40 residents selling tupig.

With the partnership of DOST-1 and LGU San Fabian, one of the identified needs of the community is the improvement of the product label and packaging of tupig. It was granted through the GIA program to comply with the mandatory label requirements set by the FDA.

INTERVENTIONS

- Label design of Tupig (Box-type)
- Packaging execution

OUTCOMES

- Established new customers from La Union, Baguio, Sta. Barbara and Manila
- 72% increase in monthly gross sales (from Php25,000.00 to Php43,000.00)



Tupig is being pack with old news paper

Implementing Firm: **SOUTHERN BINEMALEY MULTI-PURPOSE COOPERATIVE**
 Project Cooperator: **Mr. Rogelio A. Solomon**
 Project Location: **Brgy. Pallas, Binmaley, Pangasinan**
 Project Cost: **Php57,850.00**

UPGRADING OF PRODUCTION FACILITIES FOR A RECYCLED METAL FABRICATION SHOP



INTERVENTIONS

- Acquisition of the following equipment:
- 1 Unit Portable Welding Machine
- 1 Unit Heavy-Duty Welding Machine
- 2 Units Portable Disc-Grinder
- 1 Unit Bench Grinder
- 1 Unit Manual Bar Cutter
- 1 Unit Circular Sheet Cutter
- 1 Unit Air Compressor
- 1 Unit Spray Gun
- 1 Unit 14" Cut-Off Machine
- 1 Unit Table Scale
- 1 Unit Electric Drill
- Technical assistance on plant layout improvement
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Disaster Resiliency and Management

Being located at the Agrarian Reform Community, the cooperative was established with the assistance of the Department of Agrarian Reform (DAR) to help farmer members through provision of loan for their farming operations. They are also engaged in different businesses to increase their funds like balloon making, a small canteen, and barbershop. Later this year, the cooperative started making various products out of junked metal scraps to create more job opportunities for their members and increase the cooperative's income while promoting love for nature through recycling.

The firm could not increase its production due to limited and inappropriate equipment being used which translate to less income.

OUTCOMES

- Processing of scrap metals increased by 300% (from 20 kilograms to 80 kilograms per week)
- 50% decrease in production time (cutting, welding and finishing) from 1 hour to 30 minutes per product
- Added 5 product lines: cleopatra chair, 'bangus ihawan', 'bangkito', 'kawa' and plant vase holder
- 200% increase in production (from 5 pcs to 15 pcs of rake a day)
- 200% increase in weekly gross sales (from Php2,000.00 to Php4,000.00)
- Employed 3 additional workers
- Established 2 additional markets





Engr. Lim (in black shirt) demonstrating the proper procedures on jewelry electroplating

PRODUCTION IMPROVEMENT OF TAMBOURINE JEWELRY MANUFACTURING

The Bantay Tambourine Jewelry Makers is a sole group in Ilocos Sur engaging in tambourine jewelry manufacturing, inherent of Bantay, Ilocos Sur since the 1950s. According to the leader of the Group, Mrs. Cynthia Alonzo-Rabang, this type of business established by Alonzo's Ancestors was inherited and passed down to generations. During their childhood days way back in the 1980s, they (relatives, cousins, siblings) were taught by their father/s tambourine jewelry making, thus they are still making jewelries the traditional way until now.

The Bantay Tambourine Jewelry Makers was recognized and awarded by the Provincial Government of Ilocos Sur (PGIS) with the Living Treasure Award for continuously nurturing the Ilocano Artistry and Craftsmanship with a lifelong devotion and commitment to the craft and faithfulness to the community's traditions, sustaining the best of the Ilocano Cultural Heritage towards the future generation.

Thus, sometime in 2017, Ilocos Sur Governor Ryan Luis Singson and First District of Ilocos Sur Congressman Deogracias Victor "DV" Savellano requested directly from DOST Secretary Fortunato dela Peña to assist the Tambourine Makers of Ilocos Sur in improving the product quality of the Bantay Tambourine Jewelry Makers. Hence, in October 2017, the Metals Industry Research Development Center (MIRDC) composed of Engr. Edilbert dela Peña and Engr. Wilfredo Lim conducted an on-site Technology Needs Assessment (TNA) to the group.

The firm then availed the DOST-Community-Based Program in order to improve the firm's product quality and productivity as per assessment of the MIRDC experts.

Implementing Firm: **BANTAY TAMBOURINE JEWELRY MAKERS**
 Project Cooperator: **Mrs. Cynthia A. Rabang**
 Project Location: **Balaleng, Bantay, Ilocos Sur**
 Project Cost: **Php90,000.00**

INTERVENTIONS

- Acquisition of:
 - 1 set Jewelry Electroplating Equipment with Tumbler
 - 1 unit Pulverizer/Grinder
 - 2 units Reciprocating Cutter
- Training on Jewelry Electroplating

OUTCOMES

- 311.76% increase in annual volume of production (from 17 pcs. to 70 pcs.)
- 732.65% increase in annual gross sales (from Php122,500.00 to P1,020,000.00)
- 200% increase in number of resellers/outlets (from 2 resellers/outlets to 6 resellers/outlets)
- Generated additional 4 indirect employment (resellers)
- 64 % reduction on processing time (from 14 days to finish an item to 5 days only)
- Eliminated the risk of overcooking/burning and re-work of finished products
- Enhanced quality of finished products particularly on texture (eliminated polishing of rough surfaces) and appearance (uniform gold plating saturation)
- 25% improvement of productivity (from 2.0% to 2.5%)



A jewelry maker cuts a piece of silver using a reciprocating cutter (left). Mrs. Cynthia Rabang uses the pulverizer/grinder to smoothen rough surfaces of jewelry (middle). Mrs. Cynthia Rabang doing gold plating of jewelries using the Jewelry Electroplating Equipment with Tumbler (right).



Finished Products: Assorted Tambourine Jewelries (top and bottom)



TECHNOLOGY INNOVATION SYSTEM SUPPORT FOR THE PRODUCTION OF EDUCATIONAL MATERIALS

Implementing Firm: DORCAS MULTI-PURPOSE COOPERATIVE
 Project Cooperator: Ms. Jinky V. Espartero
 Project Location: Magtakig, Bugallon, Pangasinan
 Project Cost: Php79,995.00



On March 17, 2006, the Dorcas Multi-Purpose Cooperative was established and registered with the Cooperative Development Authority under Certificate Registration Number 9500-01004503 dated December 15, 2009, and its Certificate Identification Number is CIN 0103010027.

The cooperative manufactures and exports educational materials for children. Its mission is to provide educational materials in excellent quality to the utmost satisfaction of its customers.

Through their income, they already constructed their production area. However, the firm could not accept more orders because of its low performing embroidery sewing machine, which hinders them from earning more.

INTERVENTIONS

- Acquisition of 1 unit Computerized Embroidery Machine
- Technical assistance on plant layout improvement
- Seminar on Occupational Safety and Health
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Disaster Resiliency and Management

OUTCOMES

- 50% increase in production volume. Before, 100 soft books can be finished in a month by 4 persons, with the presence of the computerized embroidery machine, 150 soft books can be done in a month by 3 persons, charts from 60 pcs to 90 pcs, felt plat from 60 pcs to 120 pcs and dolls from 15 pcs to 30 pcs
- From 2-3% rejects due to manual embroidery to zero (0) rejects
- The usual 45 days of finishing their worth P100,000.00 order were finished less than a month. The cooperative now accepts additional order from their regular client from Australia and local market orders.
- 25% increase in monthly gross sales (from 80,000.00 to P100,000.00 per month) with 10% as their net income
- Added 2 product lines: wild animals and fairy book
- Employed 1 additional worker
- Established 1 additional local market





DEPARTMENT OF SCIENCE AND TECHNOLOGY

CEST

Community Empowerment Thru Science and Technology



CEST 2019: Creating Possibilities Of CEST in Dumalneg, Ilocos Norte

2019 marks the first implementation year of the Community Empowerment through Science and Technology (CEST) program in Dumalneg, Ilocos Norte after the Memorandum of Agreement between DOST-1, LGU-Dumalneg and MMSU was formally forged on February 11, 2019. Several activities were conducted to address determined gaps in three out of five priority areas of the program.

Health and Nutrition

Under the project, Disinfecting Aqua's Noxious and Unwanted Microorganisms (DANUM), DOST together with MMSU conducted an onsite water sampling of two community water sources and 14 household faucets of the four barangays of Dumalneg namely Quibel, Kalaw, San Isidro, and Cabaritan on May 2019. Sixteen samples for Microbial Test and seven samples for Physiochemical Test was collected wherein laboratory results revealed that 100% of the samples are not fit for human consumption due to presence of coliform or fecal contaminants. This baseline information will serve as basis for developing an intervention that would mitigate the concern.

The municipality was a beneficiary of the DOST - Package of Interventions for the improvement of Nutrition of Young Children (PINNOY) program to eradicating malnutrition in the locality. Series of interventions were conducted such as the calibration of 22 weighing scales for reliable data collection as facilitated by PSTD-Ilocos Norte on July 2019. Data on malnutrition was gathered after the calibration and training on the DOST PINNOY Modules was conducted on August 2019. The training catered to 42 participants composed of the MNAO, BHWs and BNSs of the four barangays in collaboration with the DOST-Food and Nutrition Research Institute (FNRI).

A 120-day complementary feeding utilizing DOST FNRI-developed foods such as the Rice Mongo Blend, Rice Mongo Curls, and the Nutri-bar was launched on September 2019. These foods were fed to 25 undernourished children ages 6-59 months old. Results of the feeding revealed that 16 of the children gained significant weight from severely underweight to underweight, underweight to borderline or normal, or from borderline to normal weights while 9 kids recorded no change in nutritional status. These results correspond to 64% effectiveness rating of the program.

Partnerships that work!

DOST-1, MMSU and LGU- Dumalneg inks the MOA for the implementation of the CEST program in the municipality covering four barangays.



Human Resource Development

For the Human Resource Development area, DOST-1 awarded educational tools and equipment to San Isidro Elementary School. This include a computer set with printer, Smart TV with home theater sound system, STARBOOKS developed by DOST STII, S&T modules developed by DOST SEI and the Augmented reality tools from DOST SEI. Eight teachers of the school were also trained on the manipulation and use of these tools which aims to bridge the gap between technology and rural barangay schools and to promote Science, Technology, Engineering, and Mathematics (STEM) courses to the students.

In addition, to prepare deserving students of the municipality in taking the DOST- SEI undergraduate scholarship program, DOST-1 conducted an Enrichment Program to 16 Grade 12 students on September to October 2019. The students are residents of Dumalneg and are students of Dumalneg National High School and Ilocos Norte National High School. The 4-Saturday review was conducted in partnership with the Philippine Science High School -Ilocos Region Campus (PSHS-IRC) and three patriot scholars of Ilocos Norte.

Economic Enterprise Development

To further boost economic activity in the area, utilizing abundant resources, DOST-1 conducted a livelihood training on Wine making and vinegar making to 17 residents of Dumalneg on December 2019. Process of Ginger and Ube wine making, Ginger Beer, Ginger tonic drink, and Banana Vinegar making were introduced encouraging the participants to engage in the venture.

Sustaining S&T Interventions in Ilocos Sur

With the continuous implementation of the program in the municipalities of Alilem and Sugpon, Ilocos Sur, interventions in support to enterprises developed and other areas of the program for sustainability were facilitated.

For the enterprises or associations assisted, DOST-1 turned-over several machineries and processing equipment that would enhance productivity and product quality. Apang Food Processors Association of Alilem, Ilocos Sur was provided 1 unit of dehydrator machine, 1 unit of crystallizer, 1 unit of pulverizer, deep fry thermometers, cooking stoves, and processing tables for the production of turmeric, ginger and banana products. These machines were demo-operated to the members as they were trained for operation and management. Three packaging and labelling materials were also awarded to them, which include turmeric instant tea, ginger tea, and banana chips. On the other hand, sewing machines earlier provided to Alilem's Kiat Bamboo Handicrafts and Designers Association was maintained. Products of the associations were showcased to several trade fairs and caravans.

Proving their strong commitment and support, LGU-Alilem established a community processing center amounting to 2.8 million pesos in barangay Apang. In contrast, a 1.3 million peso-bamboo



handicraft center will be constructed in 2020 in Kiat to maintain production and encourage local enterprise to prosper.

In the municipality of Sugpon, Ilocos Sur, Danac Ube Processors Association and the Licungan Coffee Growers Association were assisted in producing ube and coffee products continually. DUPA was capacitated with the use of Dehydrators, MCSTD, Pulverizer and other processing tools given to them. The Ube powder produced was also subjected to laboratory test for acceptability while the Ube wine was provided with packaging and labelling. In addition, the LCGA was awarded machinery interventions such as ten units of coffee depulpers and 1 unit of coffee huller added to the MCSTD installed. Fertilizers and pesticides for the coffee nursery were also awarded.

These assisted associations were also trained on Bookkeeping: A Grassroots Approach towards Sustainable Business Enterprise to further enhance recording systems for their SEC registration. The training was conducted on October 2019 in partnership with the Ilocos Sur Polytechnic State College (ISPSC) wherein each association was well represented with a total of 15 participants.

Moreover, the Municipality of Sugpon, Ilocos Sur was awarded a weather station in March 2019. This will give the Municipal Disaster Risk Reduction and Management team a timely climatic data which will be used in their DRRM planning. Nine DRRM personnel were trained on the operation of the device.

Furthermore, the Municipality of Alilem is recipient to the Biotek-M, an instrument for early detection of Dengue, on September 2019 with two permanent staff trained and 29 LGU personnel participated during the information dissemination campaign on Dengue prevention and the Biotek-M. The LGU's Rural Health Unit is the first of its kind to be equipped with the device in the region.

Lastly, a solar water distribution system is currently being installed in the Municipality of Sugpon to suffice drinking water requirement of the community. This intervention under project DANUM aims to provide an adequate supply of drinking water in the community. Another component of the project is the upgrading of ceramic water filters deployed in 2017 and 2018 to a more effective and efficient filtering system. Thus through clustering in the communities, 40 water filters were deployed to Kiat and Apang of Alilem and 41 water filters to Pangotan, Danac and Licungan of Sugpon. It constitutes 100% of households, 429 households, with access to safe drinking water including six elementary schools, five barangay health centers and one association.

With these initiatives, DOST-CEST continues to provide interventions to partner LGUs bringing science and technology closer to the people, empowering lives and building communities.

Go, Grow and Glow!

Ms. Kelia Collen C. Diaz of DOST-FNRI demonstrates how to prepare complementary foods with additives using Rice-mongo blend to the health workforce of Dimalneg, Ilocos Norte during the training on DOST-PINOY.



Keep Records Right!

(Top photo) Ms. Corazon Tanacio of Danac Ube Processors association shares her learnings to fellow assisted associations of the program during the training (2nd photo) on Bookkeeping at ISPSC-Tagudin Campus.



For Coffee and the people!

DOST-1 led by ARD for FAS Atty. Jasmin Banez (5th from right, 2nd row) awarded coffee equipment and other tools and inputs to the Licungan Coffee Growers Association together with the inventory team. (2nd photo) The members of the association helped in hauling the equipment.

SCIENCE & TECHNOLOGY SERVICES

REGIONAL STANDARDS AND TESTING LABORATORY

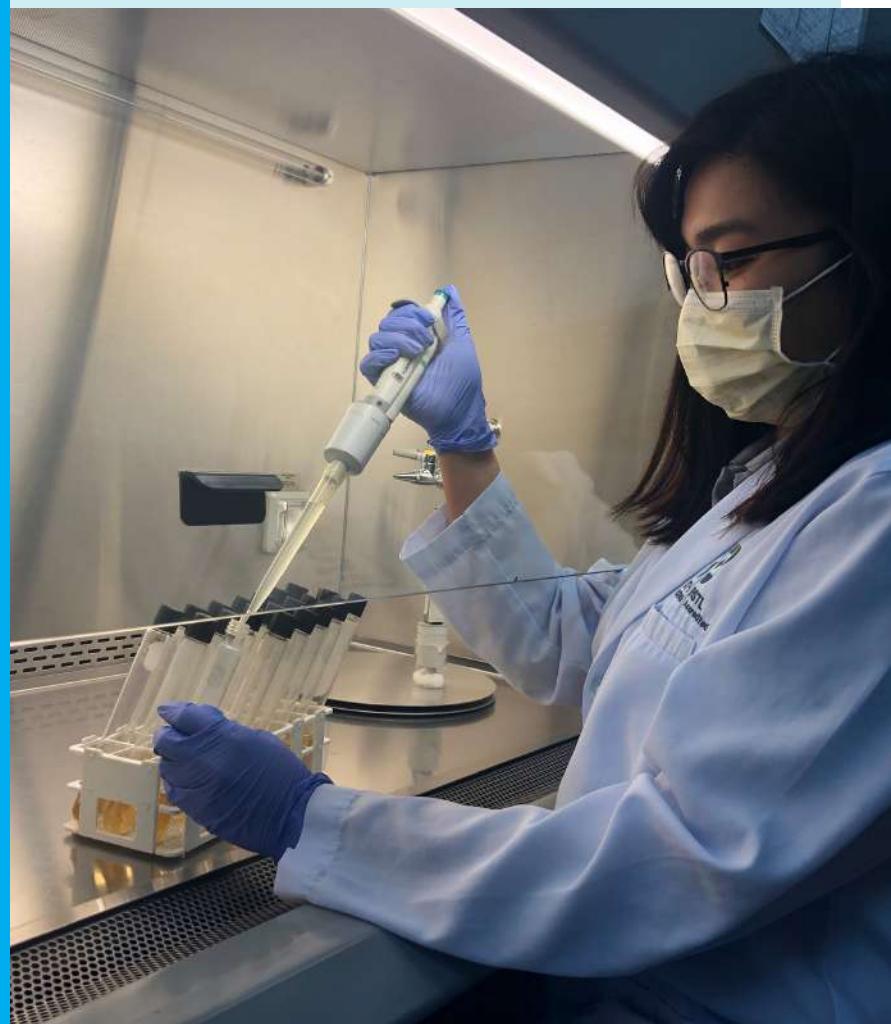
The Regional Standards and Testing Laboratory have been continuously implementing and improving its Laboratory Management System through quality control measures, personnel development, annual equipment maintenance and calibration, hands-on training on chemical and microbiological testing, compliance to statutory and regulatory requirements, and conduct of internal audit, and management review. Hence its accreditations, certifications and recognition are sustained.

Gap analyses and review of documented information were conducted by RSTL personnel last January 2019 in the transition from ISO 17025:2005 to the new ISO/IEC 17025:2017 version which applied risk-based thinking that enabled some reduction in prescriptive requirements and their replacement by performance-based requirements, and aligned to ISO 9001:2015 QMS since the RSTL opted for Option B of the new PNS edition. This means that the laboratory has established and maintains a management system by the requirements of ISO 9001:2015 and is capable of supporting and demonstrating the consistent fulfilment of the management requirements specified in the new version of ISO/IEC 17025:2017.

The RSTL was reassessed by the Philippine Bureau of Accreditation (PAB) last August 28-30, 2019 based on the new PNS ISO/IEC 17025:2017 version and PAB Supplemental guidelines. Findings called during the reassessment were already cleared by representatives of PAB and the technical assessors. RSTL is currently waiting for the release of the certificate of accreditation based on the new version of the standard.

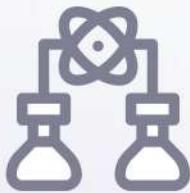
In addition to the three chemists, a licensed chemist was hired on February 11, 2019, to fast track the Shelf-life testing and Sensory evaluation operations. Several technical trainings, workshops and in-house trainings were attended and undertaken by the laboratory staff to enhance their capabilities.

Four licensed chemists now man RSTL -- one licensed chemical technician, three microbiologists, four calibration engineers, a customer relations officer, one laboratory aide and additional two research specialist from DOST-SEI Career Incentive Program conducting R&D in areas of food and nutrition.



2019

TESTING & CALIBRATION ACCOMPLISHMENT



7,540
samples received



4,789
customers served



13,449
test/calibration conducted



7,953,871
total fees collected



Targets

Samples Received:	6,930
Test Conducted:	11,303
Customer Served:	4,566
Total Fees Collected:	6,851,106

Label Design and Packaging Services

DOST 1 continued to assist MSMEs in improving their product through its Packaging and Labelling Assistance, through its accredited Graphic Designers. DOST subsidizes the designs while the packaging execution is charged either to the project or to the firm itself.

18 firms benefitted from the service. Forty seven (47) products were provided with new label designs of different structures, and 20 of them with packaging materials.

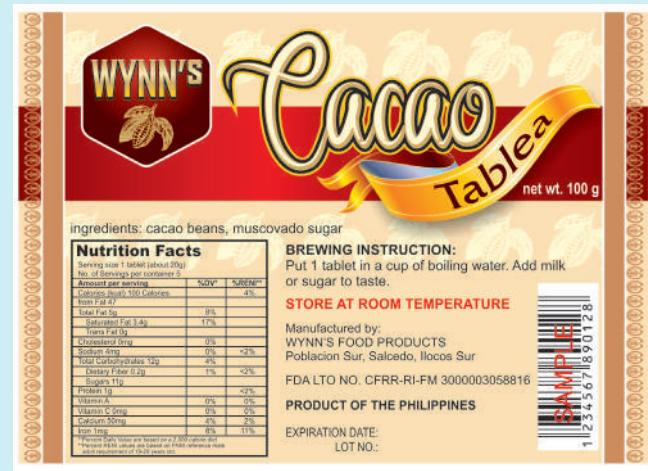
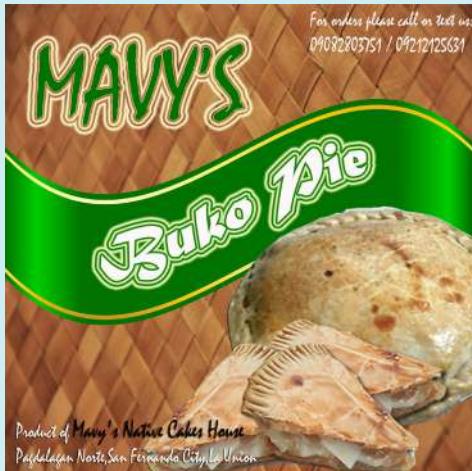
Table 1. Target vs Accomplishments

INDICATORS	ANNUAL TARGET	ACCOMP.	% ACCOMP.
Packaging and Labeling Design Provided	28	47	168%
No. of Firms Assisted	20	18	90%

Table 2. List of firms provided with product label designs

Province	Name of Product	Names of Customer	Service
ILOCOS NORTE	Cornick	Sumader Food Processors Association	Product label design
	Longanisa	Manang Luz Longanisa	Product label design
	Longanisa	Crizañas Food Products	Product label design
	Processed		Product label design
	Longanisa	BAMEPA	Product label design
	Barquillos 120 grams	Aracelli Food Products	Packaging Material
	Barquillos 60 grams		Packaging Material
	Torones de Mani		Packaging Material
	Cornick	Sumader Food Processors Association	Packaging Material
	Longanisa	Manang Luz Longanisa	Packaging Material
ILOCOS SUR	Cacao Tablea	Wynn's Food Products	Product label design and Packaging Material
	Choco Bar		
	Chili-Choco Bar		
	Mint-Choco bar		
	Rosangis	Fuerte Rosangis Association	Product label design and Packaging Material
	Smoked and Deboned Bangus	Villamar RIC	Product label design and Packaging Material
	Roasted Peanuts	Quimarayan RIC	Packaging Material
	Longanisa	CISWDCI, Cervantes Ilocos Sur	Packaging Material
	Longanisa with Turmeric		
	Sweet and Spicy Longanisa		
LA UNION	Banana Chips, 150g	Apang Food Processors Association, Apang, Aliiem, Ilocos Sur	Product label design and Packaging Material
	Ginger Tea, 150g		
	Turmeric Tea, 150g		
	Ube Wine	Danac Ube Processors Association, Danac, Sugpon, Ilocos Sur	Product label design and Packaging Material
	Ube Wine 150mL	Brgy. Langcuas Uber Producers Association/Brgy. Langcuas, SFLU	Packaging Material
	Ube Wine 375mL		Product label design and Packaging Material
PANGASINAN	Processed Bangus Products	Ladies Group of Caloocan Norte / LGBR	Product label design
	Cassava Chips	Ann's Food Products Manufacturing	Product label design
	Ube Bar, 300g	Jarold's Food Products	Product label design
	Super Ube Purple Yam, 600g		
	Longanisa, 500g	JJM Food Products	Product label design
	Hotdog		
	Tapa		
	Iodize Salt	JM Salt Manufacturing	Packaging Material
	Ube Bar 300g	Jarold's Food Products	Packaging Material
	Super Ube Purple Yam 600g		

LABEL DESIGN and PACKAGING SERVICES



Technology Assistance and Consultancy Services

TACS

The DOST I provides Technology Assistance and Consultancy Services to various sectors by linking them to the experts in their needed field.

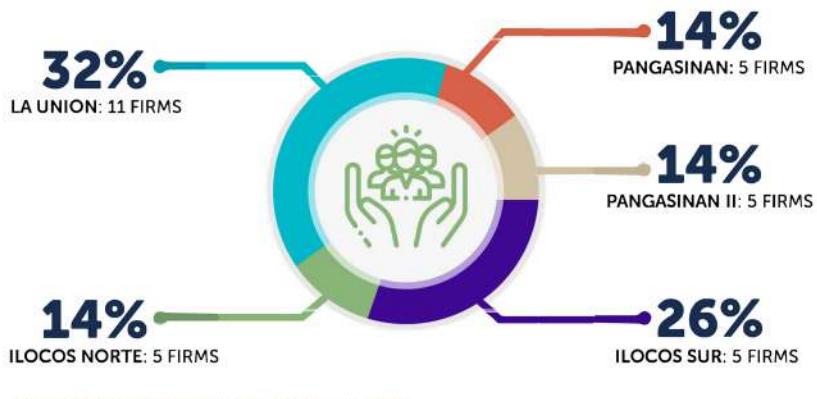
(TACS) 2019

FOOD SAFETY

Food Safety (FS) is the technical assistance and consultancy service to food MSMEs who are interested and committed in improving food safety systems. The DOST I leads the Region 1 Inter-Agency Food Safety Team in the promotion and advocacy of food safety through trainings on Good Manufacturing Practices, Basic Food Hygiene, Food Safety Hazards, Hazard Analysis and Critical Control Point (HACCP) and SSOP and the conduct of Food Safety Assessment to MSMEs.



FIRMS ASSISTED

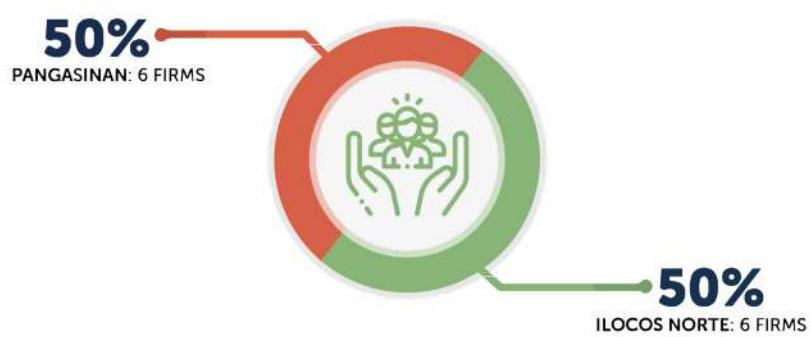


ENERGY AUDIT

Energy Audit (EA) is the technical consultancy for MSMEs which provides critical examination of an energy consuming facility. It will benefit the company by reducing energy consumption costs, setting energy conservation goals, and identifying areas where energy wastes can occur.



FIRMS ASSISTED



The trainings and seminars are as follows:

Title	No. of Participants
Food Safety Management System Training (FS/BFH/GMP/SSOP) HACCP Overview	25 participants from DA – Philippine Rural Development Project
Seminar-Workshop on Current Good Manufacturing Practices and Sanitation Standard Operating Procedure	40 SMEs, food handlers
Seminar-Workshop on Basic Food Hygiene, Current Good Manufacturing Practices and Sanitation Standard Operating Procedure	27 Food Handlers, Stall Operators and owners
Seminar-Workshop on Basic Food Hygiene, FS Hazards, Current Good Manufacturing Practices and Sanitation Standard Operating Procedure	34 SMEs, Food handlers, stall operators
Seminar-Workshop on Basic Food Hygiene, FS Hazards, Current Good Manufacturing Practices and Sanitation Standard Operating Procedure	70 SMEs, Food handlers, stall operators
FS GMP awareness seminar	84 participants consisting of the general public, Food handlers,
Basic Food Hygiene/ Food Safety Hazards	31 Inabaan Norte Agricultural MPC members
Introduction to Packaging and Product-Package Interaction/FDA Mandatory Labeling & Licensing Requirements for Food Establishments/DOST-1 RSTL services	32 participants from the DOST-1 provincial and regional staff/ members of La Union Entrepreneurs Association for Progress (LUEPA)
Fora on Good Manufacturing Practices with Emphasis on Food Safety, FDA Licensing Requirements for Food Establishment, DOST-1 RSTL Services	32 participants from the general Public (S&T Caravan in Burgos, La Union)
Seminar-Workshop on Current Good Manufacturing Practices and Sanitation Standard Operating Procedure	67 participants from the La Union Entrepreneurs for Progress Association Members (LUEPA), La Union Hotel and Restaurant Association Members (LUHRA), Other Individual firms and Associations/Cooperatives in La Union
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety	30 MSMEs in the food industry in the municipality of Bacnotan
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety	35 MSMEs in the food industry in the City of San Fernando, La Union
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety	37 MSMEs in the food industry in the City of San Fernando, La Union
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety, Introduction to Product-Package Interaction, How to avail DOST P&L Assistance	34 MSMEs, Night Market Vendors, & OPAG Assisted Organizations
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety	26 MSMEs in the food industry in the municipality of Bacnotan
Awareness Seminar on current Good Manufacturing Practices (cGMP) and Skills Training on Ube Processing	21 participants from the general public General Public
Seminar on cGMP & Basic Food Handling	24 participants from the general public (S&T Caravan in Bacnotan, La Union)
Awareness Seminar on current Good Manufacturing Practices (cGMP) with Emphasis to Food Safety	33 MSMEs in the food industry in the municipality of Bacnotan
Awareness Seminar on current Good Manufacturing Practices & Skills Training on Meat Processing	20 members of the Rosario Special Person Organization
Seminar on Introduction to Product-Pack- age Interaction (with topic on Basic Food Hygiene, Food Safety Hazards)	MSMEs in the Food Industry in the municipality of Bacnotan
Training on Mushroom Processing – Chicharon (with topic on Basic Food Hygiene, Food Safety Hazards)	General Public (S&T Caravan in Bacnotan, La Union)
Training on Ginger Processing – Jelly Candy (with topic on Basic Food Hygiene, Food Safety Hazards)	General Public (S&T Caravan in Bacnotan, La Union)
Training on Ginger Processing – Tea (with topic on Basic Food Hygiene, Food Safety Hazards)	General Public (S&T Caravan in Bacnotan, La Union)
Training on Mushroom Processing – Noodles (with topic on Basic Food Hygiene, Food Safety Hazards)	18 participants Old Central MPC Members
Training on Ube Processing (Wine, Halaya, Chips & Puto) - cGMP Seminar was conducted last 2018 (with topic on Basic Food Hygiene, Food Safety Hazards)	23 participants from the Naguey Rural Improvement Club
Training on Non-baked Products – Puto Pao & Flan ((with topic on Basic Food Hygiene, Food Safety Hazards)	32 from General Public (S&T Caravan in Burgos, La Union)
Training on Ginger/Turmeric Processing – Jelly Candy (with topic on Basic Food Hygiene, Food Safety Hazards)	18 participants Old Central MPC Members
Training on Mango Processing – Vinegar & Wine (with topic on Basic Food Hygiene, Food Safety Hazards)	36 participants General Public (S&T Caravan in Burgos, La Union)
Training on Chips Processing – Taro & Ube (with topic on Basic Food Hygiene, Food Safety Hazards)	38 participants from the General Public (S&T Caravan in Burgos, La Union)
Training on Chips Processing – Banana & Cassava (with topic on Basic Food Hygiene, Food Safety Hazards)	29 participants from the General Public (S&T Caravan in Burgos, La Union)
Fish Processing Training (with topic on Basic Food Hygiene, Food Safety Hazards)	41 participants from the Sta. Rita Bagoong and Tinapa Association and Ubagan Fisherfolks Association members
Introduction to Packaging and Prod- uct-Pack- age Interaction	

TRAININGS/SEMINARS CONDUCTED

31 trainings and seminars were conducted in 2019 which catered participants from various sectors like micro, small, and medium enterprises, food handlers, stall operators, government and non-government organizations, and the general public.



FOOD SAFETY AND GOOD MANUFACTURING PRACTICES ASSESSMENT

Food Safety and Good Manufacturing Practices Assessment were conducted to 34 firms in the region specifically:

- Brgy. Langcuas Ube Producers Association
- Rabon Seaside Gracilaria Seaweed Association
- San Cornelio Integrated Livelihood for Women and Men Association (SCILAWME)
- Lipay Proper Women's Association (LPWA)
- Zekie's Ice Cream
- Mavy's Native Delicacies
- LGU Agoo Food Processing Center
- RRV Delicacies
- Aquarius Bakery
- Glenver's Siomai
- Pan de Monay
- Beltran's Food and Delicacies
- Ann's Food Product Manufacturing
- Eguia Multi-Purpose Cooperative
- Wengki's Bakeshop
- Planas Bakeshop and Store
- Building Lives for better Future
- Dimalupig & Gabrielle Food Products Trading
- Sopresa Products
- JJM Food Products
- Ambelitas Meat Product
- Caunayan Multipurpose Cooperative
- Crizanas Food Products
- Food Processors Association of Pob. Burgos
- Glomys Empanda and Food House
- JF Bagoong and Suka
- Manag Luz Meat Shop
- Rayuray Farmers Association
- Upon Multipurpose Cooperative
- Bennays Enterprise
- Cake Buddies
- Cervantes Ilocos Sur Women Development Cooperative
- Jeff and Liza Pastries Shop
- Mushroomeneta Food Products

TRAININGS ATTENDED:

- Trainers Training on Harmonized FS Modules (Dec. 2018)
- Seminar/Orientation FDA/LGU Audit and Assessment (March 2019)
- HACCP Training @ SGS Philippines (July 30 – August 2, 2019)
- Food Fraud and Food Defense @ Bayview Hotel, Manila (October 16-17, 2019)
- HALAL Training and Certification @ Heritage Hotel, Manila (October 28-30, 2019)
- Food Safety Specialist Training for Microbiologist @ DOST Calabarzon (November 5-8, 2019)
- Food Safety Specialist Training for Chemist @ Intertek Manila (November 11-13, 25-27, 2019)



FDA LTO APPLICATION:

27 small and medium enterprises were assisted by the FS Team in their Food and Drug Administration (FDA) License-to-Operate Application.

They are as follows:

- JP's Bakeshop
- Ayaoan MPC
- Pan De Monay
- LGU Agoo Food Processing Center
- LGU Agoo Sardines Processing Center
- Brgy. Langcuas Ube Producers Association
- RRV Delicacies
- Mavy's Native Delicacies
- JND Healthy Foods
- Tinapay Along the Riles
- Valentino Cake Boutique
- Nutridense Food Corp
- Sancagulis MPC
- Mama Cili Enterprise
- Binmaley Rural Improvement Club
- Mayfair Bakeshop
- Basilio Chicharon
- Greenthumb Food Depot
- NGT Health and Wellness
- Ina Cella's Food Products
- Bakers PH
- Nimyang's Tablea
- Sweet Wins Tablea
- Mirahills Food Products
- Bash Longganisa
- Threes Longganisa
- Melody's Longganisa

OTHER ACTIVITIES

- Crafted and developed Memorandum of Agreement (MOA) on the operationalization of the Region 1 Inter-Agency Food Safety Team with the following partner-agencies:
 - 9 National Government Agencies (NGA)
 - 5 State Universities and Colleges (SUC)
 - 4 Provincial Governments (PG)

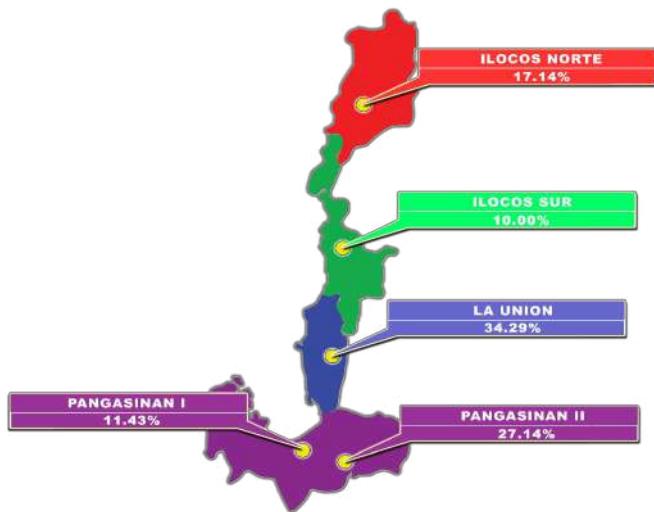




TECHNOLOGY TRAININGS

Technology Training is one of the innovation support services provided at the firm level which are conducted for interested groups and individuals. This service aims to upgrade and enhance the knowledge of individuals to increase productivity or to learn livelihood trainings which can give them information to start a business from resources that are within their locality.

For CY 2019, DOST I have conducted a total of seventy (70) trainings regionwide benefiting a total of Two Thousand Six Hundred Forty-Eight (2,648) participants and Two Hundred Twenty-Seven (227) firms. Some of the trainings conducted are Seminar-Workshops on cGMP with emphasis to Food Safety, Introduction to Packaging and Product Package Interaction, Training on Electroplating of Jewelleries, Training on the Operation & Maintenance of Cabinet Dryer and Vegetable Slicer, Seminar on Productivity Improvement through 5S Practice, Training on Charcoal Production and Briquetting and many more. Some of the trainings were conducted during the celebration of the Regional Science and Technology Week in Laoag City, Ilocos Norte and during the Provincial Science & Technology Caravans. The percentage accomplishment per province is shown in the figure.





TECHNOLOGY FORA



Conduct of fora is one of the technology promotion activities of DOST 1 to inform prospective and existing entrepreneurs of technology-based investible areas and appropriate technologies ready for adoption/commercialization.

For CY2019, a total of forty-four (44) fora were conducted nationwide. Different technologies and other S&T-related information were presented to various audiences. Some of the topics discussed were: FNRI Transferable and Commercializable Food Technologies, Technology Forum on Apiculture and Honey Production, Sanitary and Wastewater System and Management, Waterless and Odorless Pigpen, Carrageenan Plant Growth Promoter, Improving Livestock & Poultry Industry (ITIK Pinas, Native Pig Production, & Native Chicken Production), Improving Agriculture Industry, Introduction to Packaging and Labeling Product Package Interaction, FDA Mandatory Requirements on Packaging and Labeling, Improving Bamboo, Crafts, and Furniture Industry, and many more. The various fora were attended by Two Thousand Fifty-Four (2,054) participants.

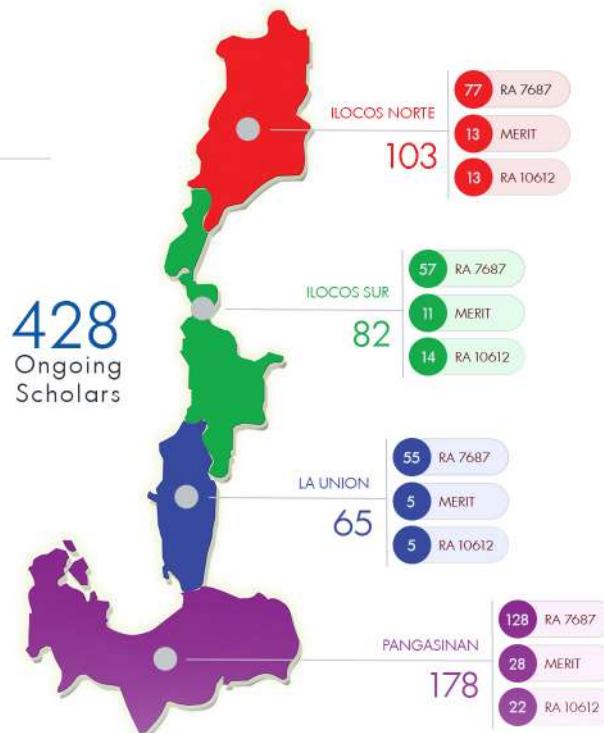


OTHER SCIENCE & TECHNOLOGY SERVICES

S&T SCHOLARSHIP

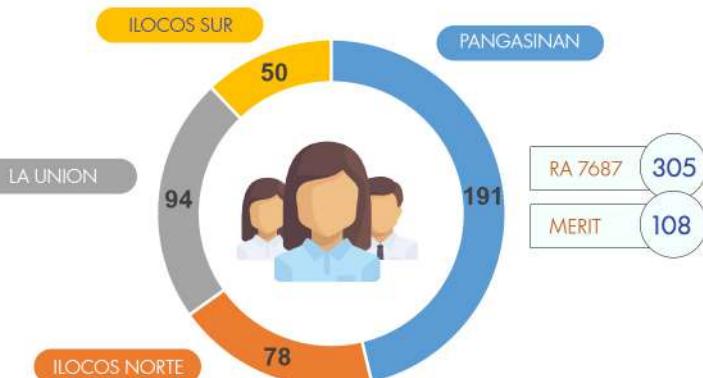
DOST Region I, along with other regional offices, serve as the regional arm of DOST-SEI in promoting its programs and projects that stimulate the continued development of the country's S&T human resources in order to spur economic development. These programs and projects aim to produce leaders and decision-makers in various areas of S&T: government, academe, and private industries.

One of the programs of DOST-SEI tailor-made to accomplish the institute's mission is the implementation of the different scholarship programs both for baccalaureate and graduate programs. Scholarship programs for undergraduate students pursuing their bachelor's degree are the "Science and Technology Scholarship Act of 1994", otherwise known as the RA 7687; the "Fast-Tracked S&T Scholarship Act of 2013", otherwise known as the RA 10612; and the "Merit Scholarship Program", otherwise known as the RA 2067.



S&T SCHOLARSHIP QUALIFIERS

The 2018 JLSS examination was held last October 20, 2018 in different centers nationwide. The result was released last December 23, 2018. Ten (10) passers qualified for the RA 7687 scholarship program; twenty-nine (29) qualified under the RA10612; and one (1) for the RA 2067 or the Merit Scholarship Program.



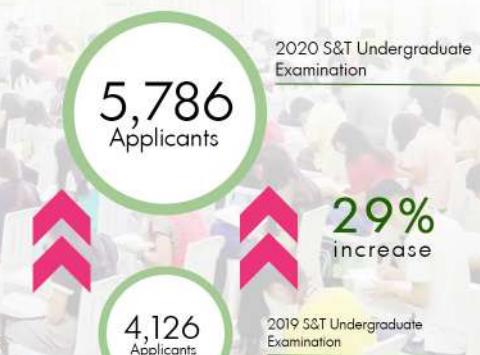
Meanwhile, the result of the 2019 Undergraduate S&T Scholarship examination was released last March 31, 2019 with a total of 9,852 qualifiers nationwide topping last year's number of passers, Four Hundred Thirteen (413) graduating grade 12 students from Region 1 took a spot in the said qualifying examination.

These new S&T scholars, as well as the good performing on-going scholars, will be enjoying the new stipend rate at P7,000/month across all disciplines. They are also entitled to tuition fee subsidy; book allowance; MS/PE clothing allowance; one economy-class roundtrip fare per year for those studying outside of their home province; and group accident insurance.

S&T SCHOLARSHIP CAMPAIGN AND EXAMINATION

With the help of the Department of Education Region I, DOST I was able to conduct a regionwide scholarship campaign to Senior High School students in both public and private schools. Having intensified the campaign of the said scholarship programs, an upsurge of applicants was observed. A total of 5,786 graduating Senior High School students from Region 1 applied and took the 2020 Undergraduate Scholarship examination last October 20, 2019, an enormous 29% increase from last year's 4,126 applicants.

In addition, DOST I initiated the Enrichment Program which was held at Nagbukel National High School and Dumalneg Municipal Hall, and other municipalities. Series of intensive reviews by on-going and graduate scholars were conducted which started last September 28, 2019 and ended last October 12, 2019.



S&T SCHOLARSHIP CAPACITY BUILDING ACTIVITIES

As part of the continued support for the development of the scholars' holistic growth and to impart core values that will help shape their perspective in the community, different capacity building activities were held throughout the whole year.

One of the major activities held was the two-day Skills' Formation Program (Comprehensive Community Based Disaster Risk Reduction Management) in Batac, Ilocos Norte on 08 - 09 March 2019. The objective of the activity is to train the DOST-SEI Patriot scholars on CBDRRM which it involves skills formation training, developing them to become community volunteers. The activity was participated by 154 scholars from the region and 53 officials from the five barangays, and personnel from the local government of Batac.

Consequently, the two-day Scholars' Formation Program was conducted at Don Leopoldo Convention Center, Alaminos City, Pangasinan last May 24 and 25, 2019. A total of 249 scholars from different universities and colleges in the region participated in the said activity. The program aims to foster patriotism among the DOST-SEI scholars and instill in them the core values of professional excellence, social responsibility and servant leadership – each discussed through a series of engrossing modules and activities that allowed the interaction between scholars.

Another activity proposed and initiated by the scholars from Mariano Marcos State University were the Seminar-Workshop on Mental Health Awareness and Eco-Bricking. It was conducted last June 02, 2019 at the Brgy. Barani, Batac, Ilocos Norte to raise awareness and to help the youth to have a deeper understanding on the prevailing problem on mental health and eliminate depression and suicidal tendencies by teaching them how to handle stress.

Anent to this, an activity initiated by the scholars from Don Mariano Marcos Memorial State University called the SNAP Project (Scholars' Nutrition Assistance Program). As part of the Nutrition Month, the scholars organized a simple program for 141 pupils of Bangbangolan Elementary School, City of San Fernando, and La Union last July 31, 2019.

Furthermore, the scholars from the University of Northern Philippines actively initiated an outreach program for pupils of Tocgo Elementary School in Candon City, Ilocos Sur last July 9, 2019. The activity concentrated on personal hygiene believing that having a healthy body reflects one's environment and it is essential in reaching one's dream. The scholars distributed school supplies, hygiene kit and umbrella to the pupils.

Another annual activity for on-going scholars who are in their junior/senior years is the Summer Practical Training Program (SPTP). This training program acts as their on-the-job training which aims to expose the scholar to current trends, developments, and needs of a particular industry as well as to enrich the scholars needed practical experience along their field of specialization and broaden their outlook on their line of work helping them prepare for a better future employment.

Meanwhile, a series of seminars on Job Hunting Strategies and Employment Generation and Exit Conference solely focused on graduating scholars was also conducted in different venues in each of the provinces.

IN TOUCH WITH EXCELLENCE

A total of 328 new scholar graduates is the welcome addition to the growing community of scientists, engineers, and innovators who are expected to contribute in the country's national development. In recognition of the scholars who graduated with latin honors, a program called "In Touch with Excellence" was held last 4 November 2019 at the Oasis Country Resort, City of San Fernando, La Union. It was mainly participated by 96 DOST-scholar graduates and their parents coming from the different cities and municipalities in Region I.



328
GRADUATES

19 MAGNA
CUM LAUDE

68 CUM LAUDE

39 WITH ACADEMIC
DISTINCTION





S&T LEARNING RESOURCE CENTER



Awarding of STARBOOKS in San Isidro Elementary Schools in Dumarneg, Ilocos Norte

The Regional Office and the PSTC's continued to provide S&T LRC services to all users in all sectors especially to the students. Magazine, reference materials and reading materials on science and technology were continuously acquired to help user needs. Areas of interest include investigatory projects, environmental science and natural sciences, food processing and other applied sciences.

There were 2,309 S&T LRC users served in 2019 most of which visiting int eh S&T LRC at the regional office.

The S&T Libraries at the regional office, PSTC Ilocos Norte, PSTC Ilocos Sur and Pangasinan likewise provided S&T information service through the S & T Academic and Research-Based Openly Operated Kiosk Stations (STARBOOKS). It is a stand-alone electronic library containing information on various locally developed technologies, investigatory projects, and other S&T related information. In 2019, DOST assisted 39 schools, colleges and universities in the installation of STARBOOKS.



Students are busy doing their research works and reading at S&T Resource Center located at theDOST Regional Office

S&T Promotion and Advocacy

The Department of Science and Technology Region 1 implemented various activities to increase awareness and appreciation of science, technology, and innovation in



REGIONAL SCIENCE AND TECHNOLOGY WEEK CELEBRATION

DOST 1 conducted the 2019 Regional Science and Technology Week Celebration in Region 1 last September 17-20, 2020 at the Ilocos Norte Centennial Area, Laoag City, with the theme "Science for the People: Enabling Technologies for Sustainable Development".

The 2019 RSTW has presented the projects, programs, and products of DOST in various Science and Technology-related activities and was participated by the MSMEs, students, teachers, farmers, health practitioners, and other sectors from the community. These activities include Technology Exhibits, Science Interactive Exhibits, Technology Talk, Invent School Program, Robotics Workshops and Competition, Technology Bazaar, Mobile Planetarium, Pinnasiriban, and more.

RSTW THRILLED THE CROWD IN ILOCOS NORTE

Ilocos Norte - The recently concluded Regional Science and Technology Week (RSTW) celebration drew the attention of over 17,000 viewers and participants at the Ilocos Norte Centennial Arena in Laoag City from September 17-20, 2019 after the 4-day showcase of latest Filipino-generated technologies and researches that address common concerns in the society.

Introducing technologies towards the achievement of 17 SDGs

Bearing the theme, "Science for the People: Enabling Technologies for Sustainable Development", this year's RSTW, which was led by the Department of Science and Technology-Region 1 (DOST 1) in partnership with the Provincial Government of Ilocos Norte (PGIN) staged technologies and researches into six (6) clustered groups of exhibits that contributed to the attainment of the country's 17 Sustainable Development Goals (SDGs). The Food Security, Energy and Environment cluster was composed of technologies that helped in attaining affordable and clean energy, more sustainable innovations, industrialization, and resilient infrastructure. It also raised awareness on the innovations that DOST spearheaded on food security, energy, and environment.

The Aging Society, Health, and Medical Care cluster also highlighted DOST-assisted and supported technologies, services, and studies that emphasize how these interventions help enhance and extend the quality of life of aging individuals; S&T Human Resource Development cluster hosted notable outcomes of various programs and projects in sustainable development in the field of STEM education and the development of the country's pool of science professionals; Biodiversity and Sustainable Use of Biological Resources cluster also featured how the Community Empowerment through Science and Technology (CEST) program has contributed to poverty alleviation in the identified less-



privileged areas in Region 1. It also featured how the Small Enterprise Technology Upgrading Program (SETUP) aided in upgrading the operation of the micro, small, and medium enterprises (MSMEs) in order to attain sustainable economic growth;

Another cluster is the Equity and Growth in the Countryside. It featured R&D results from the Biodiversity Programs in agriculture, aquatic, and natural resources sectors that deal mainly with the conservation and sustainable use of the oceans, seas, and marine resources for sustainable development as well as protection, restoration, and promotion of sustainable use of terrestrial ecosystem and sustainable management of forest resources. The last cluster is the Resilience and Innovation which highlighted how the services and R&D projects of DOST agencies contributed to safer and resilient community.

Of S&T and economic growth

Introducing new ideas and technologies that combat existing issues on livelihood and health were among the thrusts of this year's RSTW. Its Technology Talk sessions, which were participated by a total of 579 micro, small, and medium enterprises (MSMEs), academes, health practitioners, and other sectors from the society presented the ideas on enhancing productivity on Goat Industry, Livestock and Poultry Industry, and in the Agriculture industry. It also introduced technologies that can be adopted to fight prevailing issues on Health and Wellness, and Waste Management.

Breaking the students' S&T cliché

Most of the students describe science and mathematics as boring and difficult. This students' cliché is contributing so much to the low engagement of youth with science, technology, and innovation in the country. Thus, another main battle of the RSTW is to attract engagement of youth to S&T by showcasing new technologies and teaching strategies for STEM education.

A total of 238 schools were able to experience these new strategies and technologies for teaching S&T. The 4- day celebration featured the Mobile Planetarium, robotics workshop and competition, Invent School Program Workshop, interactive exhibits, Pinnasiriban, a science and mathematics quiz bee participated by selected schools region-wide, and more fun and exciting activities that explain science and mathematics.

The RSTW is a weeklong, annual celebration that introduces and recognizes Research and Development (R&D) outputs. It also aims to increase awareness and market adaptable technologies and programs of DOST that are available and beneficial to its clients.



REGIONAL INVENTION CONTEST AND EXHIBITS

The 2019 Regional Invention Contest and Exhibits (RICE) took place on October 15-17, 2020 at Candon Civic Center, Candon City, Ilocos Sur. RICE aimed to (a) build a sound social atmosphere of advocating inventions and researches; (b) enhance creative and inventive efforts in the region; (c) encourage more participation in the invention contests; and (d) provide an intense selection process to ensure worthy regional winners cum national qualifiers in the 2020 National Invention Contest.

The recently celebrated RICE delighted the crowd of 7,610 people. This 3-day program aims to showcase inventions and researches from students and science enthusiasts all throughout



the region.

The theme "Science for the People: Inventions and Innovations for Sustainable Development" envisions the goal of the event. In pursuance to this, DOST 1 partnered with the Technology Application and Promotion Institute (DOST-TAPI) and the City Government of Candon to realize the program's purpose. As a result, a total of 115 contestants from the different high schools, universities, and other research institutions submitted their entries and partook on the different competition categories namely Outstanding Utility Model, Outstanding Industrial Design; LIKHA Award for the Most Outstanding Research and Development (R&D) of a technology and SIBOL Award for the Most Creative Research in High School and College Levels.

By statistics, Pangasinan has the highest number of participants with 46, followed by La Union with 33, then 23 and 13 from Ilocos Sur and Ilocos Norte respectively. The contest was participated by 3 State Universities and Colleges, 20 Public High Schools and 1 Private School and 2 Private Companies.

INVENT SCHOOL PROGRAM

As part of the Regional Invention Contest and Exhibits 2019, DOST-TAPI in partnership with DOST 1 stimulated innovativeness and ingenuity of 43 pupils and 12 teachers of 12 selected elementary schools of Ilocos Sur with the conduct of the Invent School Program (ISP) Seminar-Workshop at the ABC Hall, Candon City, Ilocos Sur – the first in the region for Elementary Level.

In the seminar-workshop, Ms. Anna Liza B. Saet, ISP Program Manager, emphasized the importance of developing critical and creative thinking of elementary pupils as their crazy ideas could be source of potential breakthroughs and innovations. She added that with the program, we could develop the passion and add up to the next generation of scientist and engineers of the country.

The ISP is originally offered to high schools and colleges in the past years creating awareness on intellectual property rights, prototype development, and commercialization of inventions among a few.

Participating schools in the activity include: Bagar Elementary School, Cubcubbuot Elementary School, Saint Cecilia Early Learning Center Inc., Santiago South Central School, St. Joseph's Institute Inc., Sta. Cruz Institute Inc., Paypayad Elementary School, Candon North Central School, Parioc East Elementary School, Candon South Central School, Ubbog Elementary School, and the Narvacan Catholic School.



ROBOTICS WORKSHOP

The Robotics Workshop and Competition during the RICE 2019 was held at Center for Culture and the Arts, Candon City, Ilocos Sur. This is a 3-day Basic Robotics Workshop ideally for Grades 7 to 10 in High School.

The workshop aimed to (a) cultivate innovation in Science and Technology, (b) inspire students' interest in Robotics Science, (c) Unlock abstract concepts in young Science, Technology, Engineering and Mathematics (STEM).

Data Science and Technology Corporation provided the robot kids for use during the camp, robotics training environment (i.e sumo ring, line tracing mat and others), games & learning mechanics, and also the trainers and facilitators. A mini competition





was held at the end for students to showcase the skills they have acquired from the workshop.

The Workshop developed in every student the value of "Team Work" – as they all learn and build a common hands-on project, they were able to strike harmony and achieve unity in trying to find a way to bring their varying ideas to work; "Good Communication Skills" – as they all strive to share their ideas to each other, they will develop the skills to get their message across more effectively.

Around 135 attendees were present during the workshop.

TECHNOLOGY FORUM

A. Fora on Techno Transfer Law

The conduct of the forum on the Techno Transfer Law was attended by a total of 63 participants consisting of students, non-government associations and faculty of different participating institutions in the region, which was intended to primarily understand the Joint DOST-IPOPHL, Administrative Order No. 001 amending the rules and regulations of the RA 10055 or also known as the "The Philippine Technology Transfer Act of 2009", an Act Providing the Framework and Support System for the Ownership, Management, Use and Commercialization of Intellectual Property Generated From Research And Development Funded By Government And For Other Purposes Which Are More Favorable, Mostly To Researchers and Faculties of SUCs and HEIs in the Region.

The resource speaker, Atty. Decena of TAPI highlighted in her talk the Intellectual Property Ownership, rights and responsibilities of GFAs and RDIs; RDIs performing R&D with their own budget; the responsibilities of the concerned National Government Agencies; commercialization by the Research and the establishment of spin-offs firms, the use of the government, compulsory licensing and assumptions of potential IPRs and lastly the use of Income and establishment and maintenance revolving fund of R&D and technology funds. These mainly focused on the security and safeguarding of the originality of new discoveries, invention or researches, prototyping and commercialization to mechanize the entire concept of the new invention or discovery.

B. Forum on Basic Research Proposal Presentation for STEM teachers

The forum is a training/workshop activity during the 2019 RICE, designed to equip the participants with the basic knowledge and skills in basic research preparation. At the end of the training, the participants should have an overview on research conceptualization, methods of research, and proposal preparation. The resource speaker was Ms. Annalie L. Rosales, Senior Science Research Specialist of DOST 1. A total of 68 participants attended the said forum.



INTERACTIVE EXHIBITS

The Philippine Science High School – Ilocos Region Campus facilitated the Interactive Exhibits of different Scientific Innovations and studies. The students from different educational institutions in Candon crowded the said exhibits by interactively participating on some of the activities held therein. Spectators and other guests also participated in some of the exhibited inventions presented in the displays.

SCIENCE AND TECHNOLOGY CARAVAN

S&T Caravan aimed at strengthening and enhancing awareness and appreciation of S&T programs, projects and activities and to forge stronger partnership and collaboration among stakeholders. It specifically aims to: raise awareness and appreciation on the programs and projects of DOST in the countryside and far-flung areas through the conduct of S&T exhibits and fora; create potential investment opportunities on matured technologies towards establishment of technology-based enterprises or adoption of technology components through livelihood trainings; come up with agreements and undertakings that will result in S&T project implementation; determine and provide possible technical assistance needed by the municipality; and establish the "City/Municipal Science and Technology Coordinating Council in the partner City/Municipality.



For CY 2019, seven (7) S&T Caravans were conducted in the region. The following table summarized the municipalities which hosted the caravans.

Activities	Municipality	Date	Accomplishments
Ilocos Norte	Pagudpud	April 26-27, 2019	<ul style="list-style-type: none"> Demonstration of the Bioteck M Kit 724 participants for the technology fora/tech talk 112 participants in the Forum on Waste Management
Ilocos Sur	Cervantes	November 19-21, 2019	<ul style="list-style-type: none"> 201 samples calibrated during the calibration caravan 201 clients served 5 technology investors' fora that was attended by 258 participants
La Union	Burgos	June 13-14, 2019	<ul style="list-style-type: none"> 187 visitors
	Bacnotan	December 2-4, 2019	<ul style="list-style-type: none"> 9 Technology Fora with 256 prospective technology adoptors 10 Technology Trainings with 283 prospective technology adoptors
	Naguilian	June 27-28, 2019	<ul style="list-style-type: none"> 654 samples calibrated valued at P183,240.00
Pangasinan	Bayambang	August 13-16, 2019	<ul style="list-style-type: none"> 9,325 visitors 9 Technology Trainings with 277 participants 475 participants attended the 6 Technology Fora 654 samples calibrated valued Php189,000.00 156 on-site application for Scholarship Application for 2019 PSHS-NCE and 2020 DOST-SEI Undergraduate Scholarship S&T Educational Activities (S&T Interactive Exhibits, Robotics and Workshop Competition, Mobile Planetarium, Film Viewing) Php 599,700.00 total value of assistance rendered
Pangasinan Satellite Office	Natividad	November 26-27	<ul style="list-style-type: none"> 122 samples calibrated during the calibration caravan 90 clients served Assistance rendered is valued at P34,880.00 Technology talk on Carrageenan PGP Robotics workshop and competition Mobile planetarium Science Centrum Interactive Exhibits Livelihood Training

HIGH IMPACT TECHNOLOGY SOLUTIONS

DISASTER RISK REDUCTION MANAGEMENT ACTIVITIES

The Department of Science and Technology assists DOST-PAGASA in the maintenance of the deployed Hydrometeorological Stations through the project: "Optimization of the Operational Capabilities of Hydromet Sensors with International Standards (WMO) for Effective Weather, Flood Warning (CBFEWS) and Application to Research (Optimization Project)". In line with the efforts of putting up a nationwide disaster mitigation system, in partnership with DOST ASTI and the DOST Regional Offices.

In Region 1, a total of 83 stations were deployed along the Agno River Basin and other smaller river basins as shown in the table.

PROVINCE	ARG	WLMS	TANDEM	AWS	Total
PANGASINAN	14	2	11	1	28
LA UNION	7	2	3	0	12
ILOCOS SUR	13	10	3	1	27
ILOCOS NORTE	8	4	3	1	16
Total Hydromet Stations	42	18	20	3	83

Community-Based Flood Early Warning stations (CBFEWS)

Deployment of Flood Early Warning Stations (FEWS) is one of the vital components of the project, deployed in the disaster-prone or flood-prone communities (or along the identified river basins) as a component of the Community-Based Flood Early Warning System (CBFEWS).

In CY 2019, DOST 1 managed to install additional five (5) warning stations, making the total number of installed FEWS to 22.

Province	Municipality/City	Location	Latitude	Longitude	Date Installed
ILOCOS NORTE	Dingras	Brgy. Foz, Sitio Uno	18.09571	120.71947	January 17, 2019
	Solsona	Brgy. Juan, Waiting Shed	18.11729	120.74318	January 17, 2019
	Vintar	Brgy. Parparoroc, Sitio Baldi	18.23021	120.66358	June 21, 2019
PANGASINAN	Bugallon	Brgy. Cabayaosan, Chapel	15.96354	120.23369	June 19, 2019
	Rosales	Brgy. Rizal, Brgy. Hall	15.91005	120.63311	June 20, 2019



Other Programs/Projects/Activities

Other activities for DRRM in CY 2019 were assistance to RDRRMC on pre- and post-disaster risk assessment, dissemination of IEC materials, and the conduct of Earthquake Drills.

a. Region 1 DRRM Council Active participation

DOST 1 participated in the DRRM Council Meetings, Evaluation for Gawad Kalasag, Pre-Disaster Risk Assessment meetings and activities, and crafting of DRRM plans for the Region. The DEWS project has been the banner program of DOST for Disaster Prevention and Mitigation.

b. Deployment of Information Systems

DOST 1 was able to promote the LGU Information Dissemination System (LGUIDS), an ICT-enabled Disaster Risk Reduction and Management (DRRM) system used in the dissemination of disaster-related updates, monitoring of data from ASTI-developed hydromet sensors. This was successfully deployed in the Municipal Disaster Risk Reduction Management Office (MDRRMO) of Solsona, Ilocos Norte.

c. Information and Education Campaigns

A total of 3, 040 copies of 13 kinds of IEC Materials (from DOST-PAGASA and DOST-PHIVOLCS) were distributed to the public during the S&T Caravans and to other requesting parties.

The Management Information Systems Unit in 2019



DOST 1 established and maintained the Management Information System Unit to provide support on the different IT related operations: 1) IT Equipment preventive maintenance; 2) Deployment of Information Systems; 3) Data Management and Security; and 4) Implementation of ICT Policies.

One vital function is data management for DOST 1's programs, projects and activities ensuring effective way of handling of data, provides integrity and security of information and can reduce the process cycle time of a particular operation.

To automate some processes and lessen turnaround time and increase productivity, DOST through its MIS Unit, developed and adopted seven (7) information systems and applications, making the total number of information systems maintained to 17.

- Procurement Monitoring
- Payroll Management System
- Personnel Management Information System: Attendance Monitoring Service
- RSTW Events Registration System
- Tech Support
- Events Registration for RICE
- Events Mission Control

This year, the Bureau of Customs (BOC) officially adopted the DOST 1 Document Tracking System (DTS) Agreement. The DTS, developed by Mr. Ryan Jan R. Borja, the lead Systems Developer, is an information system used in routing and tracking relevant incoming and outgoing documents.

Moreover, the Medium-Term Information and Communications Technology (MITHI) Program enabled DOST 1 to acquire replacement and new ICT equipment and software, and deploy two (2) MIS unit staff that helped improve and upgrade DOST 1's productivity tools and provided solutions for establishing servers to cater to the available information systems of the office.



The BOC was represented by Rodolfo Arzaga Jr., BOC Director for Planning and Systems Development Service (PSDS) while the DOST 1 was represented by the Regional Director, Dr. Armando Q. Ganal. Witnesses to the signing is Usec. Brenda L. Nazareth-Manzano, DOST Undersecretary for Regional Operations, Atty. Jasmin C. Bañez, DOST 1 Assistant Regional Director for Finance and Administration Services (ARD-FAS), and Mr. Michael John C. Maquiling, DOST 1 Science Research Specialist II and MIS Unit Head.



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In 2019, more than 800 accredited experts nationwide with 125 experts coming from Region 1 are searchable and active in the portal. More than 3,000 clients registered for assistance.

During the year, 1E improved the existing S&T consultancy programs and technical services under SETUP 2.0 Project 3 "Upgrading of Consultancy and Technical Services for MSMEs." New S&T consultancy programs and technical services were developed to address emerging requirements of MSMEs both in the local and international markets. Developers of 1E conducted capability training/orientation to new SETUP 2.0 staff, especially those assigned to administrate and operate the 1E portal.

The administrator of 1E performed the promotion and dissemination of the portal from different government agencies. Upgrading of the 1E portal and mobile apps operation and components were also improved. One of the new features of the 1E portal is the Free Online Webinars, wherein the registered clients can participate on various S&T topics of the 1E portal. Fifty-six new S&T experts with different expertise were registered in the portal to provide technical assistance and consultancy services to clients who would need their expertise throughout the country's regions.

One Expert (1E)

"A One-Stop Portal for Science and Technology Consultancy and Technical Services"

New portal design and features of OneExpert

Field Verification Testing of CARRAGEENAN Plant Food Supplement for Enhanced Growth and Induced Pest and Diseases Resistance in Rice in Region I



The Carrageenan Plant Growth Promoter (CPGP) Project was implemented by the Department of Science and Technology-Region 1 (DOST RO1) and Department of Agriculture (DA RFO1) in partnership with the Philippine Council for Agriculture Aquatic and Natural Resources Research and Development (PCAARRD) Philippine Nuclear Research and Institute (PNRI) and University of the Philippines at Los Baños National Crop Protection Center (UPLB-NCPC).

The CPGP was tested in twenty-six (26) municipalities, serving 6,000 farmer-cooperators covering a total area of 4,500 hectares for both wet and dry seasons. On-station trials were also conducted in Ilocos Norte Research and Experiment Center (INREC) and Pangasinan Research and Experiment Center (PREC) for wet and dry seasons. The benefits of CPGP include a sturdier stand of rice plants, increased numbers of tillers, increase in plant height, and increase in yield by 15-30%.

Among the activities of the project are:

- Farmer's Field day conducted on March 14, 2019, at DA-INREC, Barangay Cali, Dingras, Ilocos Norte attended by 170 farmers.
- Farmer's Harvest Festival held on May 2, 2019, at San Nicolas, Ilocos Norte participated by 168 farmers.
- Participation during the National Rice Technology Forum on March 20-22 at Asingan, Pangasinan attended by 4,500 farmers wherein Carrageenan PGP was tested to two (2) types of PhilScat Varieties (P9 and P12 varieties) with three (3) types of planting (direct seeding, manual transplanting and mechanized transplanting).
- Monitoring and data gathering on rice yield and other agronomic parameters in the various locations of the project in Ilocos Norte, Ilocos Sur, La Union and Pangasinan.
- Technology promotion during Technology Forum in various Science and Technology Caravans in Region 1.
- The conduct of post-assessments in Pangasinan and Ilocos Norte on December 3-6, 2019 and December 9-13, 2019, respectively.



The carrageenan Team (DA RO1 and DOST RO1) participated the 8th National Rice Technology Forum at Asingan, Pangasinan.



Awarding of certificate to the Speaker on the Technology Talk of Carrageenan Project (Mrs. Felicidad M. Gan) during the Caravan at Pagudpud, Ilocos Norte.

R&D CONSORTIA & INNOVATION CENTER

Ilocos Consortium for Industry, Energy and Emerging Technology Research and Development (ICIEERD)



MONITORING OF PROJECTS WITH PCIEERD MONITORS

3 projects were monitored in 2019. These include Design and Development of Processing Machineries for Honeybee and Intermediate Products, Sewing Machine For Softbroom and Other Materials/Commodities, Dual Purpose Grater (Cassava and Papaya).

STATUS OF ON-GOING RESEARCH PROJECTS

- Design and Development of Processing machineries for Honeybee and Intermediate Products
 - Institution: DMMMSU
 - Project Leader: Engr. Rowel Munar
 - Status/Accomplishments:
 - All processing machineries are 100% completed (Honey extractor, Solar Wax Melter, Pollen Trap, Honey dehumidifier, Honey Crystal Melter, Pollen dryer)
 - The project is extended from March 1 to December 31, 2019
- Development, Standardization, and Characterization Studies of Tupig, Bukayo, and Bibingka – Region 1 Native Delicacies
 - Institution: PSU
 - Project Leader: Ms. Veronica C. Austria
 - Status/Accomplishments:
 - One (1) unit oven was delivered in good condition (February 2019)
 - Preliminary study on baked tupig using the customized oven
 - Standardized formulation of bukayo
 - Samples of bukayo submitted to SGS for microbial analyses
 - Initial packaging prototype

RESEARCH PROPOSAL EVALUATION

- Cabanilla Hall, DMMMSU NLUC
- August 30

Nine research proposals participated in the Research Proposal Evaluation held last August 30, 2019 at the Cabanilla Hall, DMMMSU NLUC. Proponents of these researches come from Mariano Marcos State University and Don Mariano Marcos Memorial State University.

5TH INDUSTRY, ENERGY & EMERGING TECHNOLOGY R&D SYMPOSIUM

The 5th Industry, Energy and Emerging Technology R&D Symposium was held last October 22 to 23, 2020 at Saint Louis College, City of San Fernando, La Union with the theme, Vigorously Advancing Science, Technology, Innovation for Sustainable Development.

Out of twenty-eight research papers submitted and eleven research papers presented, Developing New Patterns and Designs for the Local Weaving Industry in Paoay, Ilocos Norte from MMMSU emerged as Best Paper – Professional Category.

For the Best Paper – Student Category, Elemixar: Mobile Application Simulator on Mixing Chemical Elements of the UCU won out of eight research papers submitted and 7 research papers presented.

MONITORING OF PROJECTS WITH PCIEERD MONITORS

- Trainer's Training on Research Proposal Preparation and Evaluation
 - Cabanilla Hall, Don Mariano Marcos Memorial State University – North La Union Campus
 - July 23-24
- Training-Workshop on Writing Research Proposal
 - Conference Hall/Cabanilla Hall, DMMMSU NLUC
 - August 29-30
- Training-Workshop on Transforming Research Outputs into Publishable Journal Article
 - PSU Lingayen Campus
 - October 7-8
- Training-Workshop on Transforming Research Outputs into Publishable Journal Article

OPERATIONS

- DMMMSU
- DOST 1
- DTI
- MMSU
- NWU
- PHILRICE
- LNU
- UNP
- ISPSC
- NEDA
- PSU
- LGU-CSF
- NLPSC
- CHED
- LGU - CSF

MONITORING OF PROJECTS WITH PCIEERD MONITORS

- The former ICIEERD Chair Benjamin P. Sapitula (2014-2019) and Director Paulina P. Nebrida (2000-2018) were awarded Plaque of Recognition for their exemplary accomplishment and unselfish efforts in rendering their service to the Ilocos Consortium for Industry, Energy and Emerging Technology Research and Development (ICIEERD).

Region 1 Health Research and Development Consortium (R1HRDC)



Region 1 Health Research and Development Consortium

For 2019, the consortium welcomed the North Luzon Philippine State College (NLPSC) as its newest member institution as of April 2019, thus, making a total of 29 member institutions of the Region 1 Health Research and Development Consortium (R1HRDC).

R1HRDC, through its Research Management Committee, reviewed a total of Eight (8) research proposals: six (6) of which came from the initially reviewed proposals last January 18 and 2 proposals which were on the second wave of oral presentation reflecting their compliance on the given comments and suggestions.

Also, a total of Five (5) institutions were visited by the consortium, as follows: 1) The Black Nazarene Hospital Inc.; 2) University of Northern Philippines; 3) Don Mariano Marcos Memorial State University; 4) Ilocos Training and Regional Medical Center; and 5) North Luzon Philippines State College.

Other activities conducted by the consortium are the following:

Activities	Date
Review and Evaluation of Research Proposals 1st Quarter RUC meeting	January 18, 2019
2019 Research Dissemination Forum with Applied CPD Units (Phase I)	January 26, 2019
2019 Research Dissemination Forum with Applied CPD Units (Phase II)	February 9, 2019
Oral Presentation, Review and Evaluation of Proposals	March 21, 2019
<ul style="list-style-type: none"> • Update of the Old R1HRDC Operations Manual • 1st Quarter ManCom Meeting • 1st Quarter CBC Meeting • 1st Quarter ERC Meeting 	April 4, 2019
RUC meeting	May 2, 2019
2019 Regional Research Conference	May 22, 2019
Training and Updates on the HERDIn+ (Health Research and Development Information Network), PHRR (Philippine Health Research Registry), and PMS (Project Management System)	July 2-3, 2019
<ul style="list-style-type: none"> • Operational Planning for CY 2020 • 2nd Quarter ManCom Meeting • 2nd Quarter RMC Meeting • 2nd Quarter CBC Meeting • 2nd Quarter ERC Meeting • 2nd Quarter RUC meeting 	July 12, 2019
Good Research Practice (GRP) Training	August 7-8, 2019
Participated in the annual 2019 Philippine National Health Research System (PNHRS) Week Celebration	August 13-16, 2019
Participated in the 2019 Regional Science and Technology Week (for Region 1)	September 17-20, 2019
Presentation and Dissemination of NUHRA and RUHRA	September 27, 2019
Workshop on Standard Operating Procedures	October 9-10, 2019
Training on Basic Research Methods	November 4-6 2019
Training/Workshop on Research Paper Critiquing	December 2-3, 2019
<ul style="list-style-type: none"> • Operational Planning for CY 2020 • 4th Quarter ManCom Meeting 	December 9-10, 2019

The consortium is constantly reaching its stakeholders on the internet by uploading articles, news, events, announcements and other important information on the official website of R1HRDC (<http://region1.healthresearch.ph/>) and Facebook account (<https://www.facebook.com/r1hrdc/>).

Ilocos Agriculture, Aquatic and Natural Resources Research and Development Consortium (ILAARRDEC)



The Ilocos Agriculture, Aquatic and Natural Resources Research and Development Consortium (ILAARRDEC) continuously serves as the regional hub in agriculture, aquatic, and natural resources (AANR) for resilient, creative, and innovative Ilocandia. It is mandated to coordinate, monitor, and evaluate the implementation of regional R&D activities; provide direction for consortium-led programs; and serve as the avenue for resource-sharing among R&D agencies for the development of AANR in the region.

In terms of R&D Management and Coordination, ILAARRDEC operates through a holistic approach. The Regional Research and Development Coordinating Council (RRDCC), the policy-making body of the consortium, together with the different technical working groups (TWGs), sets the tone through crafting of the yearly Work and Financial Plan (WFP). Planning/Programming of activities is being spearheaded by each TWG coordinator in coordination with the different consortium member institutions (CMIs) representatives. This is to ensure that activities to be undertaken will be properly executed.

For the year, a total of 14 DOST-PCAARRD funded R&D programs/projects were implemented by CMIs and continuously monitored and evaluated by ILAARRDEC through the Regional Research and Development Group (RRDG) and Regional Techno-transfer and Promotion Group (RTTG). Three (3) proposals were evaluated and reviewed by the consortium and endorsed to DOST-PCAARRD through DOST-1. The consortium also packaged two proposals which include the proposals on "Freshwater Fishery and Aquatic Resources R&D Project" and "Coffee and Cacao R&D in Region I".

Moreover, a total of 198 projects were presented and evaluated during the agency-in-house reviews of the CMIs. A total of 30 papers presented orally, 52 as poster and 11 for the thesis competition during the Regional Symposium on R&D Highlights (RSRDH). For 2019, a total of nine (9) commodity reviews were conducted. These include the following: a) Fruit Crops and Food Product Development, b) Cotton/Fiber, Legumes and Root Crops, c) Rice and Rice-based Farming System, and Tobacco, d) Forestry, Agroforestry, Environment, and Apiculture, e) Vegetables and Bulb Crops f) Fisheries, g) Technology Promotion and Extension Modalities, h) Other Cereals, Livestock and Forage, i) Sericulture with 124 papers presented.

The consortium operates through funding support and funds for proposal-based activities as well as on the resource sharing scheme among CMIs. This year, the consortium generated a total of PhP1,833,050.00 in support to the approved proposal-based consortium activities. In addition, a total of PhP2,259,639.00 were shared by the CMIs during their hosting of meetings and other activities.

Funds for the operation of the consortium and implementation of RDE activities came from various sources amounting to a total of PhP7,312,807.72. These were generated through DOST-PCAARRD, DOST-R1, DA-RFO1, ATI-RTC1, Annual CMI membership fund, and Cash awards.

In terms of linkages, the consortium together with the CMIs continued its partnership with various agencies/institutions and other stakeholders. From October 2018 to September 2019,

there was a total of 53 linkages, 44 existing and 9 as new.

For the Strategic R&D Activities, the consortium continuously implements the different R&D activities focusing on "pinakbet" vegetables and oyster mushroom; rice and corn; indigenous food plants; sea-cucumber, tuna, mangrove crab and other aquatic/fishery resources; goat, native chicken and forage crops; nipa as a mangrove species; fiber crops and sericulture; apiculture; legumes (peanut, cowpea, and mungbean); root crops (yam and sweet potato); bamboo; bulb crops and tropical fruit (mango and banana).

Of the implemented R&D programs and projects, 10 of these were coordinated/led by ILAARRDEC classified into: a) Research, 1 program with 4 projects; b) Pilot testing/field verification trials, 5; c) STCBF, 2; d) Facility upgrading in support to R&D, 1; e) Intellectual Property/Technology-based management, 1; and f) Technology Business Incubator (1).

For R&D Results Utilization, ILAARRDEC's mandate of ensuring research outputs to be transferred to and utilized by the target clients has been consistently realized through various extension activities and technology promotion modalities. Through the concerted efforts of PCAARRD, ILAARRDEC, and CMIs, various technology transfer and promotional activities were planned and implemented. These include the Farms and Industry Encounters through Science and Technology Agenda (FIESTA), conduct of School on-the Air Program and radio guesting, establishment of demonstration farms, field days, on-line and print publications, broadcast, and policy research recommendations.

Policies and guidelines formulated were translated into resolutions in support to the operation of the consortium. This year, a total of 15 resolutions were formulated during the quarterly RRDCC meetings, 11 during the RTTG, and 7 during the quarterly RKMG meetings.

On the other hand, the conduct of the FIESTA focusing on the Oyster Mushroom and Sea Cucumber highlighted the RDE initiatives of the two PCAARRD-funded projects conducted by DMMMSU and UNP. A total of 900 participants attended and participated to the different activities of the event such as a) Exhibit bazaar; b) Technology, students' and farmers' fora; c) technology matching; d) Luncheon media forum, e) Book launching - "Capturing Mushrooms in Bloom & Lives in Boom" – Narratives of Oyster Mushroom Growers.; and f) various student competitions such as creative dance showdown, pottery painting, and cookfest involving oyster mushroom and sea cucumber as the main ingredients.

Other promotional activities were spearheaded by the consortium to facilitate more effective technology transfer and promote RDE activities of the different ILAARRDEC-Coordinated projects. These include the conduct of the a) Conduct of school on-the air (SOA) program/radio guesting, b) Establishment of demonstration farms, c) Conduct of field days, d) Press releases, and e) Production of IEC materials for distribution to clientele.

Food Innovation Center

FIC

Development and Transfer of New Food Products/Processes

a. Technology Transfer of Developed Technologies

Four (4) developed technologies of the Food Innovation Center were adopted by 1 Food Corporation managed by Mr. Jorge M. Yulo of Bayambang, Pangasinan namely: Vacuum Fried Onion (sour cream flavor, adobo flavor, salted egg flavor & plain), Vacuum Fried Squash (sour cream flavor, cheese flavor & plain), Vacuum Fried Okra (sour cream flavor & plain) and tomato salsa. 1 Food Corporation packaged these products with the brand name "Okrantz".



Development and Transfer of New Food Products/Processes

1Food Corporation adopted the following FIC developed Technologies namely: Vacuum Fried Onion, Vacuum Fried Squash, Vacuum Fried Okra and Tomato Salsa.

A Technology Licensing Agreement between the PSU-DOST I FIC and 1Food Corporation for the four (4) technologies was inked on August 2, 2019 with a licensing fee amounting to Php114, 318.00. Eight (8) employees of the corporation were trained to operate the vacuum fryer and were taught on the process protocols in the production of vacuum fried onion, squash, okra, and tomato salsa. Technology incubation followed for 1Food Corporation to produce market samples. The four products are now available in the different stores and restaurants in Bayambang, Pangasinan in the last quarter of 2019.



b. Development of New Products

Vacuum Fried Prototype: Preliminary study and pilot scale production were conducted on the production of vacuum fried fresh water mussel (beldat) and vacuum fried pleurotus (oyster) mushroom, respectively.

Water Retort: There were two (2) products developed using the water retort technology namely: Rice cake (Tupig) in retortable pouches and bottled Binagoongang bangus. Rice cake (tupig) in retortable pouches was further subjected to microbial and chemical analysis. Perfecting the packaging was the hurdle part of the process in making tupig. Binagoongang bangus on the other hand was subjected to pilot scale testing and commercial sterility test using the recommended processing time and temperature. The study showed that processed binagoongang bangus is commercially sterile.

Electrical Cabinet Dryer: Preliminary studies were conducted on cabinet dried fish (tilapia and hito) jerky and tamarind-mango roll.

Intellectual Property Protection

Six (6) prototypes were developed which include vacuum fried oyster mushroom & crispy squash, water retort bottled milkfish & fermented shrimp sauce, tomato salsa with herbs and sauteed chili & pure patis mixture. These were also filed for Intellectual Property Protection (Utility Model) last February, 2019.

Publication

One (1) article was published in the Food Research Journal, a Scopus Indexed journal entitled "Playing with the Senses: Application of Box-Behnken Design to Optimize the Bukayo Formulation", December, 2019.

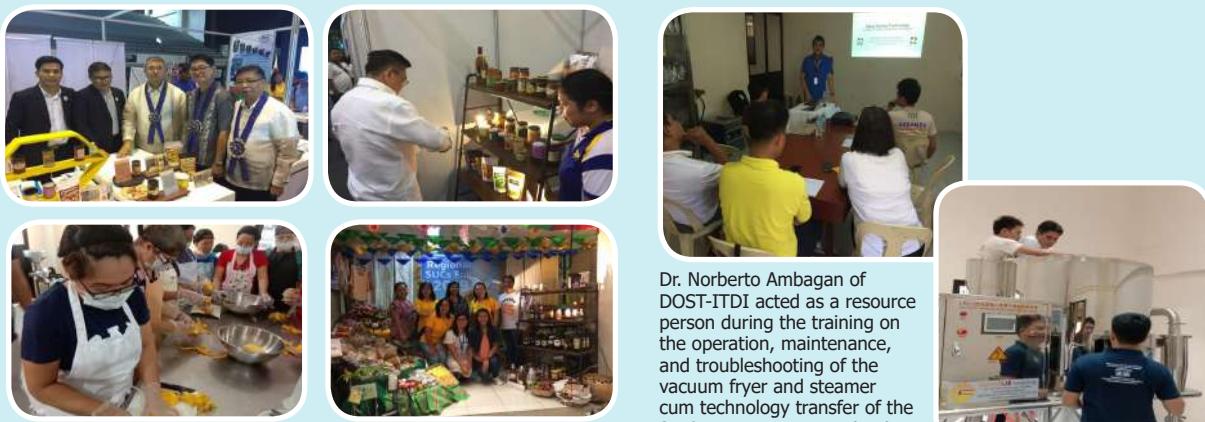
Package of Technology to Licensing Agreement

There were four (4) prototypes with package of technology (POT) developed and were transferred with Technology Licensing Agreements

(TLAs) namely vacuum fried squash, onion, okra, and tomato salsa. However, from the 250 food concepts generated, there were only eight (8) prototypes developed and six (6) IPs filed. The minimal number of prototypes developed could be attributed to the lack of personnel in the FIC. There are only one (1) full time researcher Career Incentive Program (CIP) of DOST-SEI, and three (3) researchers with teaching load and one (1) with administrative function. The opening of BS Food Technology this SY 2020-2021 implies recruitment of experts in food science particularly in Chemistry and Microbiology to man the food laboratory which will contribute to the increase in the number of products developed and IP-registered. As part of the sustainability of the FIC, the group of researchers shall inspire young budding researchers to undertake food innovation research, product development and attend to trainings and conferences.

Advocacy, Promotion and Technical Services to food industry

The PSU-DOST 1 Food Innovation Center actively participated in various promotional activities and rendered technical services namely: S&T Caravans and Exhibits, Technology Fora, Conferences, trainings and benchmarking activities of other FICs, universities and food industries. There are 117 clients served during trainings and promotional activities plus 32 walk-in clients in the FIC amounting to a total of 149 clients served.



Some of the various advocacies, promotional and technical services rendered by the Food Innovation Center (FIC)

Dr. Norberto Ambagan of DOST-ITDI acted as a resource person during the training on the operation, maintenance, and troubleshooting of the vacuum fryer and steamer cum technology transfer of the food innovation center (FIC) developed technologies: vacuum fried okra, squash, onion and tomato salsa

Human Resource Management

The FIC staff and budding researchers were trained and involved in a training/seminar workshop as trainor/speaker or participant. There were six (6) trainings attended, one of which was co-sponsored by PSU where the staff of FIC was invited as evaluator of proposals. These trainings include Ethics Training, Training on Spray Dryer Operation and Troubleshooting, Mega Training on Proposal Writing, Shared Facility Forum, Techno-preneurship, and Seminar Workshop on Journal Writing.

The team worked closely together to achieve the goals of the FIC. The team continued to sustain their research capabilities by attending seminars and workshops. However, only two (2) personnel can operate all of the equipment, one is a Job Order and the other is just recently absorbed in the University. PSU, the host institution, should consider the FIC permanent position to our Job Order and also consider adding personnel to FIC. For machine operations upgrading, two (2) were trained as spray dryer operators, one (1) from FIC and another from PSU Sta Maria campus (Table 6).

The PSU-DOST 1 Food Innovation Center has established seventeen (17) linkages from various government entities, Local Government Units (LGUs), State Universities and Colleges (SUCs) and private institutions (Table 7).

There are 16 agencies where FIC have established linkages through exchange of information and ideas, source of raw materials, contract of research, funding agencies, interested adopter of prototypes, mentors and other activities that FIC may have dealt with. Thirteen (13) of these are government agencies and four (4) are private agencies or corporations. There are 8 agencies which we have maintained our linkages from the past year and nine (9) new linkages for this year, for a total of 17 agencies. There are three (3) visiting experts who trained the researchers for the spray dryer operation and troubleshooting. However, there was no staff who tried to be deployed to other FICs.

The center generated income and outsourced fund amounting to Php168,470.00 and Php 2,138,600.00, respectively from the use of facilities and equipment, technical services; technology transfer and licensing; referral; contract research and development; technology training; and market samples.

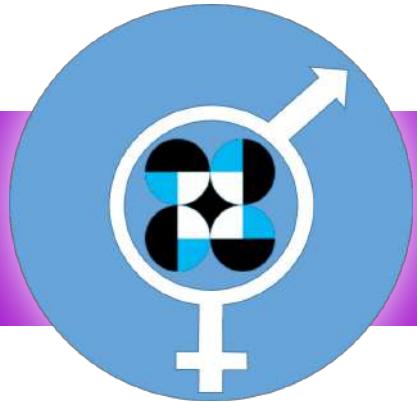
Awards Received

The researchers of the PSU-DOST 1 Food Innovation Center - Bayambang Campus bagged five (5) awards during the 2019 Regional Invention Contest and Exhibits (RICE) held at Candon City, Ilocos Sur.



PSU Pres. Dexter R. Buted, DOST 1 Regional Director Armando Q. Ganal, PD Felicidad M. Gan of PSTC-Pangasinan, PSU Researchers (Dr. Raquel C. Pambid, Dr. Wilma M. De Vera, Dr. Veronica C. Austria) and RICE Board of Judges during the awarding of the Regional Invention Contest & Exhibits on October at Candon City, Ilocos Sur.

Gender and Development Program



Standing firm towards achieving gender-responsive DOST 1

The Department of Science and Technology Region 1 (DOST 1) Gender and Development (GAD) program recognizes the role of both men and women in nation-building, ensures the fundamental equality before the law of women and men, and emphasizes gender sensitivity.

Through Republic Act No. 9710 or more known as the Magna Carta of Women (MCW), and the General Appropriations Act (GAA), all government departments, including their attached agencies, offices, bureaus, state universities and colleges (SUCs), government-owned and controlled corporations (GOCCs), local government units (LGUs) and other government instrumentalities shall formulate their annual GAD Plans and Budgets (GPBs) and GAD Accomplishment Reports within the context of their mandates to mainstream gender perspectives in their policies, programs, and projects.

DOST I is persistent in implementing projects/programs/activities equipped towards sustaining gender-awareness and gender mainstreaming for both internal and external clientele.

In pursuant to Section 36 of RA. 9710 and PCWMC No. 2011-01, the Reconstitution of the GAD Focal Point System (GFPS), DOST I has the following GFPS Members and the respective PSC alternates:

DOST 1 GFPS



6

Male



5

Female



DOST 1 participated in the 2019 Women's Month Celebration with the theme, "WE Make Change Work for Women!" as mandated by the Republic Act 6469 and spearheaded by the Philippine Commission on Women. The celebration ensures that man and woman will be partners in the pursuit of the country's economic, social, cultural and political developments.

GFPS organized and DOST I staff participated in the following activities:

PSTC staff as Alternate in the GFPS



2

Male



3

Female

- Basic Fondant Making
- Lecture-demo on First Aid and Awareness on Prostate and Cervical Problems
- Training on Personal Empowerment
- Blood Donating activity
- RAGE Talks
- DOST-wide 2019 National Women's Month



Basic Fondant Making was the kick-off session of DOST I for the celebration of Women's Month conducted last March 27, 2019 at Liga ng mga Barangay Hall, City of San Fernando, La Union. Mr. Valentino Imperial Baanan, owner of Valentino's Cake Boutique and a SETUP Cooperator, served as the trainer during the activity. As part of the activity, staff were given a chance to try decorating the cake.

A Lecture-demo on First Aid and Awareness on Prostate and Cervical Problems were conducted to raise awareness on what they should do in case an emergency arises and be more cautious on the activities they are doing that may affect their private parts. Ms. Kharinne R. Sison, Registered Nurse and Project Staff of the RxBox 1000, served as Resource Speaker during the activities.



Department of Science and Technology Region 1
joins the chairman of the

18-Day Campaign to End Violence Against Women (VAW)

25 November to 12 December 2019



(Gender and Development Transformation and Institutionalization through Mainstreaming of Programs, Agenda, Linkages and Advocacies)

Regional Gender and Development Committee (RGADC), created by the Regional Development Committee as one of its support committee, approved DOST 1's membership during the 4th Quarter Regular Meeting of the committee.

RGADC recommends policies for adoption of the RDC to facilitate gender mainstreaming and promote women empowerment through effective coordination of GAD mainstreaming efforts in localizing the implementation of national laws, policies and programs within the region.

NEW SECTION/BORDER:

In support of the 18-day campaign to end violence against women (VAW), as observed annually from November 25 – December 12, DOST I have partaken in the campaign spearheaded by RAGE. Various activities like Youth Forum on Violence against Women (VAW) was conducted on December 4, 2017. DOSTR 1 was also a part of the technical working group in the Cine Juana Digital Shorts Competition (Video Making Contest) to raise awareness on VAW as a public issue.

With the theme "VAW-free community starts with me", the campaign made people understand what VAW is and aspire that such profound understanding would kindle compassion from stakeholders not to commit, condone or remain silent about VAW.

Aiming to fully capacitate the GAD Focal Point members, DOST-wide GAD Office organized various activities such as:

- Leveling Session on Basic GAD Concepts, Gender Analysis, and GAD Planning and Budgeting for the Potential Members of the DOST Speaker's Bureau at DOST-MIRDC, Bicutan, Taguig City on November 27-29, 2019.
- GAD Focal Point Assembly held at Puerto Princesa City, Palawan on November 5-7, 2019.
- Training-Workshop in Gender Analysis at Vigan city, Ilocos Sur on August 28-29, 2019.
- The Philippine Commission on Women has recognized the Department of Science and Technology as one of the leading national government agencies that exhibited notable efforts in pursuing gender equality and women's empowerment within the organization and among its clientele.

Other GAD activities participated by GFPS members:

1. Training on Gender Statistics conducted by Regional Development Council in partnership with Philippine Statistics Authority at NEDA 1 on October 8-11, 2019.
2. Leveling Session on Basic Gender and Development (GAD) Concepts, Gender Analysis (GA) Tools, and GAD Planning and Budgeting for Regional Gender and Development Committee (RGADC) at DMMMSU-MLUC on July 29-30, 2019.



DOST GAD FOCAL POINT ASSEMBLY 2019

November 5-7, 2019

Best Western Plus The Ivywall Hotel, Puerto Princesa City, Palawan



In photos were the GAD Focal Point members from Regions I, III, IV-A, IV-B and V together with Ms. Maria Fe Singon of DOST-wide GAD Office, GAD Consultant Lorena Yunque of PCW-NGRP and DOST-1 Regional Director Armando Ganal.

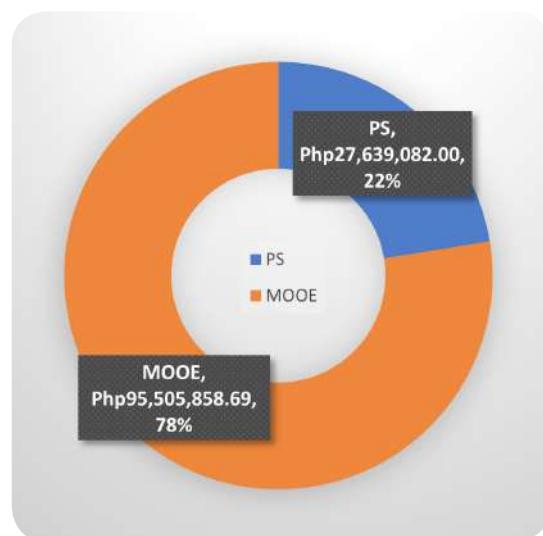
FINANCIAL AND HUMAN RESOURCES MANAGEMENT

Financial Resources

For this year, DOST-I operated within its budget amounting to Php183,285,480.57 broken into:

- Php123,144,940.69 from General Appropriations
- Php60,140,539.88 from other resources.

For the General Appropriations, twenty-seven percent (22%) amounting to Php27,639,082.00 went to Personal Services (PS) while seventy-one percent (78%) (Php95,505,858.69) went to Maintenance and Other Operating Expenses (MOOE).



BREAKDOWN - OTHER SOURCES:

Other Resources	Amount
CARRAGEENAN	Php 878,803.34
ICIEERD	Php 1,140,000.00
SCHOLARSHIP	Php 57,719,736.54
2019 RSTW	Php 200,000.00
2019 RICE	Php 172,000.00
2019 ISP	Php 30,000.00



Human Resources

DOST Region I had a total manpower complement of 81 staff during the year, comprising of 29 permanent and 38 Contract of Service and 14 Job Order personnel, distributed in the Technical Services Division and the Administrative Services Division.

There are 57 personnel working under the Technical Services Division, and 1 complementing the ARD for Technical Operations, 13 in the Provincial S&T Centers, 2 in the Regional Standards and Testing Laboratory, and 4 in Regional Operations. An additional 37 Contract of Service and Job Order staff were hired to support the various services of the Division.

The Administrative Services Division, headed by the ARD for Finance and Administrative Services, is complemented by 6 personnel with 4 Contract of Service and Job Order employees distributed to provide accounting, budget, cash, supply and general services.

The Regional Director has an Administrative Assistant to provide support to general office operations.

According to educational attainment, 64.02% of the staff are college degree holders. There are 24.14% MS graduates and 10.34% PhD holders. One (1) employee is undergraduate.

By age bracket, 6.9% of the staff are already above 60 years old, 31.03% are in the 51-60 years bracket, 10.35% are in the 41-50 years bracket, 31.03% are in the 31-40 years bracket and 20.69% are 30 years old and below.

The competency and capability of the staff to deliver the S&T services of DOST I were continuously improved through training. The table below indicates the list of training the staff has attended this year.



Trainings Attended of Staff of DOST I in 2019

Name & Staff Position	Training Attended	Date	Venue
OFFICE OF THE REGIONAL DIRECTOR			
ARMANDO Q. GANAL Regional Director	Balik Scientist Congress	November 22, 2019	Meeting Rooms 2 and 3, Philippine International Convention Center
	Future Earth Program Summit	November 25, 2019	Hotel Jen, Pasay City
	ICIEERD Regional Symposium	October 22-23, 2019	Saint Louis College, City of San Fernando, La Union
	Symposium on Future Earth Philippines Program	October 28, 2019	Lotus Farm, San Juan, La Union
	NRCP Basic R&D Caravan	September 11-12, 2019	North Luzon Philippines State College, Candon City
	Inclusive Innovation Conference 2019	September 23, 2019	Philippine International Convention Center, Pasay City
	2019 Innovation Summit Brasil	August 12-14, 2019	Centro de Eventos Governador Luiz Da Silveria, Florianopolis, Brazil
	NAST Annual Scientific Meeting	June 10-11, 2019	Shangri-La Hotel, Mandaluyong City
	PCAARRD Anniversary	June 19, 2019	Philippine International Convention Center, Pasay City
	Individual- Country Observational Study Misison and Workshop on Productivity Measurement in SMEs	June 24-27, 2019	Petaling Jaya, Malaysia
	IP Roadshow Ilocos League	May 22, 2019	Hotel Salcedo De Vigan, Vigan City, Ilocos Sur
	Multi- Sectoral Forum on Plastic Water	May 24, 2019	Meeting Room 6, Philippine International Convention Center
	National R&D Conference	April 3, 2019	Reception Hall, PICC, Pasay City
	Technology Transfer Day	April 4, 2019	Reception Hall, PICC, Pasay City
	Luzon Scientific Meeting	April 22-25, 2019	Don Leopoldo Sison Convention Center, Alaminos, Pangasinan
ANGEL LYN V. ORTIZ Administrative Assistant III	Uong- Balat Fiesta	March 13, 2019	University of Northern Philippines, Vigan City, Ilocos Sur
	Ros Meet Tech Gens	February 4, 2019	Crimson Hotel, Alabang, Muntinlupa City
	CES Leadership Conclave	February 7, 2019	Diamond, Ballroom Hotel, Pasay City
GINEE R. TACASA Project Assistant I	Levelling Session on Gender and Development (GAD) Concepts, Gender Analysis Tools, GAD Planning and Budgeting for RGADC- 1	July 29-31, 2019	Azalea Hotels and Residences, Baguio City
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
MAUREEN HEIDI L. PEREZ Project Assistant I	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Annual review and Planning Workshop of the RIACAT- CP- VAWC	December 6, 2019	City of San Fernando, La Union
	Youth Fourm on VAW	December 4, 2019	DMMMSU- MLUC, Catbangen, City of San Fernando, La Union
	Levelling Session on Gender and Development (GAD) Concepts, Gender Analysis Tools, GAD Planning and Budgeting for the Potential Members of the DOST Speaker's Bureau (batch 2)	November 27-29, 2019	DOST Central Office, Bicutan, Taguig City
	2019 GAD Focal Point Assembly	November 5-7, 2019	DOST Central Office, Bicutan, Taguig City
	Training on Gender Statistics	October 8-11, 2019	NEDA Regional Office 1, Aguila Road, City of San Fernando, La Union
	2019 NRCP Regional Basic Research Caravan (Nurturing Regional R & D Niches)	September 11-12, 2019	NLSPSC, Darapidap Road, Candon City, Ilocos Sur
	Gender Analysis Training	August 28- 29, 2019	Vigan City, Ilocos Sur
	Levelling session on Gender and Development Concepts, Gender Analysis Tools, and GAD Planning and Budgeting for RGADC	July 29-31, 2019	DMMMSU- MLUC, Catbangen, City of San Fernando, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Prime HRM Level II CSC Regional Office I	May 29- 31, 2019	CSC Regional Office 1, City of San Fernando, La Union
	Livelihood Training, Prostate and Cervical Problems Awareness and Personal Empowerment	March 27-28, 2019	City of San Fernando, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union

JARA G. ACOON Science Research Analyst	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Echo- Seminar on the Competency Training on Halal Cosmetics	July 16, 2019	ITDI, DOST Compound, Gen. Santos Ave. Bicutan, Taguig City
	2nd Philipine National Halal Conference	July 2-3, 2019	Quest Plus Conference Center, Clark, Pampanga
	National Academy of Science and Technology- Luzon Regional Scientific Meeting	April 24-25, 2019	Don Leopoldo Sison Convention Center, Alaminos, Pangasinan
	National Academy of Science and Technology Symposium for the Youth- Lecture Series	April 23, 2019	Alaminos City Gymnasium, Alaminos City, Pangasinan
	2019 Women's Month Celebration- Rage Talk	March 22, 2019	DMMMSU- MLUC, Catbangen, City of San Fernando, La Union
	Effective S&T Communication Training Workshop	February 14-15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
TECHNICAL SERVICES DIVISION			
ISMAEL D. GURTIZA ARD for Field Operations	Information Drive on the Ammended DOST Intellectual Property (IP)- Related Policies (North Luzon Cluster)	November 26-27, 2019	Citylight Hotel, Baguio City
	Freedom of Information (FOI) Compliance Consultation and Workshop	November 12, 2019	Chali Beach Resort and Conference Centre, Cugman, Cagayan De Oro City
	Future Earth Philippines Program Seminar Workshop on Knowledge to Action Programs for Sustainability and Resilience	October 28, 2019	Lotus Valley Farm, San Juan, La Union
	Setting Up a Fabrication Laboratory	March 7, 2019	Platinum Auditorium, MIRDC Compound, Bicutan, Taguig City
ADELISA C. FLORENDO Science Research Specialist II	Statistics for Project Monitoring and Evaluation	February 15, 2019	Philippine Statistical Research and Training Institute Commonwealth Ave. Diliman, Quezon City
	Effective S&T Communication Training Workshop	Febuary 4-8, 2019	AVR, DOST I, City of San Fernando, La Union
	Supervisory Development Course (SDC) Track I	February 14-15, 2019	CSC Regional Office I City of San Fernando, La Union
JORDAN L. ABAD Science Research Analyst	Future Earth Philippines Program Seminar Workshop on Knowledge to Action Programs for Sustainability and Resilience	October 28, 2019	Lotus Valley Farm, San Juan, La Union
	2019 NRCP Regional Basic Research Caravan (Nurturing Regional R & D Niches)	September 12, 2019	Audio Visual Room, North Luzon Philippines State College, Candon City, Ilocos Sur
SHERYL ANN E. BALMADRES Project Assistant III	Training on Technical Writing for Project Monitors and Evaluators	November 5-7, 2019	Newtown Plaza Hotel, Baguio City
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 5, 2019	AVR, DOST I, City of San Fernando, La Union
JAMES D. PREPOSE Project Assistant II	Formal Launch and Workshop for DOST Infosertilis	March 28-29, 2019	Bayview Park Hotel, Manila
	Consultative Workshop on Latest Content and Developments in Starbooks	May 9-10, 2019	Golden Prince Hotel and Suites, Cebu City
	Training Workshop on Effective S&T Communication for the People	February 14, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	2019 STARBOOKS Convention on Content Development and Management	October 23- 24, 2019	MO2 Westown Hotel and Convention Center, Iloilo City
	PLAI National Congress 2019 and General Assembly. Inclusive, Innovative, Interconnected	November 19-22, 2019	Tagaytay International Convention Center, Tagaytay City
	8th STARBOOKS Deployment Officer's Workshop: Pre- Planning for STARBOOKS Regional Convention and Capability Enhancement on Events Management	November 26-27, 2019	A&A Plaza Hotel, Puerto Princesa City, Palawan
JOHN OLIVER E. DE VERA Project Assistant II	2nd National Coffee Education Congress	December 3-5, 2019	Lotus Valley Farm, San Juan, La Union
	2019 NRCP Regional Basic Research Caravan (Nurturing Regional R & D Niches)	October 28, 2019	AVR, NLSPC, Candon City, Ilocos Sur
	Values Orientation Workshop	September 11-12, 2019	AVR, DOST I, City of San Fernando, La Union
	Forum on Introduction to Packaging Product- Package Interaction , FDA Mandatory Requirements on Packaging and Labelling, Application for E-LTO of Food establishments, and DOST I RSTL Services	June 19-20, 2019	AVR, DOST I, City of San Fernando, La Union
	Effective S&T Communication Training Workshop	March 21, 2019	AVR, DOST I, City of San Fernando, La Union
	Effective S&T Communication Training Workshop	February 15, 2019	AVR, DOST I, City of San Fernando, La Union

KATRINA F. RONQUILLO Project Assistant II	Forum on Introduction to Packaging Product- Package Interaction , FDA Mandatory Requirements on Packaging and Labelling, Application for E-LTO of Food establishments, and DOST I RSTL Services	May 21- 24, 2019	AVR, DOST I, City of San Fernando, La Union
	Basic Statistics: Descriptive Statistics	May 21- 24, 2019	National Economic Development Authority- RO1, City of San Fernando, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	AVR, DOST I, City of San Fernando, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union8
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	AVR, DOST I, City of San Fernando, La Union
	Training on Technical Writing for Project Monitors and Evaluators	November 5-7, 2019	Newtown Plaza Hotel, Baguio City
	Regional MSMED Council MSME Learning Session	December 5, 2019	Hotel Ariana Restaurant, Paringao, Bauang, La Union
VENUS P. ANDAYA Science Research Specialist I	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
JAYCE M. ANDRES Project Assistant III	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
CRISTY D. CALCALIGONG Project Assistant I	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
CYNTHIA ANN R. GADIANO Project Assistant II	Training Workshop on Effective S&T Communication for the People	February 15, 2019	AVR, DOST I, City of San Fernando, La Union
	Orientation on Office Policies, Quality Management System (QMS) and Basic GAD Concept	September 30, 2019	S&T Learning Resource Center, DOST Regional Office I, City of San Fernando, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
SUNSHINE C. GAERLAN Project Assistant II	Orientation on Office Policies, Quality Management System	September 30, 2019	S&T Learning Resource Center, DOST Regional Office I, City of San Fernando, La Union
JUSTIN N. MADRID Project Assistant II	Orientation on Office Policies, Quality Management System (QMS) and Basic GAD Concept	September 30, 2019	S&T Learning Resource Center, DOST Regional Office I, City of San Fernando, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
CARLA GRACE R. PACHECO Project Assistant II	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
SHARMAINE M. PATACSI Science Research Analyst	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
FINANCE AND ADMINISTRATIVE SERVICES DIVISION			
JASMIN C. BAÑEZ ARD for Finance and Admiiistrative Services	Training on 2017 Rules on Administrative Cases in the Civil Service [RACCS] Civil Service Commission	May 16-17, 2019	Juan Luna Hall, CSC Regional Office I City of San Fernando, La Union
ZOSIMO C. GALVEZ Administrative Officer V	Linking Financial Resilience and Good Governance	October 23-26, 2019	Limketkai Drive, Cagayan de Oro City
NIDA P. CLAVERON Administrative Officer V	Preparation of the Project Procurement management Plan (PPMP) and the Annual Procurement Plan (APP): Concepts, Principles, and Techniques	August 1-2, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	February 13-15, 2019	Hotel Kimberly, Malate, Manila
ARCELI R. PIMENTEL Administrative Officer V	Supervisory Development Course (SDC) Track 1	March 5-8, 2019	CSC Regional Office 1, Juan Luna Hall, CSC RO1 Training Center, City of San Fernando, La Union
	Supervisory Development Course (SDC) Track 2 & 3	May 20- 24, 2019	CSC Regional Office 1, Juan Luna Hall, CSC RO1 Training Center, City of San Fernando, La Union
MANILYN L .AGRA Accountant III	Budget Forum on the Release of Funds for FY 2020 and National Budget Call for FY 2021	January 22, 2020	Hotel Ariana Restaurant, Paringao, Bauang, La Union
	Public Financial Management Competency Program- Foundation Track Training	August 22- 24, 2019	Mariano Marcos State University Hostel City of Batac, Ilocos Norte

	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
HIALEH M. GALVEZ Project Assistant III	Public Financial Management Competency Program- Foundation Track Training	August 22-24, 2019	Mariano Marcos State University Hostel City of Batac, Ilocos Norte
	Seminar on Financial Management	October 25, 2019	Bamboo, Training Center, Tarlac Agricultural University, Camiling, Tarlac
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
ENRIQUE G. FERNANDEZ, JR. Project Assistant III	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	PRIME- HRM Level II	May 29-31, 2019	Juan Luna Hall, CSC Regional Office I City of San Fernando, La Union
MARY ANN C. BELEN Clerk II	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Preparation of the Project Procurement management Plan (PPMP) and the Annual Procurement Plan (APP): Concepts, Principles, and Techniques	February 13-15, 2019	Hotel Kimberly, Malate, Manila
JOHN LOUIE A. DALAO Clerk II	Seminar- Workshop on Records Counter Disaster Preparedness and Business Continuity	September 24-26, 2019	The Citystate Asturias Hotel, Puerto Princesa, Palawan
	Effective Written Communication Skills Training (EWCST)	August 29- 30, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Operator's Day	June 28, 2019	La Salette School, Dagupan City, Pangasinan
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training on Effective and Efficient Customer Service	April 23- 24, 2019	City Travel Hotel, Baguio city
REGIONAL STANDARD AND TESTING LABORATORY			
ANITA A. CRISTE Supervising Science Research Specialist / Head, RSLT	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	Conference Room, DOST Regional Office 1, DMMMSU- MLUC, Catbangen, San Fernando City, La Union
	Introduction to Risk Management and its Audit Perspective	September 9-11, 2019	UP Technohub, Quezon City, Philippines
DECTH 1180 P. LIBUNAO Science Research Specialist II	Seminar/ Orientation on FDA & LGU Inspection and Auditing	April 10-11, 2019	DOST- Calabarzon, Pasay City, Metro Manila
	Supervisory Development Course (SDC) Track 2 & 3	September 9-13, 2019	CSC Regional Office I City of San Fernando, La Union
	Supervisory Development Course (SDC) Track 1	June 4-7, 2019	CSC Regional Office I City of San Fernando, La Union
	Hazard Analysis Critical Control Point (HACCP) Training Course	July 30-August 1, 2019	SGS Academy, Makati City
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	Conference Room, DOST Regional Office 1, DMMMSU- MLUC, Catbangen, San Fernando City, La Union
	IDEXX Colilert 18-Rapid Coliform and E. Coli Test for Water (Quantificatyon Format)	September 26- 27, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
ANNALIE L. ROSALES Senior Science Research Specialist	Scientific Career System Orientation & Research Colloquium in Region 1	November 28, 2019	University of Northern Philippines, Vigan City, Ilocos Sur
	Training Workshop on Sensory Evaluation with Applied Statistics for the DOST Research and Development Institute	September 16-19, 2019	FNRI Building, DOST Compound, Bicutan, Taguig City
	Training Title: Introductory Evaluation of Coffee Flavors	May 20, 2019	UCC Coffee Academy Philippines
	2nd International Food Research Conference 2019	August 27-29, 2019	The Everly Hotel, Putrajaya, Malaysia
	Training- Workshop on the Application of Design of Experiments (DoE) in Product and Process Development for the DOST Research and Development Institutes and Regional Offices' product Developers	July 29- August 2, 2019	FNRI Building, DOST Compound, Bicutan, Taguig City
	58th PAFT Annual Convention: Future Food Equipping FT Professionals with Safe, Nutritious and Sustainable Food Solutions	July 10-12, 2019	Crowne Plaza Manila Galleria, Ortigas Center, Quezon City
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union

	ASTHRDP Graduate Scholars Conference Year 8	May 2-3, 2019	PICC, Pasay City, Manila, Philippines
	National Research and Development Conference 2019	April 3, 2019	PICC, Pasay City, Manila, Philippines
BLESSIE T. JIMENO Senior Science Research Specialist	Post- graduate Course on Fundamentals of Biosafety and Biosecurity	November 27-29, 2019	Hotel Ariana Restaurant, Paringao, Bauang, La Union
	Microbiological Laboratory Analyst Training	November 5-8, 2019	DOST Calabarzon
	3M Petrifilm Salmonella Express System Hands- On Training	October 3-5, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	IDEXX Colilert 18-Rapid Coliform and E. Coli Test for Water (Quantification Format)	September 26-27, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training on Occupational First Aid and Basic Life Support	August 1-2, 2019	Sea and Sky Hotel and Restaurant, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training of Trainers on the Updated Nutrition Monitoring and Evaluation Protocol (MELLPI Pro)	March 6-7, 2019	Marand Resort and Spa, Baccuit Sur, Bauang, La Union
LENA C. ROSARIO Science Research Specialist II	Chemical Laboratory Analyst Training	November 25- 27, 2019	Internek Testing Services Phils. Inc., Makati City
	3rd National Conference of Chemical Laboratories	October 16-17, 2019	Century Park Hotel, Manila
	In- house Maintenance and Troubleshooting of Equipment DOST I AVR	May 7, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Basic Pollution Control Officers 40 Hrs Training Course (DENR- EMB- Cor No. 2018-16-R)	July 15-19, 2019	PCAPI Training Rm. Cityland Pioneer, Mandaluyong City
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Sensory Evaluation Training 6 Hr Sensory Discrimination Training and 16 Hr Sensory Descriptive Training	March 12- April 11, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Analysis of Arsenic in Food by Hydride Vapor Generation- Atomic Absorption Spectrophotometric Method	March 28- 29, 2019	Conference Room, Standards and Testing Division, ITDI, DOST, Bicutan, Taguig City
HERO D. GALAMGAM Science Research Specialist II	Webinar and Technology Channel (WATCH) Series No. 68 "Traditional and Alternative Methods for Pathogen Testing	December 6, 2019	DOST Calabarzon
	Webinar and Technology Channel (WATCH) Series No. 65 3M Innovation Story	December 6, 2019	DOST Calabarzon
	Webinar and Technology Channel (WATCH) Series No. 66 An Overview on How to Properly Select PPEs (Head, Eye, Face, Respiratory, and Hearing)	December 6, 2019	DOST Calabarzon
	Eulims Training for CRO, Analyst and Cashier	December 3, 2019	Metrology Conference Room, DOST Compound, Bicutan, Taguig City
	Microbiological Laboratory Analyst Training	November 5-8, 2019	DOST Calabarzon
	3M Petrifilm Salmonella Express System Hands- On Training	October 3-5, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	IDEXX Colilert 18-Rapid Coliform and E. Coli Test for Water (Quantification Format)	September 26-27, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
CYRILLE ANN B. MANALON Science Research Specialist I	Webinar and Technology Channel (WATCH) Series No. 68 "Traditional and Alternative Methods for Pathogen Testing	December 6, 2019	DOST Calabarzon
	Webinar and Technology Channel (WATCH) Series No. 65 3M Innovation Story	December 6, 2019	DOST Calabarzon
	Future Earth Philippines Program Seminar Workshop on Knowledge to Action Programs for Sustainability and Resilience	October 28, 2019	Lotus Valley Farm, San Juan, La Union
	26th Food Safety Course	October 21-25, 2019	Tropicana Suites Residence Hotel, Malate, Manila
	3M Petrifilm Salmonella Express System Hands- On Training	October 3-5, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	2019 NRCP Regional Basic Research Caravan (Nurturing Regional R & D Niches)	September 11-12, 2019	AVR, North Luzon Philippines State College, Candon City, Ilocos Sur
	OneLab Seminar 2019: Workplace Safety & Food Pathogen"	August 14-15, 2019	ADMATEL, DOST Cmpd. Gen. Santos Ave. Bicutan, Taguig City

PAUL STANLEY C. RAMOS Science Research Specialist I	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	IDEXX Colilert 18-Rapid Coliform and E. Coli Test for Water (Quantification Format)	September 26- 27, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Livelihood Training, Prostate and Cervical Problems Awareness and Personal Empowerment	March 27-28, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Sensory Evaluation Training 6 Hr Sensory Discrimination Training and 16 Hr Sensory Descriptive Training	March 12- April 11, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	RNA Extraction and BIOTEK-M Dengue Aqua Kit Proficiency Training	February 22, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Eulims Training for CRO, Analyst and Cashier	December 2-3, 2019	DOST ITDI, Bicutan, Taguig City, Metro Manila
EULYNNE C. EUGENIO Science Research Specialist I	Python in Data Science	September 30- October 4, 2019	Standards and Testing Division, DOST Compound, Bicutan, Taguig City, Metro Manila
	Introduction on ITDI ePayment System for OneLab	August 23, 2019	Acacia Hotel Manila
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Understanding, Knowledge, and Awareness of ISO 17025:2017	April 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Livelihood Training, Prostate and Cervical Problems Awareness and Personal Empowerment	March 27-28, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
JUSTINE PAUL V. MARTIN Science Research Specialist I	Sensory Evaluation Training 6 Hr Sensory Discrimination Training and 16 Hr Sensory Descriptive Training	March 12- April 11, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Effective S&T Communication Training Workshop	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	Conference Room, DOST Regional Office 1, DMMMSU- MLUC, Catbangen, San Fernando City, La Union
	Training Workshop on Measurement Uncertainty for Chemical Testing	August 22-23, 2019	3/F Training Room, FNRI Bldg. DOST Compound, Gen. Santos Ave. Bicutan, Taguig City
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Basic Pollution Control Officers 40 Hrs Training Course (DENR- EMB- Cor No. 2018-16-R)	December 2-6, 2019	Crown Legacy Hotel, Baguio City
	Training Workshop on Measurement Uncertainty for Chemical Testing	August 22-23, 2019	3/F Training Room, FNRI Bldg. DOST Compound, Gen. Santos Ave. Bicutan, Taguig City
IAN JASPER R. AMPELOQUIO Science Research Analyst	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	August 1-2, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Sensory Evaluation Training 6 Hr Sensory Discrimination Training and 16 Hr Sensory Descriptive Training	March 12- April 11, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Understanding, Knowledge, and Awareness of ISO 17025:2017	April 15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	In-house Training on Chemical Methods of Analysis in Food and Water Samples and Basic Requirements in establishing Quality Analytical Results	January 9-18, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Fundamentals of Biosafety and Biosecurity	January 9-18, 2019	Hotel Ariana Restaurant, Paringao, Bauang, La Union
	Risk Management, IQA, and Effective Corrective Actions based on PNS ISO/ IEC 17025:2017	January 9-18, 2019	Conference Room, DOST Regional Office 1, DMMMSU- MLUC, Catbangen, San Fernando City, La Union
	Sensory Evaluation Training 6 Hr Sensory Discrimination Training and 16 Hr Sensory Descriptive Training	January 9-18, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	January 9-18, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Understanding, Knowledge, and Awareness of ISO 17025:2017	January 9-18, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	In-house Training on Chemical Methods of Analysis in Food and Water Samples and Basic Requirements in establishing Quality Analytical Results	January 9-18, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union

MANAGEMENT INFORMATION SYSTEMS UNIT

MICHAEL JOHN C. MAQUILING Science Research Specialist II	Intensive Vulnerability Assessment and Penetration Testing (VAPT) Workshop	December 2-5, 2019	ADMATEL, DOST Cmpd. Gen. Santos Ave. Bicutan, Taguig City
	8th STARBOOKS Deployment Officer's Workshop: Pre- Planning for STARBOOKS Regional Convention and Capability Enhancement on Events Management	November 26-27, 2019	A&A Plaza Hotel, Puerto Princesa City, Palawan
	Writeshop for the Development of Public Service Continuity Plan (PSCP) of the Agencies of the DOST	October 15, 2019	PHILVOCS Auditorium, DOST Philvoxs, UP Diliman, Quezon City
	National Disaster Resilience Summit: On the Road to Resilience- A Whole of Society Approach	July 30-31, 2019	Novotel Manila Araneta Center, Cubao, Quezon City, NDRRMC
	Supervisory Development Course (SDC) Track I	April 24-25, 2019	CSC Regional Office I Juan Luna Hall, CSCROI Training Center City of San Fernando, La Union
	Luzon Regional Scientific Meeting	April 24-25, 2019	Don Leopoldo Sison Convention Center, Alaminos, Pangasinan
	RDRRMOC1 Standard Operating Procedure Guidelines Review	April 11-12, 2019	Ariana Hotel, Paringao, Bauang, La Union
	Effective S&T Communication Training Workshop	February 14-15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
RYAN JAN R. BORJA Science Research Specialist I	Web Application Penetration Testing Training	August 19-23, 2019	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Effective S&T Communication Training Workshop	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
RAYMOND ARDEE F. SORIANO Computer Maintenance Technologist I	Intensive Vulnerability Assessment and Penetration Testing (VAPT) Workshop	Values Orientation Workshop	ADMATEL, DOST Cmpd. Gen. Santos Ave. Bicutan, Taguig City
	Networking Essentials	Values Orientation Workshop	DICT Valenzuela, Metro Manila
	Linux System Administration (102) Training	Values Orientation Workshop	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Linux System Administration (101) Training	Values Orientation Workshop	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Effective Written Communication Skills Training (EWCST)	Values Orientation Workshop	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Breach Response and Cyber Security Workshop	Values Orientation Workshop	Yisrael Solutions and Training Center Inc. One San Miguel Ave. Building, Pasig City
GRANT KIM P. CASTILLONES Computer Operator II	Networking Essentials	October 21- 25, 2019	DICT Valenzuela, Metro Manila
	Linux System Administration (102) Training	October 14-18, 2019	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Linux System Administration (101) Training	September 30- October 4, 2019	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Effective Written Communication Skills Training (EWCST)	August 29- 30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Breach Response and Cyber Security Workshop	August 7-9, 2019	Yisrael Solutions and Training Center Inc. One San Miguel Ave. Building, Pasig City
	GAKKEN (Phils) Inc. Operator's Day	June 28, 2019	La Salette School, Dagupan City, Pangasinan
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
BRIAN B. ANGYANG Computer Programmer I	Web Application Penetration Testing Training	August 19-23, 2019	Vidal Tan Hall, University of the Philippines Diliman, Quezon City
	Effective S&T Communication Training Workshop	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training on Occupational First Aid and Basic Life Support	August 1-2, 2019	Sea and Sky Hotel and Restaurant, San Fernando City, La Union
PROVINCIAL S&T CENTER - LA UNION			
RACQUEL M. ESPIRITU Provincial S&T Director - La Union	Regional MSMED Council Planning Workshop	December 6, 2019	Hotel Ariana Restaurant, Paringao, Bauang, La Union
	Inclusive Innovation Conference 2019	September 23, 2019	Sofitel Philippine Plaza, Manila
	Grassroots Innovation for Inclusive Development (GRIND) Launching and Forum	July 20, 2019	Shangri- La, Pasay City, Philippines
	2019 DOST Planning Officers Mid- Year Conference	June 26-27, 2019	Development Academy of the Philippines Convention Center, Tagaytay City
	IP Roadshow Ilocos League	May 22, 2019	Hotel Salcedo De Vigan, Vigan City, Ilocos Sur
	Qualified Person in Industry Regulatory Affairs	March 6-7, 2019	Food and Drug Administration Alabang, Muntinlupa City

	Statistics for Project Monitoring and Evaluation	February 4-8, 2019	Commonwelath Ave. Diliman, Quezon City Philippine Statistical Research and Training Institute
	Seminar/ Orientation on FDA & LGU Inspection and Auditing	April 10-11, 2019	DOST- Calabarzon, Pasay City, Metro Manila
EDISON M. ACOSTA Science Research Specialist II	Supervisory Development Course (SDC) Track 2-3	August 1-2, 2019	Hotel Ariana Restaurant, Paringao, Bauang, La Union
	Supervisory Development Course (SDC) Track 1	June 4-7, 2019	Civil Service Commission Regional Office 1, Juan Luna Hall, CSCRO1 Training Center
BERNADINE P. SUNIEGA Science Research Specialist I	Supervisory Development Course (SDC) Track 1	June 4-7, 2019	CSC Regional Office 1, Juan Luna Hall, CSC RO1 Training Center, City of San Fernando, La Union
	Values Orientation Workshop	May 20- 24, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
MARLON R. ORPILLA Science Research Specialist II	Orientation Seminar Workshop on Pressure, Temperature, and Linear Metrology	September 26, 2019	PSTC- La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
RAYMOND P. ESPE Science Research Analyst	Calibration of Test Weights	February 7, 2019	PSTC- La Union
	Calibration of Test Measures (Calibrating bucket)	February 6, 2019	PSTC- La Union
	Calibration/ Verification of Weighing Scales and Balances	February 5, 2019	PSTC- La Union
	Introduction to Mass Metrology	February 5, 2019	PSTC- La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Orientation Seminar Workshop on Pressure, Temperature, and Linear Metrology	September 26, 2019	PSTC- La Union
	Calibration of Truck Scale with Uncertainty of Measurement Computation	December 9-12, 2019	NMD ITDI, Gen. Santos Ave. Bicutan, Taguig City
ERWIN A. PADUA Project Assistant II	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
PRINCESS P. ABUAN Project Assistant II	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
HEISABOY T. TUBAANG Project Assistant II	Future Earth Philippines Program Seminar Workshop on Knowledge to Action Programs for Sustainability and Resilience	October 28, 2019	Lotus Valley Farm, San Juan, La Union
	Orientation on Office Policies, Quality Management System (QMS) and Basic GAD Concept	September 30, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
JOHN BENEDICT C. MARASIGAN Science Aide	Future Earth Philippine Program Seminar-Workshop to Action Programs for Sustainability and Resilience	October 28, 2019	Lotus Valley Farm, San Juan, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Environmental Management System: Basic Environmental Laws	July 10, 2019	Mapua University, Manila, Philippines
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 14-15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
PROVINCIAL S&T CENTER - PANGASINAN			
ALEXANDER A. APOSTOL Science Research Specialist II	Basic Geographic Information System (GIS) Training	October 2-4, 2019	Pangasinan State University, Lingayen, Pangasinan
	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
BERNALYN P. MARTINEZ Project Assistant II	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
EDWARD E. UGALÉ Project Assistant I	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
PANGASINAN SATELLITE OFFICE			
ARNOLD C. SANTOS OIC/Science Research Specialist II	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Supervisory Development Course (SDC) Track 2 & 3	May 21- 25, 2019	Civil Service Commission Regional Office 1, Juan Luna Hall, CSCRO1 Training Center
	SGS-CBE Hazard Analysis Critical Control Point (HACCP) Training Course	July 30- August 1, 2019	SGS Academy, Makati City

	Advanced Leadership and Management Course	December 6, 2019	Balai Carmela, Carig, Tuguegarao City
JENNIFER C. FENANDEZ Science Research Specialist II	Values Orientation Workshop	May 29-31, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
ANGELYN B. CIMATU Project Assistant II	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
GLENN VERGEL T. DE GUZMAN Project Assistant I	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union

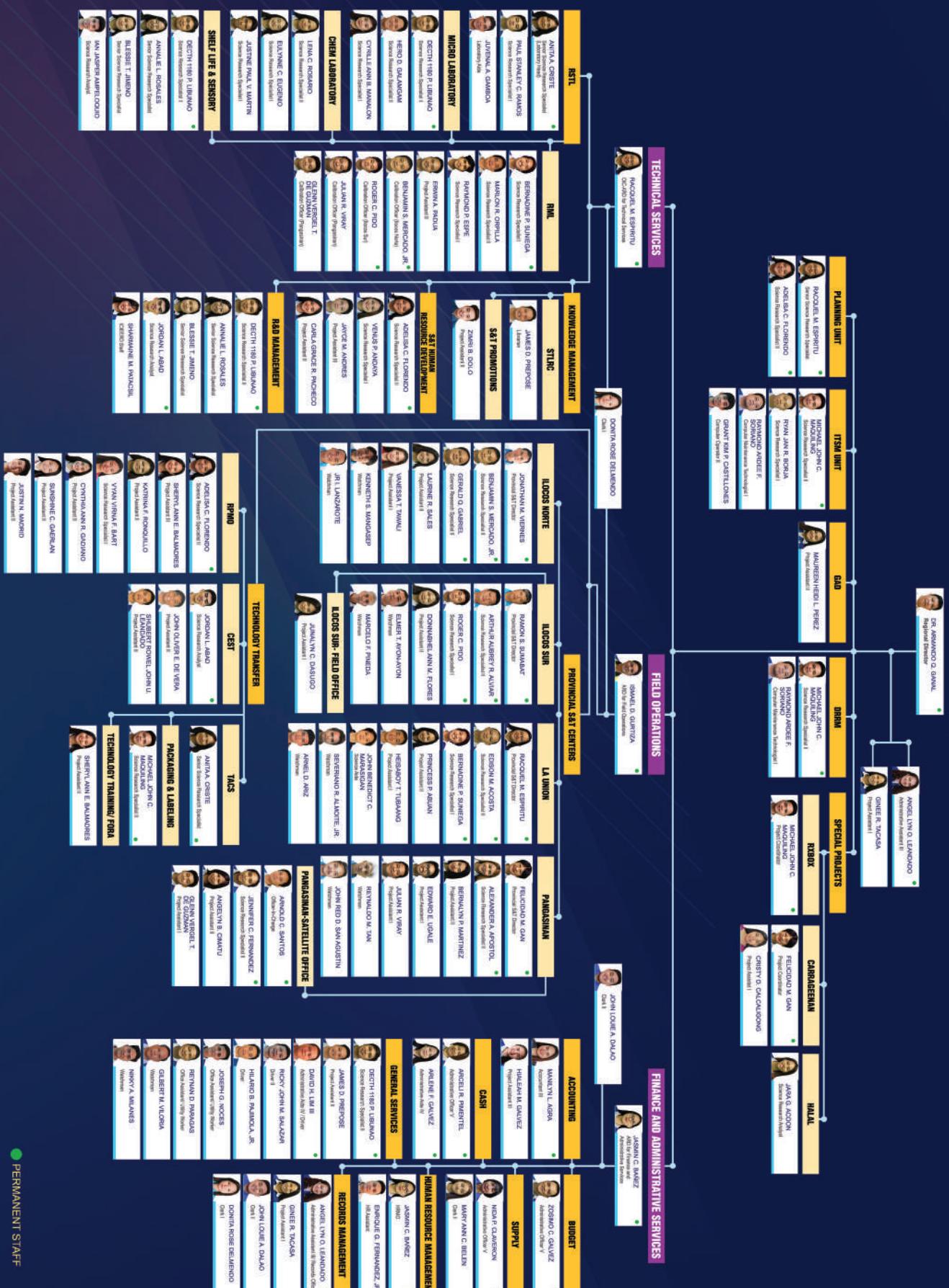
PROVINCIAL S&T CENTER - ILOCOS NORTE

JONATHAN M. VIERNES Provincial S&T Director - Ilocos Norte	Training Course for Managers and Supervisors in the Public Sector (5Ps)	January 4-8, 2019	BSA Twin Towers, Mandaluyong City
	Hazard Analysis Critical Control Point (HACCP) Training Course	July 30- August 1, 2019	SGS Academy, Makati City
	Seminar - Orientation on FDA & LGU Inspection and Auditing	April 10-11, 2019	Hotel Jen Manila, Roxas Boulevard, Pasay City, Metro Manila
	Training Workshop on Effective S&T Communication for the People	February 14-15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
BENJAMIN S. MERCADO, JR. Science Research Specialist II	Supervisory Development Course (SDC) Track I	June 4-7, 2019	CSC Regional Office I Juan Luna Hall, CSCRO1 City of San Fernando, La Union
	Training- Workshop on Water Analysis and Characterization Study (WACS) for LGUs in Ilocos Norte	October 10, 2019	Vybe Hotel, Laoag City, Ilocos Norte
GERALD Q. GABRIEL Science Research Specialist II	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Supervisory Development Course (SDC) Track I	June 4-7, 2019	CSC Regional Office I City of San Fernando, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
LAURINE R. SALES Project Assistant II	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Forum on Introduction to Packaging Product- Package Interaction, FDA Mandatory Requirements on Packaging & Labelling, Application for e-LTO of Food Establishments, and DOST- I RSTL Services	March 21, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Training- Workshop on Water Analysis and Characterization Study (WACS) for LGUs in Ilocos Norte	October 8-10, 2019	Vybe Hotel, Laoag City, Ilocos Norte
VANESSA T. TAWALI Project Assistant I	Training Workshop on Effective S&T Communication for the People	February 15, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Values Orientation Workshop	June 19-20, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union
	Effective Written Communication Skills Training (EWCST)	August 29-30, 2019	DOST- Regional Office 1, DMMMSU MLUC, San Fernando City, La Union

PROVINCIAL S&T CENTER - ILOCOS SUR

ROGER C. PIDO Science Research Specialist I	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
DONNABEL ANN M. FLORES Project Assistant II	Values Orientation Workshop	June 19-20, 2019	DOST Region I, DMMMSU MLUC, San Fernando City, La Union
JUNALYN C. DASUGO Project Assistant II	Training on Efficient and Effective Customer Service	April 23- 24, 2019	City Travel Hotel, Baguio city
	Values Orientation Workshop	June 19-20, 2019	Values Orientation Workshop

DOST-I ORGANIZATIONAL CHART



Directory of DOST-1 Officials



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Officer-in-charge



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