

# **ANNUAL**

## **REPORT**

## *2015*



Department of Science and Technology  
Regional Office No. 1

## FOREWORD



The 2015 DOST I Annual Report summarizes our triumphs to celebrate as we fulfilled the mandate of bringing science and technology to the doorsteps of our clients.

The Small Enterprise Technology Upgrading Program (SETUP) markedly improved the quality of service, products and operational efficiency of our beneficiary micro, small and medium enterprises (MSMEs). These factors pushed them to higher sales and income which capacitated them to employ new individuals who in turn created positive socio-economic impacts to their respective families and communities.

The Community Empowerment through Science and Technology (CEST) Program conducted mobilization activities which led to the development

of livelihood projects in identified poor communities in La Union and Pangasinan which provided employment and income to rural folks.

The chemical and microbiological tests conducted at our Regional S&T Laboratory paved the way to improve food safety among our food processors, the quality of available drinking water and in managing wastewater. Calibration services ensured the correctness of volume and mass measuring devices through the standards we maintained.

The S&T scholars were continuously provided with, not only financial assistance, but with other support to improve their confidence and skills to ready them in the employment market.

Disaster risk reduction remained on the priority of DOST. In 2015 as more Automated Rain Gauges (ARGs) and Water Level Monitoring Stations (WLMS) were identified for deployment along the Minor River Basins in Region 1. Moreover, the presence and density of mosquitoes in dengue-sensitive areas were continuously monitored through the O/L trapping system deployed in the identified sentinel schools.

There is still so much to learn, so much to do to fully harness science and technology towards a sustained progress. Nonetheless, we are optimistic that we will be there in the very near future. Our partners, namely, the chief executives and other officials of the local government units, heads of other government agencies, the SUCs and other HEIs, P&Q experts and project evaluators, and many others are one with us in our common goal of making S&T as the way to a better Region 1.

Mabuhay!

  
ARMANDO Q. GANAL  
Regional Director



## **DOST 1 HIGHLIGHTS OF ACCOMPLISHMENTS IN 2015**

DOST 1 was steadfast in implementing its programs and projects in 2015 with the vision of transforming more micro, small and medium enterprises (MSMEs) into competitive enterprises capable of employing more individuals, empowering poor communities to have access to basic needs and generate income, and supporting S&T scholars who will become the future S&T leaders of the nation, among others.

### **Technology Transfer**

The country's manufacturing sector is highly dominated by micro, small and medium enterprises (MSMEs), thus MSMEs have a pivotal role in the attainment of the country's agenda of poverty reduction and inclusive growth. In 2015, DOST 1 provided 241 technology interventions to 80 MSMEs in the Ilocos through the Small enterprise Technology Upgrading Program (SETUP). The interventions include equipment upgrading, training, product packaging and labeling, technical assistance and consultancy services, and product testing. These technological interventions resulted in 18 % increase in productivity, improvement in product quality conforming to local and international standards, and product marketability. Better operational efficiency enabled the MSMEs to employ 234 new individuals.

There are two (2) food innovation centers being established in region 1, at Mariano Marcos State University, Batac City and the at Pangasinan State University, Bayambang, Pangasinan.

The Community Empowerment through Science and Technology Program (CEST) conducted mobilization activities which led to the development of four (4) livelihood projects in identified poor communities in La Union and Pangasinan. The livelihood projects generated 25 employment for rural folks and a gross sales of Php85,000 in 2015. The basic need for potable water was also addressed.

### **High Impact Technology Solutions**

Disaster risk reduction and mitigation remained on the priority of DOST 1. In 2015, six (6) more Automated Rain Gauges (ARGs) and Water Level Monitoring Stations (WLMS) were deployed along the Minor River Basins in La Union and Ilocos Sur.



The presence and density of mosquitoes in dengue-sensitive areas were continuously monitored through the 113 public and 28 private sentinel schools with 3,107 and 493 classrooms, respectively. The sentinel schools received OL trap kits. Based on the report, most of the school sentinels observed that the density of mosquitoes in their schools decreased so with the number of dengue cases.

The commercial production of ceramic pot/candle type water filter is being done at the University of Northern Philippines, Vigan City. So far, the production center has produced about 2,967 units where 2,267 units were distributed to various buyers.

### **Science and Technology Services**

DOST 1's S&T services, such as, laboratory testing, calibration services, technical assistance and consultancy services, packaging and labeling, technology training and technology fora benefitted a total of 2,362 MSMEs in 2015.

The 7,666 chemical and microbiological laboratory tests conducted at our Regional S&T Laboratory paved the way for improvement of food safety among our food processors, the quality of available drinking water and in managing wastewater. Calibration services ensured the correctness of measure of 1,150 volume and mass measuring devices through the standards we maintained.

The 47 MSMEs assisted under the technical assistance and consultancy services resulted in reduction in waste generation, savings in raw materials, lower energy cost and compliance to good manufacturing practices leading to higher productivity.

Better packaging and labeling led the 21 MSMEs to 32 new markets which increased their sales of about Php8 M.

The S&T scholarships were offered to deserving students. In 2015, DOST assisted 480 college scholars. The assistance included summer orientation and MOA signing, release of monthly stipends and other financial assistance, job hunting seminar and scholars summit, among others.

DOST's S&T library served the information needs of 3,556 users which included students, researchers, and prospective entrepreneurs.



The programs and services of DOST, so with the appropriate technologies adaptable in the region were promoted in press releases and press conference/interviews and during technology fairs. In 2015, DOST 1 had 163 press releases, 76 press interview/conference, participated in the National Science and Technology Fair and led the conduct of three fairs in the region, namely, the North Luzon Cluster S&T Fair, the Regional invention Contests and Exhibits and the Science Nation Tour-Agham na Ramdam. There were more than 12,000 viewers during the 3-day Fairs in Region 1.

DOST I's performance and accomplishments were delivered through its 52 staff, comprising 22 permanent and 30 job orders supported with a budget amounting to Php114,701,794.85.



# TECHNOLOGY TRANSFER

## A. SMALL ENTERPRISE 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. It aims to improve the viability of MSMEs, enhance their productivity and competitiveness through infusion of technology, provision of technical assistance, and manpower development.

In 2015, DOST 1 focused its assistance or S&T interventions to 55 micro small enterprises in five priority sectors: 18 in food processing, 20 in metals and engineering, 9 in furniture, six (6) in agriculture, one (1) in gifts, decors and handicrafts sector, and one (1) in packaging and labeling. Six (6) SETUP projects were approved in 2015 but will be funded in 2016. Furthermore, there are additional 26 MSMEs funded earlier but continued to received technical interventions this year.

The assistance or interventions provided to the firms included upgrading of production equipment and facilities, product label design and packaging execution, technical assistance and consultancy services on areas on energy use and efficiency, cleaner production, and food safety, product testing and standardization, and manpower training such as good manufacturing practices cum food safety, productivity and quality, wood finishing techniques, among others.

Table 1. Number of projects funded per sector by province

SECTOR	ILOCOS NORTE	ILOCOS SUR	LA UNION	PANG 1	PANG II	TOTAL
FOOD PROCESSING	6	2	4	5	1	18
METALS & ENGINEERING	4	3	6	4	3	20
FURNITURE	1	4	3	1		9
AGRICULTURE		1			5	6
GDH				1		1
PACKAGING & LABELING					1	1



## B. FOOD INNOVATION CENTER (FIC)

### FIC-MMSU

DOST Region 1 funded through its local GIA the establishment of the Food Innovation Center at the Mariano Marcos State University (MMSU), Batac City.

### FIC PSU- Bayambang

The establishment of the Food Innovation Center in Pangasinan State University, Bayambang, Pangasinan is included in Batch II of FICs funded by PCIEERD this year and being shepherded by ITDI.

The renovation of the building for the FIC is on-going following the recommendation of ITDI and the Food Safety Team of DOST Region 1.

Moreover, the fabrication of the fixtures needed in the FIC is almost done and ready for delivery as soon as the renovation of the building is completed.

## C. COMMUNITY EMPOWERMENT THROUGH SCIENCE AND TECHNOLOGY (CEST)

The Community Empowerment through Science and Technology (CEST) aims to undertake social mobilization activities in identified poor communities that will create opportunities for income generation. In 2015, DOST I implemented the CEST in five barangays in Aguilar, Pangasinan; namely, Bocboc East, Bocboc West, Panacol, San Jose and Sitio Mapita of Barangay Laoag. It also continued its assistance to the first beneficiaries of the program in Bagulin, La Union.

The following summarizes the interventions in the beneficiary barangays.

### LIVELIHOOD/ ECONOMIC ENTERPRISE DEVELOPMENT

There was a continuous monitoring and delivery of assistance to the associations in Bagulin, La Union. A PVC shrink cap seal was provided to Libbo Farmers Association for its bugnay wine and so with Dagup-Loslosi Farmers Association for its new product, duhat wine, out of an abundant fruit in the community with the appropriate labeling. Likewise, tiger grass depollenator convertible into rice thresher awarded in the barangays were used during the harvest of both tiger grass and rice.

In Aguilar, Pangasinan, technological interventions were provided to the beneficiary barangays.

- Training on Candle Making  
Brgy. Bocboc West  
No. of Participants = 19



- **Training in Basic Baking**

No. of participants = 36 from the 5 barangays

Materials and Resource Speaker from Achievers Corporation, Quezon City, Manila

Adopters: Ms. Marissa dela Cruz

Ms. Winnie Laguiwey

The two were provided with kitchen scale, pizza cutter, pizza pan, and donut filling bag. They are also being assisted in purchasing their ingredients.

- The four livelihood projects developed in Bagulin, La Union and Aguilar, Pangasinan generated 25 employment and a gross sales of Php85,000 in 2015.
- A soybean processor in Bocboc East was visited and is targeted to be assisted in 2016 through packaging and labelling.

## **WATER AND SANITATION**

Addressing the basic need for potable water is one of the major concerns of CEST.

The water distribution system given in barangay Tagudtud, Bagulin, was a big help in the barangay particularly last summer where previously water was unavailable. A random monitoring conducted to determine the functionality of the pot-type ceramic water filters provided in Bagulin showed that 46% are still effective as shown in the water potability test of the samples.

Recipients were advised to follow the cleaning process of the filters to take full advantage of the water filter.

In Aguilar, Pangasinan, water sampling was done in the five beneficiary barangays to determine potability. Water samples were collected from twelve (12) deep wells and three (3) spring water in the municipality and was tested at the DOST-1 RSTL. Results showed that out of the 15 samples, only 1 water source passed the tests for water potability. The two deep wells were found to be contaminated with *Echericia coli* (fecal colii) while 9 water sources had heterotrophic bacteria. The results showed that the water sources are not safe for drinking.

To ensure that the beneficiaries are drinking safe water, 445 candle-type ceramic water filters (CWFs) were distributed to households and Daycare Centers in Aguilar, Pangasinan. Those who were not given CWFs opted to avail of the Sodium Hypochlorite where 288 bottles were provided through the Barangay Health centers.



## **BASIC EDUCATION AND LITERACY**

There were two forms of interventions given to improve basic education and literacy in the beneficiary communities. These are improving the competency of teachers through training and provision of equipment to schools to improve the method of teaching science and math subjects.

Based on previous assessment, Pangasinan State University, the SUC partner in the implementation of CEST in Pangasinan, conducted a computer literacy training to enhance the basic computer skills of teachers specifically in word processing, spreadsheet, presentations, and in internet browsing. The training enabled the 18 secondary school teachers and 61 elementary school teachers to appreciate the importance of computer technology in facilitating their tasks.

On scholarship, two high school graduates from Bagulin (Nicko Ofo-ob, Noralyn Bugtong) and another two students from Aguilar (Meraldo Garcia and Teody Bataan, Jr.) qualified for the RA7687 DOST Scholarships.

On the other hand, an Invent School Program, in partnership with the Technology Application and Promotion Institute (TAPI), was conducted for 45 high school students and 10 teachers from 10 secondary schools in Aguilar to encourage both the teachers and the students to create simple inventions or do research or investigatory projects.

### **Teaching Equipment and Modules**

Five beneficiary schools namely: Anonang Elementary School , Bocboc East Elementary School, Bocboc West Elementary School , Mapita Integrated School, Panacol Elementary School, and Sipitan Elementary School were provided with 32' Smart LED TV with 1 TB External Hard drive with SEI Mathematics and Science Modules. A pre-test on Science (Grades 3-6) and Math (Grades 1-6) subjects were conducted. A post-test will be administered at the end of the school year to determine the knowledge change of the pupils.

## **HEALTH AND NUTRITION**

Complementary food like the Rice-Mango Curls was given to the 58 malnourished children beneficiaries in Bagulin from November 2014 to March 17-19 2015. The monthly monitoring of their nutritional status indicated that 47 beneficiaries reached the normal Body Mass Index after 120 days continuous feeding of the RIMO Cheese-flavored Curls.

On the other hand, Aguilar placed third in the province on the highest prevalence of malnutrition in 2014. A benchmarking was conducted on the nutritional status of children ages 6-36 months old in barangays Panacol, San Jose and Sitio Mapita. In Panacol, 7 out of 52 are undernourished; San Jose has 17 out of 56, and Mapita has 10 out of 26 malnourished children. A total of 34 undernourished children will be part of the 120 days feeding program on the first quarter of 2016.



## **DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION**

To have safer communities and reduce vulnerabilities on flooding and soil erosion, an Automated Rain Gauge was installed in the compound of Libbo Elementary School in Bagulin, La Union.

### **D. HIGH IMPACT TECHNOLOGY SOLUTIONS**

#### **1. SUSTAINED NATIONWIDE DENGUE VECTOR SURVEILLANCE (SNDVS) THRU OVICIDAL/LARVICIDAL TRAPPING**

This program is a joint partnership between the Department of Science and Technology (DOST), Department of Education (DepEd), Department of Health (DOH), Department of Interior and Local government (DILG) to install the DOST OL-Traps for Aedes Mosquito nationwide and help reduce dengue cases and control dengue transmission.

The Industrial Technology Development Institute, in cooperation with the Philippine Council for Health Research and Development, also of the DOST, developed the Ovicidal/Larvicultural (OL) Trap, a three-component system that attracts the Aedes mosquitoes then kills the eggs and larvae. The developed DOST ovi/larvicultural trap system is a device used to control the Aedes mosquito population. Aside from being used as a surveillance for Aedes mosquito, the ovitrap is lethal to the eggs due to the developed natural based larvicide which is incorporated on the oviposition substrate. Ovi/larvicultural trap allows laying of eggs but prevents adult emergence thus reduces the Aedes mosquito densities.

The developed ovi/larvicultural mosquito trap offers a simple, cheap and efficient tool for surveillance and control of mosquito.

#### **SCHOOL SENTINELS**

In 2015, there were 113 public and 28 private schools that served as sentinel schools. These sentinel schools are the sites for mosquito population surveillance. There were 3,107 and 493 classrooms that were provided with OL Traps, respectively.

A re-orientation and training to DepEd, DILG, and DOH Coordinators, as well as to the DepEd school teachers/ nurses were conducted regarding installation and website reporting. As of December 2015 all the public sentinel schools have received and installed the OL Trap supplies. On the other hand, only 18 out of 28 private sentinel schools received their OL trap kits due to late arrival of supplies.



Based on the report, most of the school sentinels observed that the density of mosquitoes in their schools decreased and so with the number of dengue cases. Schools with high OL Indices or OL Index equivalent to 20% or more followed the interventions given to them to lessen the density of mosquitoes to their school. Following are the activities/practices implemented in their school:

- ⇒ 4 PM Habit – Search and destroy activities inside and outside their classrooms
- ⇒ Spraying of insecticides 2 to 3 times a week
- ⇒ Installation of mosquito nets in all classrooms
- ⇒ Fogging/fumigation with the help of the LGU
- ⇒ Monthly clean-up drive inside and outside the school

## **2. DEPLOYMENT OF EARLY WARNING SYSTEMS (DEWS) IN DISASTER-PRONE AREAS**

In line with the on-going efforts of the Department of Science and Technology in putting up nationwide disaster mitigation system, the agency deployed additional Hydrometeorological Stations: Automated Rain Gauges (ARGs) and Water Level Monitoring Stations (WLMS), along the Minor River Basins in Region 1.

The project was led by the Advanced Science and Technology Institute (DOST-ASTI) and the Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST-PAGASA). DOST 1 was involved in identifying and prioritizing the deployment sites, installation of ARGs and WLMS, hydromet calibration and in ensuring reliable transmission and sustainability of the network.

### **Deployment sites and deployment priority**

For 2015, there are 33 station sites identified along the 16 Minor River Basins in 25 LGUs in Region 1 based on the DOST-PAGASA and DOST Region 1 Hydromet Station site selection, assessment and validation.

As per Project workplan, the DOST-ASTI initiates the procurement of the sensors along with the production of the locally developed Advanced Remote Data Acquisition Unit (arQ) which controls all functions and data communications of the station. Basically, 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) arQ with installed SIM card and d) Satellite antenna that serves as a backup for data transmission.

The DOSTs automated Hydromet station is rugged unmanned/standalone system that use sensors to gather data (i.e. rainfall amount, water level) and transmits these data to a server through SMS.



DOST 1 on the other hand, is in charge of the site preparation and installation of the stations. Deployment of Warning Stations is one of the vital components of the project. It 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). These warning stations will be deployed in the disaster prone or flood prone communities in the region.

As of December 2015, DOST 1 managed to prepare 13 sites and deployed seven (7) stations. The rest of the sites will be deployed by next year.

### **Develop the DOST Regional Office's Capacity on Hydromet Calibration**

Reliable data is very vital in giving forecasts and providing warnings to communities to be affected by impending disasters thus a well calibrated device is important. With the increasing number of ARGs deployed, the DOST-PAGASA trained the DOST Regional offices on the calibration of ARGs.

### **Ensure reliable transmission and sustainability of the network**

DOST 1 conducted regular preventive maintenance and troubleshooting of down stations to ensure reliable transmission of data gathered by the stations. Region 1, as of December 2015, has serviced a total of 48 Hydromet stations.

## **3. CERAMIC WATER FILTER (CWF)**

The commercial production of ceramic pot/candle type water filter is being done at the University of Northern Philippines, Vigan City. The production and distribution of the CWF was launched on September 1, 2015 with Secretary Mario G. Montejo as the guest of honor.

So far, the production center has produced about 2,267 units which are for distribution to the following buyers:

Buyers	No. of units
DOST Region 1	500 pcs –for distribution to the CEST beneficiaries in Aguilar, Pangasinan
DOST Region IVA	800 pcs
DOST Region IVB	200 pcs
As UNP's token	64 pcs
Walk-in buyers	3 pcs

Currently, 700 pcs. green filters are ready for firing.



# S&T SERVICES

## A. TESTING AND CALIBRATION SERVICES

The Regional Standards and Testing Laboratory (RSTL) of the DOST Region I is the leading provider of food, water, wastewater testing as well as mass and volume calibration services in the region.

The RSTL has maintained 4 accreditation/recognition, namely: ISO 17025 accreditation from the Philippine Accreditation Bureau, Recognition from DENR as Regional Laboratory for wastewater, Accreditation from the Food and Drugs Administration as Regional Health Products Laboratory and Accreditation from DOH as Regional Laboratory for Drinking Water.

**Table 2: Accomplishments of RSTL for CY 2015:**

INDICATORS	CHEM	MICRO	TOTAL
No. of samples analyzed	838	2,668	3,506
No. of analyses conducted	1,984	5,682	7,666
No. of customers served	643	1,516	2,159
No. of firms assisted			1,586
Income Generated (Php'000)	1,602.528	1,965.650	3,568.178
Value of Assistance Rendered (Php'000)	69.837	37.070	106.907
No. of Proficiency Testing (PT) Participated	1 (BOD)		1
No. of accreditation/ recognition maintained	ISO 17025 (PAO accreditation) 1 (EMB-DENR Recognition) 1 (FDA accreditation) 1 (DOH accreditation)	ISO 17025 (PAO accreditation) 1(EMB-DENR Recognition) 1 (FDA accreditation) 1 (DOH accreditation)	4

Moreover, standardization of mass and volume through calibration continued to be one of the major activities of DOST 1 through the Regional Metrology Laboratory based at the Provincial S&T Center (PSTC) in La Union and its Satellite Metrology Centers based in the PSTCs in Ilocos Norte, Ilocos Sur and Pangasinan. The table below shows their accomplishments for the year.



INDICATORS	ILOCOS NORTE	ILOCOS SUR	LA UNION	PAN-GASINAN	TOTAL
No. of calibration services provided	45	57	793	179	1074
No. of clients served	26	52	529	173	769
No. of firms served	25	51	391	120	587
Income generated, P'000	13.98	7.28	666.743	50	738
Value of assistance rendered, P'000	-	1.624	6.050	-	7.68

## B. PACKAGING AND LABELING SERVICES

A total of 34 label designs were finalized and completed for 18 firms, summarized as to distribution among the PSTCs, as follows

PERFORMANCE INDICATORS	Provincial S&T Centers					TOTAL
	ILOCOS NORTE	ILOCOS SUR	La Union	Pangasinan 1	Pangasinan 2	
Packaging and Labeling Designs Provided	6	10	2	9	7	34
No. of Firms Assisted	5	5	2	3	3	18
No of New Markets Penetrated	17	7	-	9	7	40
Increase in sales (P'000)	220	6,202	-	1,361.12	390.10	8,173.26

For all the products provided with packaging, a total of 40 new markets were penetrated by the beneficiary-firms earning Php 8,173,260 in sales.



## C. TECHNICAL ASSISTANCE & CONSULTANCY SERVICES (TACS)

The Productivity Teams led by DOST 1 provided recommendations on innovative technological interventions to improve the productivity of enterprises. The services covered under TACS are Energy Audit towards more efficient energy use, Cleaner Production Assessment to reduce waste generation, Food Safety Assessment to ensure quality and safe food for consumption, and Equipment Design and Engineering Assessment to increase equipment efficiency

### ENERGY AUDIT

A total of 16 firms were given recommendations to improve energy use efficiency:

NAME OF FIRM	LOCATION
JL Metalcrafts and Welding Shop	Brgy. 20 Calluza, Piddig, Ilocos Norte
John Jet Motorworks And Welding Shop	Brgy. San Jose, Agcaoili St., Laoag City
Citi Point MetalCraft	16N Bantay Batac, Ilocos Norte
Food Innovation Center	MMSU, Batac City
Amboy and Queenie Furniture Shop	Brgy. San Pablo, San Esteban, Ilocos Sur
MGN Frozen Foods	Gabor Norte, Sta. Cruz, Ilocos Sur
JER-ZLE-RYJ'S Furniture Shop	Brgy. Allangigan Primero, Candon City, Ilocos Sur
A.L.G. Furniture Shop	Ili Norte, San Juan, La Union
Sofia Furniture and Sash Factory	Ma. Cristina East, Bangar, La Union
Spearken Mini Chicken Dressing Plant	San Gregorio, Caba, La Union
P.S. Maramba Enterprises	Bonuan Boquig, Dagupan City
FJAZ Stainless and Metal Works	Urdaneta City
Cabrero's Farm	Villasis, Pangasinan
RP Ricemill	Mangatarem, Pangasinan
Punzal Trading	Mangatarem, Pangasinan
C.N. Sidecar	Basista, Pangasinan

The recommendations of the energy audit team included safety and making energy consumption more efficient, such as, appropriate sizes and lay-out of electrical wirings, proper motor size based on load, use of compact fluorescent lamps and LED for lighting systems, among others.

## CLEANER PRODUCTION TECHNOLOGY ASSESSMENT

The Cleaner Production (CP) Assessment Team, composed of trained CP assessors from DOST, SUCs and other government agencies, provided recommendations to 15 firms to reduce generation of solid and liquid wastes or gaseous emissions at the source:

NAME OF FIRM	LOCATION
Cornickels Enterprise	Laoag City
5As Steel Furniture and Gheneral Mechandize	San Nicolas, Ilocos Norte
Eugene's Enteprising	Batac City
MAV Furniture	San Vicente, Ilocos Sur
JER-ZLE-RY'S Furniture	Candon City
Tritinzap Furniture	San Indefonso, Ilocos Sur
Toybox Car Audio and Accessories	City of San Fernando
Amerh Paul Auto Repair Shop	San Juan, La Union
Spearken Mini Dressing Plant	Caba, La Union
Shelflex Candles	Bayambang, Pangasinan
Ridhan Motorshop	Urbiztondo, Pangasinan
Pamintuan Machine Shop	San Carlos City
Liza Peter Meat Vendor	Mangaldan, Pangasinan
Bsmaramba Enterprises	Dagupan City
Fjaz Metal & SS Center	Urdaneta City

The other CP recommendations included better plant lay-out to optimize movement of materials and manpower, segregation of solid and liquid wastes to avoid high biological oxygen demand (BOD) in liquid waste, re-use of solid and liquid wastes, turning solid wastes into other higher value products, and use of proper protective gears.



## FOOD SAFETY ASSESSMENT

The Department of Science and Technology Region I has organized the Region I Inter-Agency Food Safety Team (FST) to assist small and medium enterprises (SMEs) in the food sector for a continuous improvement of production of safe, wholesome and quality foods for local and international markets. The team assesses the sanitary conditions and practices established by the food manufacturing establishments. A tool to validate the current manufacturing operations of SMEs in the region is the conduct of training and assessment to the food firms in compliance to GMP:

NAME OF FIRM	LOCATION
Dagupan Bangus Processors - Pugaro Fish Products	Dagupan City, Pangasinan
FETOTS BUKO PIE	Laoag City, Ilocos Norte
CORNIKLES ENTERPRISES	Laoag City, Ilocos Norte
LUCKY TEO'S Food Products	Banna, Ilocos Norte
FOOD INNOVATION CENTER	MMSU, Batac City, Ilocos Norte
Lucky Jay-Ar Jayson Jaymarc Food Products	Oaig-Daya, Candon City, Ilocos Sur
Mijen's Food Products	Cabalangan, Bantay, Ilocos Sur
Jeannie Piamonte Lechon and Meat Products	Capangpangan, Vigan City, Ilocos Sur
Pepita's Food Products	Caloocan Norte, Binmaley, Pangasinan
Princesa Dairy Farm	Maramba Blvd., Lingayen, Pangasinan
Farmers Delight Products	Socony, Bugallon, Pangasinan
HN Dressing Plant	Brgy. Cafloresan, Nancamaliran West, Urdaneta City, Pangasinan
Maresma Women's Credit Cooperative	San Andres, Balungao, Pangasinan

Table 3. Trainings/Seminar on Current Good Manufacturing Practice

Province	Training/Seminar	No. of Participants	No. of Firms
Ilocos Norte	Awareness Seminar on GMP/FS for SMEs	35	7
Ilocos Sur	Awareness Seminar on GMP/FS for SMEs, Food Processors, Handlers and Vendors	200	50
La Union	Awareness Seminar on GMP/FS for SMEs, Food Processors and Vendors	50	10
Pangasinan	Awareness Seminar on GMP/FS for SMEs	30	10

## **TACS FROM RDIs**

Ten (10) firms benefitted from the technical assistance provided by experts from the Research and Development Institutes (DOST-RDIs) like ITDI, FPRDI, FNRI, ASTI, and MIRDC. Another 104 firms were provided with technical assistance through in-house technical staff.

## **D. TECHNOLOGY TRAINING**

A total of 33 trainings on various technologies were conducted for 677 participants. Two hundred forty three (243) firms benefited from the training covering topics on Current Good Manufacturing Practices, packaging and labeling, bamboo handicraft making, productivity and quality, wood finishing etc.

## **E. TECHNOLOGY FORA**

A total of 31 technology fora were conducted to promote the adoption of various technologies. Some of the technologies promoted were: Creative Engineering Technologies and Designs: Intervention for Climate Change, Water Shortages, Flash Floods and Disasters, LIDAR, REDAS, Ecosep, swine and poultry diseases and control, improvement of shelf-life, etc. The fora were attended by 896 benefitting 178 firms.



# OTHER S&T SERVICES

## A. S&T SCHOLARSHIPS

The Science and Technology Scholarship Act of 2002, otherwise known as the RA 7687 and the Merit Scholarship Program of DOST, is an evidence of the government's commitment to promote the development of the country's science and technology human resources to support the capabilities required in the areas of research, development, innovation as well as their utilization necessary to spur economic development. The program aims to produce leaders and decision-makers in various areas of S&T government, academe and private industries.

For the year 2015, a total of 1,890 graduating high school students from Region I took the examination for the scholarship for SY 2015-2016, Out of the examinees, 241 qualified for the RA 7687 and 25 under Merit Scholarship Programs of DOST. Among the scholarship passers, 44 are from Ilocos Norte, 46 from Ilocos Sur, 48 from La Union, 128 from Pangasinan. However only 220 availed of the scholarship program.

A Summer Orientation and Enrichment Program for 125 DOST Scholars was conducted in MMSU-Batac, Ilocos Norte, DMMMSU-MLUC, City of San Fernando and the PSU-Campus, Urdaneta, Pangasinan.

On the other hand, there were 10 RA7687 scholars who graduated in 2015 that availed of the Job Hunting Seminar and Orientation Program to prepare them in the arduous task of getting a job.

At the start of First Semester for AY 2015-2016, there are 440 on-going DOST assisted scholars enrolled in various accredited universities and colleges in the region, all of them under the RA 7687 scholarship program.

In mid-year 2015, another DOST scholarship program was implemented: RA 10612 or the Junior Level Science Scholarship (JLSS). A total of 153 incoming third year students applied for the said program and 48 of them passed. Forty one enrolled in the region while the rest enrolled outside Region I.

## B. S&T LIBRARY AND INFORMATION SERVICES

The DOST Regional Office and the Provincial S&T Centers continued to provide library services to the public, especially the students and researchers. Various references and reading materials, particularly on science and technology, were acquired to update the information offered to the researchers.

The S&T Libraries at the regional office, PSTC Ilocos Norte, and Ilocos Sur likewise provided S&T information service through the S&T Academic and Research-Based Openly Operated Kiosk Stations (STARBOOKS). It is a stand-alone electronic library containing information on various locally developed technologies, investigatory projects, and other S&T-related information. In 2015, DOST assisted two schools in the installation of two units of STARBOOKS, and fabricated 12 other units for the schools to be selected by the Congressional District



There were 3,556 library users in 2015, most of them served in the regional office. Furthermore, a total of 176 copies of S&T information materials were distributed to S&T stakeholders.

## C. S&T PROMOTION

DOST I conducted various activities to promote science and technology for the benefit of the constituents in region 1.

### Press Releases

Press releases on DOST programs, projects and activities were circulated through the quad-media: the local radio, print, TV and the website of DOST region 1. A total of 73 for radio, 65 for print, and 25 for TV press releases were accomplished in 2015.

### Fairs

There were four (4) Science and Technology Fairs conducted/participated by DOST 1 in 2015. These were the National Science and Technology Week (NSTW), Regional Invention Contest and Exhibits, North Luzon Cluster Fair and the Science Nation Tour. These S&T fairs, exhibits and advocacy programs featured inventions, utility models and commercialized technologies in agriculture, aquaculture, forestry and natural resources, industry, energy , advance technologies, and health technologies, and awareness of the stakeholders on the benefit of Science and Technology

#### 1. National Science and Technology Week

During the NSTW, DOST 1 exhibited in all 5 areas of Outcome 2 (SMARTER MSMEs): P&L, SETUP, TACS, LAB, CEST. Likewise it led the Packaging and Labeling Exhibits, and the Packaging Innovation Forum. It also participated in the Search for Best SETUP Adaptor.

#### 2. North Luzon Cluster Science and Technology Fair

DOST 1 hosted the 2015 North Luzon Cluster Science and Technology Fair held at the Vigan Convention Center, Vigan City on September 1-3, 2015, together with DOST Regions 2 and CAR.

The Fair showcased 11 locally and 26 nationally generated technologies from the DOST System and Local Stakeholders ready for commercial applications. The other activities included technology fora, technology-based bazaar from 33 DOST-assisted MSME's, press conference, and S&T quiz and trivia.

A total of 12,315 individuals came to view the exhibits and participated in the various activities of the Fair.

#### 3. Regional Invention Contests and Exhibit

The Invention Contests promoted creative and inventive efforts through the showcasing products of creativity/ inventiveness/ ingenuity that hoped to address the needs in living.



The 2015 invention contest and exhibits featured the technologies and inventions developed and created by the 122 participating teams of inventors, researchers and students from Region I, divided into the following categories: one (1) for invention; six (6) for the Utility Model; 14 for Creative Research (Likha), 20 for Student Creative Research – Sibol College, and 81 in Student Creative Research – Sibol High School.

#### **4. Science Nation Tour (Agham na Ramdam)**

The Science Nation Tour in the Ilocos was conducted on August 31-September 2, 2015. The tour is aimed at making the people see and experience how science affects their daily lives.

Secretary Mario G. Montejo led the Science Nation Tour Ilocos. Other DOST officials with him were Undersecretary Rowena Cristina Guevara, Assistant Secretary Urdujah Tejada, Director Larry Cabatic of the PSHS System.

The tour's activities included a DOST stakeholders night, DOST scholars' summit, press conference with the local and national media outfits, launching of the ceramics candle-type water filter production center at the University of Northern Philippines, a Consultation meeting with the LGUs of Ilocos Sur on disaster risk reduction and management, project visit and launching of the Food Innovation Center in Mariano Marcos State University, Batac City.

One of the modes tapped to promote science and technology and the services of DOST I was through press conferences and interviews mostly in the local broadcast and television media. There were 65 press interviews and conference conducted in 2015.

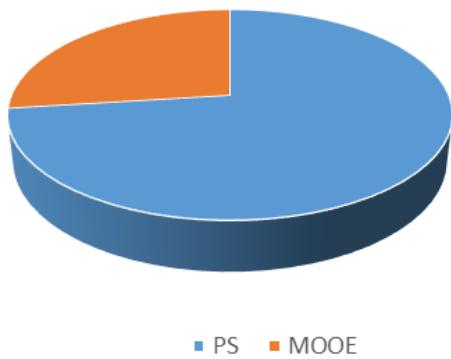


# Financial and Human Resources Management

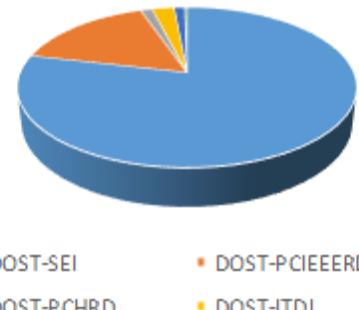
## A. FINANCIAL RESOURCES

In 2015 DOST 1 operated within its budget amounting to P114,701,794.85 broken into: P73,185,000 from General Appropriations and P41,516,794.85 from other sources.

### Total Appropriations 2015 (GAA )



### Other Sources of Funds



SOURCE	PROJECT	AMOUNT, Php
<b>DOST-SEI</b>	S&T Scholarships	28,474,917.45
<b>DOST-PCIEERD</b>	DEWS	2,261,439.41
	One Labaratory	3,563,075.05
<b>DOST-PCHRD</b>	SNDVS (OL Trap)	483,721.00
<b>DOST-ITDI</b>	FIC-PSU Bayambang	909,125.00
<b>DOST-TAPI</b>	NLCST Fair	295,000.00
	RICE	145,946.00
Members of ICIEERD	ICIEERD Support	90,000.00



## B. HUMAN RESOURCES

DOST Region I has a total manpower complement of 52 staff, comprising of 22 permanent and 30 contractual staff, distributed in the Technical Services Division and the Administrative Services Division.

There are 42 personnel working under the Technical Services Division, and complementing the ARD for Technical Operations: 8 in the Provincial S&T Centers, 2 in the Regional Standards and Testing Laboratory, and 3 in Regional Operations. An additional 28 contractual 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 and, with 2 contractual 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, 54.54% of the staff are college degree holders. There are 27.67% MS graduates and 13.63% PhD holders. One (1) employee is undergraduate.

By age bracket 9.1% staff are already 60 years old, 31.8% are in the 51-59 years bracket, 22.73% are in the 41-50 years bracket, 22.73 are in the 31-40 years bracket and 13.64% are 30 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 in 2015.

