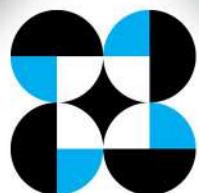


ANNUAL REPORT 2018

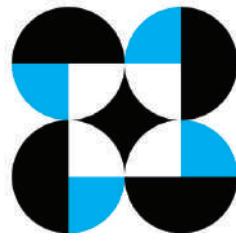


DEPARTMENT OF
SCIENCE AND TECHNOLOGY
REGIONAL OFFICE I

Quality Policy

We are committed to provide products and services to both the government and private sectors in Region I with the highest standards of quality and reliability within our capabilities and resources according to customer and all applicable regulatory and statutory requirements and to continually improve the effectiveness of our QMS at all times in order to meet customer satisfaction.





DEPARTMENT OF
SCIENCE AND TECHNOLOGY

REGIONAL OFFICE I

ANNUAL
REPORT
2018

FOREWORD



As 2018 came to an end, the Department of Science and Technology (DOST) Region 1 has successfully landed into higher heights in performing its commitments to its public and private clients. It created more milestones for economic growth and community empowerment through Science, Technology, and Innovations - reaching even the smallest group of communities settled in the far flung communities of the Ilocos Region.

During the year, DOST 1 strengthened its leadership in S&T-based innovations and services. Its programs, projects, services, and activities were concentrated to the empowerment of micro, small, and medium enterprises, empowerment of the less-privileged communities, disaster risk reduction and mitigation, S&T services such as packaging and labeling, technical assistance and consultancies, technology trainings, laboratory testing and calibration services to different sectors, and support to food and metals innovation hubs. It is also continuously engaging society through S&T scholarships, promotion of available and appropriate technologies for adaptation at the grassroots level through S&T Caravans, media partnership, and more. Developing new products, providing for good health, nutrition and sanitation, as well as securing clean water are among its other focus.

May this annual report serve as the window for everyone to see the wider view of ongoing undertakings and progress on Science, Technology and Innovation (STI) in Region 1. Insufficiency of financial and human resources may have hindered us from accomplishing more than what is written, but we believe that quality services have been delivered with equity to all our clients.

The DOST 1 success for this year is wholeheartedly dedicated to all its partner institutions both public and private that contributed a lot in the accomplishment of this year's targets. It is our prayer that we continue a stronger partnership for 2019 and beyond. Our joint efforts, despite adversities will surely contribute in the promotion of STI culture, and will eventually contribute for a holistically developed and dynamic Region 1.


ARMANDO Q. GANAL
Regional Director



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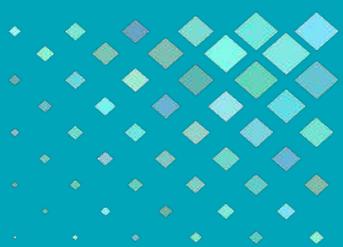
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EXECUTIVE SUMMARY

2018 has been a fruitful year for the Department of Science and Technology- Region 1 as it continued to excel in performing its mandates to the public. The successful implementation of DOST-I's programs and activities for the year is attributed to the hard work of the men and women of the organization and full support of the DOST top management, and all private and public institutions that continued to extend their support in order to instill the culture of science, technology, and innovation among the people. The efforts were supported with continuous improvement in work places, learning capacities and culture, and innovative financial management.

I. ENHANCING CUSTOMER SATISFACTION

Regional R&D Agenda & Technology Promotion

In order to achieve rapid and dynamic economic growth in Region 1 through science and technology, the DOST I is actively participating in the 3 R&D Consortia in the region, namely, ICIEERD, R1HRDC, and ILAARRDEC.

As mandated, the 3 R&D Consortia continued their effort to generate new ideas to provide solutions to problems and enhance performance and productivity of their respective sectors in the society. From the 2017 generated resources of Php1,194,986 to Php2,496,028 in 2018, ICIEERD was able to evaluate 8 new proposals, completed 2 researches, generated 16 capsule proposals for the food sector, and patented 63 technologies ready for promotion and adoption. ILAARRDEC on the other hand, evaluated a total of 135 R&D projects along the AANR Sector during the Regional Symposium on R&D highlights. The R1HRDC has now ensured quality services as its Ethics Review Committee achieves Level 1 accreditation by Philippine Health Research Ethics Board (PHREB). It also welcomed four new member institutions.

Support to MSMEs and Start-Ups

In line with the administration's 10-point socio-economic agenda, a total of 126 science and technology interventions were provided to 40 MSMEs thru the Small Enterprise Technology Upgrading Program (SETUP), enabling them to significantly improve productivity and competitiveness contributing a leap in gross sales reaching to more than P103M, and generating employment for 126 individuals.

S&T interventions to the less-privileged communities in Alilem and Sugpon in Ilocos Sur continued through the Community Empowerment Thru Science and Technology (CEST) program. The interventions were along the sectors of livelihood, health and nutrition, disaster risk reduction, water and sanitation, and basic education. With full support and commitment of the local government units, seven (7) economic enterprises were established from the

four (4) associations that were organized. Thirty-nine (39) kids improved their nutritional status through complementary food feeding. Forty-five (45) households benefitted from accessible portable water, and teaching tools for math and science were provided to schools. It also installed automated weather station and provided communication system for quick disaster response, and trained 84 DRRM focal persons, students, barangay officials, security officers, BNS, and other public servants from the municipality of Sugpon and Alilem for disaster preparedness and resiliency. This year's new challenge is the launching of another project in Ilocos Norte in partnership with the Mariano Marcos State University (MMSU) and LGU- Dumalneg.

Innovation Hubs

The DOST continued to provided assistance to the food innovation centers located in Pangasinan State University-Bayambang Campus and Mariano Marcos State University in Batac, Ilocos Norte. A total of 15 prototypes were produced out of 250 food concepts and will undergo standardization and further testing.

Disaster Risk Reduction and Mitigation

DOST 1 efforts likewise responded to the needs of times to improve the integrity of the environment and climate change adaptation and mitigation. This year, 83 Hydrometeorological Stations were deployed along the minor river basins and the Agno River Basin, while 15 community-based Flood Early Warning Stations were also installed in selected areas in the Region. These initiatives serve to enhance data gathering for the LGUs to easily monitor flood capability in their respective areas.

Science and Technology Services

S&T services such as testing and calibration, product labeling and packaging, technical assistance and consultancy services, technology clinic/fora were given to 2,886 business firms which maintained their process efficiencies and business competitiveness.

Moreover, a total of 7,689 testing for microbiological and chemical analyses were conducted at the Regional Standards and Testing Laboratory to determine food quality and water potability, and in managing wastewater generated in the business operation of MSMEs and the local

government units.

Calibration services also ensured the accuracy of measurement of 13,492 volume and mass measuring devices through the Regional Metrology Laboratory and the Satellite Metrology Labs based at the PSTCs.

A total of 43 MSMEs were provided with 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.

potability and in managing wastewater among the MSMEs and the local government units.

Science and Technology Scholarships

The government's commitment to enhance the country's S&T human resources is reflected in S&T Scholarship programs provided to deserving students. This year, the 2018 Undergraduate Scholarship Examination had a total of 379 qualifiers- 244 qualified for the RA7687 and 135 qualified for the Merit Scholarship Program. Further, the 2018 Junior Level Science Scholarship (JLSS) had a total of 946 qualifiers who are enrolled in accredited SUCs and HEIs.

Science and Technology Promotion and Advocacy

DOST 1's programs and services were also brought to the grassroots through the quad media. It published 205 press releases, conducted the 2018 Regional S&T Week celebration and 12 S&T Caravans, and participated in the National S&T Week celebration. A total of 24 press conferences and interviews were held with media institutions in order to raise awareness about DOST programs and services to the public.

It also promoted a total of 210 readily available and adoptable technologies under food and nutrition, crafts and furniture, agriculture, aquatic and natural resources, and more from the different DOST RDIs, NGAs, SUCs, and private institutions.

II. CONTINUOUS IMPROVEMENT OF WORK PROCESSES

Information Systems

The continuous use of Information Systems enhances operational efficiency for the organization. Human Resource Management Information System (HRMIS), Unified Laboratory Information Management System (ULIMS), Electronic National Government Accounting System (ENGAS), Electronic Budget Reporting System (eBudget), IMPRESSION, and STARBOOKS are just some of the IS adopted by DOST 1.

DOST also maintains its Website, Facebook Page, and group chat messaging thru the Messenger app, which enables faster communication among the staff.

Sustain QMS and other recognitions/accreditation

DOST 1 finally obtained its Certification for Quality Management System thru ISO 9001:2015. The Regional Standards and Testing Laboratory also maintained its ISO 17025 accreditations with PAB, accreditation as regional lab for drinking and food from DOH and FDA, respectively, and recognition as regional laboratory for wastewater from the DENR-EMB.

Good Governance

DOST 1 complied with the requirements in the implementation of Gender and Development, Freedom of Information, Senior Citizens Law, and Citizens Charter or Anti-Red Tape Act.

III. LEARNING CAPACITIES AND CULTURE FOR ORGANIZATIONAL TRANSFORMATION

Enhance personnel capacities and performance management system

DOST 1 programs, products, and services were delivered through its human resources composed of 70 personnel- comprising of 29 permanent and 41 Contract of Services and Job Order Personnel. This year, DOST 1 bagged a Very Satisfactory rating based from the Performance Commitment, and Review.

Personnel capacities and responsiveness were also enhanced. A total of 112 trainings were attended by 30 personnel in 2018.

Partnerships with other Institutions

DOST 1 linkages and networks among SUCs, LGUs, HEIs, and NGAs were also tightened through the implementation of S&T- based projects such as SETUP, CEST, technical assistance and consultancy services, STARBOOKS, and conduct of S&T Caravans.

IV. JUDICIOUS MANAGEMENT OF FISCAL RESOURCESES

DOST 1's operation was supported with financial resources amounting to Php184,014,850.00. The Seventy-seven percent (77%) of the total amount was generated externally.



TECHNOLOGY TRANSFER and COMMERCIALIZATION



SMALL ENTERPRISES TECHNOLOGY UPGRADING PROGRAM

The Small Enterprise Technology Upgrading Program (SETUP) is the banner program of DOST designed to upgrade the productivity of micro, small and medium enterprises (MSMEs) through technology innovations.

In 2018, DOST 1 focused its assistance to 40 MSMEs and 21 community-based organization in five (5) priority sectors: 27 in food processing, 13 in metals and engineering, 6 in furniture, 5 in agriculture, 6 in gifts, decors and handicrafts, and 4 in other regional priority sectors.

The interventions included upgrading of production equipment and facilities, product label design and packaging execution, technical assistance and consultancy services on energy use and efficiency, cleaner production, and food safety, product testing and standardization of weighing and measuring instruments, and manpower training such as good manufacturing practices cum food safety, productivity and quality, occupational health and safety, among others.

Table 1. Number of SETUP projects implemented per sector by province

Sector	Ilocos Norte	Ilocos Sur	La Union	Pang I	Pang II	Total
Food Processing	4	2	2	1	4	13
Metals & Engineering	1	1	2	7	-	11
Furniture	-	3	1	1	-	5
Agriculture	-	-	2	-	1	3
Gifts, Decors & Handicrafts	3	1	1	-	1	6
Other Priority Sector	-	-	1	-	1	2
TOTAL	8	7	9	9	7	40

Table 2. Number of Community-based GIA projects implemented per sector by province

Sector	Ilocos Norte	Ilocos Sur	La Union	Pang I	Pang II	Total
Food Processing	2	4	4	2	2	14
Metals & Engineering	-	2	-	1	-	3
Furniture	1	-	-	-	-	1
Agriculture	1	-	-	1	-	2
Other Priority Sector	-	-	1	1	-	2
TOTAL	4	6	5	5	2	22

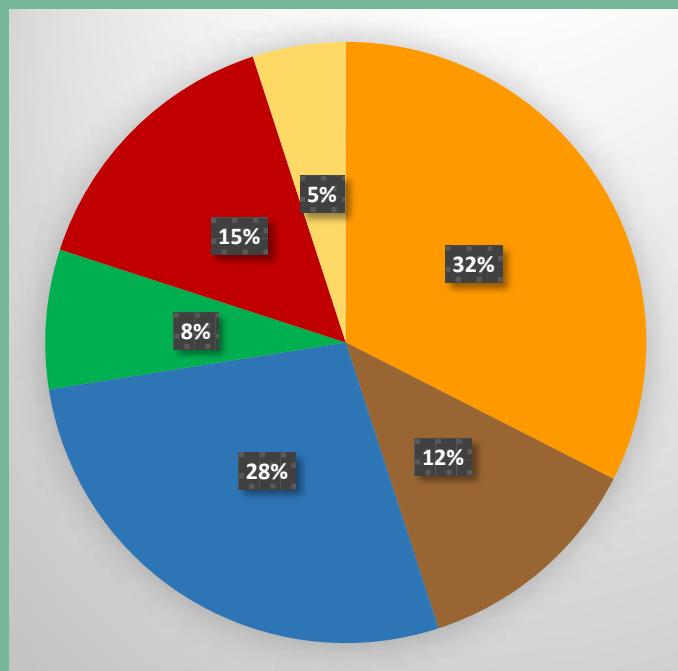


Figure 1. Percentage distribution of firms assisted by sector under SETUP

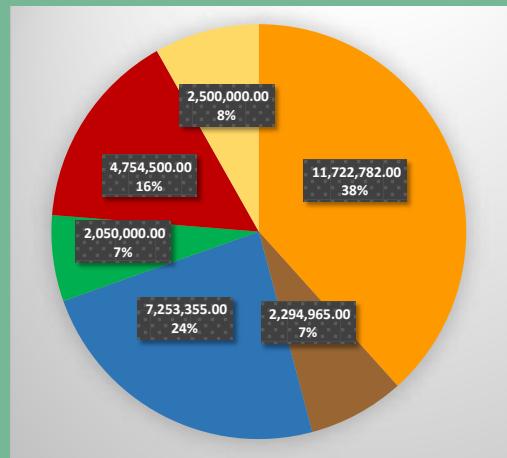


Figure 2. Amount and Percentage distribution of firms assisted by DOST investments under SETUP

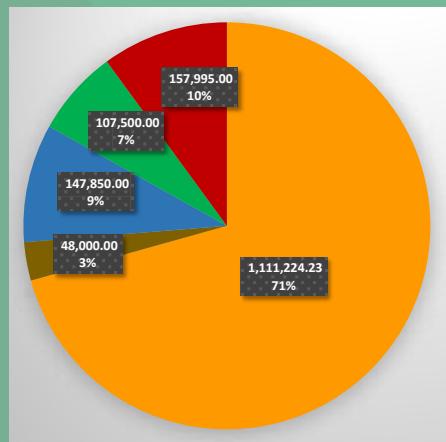


Figure 4. Amount and Percentage distribution of firms assisted by DOST investments under GIA

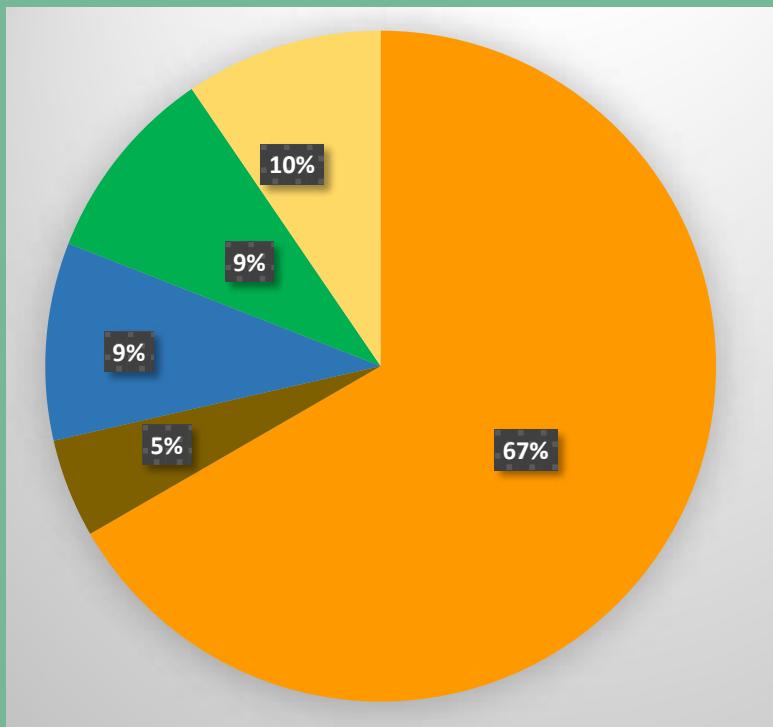


Figure 3. Percentage distribution of firms assisted by sector under GIA

Legend:

- Food Processing
- Metals & Engineering
- Furniture
- Agriculture
- Gifts, Decors & Handicrafts
- Other Priority Sectors

SETUP-FUNDED PROJECTS

FOOD PROCESSING



Upgrading of Production Facilities and Packaging of Peanut Butter

Implementing Firm: **MELODY'S FOOD PRODUCTS**
Project Cooperator: **Mrs. Melody B. Carag**
Project Location: **Bayubay Sur, San Vicente, Ilocos Sur**
Project Cost: **Php 295,000.00**



INTERVENTIONS

- Provision of:
 - 1 unit Peanut Roaster
 - 1 unit Peanut Grinder
 - 1 unit Induction Sealer
- Provision of Label Design and PET Jars Packaging Materials
- Technical assistance on plant layout
- Energy Audit
- Technical assistance on the acquisition of barcode
- Technical assistance on the acquisition of FDA License-To-Operate



OUTCOMES

- 44% increase in volume of production (from 7,850 kg to 11,304 kg)
- 44% increase in gross sales (from Php1,447,835 to Php2,084,882)
- 38.46% increase in number of clients/markets (from 26 to 36 outlets)
- 80% increase in daily production capacity (from 50 kg to 90 kg peanuts)
- Generated 1 additional employment (All Around Production Worker)
- 37.5% decrease in roasting time (from 4 hours to 2.5 hours to roast 50 kg peanuts to mix)
- 60% decrease in grinding time (from 5 hours to 2 hours to grind 50 kg roasted peanut)
- Reduced human handling that could cause contamination
- Leak and tamper-proof sealed PET Jars with induction sealer
- Constructed a new production area and improved working process
- Barcoded products enhanced market penetration



Upgrading of Production Facilities and Packaging of Longanisa

Implementing Firm: **THREE'S LONGANISA AND BAGNET**
 Project Cooperator: **Mrs. Regina P. Cabotaje**
 Project Location: **Brgy. V, Vigan City, Ilocos Sur**
 Project Cost: **Php 250,000.00**

Vigan longanisa and Vigan bagnet production are traditional family business of the Cabotaje Clan. Mr. and Mrs. Sherwin Cabotaje adopted the same business styles and put up a single proprietorship type business, Three's Longanisa and Bagnet in 2007 with an initial working capital of Php5,000 (for the raw materials) with their kitchen as the processing area. The business flourished as they found their niche market within the tourism area of the Heritage City of Vigan.

In January 2017, Mrs. Cabotaje encountered a problem on business permit renewal because Vigan City launched the policy of "No FDA-LTO, No Business Permit". Though she was still able to acquire a temporary business permit, she then realized the necessity of having FDA-LTO. She requested the DOST for technical assistance on plant layout and food safety assessment. She also attended seminars on current Good Manufacturing Practices with emphasis on food safety, basic occupational safety and health standards and cleaner production technology.

In 2018, the firm availed of DOST-SETUP assistance that upgraded the firm's equipment and packaging to conform to FDA-LTO requirements.

INTERVENTIONS

- Provision of:
 - 1 unit Heavy Duty Meat Grinder
 - 1 unit Meat Mixer
- Label Design and Packaging Materials for Longanisa
- Technical assistance on the acquisition of Barcode
- Technical assistance on the acquisition of FDA License-To-Operate



OUTCOMES

- 25% increase in volume of production (from 86,400 packs to 108,000 packs longanisa)
- 25% increase in gross sales (from Php8,640,000 to Php10,800,000)
- 200% increase in production capacity per processing (from 50 kg to 150 kg)
- Employed a Seller for its newly established firm-owned outlet in Bantay, Ilocos Sur
- Three (3) additional bulk-buying market distributors for Ilocos Norte, Southern Part of Ilocos Sur and its upland municipalities and Pangasinan;
- 75% decrease on mixing time (from 20 to 5 minutes to mix 25 kg raw materials per batch)
- 66.67% decrease in grinding time (from 60 to 20 minutes to grind 50 kg meat)
- Uniform /even mixing of the ingredients; Reduced human handling that could cause contamination
- Improved appearance of finished products due to its new packaging
- Constructed a new production area and improved working processes
- Barcoded products



Packaged products before (left) and after (right) S&T interventions



Production Area before (upper) and after (bottom) S&T intervention

Upgrading of Bakery Equipment Facilities for Tinapay Along the Riles

Implementing Firm: **TINAPAY ALONG THE RILES**
 Project Cooperator: **Mrs. Gloria D. Galano**
 Project Location: **Catbangen, San Fernando City, La Union**
 Project Cost: **Php 345,000.00**



Mr. Dech 1180 P. Libunao explains to Mr. Galano the findings and possible recommendations of the Region 1 Food Safety Assessment Team for the Tinapay Along the Riles.

The bakery provides the residents of Catbangen and neighboring barangays with freshly baked artisan breads and cookies on a daily basis. Known for its delicious hot pandesal, Tinapay Along the Riles also offers other traditional breads like monay, hopia, pandecoco, enseymada, mamon, cookies, loaf bread and special breads like donut, melted cheese roll, cheese roll and ube roll. The firm was assisted by DOST under SETUP in 2014.

In its pursuit to meet the increasing demand of its customers and to comply with food safety standards, innovation system support and technical assistance on compliance to FDA requirements were provided to the firm under DOST-SETUP.

INTERVENTIONS

- Provision of:
 - 1 unit Three Deck - Nine Trays Gas Oven
 - 1 unit Spiral Kneader
- Food Safety Assessment
- Technical assistance on the acquisition of FDA License-To-Operate

OUTCOMES

- Increase in volume of production per month by 14% (from 22 to 25 products)
- Increase in monthly gross sales by 12% (from Php165,575.00 to Php184,766.67)
- Increase in productivity by 18%



Upgrading of Production Process and Equipment of Sensational Bites Cakes and Pastries

Implementing Firm: **SENSATIONAL BITES CAKES AND PASTRIES**
 Project Cooperator: **Mrs. Ace T. Sabado**
 Project Location: **Gana, Caba, La Union**
 Project Cost: **Php 122,650.00**



Sensational Bites Cakes and Pastries offers baked products such as cakes, muffins, cookies, pies, and many more. It was established in 2015 in Bauang, La Union before it finally settled to its present location.

In 2017, Mrs. Ace Sabado participated in a seminar on good manufacturing practices (GMP) with emphasis on food safety conducted by DOST thru the initiative of LGU Bauang. She did not only learn knowledge on GMP but also learned about DOST programs for micro enterprises. On that year, DOST La Union assisted the firm in the layout of her new production area complying to GMP standards. She also expressed her intent to avail the DOST SETUP Program in 2018 to adopt technology innovations to improve business operations, boost productivity and competitiveness.

The production area is complete and compliant to food safety and good manufacturing practices. Specific licenses and health permits as well as proper bakery procedures to ensure compliance to sanitary regulations have been obtained and in place.



Discussion during the project monitoring

INTERVENTIONS

- Provision of:
 - 1 unit Single Deck Gas Oven (5 trays)
 - 1 unit Planetary Cake Mixer (8 qtz.)
 - 1 unit Upright Chiller (7 cu. Ft., 1 door)
 - 1 unit Stainless Table (4ft.x4ft.)
 - 1 unit Digital Weighing Scale
- Technical Assistance on Proper Plant Layout



The single-deck gas oven (left photo), cake mixer (middle photo) and the upright chiller (right photo) provided to the firm under the DOST-SETUP



OUTCOMES

- Established a separate production area complying to GMP
- Cake mixert to double the production and shorten the processing time
- Provided an upright chiller for finished products to maintain quality before delivery
- Stainless steel table compliant to GMP
- Accurate weighing of ingredients using the digital weighing scale



Finished products of the firm



Technology Upgrading of the Production Process for Siomai Products

Implementing Firm: **GREENTHUMB FOOD DEPOT**
 Project Cooperator: **Mr. Moises R. Javier**
 Project Location: **125 Magsaysay St., Brgy. 6, San Nicolas, Ilocos Norte**
 Project Cost: **Php 3,002,000.00**



GreenThumb Food Depot is a manufacturer of dimsum products. The business was assisted by DOST in 2015 thru SETUP and acquired Semi-automatic Siomai Machine, Meat Blender and Super Saver Steamer. To meet the increasing demand of its customers especially siomai products, the firm decided to seek for another round of assistance from DOST to acquire the fully-automatic siomai-making machine to sustain the need of customers as well as to cope up with the growing volume of orders of their franchisers and wholesalers.

Production of siomai products using the fully-automatic siomai machine.



INTERVENTIONS

- Provision of:
 - 1 unit Meat Mincer
 - 1 unit Fully Automatic Siomai Machine



OUTCOMES

- 50% increase in volume of products from 151,440 packs to 227,160 packs of different flavors of siomai products per year
- Gross sales increased up to Php4,800,000 from Php1,300,000
- Hired 6 new employees to sustain production

Greenthumb sample packaged products.

Production Facility Upgrading for Fish Drying Process of Binmaley RIC Seafood Products (Phase II)

Implementing Firm: **BINMALEY RIC SEAFOOD PRODUCTS**
 Project Cooperator: **Mrs. Milagros T. Buenafe**
 Project Location: **Buenlag, Binmaley, Pangasinan**
 Project Cost: **Php 383,500.00**

The Binmaley Rural Improvement Club (BRIC) Seafood Products was established in 1998 with Fifteen housewives as pioneer members. As one of the major programs of the association, the members undergone various trainings which included fish processing and entrepreneurship, among others. With a very minimal capital, they started the processing of Milkfish (Bangus) and became known in the municipality. From then, they started accepting orders from restaurants, caterers and processed fish traders. They also accepted toll processing.

Today, Binmaley RIC Seafood Products processes 16 various Bangus products. More than these, the firm also serves as trainor in fish processing.

One concern of the firm is the drying process for its bangus tinapa. The current practice is by sun drying while during rainy season, air drying using electric fan is used. With these practices, the products are prone to contamination such as flies and other insects/airborne contaminants due to its exposure in open environment.

The drying process lasts from 45 minutes to 1 hour. Thus, it contributes to delay in production, the quality of drying is not met due to inconsistency of temperature, and high moisture content in fish contributes to the shorter shelf life of the product.

The association sought the assistance of DOST to improve on these processes.

OUTCOMES

- Eliminated sun and air drying; reduced exposure to open environment as source of contamination;
- 48% increase in productivity;
- 80% increase in bangus tinapa production (from 40-50 pcs to 72-90 pcs. per day);
- 75% decrease in drying time per batch of 200 pcs. (from 1 hour sun drying or 3 hours air drying to only 15 minutes);
- 700% increase in monthly gross sales (average of Php40,000.00 to Php320,000.00);
- Constructed new production area and improved the working processes;
- Employed 33 additional workers; and
- Penetrated 4 additional markets.



INTERVENTIONS

- Provision of 1 unit Cabinet Dryer and Training on Equipment Operation, Maintenance and Troubleshooting
- Label Design and Packaging Execution
- Seminar on current Good Manufacturing Practices
- Food Safety Assessment
- Technical assistance on plant layout
- Seminar on FDA's License-To-Operate (LTO) Applications
- Seminar on Cleaner Production Technology
- Fora on Intellectual Property Rights, Food Innovation Center, OneExpert and OneSTore
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Microsoft Excel and Accounting
- Product promotion and marketing thru OneSTore.ph



Inspection of processing plant by the DOST-I Food Safety Team during the Food Safety Assessment

Upgrading of Production Facility, Label and Packaging for Mariano S. Layos Enterprises in Support for Bagoong Industry

Implementing Firm: **MARIANO S. LAYOS ENTERPRISES**
 Project Cooperator: **Mrs. Myrna Layos**
 Project Location: **308 Tangile St., Domalandan Center, Lingayen, Pangasinan**
 Project Cost: **Php 300,000.00**

The firm was established in 1986 as bagoong trader. After the retirement of Mrs. Layos in 2004, she decided to focus on the business of manufacturing her own bagoong. With just 20 jars for a start, production gradually increased yearly because of good product quality. Aside from consumers in Pangasinan, the fish sauce is also being patronized by customers in La Union and even outside the country as the products are brought by our fellow Filipinos to the USA.

Before the intervention, the extraction process, where the juice of the fermented fish is extracted to remove the bones and residues, is done manually by pressing the fermented fish against a large strainer. This process consumes much production time and the product is prone to contamination due to handling. Likewise, the firm is also using a label that does not conform with the labelling standards.

With its desire to address these concerns, the owner sought the assistance of DOST through SETUP.



Mr. Layos operating the Mechanized Juicing Machine

INTERVENTIONS

- Provision of 1 unit Mechanized Juicing Machine and Training on Equipment Operation, Maintenance and Troubleshooting
- Provision of Label Design and Packaging Execution
- Seminar on current Good Manufacturing Practices
- Food Safety Assessment
- Inter-agency Design and Engineering Assessment
- Fora on OneExpert and OneSTore and product promotion and marketing thru OneSTore.ph
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Microsoft Excel and Accounting

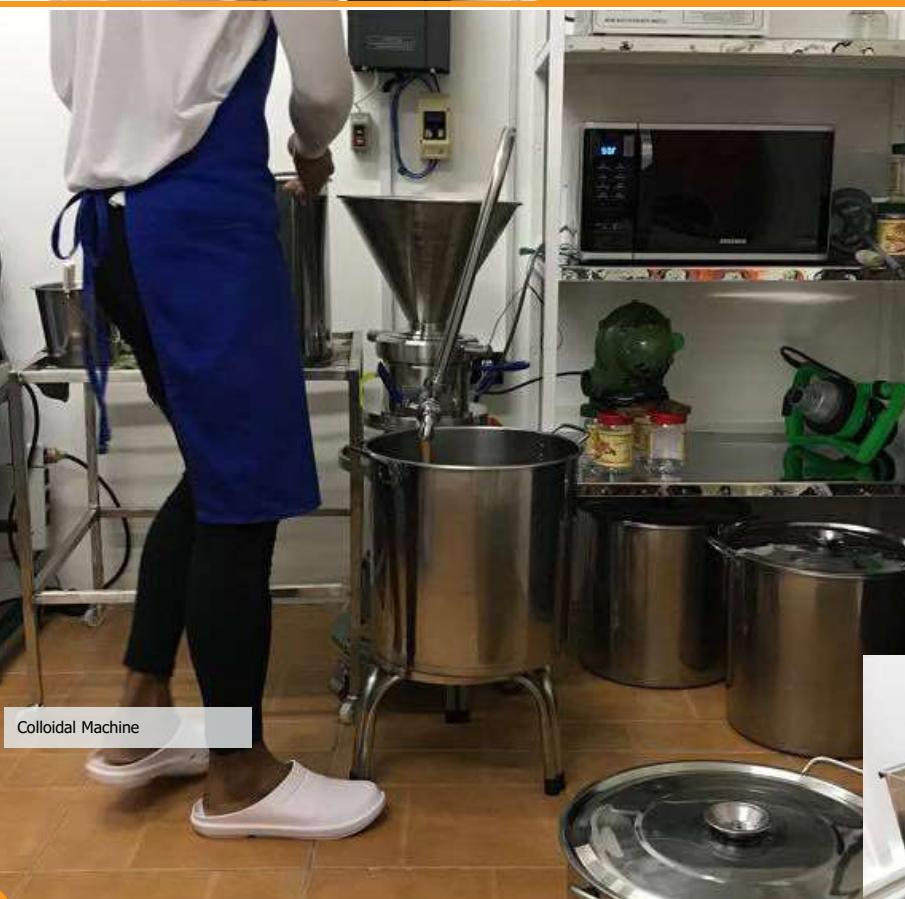
OUTCOMES

- 20% increase in volume of production (from 43,200 bottles to 51,840 bottles)
- Improved extraction process, 50% decrease in extraction time from 2 hours to 1 hour; eliminated possible product contamination due to handling
- 33% increase in productivity (produced 1,300 bottles more using the equipment)
- 20% increase in annual gross sales (from Php1,080,000.00 to Php1,296,000.00)
- Penetrated 1 additional market – Pangasinan OneSTop Shop in Alaminos City, Pangasinan
- Developed new packaging of its product (from glass bottles to PET bottles)



Improvement of Production Process for Peanut Butter

Implementing Firm: **CHELSEA'S PEANUT BUTTER**
 Project Cooperator: **Ms. Marjorie P. Lacap**
 Project Location: **Brgy. Tococ East, Bayambang, Pangasinan**
 Project Cost: **Php 190,000.00**



INTERVENTIONS

- Provision of:
 - 1 unit Colloidal Mill
 - 1 unit Filling Machine
- Food Safety Assessment
- Seminar on current Good Manufacturing Practices
- Seminar on FDA's License-To-Operate (LTO) Applications
- Seminar on Cleaner Production Technology
- Fora on Intellectual Property Rights, Food Innovation Center, OneExpert and OneSTore
- Product promotion and marketing thru OneSTore.ph
- Seminar-Workshop on Productivity Improvement through 5S Practice
- Training on Microsoft Excel and Accounting



OUTCOMES

- Faster production and finer product output; 75% decrease in grinding time (from 2 hrs with 6 passes to 30 minutes with only 3 passes)
- 100% increase in volume of production (from 75 kg to 150 kg of peanuts per week)
- 15% increase in productivity (additional 5 bottles of peanut butter produced from 15kg peanut)
- 30% increase in gross sales (from Php90,000.00 to Php120,000.00 per month)
- Contracted 1 on-call worker
- Penetrated the Pangasinan OneSTop Shop in Alaminos City, Pangasinan as additional market

Upgrading the Production Process, Packaging and Labeling of Julia's Ice Creamdy

Implementing Firm: **JULIA'S ICE CREAMDY**
 Project Cooperator: **Ms. Mirasol Manahan**
 Project Location: **Pantal West, Dagupan City, Pangasinan**
 Project Cost: **Php 383,000.00**



OUTCOMES

- Number of customers is increased by up to 75%
- New distributors include Norberto De Vera of Shelflex Candles (Bayambang, Pangasinan), Sonia Baltazar of C&S Food Products (Rosales, Pangasinan), and Jenny Wil (Baguio)
- The firm was able to acquire 1 additional upright freezer worth Php6,000.00
- Gross sales increased by 700% (from Php50,000.00-Php80,000.00 to Php558,000.00 per month)
- Employed 4 production workers



Ms. Manahan started as a distributor of ice candy. She orders ice candy from other producers and distributes to stores. In 2014, she decided to produce her own ice candy and gained customers within Dagupan and other parts of Pangasinan.

The firm produces ice candy manually with basic equipment in a kitchen-based operation. They do not have problem in cooking however, they experience difficulty in packing. Tying thousands of ice candy is a lot of work and affect product quality.

She sought the assistance of DOST through SETUP and was able to adopt the automatic liquid machine for fast performance and quality packing and the provision of appropriate label with nutritional analysis and microbial tests to compete with other ice candy producers.

INTERVENTIONS

- Provision of 1 unit Automatic Liquid Filling Machine
- Food Safety Assessment
- Label design with nutritional analysis and microbial tests



The rate of the filling machine is set and the liquid mixture is placed for uniform packing of ice candy.

Innovation System Support for Instant Turmeric Tea Production of Cherbs and Spice Food Products

Implementing Firm: **C&S FOOD PRODUCTS**
 Project Cooperator: **Mrs. Sonia C. Baltazar**
 Project Location: **SBE Farm, Rosales, Pangasinan**
 Project Cost: **Php 500,000.00**

The Cherbz and Spice Food Products was established and registered as a single enterprise in 2014. It manufactures Instant Turmeric Tea packed in various sizes of 400 grams, 200 grams and 150 grams capacity in plastic bottles.

The firm's method of extracting ginger juice is cutting the ginger into smaller pieces and then feeding it into a portable juicer. With continuous use, however, the blades breakdown therefore needs replacing the equipment every 2-3 months. In addition, the juicing rate is relatively low and the juicer needs to be rested for some time to prevent it from overheating.

The assistance of DOST was sought to address these concerns.

The juicer extracts the ginger juice.

INTERVENTIONS

- Provision of:
 - 1 unit Ginger Juice Extractor
 - 1 unit Stainless Steel Table
 - 1 unit Mechanical Washer
- Food Safety Assessment
- Packaging and Labeling execution
- Assisted in the application for FDA License-To-Operate



The ginger is fed to the juicer to extract the juice.



The turmeric tea powder is weighed and ready for packing.



The turmeric tea powder is packed into sticker-type label plastic pouch.

OUTCOMES

- 30% increase in markets (New markets include 45 branches of Health Shop, cooperatives (Parañaque and Taytay, Rizal) and a distributor in Saipan, Northern Mariana Islands)
- Production increased by 20% to 30% (from an average of 916 kg. to 1,150 kg. of ginger per month)
- Production time was decreased by up to 50% (from 8 hrs. to 4 hrs. of processing 14kgs. turmeric a day)
- 4 additional employees hired

SETUP-FUNDED PROJECTS

METALS AND ENGINEERING

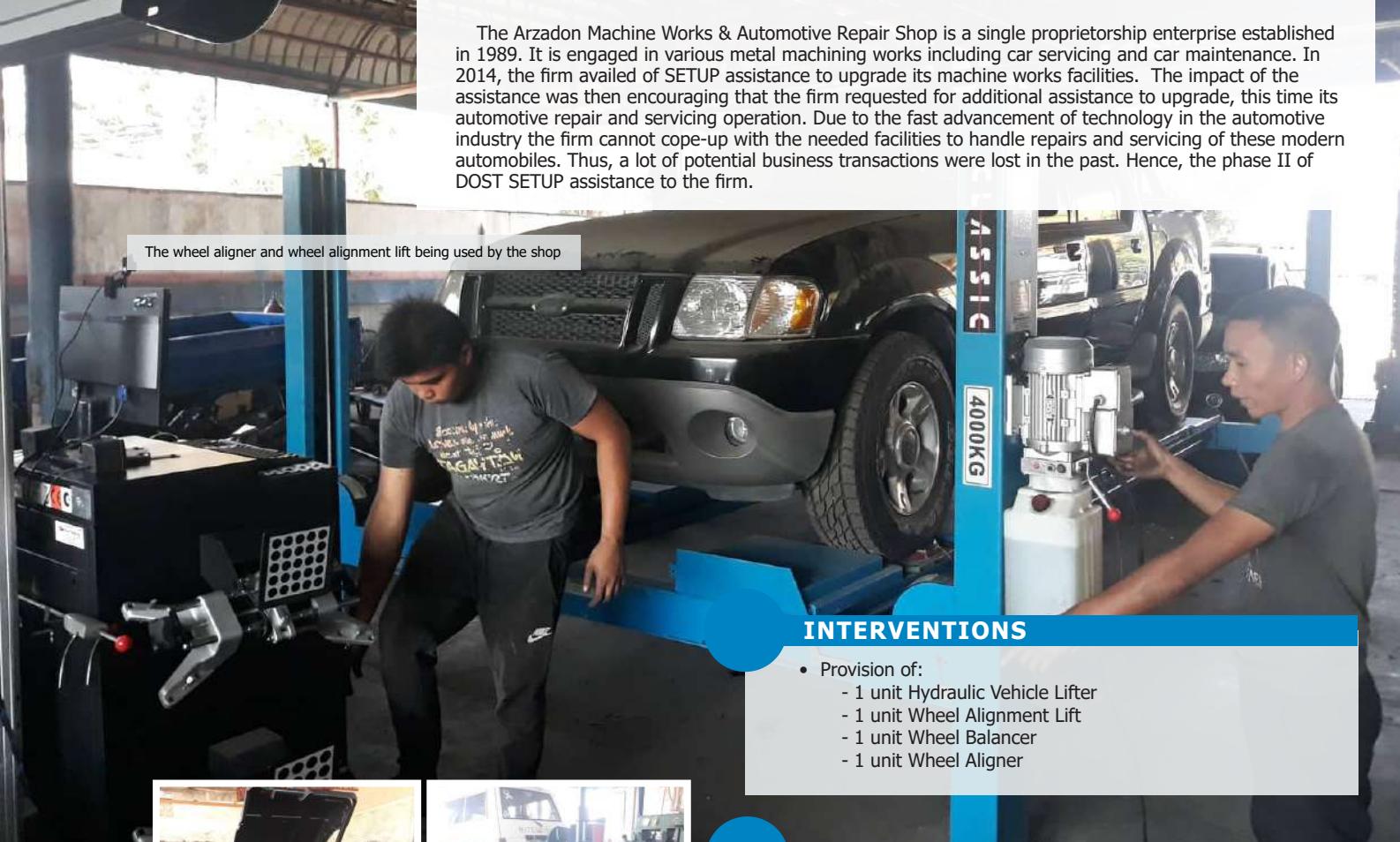


Technology Upgrading of Arzadon Machine Works & Automotive Repair Shop

Implementing Firm: **ARZADON MACHINE WORKS & AUTOMOTIVE REPAIR SHOP**
 Project Cooperator: **Mr. Pascual O. Arzadon, Jr.**
 Project Location: **Tablac, Candon City, Ilocos Sur**
 Project Cost: **Php 1,095,000.00**

The Arzadon Machine Works & Automotive Repair Shop is a single proprietorship enterprise established in 1989. It is engaged in various metal machining works including car servicing and car maintenance. In 2014, the firm availed of SETUP assistance to upgrade its machine works facilities. The impact of the assistance was then encouraging that the firm requested for additional assistance to upgrade, this time its automotive repair and servicing operation. Due to the fast advancement of technology in the automotive industry the firm cannot cope-up with the needed facilities to handle repairs and servicing of these modern automobiles. Thus, a lot of potential business transactions were lost in the past. Hence, the phase II of DOST SETUP assistance to the firm.

The wheel aligner and wheel alignment lift being used by the shop



INTERVENTIONS

- Provision of:
 - 1 unit Hydraulic Vehicle Lifter
 - 1 unit Wheel Alignment Lift
 - 1 unit Wheel Balancer
 - 1 unit Wheel Aligner



Wheel balancer



Tire changer

OUTCOMES

- Eliminated outsourcing of wheel balancing to other shops. The firm can now accept wheel balancing jobs and can be done in 30 minutes compared to 2-3 hours by outsourcing.
- Additional 3-4 customers daily availing its services.
- The shop is now capable of accepting customers that need computerized wheel alignment.
- Monthly gross sales of the firm increased by at least 30% (from Php337,500.00 to Php438,750.00)

Technology Upgrading for Marbie Motor Works

Implementing Firm: **MARBIE MOTOR WORKS**
 Project Cooperator: **Mr. Abraham Balicha**
 Project Location: **Pagdalagan Sur, Bauang, La Union**
 Project Cost: **Php 150,000.00**

Mr. Abraham Balicha, owner and manager of Marbie Motor Works, demonstrates the operation of the metal lathe as Dr. Ismael Gurtiza, Supervising SRS of DOST-1, looks on.

Marbie Motor Works offers automotive repair, sheet and pipe bending, body repair and painting. The auto repair shop was established in 1997 inspired from the family business of the owner's father. Mr. Abraham Balicha managed to expand the business and earned loyal customers due to its quality services and competitive service fees.

The firm was a beneficiary of DOST-TAPI's Venture Financing Program in CY 2010 and has availed of DOST-SETUP in CY 2014. The firm continued to adopt for appropriate technologies to improve its production processes. Hence in CY 2018, it availed of a second assistance from DOST-SETUP to address the problem on machining which Mr. Balicha outsources from other shop in the City of San Fernando, La Union. The firm brings auto parts to other machine shop for reboring, for sleeve fitting, or for any other machining works which cost the PhP 5,000.00 per month. The outsourcing process also took longer processing time.



INTERVENTIONS

- Provision of 1 unit Metal Lathe Machine
- Technical Assistance on Proper Layouting



On-going operation of the metal lathe machine

OUTCOMES

- Increase in monthly volume of production by 13% (from 150 to 170 services)
- Increase in monthly average gross sales by 8% (from Php100,000.00 to Php108,125.00)
- Increase in productivity by 17% (from 1.43 to 1.68)
- Employed 2 additional workers

Improvement of Water Tank Fabrication

Implementing Firm: **MIKE'S STAINLESS STEEL FABRICATION**
 Project Cooperator: **Mrs. Jenilyn R. Ruiz**
 Project Location: **Brgy. Pudoc, Bauang, La Union**
 Project Cost: **Php 1,998,830.00**

On-going operation of the Hydraulic Shearing Machine



The newly acquired Hydraulic Shearing Machine

INTERVENTIONS

- Provision of 1 unit Hydraulic Shearing Machine
- Technical Assistance on Plant Layout

Mike's Stainless Steel Fabrication is engaged in the fabrication of food processing equipment, baking equipment, home and kitchen facilities.

In CY 2015, the first phase of SETUP assistance, focused on the facilities for the fabrication of water tank and to eliminate outsourced processes and shorten processing time, ensure quality products and offer competitive service fees.

The second phase in CY 2018, enabled the firm to complete the line of equipment necessary for water tank fabrication.

OUTCOMES

- Increase in monthly volume of production by 67% (from 300 units to 550 units water tanks)
- Increase in monthly average gross sales by 94% (from Php600,000.00 to Php1,166,000.00)
- Increase in productivity by 10% (from 1.76 to 1.94 productivity or from 57% to 52% production cost)
- Employed 1 additional worker



**Mike's
Stainless Steel
Fabrication**

**Kitchen / Bakery
Equipments**

**Metal Furring &
Water Tank Mfg.**

Railings







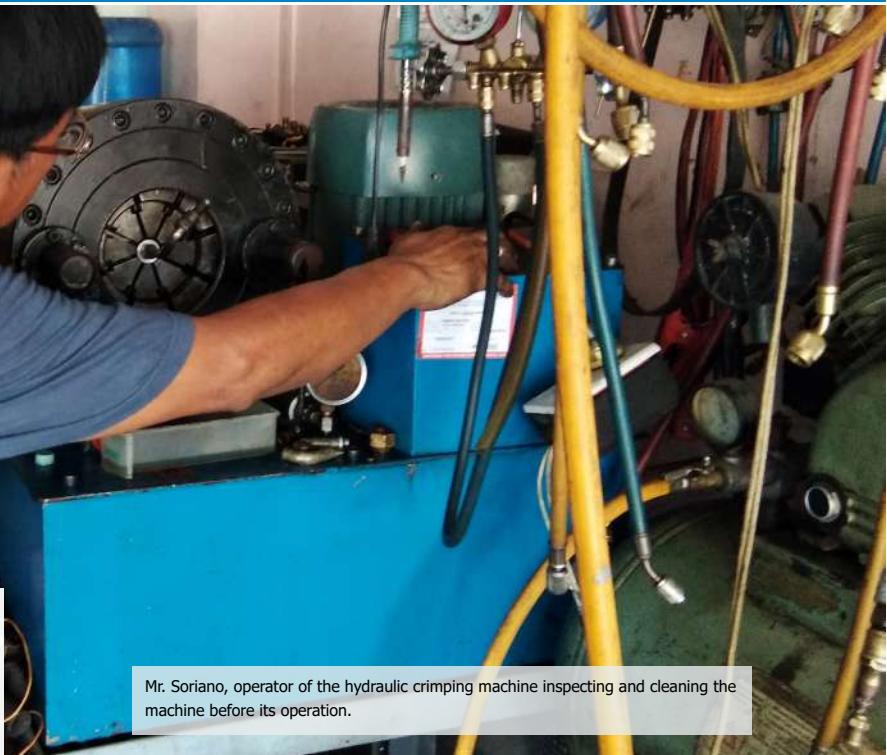


Technology Upgrading for Crimping Services of Brightlight Car Bus Aircon and Auto Electrical Shop

Implementing Firm: **BRIGHTLIGHT CAR BUS AIRCON AND AUTO ELECTRICAL SHOP**
 Project Cooperator: **Ms. Angelita S. Soriano**
 Project Location: **Brgy. 22 Rizal St., City of Batac, Ilocos Norte**
 Project Cost: **Php 259,000.00**

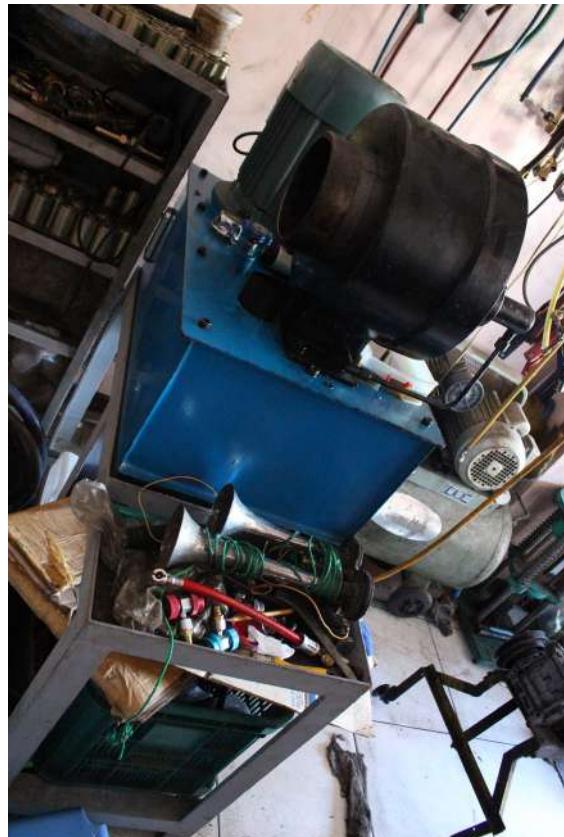


Brightlight Car Bus Aircon and Auto-electrical Shop is one of the pioneer aircon repair shops and provides crimping services in the City of Batac. However, the firm uses improvised crimping tools using hydraulic jack and portable hand crimping tool for crimping the hose and hose fittings. To improve its crimping services, SETUP Innovation System Support was provided which enabled the firm to improve its process.



INTERVENTION

- Provision of 1 unit Hydraulic Crimping Machine



The hydraulic crimping machine.



OUTCOMES

- The production increased by 20%
- The regular and walk-in clients also increased by 25% (480 clients as of December 2018)
- Reduced damages during production by 95%
- The sales increased up to Php1,738,800 annual service income from Php1,391,040.

Upgrading of Facilities and Equipment of J.D. Untalan Machine Works in Support for Machine Shop Industry

Implementing Firm: **J.D. UNTALAN MACHINE WORKS**
 Project Cooperator: **Mr. Johnny D. Untalan**
 Project Location: **815 San Miguel, Calasiao, Pangasinan**
 Project Cost: **Php 800,000.00**



INTERVENTIONS

- Provision of 1 unit Mechanized Surface Grinder; Training on Equipment Operation, Maintenance and Troubleshooting
- Seminar on Occupational Safety and Health
- Training on Heat Treatment of Steels
- Training on Welding Processes (GMAW, SMAW, GTAW)
- Seminar-Workshop on Productivity Improvement through 5S Practice



J.D. Untalan Machine Works was established by Mr. Johnny Untalan and his wife in 1987. As a former machinist, Mr. Untalan was very passionate with working on machines and decided to start his own machining business with some equipment and machines that were purchased from a machine shop business foreclosed by a bank. With his talent partnered with diligence and hard work, the machine shop was slowly recognized in the industry.

The problems encountered by the firm, however, are the long grinding process of the cylinder head surface which takes 3-4 hours in manual process, uneven flatness when using lathe machine as an alternative grinder and the outsourcing of grinding which costs Php1,200.00 per cylinder head resulting to delay of delivery, rejects or regrinding and high production cost.

To overcome these problems, the firm acquired the proper equipment for grinding process through the DOST-SETUP.

OUTCOMES

- 75% decrease in grinding time (from 3-4 hours to only 1 hour)
- Eliminated outsourcing cost, saving for the firm Php28,000.00 per month
- Generated additional income of Php 1,600.00 by accepting machining works from other shops
- 100% increase in monthly gross sales (from Php64,000.00 to Php128,000.00)
- High quality service output – even and fine surface grinding finish
- 100% increase in job orders accepted (from 8 job orders to 16-20 job orders per month)
- Employed 5 additional workers
- Penetrated 6 additional markets

Enhancement of Production Processes for a Roofing Installation Shop

Implementing Firm: **R.F.G. GENERAL MERCHANDISE**
 Project Cooperator: **Mr. Robert F. Gutierrez**
 Project Location: **767 Agdao Riverside, San Carlos City, Pangasinan**
 Project Cost: **Php 260,000.00**

Mr. Gutierrez while working using the Sheet Bender

In 2007, Mr. Roberto F. Gutierrez, started working at Union Galvasteel Corporation as installer of roofing and trusses. With his work in the firm, he saw the potential of having a business on roofing and trusses installation.

In April 2017, with the help of his sister, RFG General Merchandise was finally registered and put-up its first showroom at Zone IV Poblacion in Bayambang, Pangasinan. The firm joined biddings at Union Galvasteel Corp., where most of their clients are coming from.

Due to the demand of its product and services, there was a need to upgrade its cutting and bending processes which are being done manually and sometimes being outsourced.

So, the firm sought DOST-SETUP assistance to address its concerns.

INTERVENTIONS

- Provision of:
 - 1 unit Sheet Cutter
 - 1 unit Sheet Bending Machine
- Training on Equipment Operation, Maintenance and Troubleshooting
- Seminar on Occupational Safety and Health
- Training on Heat Treatment of Steels
- Training on Welding Processes (GMAW, SMAW, GTAW)
- Seminar-Workshop on Productivity Improvement through 5S Practice



OUTCOMES

- Decrease in production time by 97% (outsourcing for bending works for 3-6 days to only 2 hours bending time for 21 sheets) and saving Php5,000.00 per month
- 50% increase in production (from 50 sheets to 75 sheets per month)
- 50% increase in productivity
- High quality cutting and bending output
- 40% increase in monthly gross sales (from Php34,000.00 to Php47,600.00)
- Manufactured 1 new product line – door jamb
- Employed 2 additional workers
- Penetrated 10 additional markets

Technology Innovation Support for Agricultural and Industrial Machine Shop and Fabrication

Implementing Firm: **G.M. AGRICULTURAL AND INDUSTRIAL MACHINERY**
 Project Cooperator: **Mr. Adonis Paul V. Garcia**
 Project Location: **Brgy. Malabago, Calasiao, Pangasinan**
 Project Cost: **Php 194,500.00**



Mr. Garcia while using MIG Welding Machine

G.M. Agricultural and Industrial Machinery is a fabricator of agricultural machineries such as rice mill, hammer mill and corn mill and industrial machineries such as concrete mixer and hollow block molder established in the 1980's by Mr. Christian Garcia and later on was inherited by his son, Mr. Christopher Garcia.

In 2015, ownership of the firm was transferred to Christopher's son, Adonis Paul V. Garcia. Aside from seeking out new markets, he maintained the firm's established market such as Tayas Hardware in Dagupan City, Pangasinan and Matin-Campos Agri-Supply in Zambales.

Like any other business that desire to grow, the firm took advantage of the opportunity to increase and improve the quality of its production with the opportunities offered by DOST through SETUP.

INTERVENTIONS

- Provision of:
 - 1 unit MIG Welding Machine
 - 1 unit Air Plasma Cutter
 - 1 unit Air Compressor
- Technical assistance on plant layout
- Seminar on Occupational Safety and Health
- Training on Heat Treatment of Steels
- Training on Welding Processes (GMAW, SMAW, GTAW)
- Seminar-Workshop on Productivity Improvement through 5S Practice

OUTCOMES

- 50% increase in productivity
- 97% decrease in cutting time (from 2 days to only 1 ½ hours cutting process)
- 50% decrease in production time (from 2-3 days fabrication of concrete mixer to 1½ days)
- 50% increase in production (fabrication of 4 units of concrete mixer to 6 units concrete mixer per week)
- 250% increase in monthly gross sales (from Php100,000.00 to Php 350,000.00)
- Employed 2 additional workers



Air Compressor (left) and Air Plasma Cutter (right)

Upgrading of Production Process for a Roofing Installation Shop

Implementing Firm: **VIN ROOFING CENTER**
 Project Cooperator: **Mr. Melvin B. Patungan**
 Project Location: **Brgy. Tambac, Malasiqui, Pangasinan**
 Project Cost: **Php 220,000.00**

Production worker while using the Heavy-duty Sheet Bender

Vin Roofing Center is a self-established business, managed by Mr. Melvin B. Patungan and his wife. Working for a roofing service provider as a helper, the owner realized that he can earn much more if he will put-up his own roofing business. So, he asked his sister's assistance in buying a bender, and started contracting roofing services of his own. Today, Vin Roofing Center is one of the most popular roofing service providers in Malasiqui, for its high-quality roofs at an affordable price.

With the borrowed bending machine returned to his sister who also wanted to help their other siblings with the same business in another strategic location, he sought the assistance of DOST to be able to acquire one for his sole use.

INTERVENTIONS

- Provision of 1 unit Sheet Bending Machine
- Seminar on Occupational Safety and Health
- Training on Heat Treatment of Steels
- Training on Welding Processes (GMAW, SMAW, GTAW)
- Seminar-Workshop on Productivity Improvement through 5S Practice

OUTCOMES

- 33% increase in productivity
- 66% increase in bending services (from 1,500 plain sheets to 2,500 plain sheets per month)
- 150% increase in annual gross sales (from Php400,000.00 to Php1,000,000.00)
- Employed 1 additional worker
- Served customers from 15 additional places

Upgrading of Production Facilities for Metal Fabrication and Mechanical Service Shop (Phase II)

Implementing Firm: **A.C.E.S. COMMERCIAL**
 Project Cooperator: **Mr. Eduardo G. Santos**
 Project Location: **468 Sarmiento Bldg., San Miguel,
Calasiao, Pangasinan**
 Project Cost: **Php 1,780,000.00**

The firm started as an industrial parts supplier. With increasing opportunities to grow, the owner decided to shift to fabrication. In 2014, after twenty-five (25) years of offering quality products and services, the firm's assets increased to Php2,000,000.00 from its initial capital of Php500,000.00.

The firm applied for the Small Enterprise Technology Upgrading Program (SETUP) in 2014 that enabled it to acquire Lathe Machine and Universal Milling Machine amounting to Php800,000.00. Trainings and Seminars and Technical Assistance and Consultancy Services (TACS) were also provided to the firm that improved its over all operation and competitiveness.

As the firm became well known, various jobs are being requested and accepted. Thus, the firm was encouraged to apply for its 2nd phase of SETUP assistance to improve its services and increase customer satisfaction.

OUTCOMES

- Eliminated outsourcing of surface grinding service, saving the firm Php25,000.00 to Php50,000.00 per week
- 66% decrease in servicing time for lathe machine (from 1 week to 2 days per job order)
- 92% decrease in cutting process for stainless steel (from 2 hours using cutting disc to 10 minutes using plasma cutter)
- Generated additional income by accepting more 36 feet machining works and machining service from other shops
- 16% increase in productivity
- 16% increase in monthly gross sales (from Php2,500,000.00 to Php2,700,000.00)
- Employed 3 additional workers
- Established 3 additional markets

Lathe Machine Operator while working on the High Speed Lathe Machine 36" open gap

INTERVENTIONS

- Provision of:
 - 1 unit High Speed Lathe Machine 36" open gap
 - 1 unit Plasma Stainless Steel Cutter
- Technical assistance on plant layout
- Seminar on Occupational Health and Safety Practices
- Training on Heat Treatment of Steels
- Training on Welding Processes (GMAW, SMAW, GTAW)
- Seminar-Workshop on Productivity Improvement through 5S Practice



Semi-Mechanizing the Production of Concrete-Based Construction Materials

Implementing Firm: **F.Q. CARMELO ENTERPRISES**
 Project Cooperator: **Mr. Franklin Q. Carmelo**
 Project Location: **Sto. Domingo, Urdaneta City Pangasinan**
 Project Cost: **Php 218,000.00**

The firm was established in the early 1990's and managed by Mrs. Diana Carmelo who initially was into native food delicacies making.

When her husband, Mr. Franklin Carmelo retired as a bank manager and decided to have their lot fenced, he opted to produce his own hollow blocks rather than buying it directly from the hardware stores due to higher cost yet unsure of the quality of the blocks. He customized it and came up with better quality blocks. With this, he continued producing hollow blocks and was able to cater to walk-in clients and later on supplying the needs of nearby hardware and construction stores in their area.

In their production, the blocks are produced manually and molded by stirring and vibrating the concrete mixture using a triangular trowel.

To address the problem of manual operation, the firm sought the assistance of DOST through SETUP to acquire equipment that would lessen the tedious work, and improve the quality of the finished products.



Semi-Mechanized Hollow Block Maker and Mixer

INTERVENTIONS

- Provision of:
 - 1 unit Semi-Mechanized Hollow Block Maker
 - 1 unit Mortar Mixer
- Training on Product Costing



The machine stirs and vibrates for the mixture to be molded as hollow blocks.



The concrete blocks are piled on the ground for curing/drying.

OUTCOMES

- Production is increased by 50% (from an average of 16,800 pcs. to 33,600 pcs. per month)
- Penetrated 2 additional markets.
- Hired 2 on-call workers depending on the projects accepted by the firm

Equipment Upgrading of Wil-INGS Motorworks

Implementing Firm: **WIL-ING'S MOTORWORKS**
 Project Cooperator: **Mr. Wilbert Tandoc**
 Project Location: **Caranglaan District, Dagupan City, Pangasinan**
 Project Cost: **Php 144,400.00**



WIL-INGS Motorworks was established in 2000 as a single proprietorship enterprise owned and managed by Mr. and Mrs. Wilbert Tandoc. Mr. Tandoc is an experienced auto mechanic hence, he takes care of the over-all operation and most of the transactions of the firm.

The firm provides service to automotive works such as change oil, tune up, overhauling, under chassis repair, car repaint, etc.

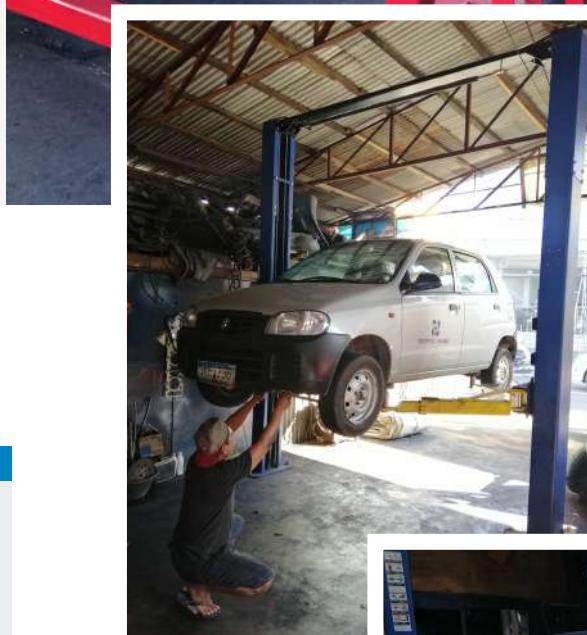
DOST through the SETUP Innovation System Support provided assistance for the improvement of the firm's operations.

INTERVENTIONS

- Provision of:
 - 1 unit Car Lifter
 - 1 unit Engine Crane (2 tons)
 - 1 unit Compressor
- Training on Product Costing

OUTCOMES

- Additional markets include SK Enterprise from Dagupan City, ANBC Agricultural Company from Dagupan City and walk-ins
- 100% increase in sales (from Php137,750.00 to Php275,000.00)
- Repair time for underchassis has decreased by 60% from 5 hrs. to 2 hrs.
- Generated 2 employment



SETUP-FUNDED PROJECTS

FURNITURE



Upgrading of Production Facilities of Antigua de Madera Furniture

Implementing Firm: **ANTIGUA DE MADERA FURNITURE**
 Project Cooperator: **Mr. Alexander A. Parel**
 Project Location: **San Julian Norte, Vigan City, Ilocos Sur**
 Project Cost: **Php 1,150,000.00**



Thickness Planer

Antigua de Madera Furniture's main product lines include cabinet, bed, table, chair, door, door jamb, dining and sala set. It also accepts made-to-order furniture and installation and offers after sales service. However, with the only available equipment and tools in the shop, production is slow and sometimes cannot meet the deadline for the delivery of products.

Planing and carving are two (2) of the most vital yet laborious processes in furniture making, thus, working with just ordinary tools such as portable planers and manual carving using hammer mallet and various chisels compromises the process time and quality of the output. Moreover, the firm is outsourcing carving of wood designs incurs and expenses amounting to at least Php24,000/month with limited output capacity and designs.

Hence, the firm requested assistance from the Department of Science and Technology (DOST) to upgrade and improve its facilities as well as efficiency.

INTERVENTIONS

- Provision of:
 - 1 unit Thickness Planer
 - 1 unit Laser Engraving Machine
- Training on FPRDI Resin Casting / Lamination
- Energy Audit

OUTCOMES

- 16.67% increase in requirement for raw materials per month (from 3,000 bd. ft. to 3,500 bd. ft.)
- 23.07% increase in monthly gross sales (from Php650,000 to P800,000)
- 20% increase in number of regular clients/markets for furniture (from 10 to 12 clients); 3 bulk buyers for the firm's new product lines: laser engraved novelty items (made of wood or acrylic) like key chains, refrigerator magnets, plaques, wall decors, sign boards, nameplates, portraits, personalized artworks and wooden clock
- 200% increase on thickness planing production rate (from 35 bd. ft./man-hour to 105 bd. ft/man-hour)
- No more delay in production time brought about by outsourcing (from 5 days by an outsourced artisan per item-door to 1 day laser carving per item-door)
- Improved quality, capability to do intricate designs and precise output (from manual carving to computerized carving)
- Generated additional 2 employment (Thickness Planer Operator & Laser Engraving Machine Operator)



Technology Upgrading of Rheannie's Furniture Shop

Implementing Firm: **RHEANNIE'S FURNITURE SHOP**
 Project Cooperator: **Mr. Reynaldo P. Delos Santos**
 Project Location: **Brgy. Bantaoay, San Vicente, Ilocos Sur**
 Project Cost: **Php 89,165.00**



OUTCOMES

- 40% increase in monthly gross sales (from Php216,750 to Php303,450 after provision of bandsaw)
- 100% increase in volume of production (from 22 units to 44 units of various furniture products per month after provision of bandsaw)
- Looking for three (3) additional workers because of the increased furniture orders
- Eliminated outsourcing for bandsaw services; no more delay in production time
- Reduced raw materials wastage to as much as 75%
- Delicate cuttings and designs on wood even on tight corners can now be achieved

Rheannie's Furniture Shop is a single proprietorship business that is known for its furniture products. It is owned and managed by Mr. Reynaldo Delos Santos and together with his wife, supervise the overall operations of the firm from financial management, production to marketing of products.

Rey used to be a security officer of banks but when he noticed that the furniture industry is in demand, he planned to start his own business, thus, came up with "Rheannie's Furniture Shop", named after his youngest child.

In 2005, he invested on essential equipment for furniture making and started with merely 100-150 bd.ft. per month of raw material.

With his efforts to reach out for more customers and establish connections with middle men in the town, his production requirement increased to 1,000 bd.ft. during lean months and 3,000 bd.ft. during peak months raising the firm's working capital from Php15,000 to Php100,000. He found it difficult, however, to meet deadlines set by clients because of delays brought by the firm's outsourcing of services like chainsaw, bandsaw and sawmill as well as the overheating air compressor which are all necessary to cut wood into workable sizes and create designs required by clients.

In 2017, he was informed by a fellow furniture shop owner in San Vicente that the Department of Science and Technology has a program providing technology assistance to MSMEs in the furniture making industry. He inquired through PSTC-Ilocos Sur as to how he can avail of the program.

INTERVENTIONS

- Provision of:
 - 1 unit Bandsaw
 - 1 unit Air Compressor



Production Facilities Upgrading of a Furniture Shop

Implementing Firm: **ELNA V. MENDOZA FURNITURE SHOP**
 Project Cooperator: **Ms. Elna V. Mendoza**
 Project Location: **Brgy. Paras, Candon City, Ilocos Sur**
 Project Cost: **Php 530,700.00**

Production worker using the 3-in-1 machine.

INTERVENTIONS

- Provision of 1 unit 3-in-1 machine
- Technical Assistance on Plant Layout

OUTCOMES

- Processing time reduced by 33% (finishing and obtaining the desired thickness and jointing from 3 to 2 days per door)
- Installation time of dividers and cabinets reduced by 25% (from 2 hrs. to 1 ½ hrs.)

The furniture shop was established in 1980 by Benjamin Mendoza Sr. with an initial capitalization of Php30,000. Through the years, the shop has been providing furniture products to its customers such as doors, beds, divider, dining tables, sala sets, and other kinds of wood furniture through job orders and also caters to walk-in customers who visit the shop.

The ownership of the firm was transferred to his wife, Mrs. Elna V. Mendoza, with a capital of Php100,000. With quality workmanship and value of product and services they provide, demand keeps on increasing with the growing construction of new establishments, offices and residences, thus, is usually opted for the interior design of a building.

The firm created a good reputation among its customers, which is why it vehemently desires to upgrade the quality of its services through the upgrading of its production facilities. Mrs. Mendoza sought the assistance of DOST for this purpose.



Process Advancement and Technology Upgrading Support to Wood Processing Facility of Tropical Timber Plantations, Inc. (Phase II)

Implementing Firm: **MARSSSE TROPICAL TIMBER PLANTATIONS, INC.**
 Project Cooperator: **Mr. Mario B. Sebastian Jr.**
 Project Location: **Lot 585 Barangay San Vicente, Umingan, Pangasinan**
 Project Cost: **Php 2,000,000.00**



The laser machine engravés a design into the wood product.

MARSSSE Tropical Timber Plantations, Incorporated is a family-owned corporation organized by Mr. Mario S. Sebastian's family to formalize the development, administration, operation and expansion of the exclusive tree farms.

Mr. Mario S. Sebastian started planting Mahogany in 1992 as a hobby. When he retired from agricultural chemicals and fertilizer distributorship, he devoted his time and finances to the 20 year old tree farms located in Umingan, Pangasinan. His eldest son, Mr. Mario B. Sebastian Jr., joined the family business after obtaining his degree on Management in 1997. In 2010, his younger brother Marco, followed suit after finishing BS Environmental Science. The two eventually took over the management and operations of MARSSSE Tropical Timber in 2012.

The firm is a privately-listed licensed business entity duly-registered at the municipal government of Umingan, Pangasinan, the Department of Trade and Industry Regional Office (2007) and at the Philippines Securities and Exchange Commission (2007) and properly-accredited private tree farm certified by the Department of Environment and Natural Resources Region I Office (2007).

MARSSSE Tropical Timber is committed to developing sustainable tree plantations that ensure a future where the need for wood is met in harmony with nature. Its mission is the development of sustainable tree plantations in the Philippines. The company works to:

1. Preserve the renewable hardwood resource in the Philippines by continuously developing barren land into managed tree plantations;
2. Contribute to the health and ecological balance in the region. Existing vegetation and wildlife within the plantation is protected to maintain and nurture the eco-diversity of the environment; and
3. Provide local job opportunities within the tree plantations. Plantation workers are from the immediate town communities.

The firm sought the assistance of DOST through SETUP for the upgrading of its equipment to increase log size and save on outsource services.



Logs are fed into the sawmill to cut into custom sizes.



OUTCOMES

- The firm's new markets are: Linya-Linya from Metro Manila (clothing, poster, etc. brand), DTI, Rustan's Pasalubong Center in NAIA and private individuals for custom orders.
- The firm has attended exhibits in World Trade and Forbes.
- Bigger and longer logs.
- Sales increase: 25-50%
- Production time decreased by 33%
- The firm no longer outsources engraving job orders which resulted to 75% savings.

SETUP-FUNDED PROJECTS

AGRICULTURE



Technology Upgrading for Oyster Mushroom Production

Implementing Firm:
Project Cooperator:
Project Location:
Project Cost:

ROMMEL'S MUSHROOM GROWERS
Mr. Rommel Sevidal
Nagtagaan, Rosario, La Union
Php 160,000.00



INTERVENTIONS

- Provision of:
 - 1 unit Fabricated Mechanical Shredder
 - 1 unit Fabricated Autoclave with Pressure Gauge
- Technical Assistance on Proper Plant Layout

OUTCOMES

- Fabricated mechanical shredder reduced processing time from 8 hours to 10 minutes for 120kg rice straw material
- More fruiting bags (300 per batch) can be sterilized per batch using the fabricated autoclave
- Reduced sterilization time from 9 hours to 2 hours
- Reduced rejects in final output from 15% to 2%

Rommel's Mushroom Growers has been engaged in Oyster Mushroom (*Pleurotus*) production since 2005.

After attending a training on fruiting bag production at Lepanto, Benguet in 2014, Mr. Rommel Sevidal immediately invested an initial capital of Php15,000 in addition to the establishment of mushroom house and laboratory. Due to limited workforce and equipment, the farm cannot produce the demand of its market, thus, it resorts to hiring of contractual workers when there are big orders.

With DOST assistance, he aims to reduce preparation time for fruiting bags and decrease contamination in the process.



Advancement of Facilities for a Poultry Farm in Support to Renewable Energy

Implementing Firm: **SUNNY VIEW FARM**
 Project Cooperator: **Mr. Manuel P. Soriano**
 Project Location: **Brgy. Erfe, Sta. Barbara, Pangasinan**
 Project Cost: **Php 1,718,903.00**



Spouses Manuel & Julia Soriano started venturing in the poultry industry in 1998 under Vitarich for contract growing. Their first farm was located at Amlang, Rosario, La Union. In year 2003, the farm expanded in Barangay Erfe, Sta. Barbara under Magnolia/ San Miguel Corporation and in Barangay Baritao in Manaoag, Pangasinan in 2008. The farm is managed with the help of their son, Napoleon V. Soriano, for the 5 tunnel vent houses with capacity up to 39,000 broilers/house and can have 5 growth cycles in a year.

The operation of the farm is very dependent on the power/electricity especially during the brooding period and there is no guarantee that power interruption/shortage will not occur. The firm pays an average of Php230,000 to Php250,000/month for their electric bill during the growing period.

With DOST assistance through SETUP, the firm was able to install a sustainable source of power needed in its operations.

INTERVENTIONS

- Provision of 26.50 kWp (kilowatt 'peak') Grid-Tied System (100 units Solar Panels)
- Technical evaluation on the needed power of the proposed building
- Seminar on Cleaner Production Technology
- Seminar-Workshop on Productivity Improvement through 5S Practice

OUTCOMES

- 25% decrease in power consumption – electric bill (from Php299,464.25 in August 2018 to Php229,340.00 in November 2018 savings of Php70,124.25/month)
- 69% increase in annual income (from Php422,156.00 to Php715,000.00)
- Generated 5 additional employment (1 regular (technician), 4 on-call (poultry boys))



Equipment Upgrading in Support to Mushroom Production

Implementing Firm: **GAMA SPAWN & MUSHROOM PRODUCTION**
 Project Cooperator: **Mr. Edwin D. Gamazon**
 Project Location: **San Vicente East, Asingan, Pangasinan**
 Project Cost: **Php 150,000.00**

Mr. Edwin Gamazon learned mushroom growing through researching and experimenting on his own. He was then hired in a company to produce mainly mushroom spawn. Later in 2014, he was advised by a friend to go back and focus in his own mushroom production business.

The firm produces and sells spawn, oyster mushroom and fruiting bags within Asingan, in other municipalities in Pangasinan and in Baguio City. At times, he serves as a trainer to different organizations interested to venture in the mushroom growing business.

The sterilization process uses a boiler that supplies steam to the plastic drum through a hydraulic hose. The boiler has degraded over time and already needs frequent repairs. Sterilization, on the other hand, is done using a plastic drum that can accommodate 100 bags per batch. It takes 3-5 hours to do the process and consumes plenty of firewood.

With the assistance of DOST, the firm was able to acquire the needed equipment and facilities that greatly improved productivity and product quality. Additional mushroom types can also be grown such as button mushroom that requires wide steaming area.

The fruiting bags of oyster mushroom are ready for harvest.



INTERVENTIONS

- Provision of 1 unit Stainless Steel Broiler
- Construction of concrete steamer with 500 substrate bags capacity
- Training on Mushroom Chicharon Making



The substrate bags are ready for sterilization in the concrete room. The steam is from the stainless steel boiler.



OUTCOMES

- Increase in gross sales by 61% (from Php28,000 to Php45,000 monthly)
- Increase in fruiting bags production by 233% (from 300 to 1,000 fruitings per month)
- Increase in fresh oyster mushroom production by 133% (from 90kg to 210kg per month)
- Decrease in sterilization time by 50% (from 3-5 hours per 100 fruiting bags to 10 hours per 500 fruiting bags)
- Additional markets and buyers from Urdaneta and Baguio
- Generated 3 additional employment

SETUP-FUNDED PROJECTS

GIFTS, DECORS & HANDICRAFTS



Product Quality Improvement Through Technology Upgrading of R-Zenith Tailoring

Implementing Firm: **R-ZENITH TAILORING**
 Project Cooperator: **Mr. Darwin B. Dulay**
 Project Location: **Brgy. I, Vigan City, Ilocos Sur**
 Project Cost: **Php 378,000.00**



Mr. Dulay operating the Dye Sublimation Printer

R-Zenith Tailoring is a business single proprietorship that provides quality formal and casual wear to locals of the city since 1969.

Starting from what his in-laws left and through his investment of his very own sewing machine, he continued to run the business with determination and hardwork. Eventually he has manage to raise the capital of the business to Php478,000.00.

Due to the increasing orders especially on jerseys, the owner was forced to outsource t-shirt and jersey printing in the City of Batac, Ilocos Norte where a large format dye-sublimation printing machine is available since the firm's existing heat press only caters up to A4-sized format and sometimes, when not monitored closely, burns or damages the fabric. The firm spends a considerable amount in order to meet deadlines.

In 2017, Mr. Dulay approached the Department of Science and Technology for assistance in acquiring equipment for printing and tailoring of casual and formal wears.

INTERVENTIONS

- Provision of:
 - 1 unit Dye-Sublimation Transfer Printer
 - 1 unit Large-Format Heat Press
 - 1 unit Piping Machine

OUTCOMES

- 71.43% increase in production volume (from 6,720 pcs to 11,520 pcs of various tailored and printed shirts)
- 259.11% increase in gross sales (from Php1,482,000 to Php5,322,000)
- 400% increase in sales and volume of production for t-shirt printing
- Eliminated outsourcing (dye sublimation machine) costs;
- Reduced raw materials wastage by as much as 75%
- Eliminated manual patterning of individual jersey shirts; the dye sublimation transfer printer can already print the whole shirt layout and is ready for sewing after transferring the print using the large format heat press machine



The Large Format Heat Press



Mr. Dulay setting-up the Piping Machine

Technology Upgrading for Glass Souvenir Production

Implementing Firm: **SEVEN SEAGULL ENTERPRISES**
 Project Cooperator: **Ms. Claire D. Gadingan**
 Project Location: **Quezon Ave., Brgy. II, San Fernando City, La Union**
 Project Cost: **Php 396,500.00**

Seven Seagull Enterprises offers customized glass and acrylic trophies, plaques, medals, nameplates, paper weights and other souvenir items. The firm has been in the business for over a decade now but still outsources the printing of decal at a shop in Dagupan City.

The firm spends for decal printing and other incidental expenses with an average waiting time of 3-4 days. As a result, the firm cannot accept rush orders and oftentimes, loses its clients due to the long waiting time.

This project aimed at acquiring the appropriate technology to address the said production constraint.

INTERVENTIONS

- Provision of 1 unit DocuCentre VI C3371 Decal Printer
- Decal Printer
- Proper Layouting

On-going operation of DocuCentre VI C3371 Decal Printer

OUTCOMES

- Increase in monthly volume of production by 16% (from 950 pcs. to 1,100 pcs. of assorted products)
- Increase in monthly average gross sales by 11% (from Php 427,083.34 to Php 472,410.88)
- Increase in productivity by 40%
- Employed 1 additional worker
- Eliminated outsourcing for decal printing
- Able to accept rush orders



Sample printed decal sticker



Finished Products

Production Process and Equipment Upgrading for JBT Prints and Graphic Designs Services

Implementing Firm: **JBT PRINTS AND GRAPHICS DESIGNS SERVICES**
 Project Cooperator: **Mr. Jonathan Bryan D. Tongol**
 Project Location: **Brgy. 21, San Pedro, Laoag City, Ilocos Norte**
 Project Cost: **Php 1,950,000.00**



JBT Prints and Graphic Designs Services offers services like tarpaulin printing, printing stickers, labels and packaging of different food products of MSME's in Ilocos Norte and other provinces in the North since 2010. It is the only printing press in Ilocos Norte that offers sticker printing for labels of products and packaging, making it as an edge over other similar firms in the province. The firm, however, recognized the need of upgrading its services to facilitate large quantity production and highest printing quality.



Mr. Jonnel Balanay, in charge in operating the die-cutting machine cuts the bulk copies of printed packaging materials of Señorita Dulce.

INTERVENTIONS

- Provision of:
 - 1 unit Offset Printer
 - 1 unit Die Cutting Machine
 - 1 unit Paper Cutter Machine

OUTCOMES

- Increase in the volume of production from 2,600,000 copies to 5,200,000 copies of assorted printed materials
- Increase in sales up to Php10,340,000
- Decrease in production rejects by 50%
- Hired 12 additional workers

Technology Upgrading for Digital Printing of Laoag Graphics Engineering Designs

Implementing Firm: **LAOAG GRAPHICS ENGINEERING DESIGNS**
 Project Cooperator: Mr. JC V. Salvador
 Project Location: Brgy. 10 P. Gomez St. corner McKinley,
 Laoag City, Ilocos Norte
 Project Cost: Php 550,000.00



Mr. Rexy Salvador, holding the ongoing printing of singlet designs from the sublimation printer to avoid cramping of the sublimation paper.



Ms. Maritess Lumbo, quality inspects and cutting the excess scrap of the singlet before packaging and delivery.

Laoag Graphics Engineering Designs is a sole proprietorship engaged in the printing of t-shirts. At present, the firm has already expanded its production line to digital transfer printing, accept customized polo shirts and t-shirts. The firm, however, cannot cater or accept other printing jobs especially the fully printed shirts which is the demand of the market today. This is the reason why Mr. Salvador sought the assistance of the Department of Science and Technology to address this concern of upgrading the capability of the firm through appropriate technological intervention.

INTERVENTIONS

- Provision of:
 - 1 unit Sublimation Printer
 - 1 unit Heat Press



The printed layout/design of singlet preparing for heat press.

OUTCOMES

- Increase in volume of production from 1,600 per month to 9,430 assorted customized printed products
- 20% reduction in production time
- 100% increase in number of clients
- Hired 11 additional workers

Upgrading of Equipment in the Production of Stainless Steel, Metal and Plastic Build-up Signs of Eugene's Advertising and General Services and Merchandise

Implementing Firm: **EUGENE'S ADVERTISING AND GENERAL SERVICES AND MERCHANDISE**

Project Cooperator: **Mr. Eugene B. Pasion**

Project Location: **Brgy. 7 Caunayan, City of Batac, Ilocos Norte**

Project Cost: **Php 730,000.00**



Eugene's Advertising and General Services and Merchandise is a single proprietorship type of business established in 1998. The company's services include printing of labels of food products, stickers, signage and production and installation of tarpaulin. It also caters to stainless steels, metal and plastic build-up. To sustain its products and services, the firm needs to acquire equipment for cutting stainless steel, metal and plastic which is presently done manually. The firm wants to take advantage of the opportunity to upgrade its facilities.

DOST-SETUP was sought to acquire the needed technological interventions.

INTERVENTIONS

- Provision of 1 unit Laser Machine for Metal and Non-Metal



The product of the laser machine.



The laser machine for metal and non-metal during its operation.



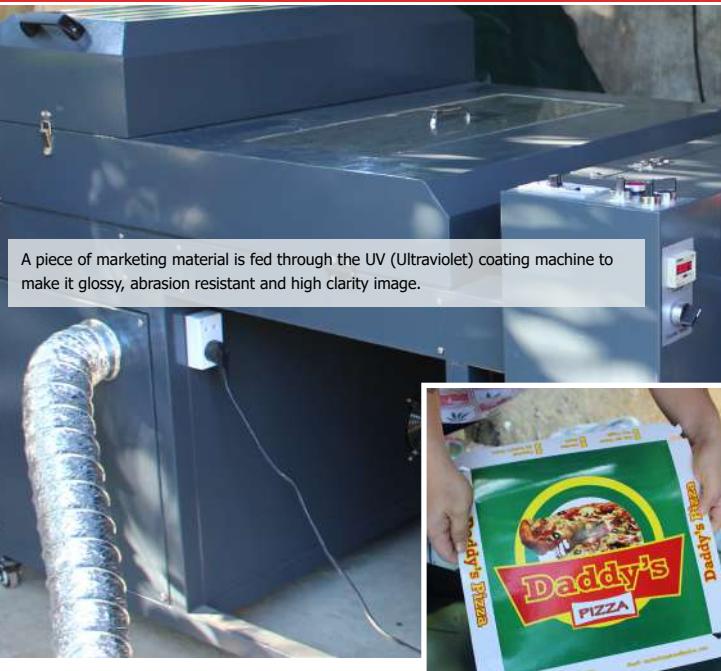
Mr. Eugene Pasion, owner of the Eugene's Advertising and General Services and Merchandise inspecting and finishing the cut letters from the laser machine.

OUTCOMES

- Increase in productivity in making signages by 20%
- Increase in income by 25%
- Reduction in production damages by 95%
- Increase in sales from Php6,000,000 to Php6,400,000.
- Opened another outlet in Laoag City

Improvement of the Production Process of a Printing Press through the Provision of S&T Related Equipment

Implementing Firm: **JAM-G PRINTING PRESS**
 Project Cooperator: **Mr. Guillie C. Inacay**
 Project Location: **Bateng East, Mangaldan, Pangasinan**
 Project Cost: **Php 380,000.00**



Mr. Guillie Inacay acquired the talent and skills when he worked in GMM Printing Press. In 2012, he decided to put up the JAM-G Printing Press named after his wife and offered services such as box printing, stickers and labels. The firm has 3 workers who are all family related.

The firm is outsourcing for box UV coating and pays a hefty sum for the service. Other printing businesses are also outsourcing this process resulting to delays that greatly affects the firm's operation.

Through the DOST-SETUP, the firm's concern was addressed.

INTERVENTION

- Provision of 1 unit UV Coating Machine

OUTCOMES

- New market of the firm: Rivera Printing Press
- Additional 1 employment
- Acquired 1 additional equipment which is a 2-Color Offset Machine
- Lessen process time by at least 25%
- Sales is increased up to 10% (from Php212,000.00 to Php233,200.00)
- Savings realized from outsourcing services for UV coating



SETUP-FUNDED PROJECTS

OTHER PRIORITY SECTORS

Technology Upgrading for Printing Press in Support to Packaging and Labelling Services and Allied Print Jobs in Region 1

Implementing Firm: **AGOO PRINTING PRESS**
Project Cooperator: **Mr. Jesus T. Panay**
Project Location: **San Nicolas Sur, Agoo, La Union**
Project Cost: **Php 1,000,000.00**



Into the business for three (3) decades now, Agoo Printing Press has grown and earned loyal customers for its quality but low-priced services. It has established alliances with numerous private and government entities in the printing of books, posters, programs, official receipts and other publications. It also offers services to micro, small and medium enterprises (MSMEs) in printing labels of packaging materials for products such as wines, honey, bagoong, baked goods, and others from as far as Ilocos Sur, Baguio City and Pangasinan. The firm also publishes a weekly local newspaper, North Luzon Headlines.

A DOST SETUP beneficiary in 2014, the firm sought for a second round of assistance to provide more satisfaction to its customers' requirements in the printing business.

INTERVENTIONS

- Provision of 1 unit Heidelberg GTO 52-1 Offset Printer Machine
- Technical Assistance on proper Layouting

OUTCOMES

- Increase in monthly volume of production by 15% (from 69,340 print jobs to 80,000 print jobs)
- Increase in monthly average gross sales by 10% (from Php1,091,900.00 to Php1,199,648.60)
- Increase in productivity by 87%
- Hired 2 additional workers

Machinery Upgrading for Color Printing Services

Implementing Firm: **UNICOLOR PRINTING PRESS**
 Project Cooperator: **Mrs. Teodora M. Dar**
 Project Location: **Zone 4, Lipay East, Villasis, Pangasinan**
 Project Cost: **Php 1,500,000.00**



Unicolor Printing Press was established in 2014 and is being run and managed by the Megote Family, with professional experience in the printing business for over thirty years.

The firm is a one-stop shop for all printing requirements specifically tailored to every individual requirement, to ensure the best results throughout pre-press, printing, finishing and binding process.

Requests for printing services from many customers are continuous. There is no problem in catering the demand for monochrome or black and white printing. However, with the high demand on colour printing, the firm wants to step up and acquire four colour printing machine.

Mrs. Dar sought the assistance of DOST through SETUP to adopt the appropriate printing machine to cater the high demand for quality color printing such as magazines, books, brochures and other prints in full color.



INTERVENTION

- Provision of 1 unit 4-color offset printing machine



The sheets of papers are being organized.



The printed materials are sorted and ready for distribution.



The sheets of papers are fed through the offset printing machine.

OUTCOMES

- Increase in production by 50% (The firm has a new contract with DepEd)
- New markets with private companies (brochures), schools (folders) and SM Baguio (folders)
- Additional 11 on-call workers until Dec 2018
- Increase in income by 50% (from Php230,000.00 to Php345,000.00)
- Increase in productivity by 50%

Facility Upgrading for Plastic Label Production

Implementing Firm: **NORTHPOINT PLASTIC PRINTING**
 Project Cooperator: **Mr. Roberto S. Odrón**
 Project Location: **#10 Zone 3, Catablan, Urdaneta City, Pangasinan**
 Project Cost: **Php 330,000.00**



INTERVENTIONS

- Provision of 1 unit cutting machine with sensor
- Training on Product costing



Northpoint Plastic Printing was established in 2013, owned by Mrs. Lorna P. Odrón but managed by her husband Mr. Roberto S. Odrón, an OFW who wanted to start a business. His wife's relatives, who have experience in the plastic industry encouraged him to engage in plastic printing and worked for him later.

With the viability of the plastic industry, he pursued the business on the labelling and packaging of food products with secondhand equipment to start the business.

At present, the firm has established 30 regular customers from Pangasinan and as far as Nueva Ecija, Bicol and Cavite who are mostly in the food processing business.

The need of customers for up to 22 inches wide cut labels was addressed through the DOST-SETUP Innovation System Support for the acquisition of a cutting machine with sensor.

OUTCOMES

- 30% increase in gross sales (from its contracts with the new customers)
- increase in productivity by 30%
- the firm accepts up to 22 inches output of cut plastic sheets
- 1 additional employment
- New customers from La Trinidad, Benguet and La Union

COMMUNITY-BASED PROJECT



Upgrading of the Production Facilities in Support to a Livelihood Center

Implementing Firm: **PALACAPAC ADVENTIST LIVELIHOOD CENTER**
 Project Location: **Brgy. Palacapac, Candon City, Ilocos Sur**
 Project Cost: **Php 86,212.00**

Palacapac Adventist Livelihood Center is an income generating project of the Palacapac Seventh-Day Adventist Church engaged mainly in the production of Soy Milk and Tokwa. Soy milk is one of the all-time favorite drinks that is well-sought by the locals because of the uniqueness of the product. Tokwa, on the other hand, is also famous in the locality since it is known to be nutritious. Orders for these products continue to reach the livelihood center.

The Center was established in 2016 through the initiative of the church members, with an initial capital of Php 40,000. With the perseverance and initiative of the members, the livelihood center slowly progressed. They now regularly supply with their products during festival fairs in the City of Candon, in the community of Palacapac, individual orders as well as in nearby schools.

With the increasing demand for the product and strict implementation of the Food Safety Act of 2013, the firm found it necessary to upgrade its production facilities, thus sought the assistance of the Department of Science and Technology.



OUTCOMES

- 75% process time reduction in extracting soy milk from the soy beans (from 1 hr. to 15 mins.)
- 50% increase in production of Soy milk (from 25 L. to 37.5 L. per production).
- 50% process time reduction in tokwa molding (from 2 hrs. to 1 hr.)
- 100% increase in production of tokwa (from 6 kg. to 12 kg. per production).
- New product lines:
 - Cookies (75 packs per week)
 - Muffins (45 packs per week)
 - Empanadita (20 packs per week)
- 80% increase in monthly gross sales (from Php14,400 to Php25,920).
- Integrated cGMP to the firm's operation with the acquisition of cGMP compliant equipment and improvement of production area.
- Additional 5 workers (2 permanent & 3 on-call workers).
- 4.98% improvement in productivity.



Upgrading of Burgos Pantawid Bakery

Implementing Firm: **BURGOS PANTAWID LEADERS ASSOCIATION**
 Project Location: **New Poblacion, Burgos, La Union**
 Project Cost: **Php 74,063.52**

Burgos Pantawid Leaders Association in action

INTERVENTIONS

- Provision of:
 - 1 unit Bread Slicers
 - 1 unit Spiral Mixer
 - 1 Unit Stainless Steel Table
 - 4 pcs Loaf bread molders



Bread Slicer



Spiral Mixer

Pantawid Pamilyang Pilipino Program (4Ps) is a human development program of the Department of Social Welfare and Development (DSWD) that invests in the health and education of poor households. In 2016, DSWD established a bakery and had it managed by the children of 4Ps beneficiaries in Burgos, La Union since there was no bakery in the municipality. Under the project, they were provided with skills training on bread and pastries making, oven, and operation of bakery tools and initial capital. The building for the production area was the counterpart of the municipality. However, due to mismanagement of finances and individual differences, the bakery folded up in the same year.

Seeing the potential of the project and the additional income it can provide for the community. LGU Burgos initiated for the re-organization of the Burgos Pantawid Leaders Association in the early part of CY 2018. A total of 21 members from 12 barangays of the municipality, it revive the bakery business. They sought the assistance of DSWD and LGU Burgos to help them in reviving the said bakery business. Through the initiative of Mayor Robert Madarang Jr., the LGU looked for partner-agencies to assist them in reviving the business. Ms. Analeah Hidalgo, DSWD Municipal Link of LGU Burgos, together with Mr. Oliver L. Mariano, President of Burgos Pantawid Leaders Association, visited DOST La Union office and sought for possible assistance.



Awarding of production equipment and facilities to the members of association with LGU Burgos officials and trainings on baking (lower left photo) and product costing and simple bookkeeping (lower right photo)



Actual operation of the spiral mixer

OUTCOMES

- The S&T interventions were completed end of November 2018. Trial operation is on-going.



Process and Product Improvement of Banana and Camote Chips of Lipay Proper Women's Association

Implementing Firm: **LIPAY PROPER WOMEN'S ASSOCIATION**
Project Location: **Brgy. Lipay Proper, San Gabriel, La Union**
Project Cost: **Php 57,587.00**



Awarding of production equipment/facilities and packaging materials to the members of association with LGU San Gabriel officials and trainings product costing and simple bookkeeping and good manufacturing practices

INTERVENTIONS

- Provision of:
 - 2 units Stainless Steel Tables
 - 2 units Multifunction Vegetable Slicer
 - 1 unit Heavy duty Burner with LPG
 - 2 units Large Cooking Vat
 - 2 units Large Strainer Ladle
 - 2 units Impulse Sealer
 - 1 unit Digital Weighing Scale
- Product Costing and Simple Bookkeeping
- Current Good Manufacturing Practices
- Training on Baking Utilizing By-Products from Soy Bean processing to produce cookies, muffins and empanadita
- Provision of new Label designs for Banana and Camote Chips and appropriate Packaging materials for Banana and Camote Chips



Production equipment



Sample of finished products with the new packaging and labeling design



OUTCOMES

- The S&T interventions were completed end of November 2018. Trial operation is on-going.



DEPARTMENT OF SCIENCE AND TECHNOLOGY

CEST

Community Empowerment Thru Science and Technology



CEST 2018: Pursuing for sustainability, starting new challenges

The Community Empowerment through Science and Technology program in Region 1 continued its 3rd year of implementation in Alilem and Sugpon, Ilocos Sur and at the same time launching the program in the Municipality of Dumalneg, Province of Ilocos Norte.

In 2018, several projects under the five priority areas were implemented catering to different stakeholders while facilitating partnership with several institutions.

Health and Nutrition

Under the Health and Nutrition area, the result of the Malnutrition Reduction Program (MRP) Phase II 120-day Complementary Feeding for the two municipalities catering to 15 barangays, is presented in Table 1.

Table 1. Change in Nutritional Status of Alilem and Sugpon as a result of the 120-day Feeding Program

Categories	Town	Change in Nutritional Status		
		Improved	No Change	Declined
Alilem	n = 48	23	22	3
	%	47.92	45.83	6.25
Sugpon	n= 34	16	11	7
	%	47.06	32.35	20.59
Overall Total	n=82	39	33	10
	%	47.56	40.24	12.19



Mothers Love. A parent feeding her child with RIMO Blend, one of the complementary foods of the Malnutrition Reduction Program (MRP) of CEST.

Table 1 shows the overall effectiveness rating of the MRP Phase II at 47.56% for a total of 39 kids who improved their nutritional status (improved means, from Severely Under Weight (SUW) to Under Weight (UW) or Nourish (N), or from UW to N). Meanwhile, 33 children have unchanged nutritional status meaning, the 120-day feeding program did not affect their nutritional status. Ten (10) children or 12.19% declined in their nutritional status.

The feeding Program was evaluated using the changes in body weight of the beneficiary children aged 6 months to 54 months.

The strategy for the MRP Phase II used the results of the sustainability planning of stakeholders after the MRP Phase I in 2017. The complementary food products (CFPs) were provided by the Ilocos Sur Polytechnic State College (ISPSC) and was implemented with the assistance of the Barangay Health Workers (BHWs) and Barangay Nutrition Scholars (BNSs).

Four (4) complementary food products were provided: RIMO blend, RIMO curls, the Nutri-bar, and the Momsie which were alternately fed to undernourished kids aged 24 to 54 months. These CFPs were considered after the "fed-up" feedback during the Phase I implementation which only used blend and curls alternately. However, the Rimo Blend was still used for the age bracket from 6 months to 23 months old.

Moreover, purchase of a Bioteck-M unit was initiated this year to mitigate concerns on Dengue cases of a chosen LGU beneficiary. The unit will be awarded in 2019 after conduct of a training and hands-on operation.

Environmental protection and Conservation

For this area, the monitoring of previously awarded ceramic water filters was conducted to test its efficacy and draw appropriate recommendations. Results of the monitoring revealed that some units are no longer effective to use after a year of deployment. With this, 100 units of 0.1-micron water filters were purchased. These filters have a filtration rate and have longer life span more than that of the ceramic filters. These will be deployed to the five barangays, in schools, barangay health centers as well as barangay water refilling stations in strategic areas of the communities.

A solar water pump with pipes and water tanks for the installation of a water distribution system in barangay Danac will also be installed in 2019. The intervention aims to address water shortage of the barangay that will benefit 45 households.



Basic Education and Human Resource Development

S&T modules awarded to elementary schools of Alilem and Sugpon were updated. A set of smart TV with computer and printer were awarded to Aguiwas Elementary School followed by hands-on training on the use of the S&T modules for Mathematics and Science and the introduction of the augmented reality tool for teaching. The teachers were joined by teachers from Kiat Elementary School in the training.



Jordan L. Abad, Project Coordinator (upper photo, first from left) spearheads the awarding of Educational Tools and Equipment to Aguiwas Elementary School in Kiat, Alilem, Ilocos Sur.



Disaster Mitigation and Climate Change Adaptation

The project entitled, **NAKASAGANA** or "Naglilinang ng Kahandaan sa Sakuna Gamit ang Napapanahong-teknolohiya", was implemented in the two municipalities. It features training on Disaster preparedness, distribution of DRRM/CCA-related IEC materials, and the installation or deployment of disaster-related instruments for disaster preparedness and resiliency.

With the project, training on Disaster Preparedness for Resilient Communities was conducted to DRRM focal persons of all the barangays in the two municipalities. The 84 participants included DepEd DRRM focal persons from both elementary and high schools, barangay captains, BNSs, barangay council members, and the barangay chief tanod (security officer). They were informed of the types of disaster the municipality could experience and the roles of each sector in the barangay, during and after a disaster. They were also given emergency Go Bag and different IEC materials. The training was in partnership with LGU-Sugpon and Alilem MDRRMO and the Department of Social Welfare and Development (DSWD) that distributed hygiene kits to the participants.



NAKASAGANA! DOST1-CEST in partnership with DSWD-FO1 conducts training on Disaster Preparedness for Resilient Communities to DRRM Focal Persons.

The project also included the assessment of the two municipalities on the possible installation of DRRM instrument. Results of the assessment for Sugpon revealed the susceptibility to flooding of barangays Pangotan and Poblacion. Thus, the installation of a weather station was recommended.

On the other hand, the municipality of Alilem was given nine units of handheld radio, a repeater, and antennas for the establishment of a communication system for quick disaster response. The handheld radios were deployed in the nine barangays while the command post was stationed in the Municipal Hall. The awarding also included orientation and training, and protocols on the use of the communication tools.

Economic Enterprise Development

For 2018, four projects were implemented to continue the initiatives of the barangays that pursued and adopted the technologies transferred through training conducted in the previous years.

In Barangay Apang, packaging and labeling supplies were provided for the production of Itsa (local term for tea) turmeric tea, ginger tea and banana chips. The products underwent microbiological testing and nutrition analyses at the DOST Regional Standards and Testing Laboratory.

In addition, 21 members of the Apang Food Processors Association (AFPA) were trained on Food Safety Principles and Practices. The processing building was also evaluated by the Food Safety team of DOST that recommended to the LGU to construct a separate processing center for the association to be implemented in 2019.

The food safety training was followed by the training on

bookkeeping and marketing strategies in partnership with ISPSC at its Tagudin Campus. Participants were members of the association together with members from the other three assisted associations of the project in the two municipalities.

Moreover, DOST also provided the association with a dehydrator machine, a pulverizer, and a crystallizer with burner and LPG tank to sustain their production, and teaching them to utilize the pulp of the ginger and turmeric into powder. The packaging and label design of the three products were finalized and will be ready for deployment in 2019, together with the machines and three units of stainless steel preparation tables.

The project, "Development of Ube Products" in Brgy. Danac, Sugpon with the Danac Ube Processors Association (DUPA) also benefited in various trainings and interventions. Seventeen (17) members of the association participated in the Food Safety training while four (4) members attended the bookkeeping and marketing strategies. The old barangay hall was used as processing center and was also assessed by the Food Safety team for improvement and provision of funds. Their product, ube wine provided with initial label and packaging was also upgraded.

DUPA was provided with dehydrator, pulverizer, and cooking utensils like cooking stock pots and heavy-duty burners with gas tanks, in addition to the Multi Commodity Solar Tunnel Dryer (MCSTD).

The Kiat Bamboo Handicraft and Designers Association on the other hand, is the beneficiary of the project, "Upgrading of Bamboo Handicraft Products", in Barangay Kiat, Municipality of Alilem. The association is recipient to the bookkeeping and marketing strategies training, the benchmarking/study tour to Mayat-an Handicrafts in Baguio City and the training on bamboo Handicrafts Finishing techniques and Development of Designs, in cooperation with the Mayat-an Handicrafts and the DMMMSU-MLUC College of Technology, Textiles and Garments Department. The association was also provided with two high-speed sewing machines and actively participated in the assessment and acceptability test

One Region, One Coffee. DOST1-CEST staff and Licungan Coffee Growers Association established coffee nursery area. (inset) Mr. Deceth1180 P. Libunao of DOST1-RSTL imparted knowledge on Current Good Manufacturing Practices (cGMPs) to CEST assisted associations.



of the bamboo splitter developed by the CEST unit of DOST-1.

The project, "Establishment of Coffee Production" in Brgy. Licungan, in Sugpon, has undertaken several activities. The Licungan Coffee Growers Association, a CEST-initiated association of coffee growers in the barangay, was equipped with trainings on Bookkeeping and Marketing Strategies and the re-echo training in Coffee Production and Basic Coffee Processing for 29 members with practical application on nursery establishment wherein 3-kilogram of arabica coffee seeds were sown, and later transplanted into plastic bags in the nursery. These will be distributed to the members of the association for planting.

The association was also provided with rejuvenating tools such as pruning saw and pruning shears as well as materials for the established nursery. The association rejuvenated 75 out of the 750 already less-productive, old trees. In addition, an MCSTD was installed for the production of quality green coffee beans. To complete the whole production cycle, ten (10) units of manual coffee depulper and a unit of coffee dehuller will be awarded to the association in 2019.



Engr. Jordan L. Abad, program Coordinator, leads the demo-operation (acceptability test) of the Bamboo Splitter Machine to the local artisans of Kiat, Alilem.



Ms. Rovilyn Mayat-an, owner of Mayat-an Handicrafts in Baguio City shared expertise on Bamboo Handicrafts Finishing to local artisans of Kiat, Alilem, Ilocos Sur.

CEST launching in Ilocos Norte



Converse, Record and Immerse. Several Activities were conducted as CEST Program goes to Dumalneg, Ilocos Norte.

"...do not only create milestones worth sharing and experiencing, but of creating wealth of opportunities for the communities even in the remotest part of these municipalities. "

To further extend the coverage of the program throughout the region, the Municipality of Dumalneg was chosen as the CEST community in Ilocos Norte as the municipality recorded 25.7 poverty incidence and 1st in the province according to Philippine Statistics Authority in 2015. With this, activities were initiated to formally launch the program in the province. Advocacy meeting with the Local Government Unit of Dumalneg, the Mariano Marcos State University, and NCIP-Ilocos Norte was conducted. Another consultative meeting was organized to plan further activities and meet with the program's Core group of DOST-1 and MMSU personnel.

After the advocacy meeting, the core group assessed the four barangays of the municipality of Dumalneg on the five priority areas of the program, consolidated, disseminated, and used in the planning-workshop with stakeholders that resulted to the scheduling and planning of target activities in 2019.

Truly, these activities geared towards empowering less-privileged communities in the region, do not only create milestones worth sharing and experiencing, but of creating wealth of opportunities for the communities even in the remotest part of these municipalities.



SCIENCE & TECHNOLOGY SERVICES

TESTING AND CALIBRATION SERVICES

CY 2018 was a challenging year for the Regional Standards and Testing Laboratory of DOST-I. The Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD), the funding agency for the project, "Enhancing ONELAB for Global Competitiveness Year 2", set specific objectives to be accomplished. The laboratory staff with proficiencies and exceptional performance combined, exceeded the targets with flying colors. Challenges were encountered in securing the following certificates and licenses:

- Certificate of Authority to Operate Chemical Labs as required in the New Chemistry Law, which was issued last March 2018.
- PDEA and PNP Licenses required in the acquisition of controlled chemicals used in testing and analyses, issued February 2018 and July 19, 2018, respectively.
- Renewal of DENR Certificate of Recognition as the Regional Environmental Lab issued September 24, 2018 and valid for 3 years
- Provision of a Hazardous Waste Facility as one of the requirements in maintaining the Registration Certificate as Hazardous Waste Generator pursuant to RA 6969 as implemented through DENR AO No. 92-29
- Maintenance of FDA accreditation as Regional Food Lab and DOH-BRL accreditation as Regional Drinking Water Lab valid until 2020
- Maintenance of the PAB accreditation (ISO/IEC 17025:2005) and on-going transition to ISO/IEC 17025:2017 edition

All these mandatory and voluntary accreditations, certifications and recognition were satisfactory acquired and sustained.

Likewise, the RSTL sustained the delivery of laboratory services and were able to accomplish the following:

Indicators	CY 2018 Target	Accomplishments	%
Number of samples analyzed	6,600	7,689	117
Number of analyses/calibration conducted	10,766	13,492	125
Number of customers served	4,349	4,860	112
Number of new customers served	362	1,241	344
Number of firms served	1,189	2,170	182
Total Fees collected, Php	6,524,862.96	7,761,969.33	119
Value of assistance rendered, Php	420,000	1,109,381.60	264
Number of samples referred from other labs	10	22	200
Number of tests referred	20	45	225
Fees collected from referred sample, Php	10,000	24,008	240
Number of samples referred by PSTC	1	8	600
Number of tests referred by PSTC	5	20	400
Fees collected from referred samples by PSTC, Php	10,000	37,560	376

The Chemistry and Microbiological Labs participated in Proficiency Testing. All test parameters participated by all the laboratory analysts were satisfactorily passed, certifying them as competent in testing and analyses.

RSTL staff participated in the twelve (12) S&T Caravans conducted in the 12 Congressional Districts of the region, and during the Regional Science and Technology Week Celebration held in Alaminos City, Pangasinan. RSTL/ONELAB services were promoted thru a full page advertisement in the Souvenir Program of the Mycological Society of the Philippines, Inc. (MSP)

The RSTL also accommodated 51 students from eight (8) public and private secondary schools to undergo the Science Immersion in compliance to the K to 12 Program of DepEd to make the STEM track aligned with work standards. DOST-I provided the students with the knowledge and skills that are relevant to the needs of the job market in the area, and the relevant experiences by exposing them to various actual workplace settings. These activities started last CY 2016 and will continue to provide necessary expertise and venue for practical-based training opportunities for students.

RSTL also met the extensive customer requirement with satisfaction index of 98%. All RSTL staff attended the "In-house Training on Awareness and Documentation of Laboratory Management System based on ISO/IEC 17025:2017", the General Requirements for Competence of Testing and Calibration Laboratories held at the DOST AV Room on November 21-23, 2018.

It was indeed a fulfilling year for the RSTL, because its efforts were recognized by receiving the Outstanding Regional Laboratory Award for conducting the highest number of tests from CY 2006 to 2018 for the project ONELAB given on December 17, 2018.



Students from La Union Cultural Institute and Don Eulogio De Guzman Memorial National Highschool after their work immersion at RSTL



Students from Philippine Science High School - Ilocos Region Campus, with their adviser, Ms. Faith Tarlit and RSTL staff, after their presentation of Learnings from the work immersion.



LABEL DESIGN AND PACKAGING SERVICES

Packaging and Labeling always provide great impact to a product's competitiveness in the market. Poor packaging, limited shelf life, no product identity, non-compliance to regulations and non-competitive product are the common issues that the Packaging and labelling services of DOST 1 try to address.

In CY 2018, DOST 1 continued to provide assistance to MSMEs in improving their product through its Packaging and Labelling Assistance. The Office maintains the services of two (2) packaging and labelling designers in the region who facilitate the development of label design requirements of SETUP and GIA project beneficiaries and other MSMEs who request for assistance, mostly in the food processing sector. The designs are subsidized by DOST while the packaging execution is charged either to the SETUP Innovation System Support Fund or to the requesting firm itself.

A total of 22 firms benefitted from the service. Thirty nine (39) products were provided with label designs of different structure and another 20 products in various stages of the design process from 14 firms.

Table 1. Target vs Accomplishments

INDICATORS	ANNUAL TARGET	ACCOMP.	% ACCOMP.
Packaging and Labeling Design Provided	28	39	139.28
No. of Firms Assisted	28	22	78.57

Table 2. List of firms provided with product label designs

PROVINCE	DIST.	Firms	Address	Products
ILOCOS NORTE	2	LGU Pinili Ilocos Norte	Brgy. Valbuena, Pinili	Garlic Powder, Garlic Chips, Garlic Noodles
		Aracelie Food Products	Brgy. 6, San Marcos, San Nicolas	Turones de mani
		Barani Meat Processing Association	Brgy 10-5 Barani, City of Batac	Longanisa
ILOCOS SUR	1	JQF Meatshop	Ayusan Norte, Vigan City	Longanisa, Tocino
		BRS Longanisa	Brgy. V, Vigan City	Longanisa
		Three's Longanisa and Baguet	Brgy. V, Vigan City	Longanisa
		Melody's Food Products (Melody's Ilocos Blend Homemade Peanut Butter)	Bantaoay, San Vicente	Peanut Butter
LA UNION	1	Lipay Proper Women's Association	Lipay Proper, San Gabriel	Banana Chips 80g, Banana Chips 175g, Camote Chips 80g
		College of Technology, DMMMSU-MLU Campus	City of San Fernando	Grape Wine, Grape Jelly, Grape Jam, Grape Cider Vinegar, Guava Jelly, Guava Jam, Guava Wine
	2	Bagulin Multi Purpose Coop	Pila, Cambaly, Bagulin	Ginger Powder, 60g, Ginger Powder, 100g, Ginger Powder, 220g
		La Union Vibrant Inc. Agoo Chapter	San Agustin East, Agoo	Bangus in Olive Oil
		Ubagan Fisherfolk Association	Ubagan, Santo Tomas	Smoked Boneless Bangus
PANGASINAN	1	JM Salt Manufacturing	Sitio Banog, Cato, Infanta	Iodized Salt
	2	Louis Roy Bakeshop	40 Maravilla St. Mangatarem	Loaf Bread, Burger Buns
		Idang's Bagoong	Pangapisan North, Lingayen	Bagoong (Fish Sauce)
		Binmaley Rural Improvement Club Seafood Product	68 Buenlag, Binmaley	Smoked Bangus (tinapa)
		Mariano S. Layos Enterprises	308 Tangili St. Domalandan Center, Lingayen	Boneless Bagoong
	4	Manang Rosa Home Made Bagoong Alamang	15 Caoile St., Mangatarem	Bagoong Alamang
		Elisha Bay Dagupan Boneless Bangus and Seafoods	148 Mangin, Dagupan City	Bangus in Corn Oil
	5	LGU San Fabian	San Fabian	Tupig
	6	Maresma Multi-Purpose Coop.	San andres, Balungao, Pangasinan	Squash Noodles
		Livelihood For RIC of Umingan Inc.	Umingan, Pangasinan	Canton with Squash

The Packaging and Labelling Assistance intends to facilitate the improvement of label and packaging designs of local products as a strategy to widen the products' market reach. It is indeed a great benefit to our MSMEs to have wider market that would result to bigger sales.



LABEL DESIGN AND PACKAGING SERVICES

TURMERIC POWDER

DIRECTIONS:
FOR TRULY SOOTHING DRINK
STIR 1 TEASPOON OF POWDER INTO A CUP OF HOT WATER

Nutrition Facts

Serving Size 5g	Serving per Container 36
Amount Per Serving	Calories 20
Total Fat (g)	% RENF: 0%
Saturated Fat (g)	0%
Trans Fat (g)	0%
Cholesterol (mg)	0%
Sodium (mg)	0%
Total Carbohydrate (g)	4g
Sugars (g)	0%
Protein (g)	0%

EXPIRATION DATE: [] **LOT NO.:** []

NO APPROVED THERAPEUTIC CLAIMS

Manufactured by:
BAGUIN MULTI PURPOSE COOP.
Pila Combalay Baguin, La Union
Contact No.: 0930-8978155
FDA LTO NO. CFRR-R1-FM-1698

PRODUCT OF THE PHILIPPINES

41806532870012

GINGER POWDER

DIRECTIONS:
FOR TRULY SOOTHING DRINK
STIR 1 TEASPOON OF POWDER INTO A CUP OF HOT WATER

Nutrition Facts

Serving Size 5g	Serving per Container 44
Amount Per Serving	Calories 10
Total Fat (g)	% RENF: 0%
Saturated Fat (g)	0%
Trans Fat (g)	0%
Cholesterol (mg)	0%
Sodium (mg)	0%
Total Carbohydrate (g)	2g
Sugars (g)	0%
Protein (g)	0%

EXPIRATION DATE: [] **LOT NO.:** []

NO APPROVED THERAPEUTIC CLAIMS

Manufactured by:
BAGUIN MULTI PURPOSE COOP.
Pila Combalay Baguin, La Union
Contact No.: 0930-8978155
FDA LTO NO. CFRR-R1-FM-1698

PRODUCT OF THE PHILIPPINES

4180901536210731

SALABAT GINGER TEA

DIRECTIONS:
FOR TRULY SOOTHING DRINK
STIR 1 TEASPOON OF POWDER INTO A CUP OF HOT WATER

Nutrition Facts

Serving Size 5g	Serving per Container 44
Amount Per Serving	Calories 10
Total Fat (g)	% RENF: 0%
Saturated Fat (g)	0%
Trans Fat (g)	0%
Cholesterol (mg)	0%
Sodium (mg)	0%
Total Carbohydrate (g)	2g
Sugars (g)	0%
Protein (g)	0%

EXPIRATION DATE: [] **LOT NO.:** []

NO APPROVED THERAPEUTIC CLAIMS

Manufactured by:
BAGUIN MULTI PURPOSE COOP.
Pila Combalay Baguin, La Union
Contact No.: 0930-8978155
FDA LTO NO. CFRR-R1-FM-1698

PRODUCT OF THE PHILIPPINES

41816532870043

AGOO'S BEST
Bangus in OLIVE OIL

DIRECTIONS:
COOK OR HOLLOW IN A PAN OR ON A GRILL. ADD 1 TEASPOON OF OIL. ADD 1 TEASPOON OF BANGUS. ADD 1 TEASPOON OF CHILI SAUCE. ADD 1 TEASPOON OF LEMON JUICE. ADD 1 TEASPOON OF GARLIC POWDER. ADD 1 TEASPOON OF SALT. ADD 1 TEASPOON OF PEPPER. ADD 1 TEASPOON OF BAYLEAF. ADD 1 TEASPOON OF CHILI. ADD 1 TEASPOON OF MONOSODIUM GLUTAMATE (MSG).

Ingredients:
Bangus (milk fish), Olive Oil, Garlic, Black Pepper, Bayleaf, Chili, Salt, Monosodium glutamate (MSG)

Contains Food Allergen: Fish

LOT NO.: [] **EXPIRY DATE:** []

Net Wt. 250g

Label designed by:
DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

Mings
LINGAYEN FISH SAUCE

BAGOONG Tirong
SALTED BONNETMOUTH FISH

Net Wt. 750ml

Manufactured by:
MSL ENTERPRISES
308 Tamga St., Compostela
Center Lingayen, Pangasinan

Assisted by: DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

Mings
FISH EXTRACT

Special Patis

Net Wt. 750ml

Manufactured by:
MSL ENTERPRISES
308 Tamga St., Compostela
Center Lingayen, Pangasinan

Assisted by: DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

UMLIGHOOD FOR RIG OF UMINGAN

SQUASH VEGGIE NOODLES

SQUASH CANTON

Net Wt. 180 g

Ingredients:
Flour, Squash, Egg, Iodized Salt, Water and Oil

Label designed by:
DEPARTMENT OF SCIENCE & TECHNOLOGY

PRODUCT OF THE PHILIPPINES

AGOO'S BEST
CAMOTE in OLIVE OIL

DIRECTIONS:
COOK OR HOLLOW IN A PAN OR ON A GRILL. ADD 1 TEASPOON OF OIL. ADD 1 TEASPOON OF CAMOTE. ADD 1 TEASPOON OF CHILI SAUCE. ADD 1 TEASPOON OF LEMON JUICE. ADD 1 TEASPOON OF GARLIC POWDER. ADD 1 TEASPOON OF SALT. ADD 1 TEASPOON OF PEPPER. ADD 1 TEASPOON OF BAYLEAF. ADD 1 TEASPOON OF CHILI. ADD 1 TEASPOON OF MONOSODIUM GLUTAMATE (MSG).

Ingredients:
Camote, Olive Oil, Garlic, Black Pepper, Bayleaf, Chili, Salt, Monosodium glutamate (MSG)

Contains Food Allergen: Fish

LOT NO.: [] **EXPIRY DATE:** []

Net Wt. 250g

Label designed by:
DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

Agoo's Best
BANANA CHIPS

SWEET

Net Wt. 80g

Ingredients:
Banana, Palm Oil, White Sugar, Honey, Vanilla

EXPIRATION DATE: [] **LOT NO.:** []

Label designed by:
DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

Lipay

Crispy & Thin

BANANA CHIPS

SWEET

Net Wt. 80g

Ingredients:
Banana, Palm Oil, White Sugar, Honey, Vanilla

EXPIRATION DATE: [] **LOT NO.:** []

Label designed by:
DEPARTMENT OF SCIENCE AND TECHNOLOGY

PRODUCT OF THE PHILIPPINES

TACS

TECHNICAL ASSISTANCE and CONSULTANCY SERVICES

The Department of Science and Technology Regional Office No. I (DOST-I) provides consultancy services to DOST-assisted MSMEs and other potential customers to address their technical needs enabling them to produce more competitive products for the local and world market. Such programs are on Food Safety (FS) Assessment, Energy Audit (EA) and Cleaner Production (CP) Assessment.



FOOD SAFETY ASSESSMENT aimed to assist food processors and other food Service Providers in complying with food safety requirements, standards and regulations. Eleven (11) firms were granted with License-To-Operate (LTO) by the Food and Drug Administration (FDA). Below is the list of firms assisted:

Table 1. List of firms assessed for Food Safety, CY 2018

No.	Name of Firm	Location
1	Tinapay Along the Riles	City of San Fernando, La Union
2	Valentino's Cake Boutique	Bauang, La Union
3	Baker's PH	Laoag City, Ilocos Norte
4	GNT Health and Wellness	Laoag City, Ilocos Norte
5	Bash Meat Products	Vigan City, Ilocos Sur
6	JQF Meat Products	Vigan City, Ilocos Sur
7	Ambros Chichacorn	Candon City, Ilocos Sur
8	Three's Longanisa	Bantay, Ilocos Sur
9	Melody's Ilocos Blend	San Vicente, Ilocos Sur
10	Valleden's Pastries	Quibao West, Lingayen, Pangasinan
11	Nutridense Food Manufacturing Corp.	Sta. Barbara, Pangasinan



Production areas of food processing firms were assessed by the Region 1 Food Safety Team.

This activity created a strong partnership with the LGUs in promoting food safety through seminars and training on cGMP and Food Safety, fora on how to apply for license to operate (LTO) at FDA and the conduct of S & T Caravans. Twenty-six (26) firms and associations including LGUs were assisted in complying with LTO requirements in the region, 5 in La Union, 10 in Pangasinan, 5 in Ilocos Sur and 7 in Ilocos Norte. A total of 17 trainings on Current Good Manufacturing Practices were conducted with a total of 986 participants. **Table 2 presents** the beneficiaries that availed of technical interventions.

Mr. Decth-1180 P. Lumibao, SRS II, during a Food safety Training participated by different firms, LGUs, government agencies, and associations from Region 1.



ENERGY AUDIT is another technical service provided by DOST-I to give a firm or company with a better picture of its energy consumption and identifies opportunities for improvement thus realizing immediate cost savings.

The Region I Energy Audit Team conducted a detailed energy audit on the following firms (**Table 3**) to determine the present operating conditions of selected energy-consuming equipment inside the work area and identified energy efficiency improvement opportunities to reduce their operating expenses.

Table 3. Firms that underwent that benefitted from Energy Audit, CY 2018.

No.	Firm	Address
1	Melody's Food Products	Bayubay, San Vicente, Ilocos Sur
2	Antigua De Madera Furniture	San Julian Norte, Vigan City, Ilocos Sur
3	Choylin Fried Station	Sta. Catalina, Ilocos Sur
4	San Pablo Multi Purpose Cooperative Rice Mill	Balaon, La Union
5	Abad Furniture	Legleg, Bacnotan, La Union
6	Lenie's Furniture	Bangar, Rosario, La Union

Findings and recommendations of the Team were discussed to the owners after each engagement, and are subject to monitoring and evaluation.

In addition, twelve (12) Fora/trainings on current Good Manufacturing Practices and Awareness Seminar on Food Safety were conducted during the S & T Caravan in the 12 congressional districts of Region 1.

Table 2. Firms, local government units, Government Agencies and associations that were provided with technical assistance/trainings on Food Safety, CY 2018

No.	Name of Firm	Location
1	NA Lolong's Bakery & Store	Brgy. 22, Rizal St., Laoag City, Ilocos Norte
2	Baker's PH	Airport Rd., 44, Laoag City, Ilocos Norte
3	Philippine Carabao Center	City of Batac, Ilocos Norte
4	Barani Meat Processors	Brgy. 10, Barani, City of Batac, Ilocos Norte
5	Batac Cornick	Sumader, City of Batac, Ilocos Norte
6	Aracelie's Food Products	San Marcos, San Nicolas, Ilocos Norte
7	Dupitac ARB's MPC	Dupitac, Piddig, Ilocos Norte
8	Wynn's Food Products	Salcedo, Ilocos Sur
9	Palacpalac Adventist Livelihood Center	Candon City, Ilocos Sur
10	Choy Lin Fried Station	Vigan City, Ilocos Sur
11	Villamar RIC	Caoayan, Ilocos Sur
12	Melanie Turones DE Mani	Vigan City, Ilocos Sur
13	Sensational Bites Cakes and Pastries	Caba, La Union
14	LGU Agoo Processing Center for Sardines & Mushroom	Agoo, La Union
15	LGU Bauang Meat Processing Center	Bauang, La Union
16	Brgy Langcuas Ube Processing Center	San Fernando, La Union
17	Pilar Miki	San Manuel, Pangasinan
18	Reginio's Bakery	Bautista, Pangasinan
19	Blessed Hand Turmeric	Manaoag, Pangasinan
20	Julia's Icecreamy	Dagupan, Pangasinan
21	Binmaley RIC	Binmaley, Pangasinan
22	Edang's Bagoong	Lingayen, Pangasinan
23	Mama Cili	Anda, Pangasinan
24	Manang Rosa Bagoong Alamang	Mangatarem, Pangasinan
25	Ladies Group of Binmaley	Caloocan Norte Chapter, Binmaley, Pangasinan
26	Jarolds Food Products	Dagupan City, Pangasinan



DOST's latest innovation on consultancy program is the project "OneExpert", an interactive portal featuring a pool of consultants, the country's scientists, researchers, engineers, inventors and other technical people from both the public and private sectors who will serve as partners in addressing the technical problems of MSMEs through S&T-based solutions.

- Number of S&T experts registered/enrolled in OneExpert Portal: 42
- Number of institutions with registered experts: 13



TECHNOLOGY TRAININGS

DOST-I conducts technology trainings to provide technology-based skills to personnel of existing firms and prospective enterprises to improve the productivity and possible establishment of technology-based business endeavors, respectively.

A total of 83 trainings on various technologies were conducted for 3,640 participants in 2018. Three hundred sixty two (362) firms benefitted from the training covering topics on Drum-Type Charcoal Kiln, Vermicomposting, Welding Processes, Resin Casting/Lamination, current Good Manufacturing Practices (cGMP) with emphasis on Food Safety and many more. Most of the trainings were conducted during the Science & Technology Caravans and during the Regional Science and Technology Week held in Alaminos City, Pangasinan.





TECHNOLOGY FORA

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

A total of 68 technology fora were conducted in 2018. Different technologies and other S&T-related information were presented to various audiences. Some of the technologies promoted were: portable biogas digester, electric plastic densifier, dual-drum composter, portable solar dryer (portasol), ecosep, bioreactor, carrageenan plant growth promoter and many more S&T-related topics including: food innovation center, food safety regulations and FDA mandatory requirements on Licence-To-Operate (LTO) for food establishments, trends and innovations on food packaging, disaster prevention and mitigation, intellectual property rights, etc. The various fora were attended by 6,015 participants and benefitting 289 firms.





OTHER SCIENCE & TECHNOLOGY SERVICES

S & T SCHOLARSHIP

The implementation and successful integration of the K-12 program along with the subsequent approval and enactment of the "Universal Access to Quality Tertiary Education" or Republic Act No. 10931 among others, are proof of the government's strong desire and commitment to strengthen the country's educational system.

Mandated with a mission to accelerate the development of the country's S&T human resources, the Department of Science and Technology – Science Education Institute (DOST-SEI) incessantly promoted its programs and projects in the Region to stimulate the continued development of the country's science and technology human resources in order to support the growth, innovation, as well as their utilization necessary to spur economic development. These programs and projects aim to produce leaders and decision-makers in government, academe, and private industries along the areas of S&T.

One of the programs of DOST-SEI tailor-made to accomplish its mission is the implementation of the different scholarship programs both for baccalaureate and graduate programs. Scholarship programs for undergraduate students are RA 7687 or the "Science and Technology Scholarship Act of 1994", RA 10612 or the "Fast-Tracked S&T Scholarship Act of 2013"; and RA 2067 or the "Merit Scholarship Program". Meanwhile, graduate program students who want to pursue their Masteral and/or Doctoral degrees can choose between the Accelerated Science and Technology Human Resource Development Program (ASTHRDP), the Capacity Building Program in Science and Mathematics Education (CBPSME), and the Engineering Research and Development for Technology (ERDT) Program.

S&T Scholarship Qualifiers

The year started great for the program as it recorded its highest number of both examinees at 46,434 and qualifiers that tallies to 8,994 for the 2018 Undergraduate Scholarship Examination. Out of the record-breaking number of qualifiers, a total of 379 hail from Region 1 – 244 qualified for the RA 7687 scholarship program while 135 qualified under the Merit Scholarship program.

Before the year ended, DOST-SEI surprised on-going third year college students as it announced 946 qualifiers for the 2018 Junior Level Science Scholarship (JLSS). Among the said qualifiers, 40 were students enrolled in universities and colleges in Region 1 – 10 qualified for the RA 7687 scholarship program, 29 qualified under RA 10612, and one (1) under the Merit Scholarship program.

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 – an immense increase from the old rate of P6,000/month for the BS Physics, Applied Physics, Physics Teaching, Geology, Mining Engineering, Agriculture, and Fisheries; and P5,000/month for the other DOST-SEI priority

courses. 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.



2019 Undergraduate Scholarship Examination held at PSU Lingayen Convention Hall

S&T Scholarship Campaign and Examination

Having intensified the campaign for the scholarship programs, these were for undergraduate scholarship. A total of 4,126 graduating Senior High School students from all over the Region applied and took the 2019 Undergraduate Scholarship examination last October 21, 2018, an overwhelming 60% increase from last year's 2,568 applicants.

The increase is attributed to the school-to-school scholarship campaign among the graduating senior high schools. Unlike in the previous years, the campaign this year was localized, allocating at least a week in each province, to directly reach remote schools to provide information and other collaterals about the scholarship programs. Information drive and career guidance seminars were also conducted to schools with large number of graduating senior high school students.

"The strategic communication plan to introduce the DOST-SEI Undergraduate S&T Scholarship Programs to municipalities that had no examinees or the #Push4Science: Maging DOST Scholar Ka!" program of DOST-SEI was advocated in schools and universities in the City of Batac and Laoag City in Ilocos Norte and in Balungao, Pangasinan.

S&T 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 year.

One of the major activities was the two-day Scholars' Formation Program in the City of Batac, Ilocos Norte to inculcate the values of patriotism and nationalism to the scholars. A total of 250 undergraduate scholars gathered for the event held at the Teatro Ilocandia in Mariano Marcos State University. Dr. Josette T. Biyo, Director of DOST-SEI, personally greeted and sent the scholars a strong message about their role in the community as scholars and their goal to reach an inclusive national development.

The formation program aimed to instill the core values of professional excellence, social responsibility, and servant leadership – each discussed through a series of engrossing modules and activities that allowed interaction between the scholars. A one-day community immersion was also done for the scholars to interact with the different sectors of the community.

Another activity for on-going scholars who are in their junior/senior years is the Summer Practical Training Program (SPTP). This program serves as their on-the-job training aimed to expose them to current trends and developments of a particular industry and gain practical experience along their field of specialization and prepare them for a better future employment.

A series of seminars for graduating scholars was conducted in different venues in the provinces.

First is the Seminar on Job Hunting Strategies and Employment Generation – to enhance the competency, readiness, and competitive skills of DOST scholars in response to the increasing challenge of finding a job. Personality Development, Work Related Values and Ethics, Career Pathing and Development, Resume and Application Letter Writing, and Self-Employment among others were discussed.

Meanwhile, 76 regular third year college students took the 2018 Junior Level Science Scholarship Examination held in various test centers in the region. This drastic decrease in the total number of third year college applicants, which was felt nationwide, can be attributed to the lingering effects of the implementation of the K-12 Program since no new first year college student enrolled in the last two years.

Also, strides to promote the different graduate scholarship programs of DOST-SEI were taken. The Capacity Building Program in Science and Mathematics Education (CBPSME) was discussed to 130 hopeful teaching and non-teaching personnel during the two-day 2018 Scholars Forum, spearheaded by the Department of Education Regional Office 1 (DepEd RO1).



The two-day scholars formation held in Batac City, Ilocos Norte

The Exit Conference of DOST-SEI Graduating Scholars serves as a forum to re-orient them on their responsibilities and commitments to the scholarship agreement with DOST-SEI, especially their service obligation to the country. It also meant to reintegrate the values of the scholars in their role and a good start to share the significance of patriotism for the common good and for the betterment of the country. It also became an avenue to promote the various graduate scholarship programs of DOST-SEI.

Representatives from DepEd RO1 were also present in the Exit Conference to discuss their role in the implementation of RA 10612 – starting from the qualification standards for Special Science Teacher 1 (SST1) position, to the hiring process and eligibilities needed for the scholars to avail their teaching positions.

Out of the 181 graduating scholars, a total of 155 participated in the Seminar on Job Hunting Strategies and Employment Generation, while a total of 157 participated in the Exit Conference of DOST-SEI Graduating Scholars.



Group picture of scholars with the speakers after the job hunting seminar.



Dr. Estrella Perez, Dean, College of Management presenting the Roadmap to Your Future during the job hunting seminar in La Union.



Recognitions of Scholar-Graduates

As of the end of Academic Year 2017-2018, the different scholarship programs of DOST-SEI have again produced a new crop of qualified S&T personnel in Region 1. A total of 177 new scholar graduates is a welcome addition to the growing community of scientists, engineers, and innovators who are expected to contribute to the country's national development.

One hundred four (104) scholar-graduates of RA 7687 were cream of the crop. Among them, 12 were magna cum laudes, 24 were cum laudes, and six (6) with academic distinctions. Meanwhile, the Junior Level Science Scholarship scholars under RA 10612 – the program solely dedicated in strengthening the S&T resource pool for teachers - recorded 71 scholar graduates, three (3) of which were magna cum laudes, twenty (20) were cum laudes, and two (2) with academic distinctions. As for the DOST-SEI Merit Scholarship, one (1) graduated as magna cum laude and one (1) as cum laude.

In recognition to scholars who graduated with latin honors, a program called "In Touch with Excellence" was held at the Rose Bowl Restaurant in Bauang, La Union. Sixty-one (61) scholar-graduates attended and was recognized during the program.

Moreover, 100 DOST scholar-graduates passed various licensure board examinations held this year. Seventy (70) passed the Licensure Examination for Teachers (LET), 12 passed the Electrical Engineer Licensure Examination, one (1) passed of the board exam for Mechanical Engineers, six (6) were passers of the Agricultural and Biosystems Engineer Licensure Examination, another five (5) passed the Chemical Engineer Licensure Examination, four (4) passed the board exam for Electronics Engineers, and two (2) are now certified Fisheries Technologists.

Meanwhile, Ms. Ferren Mission Velasco, a 2015 RA 7687 scholar-graduate of Colegio de Dagupan, grabbed the 8th spot in the Electronics Engineer Board Examination held last October 20 – 21, 2018.

Deployment of Scholar-Graduates in DepEd

While DOST-SEI continuously supports deserving students enrolled in Region 1 under their respective S&T courses, the scholar-graduates are also assisted for immediate employment as teachers of science and mathematics in secondary private or public schools with DepEd.

A total of 43 scholar-graduates of RA 10612 and 19 Bachelor of Secondary Education (BSE) scholar-graduates of RA 7687 were hired as secondary school teachers by DepEd to "accelerate the pace of knowledge-driven

development in accordance with the S&T human resource growth potential in the country."

S&T Learning Resource Center

A total of 2,155 individuals, mostly students, rated the S&T Learning Resource Center (LRC) as very satisfactory in catering to their need for S&T references and reading materials. On the other hand, 621 of these individuals availed of the free internet services in undertaking their library work. The DOST Regional Office, together with the Provincial S&T Centers of Ilocos Norte, Ilocos Sur and Pangasinan, continuously upgrade their S&T Learning Resource Center to improve their services to their clients/customers.

The S&T LRCs likewise provided S&T information service through the S&T Academic and Research-Based Openly Operated Kiosk Stations (STARBOOKS), a stand-alone electronic library containing information on various locally developed technologies, investigatory projects, and other S&T related information in digitized format. In 2018, DOST 1 assisted 156 schools in the installation of STARBOOKS.

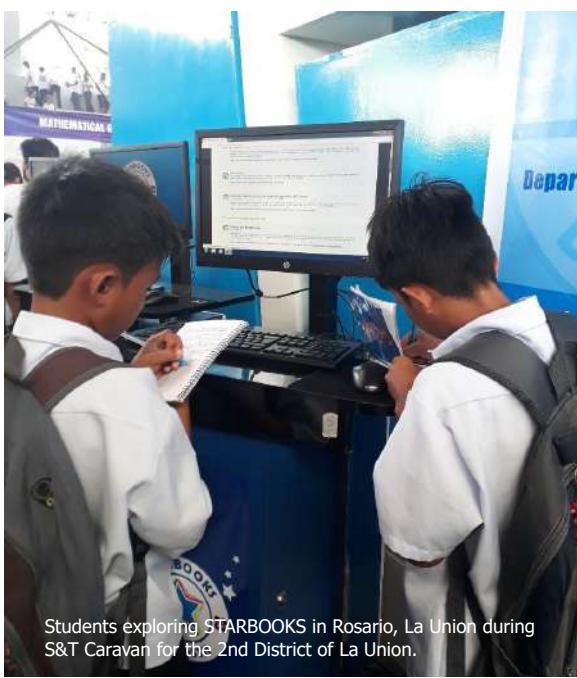
In 2018, DOST I provided 130 units STARBOOKS to 130 selected secondary schools prioritized by the region's Congress Representatives. Moreover, 26 schools were provided with the STARBOOKS software.



The DOST Region 1 S&T Learning Resource Center



STARBOOKS was awarded to the school beneficiaries in Manaoag, Pangasinan during the S&T Caravan for the 4th District of Pangasinan.



Students exploring STARBOOKS in Rosario, La Union during S&T Caravan for the 2nd District of La Union.



STARBOOKS National Convention, Northern Luzon Cluster participants in Region 1 held at Azalea Hotel and Residences, Baguio City.

S&T Promotion and Advocacy

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

PRESS RELEASES

Press releases on the different programs and activities of DOST were published, posted, and circulated through the tri-media-radio, print, TV, and the DOST 1 Facebook page and Website. A total of 67 press releases for the radio, 50 for print, 23 for TV, and 64 press releases posted in the Website were accomplished this year. The programs, services, and activities of DOST 1 were also promoted through the publication and distribution of the Ilocos S&T Trends, which featured the success stories of DOST beneficiaries, and other programs and activities of DOST 1.

FAIRS

The DOST Region 1 participated in the 2018 National Science and Technology Week (NSTW) Celebration held at the World Trade Center in Metro Manila. It also conducted the Regional S&T Week celebration and S&T Caravan in the 12 congressional districts of the region. These activities featured commerçiable technologies in the field of agriculture, forestry and natural resources, industry, education, energy, advanced technologies and health technologies.

1. NATIONAL SCIENCE AND TECHNOLOGY WEEK CELEBRATION

The 2018 National Science and Technology Week was celebrated from July 16-21, 2018. It featured the developments, new technologies, and programs of the Department of Science and Technology (DOST) system through fora, trainings, exhibits, interactive exhibits, and more.

Two (2) inventors from Pangasinan proudly showed off their inventions during the weeklong celebration. Dr. Catalina C. Platon, Director of Intellectual Property Research Utilization of the Pangasinan State University exhibited her Instructional Multiple Binaural Acoustic Stethoscope (IMBAS), a stethoscope composed of three binaurals that can be used by three persons simultaneously during medical assessments. Meanwhile, the Tendo Mathematical Game Device of Mr. Bobby F. Cabe from San Fabian, Pangasinan wowed exhibit viewers. The Tendo is a combination basic operation of numbers from 0 to 9. This requires the players to set an answer or Result Number, and locate all the



The Tendo Mathematical Game Device inventor, Mr. Bobby F. Cabe and Dr. Catalina C. Platon, Inventor of IMBAS from Pangasinan State University (PSU)



Personalities in the photo are (L-R) Racquel M. Espiritu, DOST-PSTC La Union, Felicidad M. Gan, DOST-PSTC Pangasinan, Dr. Catalina C. Platon, Inventor of Pangasinan State University (PSU), Dr. Paulina P. Nebrida, Assistant Regional Director for Technical Operations, Bobby F. Cabe, Inventor or Tendo Mathematical Game Device, and Arnold C. Santos, OIC of DOST Satellite Office in Urdaneta City, Pangasinan.

equations whose answer falls to the players' Result Number by connecting the numbers and operations in the 5x5 dices.

The two inventions were exhibited at the Science ,Technology and Innovation (STI) in School and gathered positive feedbacks and appreciation from the viewers.

The oneStore Booth

Several DOST Region 1 firm-assisted food products were also sold at the 2018 NSTW oneStore Booth. These include Mira Hills Farm food products from Ilocos Sur, such as Vigan Longganisa, Skinless Longanisa, Bagnet, and Tocino. Bakers Percent from Ilocos Norte also showcased its hopia with ube, pork, Monggo, and Bagnet flavors, while Ambros Ilocos Cornik sold its chicacorn with garlic, cheese, and sweet and spicy flavors. From the province of Pangasinan, Barbara Gourmet featured its Zili-Authentic Chili Sauce, Gommoso Sun-Dried Squid in Muscovado Caramel Sauce, Chanos Premium Chili Flavor, Chanos Premium Original Flavor, Chanos Classic Chili Flavor, Chanos Classic Original Flavor. Also, the Nutridense Food Manufacturing Corporation staged its Iron Fortified Rice and Morena-Brown Rice. Total sales of all the products amounted to Php120,807.00.

2018 NSTW SETUP FORUM

DOST 1 staff, micro, small, and medium enterprises (MSMEs), and personnel from the State Universities and Colleges (SUCs) also attended the Small Enterprise Technology Upgrading Program (SETUP) Forum. The forum discussed nine (9) topics from the science and technology research field. Industry 4.0 talked about performance and competitiveness using Artificial Intelligence; strategies for industrialization; Inclusive Filipinnovation & Entrepreneurship Roadmap; transitions of industrial revolution and more. The forum also featured several leading DOST assisted firms nationwide.

The 2017 Best SETUP Adoptors from all the regions were also recognized. Mike's Stainless Steel Fabrication was the Best SETUP Adoptor from Region 1 and received a plaque of recognition and Php20,000.00 cash prize.

2018 NSTW CEST FORUM

The CEST Forum with the theme "Innovation for Collective Prosperity" was attended by DOST heads and staff, partner academes, LGUs, officers or members of the assisted communities, representatives and other guests.

During the forum, Vice President for Research and Extension Gloria D. Tuzon of Ilocos Sur Polytechnic State College, a partner academe of DOST1 presented the accomplishments and the ongoing intervention in the five priority areas of the CEST program in Sugpon and Alilem, Ilocos Sur.

Among the questions raised during the forum are the hindrances in providing the interventions. Prof. Tuzon said that the real problem includes the transport or bringing the goods and services to some of these beneficiary communities especially in Licungan in which the river must be crossed fourteen times during the dry season. She added that a visit to the place needs three to five days during rainy season.



The Ambros Chichacorn, one of the showcased DOST-SETUP assisted products from Region 1.



The Mike's Stainless Steel Fabrication, DOST 1 2017 BEST Setup Adoptor receives recognition during the NSTW SETUP Forum.



Vice President for Research and Extension Gloria D. Tuzon of Ilocos Sur Polytechnic State College, a partner academe of DOST1 presented the accomplishments and the ongoing intervention in the five priority areas of CEST program in Sugpon and Alilem, Ilocos Sur.



Twenty students from Tagudtud National High School in Bagulin beat gongs and dances as they entertain the attendees by showcasing the cultural prides of Bagulin. Officials from the local government units of Sugpon and Alilem, as well as representatives of DOST 1-CEST assisted associations from Ilocos Sur are also present in the activity.

2. REGIONAL SCIENCE AND TECHNOLOGY WEEK CELEBRATION

The Department of Science and Technology (DOST) Region 1 celebrated the 2018 Regional Science and Technology Week (RSTW) on 18-21 September 2018 at the Don Leopoldo Sison Convention Center in Alaminos City, Pangasinan, with the theme, "Science for the People: Innovation for Collective Prosperity".

The four-day event showcased 184 new technologies that highlighted developed products and processes of DOST, State Universities and Colleges (SUCs), Science Communities in Region 1 and the private sector. Aside from S&T exhibits, technology fora were conducted on various tracks, livelihood trainings, robotics competition, and quiz bees for both elementary and high school students.

The 2018 RSTW celebration collectively accommodated 17,838 enthusiasts who took part in the 4-day fair from all over the region, composed of participants, viewers and exhibitors. The activity attained an Excellent customer satisfaction rating of 4.52 based on the summary of viewers' evaluation.

More than 80 technologies were showcased by a total of 28 exhibitors from the different DOST attached agencies, State Universities and Colleges (SUCs), and other DOST 1 public and private partner agencies.

Techno Fora

Twenty (20) different technologies for food and nutrition, crafts and furniture, and agriculture industries were presented int the technology fora from September 18-21, 2018.

For the aquatic and agriculture sector, the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of DOST discussed Peanut Recommended Varieties, Boron Fertilization of Peanuts, and Peanut Seed Storage, Artificial Insemination for Goat, Mussel Longline Technology, and ITIK Pinas, along with BioGroe and Myko Plus, a fertilizer and pesticide that increases crop yield, while the Portasol, a multipurpose drying facility was presented by Mr. Jun Macaraeg, executive officer of the Filipino Inventors Society Producer Cooperative (FISPC).

Nutritious Emergency Food Reserve which include Iron Rice Premix, Iron Fortified Rice, Stabilized Brown Rice, complementary foods, and Ready-to-Eat Chicken Arroz Caldo through the Nutridense Food Manufacturing Inc. and DOST- Industrial Technology Development Institute (ITDI) were also introduced.

Further, DOST-ITDI showcased Salt Iodization Technologies along with Salt for Food Processors through the Pacific Farms Inc, while the Food Innovation Center in PSU-Bayambang presented its services and food products which are ready for commercialization.

On the other hand, six technologies on waste management were introduced. These included ECOSEP from Adamson University, Portable Biogas Digester and Dual Drum Composter from DOST-ITDI, Biogas technology from DOST III, and Technologies to Manage Municipal Wastes in Hotels and Restaurants along the Shore, from Solutions Using Renewable Energy (SURE) Inc.



2018 Regional Science and Technology Week (RSTW) in Don Leopoldo Sison Convention Center, Alaminos City, Pangasinan on September 18-21, 2018



Discussion on Engineered bamboo during technoforum in the 2018 RSTW



Photos taken during the Technology Forum in the 2018 RSTW



Lastly, technologies for the production of handicrafts and furniture were discussed. These included Bamboo Dyeing, Preservation and Engineered Bamboo, Resin Lamination, Fossilized Leaves, and Drum type charcoal kiln from the Forest Products Research and Development Institute and a flattening machine for Tikog/Bangkwang was introduced by the Metals Industry Research and Development Center.

3. SCIENCE AND TECHNOLOGY CARAVAN

In order to increase people's awareness on science, technology and innovation, a total of 12 S&T Caravans were conducted, one in each congressional districts of Region 1 (Refer to Table 1). Carrying the theme, "Science for the People: Innovation for Collective Prosperity", the S&T Caravan has been the tool for the promotion and appreciation of S&T advocacies among the grassroots especially to its target audience and beneficiaries. Featured in these events are the DOST programs and services as well as the technologies through exhibits, technology fora, trainings and seminars, calibration of weighing scales, and various activities that promote S&T among the students.

Table 1. The table shows the conducted S&T Caravans in Region 1.

Province	Venue/ Inclusive Dates	Total Number of viewers and participants
Ilocos Norte	Laoag City Covered Court, Laoag, Ilocos Norte, February 26-28, 2018	1,540
	Josefa Llanes Escoda Hall, Dingras, Ilocos Norte, April 4-6, 2018	507
Ilocos Sur	Sinait, Ilocos Sur, May 9-11, 2018	861
	Santa Cruz Public Market, Santa Cruz Ilocos Sur, June 20-22, 2018	2,164
La Union	Pacoy Ortega Gym, San Fernando City, La Union, May 2-4, 2018	2,235
	Rosario Civic Center, Rosario, La Union, June 27-29, 2018	5,000
Pangasinan	Don Leopoldo Sison Convention Center, Alaminos City, Pangasinan, September 18-21, 2018	17,838
	Aguilar, Pangasinan, November 28-30, 2018	3,822
	Arenas-Resuello Sports Complex, San Carlos City, Pangasinan, November 6-8, 2018	7,314
	Manaoag, Pangasinan, December 13-14, 2018	356
	Laoac, Pangasinan, October 9-11, 2018	8,398
	Tayug, Pangasinan, December 20-21, 2018	430
Total		50,465



Photos taken during the conduct of S&T Caravan in the 12 districts of Region 1

PRESS CONFERENCE / INTERVIEWS

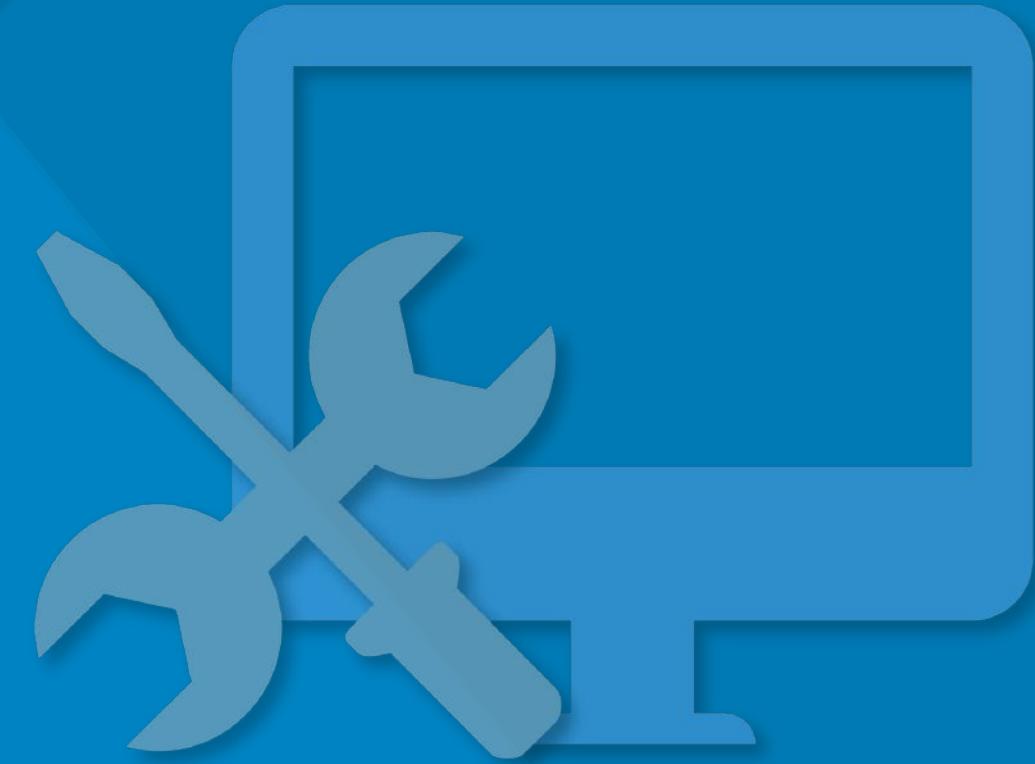
A total of 24 press conferences and interviews were conducted with the different media correspondents for promotion of DOST1 programs and activities.



Promotion of technologies with the researchers from the Don Mariano Marcos Memorial State University (DMMMSU).



Dr. Armando Q. Ganal talks about the National Science and Technology Week Celebration in the Kapihan sa Ilocos with the Philippine Information Agency (PIA) and other private media personalities in Region 1.



HIGH IMPACT TECHNOLOGY SOLUTIONS

DEPLOYMENT OF EARLY WARNING SYSTEMS IN DISASTER-PRONE AREAS

The DOST Region 1 assisted PAGASA in the maintenance of the deployed Hydrometeorological Stations: Automated Rain Gauges (ARGs) and Water Level Monitoring Stations (WLMS), along the River Basins in Region 1.

This endeavor is undertaken in the project entitled, "Optimization of the Operational Capabilities of Hydromet Sensors with International Standards (WMO) for Effective Weather, Flood Warning (CBFEWS) and Application to Research (Optimization Project)". The project is expected to provide a high density of standardized and accurate network of hydromet sensors all over the country providing precise measurements.

This is in line with the ongoing efforts of the DOST in putting up nationwide disaster mitigation system. The project is led by the DOST-PAGASA in partnership with the Advanced Science and Technology Institute (ASTI) and the Regional Offices.

In Region 1, a total of 83 stations were deployed along the River Basins including the Agno River Basin. Table 1 below shows the distribution of the hydromet stations in Region 1.

Table 1. Distribution of hydromet stations in the four provinces of Region 1.

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

A hydromet station is composed of a) hydromet sensors (i.e. Automated Rain Gauge, Water Level Gauge, Pressure Gauge, etc; b) Solar panel as a media for power source; c) Advanced Remote Data Acquisition Unit (arQ) with installed SIM card; and d) Satellite antenna that serves as a backup for data transmission.

The DOST-ASTI developed the Advanced Remote Data Acquisition Unit (arQ) which controls all functions and data communication of the station.

The DOST's automated Hydromet station is rugged unmanned/stand alone system that uses sensors to gather data (i.e. rainfall amount, water level) and transmits these data to a server through SMS.



DOST 1 staff configures Flood Early Warning Station in Brgy. Pugo, Bauang, La Union

Community-Based Flood Early Warning stations (CBFEWS)

Deployment of Flood Early Warning Stations (FEWS) is one of the vital components of the project. These warning stations will be deployed in the disaster prone or flood prone communities (or along the identified river basins) in the region. These FEWS will be a component of the Community-Based Flood Early Warning System (CBFEWS) which aims to:

- Empower Local Government Units (LGUs) by provision of tools and teaching simple methodology for flood warning
- Create a sense of ownership and encouraging volunteerism among residents of affected communities (bayanihan attitude)

In CY 2018, the DRRM Unit of DOST-I managed to install additional 15 Community-Based Flood Early Warning Stations (CBFEWS) in various flood prone areas along the River basins where hydromet stations were also installed.

Overall, a total of 17 CBFEWS were installed in Region 1.

Data from the hydromet stations are collected on a central database server and further analyzed for possible flooding if the intensity of rainfall exceeds a pre-determined threshold or critical level. The processed data are readily available and easily accessible by the local authorities especially the disaster response unit over internet, in near-real time. Data gathered by the stations can be accessed through the following websites:

- a. <http://philsensors.asti.dost.gov.ph/>
- b. <http://fmon.asti.dost.gov.ph/weather/predict>
- c. <http://noah.up.edu.ph/>

Table 2. Deployed FEWS in Region 1.

PROVINCE	MUNICIPALITY/CITY	LOCATION	DATE INSTALLED
ILOCOS NORTE	Laoag City	Brgy. San Mateo, Tanod Outpost	November 13, 2018
ILOCOS SUR	San Vicente	Sitio Valdi, Brgy. Bantaoay	December 14, 2018
	Cabugao	Salapaspap Bridge, Brgy. Namruangan	December 13, 2018
	Sinait	Baliw-Ballaigui Bridge, Brgy. Baliw	December 13, 2018
	San Juan	Brgy. San Isidro Covered Court	November 27, 2018
	San Ildefonso	Brgy. Gongogong, Brgy. Hall	November 27, 2018
	Vigan City	Brgy. Pagpartian, Brgy. Hall	November 27, 2018
	Sta. Cruz	Brgy. Villa Hermosa Sitio Pantar Tanod Outpost	November 28, 2018
LA UNION	Bangar	Brgy. Mindoro Basketball Court	November 29, 2018
	Sudipen	Brgy. Old Central, Old Sudipen Elementary School	July 12, 2018
	San Gabriel	Brgy. Balbalayang, Brgy. Hall	August 3, 2018
	Bauang	Brgy. Pugo, Brgy. Hall	December 12, 2018
	Aringay	Brgy. Samara Day Care Center	December 12, 2018
PANGASINAN	Mangatarem	Brgy. Dorongan Punta, Brgy. Hall	Dec 20, 2018
	Aguilar	Brgy. San Jose, Brgy. Hall	Dec 20, 2018
	Lingayen	Brgy. Aliwekwek, Sitio Sagur	Dec 20, 2018
	Villas	Brgy. Puelay, Brgy. Hall	Dec 21, 2018

Table 3. In CY 2018, six (6) FEWS sites validated ready for installation of warning stations:

PROVINCE	MUNICIPALITY	LOCATION	DATE VALIDATED
ILOCOS SUR	Tagudin	Brgy. Lantag DayCare Center	July 13, 2018
	Sta. Maria	Brgy. Poblacion Norte, New Barangay Hall	July 25, 2018
ILOCOS NORTE	Dingras	Brgy. Foz, Sitio Uno	Oct 22, 2018
	Badoc	Brgy. Lacuban, Sito San Roque	Oct 22, 2018
	Solsona	Brgy. San Juan, Waiting Shed	Oct 22, 2018
	Vintar	Brgy. Parparoroc, Sitio Baldi Waiting Shed	Oct 22, 2018

Table 4. Identified sites for warning stations for validation:

PROVINCE	MUNICIPALITY	LOCATION
PANGASINAN	Mabini	To be identified
	Bayambang	To be identified

In summary, DOST 1 installed a total of 17 stations:

PROVINCE	VALIDATED	FOR VALIDATION	VALIDATED & INSTALLED	TOTAL FEWS SITES
PANGASINAN	9	2	4	11
LA UNION	5	0	5	5
ILOCOS SUR	9	0	7	9
ILOCOS NORTE	5	0	1	5
Total Warning Stations	28	2	17	30

The warning stations developed is composed of a siren and a beacon powered by solar energy and can be triggered automatically (thru remote access) or manually (toggle/press button).

Other Programs/Projects/Activities

Activities for DRRM in CY 2018 were significantly higher than the targets due to the implementation of the project on Deployment of Early Warning Systems and Hydromet Stations of PAGASA, including assistance to the RDRRMC on pre- and post-disaster risk assessment, coupled with the dissemination of IEC materials and the conduct of Earthquake Drills.

a. Region 1 DRRM Council Active participation

DOST 1 continuously supports and joins in the activities of the DRRM Council of Region 1. These activities include but not limited to RDRRMC 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 the DOST for the Disaster Prevention and Mitigation area of the DRRM.

b. Deployment of Information Systems

DOST 1 was able to adopt the Hazard Notification, Dissemination and Awareness or HaNDA from DOST Calabarzon. This system is an ICT-enabled Disaster Risk Reduction and Management (DRRM) system used in the dissemination of disaster-related updates, gathering field reports during occurrence of disasters, monitoring of data from ASTI-developed hydromet sensors and warning/alarming of LGUs. HaNDA can also store hazard maps, vulnerability ratings and DRRM-related information.

c. Information and Education Campaigns

- Distribution of IEC Materials - IEC Materials from DOST-PAGASA and PHIVOLCS were distributed to the public during the S&T Caravans. A total of 2,430 (998 for SFC, LU and 1,432 for Sinait, IS, 968 for Sta. Cruz, IS) IEC materials were distributed to 136 participants (82 in SFC, LU and 54 in Sinait, IS)

- Forum on DOST's DRRM Activities – DOST 1 conducted forum on DRRM Activities during S&T Caravans. In Dingras, a total of 33 participants composed of MDRRMOs (Dingras, Solsona), BHWs and Teachers participated in the forum, while 644 participants composed of Students and Faculty Members from the different schools in Rosario, La Union attended the forum on DRRM Activities and Technologies of DOST.

d. Conduct of Earthquake Drills

To prepare DOST 1 staff for any hazards caused by earthquake, the office managed to conduct earthquake drills.

The activity includes briefing on the conduct of the drill and orientation about the Do's and Don'ts during an earthquake.

The conduct of earthquake drill in the office done once every semester.

“ROLL OUT-OF 1,000 RXBOX TELEHEALTH DEVICE IN SELECTED RURAL HEALTH CENTERS IN THE PHILIPPINES”



The Department of Science and Technology (DOST) Region 1, in partnership with the Department of Health (DOH) Region 1 and the University of the Philippines Manila-National Telehealth Center (UP-NTHC), has intensified its advocacy of providing better access to life-saving health care services in Region 1 through the RxBox1000 project.

The RxBox1000 project is a multi-component program with 3 elements: an electronic medical device called RxBox, Electronic Medical Record (iClinicSys or CHITS) and Telemedicine. It intends to address the issues of limited resources, fragmented health system, and poor health outcomes in our country, specifically in the rural areas.

In February 6-9, 2018, a week-long simultaneous Telemedicine Training was undertaken for the Referring Physicians and Clinical Specialists. The training was attended by Clinical Specialists from Mariano Marcos Memorial Hospital and Medical Center in Batac City, Ilocos Norte; Ilocos Training and Regional

Medical Center in San Fernando City, La Union and Region 1 Medical Center in Dagupan City, Pangasinan and by majority of Rural Physicians from all Municipalities and Cities in the Region.

The activity aimed to equip both Clinical Specialists and Rural Physicians with knowledge on Telemedicine and establish the Service Delivery Network of Region 1 in preparation for the RxBox1000 deployment.

An Orientation on RxBox 1000 Project was conducted and attended by representatives from various government agencies who are involved in the RxBox1000 project. Updates on the project especially on the most awaited RxBox1000-iClinicSys integration were discussed.

In 2018, the RxBox1000 Project intensified its capacity building and promotional activities for advanced community healthcare services for the eventual roll-out of the technology.



The participants of the Telemedicine Training with the Resource Speaker from the National Telehealth Center, UP-Manila

The RxBox1000 project joined the Science and Technology Caravans across the region. Medical assessment utilizing the RxBox1000 device and health teachings were provided as services to the clients in the said events.

The RxBox1000 project RMT attended a workshop sponsored by Ateneo De Manila and the Pangasinan Provincial Health Office under the leadership of Dr. Anna Ma. Teresa de Guzman. The one day workshop is entitled " eHatid: eHealth Analytics for Data-Driven Decision- Making" was attended by various provincial government heads, hospital administrators PSU Bayambang and Colegio de Dagupan.

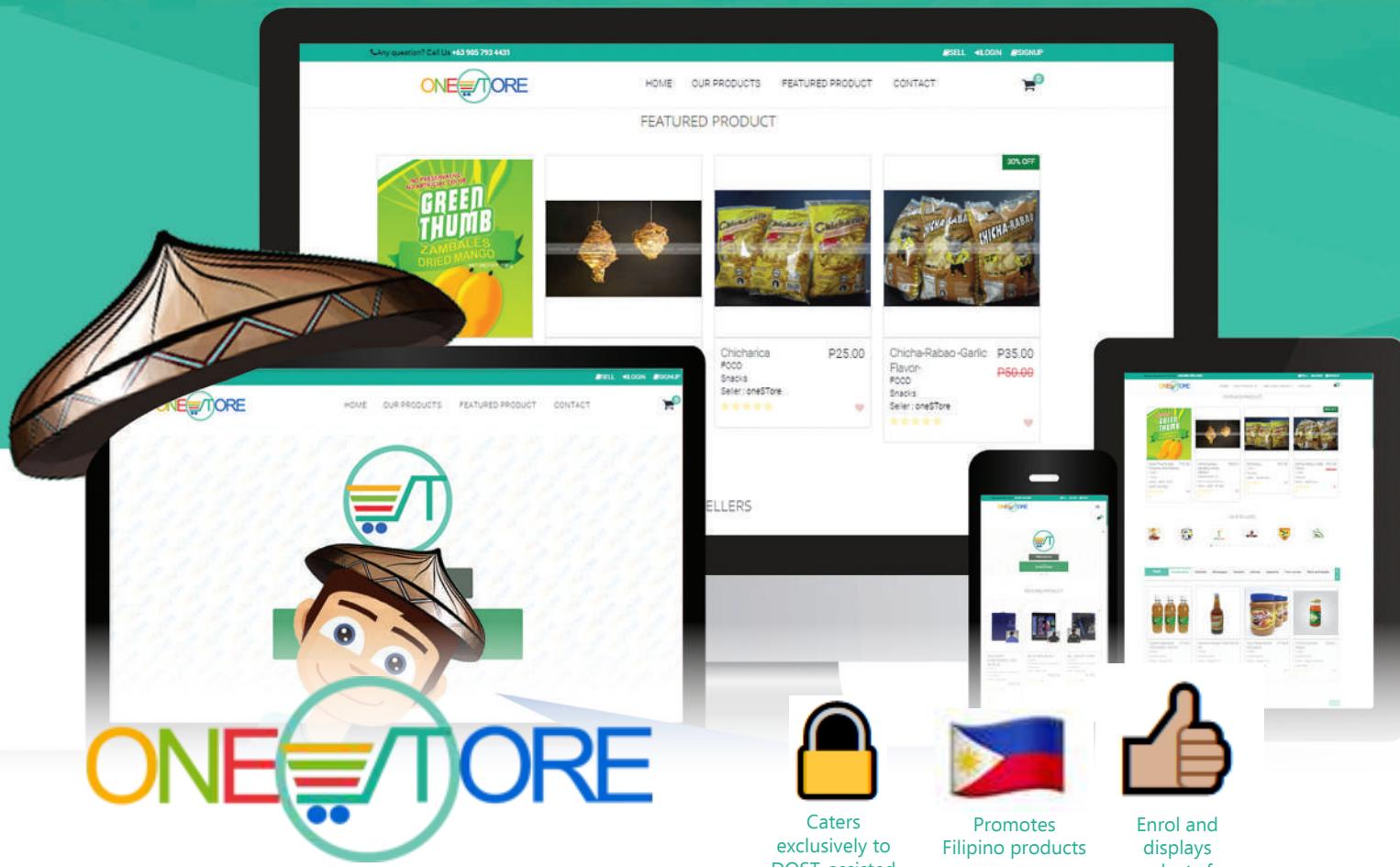
During the activity a new innovation was discussed, and it's called eSPAT or the eHealth Spatio-temporal Predictive Analytics Tool (eSPAT), a web-based Spatio-temporal analytics prototype tool developed as part of the knowledge management and capacity-building component of the "eHealth Analytics for Data-driven Decision-making" project of the eHatid2. It is a tool that would enable users to visualize the result of the analysis of the raw data they have encoded. From that visualization, it could assist the program implementors from various disciplines in making an informed decision on the status of the health sector.



The RxBox device being showcased and used in Medical Assessment during S&T Caravans



The RxBox Telemedicine Device and its components



What is oneSTore.ph?

oneSTore.ph is an E-commerce Web Application that operates nationwide. It helps the Department of Science and Technology's assisted MSMEs widen the scope of their market. oneSTore provides customers with an effortless shopping experience and retailers with simple and direct access to one of the largest customer bases in the Philippines.

Region 1 OneSTore Project Target vs Accomplishment

Output	Target	Accomplishment	% Accom
OPERATIONS			
No. of Products Uploaded	60	69	115%
No. of Hubs Established	2	2	100%
No. of Activities Conducted	4	12	300%
Amount Sales Generated	100,000.00	112,230.00	112.23%
No. of Firms Assisted	20	13	65%
MARKETING AND BRANDING			
No. of multi-media post	40	69	172.50%
No. of radio/tv featured	10	12	120%
No. of fairs	4	4	100%



Technology Forum on OneSTore for Assisted MSMEs in Pangasinan



FISPC Region I OneSTore Hub Launching in San Carlos City, Pangasinan



Launching of Pangasinan Food Stop: A One Stop Shop in Hundred Islands National Park, Alaminos City, Pangasinan



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The 1E Portal is a one-stop-portal for all science and technology (S&T) needs. This online portal was developed by the Department of Science and Technology to connect the people with S&T experts of different fields, especially those who are seeking for technical advice and/or assistance, and improve businesses through consultancy services.

In 2018, more than 700 accredited experts nationwide with 46 experts coming from Region 1 are searchable and active in the portal. More than 1,500 clients registered for assistance.

During the year, the project focused in promoting and sharing the portal to the people. First is the conduct of Orientation/Training to PSTC Staff especially those who are assigned in technical assistance and consultancy services and field operations to help in disseminating and promoting the portal in their respective provinces. Another activity is the participation in the 2018 Regional Science and Technology Week and 9 S&T Caravans through infographic exhibits, demonstration of the portal and distribution of brochures. 1E presented in 3 Technology Fora which was attended by MSMEs, college students and others. Also, 1E joined in the "Kapihan sa Ilocos", a radio program conducted by the Philippine Information Agency to give information and promote the services of the different government agencies.

The 1E was project ended last October 2018 but the portal is maintained and monitored by the DOST Regional Offices.

ONE EXPERT (1E)

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



OneExpert Infographics used during 2018 S&T Caravans and Regional Science and Technology Week.



1E staff presented the features and aspects of the 1E portal to the MSMEs in Pangasinan.



Ms. Anita Criste, 1E Project Coordinator presented the Objectives of the OneExpert Project during the 1E Orientation and hands-on training.



OneExpert Booth during the S&T Caravan.



1E Staff promoted 1E Portal during the S&T Caravan in La Union thru Technology Fora.

FIELD VERIFICATION TESTING OF CARRAGEENAN PLANT GROWTH PROMOTER FOR ENHANCED GROWTH AND INDUCED PEST AND DISEASE RESISTANCE IN RICE

The Carrageenan Project is jointly implemented by the Department of Science and Technology-Region 1 (DOST-1) and the Department of Agriculture Regional Field Office 1 (DA-RFO1). It aimed to evaluate the efficacy and demonstrate through multi-location field trials, the usefulness of radiation-modified carrageenan plant growth promoter on rice growth and yield under different conditions in Region 1. The project is in partnership with the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD), Philippine Nuclear Research Institute (PNRI), Philippine Rice Research Institute (PHILRICE) and University of the Philippines Los Baños-National Crop Protection Center.

Field trials were implemented in two (2) cropping seasons (wet and dry season of 2018) with a total target of 5,000 hectares (2,500 hectares per season). Technical briefing and orientation of farmers were conducted in the four (4) provinces of Region 1 covering twenty (20) municipalities and attended by 1,218 farmers and two (2) SUCs (MMSU & ISPSC). The actual area planted is 2,334

hectares participated by 3,042 farmer-cooperators and distributed/applied with 21,000 liters of Carrageenan Plant Growth Promoter (Table 1). Some areas covered by the project were affected by typhoon and monsoon rains. The total area covered for the dry season is 3,214 hectares with an additional 9 municipalities (861 hectares) that signified their interest to participate in the project.

Two (2) on-station field verification trials were established at the Research and Experiment Centers of the Department of Agriculture in Ilocos Norte (INREC) and Pangasinan (PREC) that were also affected by typhoon and monsoon rains.

A Field Day was conducted at the DA-INREC, in Brgy. Cali, Dingras, Ilocos Norte to showcase the Effects of Carrageenan PGP in Rice in Region 1 and attended by 85 farmers . Although two southwest monsoon rains and Typhoon Ompong passed through Ilocos region, a 5-10% increase in yield was observed.

Table 1. Area Planted, Number of Farmer Cooperators and Volume of Carrageenan Used During the Wet Season in the four provinces of Region 1.

Province	Actual Area Planted (Has.)	Number of Farmer Cooperators	Volume of Carrageenan Distributed (L)
Pangasinan	1,166	1,141	10,494
La Union	108	140	972
Ilocos Norte	740	1,154	6,663
Ilocos Sur	320	581	2,880
Total	2,334	3,042	21009



Lay-outing of carrageenan project demo-farm at DA-INREC



Field day of carrageenan project at DA-INREC



Field visit at the carrageenan demo-farm during field day



Conduct of technical briefing and orientation of farmer cooperators on carrageenan project in Sta. Cruz, Sto. Domingo, Ilocos Sur



Conduct of technical briefing and orientation of farmer cooperators on carrageenan project in Bantay Intsik, Sison, Pangasinan



Discussion of Ms. Felicidad M. Gan on overview of Carrageenan PGP during the conduct of technical briefing and orientation of farmer cooperators in Macalong, Urdaneta City, Pangasinan

R&D CONSORTIA & INNOVATION CENTER

ILOCOS CONSORTIUM FOR INDUSTRY, ENERGY AND EMERGING TECHNOLOGY RESEARCH AND DEVELOPMENT (ICIEERD)

The Ilocos Consortium for Industry, Energy and Emerging Technology Research and Development (ICIEERD) is a conglomerate of 22 member institutions from national government, public and private academic institutions, and industry in region 1. It was formed to catalyze, facilitate and integrate R&D and technological activities in engineering, energy and emerging technology responsive to the needs of the local industry. The DOST Regional Director acted as the Co-Chairperson of the Management Council. DOST 1 continued to be the fund manager and the seat of the Consortium Director.

Research and Development

In 2018, a total of eight new research proposals were evaluated broken down in the following sectors: 5 in energy; 1 in metals and engineering; 1 in food; and 1 in DRRM/environment. Moreover, three (3) proposals are presently undergoing evaluation by the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD).

An on-going research by the Don Mariano Marcos Memorial State University entitled, "Design and Development of Processing Machineries for Honey Products" was monitored. The fabrication of the processing equipment such as village-type honey extractor, honey dehumidifier, honey crystal melter, solar wax melter, and pollen trap is 100% complete. The equipment are ready for testing during the incoming honey flow season. The fabrication of the pollen dryer, however, is on-going.



Monitoring of the on-going ICIEERD research project, Design and Development of Processing Machineries for Honey Products by the PCIEERD Monitors and Dr. Nebrida



Sewing machine for soft broom and other materials/commodities

There were two completed researches in 2018:

Sewing Machine for Soft broom and other materials/ commodities

The prototype significantly improved the efficiency of sewing the tiger grass stalks into soft broom by 200%:

Manual sewing = 8 softbroom/day
Sewing machine = 24 softbrooms/day



Finished products





- Utilization of Industrial By-Product Currimao Steel Slag for Green Concrete Products – Mariano Marcos State University (MMSU).

- Found non-toxic
- Acceptable products developed from steel slag: Horizontal structures - base coarse material Vertical structures – concrete hollow block
- The optimum proportion of cement : natural sand : furnace slag : coarse (C) or fine (F) aggregate

Concrete hollow blocks – 1: 0.75 : 2.25 : 4 (C)

Paving block – slag is not appropriate substitute for fine aggregate

Base coarse material - 100% slag passed (110%) the compaction requirement of DPWH



Steel Slag CHB for vertical structures

R&D Symposium and Competition

The 4th Industry, Energy and Emerging Technology R and D Symposium and Competition was held at MMSU in the City of Batac, Ilocos Norte. A total of 43 entries vied for the Best Research Award – Professional Category, Best Research Award – Student Category, and Best Poster Award.

The winners are:

Best Research Paper – Professional Category

Rope out of Snake Plants

- Mr. Patrick S. Gasmen and Mrs. Henedina D. Barayuga
Ilocos Sur Polytechnic State College

Best ResearchPaper – Student Category

Design, Construction and Performance Evaluation of a Three-row Hand Tractor Drawn Corn Seeder

- Mark Chan A. Ganaden
Pangasinan State University

Best R&D Poster

Dual-Powered, Dual-Chamber Dehydrator

- Melben C. Rimando, et.al
Don Mariano Marcos Memorial State University – MLU Campus

Capability Building

Focused Group Discussions (FGDs) with industry leaders were conducted prior to research proposals writeshop to come out with demand driven research concepts. Separate activities were conducted on Food, Creative Industries, and Textile; Furniture, Materials and Equipment for the Construction Industry, and Environment; and Renewable energy Technologies, and DRRM.

A total of 16 capsule proposals were generated during the writeshops.

Technology Promotion

The list of technologies which are almost ready for adoption or use of intended users were updated. A total of 63 industry- and energy related patented technologies will be for promotion.



The winners of the 4th Industry, Energy and Emerging Tech R&D Symposium and Competition

Linkages and Resource Generation

ICIEERD linked and partnered with other institutions in the implementation of its various activities. The operation of the Consortium in 2018 was supported with resources generated amounting to Php2,496,028.

REGION 1 HEALTH RESEARCH AND DEVELOPMENT CONSORTIUM (R1HRDC)



The Region 1 Health Research and Development Consortium (R1HRDC) is a research community working for the attainment of national and global health goals. It aims to generate and use knowledge, innovation, technology, products and services in promoting the health and well-being of every Filipino by creating an ethical and enabling environment for health researches in Region 1.

Furthermore, R1HRDC was established to link together health researchers and institutions to facilitate health research activities attuned to local and regional health needs. It shall also assist the PCHRD to establish mechanisms that would strengthen health research capabilities, and encourage resource sharing between and among institutions in Region 1.

1. MANAGEMENT COMMITTEE (Mancom)

1.1 QUARTERLY MEETINGS

Among the activities of the R1HRDC is the conduct of meetings with its member-institutions. This activity is done every quarter to basically update member-institutions about the accomplishments, plans, and upcoming activities of the consortium. Among the topics discussed during the meetings are reports on on-going funded research, PNHR Week celebration, Lakbay Aral, national consultation on the Standardization of Training Modules Used in Basic Research Methods Courses conducted by RHRDCs, and more.

1.2 PERFORMANCE ASSESSMENT AND PLANNING WORKSHOP (OPLAN 2019)

The OPLAN 2019 was conducted to identify priority programs needed for the growth and maintenance of the consortium and for its stakeholders.

1.3 EXPANSION OF MEMBER INSTITUTIONS

Each year, the Mancom roams around the region and continues to visit member institutions to advocate the activities of the consortium especially to non-member institutions to encourage them to join the growing family of R1HRDC. Members of Mancom visited the DOH – Drug Treatment and Rehabilitation Center (DTRC) in Dagupan City, Pangasinan and the Philippine College of Science and Technology in Calasiao, Pangasinan. Similarly, they visited the Mariano Marcos State University (MMSU) in Batac City and Philippine Science High School (PSHS)– Ilocos Region Campus in San Ildefonso, Ilocos Sur.

This year, the consortium welcomed four (4) new member institutions, namely:

- 1) Drug Treatment and Rehabilitation Center in, Dagupan City, Pangasinan
- 2) Lorma Colleges, in San Fernando City, La Union
- 3) Divine Word College of Laoag, in Laoag City, Ilocos Norte
- 4) Philippine Science High School – Ilocos Region Campus, in San Ildefonso, Ilocos Sur

1.4 WEBSITE MAINTENANCE

The consortium is constantly reaching its stakeholders on the internet by uploading articles, news, events, announcements and other important information on R1HRDC's official website of R1HRDC (<http://region1.healthresearch.ph/>). For this year, a total of fifteen (15) articles were uploaded at its latest news section.

Since the launching of the Research News – newest section of the website, there were fourteen (14) research news uploaded. These research news were citations from published journals about health and health-related topics from different organizations, locally and internationally.

This year, the official Facebook page of R1HRDC was also created. (<https://www.facebook.com/r1hrdc/>), where members can communicate and where updates are being uploaded to reinforce the website.

1.5 LAKBAY ARAL

Last July 4, 2018, the Western Visayas Health Research and Development Consortium, Iloilo City, welcomed the R1HRDC for an educational tour. The group learned about the framework of the scholarship program that the Western Visayas HRDC is implementing. This immersion provided the opportunity to observe the culture of Western Visayas in training and mentoring amateur researchers to come up with good quality health research proposals.

1.6 12th PNHR WEEK

The R1HRDC joined the annual PNHR Week Conference held at the CAP John Hay Trade and Cultural Center in Baguio City with the theme, "Research and Innovation for Equity in Health". Different events like meetings, networking, workshops, fora, discussions, consultations, updates, and research contests were conducted. The R1HRDC team won awards on the different contests:

REGION 1 HEALTH RESEARCH AND DEVELOPMENT CONSORTIUM (R1HRDC)

A. Poster Exhibit Contest – Professional Category

Holden Kirby M. Valdez, RN, MPH, PHD from Virgen Milagrosa University Foundation (VMUF) in San Carlos City, Pangasinan, bagged the First Place for his paper entitled, "Anti-Thrombophenic Activity of Formulated Papaya (*Carica Papaya*) and Guava (*Psidium Guajava*) Capsule on Sprague Dawley (*Rattus Norvegicus*) Rat."

B. Poster Exhibit Contest – Student Category

Ukoba Obatavwe also from Virgen Milagrosa University Foundation (VMUF), bagged the Second Place Award for his paper entitled. "Antiproliferative Property of *Bryophyllum Pinnata* (Lam.) Oken. Leaf Extract on Human Breast Cancer Cell Lines."

C. Best Consortia Website Award

A Special Award was given to R1HRDC for the continuous improvement and update on the latest happenings within the region.

D. The R1HRDC – Ethics Review Committee (ERC) is now Level 1 Accredited by the Philippine Health Research Ethics Board (PHREB).

E. Research Presentation (Professional Category)

Jimmy G. Catanes, RPh, PhD, from Virgen Milagrosa University Foundation (VMUF) is a finalist with his paper entitled, "Cancer Chemopreventive Activity of the Characterized Bioactive Alkaloid Extract from Sorgum Bicolor."

2. RESEARCH MANAGEMENT COMMITTEE (RMC)

2.1. MEETINGS

The committee had regular meetings for CY 2018 with DOST 1 participation. It has laid out its 2019 Work and Financial Plan, reviewed an evaluated 6 research proposals.

2.2. 2018 CALL FOR PAPERS

The Consortium sent a call for papers posters and the consortium's website.

2.3. REVIEW AND EVALUATION

Evaluation of research proposals was undertaken. At the moment, the researchers are still complying to the comments and suggestions made by the RMC.

2.4. MONITORING

Monitoring of studies is continuing to keep track of the timeline and progress of each research project.

3. CAPACITY BUILDING COMMITTEE (CBC)

3.1. MEETINGS

Together with the other committies, the CBC also laid out its 2019 work and financial plan, as well as the schedule and venue of the Data Analysis Training in the second quarter.

The committee also reviewed its 2018 accomplishments. A tracer survey to determine the research capacities of every member institution was drafted, and a plan to launch the Mega Training Program was also discussed. A Memorandum of Agreement (MOA), between the R1HRDC and the researcher's agency was drafted to commit these researchers to finish the three phases of the mega training program and finish their research papers as well.

ILOCOS AGRICULTURE, AQUATIC, AND NATURAL RESOURCES RESEARCH AND DEVELOPMENT (ILAARRDEC)



(Left) Dr. Armando Q. Ganal, DOST 1 Director, together with Dr. Shirley C. Agrupis, the RRDCC Chair and MMSU President (Center), and Dr. Epifania O. Agustin, the ILAARRDEC Director (Right) during the Quarter 1 Regional Research and Development Coordinating Council (RRDCC) Meeting on April 11, 2018 at MMSU in the City of Batac, Ilocos Norte.



Dr. Ismael D. Gurtiza (Center), of DOST 1 during the Quarter 2 Regional Research and Development Coordinating Council (RRDCC) meeting on July 20, 2019 at Urdaneta City University in Urdaneta, Pangasinan.



Dr. Armando Q. Ganal, DOST Region 1 Director talks about concerns on the NICER Program of DOST during the Quarter 3 Regional Research and Development Coordinating Council (RRDCC) meeting on October 26, 2018 at Ariana Hotel in Bauang, La Union.

The Department of Science and Technology Regional Office 1 (DOSTRO1) sustained its commitment in the effective planning, delivery, and implementation of S&T programs and projects in the region through the active involvement and strong support of its partner agencies.

The Ilocos Agriculture, Aquatic, and Natural Resources Research and Development Consortium (ILAARRDEC) is one of the partner organizations that actively lead and collaborated the different S&T programs, projects and activities of the consortium.

The DOST Region 1 supported the conduct of annual commodity reviews from September 6 to October 2, 2018. A total of 135 papers belonging to seven (7) sectoral commodities were presented and evaluated: 1) forestry, agroforestry, and environment/apiculture, 2) fruit crops, 3) legumes, vegetables, ornamentals, medicinal, vanishing plants, bulbs, and root crops, 4) sericulture, 5) other cereals, livestock, and forage, 6) fisheries, and 7) rice and rice-based farming system, tobacco. The reviews were conducted in identified consortium member institutions.

Moreover, the DOST Region 1 maintained its active partnership in the Technical Working Groups: Regional Research and Development Group (RRDG), Regional Knowledge Management Group (RKMG), and the Regional Technology Transfer Group (RTTG) aside from sitting as a member of the Regional Research and Development Coordinating Council (RRDCC), the policy-making body of the Consortium.



ILAARRDEC in-house review



FOOD INNOVATION CENTER (FIC) AT PSU

I. Product and Process Development and Improvement

Vacuum-fried Prototypes: There were six (6) product prototypes developed through vacuum frying technique. These include vacuum-fried red onion, squash, okra, indian mango, mushroom, and carrots. Flavors such as sour cream, onion-garlic, salted egg, cheese, and adobo were added to the various products developed. These prototypes were subjected to sensory evaluation, proximate and microbial analyses and four (4) clients signified their interest to adopt vacuum fried onion, squash and okra (Appendix Table 1).

Freeze Dryer Prototypes: Preliminary studies were conducted on the production of freeze-dried dragon fruit and mango.

Water Retort Prototypes: There were five (5) product prototypes developed which include bangus in red pesto sauce, binagoongang bangus, chili-buro, natal plum jam, and tomato salsa. Chili-buro and binagoongang bangus were subjected to heat distribution and heat penetration tests to determine the process time and temperature. These two

prototypes will undergo commercial sterility test before it will be ready for technology transfer. Five clients signified their interest to adopt the said prototypes (Appendix Table 3).

Cabinet Drier Products: The process of making Mango fruit roll was improved and subjected to shelf-life testing (Appendix Table 4). The process of making ube powder was transferred through licensing to the Local Government Unit of Agoo.

II. Intellectual Property Protection

Vacuum fried indian mango, onion, kangkong, osmo dehydrated indian mango and indian mango roll were filed for Intellectual Property protection (Utility Model). Table 1 presents the Utility Models filed with the Intellectual Property Office of the Philippines.

Table 1. List of utility models filed with IPOPhil

Title	Author/s	Application Number
1. Process for Producing Vacuum Fried Indian Mango (<i>Mangifera Indica Linn</i>)	Domingo, CJ	22018000126
2. A Process of Producing Snack Food from Water Spinach Stalk (<i>Ipomoea Aquatica</i>)	Domingo, CJ	2201000127
3. A Process of Making Osmo-Dehydrated Indian Mango	Domingo, CJ and Austria, V	22018000128
4. A Process of Producing Vacuum Fried Red Onion (<i>Allium Cepa</i>) Ring As An Alternative Healthy Snack	Domingo, CJ and De Vera, W	22018000129
5. A Process of making Indian Mango Fruit Roll (<i>Mangifera Indica Linn</i>)	Domingo, CJ	22018000125

*Utility Model

**Intellectual Property



Bangus in Pesto Sauce (left), Binagoongang Bangus (middle), Spanish Style Espada Sardines (right)



Natal Plum Jam



Chili-Buro



Tomato Salsa

Overall, 15 prototypes were generated from the target of 250 food concepts (Table 2). IPs were filed but technology packages were not accomplished due to manpower limitations of the Center. Currently, the FIC has four (4) active researchers, one full time researcher under the Career Incentive Program of DOST-SEI and three faculty members. As part of the sustainability plan of the Center, it will continuously encourage young researchers to undertake food innovation and product development studies and attendance to various training-workshops. Offering of the BS Food Technology program will open the recruitment of experts on food science and technology. Expectedly, it will increase the number of IPs filed and number of technology packages completed.

Table 2. Annual target versus actual accomplishment for the development and transfer of new food products/processes

Target Activities	Annual Target	Actual Accomplishment	Percentage Accompl.
No. of concepts generated	250	250	100%
No. of prototypes developed from the concepts	17	15	88%
No. of Package of Technology (POT)	6	4	67%
No. of POTs translated to Licensing Agreements	1	1	100%
No. of IPs (patent, utility model, copyright) filed	17	5	29%

III. Advocacy, Promotion and Technical services to the food industry

The PSU-DOST 1 Food Innovation Center was featured in ABS-CBN's MagTV na Atin 'To Program, a regional lifestyle magazine showcasing the best of North Luzon. The segment featured vacuum fried squash processing (Table 3). Other vacuum fried products (onion and okra) were also highlighted.

The Center also actively participated in eight (8) Technology Caravans conducted by different government institutions. Products showcased with free taste were vacuum fried onion, vacuum fried okra, tomato salsa, freeze dried mango, freeze dried dragon fruit, binagoongang bangus, bangus in red pesto sauce, mango roll, mango wine, mango vinegar, natal plum jam, and ube powder. The technology caravans served as avenue to promote the products meet and interact with consumers and potential technology adoptors of the technologies.

Table 3. List of Promotional Activities

Activity	Date
1. Mag TV-na atin to Regional Network Featured PSU-DOST I FIC	January 25, 2018
2. Exhibitor during the S and T Caravan in the City of San Fernando, La Union	May 2 to 4, 2018
3. Exhibitor during the RSTW cum S and T Caravan in Alaminos City, Pangasinan	September 18 to 21, 2018
4. Exhibitor during the Negosyo Summit in Bayambang, Pangasinan	September 27, 2018
5. Exhibitor during the S and T Caravan in Laoac, Pangasinan	October 9 to 12, 2018
6. Exhibitor during the Regional Agriculture and Fisheries Extension Network Symposium in Lingayen, Pangasinan	October 17 to 19, 2018
7. Exhibitor during the S and T Caravan in the City of San Carlos, Pangasinan	November 6 to 8, 2018
8. Exhibitor during the National Inventors Week in Batac City, Ilocos Norte	November 20 to 23, 2018
9. Exhibitor during the S and T Caravan in Aguilar, Pangasinan	November 27 to 29, 2018



Dr. Raquel C. Pambid-FIC Head, and Ricardo C. Velasco-FIC staff demonstrated Ube powder production while SSRS Cyril John A. Domingo showed flour sieving technique to the students of PSU Sta. Maria Campus.



Dr. Raquel C. Pambid (middle) served as one of the resource speakers during the 2018 Negosyo Summit in Bayambang, Pangasinan.



DOST Secretary Fortunato T. de la Peña, RD Armando Q. Gan, PD Felicidad M. Gan, and Mayor Art Celeste (right to left) tasted vacuum fried prototypes of the Region 1 FIC during the 2018 RSTW in Alaminos City, Pangasinan.



USEC for RO Brenda L. Nazareth-Manzano (fourth from the right), along with Alaminos City Mayor Art Celeste (middle), and PD Felicidad M. Gan (second from the left) posed with the PSU-FIC researchers.

The Center conducted five (5) Technology Fora, two (2) Seminar Workshops and four (4) Technology Trainings and offered free consultation to students, faculty and MSMEs. A total of 143 clients benefitted from the services offered by the center. (Table 4 and 5)

Table 4. Science and Technology Fora and Training

Training and Forum/Lecture Conducted	Participants	Details
1. Lecture-Workshop on Dehydration as a Food Preservation Method	TLE majors from PSU Sta. Maria Campus	April 25 to 27, 2018/FIC Bayambang, Pangasinan
2. Forum on Food Innovation	MSMEs of San Fernando City, La Union	May 4, 2018/City of San Fernando, La Union
3. Indian Mango Processing (Forum)	MSMEs	June 21, 2018/ Sinait, Ilocos Sur
4. Indian Mango Processing (Training-Chutney and Pastillas)	Food Processors of Rosario, La Union	June 28, 2018/ Rosario, La Union
5. Skills Training on Fruit Processing	MSMEs	July 1, 2018/ San Carlos City Pangasinan
6. Seminar on Financial Analysis, Development, and Packaging of Food Innovation Center (FIC) Services and Technology Transfer Modes for FIC Developed Technologies	University Researchers in Region I, DOST staff	July 24 to 25, 2018/ PSU Campus, Bayambang, Pangasinan
7. Buro Processing	MSMEs	September 20, 2018/ Alaminos City, Pangasinan
8. Forum on Food Innovation Center products and Services	MSMEs, Researchers, Farmers, Students	September 20, 2018/ Alaminos City, Pangasinan
9. Negosyo Summit: FIC products and services	MSMEs, Researchers, Farmers, Students	September 27, 2018/ Bayambang, Pangasinan
10. Forum on Food Innovation Center Modes of Engagement	MSMEs, Researchers, Farmers, Students	San Carlos City, Pangasinan/ November 9, 2018

Table 5. Clients served and services rendered

Client Name/ Location	Services Availed	Number of Client
Chiliboy/ Romblon	Consultancy	1
Rowena De la Cruz/ Dagupan City, Pangasinan	Consultancy	1
OneDoc/ Bayambang, Pangasinan	Consultancy/tech tour	5
LGU-Agoo	Technology Tour	6
Rotary Club Bayambang	Technology Tour	1
Rotary Club Korea/ Korea	Technology Tour	13
Chiba University faculty and students	Technology Tour	5
PSU Lingayen	Consultancy	3
Gray Enterprises/ Baguio City	Consultancy	1
Mama Cili/ Alaminos City, Pangasinan	Consultancy	1
Gigi Lee/ Urdaneta City, Pangasinan	Consultancy	1
PEDAI / Sta. Barbara, Pangasinan	Consultancy/tech tour	10
PSU Sta Maria students	Training-workshop/Tech tour	50
Sunshine Umayam/ DMMMSU	Consultancy	1
Sunshine Umayam/ DMMMSU	Use of cabinet dryer	1
Jhonpaul Undan/ Bayambang, Pangasinan+	Consultancy	1
DMMMSU Teachers	Technology Tour	7
PSU Lingayen Nutrition and Diabetics students	Lecture/Tech tour	23
PSU Alaminos students	Consultancy	5
PSU Bayambang students	Consultancy	5
Rhea Mae Dela Pena and adviser (DMMMSU)	Use of Vacuum Fryer	2
Total		143

The team continued to strengthen its research capabilities by attending four (4) DOST-sponsored capacity building and training workshops on technology transfer law, intellectual property policies, technology licensing and food product development, innovation and marketing. However, only two personnel with casual and project-based appointments can operate the three (3) fabricated machines.

SSRS Cyril John A. Domingo pitches FIC developed food prototypes to entrepreneurs, researchers, students, and Local Government Units. FIC researchers pose with the visitors.



The PSU-DOST 1 Food Innovation Center has established linkage with six (6) government entities and one (1) private sector (Table 6.)

Table 6. PSU-DOST I FIC Linkages established.

Activity	Number/Details
Linkages Established	1. LGU San Carlos City, Pangasinan 2. DOST-PSTC La Union 3. DOST-PSTC Pangasinan 4. DTI San Carlos 5. DTI Pangasinan 6. LGU Agoo, La Union 7. One Document Corp.

On collection of fees, the Center generated an income amounting to Php92,305.01 (185% increase from the fees collected in 2017) from the following services: (1) Use of facilities and equipment; (2) Technical Services; (3) Technology Transfer and Licensing; (4) Referrals; (5) Contract Research and Development; (6) Technology Trainings; and (7) Market Samples.



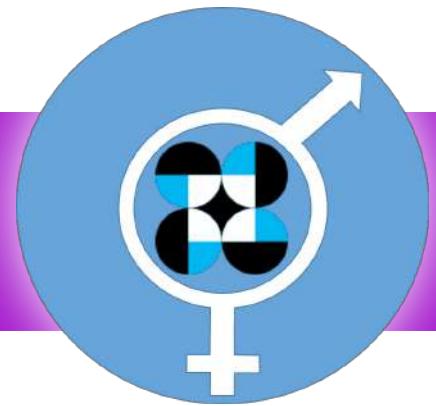
Bayambang Mayor Dr. Cezar T. Quimba looked at the vacuum fried prototypes curiously (left). Dr. Paulina Nebrida visited the FIC booth during the S&T Caravan in SFC, La Union (right).

Inauguration of the Center

Last August 11, 2018, the PSU-DOST 1 FIC was inaugurated at PSU, Bayambang, Pangasinan. The event was graced by key officials from PSU, headed by Dr. Paulo V. Cenas, key officials from DOST, led by Sec. Fortunato T. de la Peña, ITDI Deputy Director, Dr. Diana L. Ignacio and DOST 1 ARD for Technical Operations Dr. Paulina P. Nebrida, government officials (Atty. Rodelynn Rajini A. Sagario-Vidad, Councilor Cathy De Vera, and Ms. Jessica Gueco) and food manufacturers and inventors in Region I (Valledens Pastries, Chili Boy, Chili Queen, and Nutridense Food Manufacturing Corporation) were also present during the inauguration.



DOST Secretary Fortunato T. de la Peña and OIC to the Office of the PSU President Dr. Paulo C. Cenas led the inauguration of the Region 1 FIC. They tasted different food prototypes together with ITDI Deputy Director Dr. Diana L. Ignacio.



GENDER AND DEVELOPMENT PROGRAM

Gender and Development (GAD) Program recognizes the role of women in nation building, ensures the fundamental equality before the law of women and men, and emphasizes gender sensitivity.

Gender Mainstreaming Efforts of DOST-I

DOST I revitalized vibrancy on GAD through implementation of projects/ programs/ activities towards sustaining gender-awareness and gender mainstreaming for both internal and external clienteles.

The foremost activity pursuant to Section 36 of Republic Act No. 9710, otherwise known as the Magna Carta of Women (MCW) and Philippine Commission on Women (PCW) Memorandum Circular No. 2011-01, is the Reconstitution of the GAD Focal Point System (GFPS), a mechanism established to ensure and advocate for, guide, coordinate, and monitor the development, implementation, review and updating of GAD plans and GAD-related programs, activities and projects (PAPs).



DOST-I GAD Focal Point System (GFPS) conducted orientation for new staff on basic GAD Concepts at DOST I - AVR.

Chairperson

ARMANDO Q. GANAL, Regional Director

TECHNICAL WORKING GROUP

Head **PAULINA P. NEBRIDA**, ARD for Technical Operations
Members ***OSCAR G. RIMANDO**, ARD for Finance and Administrative Services Division
ISMAEL D. GURTIZA, Planning Officer
ZOSIMO C. GALVEZ, Budget Officer
JONATHAN M. VIERNES, PSTD-Ilocos Norte
RAMON S. SUMABAT, PSTD-Ilocos Sur
RACQUEL M. ESPIRITU, PSTD-La Union
FELICIDAD M. GAN, PSTD-Pangasinan
ANGEL LYN V. ORTIZ, Admin Assistant
MAUREEN HEIDI L. PEREZ, GAD Staff

Dr. Paulina P. Nebrida delivering her Opening Message during the kick-off program of DOST I celebration of 2018 National Women's Month (NWM) at DOST I – AVR.

Secretariat
*Retired as of June 20, 2018

ALTERNATES OF PSTDs in the TECHNICAL WORKING GROUP

Ilocos Norte **LAURINE R. SALES**, Project Assistant II
Ilocos Sur **DONNABEL ANN M. FLORES**, Project Assistant I
La Union **PRINCESS P. ABUAN**, Project Assistant II
Pangasinan **ALEXANDER A. APOSTOL**, Science Research Specialis II
Satellite Office **ANGELY B. CIMATU**, Project Assistant II

To fully capacitate and strengthen the GFPS, various capacity building activities were implemented and participated by the members. Among others, Harmonized Gender and Development Guidelines (HGDG) Training was conducted in Baguio City in support to gender mainstreaming for a gender-responsive DOST and to comply with the submission of the annual GAD Plan and Budget (GPB) and GAD Accomplishment Report (GAR) to the PCW. The use of HGDG, a gender analysis tool developed by NEDA, aids agencies on how to attribute major flagship programs in the GPB.

The DOST Central Office through its GAD Program, in partnership with PCW conducted a Levelling Off Session for the selected GFPS members to become part of the DOST Speakers Bureau on GAD. The activity focused on clarifying core messages and uniform core messaging on GAD.



DOST I participated in the "Symposium on Women" organized by Region 1 Advocates for Gender Equality (RAGE) at Bangko Sentral ng Pilipinas – La Union Regional Office.

Participation in the 2018 Women's Month Celebration

The DOST-I participated in the 2018 Women's Month Celebration with the theme, "WE Make Change Work for Women!" as mandated by Republic Act 6469 and spearheaded by the PCW. The celebration ensures that man and woman will be partners in the pursuit of the country's economic, social, cultural and political developments.

The DOST 1 GAD Focal Point System (GFPS) participated in the following activities:

1. The Region 1 Advocates for Gender Equality (RAGE) - led activity:
 - a. "Walk for Gender Equality"
 - b. Mini Trade Fair for Juan and Juana
2. Forum on Women Exemplar on Natural Resources Management, conducted by the Department of Environment and Natural Resources (DENR) Region 1. DOST 1 GFPS was invited and served as part of the panel.
3. Activities conducted for all DOST-I staff:
 - a. Reproductive Health and Cardiovascular Talk by Ms. Carla Joyce B. Cajala, RN;
 - b. "Productivity in the Workplace through 5S" by Dr. Ismael D. Gurtiza, Planning Officer;
 - c. Echo of the Values Restoration Program by Ms. Racquel M. Espiritu and Ms. Angel Lyn V. Ortiz, PSTC – La Union Director and Administrative Assistant III, respectively;
 - d. Gender Sensitivity Training by Ms. Marichu Y. Cuison, Acting Director IV of CSC Ilocos Sur;
 - e. Wellness program for all DOST-I staff; and
 - f. Hanging of tarpaulin
4. Participation in the celebration spearheaded by the DOST – Central Office.

DOST-I GFPS established a GAD Corner that provides information and updates relative to GAD programs, activities and projects (PAPs) and other GAD-related issues/concerns for S&T Stakeholders.

Furthermore, using the Gender Mainstreaming Evaluation Framework (GMEF) tool, the areas of strengths and pointers for improvement of DOST-I GAD mainstreaming was rated and gauged. DOST-I garnered 61.60 points implying a Level 3 mainstreaming efforts – GAD Application.

Level 3 describes that GAD-related activities are already institutionalized within the organization. Interventions are usually based on a strategic GAD agenda that guides GAD planning and budgeting implementation.

Participation in other GAD and GAD-related activities

1. Conference on International Migration in the Eyes of GAD in Baguio City.
2. 2018 DOST-wide GAD Focal Point Assembly in Panglao, Bohol.
3. RAGE-led activity on the 18-day Campaign to End Violence against Women (VAW).
4. Greening the Gender Responsive Value Chain Analysis (GGRVCA) for women entrepreneurs of Region 1 in Bauang, La Union.
5. DOST-PCW meeting for the DOST-PCW GREAT Women Project 2.



GFPS members of DOST Regional Offices in Northern Luzon participated in the Training on Harmonized Gender and Development Guidelines (HGDG) at Baguio City.



DOST-PCW Transition Meeting with Canadian Representative Ms. Mary Lynch, attended by representatives from DOST Regional Offices involved in GREAT Women Project 2.



GFPS members during the GAD Focal Point Assembly in Panglao, Bohol.



DOST I staff after the Gender Sensitivity Training conducted in celebration of the 2018 NWM at San Fernando City La Union.



DOST-wide (GFPS) members were recognized during the celebration of 2018 NWM conducted at Philippine Science High School - Main Campus.

FINANCIAL AND HUMAN RESOURCES MANAGEMENT

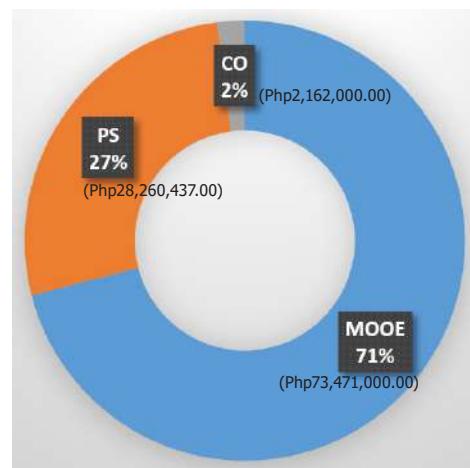


FINANCIAL RESOURCES

For this year, DOST-I operated within its budget amounting to Php185,013,744.67 broken into:

- Php103,893,437.00 from General Appropriations
- Php81,120,307.67 from other resources.

For the General Appropriations, twenty-seven percent (27%) amounting to Php28,260,437.00 went to Personal Services (PS) while seventy-one percent (71%) (Php73,471,000.00) went to Maintenance and Other Operating Expenses (MOOE) and two percent (2%) in Capital Outlay (Php2,162,000.00).



On the other hand, the breakdown of the Other Fund Sources are as follows:

PROJECTS	SOURCE	APPROVED BUDGET
Enhancing OneLab for Global Competitiveness	DOST-GIA	3,755,601.60
Strengthening DOST Regional Metrology Laboratory Services-Phase II	DOST-GIA	3,279,428.80
Field Verification Testing of CARRAGEENAN Plant Growth Promoter for Enhanced Growth and Induced Pest and Disease Resistance in Rice and Corn	DA and DOST-PCAARRD	962,980.00
Support to Ilocos Consortium for Industry, Energy and Emerging Technology Research and Development (ICIEERD) R&D Program	PCIEERD	650,000
Optimization of the Operational Capabilities of Hydromet Sensors In Line with International Standards (WMO Standards) for Effective Weather, Flood Warning (CBFEWS) and Application to Research	PCIEERD	379,780.00
OneExpert (1E): A One-Stop Portal for Science and Technology Consultancy and Technical Services - DOST Region 1 Component	DOST-GIA	384,900.80
Community Empowerment Through Science and Technology (CEST) - Batch 2 S&T Assistance Program for the Less-Privileged Communities in Region 1	DOST-GIA	4,059,324.80
Scholarship	DOST-SEI	67,068,291.67
Celebration of 2018 Regional Science and Technology Week and Technology Promotions in Region 1	DOST-TAPI	200,000
2018 National Inventors Week Celebration	DOST-TAPI	350,000.00
Invent School Program (ISP) Seminar-Workshop (High School Level) in San Fernando City, La Union	DOST-TAPI	30,000.00
TOTAL		81,120,307.67



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.

Table 14. Trainings Attended of Staff of DOST I in 2018

Name & Staff Position	Training Attended	Date	Venue
OFFICE OF THE REGIONAL DIRECTOR			
ARMANDO Q. GANAL Regional Director	Training National PCIEERD Consortia Assembly meeting	December 10, 2018	Crimson Hotel Alabang, Muntinlupa City
	OneLab ASEAN Forum	December 5, 2018	16/F Alto Function Room Acacia Hotel, Alabang, Muntinlupa City
	ILAARRDEC Regional Symposium on R&D Highlights	November 27, 2018	DMMMSU North La Union Campus, Bacnotan, La Union

	CEST Roadmapping	November 5, 2018	Paragon Hotel and Suites, Baguio City
	Technology Day	November 27, 2018	16/F Alto Function Room Acacia Hotel, Alabang, Muntinlupa City
	Orientation on Balik Scientist Program, Magna Carta and Scientific Career System	September 19, 2018	Northwood Hotel, Alaminos City
	Disaster Risk Reduction and Management in Agriculture		Azalea Hotel, Baguio City
	Training Workshop on Values and Team Productivity	August 28-29, 2018	Quest Hotel, Mimosa Drive, Filinvest Mimosa+ Leisure City, Clark Freeport Zone, Pampanga
	Round Table Discussion re Ka SETUP Ka Namin	August 23, 2018	SM Mall of Asia, Pasay City
	Regional Forum on Strategies to Enhance Innovation and Management Capacities of Startups and SMEs	July 18-19, 2018	World Trade Center, Pasay City
	Harnessing Science, Technology and Innovation Towards Industry 4.0	July 8, 2018	World Trade Center, Pasay City
	40th Annual Scientific Meeting	July 11-12, 2018	Manila Hotel
	Filipinovation and Entrepreneurship	May 31, 2018	Quest Hotel, Montecista Villas, Acacia Drive, Mimosa Leisure Estate, Clark Freeport Zone, Pampanga
	Thought Leaders Congress	May 23, 2018	Diamond Hotel, Roxas Boulevard, Manila
	Business Forum in MSME Development and Disaster Resilience	May 22, 2018	Puerto de San Juan Resort Hotel, San Juan, La Union
	ROs meet TechGens	April 30, 2018	Training Room Food and Nutrition Research Institute DOST, Bicutan, Taguig City
	ADAFO Conference	April 25-26, 2018	Fort Ilocandia, Laoag City
	National R&D Conference	April 25-26, 2018	PICC, Pasay City
	Regional Research Conference	April 13, 2018	University of Northern Philippines, Vigan City
	3rd Forum of the National Technical Panel of Experts	April 3, 2018	MMSU Teatro Ilocandia, Batac City, Ilocos Norte
	North Luzon Pre-Workshop for Agri and Social Sectors	February 22, 2018	Newton Plaza Hotel, Baguio City
	Innovations Seminar	February 19, 2018	Phivolcs Auditorium, Diliman, Quezon City
ANGEL LYN V. ORTIZ Administrative Assistant III	Convention on International Migration in the Eyes of Gender and Developmet (GAD)	November 26-27, 2018	Azalea Hotels and Residences, Baguio City
	DOST GAD Focal Point Assembly	November 13-15, 2018	Flushing Meadows Resort and Playground, Brgy. Dao, Dauis, Panglao, Bohol
	Training on Basic Sensory Evaluation	August 23-October 19, 2018	Department of Science and Technology- Regional Standards and Testing Laboratory, DMMMSU-MLUC, City of San Fernando, La Union
	Forum on Salient Provisions of the Data Privacy Act of 2012	November 6, 2018	Platinum Building Auditorium, MIRDC, Bicutan, Taguig City
	Levelling Off Session on Gender and Development	October 23-25	Germanium Conference Room, 3F Gold Buidling, MIRDC Compound, Bicutan, Taguig City
	Training-Workshop on the Harmonized Gender and Development Guidelines	July 30-July 31, 2018	The Hotel Elizabeth, Baguio City
	Philippine Quality Award Application Development Course	June 6-8, 2018	Leyte Park Resort Hotel, Magsaysay Boulevard Downtown, Tacloban City, Leyte
	Cardiovascular andReproductive health Awareness, Orientation of DOST 1 Staff on Productivity of the Workplace Through 5S	March 20, 2018	Audio Visual Room, Department of Science and Technology Regional Office I, DMMMSU- MLUC, City of San Fernando, La Union
	In-House Training ofn the Effective, Efficient and Compliant Records Management in the DOST System	March 14-16, 2018	Platinum Building Auditorium, MIRDC DOST Complex, Bicutan, Taguig City
	Values Restoration Program on Organic-Vro Training the Trainers Excellence Wokshop	March 6-9, 2018	Council for the Restoration of Filipino Values Training Institute, Baguio City
	National Information Convention	February 19-21, 2018	SMX Convention Center, Davao City
	Data Privacy Awareness and Compliance Workshop	January 15-17, 2018	Prime Hotel, Baguio City
Name & Staff Position	Training Attended	Date	Venue
TECHNICAL SERVICES DIVISION			
ISMAEL D. GURTIZA Planning Officer	ISO Tech Stirred Liquid Bath	January 23, 2018	PSTC- La Union, DOST I- Government Center, Sevilla, City of San Fernando, La Union
	Additel 916 Pneumatic Pressure Test Pump Training	January 23, 2018	PSTC- La Union, DOST I- Government Center, Sevilla, City of San Fernando, La Union
	Integrated Management System Appreciation and Interpretation Course	October 10-12, 2018	JBDC Occupational Health, Safety and Environment Consultancy, Grand Regal Hotel, Lanang, Davao City

Name & Staff Position	Training Attended	Date	Venue
	Strategic Planning Workshop cum training on Investment Promotion	October 16-17, 2018	Oasis Country Resort, San Fernando City, La Union
	Awareness Seminar and Documentation of Laboratory Management System based on ISO/ IEC 17025:2017	November 21-23, 2018	DOST Region I, City of San Fernando, La Union
ADELISA C. FLORENDO Science Research Specialist II	Training on Technology Needs Assessment	May 21-24, 2018	West Avenue Suites, West Avenue Quezon City
	Seminar Workshop on Enterprise Development	July 10-11, 2018	Oazis Hotel, Butuan City
MICHAEL JOHN C. MAQUILING Science Research Specialist II	DOST-OSEC Information Systems Strategic Plan-Seminar	April 18-20, 2018	Azalea Hotels and Residences, Baguio City
	Leadership Training (The Executive Leadership Program for the Philippines)	November 15-28, 2018	AOTS Kansai Kenshu Center (KKC) 7-5, Asaka 1-chome, Sumiyoshi-ku, Osaka 558-0021, Japan
	Information Systems Strategic Plan Formulation	December 5-7, 2018	ICT Literacy and Competency Development Bureau Department of Information and Communications Technology
SHERYL ANN H. ESLAO Project Assistant III	Seminar Workshop for Promotion and Marketing Practices (Ka-SETUP Ka Namin! Round Table Discussion)	August 23-24, 2018	B Hotel, Alabang, Muntinlupa City
JAMES D. PREPOSE Project Assistant II	5th STARBOOKS Deployment Officer's Assembly	April 11-13, 2018	Oasis Hotel, Clark Perimeter Road Angeles City, Pampanga
	6th STARBOOKS Deployment Officer's Assembly	December 5-7, 2018	Orchid Garden Suites, Manila
JOHN OLIVER E. DE VERA Project Assistant II	CEST Roadmapping Workshop	November 18, 2018	Paragon Hotel and Suites, Baguio City
MAUREEN HEIDI L. PEREZ Project Assistant I	International Migration in the Eyes of Gender and Development	November 26-27, 2018	Regional Development Council - SCIMD Azalea Hotel and Residences, Baguio City
	2018 GAD Focal Point Assembly	November 13-16, 2018	DOST Central Office Flushing Meadows Resort and Playground, Dao, Dauis, Panglao, Bohol
	DOST Speaker's Bureau Levelling Off Session	October 23-25, 2018	DOST Central Office, Gold Auditorium, DOST - MIRDC, Bicutan, Taguig City
	Training on Harmonized Gender and Development Guidelines (HGDG)	July 30-31, 2018	DOST Central Office Hotel Elizabeth, Gibraltar Road, Baguio City
	Basic Sign Language Training	July 20, 2018	DOH Region 1 Training Center, DOH Regional Office 1, Parian, City of San Fernando, La Union
	Training on 2017 Omnibus Rules on Appointments and Other Human Resource Actions (ORAOHRA)	May 31-June 1, 2018	CSC Region 1 Training Center, CSC Regional Office 1, City of San Fernando, La Union
	Orientation on Effective, Efficient and Compliant Records Management	April 19, 2018	DOST Region 1 Audio Visual Room, DOST Regional Office 1, Catbangen, City of San Fernando, La Union
	Gender Sensitivity Training	March 21, 2018	BCSC Region 1 Liga ng mga Brangay Hall, City of San Fernando, La Union
	Cardiovascular and Reproductive Health Awareness, orientation on DOST 1 Staff on Productivity of the Workplace through 5S and Orientation on Values Restoration Program	March 20, 2018	DOST Region 1 Audio Visual Room DOST Regional Office 1, City of San Fernando, La Union
	Forum on Women Exemplar in Environment and Natural Resources (Served as RP)	February 13-16, 2018	DENR Region 1 Conference Room , DENR Regional Office 1, City of San Fernando, La Union
KATRINA F. RONQUILLO Project Assistant I	Telemedicine Training cum RxBox 1000 Project Orientation and Integration of iClinicSys	February 13-16, 2018	Oasis Country Resort, City of San Fernando, La Union
	Gender Sensitivity Training	March 21, 2018	BCSC Region 1 Liga ng mga Brangay Hall, City of San Fernando, La Union
FLORDE LIZA L. ALIDA Project Assistant I	Winning Web 2.0: How to become an effective Public Information Officer in the Digital Age	December 10-11, 2018	Hotel Elizabeth, Baguio City
	DOST Media Core National Convention	November 26-29, 2018	Parklane Hotel, Cebu City
	S4C Program Caravan and Regional Academe Industry Forum: Writeshop and Packaging of Proposals	October 29-30, 2018	Oasis Country Resorts, Bauang, La Union
	Write Right for Positive Results	September 27-28, 2018	DOST-NRCP, Bicutan, Taguig City
	Ka-SETUP Ka Namin Branding Seminar and Workshop	April 23-25, 2018	B-Hotel, Alabang, Muntinlupa City, Manila
	Workshop and Advocacy Materials for IFR Campaign	March 13-15, 2018	DOST-FNRI, Taguig City, Manila
	Gender Sensitivity Training	March 21, 2018	AVR, DOST Region Office, SFCLU
	DOST Media Core Summit	March 26-28, 2018	B-Hotel, Alabang, Muntinlupa City, Manila
	National Information Convention	February 19-21, 2018	SMX Lanang, Convention Center, Davao City

Name & Staff Position	Training Attended	Date	Venue
ADMINISTRATIVE SERVICES DIVISION			
ZOSIMO C. GALVEZ Administrative Officer V	Association of Government Accountants of the Philippines, Inc Seminar/ Convention	October 17-20, 2018	Iloilo Convention Center, Megaworld Blvd. Mandurria, Iloilo City
JASMIN C. BAÑEZ Accountant III	Training on 2017 Omnibus Rules on Appointments and other Human Resource Actions (ORA OHRA)	May 31- June 1, 2018	Civil Service Commission Regional Office I, Juan Luna Hall, CSCROI Training Center, City of San Fernando, La Union
NIDA P. CLAVERON Administrative Officer V	Property and Supply Management System	August 28- 31, 2018	COA Training Center, COA Regional Office No. 1, City of San Fernando, La Union
	Awareness Seminar and Documentation of Laboratory Management System based on ISO/ IEC 17025:2017	November 21-23, 2018	Department of Science and Technology Regional Office 1, City of San Fernando, La Union
	37th Annual National Convention: GACPA Leaps, Excels and Adheres to Professional Standards	April 15- 18, 2018	SMX Convention Center, Davao City
ARCELI R. PIMENTEL Administrative Officer V	Training on Modern Cash and Disbursement System, Financial Control, and Updated Laws and Regulations (Cash Management & Control System)	October 16-18, 2018	Training Center, Commission on Audit Regional Office I, City of San Fernando, La Union
	Training on Property Inspection, Appraisal and Disposal (Property & Supply Management System)	August 28-31, 2018	Training Center, Commission on Audit Regional Office I, City of San Fernando, La Union
ARLENE F. GALVEZ Administrative Aide IV	Cash Management and Control System	October 16-18, 2018	Training Center, Commission on Audit Regional Office I, City of San Fernando, La Union
REGIONAL STANDARD AND TESTING LABORATORY			
ANITA A. CRISTE Supervising Science Research Specialist / Head, RSTL	Awareness Seminar and Documentation of Laboratory Management System based on ISO/IEC 17025:2017	Nov. 21-23, 2018	DOST I AVR (In-house training)
	Trends in Quality Management-Improving Your Laboratory's Proficiency	July 25-27, 2018	Jakarta, Indonesia
	Water=Resources To Inclusive Circular Economy	July 19-20, 2018	PICC Manila
DECETH 1180 P. LIBUNAO Science Research Specialist II	2nd Pre- Testing of Harmonized Food Safety Training Modules for Food Manufacturing	February 28- March 2, 2018	Microtel UP Technohub, Diliman, Quezon City
	In-House Training on Listeria Monocytogenes	June 25-26, 2018	Department of Science and Technology- Regional Standards and Testing Laboratory, DMMMSU- MLUC, City of San Fernando, La Union
	PQA Application Development Course	March 19-22, 2018	DAP Building, San Miguel Avenue, Ortigas Center Pasig City
HERO D. GALAMGAM Science Research Specialist II	Food Microbiology-Bacillus Cereus, Listeria Monocytogenes (In-house)	June 25-26, 2018	DOST 1, Regional Standards and Testing Laboratory, DMMMSU- MLUC, City of San Fernando, La Union
PAUL STANLEY C. RAMOS Science Research Specialist I	Software Quality Assurance	December 17-19, 2018	Standards and Testing Division, DOST Compound, Suri St. Bicutan, Taguig City, Metro Manila
BLESSIE T. JIMENO Senior Science Research Specialist	Food Microbiology-Bacillus Cereus, Listeria Monocytogenes (In-house)	June 25-26, 2018	DOST 1, Regional Standards and Testing Laboratory, DMMMSU- MLUC, City of San Fernando, La Union
CYRILLE ANN B. MANALON Project Assistant II	Food Microbiology-Bacillus Cereus, Listeria Monocytogenes (In-house)	June 25-26, 2018	DOST 1, Regional Standards and Testing Laboratory, DMMMSU- MLUC, City of San Fernando, La Union
PROVINCIAL S&T CENTER - LA UNION			
RACQUEL M. ESPIRITU Provincial S&T Director - La Union	2nd National Technology Business Incubator Summit 2018	December 19, 2018	The Manila Hotel, Ermita, Manila
	Trainer's Training on DOST Unified Food Safety Modules	November 27, 2018	Fersal Hotel, Quezon City
	24th Course on Food Safety	October 22-26, 2018	Cherryblossoms Hotel, Ermita, Manila
	Capability Building on Policy Translation and Team Productivity for DOST CO and Regional Offices	August 28-29, 2018	The Quest Hotel, Clark, Pampanga
	Training on Harmonized Gender and Developmental Training (HGDG)	July 30-31, 2018	Hotel Elizabeth, Baguio City
	Philippine Quality Award (PQA) Application Development Course	June 6-8, 2018	Leyte Park Resort Hotel, Tacloban City, Leyte
	Supervisory Development Course (SDC) Tracks 2 & 3	May 21-25, 2018	CSC Training Room, CSC RO1, SFLU
	2nd National Technology Business Incubator Summit 2018	December 19, 2018	The Manila Hotel, Ermita, Manila

Name & Staff Position	Training Attended	Date	Venue
EDISON M. ACOSTA Science Research Specialist II	Trainer's Training on DOST Unified Food Safety Modules	November 27, 2018	Fersal Hotel, Quezon City
	24th Course on Food Safety	October 22-26, 2018	Cherryblossoms Hotel, Ermita, Manila
	Capability Building on Policy Translation and Team Productivity for DOST CO and Regional Offices	August 28-29, 2018	The Quest Hotel, Clark, Pampanga
	Training on Harmonized Gender and Developmental Training (HGDG)	July 30-31, 2018	Hotel Elizabeth, Baguio City
	Philippine Quality Award (PQA) Application Development Course	June 6-8, 2018	Leyte Park Resort Hotel, Tacloban City, Leyte
	Supervisory Development Course (SDC) Tracks 2 & 3	May 21-25, 2018	CSC Training Room, CSC RO1, SFLU
	Trainer's Training on Fruit Processing	April 17-19, 2018	Food Processing Division, DOST-ITDI, Bicutan, Taguig City
	Trainer's Training on Vinegar and Wine Processing Using ITDI-Developed Kits	April 11-12, 2018	Food Processing Division, DOST-ITDI, Bicutan, Taguig City
	Cardiovascular and Reproductive Health Awareness, Orientation on DOST-1 staff on Productivity of the Workplace through 5S and Orientation on Values Restoration Program	March 20, 2018	Audio Visual Room, Department of Science and Technology Regional Office I, DMMMSU- MLUC, City of San Fernando, La Union
	Gender Sensitivity Training	March 21, 2018	Liga ng mga Barangay, SFLU
	Values Restoration Program	March 6-9, 2018	Council for the Restoration of Filipino Values, Baguio City
	RxBox1000 Project Orientation and Integration of iClinicSys	January 11, 2018	Oasis Country Resort, San Fernando City, La Union
BERNADINE P. SUNIEGA Science Research Specialist I	RxBox1000 Project Orientation & Integration of iClinicSys	January 11, 2018	Oasis Country Resort, San Fernando City, La Union
	Telemedicine Training	February 8, 2018	Oasis Country Resort, San Fernando City, La Union
	Training on Fish Processing	March 13-14, 2018	DOST- ITDI, Bicutan, Taguig
	Seminar-Workshop on Enterprise Development	July 9-11, 2018	Butuan City, Philippines
	Forum on Innovative & Creative Problem Solving & Orientation of DOST Programs	July 19, 2018	2018 National Science and Technology Week Pasay City
	Technical Conference on Agricultural Mechanization & Postharvest Technologies	September 11-14, 2018	PhilMech CLSU Compound, Science City of Muñoz, Nueva Ecija
MARLON R. ORPILLA Science Research Specialist I	Review of the Process of the Provision of Packaging and Labelling Assistance	January 9, 2018	Audio Visual Room, Department of Science and Technology Regional Office I, DMMMSU- MLUC, City of San Fernando, La Union
	Training on Temperature Metrology	December 17-20, 2018	National Metrology Center, Singapore
PRINCESS P. ABUAN Project Assistant I	Metrology Course: Fundamentals of Measurement	May 25, 2018	Industrial Technology Development Institute Bicutan, Taguig City, Metro Manila
HEISABOY T. TUBAANG Project Assistant I	Training- Workshop on the Harmonized Gender and Development Guidelines	July 30-31, 2018	The Hotel Elizabeth, Baguio City
	Orientation on ISO 9001:2015 Quality Management System	November 7, 2018	AVR, DOST I, DMMMSU- MLUC, City of San Fernando, La Union
PROVINCIAL S&T CENTER - PANGASINAN			
FELICIDAD M. GAN Provincial S&T Director - Pangasinan	Training Workshop on Food Product Development, Innovation and Marketing for the DOST Research and Development Institutes (RDIs), Regional Offices, and State Universities and Colleges Food Technologists	February 19-23, 2018	DOST- FNRI Training Room, DOST FNRI Building DOST Compound, Bicutan, Taguig City
	Writeshop for the Development of Advocacy Materials on the Compostela Valley Province Rice Fortification Program	March 13-15, 2018	FNRI Training Room, FNRI Bldg. DOST Compound, Bicutan, Taguig City
	Elsevier's Science Direct and Scopus Databases Orientation and Author Writeshop	March 26, 2018	University of Baguio- Centennial Hall, Upper Assumption Rd. Baguio City
	Values Team and Productivity Workshop	August 28,- 29-2018	Quest Hotel, Mimosa Drive+ Leisure City, Clark Freeport Zone, Pampanga
ALEXANDER A. APOSTOL Science Research Specialist II	Gender Sensitivity Training	March 21, 2018	Liga ng mga Barangay Hall, City of San Fernando City, La Union
	Supervisory Development Course Track 1	July 24-27, 2018	Civil Service Commission Regional Office I Juan Luna Hall, CSCROI Training Center, City of San Fernando City, La Union
PANGASINAN SATELLITE OFFICE			
ARNOLD C. SANTOS OIC, Pangasinan Satellite Office	Supervisory Development Course Track 2&3	May 21-25, 2018	Civil Service Commission Regional Office I Juan Luna Hall, CSCROI Training Center, City of San Fernando, La Union



DOST-1 ORGANIZATIONAL CHART



Directory of DOST-1 Officials



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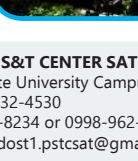
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