

ANNUAL REPORT TWENTY SEVENTEEN

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excellence



innovation



DEPARTMENT OF SCIENCE AND TECHNOLOGY
Science Education Institute

Contents

Science Education Institute | ANNUAL REPORT 2017

Introduction

03

Introduction

04

Message from the Secretary

05

Message from the Director

06

Highlights

08

Service

34

Excellence

48

Innovation

62

Organizational Excellence

76

Managing Resources

77

Organizational Chart

78

Key Officials

80

Officers and Staff

The Science Education Institute has come a long way in our 30 years of performing our mission of accelerating the development of our country’s S&T human resources.

In addition to having provided invaluable scholarship opportunities to thousands of poor yet deserving students nationwide, we have broadened our scope to contribute to the enhancement of research, teaching and learning capacities, support comprehensive programs that uphold academic excellence, and cultivate world-class innovative approaches for enhancing our educational processes and outcomes.

Over the years, we have become more oriented to the latest trends in science education, cognizant of issues that affect our domestic and global standing. Beyond creating provisions for S&T educational scholarships, we aim to provide meaningful contributions to the betterment of the lives of the Filipino people.

Our passion for innovation is our third pillar that rounds off our commitment to service and to creating a culture of excellence. The continuous influx of new technologies calls for our education leaders to always rethink all facets of our policies, programs and initiatives. For our schools and our students to embrace the future, we have to meet the challenges in Science, Technology, Engineering, and Mathematics (STEM) curriculum design arising from advanced technology integration.

For instance, there is a need to cultivate digital literacy to engage students and educators with content and allow them to perform tasks, from simple classroom presentation to complex online collaboration. Immersive learning also calls for more initiatives beyond the classroom walls to deal with disaster resilience, climate change adaption, renewable energy development, and other issues that have significant impact on our future.

The next 30 years will be an era of even greater challenges. While we have experienced positive developments and advancements in science and technology education, we still have a long way to go to address the perennial hurdles that beset our S&T capabilities by increasing R&D expenditure, expanding opportunities for scientists to stay and gain meaningful contributions in the country, and creating a stronger S&T culture.

The three pillars – Service, Excellence and Innovation – will always provide us with the strong foundations for achieving all these aspirations. By strengthening our educational policies and initiatives, we will develop and engage more scholars, students, researchers, faculty and staff into responsible and competent leaders that will contribute to reducing inequality and hastening the development of our regions.



ABOUT THE COVER

Three decades of unwavering dedication to provide Filipino students with invaluable educational opportunities through scholarship programs have led all of us at the Science Education Institute to this momentous milestone. It is an occasion to look back with pride at the generations of scholars we’ve nurtured, take stock of our current capabilities, and look ahead for countless other opportunities to serve. It is a moment for affirming the qualities that have defined us, sustained us, and motivated us: SERVICE, EXCELLENCE, and INNOVATION. We shall continue to be guided by these pillars to elevate our performance of our mandate, for the benefit of future science professionals, for the betterment of our communities, and for the greater progress of our country.

Message from the Secretary

Many of the country's current and upcoming leaders in engineering, mathematics, science and technology trace their beginnings as beneficiaries of the scholarship programs of the Department of Science and Technology Science Education Institute (DOST-SEI). Thousands more are being given the chance to be educated in these courses and molded into next generation scientists, engineers and other STEM professionals who will make positive contributions to our country.

DOST expresses its pride and appreciation for SEI's three decades marked by exemplary service, commitment to excellence and passion for innovation. Every year is marked by record breaking number of scholars, a phenomenal trend that favors not just the qualifiers and their families, but more importantly our whole country as it leads to more S&T professionals that we urgently need to address pressing national concerns. SEI's 30-year milestone deserves a celebration.

Over the years, SEI's continuously improving performance and accomplishments has been matched by corresponding increase in government support. In the last seven years, the Department of Science and Technology's (DOST) budget has quadrupled, from P5 billion in 2010 to P20.8 billion in 2017, with P2.9 billion being earmarked for the SEI's operations.

With our current administration's assurances of continued support to science and technology (S&T) development, an intensified and dynamic involvement in providing science and its benefits to the people is expected. The overall goal is to harvest the fruits of S&T for the good of our society.



Just when it was first established 30 years ago, the Institute's actions today in providing science education scholarships will have a greater impact on growing the next generation who will seek out STEM careers and contribute to socio-economic and cultural improvement.

It is hoped that the Science Education Institute will continue to be more than up to the task of helping accelerate the production of graduates of STEM programs, the disciplines where research and development flourish. Congratulations to SEI from the whole DOST Family!

PROF. FORTUNATO T. DELA PEÑA
Secretary, Department of Science and Technology

Message from the Director



Now the world is on the Fourth Industrial Revolution, and technology will play an even more central role in all aspects of our lives. According to the World Economic Forum, technological disruptions like machine learning, artificial intelligence, robotics and the Internet of Things, are transforming industries and business models, and changing the skill sets that employers require of employees.

It is estimated that 65% of children entering primary school will end up in a future filled with completely new job types that have yet to exist today. Even by 2020, it is said that there will be 1.5 million new digitized jobs across the world. In this transformational environment, soft skills like critical thinking, problem solving, adaptability and flexibility are more essential than they have ever been.

Against this backdrop, DOST-SEI operates to fulfill the technology-based skills shortage in the workplace in the whole country. More than ever, we have to redouble our efforts to prepare the talents needed for the digital economy, and education must adapt as fast as the demand for multi-disciplinary skills is growing and evolving.

The next 30 years promise to be an era of greater challenges and exciting opportunities. As the digital revolution accelerates, technology will reshape learning experiences and goals, providing educators with more opportunities to create more dynamic learning experiences.

Our rallying platform -- Service, Excellence and Innovation -- will be our constant guide in the performance of our mandate. Our achievements are made possible by the continued involvement of students and parents, academic peers and institutions, corporations and foundations. Their support continues to be invaluable and deserves our deepest gratitude.

DR. JOSETTE T. BIYO
Director, Science Education Institute

Thirty years ago, when the world had entered the Third Industrial Revolution or the Digital Age, the Science Education Institute was set up with the mandate of accelerating the development of S&T human resources through the administration of scholarships, advanced trainings, innovative programs in science education, and the development of S&T culture among the youth.

We have made much headway since then, but our figures still leave much to be desired. As of 2013, the country has a total of 36,517 R&D personnel. Taking away technicians and support personnel, there are 26,495 actual key researchers or a ratio of 270 for every one million Filipinos. In contrast, the developing economies of East Asia and the Pacific have an average of 1,020 researchers per million population.

The number of our STEM graduates and the influx of new scholars, however, continue to improve every year, leaving us very optimistic about our chances to eventually catch up with our neighbors. The 2018 DOST-SEI Scholarship Examination, which was held on October 15, 2017, recorded the highest number of examinees with 46,434 students. Of these, 8,994 qualified to RA 7687 and Merit Scholarship programs -- a nearly 70% increase over 2015 figures.

Highlights

UNDERGRADUATE AND GRADUATE SCHOLARSHIP PROGRAMS

A total of 46,434 students took the 2018 Undergraduate S&T Scholarship Examination nationwide in October 2017, registering the highest number ever recorded in the history of the exams.

For the Junior Level Science Scholarship (JLSS), 6,049 third years college students enrolled in various S&T courses took the examination in November 2017, producing 4,529 new qualifiers. New test forms were developed to make the scholarship programs more structured for potential science and mathematics professionals.

DOST-SEI initiated the development of review materials to prepare the graduating senior high school students for the 2019 DOST-SEI Undergraduate Scholarship Examination. This was particularly beneficial for the graduating students from 84 municipalities in 11 regions that do not have scholarship qualifiers based on the 2015 examination data.

The majority of DOST-SEI S&T Scholar Graduates or 86% are gainfully employed based on the results of the TRACER study questionnaire that tracked their present situation and career movement. Most of them are also working locally, while only 3.1% are working abroad.

Under the Filipino Patriot Scholars Project, 281 JLSS scholars and 863 ongoing scholars from various universities nationwide were gathered for an orientation meeting designed to instill the core values of professional excellence, social responsibility and servant leadership.

The Institute also led various initiatives to help rebuild Marawi City, such as the conduct of a planning workshop to conceptualize intervention plans for education, training of DOST-SEI scholars to provide informal learning among children displaced by the conflict, and the awarding of scholarships to members of families affected or displaced by the armed conflict.

To help boost the number of S&T professionals in the regions, additional universities joined the Project STRAND (Science and Technology Regional Alliance for National Development) network. These universities will compliment the existing universities of the graduate scholarship programs administered by the Institute.

DOST-SEI intensified its provision of foreign collaborative scholarship programs to provide scholarship opportunities to Filipinos who wish to study abroad as well as, conversely, to foreigners who seek to pursue higher education in the Philippines.

To attract more S&T specialists into public service, 50 applicants were endorsed by the DOST Secretary to the Civil Service Commission, granting them the status of S&T Eligibility Specialist under PD No. 997.

More officials and employees of the DOST qualified for scholarship to doctorate and masters degree programs. The program also supports full-time and part-time scholars from other DOST offices and partner agencies.

TEACHER DEVELOPMENT AND YOUTH ENGAGEMENT PROGRAMS

More universities signed up under the Science Academy for the Regions (STAR) network, providing greater access to trainings and other services to primary and secondary level in-service teachers.

More effective ways of teaching indigenous pupils were introduced with the validation and implementation of the Indigenized Lesson Plans in Science for Grades 4 to 6, which allowed for more students to relate to their lessons and engage more with their teachers.

The Science Explorer mobile learning science facility reached more places and covered more topics in 2017, serving a total of 5,673 students in 324 schools nationwide.

The number of recipients of the Youth Excellence in Science (YES) Award reached its highest on record since its inception in 2007, with 1,200 elementary and high school students from 324 schools obtaining the award.

DOST-SEI partnered with Intel Technologies Philippines and the Foundation for Information Technology Education and Development (FIT-ED) to launch the project dubbed “imake.wemake”, which encourages the creation of innovative solutions to community issues or social problems through accessible technologies.

Through the Philippine Space Science Education Program, DOST-SEI conducted several activities that engaged the interests of the youth. Among these are the 2017-2018 Asian Try Zero-G Experiments and the submission of space experiment proposals by high school students coming from regions III, NCR, V and VII.

The Indie-Siyensya Filmmaking Competition conducted its second run in 2017, with contestants submitting film entries marked by improvement in both quantity and quality. Out of 62 film concepts, 19 made it to the finals and uploaded to Youtube for public viewing and online voting for the Viewers Choice Award.

RESEARCH AND INNOVATION

The Institute spearheaded the conceptualization and design of the 21st Century Model Classroom for five (5) pilot schools of the Department of Education division of Lipa City, Batangas. This environment is expected to produce holistically developed students with 21st century skills in communication, collaboration critical thinking and creativity, while promoting STEM Education.

As part of the ongoing project of Eureka! Science On the Go, the Institute conducted a training entitled “Developing Technology-Enhanced Lessons for Improving Grade 2 Pupils’ Mathematics Skills” at the University of Rizal System-Morong Campus, Morong, Rizal. This was in cooperation with Subject Education Specialists in Elementary Mathematics from the University of the Philippines National Institute of Science and Mathematics Education Development (UP NISMED).

A total of 325 science and mathematics teachers from 16 S&T-oriented high schools from Manila and Regions 2, 5, 6 and 11 participated in a study that aims to establish baseline information on how ICT is being used in teaching Science and Mathematics (S&M) subjects in their schools.

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ENSURING INCLUSIVE DEVELOPMENT, PROVIDING EQUITABLE ACCESS TO QUALITY EDUCATION, AND PROMOTING LIFELONG LEARNING OPPORTUNITIES LIE AT THE HEART OF OUR COLLECTIVE ENDEAVORS AT THE SCIENCE EDUCATION INSTITUTE.

WE TAKE PRIDE IN HAVING REALIZED CONSIDERABLE GAINS IN SCIENCE EDUCATION, AS OVER THE YEARS WE HAVE CONTRIBUTED TO SUPPORTING POOR AND DESERVING STUDENTS TOWARDS S&T CAREERS, AND INITIATED PROGRAMS THAT

RAISED THE QUALITY OF TEACHERS, THE NUMBER OF RESEARCHERS, AND THE AVAILABILITY OF LEARNING MATERIALS FOR EDUCATORS AS WELL AS FOR OUR STUDENTS.

BY HARNESSING EDUCATION, WE SET A BENCHMARK FOR SOCIAL INCLUSION – BREAKING DOWN SOCIAL AND ECONOMIC BARRIERS, AND EQUIPPING LEARNERS OF ALL AGES AND CAPACITIES TO PARTICIPATE AND SUCCEED NOW AND IN THE FUTURE.

“ I think leadership is service and there is power in that giving: to help people, to inspire and motivate them to reach their fullest potential.”

– Denise Morrison

DR. JOSETTE T. BIYO, DOST-SEI DIRECTOR, CONGRATULATES THE NEW JLSS SCHOLARS DURING THEIR OATH-TAKING FOR THEIR PLEDGE AND COMMITMENT TO SERVE THE COUNTRY.



The orientation discussed the framework of the S&T scholarship program; scholarship policies and terms and conditions, followed by the signing of the Scholarship Agreement, and culminated in the oath-taking ceremony.

NEW TEST FORMS

With the additional two years of educational background in basic education, DOST-SEI developed new test forms to make the scholarship programs more structured for potential science and mathematics professionals. The domains of the examination were geared to assess the aptitude of students in Science, Technology, Engineering and Mathematics (STEM) subjects.

The new test items were pilot tested on 20-24 February 2017 to about 5,190 Grade 11 students at select public and private senior high schools nationwide. Good items per domain were selected and formed into test booklets.

DISASTER PREPAREDNESS

Since typhoons, earthquakes, fires and other natural and man-made disasters have affected the conduct of the scholarship examinations in the past, DOST-SEI developed a Protocol on the Suspension of the S&T Scholarship Examination in times of disaster. This proposal was the outcome of the workshop conducted during the Meeting of Regional DOST Technical Scholarship Coordinators on New S&T Policy and Procedures held on 27-28 July 2017 in Legaspi City, Albay.

The protocol on suspension allows a smooth flow of communication among DOST-SEI, DOST Regional and Provincial Offices, other government agencies, the examiner and the examinees concerned. The Protocol was first used in the two test centers in Batanes and in Romblon where the scholarship examinations were cancelled due to typhoon Odette. New dates of this examination was promptly scheduled.

DOST-SEI WELCOMES 2017 JLSS QUALIFIERS

A total of 6,049 third years college students enrolled in various S&T courses took the Junior Level Science Scholarship (JLSS) examination on 19 November 2017. Among these, 4,529 qualified in the program. They will enjoy two to three years of scholarship benefits, such as tuition subsidy, monthly stipend, book allowance and others.

The new batch of scholars under Republic Act 10612 is expected to teach STEM subjects in public and private senior high schools. Graduates of the Republic Act 7687 or the Scholarship Act of 1994 and RA 2067 or the Merit Scholarship Program are required to work along their fields of specialization in the country equivalent to the length of years they enjoyed their scholarship.

JLSS GRADUATES UNDERGO PEDAGOGY TRAINING

After a consultative meeting in UP Diliman to discuss problems encountered by the Junior Level Science Scholarships (JLSS) graduates in teaching, a training was conducted for 27 scholar-graduates of 2016 and 2017 at the Oracle Hotel and Residences in Quezon City on 28-29 November and on 2 December 2017 to equip them with the necessary skills for practical and innovative teaching.

Experts from the UP College of Education facilitated the different sessions focused on the following core subjects in education:

- Educational Psychology
- Fostering and Assessing 21st Century Competencies in Science and Mathematics
- Lesson Modelling (5e's/4a's)
- Lesson Plan Format
- Teaching Lesson Plan Writing
- Demonstration Teaching

The highlight of the training was the demonstration teaching, where the JLSS scholars reflected on, and appreciated the comments given by their assigned critic teacher, as they received practical tips that they could use in their actual teaching.

Undergraduate Scholarship Programs

SEI MARKS NEW RECORD FOR HIGHEST NUMBER OF EXAMINEES

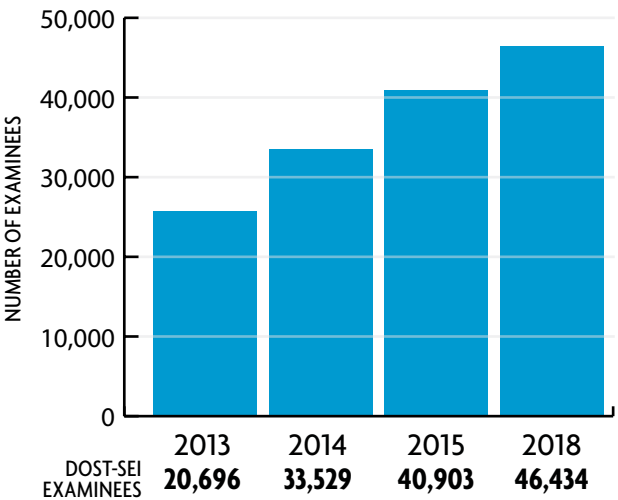
After a two-year hiatus due to the implementation of the K-12 Curriculum, the 2018 Undergraduate S&T Scholarship Examination was conducted nationwide on 15 October 2017. A total of 46,434 students took the qualifying examinations, the highest number ever recorded in the history of the exams. Out of this total, 5,172 qualified as scholars under the RA 7687 Scholarship Program, while 3,822 passed under the DOST-SEI Merit Scholarship Program. The total number of qualified students, at 8,994, also surpassed 2015's record 5,303 qualifiers by 69.60 percent. (See Figure 1)

The Overseas Workers Welfare Administration (OWWA) was rider to the DOST-SEI Scholarship Examination in the selection of their scholars under the Education for Development Scholarship Program (EDSP) and Congressional Migrant Workers Scholarship Program (CMWSP). A total of 3,394 applicants took the examination nationwide.

The examinations for applicants in Riyadh and Al Khobar, Kingdom of Saudi Arabia were conducted last 13-14 December with a total of 83 examinees.

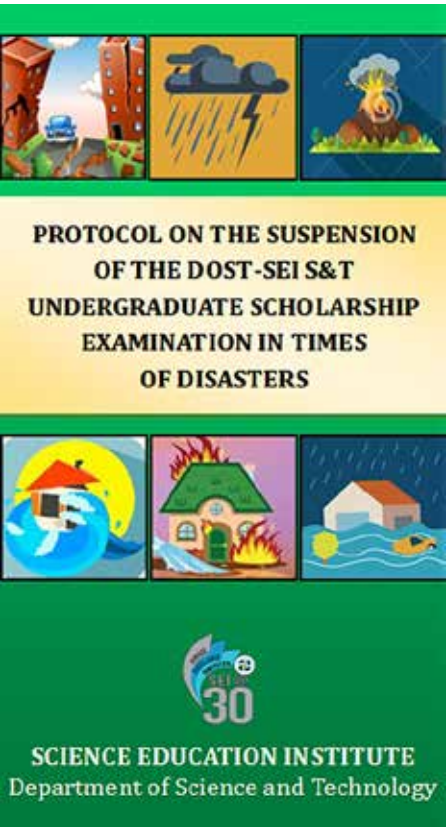
2016 JLSS SCHOLARS UNDERGO ORIENTATION

To welcome the new batch of scholars who passed the 2016 Junior Level Science Scholarship (JLSS) Examination administered in October 2016, DOST-SEI conducted a Scholars and Parents' Orientation the qualifiers from 25 January to 01 February 2017 in the national and regional offices. In the National Capital Region, a total of 249 qualifiers, accompanied by their parents, attended the orientation.



Qualifying examinations for 2016 and 2017 S&T Undergraduate Scholarships were not administered due to the full implementation of the K-12 basic education program.

FIGURE 1: Distribution of DOST-SEI Undergraduate S&T Scholarship Examinees (2013-2018)





(ABOVE) THE CONSULTANT, DR. FILMA G. BRAWNER (5TH FROM LEFT, STANDING) AND DOMAIN EXPERTS AND ITEM WRITERS FROM THE PHILIPPINE NORMAL UNIVERSITY, ADAMSON UNIVERSITY, TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES-MANILA, MAPUA INSTITUTE OF TECHNOLOGY, PHILIPPINE SCIENCE HIGH SCHOOL-MAIN AND CENTRAL LUZON CAMPUSES, UNIVERSITY OF THE PHILIPPINES-INSTITUTE OF BIOLOGY AND CHEMISTRY, AND UNIVERSITY OF THE PHILIPPINES-NATIONAL INSTITUTE OF GEOLOGICAL SCIENCES AT PUNTA DE FABIAN.



THE DOST-SEI DIRECTOR, DR. JOSETTE T. BIYO, DELIVERING A MESSAGE DURING THE WORKSHOP

REVIEW MATERIALS FOR S&T UNDERGRADUATE SCHOLARSHIPS DEVELOPED FOR EXAMINEES IN MUNICIPALITIES WITHOUT QUALIFIERS

DOST-SEI initiated the development of review materials to prepare graduating Grade 12 Senior High School Students for the DOST-SEI Undergraduate Scholarship Examination and increase their chances to qualify for said scholarship. This is particularly beneficial for the graduating students from 84 municipalities in 11 regions that do not have scholarship qualifiers based on the 2015 examination data.

On 3-5 November 2017, the DOST-SEI initiated the “Orientation and Workshop on Test Item Writing/ Development” at the Punta de Fabian, Baras, Rizal. The activity aimed to develop review items based on the domains that are included in the undergraduate S&T scholarship examination. Participants to the activity were domain experts and item writers from Philippine Normal University, Adamson University, Technological University of the Philippines-Manila, Mapua Institute of Technology, Philippine Science High School-Main and Central Luzon campuses, University of the Philippines-Institute of Biology and Chemistry, and University of the Philippines-National Institute of Geological Sciences. The domain experts and item writers wrote a total of 518 items, comprising of original and parallel sets.

For 2018, these 518 items will be pilot-tested and analyzed by domain experts and consultants. The items will be reviewed and finalized based on the results of the item analysis. A reviewer consisting of the revised items will be printed for use by the reviewers and mentors for the S&T Undergraduate Scholarship Examination in the coming year.

SCHOLARSHIP PROGRAM ADMINISTRATORS HOLD RE-ORIENTATION MEETING

The DOST-SEI Undergraduate Scholarship Programs have undergone changes resulting from certain agreements and policy decisions made during the meetings of the National Technical and Selection Committee (NTSC) and the Advisory Committee on S&T Scholarships.

To orient and update the DOST Regional Technical Coordinators and Scholarship Project Staff on these developments, DOST-SEI conducted a Re-orientation Meeting together with the University Core Group Project Directors and University Coordinators on 17-20 January 2017 in Mandurriao, Iloilo City. Issues discussed were the Guidelines in the Evaluation of Appeals, Policy on Non-Compliance Status, Requests for Clearance to Travel Abroad, Return Service, New List of Priority S&T Courses for the 2018 Scholarship Programs (**See Table 1**), Guidelines on the Orientation of the new JLSS Scholars, and Pilot Testing of New Test Instruments for the Undergraduate Scholarship Examination.

TABLE 1: List of Priority Courses for the 2018 DOST-SEI Undergraduate S&T Scholarships

Aeronautical Engineering	Chemical Engineering	Information Technology	Molecular Biology and Biotechnology
Aerospace Engineering	Chemistry	Information Technology Systems	Nutrition
Agribusiness Management	Civil Engineering ¹	Instrumentation and Control Engineering	Nutrition and Dietetics
Agriculture	Computer Engineering	Manufacturing Engineering-Management-Biomedical Engineering ²	Pharmacy (4-year program)
Agricultural Biotechnology ¹	Computer Science	Manufacturing Engineering- Management - Mechatronics and Robotics ²	Pharmacy major in Critical Pharmacy (5-year program)
Agricultural Chemistry	Electrical Engineering	Manufacturing Engineering	Packaging Engineering
Agricultural Economics	Electronics and Communications Engineering / Electronics Engineering	Materials Engineering	Physics
Agricultural Engineering	Environmental Science	Mathematics	Applied Physics with Applied Computer Science
Agricultural Technology	Fisheries	Mathematics Teaching	Applied Physics with Materials Science and Engineering
Agricultural and Ecosystems Engineering	Food Technology	Mathematics and Science Technology	Petroleum Engineering
Applied Mathematics	Forestry	Marine Biology	Psychology ³
Applied Physics	Geology	Marine Science	Public Health
Applied Statistics	Geodetic Engineering	Mechanical Engineering	Science Teaching (Biology, Chemistry, Physics and Physical Science)
Animal Science	Geothermal Engineering	Mechatronics Engineering	Statistics
Biochemistry	Industrial Design	Medical Technology	Doctor of Veterinary Medicine
Biology	Industrial Engineering	Metallurgical Engineering	
Ceramics Engineering	Industrial Management Engineering- Information Technology ²	Meteorology	
Chemistry with Applied Computer Systems	Industrial Pharmacy	Microbiology	
Chemistry with Materials Science and Engineering	Information System	Mining Engineering	

(1) at UP System only

(2) at DLSU only

(3) BS program

Positive Local Employment Seen Among DOST Scholar Graduates

Tracking their present situation and career movement, the TRACER (Tracking of Actual Experience Report) Study on DOST-SEI S&T Scholar Graduates reveal positive local employment and their contribution at the institutional, national and international levels.

These are the major findings as obtained from the DOST-SEI online registration system of scholar-graduates and from the TRACER Study questionnaire they completed from June 2015 to January 2017:

- Of the 2,091 DOST-SEI scholars tracked, 86.0% are employed, while 13.1% are unemployed. Among those employed, majority or 94.8% are working locally, while only 3.1% are working abroad.
- Most of those working locally, at 74.8%, are in permanent positions. The rest are contractual (14.0%), temporary (7.0%), and part-time (1.3%).
- 78.5% of the employed scholars are in S&T fields, where about 30.0% are working in Natural Sciences, 24.2% in Engineering and Technology, and 23.4% in the Education Sector.
- For scholars working locally, 62.4% are in the private sector, almost a quarter are in the government sector (24.9%), while 10.5% are in the academe.

Fostering Patriotism Among Scholars

Launched in February 2016, the Filipino Patriot Scholars Project is designed to ensure that the country’s investments in S&T human resource capacity building gets translated into inclusive national development. The project fosters patriotism among DOST-SEI scholars by instilling the core values of professional excellence, social responsibility and servant leadership.

In 2017, the Institute conducted various studies under this project. A one-day orientation was conducted on 25 January for 281 scholars under the Junior Level Science Scholarship (JLSS) - RA 10612. Afterward, a two-day scholars’ formation program was conducted among 863 ongoing scholars from various universities in Luzon, Visayas and Mindanao. **(See Table 2)**

The Institute also led a consultative meeting with various stakeholders (DepEd, MSU-IIT, LGU, etc.) on 9 August 2017 in MSU-IIT, Iligan City with the aim of crafting preliminary development interventions and responsive projects to help build Marawi City.

As an offshoot of the consultative meeting, a planning workshop on the development of framework and historical perspective for module writers, trainers and facilitators to conceptualize intermediate to long-term intervention plans for Marawi City was conducted on 18 August 2017. Participating in this activity were 33 Officials and Staff of DOST-SEI and MSU-IIT; and representatives from LGU, NGOs and DOST-SEI scholars.

On 22-23 September 2017, a Workshop on Organizing and Deploying Patriot Scholars Service Corps (PaSSCorps) was conducted at MSU-IIT, Iligan City. Participating in the workshop were 200 DOST-SEI scholars enrolled at MSU-IIT who underwent the 2-day Scholars’ Formation Program. Topics discussed in the workshop included Introduction to Emergency Response and Understanding the Socio-cultural Context of Emergency Response, Evacuation Center and Camp Management, Psycho-Social Assistance to Internally Displaced Persons (IDPs) and Security and Safety in Emergency Response Work Challenges and Opportunities.

Another initiative in response to the challenges caused by the Marawi siege crisis, is the Training on “Conflict-Sensitive and Peace Promoting Psycho-Social Response: Teachers as Peacebuilders” on 25-26 October 2017 and 24-25 November 2017 at the MSU-IIT. The said training was a joint activity with the Science Teacher Academy for the Regions or STAR Project with a total of 75 teacher-participants.

Also, a project proposal writeshop of the PaSSCorps was conducted on 11 November 2017 in MSU-IIT, Iligan City where a total of 116 DOST-SEI scholars were trained. This activity aimed at mobilizing the DOST-SEI scholars in disaster risk response and knowledge management to empower them to provide informal learning among children of IDPs affected by the Marawi crisis.

TABLE 2: Summary of the Milestone Activities for the Conduct of the Formation Program.

Activity	Venue	Date	Beneficiaries
2-Day Scholars’ Formation Program	Mindanao State University-Iligan Institute of Technology (MSU-IIT), Iligan City	22-23 February 2017	182
	Visayas State University, Baybay City	21-22 April 2017	193
	Central Luzon State University, Muñoz City	6-7 July 2017	106
	La Consolacion University Philippines, Malolos City	30-31 August 2017	149
	Hotel St. Ellis, Legazpi City	13-14 November 2017	232
	Total		862

2-DAY SCHOLARS’ FORMATION PROGRAM IN MSU-IIT, ILIGAN CITY



CONSULTATIVE MEETING WITH THE STAKEHOLDERS (DEPED, MSU-IIT, LGU)



A PLANNING WORKSHOP ON THE DEVELOPMENT OF FRAMEWORK AND HISTORICAL PERSPECTIVE FOR MODULE WRITERS, TRAINERS AND FACILITATORS



TRAINING ON CONFLICT-SENSITIVE AND PEACE PROMOTING PSYCHO-SOCIAL RESPONSE: TEACHERS AS PEACEBUILDERS



2-DAY SCHOLARS’ FORMATION PROGRAM IN LEGAZPI CITY, ALBAY



WORKSHOP ON ORGANIZING AND DEPLOYING PATRIOT SCHOLARS SERVICE CORPS (PASSCORPS)



PROJECT PROPOSAL WRITESHOP OF THE PASSCORPS





(ABOVE) SEC. FORTUNATO T. DE LA PEÑA SIGNS THE MOU FOR PROJECT STRAND. BESIDE HIM IS MS. MARISSA PONTILLAS, OFFICER-IN-CHARGE OF PALAWAN STATE UNIVERSITY (PSU). PSU HAS ALREADY DEPLOYED EIGHT FACULTY STAFF TO UNIVERSITI TEKNOLOGI PETRONAS (UTP) IN MALAYSIA FOR THE STRENGTHENING OF PSU'S PETROLEUM ENGINEERING PROGRAM.

Graduate Scholarship Programs

PROJECT STRAND EXPANDS ITS NETWORK

A significant milestone for Project Science and Technology Regional Alliance for National Development (STRAND) was achieved as DOST-SEI initiated the signing of the Memorandum of Understanding (MOU) with identified universities that joined the network in 2017.

Held on 14 July 2017 at the PICC, Manila, the MOU signing was led by DOST Secretary Fortunato T. de la Peña, with SEI Director Dr. Josette Biyo, University officials, and the representatives of the different universities in Project STRAND.

The new universities will add to the existing universities of the graduate scholarship programs namely: the Accelerated Science and Technology Human Resources Development Program (ASTHRDP), the Engineering Research and Development for Technology (ERDT), and the Capacity Building Program in Science and Mathematics Education (CBPSME).

Dr. Biyo explained that this development will help boost the number of S&T professionals in the regions as well as provide opportunities and access to advanced degree studies with the same quality as other premier institutions in the country.



(ABOVE) SEC. FORTUNATO DE LA PEÑA AND DR. JOSETTE BIYO (CENTER, R-L) TOGETHER WITH UNIVERSITY OFFICIALS IN THE PROJECT STRAND SIGN MOU FOR STRENGTHENING THE CAPACITY OF THE REGIONS IN STEM DURING THE 2017 IN TOUCH WITH EXCELLENCE HELD IN PICC, PASAY CITY ON 14 JULY 2017.

The project has two components: STRAND 1, which provides scholarships to faculty members for capacity building; and STRAND 2, which serves as delivering institutions where S&T graduate-scholars can enroll.

Universities in STRAND 1 are: Cagayan State University (CSU); Palawan State University (PSU); Eastern Visayas State University (EVSU); and University of Southern Mindanao (USM). STRAND 2 network of universities include: Batangas State University (BatStateU); Central Mindanao University; Mariano Marcos State University (MMSU); Mindanao State University – Iligan Institute of Technology (MSU-IIT); Nueva Vizcaya State University (NVSU); St. Louis University (LSU); St. Mary's University (SMU); University of Science and Technology of the Philippines – Cagayan de Oro City (USTP-CDO); and University of Southeastern Philippines (USEP).

Project STRAND scholars are entitled to tuition and other school fees, monthly stipends, book allowance, transportation allowance, accident and health insurance, and theses/ dissertation allowance, among others.



(ABOVE) DR. JOSETTE BIYO (CENTER) JOINS THE SCHOLARS AS THEY SIGN THE SCHOLARSHIP AGREEMENT, FROM LEFT: ROMMEL J. GESTUVEO, MARCIANA B. GALAMBAO, JOPETH M. RAMIS, MERELL P. BILLACURA, FRANCISCO S. LEGARIO, AND JUSTINE PERRY T. DOMINGO.

DOST-SEI INTENSIFIES PROVISIONS FOR FOREIGN COLLABORATIVE SCHOLARSHIP PROGRAMS

The Institute, together with the DOST, amplified its various programs that provide overseas scholarships for Filipinos as well as those of other nationalities who wish to pursue higher education. Developments under each program are as follows:

DOST-NEWTON AGHAM PROGRAMME

The Department of Science and Technology (DOST), together with the British Council, announced the names of new Filipino scholars under the Newton Agham Programme: DOST-Newton PhD Scholarships during the Scholars' Orientation and Contract Signing on March 10, 2017. The programme offers full-time PhD scholarships for Filipino researchers at UK higher education institutions from April 2017 to July 2020.

- The six new scholars are the following:
1. Joseph M. Ramis, Technological Institute of the Philippines
 2. Rommel J. Gestuveo, UP-Visayas
 3. Merell P. Billacura, Mindanao State University – Main Campus
 4. Francisco S. Legario, Iloilo Science and Technology University
 5. Justine Perry T. Domingo, UP Diliman
 6. Marciana B. Galambao, Visayas State University



(ABOVE) DOST-SEI DIRECTOR DR. JOSETTE BIYO AND BRITISH COUNCIL THROUGH COUNTRY DIRECTOR MR. NICHOLAS THOMAS COLLABORATE TO PROVIDE POOL OF EXPERTS FOR MORE PROGRESSIVE RESEARCHES IN THE PHILIPPINES

The qualifiers underwent stringent application process both from the Philippines and the United Kingdom. They are joining the four scholars under the program awarded in 2016.

The collaboration between DOST and the British Council is expected to develop a pool of high quality human resources in science and engineering that will contribute to the country's global competitiveness and economic development; provide opportunities for talented Filipinos to pursue PhD degrees in science and engineering in reputable institutions in the UK; and upgrade the Philippines' research and technological innovation capabilities in the area of advanced sciences and emerging technologies.



(ABOVE) COURTESY VISIT WITH THE OFFICIALS OF THE EMBASSY OF THE PHILIPPINES IN CAMBODIA

SCHOLARSHIP OPPORTUNITIES WITH UTP-MALAYSIA

The DOST signed a Memorandum of Understanding with the Universiti Teknologi Petronas (UTP) of Malaysia regarding the acceptance and scholarship support of Filipino faculty members to pursue graduate studies in Malaysia.

The signatories were: DOST Sec. Fortunato de la Pena and SEI Director Josette T. Biyo, and UTP’s Assoc. Prof. Dr. Fawnizu Azmadi B. Hussin and Datuk Ir Dr. Abdul Rahim Hj Hashim. The ceremony was held at the UTP Malaysia on 05 January 2017.

Based on the agreement, UTP will accept faculty members of Palawan State University (PSU) and Batangas State University (BSU) to pursue graduate degrees, provided they meet all admission requirements and pass all assessments set by UTP. In turn, DOST will provide scholarships for the six scholars who will pursue MS in Petroleum Engineering and two scholars who will pursue PhD in Mechanical Engineering with specializations in Energy Systems throughout the duration of their studies.

SCHOLARSHIP OPPORTUNITIES FOR CLM RESEARCHERS

Following the commitment made by DOST Sec. de la Peña to the ASEAN Committee on Science and Technology for Human Resource Development, the Department implemented in 2017 the DOST Scholarship Offerings for ASEAN Researchers in Cambodia, Laos and Myanmar (CLM). This program offers scholarship at the MS and Ph.D levels in the areas of science, mathematics and engineering to qualified citizens of the least developed economies of Cambodia, Laos and Myanmar **(See Table 3)**. The grant covers the period 15 September 2017 to 14 September 2018.

The DOST-SEI coordinated with the Philippine Embassies in CLM regarding the schedule for interview of the applicants who initially passed the evaluation of documentary requirements. These applicants were interviewed on December 3-9, 2017 in their respective countries by the committee composed of:

1. Dr. Josette T. Biyo, Director, SEI
2. Dr. Arnold V. Hallare, Director, National Graduate



(ABOVE) SOME OF THE APPLICANTS WHO WERE INTERVIEWED ON DECEMBER 4, 2017

- Office of the Health Sciences, UP-Manila
3. Dr. Mark Dondi M. Arboleda, Asst. Professor of Environmental Sciences and Management and Secretary, UP-Los Baños
4. Dr. Glenn V. Alea, Dean, College of Science, DLSU-Manila
5. Ms. Susana F. Esquivel, Senior Science Research Specialist, SEI

Table 3: Number of Scholarship Applicants Interviewed		
COUNTRY	TOTAL NUMBER OF SCHOLARS	
	MS	Ph.D
Cambodia	10	-
Lao PDR	1	1
Myanmar	3	3
TOTAL	14	4



(ABOVE) COURTESY VISIT WITH THE OFFICIALS OF THE EMBASSY OF THE PHILIPPINES IN MYANMAR.

PCARI SCHOLARSHIP PROJECT

Enhancing the capacity of local Higher Education Institutions (HEIs) in undertaking world-class research, development and innovation, the Philippine-California Advanced Research Institutes (PCARI) Project supported a total of 42 local and three foreign Masters degree scholars as well as two local and two foreign PhD scholars and four Postdoctoral scholars as of end of December 2017.

The scholarship is open to researchers, faculty and graduate students of PCARI collaborating HEIs as may be identified by CHED, including the consortium member-institutions of the Engineering Research and Development for Technology (ERDT) and the Accelerated Science and Technology Human Resources Development Program (ASTHRDP).

The project has two major components: human resource development and capacity building in research and development, particularly in the areas of information infrastructure development and health innovation and translational medicine; and actual production of new knowledge in these fields. This approach will not only develop highly trained scientists and researchers but also enable enterprises to be established utilizing the expertise gained through the collaborative activities with California universities.



(ABOVE) SOME OF THE APPLICANTS WHO WERE INTERVIEWED ON DECEMBER 8, 2017

(BELOW)
FORMER DOST SCHOLAR AND CURRENT PERSONNEL AT PSTC CEBU, ELVIRG SOLANA, EXPLAINS THE BENEFITS STUDENTS COULD RECEIVE AS AN UNDERGRADUATE DOST-SEI SCHOLAR DURING A CAMPAIGN IN DAANBANTAYAN CEBU HELD LAST MARCH 2017.



#Push4Science Gains Popularity

On its fourth year, the strategic campaign tagged as #Push4Science has become a catchphrase among the thousands of prospective science scholars it has reached. The branding has been carried by every science advocacy program or project implemented by DOST-SEI as a rallying mantra and an overarching theme of its promotions activities.

The campaign reached 2,989 students and teachers in 2017, more than triple the mark achieved in 2016. For the year in review, the campaign centered in four provinces: Cebu, Davao Occidental, Isabela and Abra, reaching 38 municipalities.

The project remained anchored in its promote-inspire-persuade framework, and engaged senior high school students, as well as

A LARGE CROWD ATTENDS THE SCHOLARSHIP AND CAREER ORIENTATION HELD IN SANTA FE ISLAND IN CEBU, WHICH FEATURED A TALK FROM FORMER DOST SCHOLAR AND NOW PHYSICIST / MARINE SCIENTIST, MR. JEFFREY MALOLES.

(TOPMOST)
A PARTICIPANT INQUIRES ABOUT THE TYPE OF EXAM APPLICANTS SHOULD EXPECT IN THE DOST SCHOLARSHIP QUALIFYING TEST.

freshmen and sophomore college students enrolled in priority S&T courses, in two or three-hour school-based campaigns. Scholars from the area delivered inspirational talks, while the team provided comprehensive discussions and interactive activities. Stakeholders such as the local government units, the school administration, as well as DOST Regional Offices and Provincial S&T Centers were also equipped with materials to ensure the sustainability of the campaign.

Bangon Marawi Through Education

In response to the administration's call to help rebuild and rehabilitate Marawi, DOST-SEI initiated its Bangon Marawi Program in Science and Technology Human Resource Development (STHRD) with the aim of awarding scholarship slots to 100 students in the BS level, 20 in the MS level and 10 in the PhD level. The beneficiaries are immediate members of the families affected by the armed conflict or were displaced from their community in Marawi City.

The objective is not only to improve the quality of life for the graduates but also to contribute to the development of Lanao del Sur and to restore and strengthen the trust and confidence of the people from the conflict affected areas to the Philippine government through Project Patriot activities.

The program has two components, namely:

1. **Sagip Mag-aaral** - This strategy is to save the students who are enrolled as third, fourth and fifth year students in the STEM courses at the Mindanao State University-Main Campus in Marawi City (MSU-Marawi) and Mindanao State University-Iligan Institute of Technology (MSU-IIT) in Iligan City. Beneficiaries were students who are immediate members of conflict-affected families, with a 2.75 weighted mean average in mathematics, science and engineering subjects.
2. **Graduate Scholarships** - Graduate scholarships were offered solely to S&T professionals who are immediate members of families displaced from their communities due to Marawi siege, as certified by the local government office. Full-time and part-time scholarships have been provided.

The initial evaluation of scholarship applicants was performed by the universities using the criteria of eligibility and documentary requirements. A Memorandum of Agreement (MOA) stipulating the terms of reference of the Parties, was crafted by and between the DOST-SEI Director, President of MSU-Marawi and Chancellor of MSU-IIT. The University President/Chancellor was officially designated Project Leader and Project Coordinator, respectively, of the program.

The program shall be managed by the DOST-SEI in close coordination with the Project Leader at MSU-Marawi and Project Coordinator at MSU-IIT. Since DOST Bangon Marawi is a special program, a Technical Working Group (TWG) and Oversight Committee (OC) was created to oversee the implementation and policy direction of the program. The proposal was implemented effective Second Semester of AY 2017-2018.

Civil Service Eligibility for Science Degree Holders

In 2017, a total of 50 applicants were endorsed by the DOST Secretary to the Civil Service Commission Central Office and various concerned CSC Regional Offices, which subsequently approved the grant of S&T Eligibility Specialist under PD No. 997. The PD No. 997 gives support and encouragement to science and technology and attracts S&T specialists into public service through the issuance of Scientific and Technological (S&T) Specialist Eligibility.

The applicants were evaluated by the Technical Working Group and Presidential Committee on the bases of their qualifications and the requirements of public service, as provided by the Law. (See Table 4)

TABLE 4: Number of Qualified applicants by S&T Fields.	
Science and Technology (S&T) Fields	Number
Doctorate Degree	9
Ph.D. in Technology Management	3
Ph.D. in Technology	2
Ph.D. in Information Technology	2
Ph.D. in Bio Functional Science and Technology	1
Ph.D. in Philosophy (Anthropology)	1
Master's Degree	30
<i>Biological Sciences</i>	4
Master in Biomedical Sciences	1
Master in Pharmacology	1
Master in Microbiology	1
Master in Genetics	1
<i>Mathematics and Information and Communication Technology</i>	21
Master in Physics	2
Master in Information Technology	18
Master in Applied Mathematics	1
<i>Engineering Sciences</i>	4
MS in Engineering Major in Computer Engineering	1
MS in Engineering	1
MS in Materials Science and Engineering	2
Other Disciplines	1
Master in Food Science	1
Teaching Experience	10
Bachelor Science in Computer Science	4
Bachelor Science in Computer Engineering	4
Bachelor Science in Information Technology	2
Research Experience	1
Bachelor Science in Environmental Science	1
Total	50

S&T Scholarships for More DOST Employees

More deserving officials and employees of the DOST swell the ranks of S&T scholars in the country as the department’s Human Resource Development Program (HRDP) continues to provide them with graduate scholarships, short term or non-degree training, and other grant incentives. The succeeding tables present the list of recipients of the 2017 incentives given by the Institute together with the HRDP Committee and Secretariat.

NEW GRANTEES

For Academic Year (AY) 2017-2018, HRDP approved thirty nine (39) new scholarship applications: five (5) full-time and seven (7) part-time doctorate; and nineteen (19) full-time and eight (8) part-time master’s degree. (See Table 5)

TABLE 5: Number of New DOST-HRDP Scholars					
AGENCY	Ph.D.		MS		TOTAL
	Full-time	Part-time	Full-time	Part-time	
DOST-CO		1			1
DOST-IV-A			1		1
DOST-VI	2		2	1	5
DOST-VIII				1	1
DOST-X		1	2		3
ITDI		3	2	2	7
FNRI		1	3		4
PCAARRD	2	-	1	-	3
PNRI		-	4		4
PSHS-BRC	1	-	-	-	1
PSHS-MAIN CAMPUS	-	1	-	1	2
PSHS-CVC				1	1
PAGASA	-	-	2	-	2
MIRDC			1		1
ASTI			1	1	2
FPRDI				1	1
TOTAL	5	7	19	8	39

CONTINUING SCHOLARS

The program also supports current regular full-time and part-time scholars coming from the following DOST offices/agencies: ASTI, FNRI, FPRDI, DICT, ITDI, PCAARRD, NAST, PCHRD, PAGASA, PHIVOLCS,PSHS-CAR, PSHS-CVC, PSHS-EVC, PSHS-IRC, PSHS-MAIN, PSHS-BRC, MIRDC, TAPI, STII, SEI, NRCP, DOST-CO, PNRI,DOST III, DOST-VIII, DOST-XI. (See Table 6)

TABLE 6 : Number of ongoing employee-scholars supported by the Institute			
DEGREE PROGRAM	FULL-TIME	PART-TIME	TOTAL
Local Scholarship			
Ph.D.	20	13	33
MS	25	13	38
Foreign Scholarship			
Ph.D.	3		3
MS	2		2
TOTAL	50	26	76

As of December 2017, thirteen (13) scholars have completed their degree programs: four (4) Ph.D and nine (9) Master’s under the regular scholarship program

FOREIGN SCHOLARSHIP PROGRAM

The DOST-HRDP approved the applications for foreign scholarships of three DOST employees. (See Table 7)

TABLE 7: Beneficiaries of foreign scholarships			
NAME	AGENCY	COURSE	SCHOOL
Balanon, Dane	ITDI-DOST	MS in Packaging Technology	Kasetsart University, Bangkok,Thailand
Mary Joy P. Paico	ITDI-DOST	MS in Packaging Technology	Kasetsart University,Thailand
Zygred M. Calibjo	PTRI-DOST	MS in Color in Informatics and Media Technology (CIMT)	University of Jean Monnet, France

More deserving officials and employees of the DOST swell the ranks of S&T scholars in the country as the Department’s Human Resource Development Program (HRDP) continues to provide them with graduate scholarships, short term or non-degree training, and other grant incentives.

The Program also supported three scholars currently pursuing their Doctorate degree in Thailand, Japan and France. (See Table 8)

TABLE 8: Scholars of previous years given continued support				
YEAR OF AWARD	NAME	AGENCY	COURSE	SCHOOL
2016	Virginia P. Andres	PSHS-DOST	Ph.D.in Knowledge and Innovation Management	Bangkok Univer-sity, Bangkok, Thailand
2016	Ronilo O. De Castro	DOST-PCAARRD	Ph.D. in Animal Science	Nagoya, University, Nagoya, Japan
2015	Gelito Joseph M. Sikat	ITDI-DOST	Ph.D.in Nanotechnology/ Analytical Environment Chemistry Program	l’Universite’ de Pau et des Pays de l’Adour, France

TABLE 11: Grant recipients for paper presentation						
Name	Agency	Course	School	Name of Conference	Date	Venue
Jeniffer M. Conda	FPRDI	MS in Science Botany	UPLB	XIX International Botanical Congress (IBC)	July 23-29, 2017	Shenzhen, China
Michael E. Serafico	FNRI	PhD in Chemistry	UST	ACS Asia-Pacific International Chapters Conference 2017	November 5-8, 2017	ICC Jeju, Jeju Island, Koorea

Incentives were given to six (6) DOST employees for having completed their degree programs at their own expenses. (See Table 9)

TABLE 9: DOST Employees given incentives for completing their programs at their own expense			
NAME	AGENCY	COURSE	SCHOOL
Geraldo S. Petilla	NRCP	Doctor in Public Administration	Polytechnic University of the Philippines
Ramon R. Pio Roda	DOST-CO	Master of Statistics	UP-Diliman
Armida I. Lumen	DOST-V	Master in Business Administration	Divine Word College, Legaspi
Angel T. Bautista VII	PNRI	Doctor of Philosophy in Nuclear Engineering and Management	University of Tokyo, Japan
Rohit C. Tilwani	PSHS-CLC	Master of Science in Chemistry	Adamson University
Bonifacio B. Tamparong, Jr.	NRCP	Master in Business Administration	Taguig City University

The DOST-HRDP approved two (2) applications for thesis/dissertation grants. (See Table 10)

TABLE 10: Beneficiaries of dissertation grants				
Name	AGENCY	Course	School	Title of Thesis/ Disserta-tion
Sarah A. Eisma	FPRDI	MA Educational Psychology	UP-Diliman	“ Correlation of Math Self-Efficacy with Math Achievement, Career Choice, and Interest of Science High School Students”
Lorelle A. Baracol	FNRI	PhD in Envi-ronmental Science	UPLB	“ Life Cycle Sustainability Assessment of Technology Development: Case of Calamansi Fruit Processing”

Likewise, the department approved two (2) applications for paper presentations. (See Table 11)

Teacher Development Programs

PROJECT STAR EXPANDS ITS REACH

In-service teachers in the primary and secondary levels now have more access to trainings and other services under the Science Teacher Academy for the Regions (STAR) as the program gained ten (10) additional partner-universities in December 2016. (See Table 12)

TABLE 12: The 10 Additional STAR Partner-Universities	
Region	University
CAR	St. Louis University
2	St. Mary's University
4-A	Batangas State University
4-B	Palawan State University
7	Cebu Normal University
8	Leyte Normal University
9	Western Mindanao State University
11	University of Southeastern Philippines
12	University of Southern Mindanao
CARAGA	Caraga State University

These new institutions boost the previous network of six other institutions where STAR trainings have been conducted – Mariano Marcos State University in Region 1; Central Luzon State University, Region 3; Bicol University, Region 5; Philippine Normal University, NCR; West Visayas State University, Region 6 and Mindanao State University-Iligan Institute of Technology, Region 10.

Two batches of trainors-training were conducted, one for Luzon and another for Visayas & Mindanao. Trainors were selected faculty members from the first group of STAR partner universities. Thereafter, regional trainings were also held in the ten (10) regions.

- Trainings covered three topics:
- Teaching Elementary Mathematics through Problem Solving (TMTPS)
 - Inquiry-based Approach for Teaching Science (using the 7E model)
 - Innovative Approaches for Teaching Science and Mathematics (See Table 13)



THE VISAYAS-MINDANAO STAR TRAINORS WITH DEPUTY DIRECTOR ENGR. ALBERT MARIÑO, AND (TOPMOST) THE LUZON STAR TRAINORS WITH DOST-SEI DIRECTOR DR. JOSETTE T. BIYO.

A total of 21 trainings were conducted for the benefit of 1,351 teacher-trainees.

For the first time, the reach of the trainings was expanded to accommodate teachers from far flung barangays. The first training was held in San Jose, Antique where teachers mostly came from Semirara and Caluya Islands. The other one was held in Pangantucan, Bukidnon where participants came from Pangantucan South, North and West Districts. They were trained on “Innovative Approaches for Teaching Science and Mathematics.”

The online platform of the project, www.e-star.ph, was updated with the latest training outputs to provide teachers with better access to learning resources for the improved teaching and learning of science and mathematics. The site aims to disseminate information about the services and activities of STAR to a wider audience, and encourage collaboration among science and mathematics teachers.



TEACHERS DOING SAMPLE ACTIVITIES IN MATHEMATICS AND IN SCIENCE.

TABLE 13: Regional Trainings Conducted Under Project STAR					
DATE	TITLE OF TRAINING	VENUE	Number of beneficiaries		
			MALE	FEMALE	TOTAL
Feb 21-23	Teaching Elementary Mathematics through Problem Solving	Philippine Normal University, NCR	2	38	40
March 7-9	Interdisciplinary Contextualization for Science and Mathematics Education	Dep Ed- NEAP La Union, Region 1	24	37	61
March 7-9	-do-	MSU-Iligan Institute of Technology Region 10	10	40	50
March 14-16	-do-	Bicol University Region 5	9	41	50
March 20-22	-do-	West Visayas State University, Region 6	17	33	50
April 4-6	Teaching Elementary Mathematics through Problem Solving	Central Luzon State University Region 3	20	28	48
May 9-11	ToT for Luzon Cluster “Interdisciplinary Contextualization for Science and Mathematics Education”	Baguio City, CAR	13	24	37
May 23-25	ToT for Visayas-Mindanao Cluster “Interdisciplinary Contextualization for Science and Mathematics Education”	Davao City, Region 11	18	29	47
May 30-June 1	STEM Teachers to the Barrio	San Jose, Antique Region 6	10	67	77
July 28-30	Inquiry-based Approach for Teaching Science	Philippine Normal University	9	40	49
August 10-12	Innovative Approaches for Teaching for Teaching Science and Mathematics	Leyte Normal University, Region 8	31	68	99
Sept 12-14	Teaching Math Through Problem Solving	Western Mindanao State University Region 9	13	36	49
October 2-4	Inquiry-based Approach for Teaching Science	DepEd Regional Office VII, Cebu Region 7	20	36	56
October 4-6	Inquiry-based Approach for Teaching Science	Puerto Princesa City, Region 4b	34	16	50
October 10-12	Innovative Approaches for Teaching for Teaching Science and Mathematics	Caraga State University	42	62	104
October 19-21	Innovative Approaches for Teaching for Teaching Science and Mathematics	University of Southeastern Philippines, Region XI	30	66	96
October 24-26	Inquiry-based Approach for Teaching Science	St. Mary's University Region 2	11	39	50
November 3-5	STEM Teachers to the Barrio	Pangantucan, Bukidnon Region 10	19	61	80
Nov 7-9	Innovative Approaches for Teaching for Teaching Science and Mathematics	Kidapawan City, Region 12	35	73	108
November 22-24	Inquiry-based Approach for Teaching Science	St. Louis University Baguio City CAR	12	45	57
December 13-15	Innovative Approaches for Teaching for Teaching Science and Mathematics	Batangas State University Region 4-a	28	65	93
TOTAL			407	944	1,351



DELEGATES OF STAR PARTNER-UNIVERSITIES WITH SEI STAFF AND DepEd SPECIALISTS POSE DURING THEIR REGIONAL TOUR TO LEARN GLOBAL PRACTICES IN STEM EDUCATION.

To upgrade the capacity of project STAR faculty members and SEI project administrators, 14 selected science and mathematics faculty members from six (6) partner state universities visited leading education universities in Singapore and Hong Kong on 4-9 September 2017 to expose them to global practices in STEM education and explore opportunities for international collaboration and research.

The participants came from the following institutions: Mariano Marcos State University (MMSU); Central Luzon State University (CLSU); Philippine Normal University (PNU); Bicol University (BU); West Visayas State University (WVSU); and Mindanao State University – Iligan Institute of Technology (MSU-IIT).

They were joined by education specialists from DepEd Regional Offices III, VI and X, together with four (4) SEI personnel, led by Deputy Director Albert G. Mariño. In Singapore, they held meetings at the National Institute of Education and visited the Convent of the Holy Infant Jesus Our Lady of Counsel Primary School. In Hong Kong, they met with the administrators of Hong Kong University Faculty of Education and visited St. Stephen's Preparatory School and College.

Aside from the trainings delivered, a group of nine (9) STAR trainers from Regions 1,3,5, NCR, 6 and 10 participated in a workshop on "Development of Evaluation Tool for STAR Trainings" on 21-22 November 2017 in Baguio City. The activity aimed to come up with an evaluation design including the instruments or tools that will be used to assess the effectiveness of the training component of the project STAR. The group came up with preliminary evaluation tools that will be lodged to teachers, students, and fellow STAR trainers. The said activity will be continued the following year.

SCIENCE TEACHERS UNDERGO TRAINING ON ASSESSMENT TO IMPROVE INSTRUCTION

Assessment is an integral part of teaching and learning that enables teachers to collect information about the students' progress. Recognizing this importance, DOST-SEI implemented a project that trained science teachers in choosing the appropriate and positive assessment tools to determine effective instructional approaches and learning gaps to be filled.

The beneficiaries included 32 master teachers from the 16 school divisions in the National Capital Region. The activity was done on 13-15 December 2017 at the La Breza Hotel in Quezon City.

TRAINING WORKSHOP FOR NON-BIOLOGY TEACHERS TEACHING LIFE SCIENCE

Since Biology or Life Science is a foundation subject, the competence of teachers without a major or minor in this subject needs to be enhanced, especially with the implementation of the K-12 curriculum wherein teachers are required to teach topics in the physical, life and earth sciences in a grade level within a school year.

In line with this goal, a series of training workshop was implemented for 70 Grade 8 science teachers coming from schools in Regions I, II and V, the top three regions which have the most number of Life Science teachers without major or minor in Biology.



SCIENCE TEACHERS PERFORM ACTIVITIES UNDER DRRM TRAINING PROGRAM

The training was conducted in the following locations:

- *Region V*
RELC, DepED Region V, Government Center, Rawis, Legazpi City (3 April 2017)
- *Region II*
Valley Hotel, Carig, Tuguegarao City (9-11 May 2017)
- *Region I*
Hotel Ariana, Bauang, La Union (7-9 Nov. 2017)

TRAINING FOR SMALL PRIVATE SCHOOL TEACHERS

Over the years, thousands of public school teachers have benefited from various training programs of SEI. Considering the need to improve the performance of students, both in the public and private school system, SEI will be implementing a project to train teachers from small private schools. It also aims to provide small private school teachers equitable access to government service in education.

The project has two (2) phases. In 2017, the first phase commenced with data gathering from Taguig-Pateros (TAPAT) Division, the proposed target source of schools/participants. DepEd TAPAT provided the enrollment data of a total of 198 private elementary schools and 82 private secondary schools for the school year 2016-2017. The list of beneficiary schools will be finalized in Phase 2 in 2018 when the training is proposed to be conducted.



SCIENCE TEACHERS TRAIN FOR DISASTER MANAGEMENT

More science teachers underwent a training program in compliance with Republic Act 10121 or the Disaster Risk Reduction and Management (DRRM) Act of 2010. A three-day training held on 22-24 August 2017 exposed the participants to:

- Basic concepts on disasters like typhoon, flood, earthquake, tsunami and landslide
- inquiry-based approach in teaching science
- lesson development on selected Grades 7,8,9 and 10 topics of the K-12 science curriculum.

The training was conducted in Tuguegarao City, Cagayan with 48 science teachers as participants, and included experts from PHIVOLCS, PAGASA, Office of Civil Defense, DENR-Mines and Geosciences Bureau, and DepEd as trainers.

THE ALS LEARNERS DOING A GROUP ACTIVITY



VALIDATION: TEACHERS PRESENT SOME INDIGENIZED LESSON DURING THE VALIDATION PHASE AT (LEFT) SAN MARTIN ES IN TARLAC, AND (RIGHT) KATUTUBO ES IN PAMPANGA.

CONTINUING PROFESSIONAL LEARNING FOR ALS FACILITATORS

A training was proposed to enhance the capability of elementary level facilitators of Alternative Learning System (ALS) in teaching science to out-of-school individuals, who either dropped out of school or have no access to formal education.

The project has two phases. In 2017, the preparatory phase covered the following activities:

I. Coordination and orientation meeting with DepEd-ALS.

The project personnel met with the ALS personnel on 20 March 2017 and 10 August 2017 both at the DepEd Central Office for orientation and coordination. ALS is present in each Division of NCR, and because of its proximity to DOST-SEI, the DepED Bureau of Learning Delivery-Alternative Learning System (BLD-ALS) referred the project personnel to DepED Taguig and Pateros (TAPAT) to coordinate and meet with the officials. The project personnel met with them on 27 November 2017.

II. Observation of ALS Learning Sessions

Held in the Conference Room of the Barangay Hall within the Cayetano Sports Complex, Bagumbayan, Taguig, the ALS Learning Session was attended by 26 students of mixed ages, from about twelve years old to early twenties and older.

Covering the topic on Filipino (LS-1 Kasayanang Pangkomunikasyon), the mobile facilitator used modules and conducted group activities such as role playing using idioms, their lesson that day.

III. Assessment of Existing Modules

The DepEd Bureau of Learning Delivery provided the project personnel copies of the modules used by the mobile facilitators. Since these were based on the old curriculum, they would be updated to be aligned with the K-12 syllabus.

In Phase 2, the training was proposed to take place in the SEI Eureka Bus that will travel to target place/s of beneficiaries using the existing suitable learning/resource materials developed by SEI.

NEW GAINS SEEN IN TEACHING SCIENCE TO INDIGENOUS PUPILS

Elementary teachers coming from schools with predominantly indigenous student population continue to benefit from the project that seeks to equip them with capabilities in teaching science using suitable local materials and culture-based ideas familiar to the pupils.

In 2017, the Indigenized Lesson Plans in Science for Grades 4 to 6 were validated, and these were implemented at the school level and monitored for results. The beneficiary schools were:

Tarlac (Bamban)

1. San Martin Elementary School
2. Burog Elementary School

Pampanga (Porac)

1. Villa Maria Integrated School
2. Camias Elementary School
3. Katutubo Village Elementary School

VALIDATION PHASE

The indigenized lesson plans were validated to determine if there is proper interphase between the lesson plan and the Indigenous Knowledge Systems and Practices (IKSP) in the Teaching of Science. Nineteen (19) indigenized lesson plans in science developed in 2016 were validated in 2017. Those developed by teachers from the Tarlac schools division were validated on 17-18 April 2017 while those developed by teachers from the Pampanga schools division were validated on 19-21 April 2017.

The topics of these lesson plans were as follows:

Tarlac

- *Grade 4*
Plants Found in the Community
Soils: Its Types and Characteristics
- *Grade 5*
Types of Soil
Kinds of Soil that are Prone to Erosion
Use of Weeds in Producing Compost
Weather
- *Grade 6*
Vertebrates and Invertebrates
Different Appropriate Activities During Wet and Dry Seasons

Pampanga

- *Grade 4*
Matter
Ways of Disposing Materials According to their Properties
Waste Segregation and Proper Waste Disposal
Animals Found in the Community and their Specific Habitats
- *Grade 5*
Physical Properties of Matter
Motion
Weather Disturbances
- *Grade 6*
Mixtures
Separating Mixtures (3 lessons)

DepEd personnel and resource persons from UP Open University and UP Baguio validated the activities.

SCHOOL IMPLEMENTATION PHASE

To monitor the school implementation of the project, personnel from DOST-SEI and IP focal persons from DepED Region 3 and the Division of Pampanga observed the use of one indigenized science lesson plan in a Grade 5 science class of 27 pupils at Camias Resettlement Elementary School in Porac, Pampanga on 17 November 2017.



FIELD TESTING: AN IP ELDER (IN BLUE PANTS, RIGHT) EXPLAINS ABOUT A LESSON OUTSIDE THE CLASSROOM AT BUROG ES TARLAC WITH THE TEACHER AT THE CENTER.

Initially, it had been observed that the pupils were not connecting with the lesson plan nor participating in the discussion. The observers advised the teacher to further indigenize the context and the materials in the lesson plan to make these more relatable to the students. Once the lesson was translated to Filipino it became clearer and more specific. The teacher became more engaging as the pupils actively participated in class. The Resource Person also advised the teacher to make the class read the topic repeatedly to reinforce learning and familiarization.

OBSERVATION/ MONITORING PHASE

The team of DOST-SEI and IP focal persons from DepED Region 3 and the Division of Pampanga observed the use of one indigenized science lesson plan in a Grade 5 science class of 27 pupils at Camias Resettlement Elementary School in Porac, Pampanga on 17 November 2017.



(ABOVE) FIELD TESTING: IP PUPILS PARTICIPATE IN THE CLASSROOM ACTIVITY DURING FIELD TEST AT VILLA MARIA ES IN PAMPANGA.



(TOP RIGHT) POST FIELD TEST CONFERENCE: THE RESOURCE PERSONS HOLD A POST IMPLEMENTATION CONFERENCE WITH THE TEACHER IMPLEMENTERS AT SAN MARTIN ES IN TARLAC.

Student Engagement Programs

DOST-SEI ENTERTAINS WHILE EDUCATING YOUTH ON SCIENCE

To spark the interest of the youth and invite them into STEM careers, DOST-SEI employed a variety of fun, exciting, and strategic communication approaches and strategies to involve them in the creation of a culture of science in the country.

To popularize STEM and the programs/projects of the Institute, 21 press releases were strategically disseminated to various mass media outlets, generating at least 72 media placements, including TV and radio spots in community and major broadcast networks.

DOST-SEI also utilized its social media accounts to connect with an ever-growing population of Filipino Internet users. On its official Facebook account, the Institute's followers rose to 34,398 as of December 31, 2017, up from 23,721 in the previous year. The biggest social media engagement was recorded during the application period to the RA 7687 and Merit Scholarships and during the Institute's 30th anniversary celebration.

The Institute also showcased its programs for the youth as it participated in the 2017 National Science and Technology Week (NSTW) with the theme, "Science for the People."

Together with DOST agencies such as NRCP, NAST, STII, and PSHS, the Institute held its Juanderworks Exhibit from July 11-15, 2017 at the World Trade Center in Pasay City, engaging

a total of 5,901 visitors. The exhibit served as the Interactive Exhibits Cluster for the youth, among other displays during the NSTW.

During the same celebration, an inspirational career talk entitled "TEC Talk: Back Home," participated in by 115 DOST scholars, high school and college students, and other guests was also conducted. Finally, a one-day workshop and competition entitled "Student Workshop on Innovative Technologies Challenge (SWITCH)" allowed 132 high school students to interact with renowned individuals from the innovation industry and create their own devices running based on the Internet of Things (IoT) concept.

SCIENCE EXPLORER MAKES GREATER STRIDES

Bigger and bolder, the Science Explorer, the Philippines' first and only mobile learning science facility, outdid itself in 2017 as it reached more places and covered more topics in science, technology, engineering, and mathematics.

The project served a total of 5,673 students in 324 schools nationwide. **(See Table 14)**

Month	Venue	Male	Female	Total
February	Valenzuela City, Davao Occidental	275	296	571
March	Cebu	312	406	718
June	Biliran, Southern Leyte	434	898	1,332
July	Munoz, Nueva Ecija	159	280	439
August	Cauayan, Isabela	237	466	703
September	Valenzuela City, Sorsogon City, Lakbayan ng Pambansang Minorya	464	735	1,199
November	Bulacan	294	417	711
Grand Total		2175	3498	5,673



(ABOVE) HIGH SCHOOL STUDENTS GET THE CHANCE TO KNOW WHICH STEM CAREER IS BEST SUITED TO THEM AS THEY TRY TO ANSWER SOME QUESTIONS IN THE STEM CAREER INTERACTIVE BOOTH.



(RIGHT) STUDENTS JOIN IN THE FUN WEARING THEIR FAVORITE CARTOON CHARACTER DURING THE 2017 NATIONAL SCIENCE AND TECHNOLOGY WEEK HELD AT THE WORLD TRADE CENTER ON JULY 11-15, 2018.



(UPPER RIGHT) AN EMERSON ENGINEER FACILITATES A SCIENCE EXPLORER MODULE WHICH HE DEVELOPED AS A WINNING ENTRY TO THE STEM EDUCATION CONVENTION AT EMERSON PHILIPPINES.



(RIGHT) A LUMAD YOUTH TAKES A LOOK INTO THE WORLD OF THE SMALL AS SHE TAKES A GLIMPSE OF A SAMPLE ON A MICROSCOPE IN THE SCIENCE EXPLORER.

The Science Explorer brought fun and interactive science activities in Davao Occidental, the farthest that the project has ever reached in its seven-year run. Young scientists created and implemented modules on Weather Science, Earthquakes and Tsunamis, Mangroves, and Marine Micropaleontology as the bus traversed the municipalities of Sta. Maria, Don Marcelino, Malita and Jose Abad Santos.

Covering new grounds in the Visayas, the Science Explorer conducted activities in Cebu, Biliran, and Southern Leyte, opening the eyes of the students on Landslides, Plant Biodiversity, Chemical Oceanography, and Climate Change.

Strengthening its partnership with the private sector, Emerson Electric Ltd. Asia donated 10 modules complete with learning kits and encouraged young engineers to join its inspiration caravan. The Science Explorer also intensified its partnership with the regional offices as it joined the Regional Science and Technology Week Celebrations in Muñoz, Nueva Ecija; Cauayan, Isabela and Valenzuela City.

Increasing its engagement with the public school sector, the Science Explorer conducted activities in Sorsogon City, Sorsogon and Malolos, Bulacan, bringing to their students new ways of doing science as they dabbled in activities that centered on Marine Genomics, Microbiology, Earthquakes, Astronomy, Food Biotechnology, Salt Chemistry, and Antibiotics.

Reaching to the grass roots, the Science Explorer brought fun activities as well to the Lakbayan ng Pambansang Minorya, teaching basic sciences to the Lumad kids camped at UP-Diliman.

The Science Explorer enhanced as well the facilitating skills of its young scientists with the conduct of a one-day enrichment program organized by DOST-SEI. This program enhanced their abilities to interact with students and encourage the latter to learn science concepts and become future professionals in science.

CENTRAL VISAYAS STUDENTS ATTEND CLIMATE SCIENCE YOUTH CAMP

The Science Education Institute (SEI) implemented the 2017 Climate Science Youth Camp in partnership with the Marine Science Institute of the University of the Philippines (UP-MSI) and Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST-PAGASA).

This year's theme: "The Oceans and Climate Towards a Resilient Planet", aimed to promote Oceanography and Meteorology and show how these two fields interact and play a vital role in understanding climate science. A total of 480 students and 40 teachers from eight (8) schools in Dumaguete and Siquijor, Central Visayas Region attended the camp.

Teams from the DOST-PAGASA and UP Marine Science Institute were grouped into two to serve and facilitate the



STUDENT PARTICIPANTS PASSIONATELY DOING A MODEL OF STORM SURGE ACTIVITY.

sessions. The Climate Science Youth Camp featured lectures and hands-on activities on Greenhouse effect, determining areas with Tropical Cyclone Warning Signal, Understanding Storm Surge, Climate Change, Biodiversity and Resilience.

National Policy Compliance Initiatives

TEACHERS OF VISUALLY IMPAIRED STUDENTS UNDERGO TRAINING

A three-day training from 13 May to 1 June 2017 equipped science teachers in elementary and secondary schools with information on how to handle visually impaired students, focusing on instructional strategies that integrated assistive devices to help the affected children understand their lessons better and participate in science activities.

Held at the Montebello Villa Hotel in Cebu City, the training benefited 15 elementary and seven high school science teachers along with six visually impaired students.

The training proper started with a lecture and activity conducted by Mr. Mario Lucas and Mr. Ryan Q. Operario of the Resources for the Blind (RBI) on the topic "Practical and Appropriate Ways on Handling Visually Impaired Students."

Ms. Joanne Fel Liwag from Ramon Magsaysay National High School and Ms. Laurice Zacarias of Kalayaan National High School simulated situations they personally encountered and gave pointers on how to properly deal with these students. They also shared sample lessons with science activities modified to make these suitable for visually impaired students.

As a hands-on exercise, the teachers made their own tactile teaching materials that can help their students feel what their regular students see. A new addition to the training this year



SCHOOLS FROM SIQUIJOR, CENTRAL VISAYAS GAVE A WARM WELCOME TO UP MSI, DOST-PAGASA AND DOST-SEI GROUP DURING THE CONDUCT OF CLIMATE SCIENCE BOOT CAMP (BANBAN NATIONAL HIGH SCHOOL, SIQUIJOR, SIQUIJOR)



was the demonstration lesson of participants using the tactile materials they have created and the assistive devices their schools received as part of their incentive in attending the training.

The participants expressed their gratitude for receiving such a training to make them more effective in teaching visually impaired students. There are plans to conduct a similar training in the Mindanao regions.

EMPOWERING THE ELDERLY THROUGH SCIENCE EDUCATION

A two-day activity that consisted of series of lectures, demonstration and workshop on various fields like nutrition, health care, mental health and first aid was conducted for the benefit of older persons. Held at the Subic Bay Travelers Hotel

TEACHER TRAINORS DEMONSTRATE HOW TO PROVIDE SCIENCE INSTRUCTIONS TO VISUALLY IMPAIRED STUDENTS.

on 3-4 November 2017, the activity involved 48 senior citizens from the Municipality of San Ildefonso in Bulacan.

The lectures began with a discussion of the rights, limitations and responsible utilization of privileges under the R.A. 9257 "Expanded Senior Citizen Act of 2010", followed by talks on health, wellness and nutrition planning relevant to the elder.

Also discussed were topics on mental health and memory improvement, common household accidents and first aid treatment, and the importance of exercise to prevent joints and heart related problems. The program also involved lively socials that included a nature tour of Zoobic Safari. Plans are underway to replicate the training for senior citizens in other parts of the country.

The activity was conducted in cooperation with the municipality of San Ildefonso, Bulacan and the Food and Nutrition Research Institute of DOST.

SALINLAHI IN TRANSITION MARKS PHASE II

The Science Education Institute has been tasked to monitor the Salinlahi in Transition: Transforming the Philippine Science Heritage Center into a World Class Science Center (Phase II) implemented by the National Academy of Science and Technology (NAST) from Year 2014 to 2017. The Salinlahi Project focused on strengthening and expanding the existing activities of the Philippine Science Heritage Center as an alternative learning institution for science. Programs and activities focused on three (3) components, namely: a) Enriching the visitors' experience; b) Promotion and marketing of the Center; and c) Capacity building for the PSHC staff.

excellence



NURTURING YOUNG MINDS

FOR A BETTER TOMORROW CALLS FOR A DEDICATED AND WELL-ROUNDED APPROACH. HAVING TAKEN THIS COURSE OF ACTION FOR THREE DECADES, IT GIVES US A DEEP SENSE OF PRIDE AND ACCOMPLISHMENT TO ANNUALLY MARK THE VARIOUS NATIONAL AND INTERNATIONAL AWARDS AND CITATIONS THAT SIGNIFY THE EXCELLENCE OF OUR STUDENTS, SCHOLARS, AND FACULTY MEMBERS.

OUR MANDATE OF CREATING A POOL OF S&T HUMAN RESOURCES CAN ONLY BE ACHIEVED BY CREATING A DYNAMIC AND SUPPORTIVE ENVIRONMENT THAT NURTURES REINVENTION AND REVITALIZATION. WE NEED THIS CULTURE OF EXCELLENCE TO PERMEATE OUR CLASSROOMS, SCHOOL DEPARTMENTS, RESEARCH INSTITUTES, CORPORATE PARTNERS, AND EVERYONE INVOLVED IN OUR EDUCATIONAL NETWORK.

“ Excellence endures and sustains. It goes beyond motivation into the realms of inspiration.”

– Azim Premji

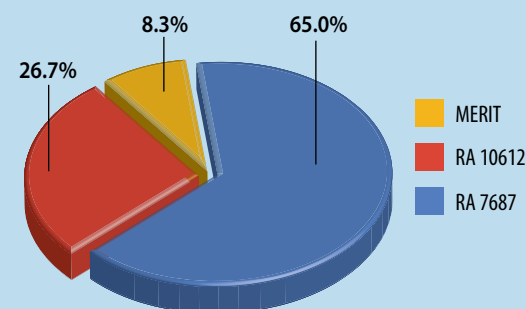


FIGURE 2: Distribution of Undergraduate Scholars per program in 2017

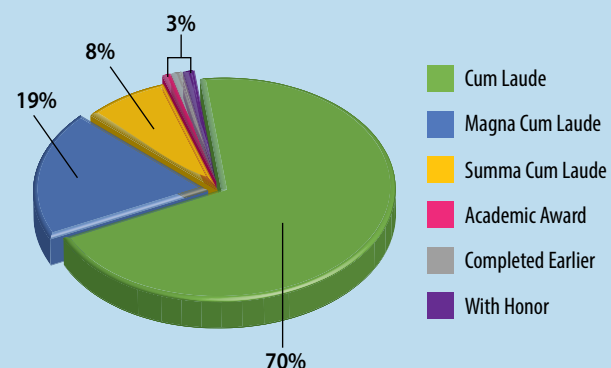


FIGURE 3: Distribution of MERIT scholar-graduates with academic honors in 2017

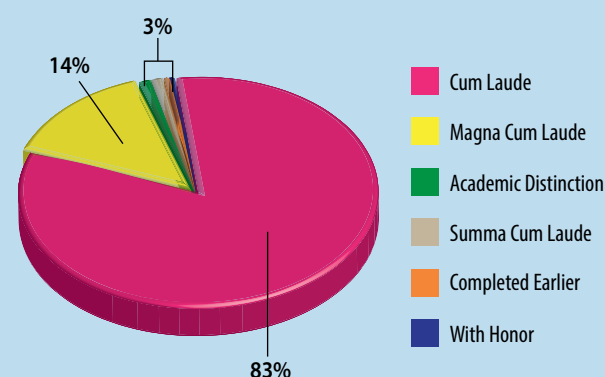


FIGURE 4: Distribution of RA 7687 scholar-graduates with academic honors in 2017

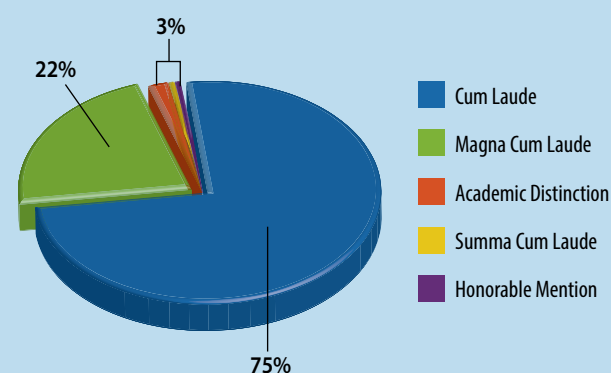






FIGURE 5: Distribution of RA 10612 scholar-graduates with academic honors in 2017

 
2,961
Undergraduate Scholars

474
Graduate Scholars


 **784** | 
BS Scholars | MS/PhD Scholars
With Academic Honors

SCHOLAR GRADUATES REAP MORE ACADEMIC HONORS

In 2017, a total of 2,961 undergraduate and 474 graduate scholars graduated from the different DOST-SEI S&T scholarship programs. Among these, 784 or 26% BS and 20 or 4% MS/ PhD scholars received academic honors.

In terms of distribution under the different undergraduate scholarship programs, the majority, 1,924 or 65% of the scholars fall under RA 7687, 791 or 26.7% under RA 10612, and 246 or 8.3% under MERIT. (See Figure 2)

UNDERGRADUATE LEVEL

Under the MERIT Scholarship program, 78 out of 246 scholars graduated with honors. There were 6 Summa Cum Laude (8%), 15 Magna Cum Laude (19%), 55 Cum Laude (70%), one Honorable Mention, one with Academic Award. Among them, four scholars completed their courses earlier than the prescribed period. (See Figure 3)

For RA 7687, 407 or 21% out of 1,924 scholars graduated with honors. There were 5 Summa Cum Laude (3%), 58 Magna Cum Laude (14%), 336 Cum Laude (83%), one Honorable Mention and six with Academic Awards. Three scholars graduated earlier than the prescribed period. (See Figure 4)

Under RA 10612, there were 791 graduates, among whom were 298 or 37% receiving honors: one Summa Cum Laude, 65 Magna Cum Laude (22%), 223 Cum Laude (75%), one Honorable Mention and eight with Academic Distinction (3%). (See Figure 5)



(ABOVE) SEC. DE LA PEÑA INSPIRES AND ENCOURAGES THE OUTSTANDING DOST-SEI SCHOLAR-GRADUATES TO CONTRIBUTE TO THE S&T DEVELOPMENT OF THE COUNTRY.

(TOP LEFT) DOST-SEI DIRECTOR DR. JOSETTE T. BIYO CONGRATULATES A DOST-SEI SCHOLAR WHO GRADUATED WITH HONOR.



(FROM LEFT: KEYNOTE SPEAKER AND UP MANILA PROFESSOR DR. ALEX GONZAGA, DOST-SEI DEPUTY DIRECTOR ENGR. ALBERT MARINO, DOST-SEI DIRECTOR DR. JOSETTE BIYO, AND DOST SEC. FORTUNATO DE LA PEÑA AS THEY HONOR AN OUTSTANDING DOST-SEI SCHOLAR-GRADUATE AND HIS PARENT.

GRADUATE LEVEL

In the graduate level, 260 MS and 48 PhD scholars graduated under the ASTHRDP-NSC; 25 MS and 15 PhD under the Capacity Building Program in Science and Mathematics Education; and 109 MS and 17 PhD under the ERDT. Among them, two graduated Magna Cum Laude, six Cum Laude, two with Academic Distinctions and four completed their courses earlier than the prescribed period in the master's program. In the doctorate program, there were two Magna Cum Laude and three with Academic Awards.

In recognition of their achievements, an annual program dubbed "In Touch with Excellence" was held on 15 July 2017 at the Philippine International Convention Center (PICC). The event was conducted as part of the celebration of the National Science and Technology Week.

SCHOLAR-GRADUATES CELEBRATE 30TH DOST-SEI ANNIVERSARY

In line with the celebration of the DOST-SEI 30th anniversary, the Institute gathered the batches of scholar-graduates covering a period of 10 years and more, beginning at the time when the agency was created as a service agency of the DOST through Executive Order no. 128 in 1987. NSDB/ NSTA scholars were also invited in honor of their significant achievements and contributions to the advancement of S&T in the country.

The event, "Together Again: Scholar-Graduates ng Unang Dekada ng DOST-SEI" was held on 27 September 2017 at the Reception Hall of the PICC in Pasay City.

SEC. DE LA PEÑA AND OTHER DOST OFFICIALS AS WELL AS FORMER SEI OFFICIALS JOIN THE SCHOLARS' TOAST.



(ABOVE) THE YES AWARDEES, THE HIGHEST NUMBER ON RECORD, PROUDLY POSE WITH THEIR MEDALS.



(RIGHT) BEST IN APPLIED SCIENCE RESEARCH AWARDEE ERVIN LUIS LAYAG (2ND FROM LEFT) AND BEST IN BASIC SCIENCE RESEARCH AND THIS YEAR'S BEST PROJECT OF THE YEAR AWARDEE SHEENA GUMATAY (3RD FROM LEFT), RECEIVE THEIR AWARDS FROM (FROM LEFT) DOST-SEI DIRECTOR JOSETTE BIYO AND BPI FOUNDATION EXECUTIVE DIRECTOR FAYE CORCUERA.



One of the highlights was a scholars' toast led by Sec. de la Pena and other DOST officials, as he congratulated the Institute's success and wished it another 30 years of Service, Excellence and Innovation. Testimonials on how the scholarship programs impacted the lives of the scholarship recipients were given by successful scholar-graduates such as: Dr. Ester B. Ogena, President of Philippine Normal University; Normina Pangilan-Pahm of the DOST-Regional Office XII; Mr. Jonel P. Saludes, Associate Vice President for Research, University of San Agustin; Mr. Romil M. Reyes, IT Manager, Mead Johnson Nutrition Phil. Inc.; and Mr. Kelly Manglangit Jr. of the Mindanao Island Oils.

YES AWARDEES HIT HIGHEST NUMBER IN 10 YEARS

The number of recipients of the Youth Excellence in Science (YES) Award reached its highest on record since its inception in 2007. For the year in review, 1,200 elementary and high school students from 324 schools were awarded with YES medals during ceremonies held at the Philippine International Convention Center (PICC) in Pasay City on 20 February 2018.

There were 553 awardees from NCR and 647 from the regions. In celebration of the YES Award's 10th year of implementation, the top three schools with the highest combined number of awardees since the beginning received the "Gold Ribbon School Award" and will be awarded every three (3) years henceforth. The Philippine Science High School took the top spot, garnering 278 YES medals, followed by St. Jude Catholic School and Grace Christian College with 265 and 175 YES medals, respectively.

BPI-DOST SCIENCE AWARDS

The 2017 BPI-DOST Science Awards, an annual competition for Best Thesis by graduating students pursuing science courses in accredited schools/universities, opened with the theme "Building Resilient Cities for Sustainable Development".

There were 30 entries submitted by students from these accredited schools, for evaluation:

1. Ateneo de Davao University
2. Ateneo de Manila University
3. De La Salle University
4. Mindanao State University – Iligan
5. Saint Louis University
6. Silliman University

7. UP Diliman
8. UP Los Banos
9. University of San Carlos
10. University of Santo Tomas
11. Xavier University

During the preliminary judging conducted on 17 March 2017, the Board of Judges selected the top six finalists for the Applied and Basic Research Categories. The awarding ceremony was held on 4 April, 2017 at the Mind Museum Auditorium, Bonifacio Global City, Taguig.

Two winners, both from the University of Sto. Tomas, were eventually selected to receive these prizes:

- **Best Project of the Year - Best in Basic Research Award**
Sheena Gumatay, BS Biology, UST
"Comparative Analysis of In Vivo- and In Vitro- Produced DSRNA in Silencing Efficacy in *Penaeus vannamei* challenged with WSSV"
- **Best in Applied Research Award**
Ervin Luis Jayag, BS Chemical Engineering, UST
"Optimization of Co-Catalyst Loading Parameters and Design of a Photocatalytic Reactor for Hydrogen Production Using Modified Titanium Dioxide and Visible Light Irradiation"



(ABOVE) THE THIRTY FINALISTS FOR THE 2017 BPI SCIENCE AWARDS TOGETHER WITH LEADERS AND EXPERTS FROM THE SCIENCE COMMUNITY: DR. WILLIAM DAR, PRESIDENT OF THE INANGLUPA MOVEMENT; DR. ROGEL MARI SESE FOCAL PERSON FOR THE PHILIPPINE SPACE SCIENCE EDUCATION PROGRAM (PSSEP); DR. PATRICIA SANCHEZ OF UP LOS BANOS; DR. DAVID HALL, CHIEF OF PARTY OF USAID STRIDE; DR. JOSETTE BIYO, SEI DIRECTOR; AND FIDELINA CORCUERA, BPI FOUNDATION EXECUTIVE DIRECTOR.



(ABOVE) THE 21 FINALISTS OF THE 20TH PMO DURING THE AWARDING CEREMONY.

YOUNG MATH WIZARDS SHARPEN WINNING EDGE

In the qualifying stage of the Philippine Mathematical Olympiad (PMO), the oldest and most prestigious national mathematics competition among secondary students in the country, 4,678 students took the initial qualifying stage, out of which 21 students made it to the National Stage of the competition that was held on 20 January 2018 at the Ateneo de Manila University in Quezon City.

On its 20th year, the 2017 PMO winners and their corresponding prizes were:

- Kyle Patrick Dulay - Champion/1st Place**
Philippine Science High School – Main Campus
P20, 000, Trophy, Medal, Certificate, SHARP Calculator and Manulife policy
- Emmanuel Osbert Cajayon - 2nd Place**
Emilio Aguinaldo College
P15, 000, Trophy, Medal, Certificate and SHARP Calculator
- Vincent Dela Cruz - 3rd Place**
Valenzuela City School of Mathematics and Science
P10, 000, Trophy, Medal, Certificate and SHARP Calculator

LAUNCH OF YOUTH INNOVATION PRIZE SHOWCASES INGENIOUS SOCIETAL SOLUTIONS

The partnership between DOST-SEI, Intel Technologies Philippines and the Foundation for Information Technology Education and Development (FIT-ED) launched in February 2017 the project dubbed “imake.wemake”, which encourages



(ABOVE) THE 20TH PMO TOP WINNERS: (FROM LEFT) EMMANUEL OSBERT CAJAYON (2ND PLACE); KYLE PATRICK DULAY (1ST PLACE); AND VINCENT DELA CRUZ (3RD PLACE).

the creation of innovative solutions to community issues or social problems through accessible technologies. It is open to teams with 15-18 year-old members who can propose an innovation or a product that can “solve a problem” using the Intel Galileo platform.

Out of 19 school teams that submitted their project proposals, nine qualified to build their projects within a two-month build period. They then moved forward to the Final Stage of the competition.

The final Presentation of Projects and Awarding Ceremony was held on 28 March 2017 at the Henry Sy, Sr. Innovation Center, Miriam College. The nine finalists presented and demonstrated their projects. Three of these emerged as the Youth Innovation Prize Awardees, and each received P150,000 in cash. The winners and their projects are:



(ABOVE-LEFT & RIGHT) PSHS – EASTERN VISAYAS CAMPUS' "WATER RISE ALERT SYSTEM" SECURED THE YOUTH INNOVATION PRIZE IN THE FIRST-EVER IMAKE.WEMAKE. THE GROUP'S DEVICE WAS ALSO AWARDED BY EMERSON ELECTRIC ASIA LTD. WITH THE “EMERSON PERFECT EXECUTION AWARD”.

(LEFT) LIMAY NATIONAL HIGH SCHOOL'S TRIO GETS THEIR YOUTH INNOVATION PRIZE FOR THEIR "MAXIMA HYDROPOWER GENERATOR".

- Limay National High School –
“Project Maxima: Hydropower Generator”
Students Jonel Mark Carandang, Aureen Kyle I. Mandap and Kenneth Legaspi developed their hydropower generator device, Maxima, to provide their school an extra clean source of energy to help lessen its electrical bills. Their device is equipped with liquid level, temperature, current, and water flow sensors, steel foundations, batteries, 500W electric inverter/converter, improvised rotary generator, and many others. The actual project cost was only Php 6,398.00.
- Philippine Science High School – Eastern Visayas Campus (PSHS EVC) –
“Water Rise Alert System”
Kent Marc Kobe Bismark, Johan Castillejos, and John Ejie Relente of PSHS-EVC made use of their experience during Typhoon Yolanda to develop their Water Rise Alert System. It is a device equipped with a water level sensor, a radio frequency transmission unit, alarms, a raindrop detector, some lights for danger signaling, and solar panels, that measures water levels in prone areas and transmit data to a control center to give warnings to residents.
- Pitogo High School –
“Project I.R.I.S.” or Intercepting Relayed Imaging System”
Students Daveren John Cordero, Steven Da-anton, and Jose Gabrielle Rivera developed an automatic surveillance system they called as IRIS, which can detect cars that step inside the pedestrian lane when the traffic light goes red, helping authorities track the frequency of this type of violation every day and act accordingly. The trio conducted software and hardware developments for IRIS, which only cost them Php 7,582.



(ABOVE) STUDENTS FROM PITOGO HIGH SCHOOL RECEIVE THEIR AWARD FOR THEIR PROJECT I.R.I.S. OR "INTERCEPTING RELAYED IMAGING SYSTEM", AN AUTOMATIC SURVEILLANCE SYSTEM THAT HELPS MONITOR TRAFFIC VIOLATIONS IN THEIR COMMUNITY.



THE SPACE EXPERIMENT ENTITLED “PRINCIPLE OF DENSITY IN SPACE” AS PROPOSED BY STUDENTS FROM PSHS CENTRAL VISAYAS CAMPUS WAS SELECTED TO BE PART OF THE 2017-2018 ASIAN TRY ZERO G EXPERIMENTS BY JAXA.



A TEAM ENSURES THEIR CANSAT IS WORKING AS THEY TRY TO EXECUTE THEIR PRIMARY AND SECONDARY MISSIONS DURING THE 2017 CAN SATELLITE COMPETITION.

PSSEP BRINGS SPACE SCIENCE CLOSER TO YOUTH

In an effort to deeply engage students in space science technology and applications, the DOST-SEI through the Philippine Space Science Education Program (PSSEP), conducted several activities that engaged the interests of the youth.

2017-2018 ASIAN TRY ZERO-G EXPERIMENTS

Organized by Kibo-ABC of the Japan Aerospace Exploration Agency (JAXA), the program invites member countries to submit simple space experiments, using materials onboard the International Space Station (ISS), that are unique, novel and provides information for astronauts to demonstrate the conditions in new zero gravity.

Kibo-ABC is a collaborative program established by the Space Environment Utilization Working Group (SEUWG) of the Asia Pacific Regional Space Agency Forum (APRSAF), which aims to promote the utilization of Kibo, the Japanese experiment module in ISS.

High school students coming from Regions III, NCR, V and VII submitted 54 space experiment proposals to DOST-SEI. All proposals underwent extensive screening and review process by a technical committee headed by PSSEP Focal Person, Dr. Rogel Mari Sese. Out of the 54 experiments, three were selected and sent to Kibo-ABC for the final selection of experiment themes.

Selected for the final stage were the following two experiments:

- PSHS Central Luzon Campus
Title: “Are the flight mechanics on Earth applicable in Microgravity conditions?”
By Keryll Bastien Sison, Red James Manalili, Jovelle Adizas and Justin Gabriel Parel
- PSHS Central Visayas Campus
“Principles of Density on Space”
By Brigham Lucero and Noel Xavier Fuentes.

Out of eight space experiments selected from a total of 169 entries, the “Principle of Density in Space” was approved by JAXA to be part of the final list of experiments that will be performed by Japanese astronaut Norishige Kanai in 2018.

The Awarding ceremony was held during the Opening Program of the World Space Week Celebration in Cebu City.

3RD CANSAT COMPETITION

Following the successful conduct of the 2nd Can Satellite competition and the 1st hosting of international Can Satellite competition held during the 23rd Asia Pacific Regional Space Agency Forum in Manila in 2016, the 3rd installment of the can satellite competition brought forth new challenges as students were expected to execute their primary and

secondary missions more smoothly and generate more in depth analysis with better data.

The competition started with a weeklong training workshop on 11-15 September 2017 at the PHIVOLCS Auditorium, Diliman, Quezon City. A total of 15 public high schools from all over the region composed of 45 students and 15 science teachers participated in this years’ competition.

PSHS Northern Luzon Campus, PSHS Western Visayas Campus, and PSHS Southern Mindanao Campus made their debut appearance in the CanSat arena to comprise the new set of teams along with two other public science high schools in NCR. The training and workshop covered essential topics of CanSat development such as Gizduino microcontroller programming, pressure, temperature and GPS sensor applications, data logging, parachute design and systems engineering, and introduction to space science and technology application by PSSEP Focal Person, Dr. Rogel Mari Sese and basic meteorology by DOST-PAGASA weather forecaster, Mr. Robert Badrina.

The CanSat kit-of-parts were given to participating school teams at no cost. At the end of the training, team members presented their primary and secondary missions to the technical trainers, who gave feedback on how to integrate it in their CanSat prototypes. The school teams were given two months to build and complete their CanSat prototypes. During this course, a follow up meeting with trainers from Thinklab gave students a further boost to be able to finish their prototypes on time.

The CanSat launch competition was held on 28-30 November 2017 at UP Los Baños, Laguna. Using a hexacopter, each CanSat was deployed at an altitude of 80 meters to be able to measure

and collect atmospheric data and execute the secondary mission that the teams proposed during their training.

After data collection, each school teams were given time to analyze their data which they presented before the technical committee members. Students from Rizal National Science High School composed of Josh Rael Jorquia, Matthew Lemeul Rey, and Marla Ena Rosales and their coach, Mr. Marlon Sta. Catalina successfully defended their title and was declared the champion for the 3rd Can Satellite Competition. The team also took home the Best Systems Engineering Award, and received trophies and cash prizes amounting to Php 13,000.00.

Other winners of the competition were Rizal High School (2nd Place) and Philippine Science High School Central Luzon Campus (3rd Place). The teams received Php 7,000 and Php 5,000 cash prizes, respectively, along with trophies.

XVII WORLD SPACE WEEK CELEBRATION

The Philippines joined the countries comprising the league of space science and technology advocates in celebrating the XVIII World Space Week (WSW) with the theme, “Exploring New Worlds in Space”.

Promoting space science and astronomy to a greater height, the celebration was held for the first time in Cebu City on 4-5 October 2017. The Opening Ceremony was held at the Cebu Parklane International Hotel and was attended by about 100 public school students and teachers from Cebu City. The 2-day celebration was held in coordination with Cebu City Mayor’s Office, DepEd Regional Office and DOST VII Regional Office.

Dr. Rogel Mari Sese, Focal Person of the PSSEP gave a lecture on the status of space education in the country and its



(LEFT) ALL SMILES AND CHEERS AS CEBUANO STUDENTS EXPERIENCE THE CELEBRATION OF THE WORLD SPACE WEEK

(LOWER LEFT) THE TOP THREE WINNERS OF THE POSTER MAKING COMPETITION SHOW THEIR WINNING ENTRIES TO THE APRSAF-24

(BELOW) A CONTESTANT SETTING UP HIS TEAM'S WATER ROCKET FOR LAUNCH



(LEFT) YOUNG STUDENTS READY TO WATCH FILM ENTRIES FOR THE 2ND INDIE-SIYENSYA FILM MAKING COMPETITION



importance in achieving national development. The lecture was followed by a training on designing and crafting of water rockets led by a budding space scientist/journalist, Ms. Stephanie Tumapos.

The National Water Rocket competition was held at the Labangon Elementary School and was participated in by 20 public high school teams each composed of three students and a science teacher. Naga National High School's trio of Ian Kenneth Buca, Nico Anthony Tejano, and Kishi Dy topped 14 other teams by tallying an impressive 4.1 meters from the target. The win automatically qualified them to be the Philippine representative to the Water Rocket Event at the 24th Asia-Pacific Regional Space Agency Forum (APRSAF-24) held in Bengaluru, India, on 14-17 November 2017.

Placing second and third were Badian National High School's John Rey P. Amestoso, Yvonne F. Besin, and Clint John V. Tarongoy with 8.3 meters, and Talisay City Science High School's Hannah Len Rafols, Nick Tyrone Mangaoang, and Christian Al Pilapil with 12.5 meters, respectively.



As a parallel activity, an on-the-spot poster making contest was held for public elementary students. Young scientists unleashed their artistic creativity in depicting their understanding of space under the theme "United through Space."

Yesha Alexandra Gocotano of Minglanilla Special Science Elementary School placed first with her creative space exploration artwork. Her winning entry was sent to APRSAF-24 to vie against other entries in the region. Meanwhile, Deanna Ellora Gacayan of Guadalupe Elementary School placed second and Vlademer Paragele of Pardo Elementary School took third place.

The XVIII World Space Week celebration reached a total of 160 students and teachers from Cebu City in a bid to promote space science and technology and astronomy as a field of study and encourage young Cebuanos to take up STEM courses in the future.

2ND INDIE-SIYENSYA FILMMAKING COMPETITION EXPANDS SCOPE

On its second run in 2017, the Indie-Siyensya Filmmaking Competition was marked by improvements in both quantity and quality of the films submitted. Using film as a medium to promote science culture, the project covered two categories, Youth and S&T Professionals, in contrast to having only one category in its 2016 inauguration.

DOST-SEI also partnered with UP Diliman College of Mass Communication (UP-CMC) and officially launched the competition on 11 August 2017 at the UP CMC auditorium before 330 attendees composed of students and teachers.

With the theme "Portrait of a Filipino as a Scientist", contestants were able to highlight the life and contributions of Filipino scientists to science and technology and development in the country. A total of 187 young individuals and S&T professionals from Regions II, III, IV-A IV-B, VII, X, CAR and NCR submitted 62 film concepts for screening and evaluation by the Board of Judges composed of science advocates and film experts.

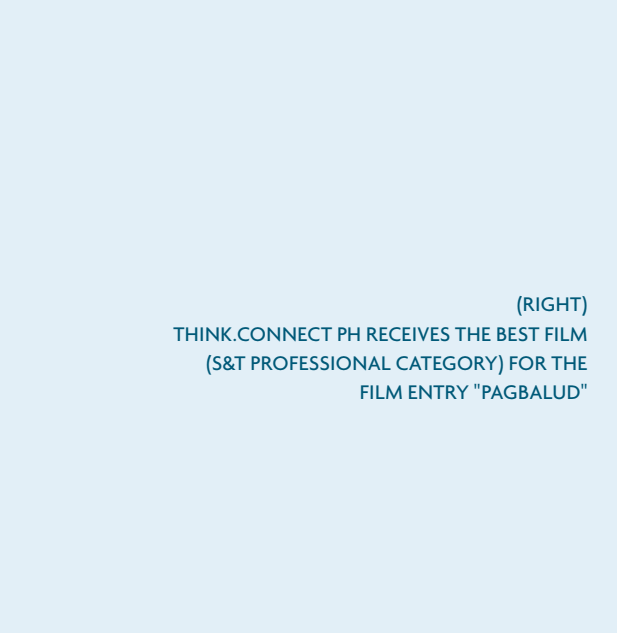
Thirty (30) concepts were selected as finalists of the competition. An intensive one-day filmmaking workshop followed on 25 September 2017 to further hone the finalists' skills in filmmaking and science communication.

There were 19 films that made it to the 10 November 2017 deadline for submission of final output. These were uploaded to Youtube from 27 November to 1 December 2017 for public viewing and online voting for the Viewer's Choice Award.



(ABOVE) PSHS CENTRAL LUZON CAMPUS STUDENTS RECEIVES THE AWARD FOR BEST FILM (YOUTH CATEGORY) FOR THEIR FILM ENTRY "ILUSYON"





(RIGHT)
THINK.CONNECT PH RECEIVES THE BEST FILM
(S&T PROFESSIONAL CATEGORY) FOR THE
FILM ENTRY "PAGBALUD"



(LEFT)
UP ALCHEMES REPRESENTATIVE
RECEIVES THE VIEWER'S CHOICE AWARD
"LAHO: IN THE ECLIPSE OF SCIENTISTS"



A series of film screening was conducted on 23 November 2017 and 4 December 2017 at the UP Film Studio in Diliman, Quezon City and at the Philippine Science Heritage Building in DOST Compound, Taguig City, respectively. A total of 177 attendees from secondary schools participated in this activity.

As a finale to Indie-Siyensya's sophomore run, a Closing and Awarding Ceremony was conducted on 5 December 2017 at the Aldaba Hall, University of the Philippines, Diliman, Quezon City. It was attended by 119 participants composed of contestants, Indie-Siyensya Board of Judges and SEI officials.

"Laho: In the Eclipse of Scientists" by UP ALCHEMES won the Viewer's Choice Award. Major awards went to "ILUSYON" (Best Film - Youth Category), a film by students from the Philippine Science High School - Central Luzon Campus and "PAGBALUD" by Eastern Visayas' ThinkConnect.Ph (Best Film - S&T Professional Category).

STUDENTS CONTINUE DISPLAYING MATH PROWESS IN AMC

On 3 August 2017, over 400,000 students from 30 countries participated in the Australian Mathematics Competition (AMC), which is administered annually by the non-profit Australian Mathematics Trust and conducted by DOST-SEI in cooperation with the Mathematics Trainers' Guild, DOST Regional Offices and DepEd.



THE WINNERS TAKE IT ALL. THE 58TH IMO MARKS THE FIRST TIME THAT EACH OF THE SIX PHILIPPINE CONTESTANTS BROUGHT HOME A MEDAL: SILVER MEDALISTS (FROM LEFT) ALBERT JOHN PATUPAT OF DLSU INTEGRATED SCHOOL AND FARRELL ELDRIAN WU OF MGC NEW LIFE CHRISTIAN ACADEMY; BRONZE MEDALISTS SHAQUILLE WYAN QUE OF GRACE CHRISTIAN COLLEGE AND SEAN ANDERSON TY OF ZAMBOANGA CHONG HUA HIGH SCHOOL; ANOTHER SILVER MEDALIST KYLE PATRICK DULAY OF PHILIPPINE SCIENCE HIGH SCHOOL, MAIN; AND BRONZE MEDALIST CLYDE WESLEY ANG OF CHIANG KAI SHEK COLLEGE

The participants included 4,354 Philippine students, of which 1,312 came from the National Capital Region.

During the AMC Awarding Ceremonies held on 19 October 2017 at the St. Jude Catholic School, the following were given recognition:

1. Jerome Te - Jubilee Christian Academy
2. Michael Gerard Tongson - Stonyhurst Southville International School
3. Franze Micah Castaneda, Alvann Walter Paredes Dy, Vanessa Ryanne Julio - St. Jude Catholic School
4. Rovi Gabriel Dela Cruz - Pasig Catholic College
5. Dominic Lawrence Bermudez - PSHS - Main
6. Erin Christen Noceda - PSHS - CLC
7. Bryce Ainsley Sanchez - Grace Christian College
8. Dion Stephan Ong - Ateneo de Manila University JHS
9. Vince Jan Torres - Sta. Rosa Science and Technology High School

One hundred one (101) students from different schools received Certificates of High Distinction.

IMO WINNERS BRING HOME ANOTHER RECORD

Selected winners and finalists of the 2017 Philippine Mathematical Olympiad (PMO) were trained and screened to compete in the 58th International Mathematical Olympiad (IMO), the largest and most difficult math competition in the world. The 58th IMO was held in Rio de Janeiro, Brazil on 13-23 July, 2017.

The Philippine team made history as it was the first time that all the six contestants brought home a medal. The students and their respective awards were:

- Silver Medalists:*
- Kyle Patrick Dulay - Philippine Science High School – Main
 - Albert John Patupat - DLSU Integrated School
 - Farrell Eldrian Wu - MGC New Life Christian Academy
- Bronze Medalists:*
- Shaquille Wyan Que - Grace Christian College
 - Sean Anderson Ty - Zamboanga Chong Hua High School
 - Clyde Wesley Ang - Chiang Kai Shek College

Dr. Richard Eden from the Ateneo de Manila University and Dr. Louie John Vallejo of UP-Institute of Mathematics were designated Team Leader and Deputy Team Leader, respectively.

innovation



FOR OUR EDUCATORS AND STUDENTS TO BE COMPETITIVE IN TODAY'S ENVIRONMENT, THE PROGRAMS THAT MOLD THEM MUST BE EQUALLY COMPETITIVE – EVER IMPROVING AND EVOLVING SYSTEMATICALLY ACROSS ALL LEVELS, AND OUTCOMES BASED TO MANIFEST MEASURABLE RESULTS.

INNOVATIVE APPROACHES ARE ESSENTIAL TO HELP US KEEP PACE WITH HOW TECHNOLOGY AND OTHER FACTORS ARE INFLUENCING NEW LEARNING

PROCEDURES. EDUCATION IS FAST BECOMING MORE COLLABORATIVE AND EXTENDING BEYOND THE CLASSROOM, AS INTERNET-BASED SOFTWARE AND APPS ARE CREATING MORE INTERACTIVE AND IMMERSIVE LEARNING OPPORTUNITIES. THROUGH CONTINUOUS IMPROVEMENT, WE HARNESS DATA THAT REFLECT HOW OUR SYSTEMS CAN BE ENHANCED TO RESPOND TO THE NEEDS OF OUR COMMUNITY OF STAKEHOLDERS, FROM OUR STUDENTS TO OUR TEACHERS, PERSONNEL, POLICYMAKERS, AND THE WHOLE NATION.

“Changes call for innovation, and innovation leads to progress.”

– Li Keqiang

“The most relevant technology research that contributes to inclusive economic growth tends to be led by industry and driven by need.”

– Dr. David Hall
Chief Party, USAID STRIDE

RESEARCH CONFERENCES HIGHLIGHT NEED TO BE GLOBALLY COMPETITIVE

Higher education researchers need to adopt a broader perspective to ensure that their research materials can provide solutions to industry needs and contribute to the country’s economic growth and S&T capacities. Towards this end, DOST-SEI intensified its support to the following activities that foster industry collaboration and global competitiveness:

3RD NATIONAL RESEARCH CONFERENCE IN SCIENCE AND MATHEMATICS

A record of 212 science and mathematics educators from top universities gathered for the 3rd National Research Conference in Science and Mathematics Education (SME) in Cebu City. Held on 9-10 February 2017, the conference carried the theme “Sustaining a Culture of Research in Science and Mathematics Education to Meet the Challenges of Globalization”.

The event presented stimulating lectures, posters, paper presentations and open forum for MS and PhD scholars in SME, Project Leaders and faculty members of the universities under the National Consortium in Graduate Science and Mathematics Education (NCGSME).

DOST Secretary de la Pena, DOST Undersecretary Dr. Carol M. Yorabe, SEI Director Dr. Josette T. Biyo, and University of San Carlos President Fr. Dionisio M. Miranda graced the said event. In their respective speeches, they underscored the significant role of Science and Mathematics educators in molding the future S&T human resources, and pointed out the importance of enhancing their capabilities through trainings and graduate studies. The officials also pointed out how the scholars’ acquired knowledge and competencies must be put to good use that would prepare their students for the challenges in their areas of specialization in the face of globalization.

Also featured in the conference were two distinguished educators, namely: Dr. Vivien Talisayon, a retired professor of Science Education at the UP College of Education; and Dr. Jose Maria Balmaceda, Dean of the College of Science at UP Diliman. Dr. Talisayon discussed the pitfalls of and provided points in doing global-referenced graduate research, and delved on the do’s and don’ts in research paper writing, from identifying research objectives to drawing conclusions and making recommendations. Dr. Balmaceda meanwhile advised the audience to perform due diligence in gathering information about a journal before submitting their precious research materials for publication, in light of the proliferation of predatory journals that seek to make large profits by publishing for free any research material that comes their way.

Mr. Gerry Petilla of the National Research Council of the Philippines (NRCP), a research granting agency of the DOST, invited the participants to become Council members so they could be included in the pool of researchers, scientists and experts of the country.

Other event highlights included poster and oral presentations of researches by DOST-SEI scholars focusing on general SME topics.

The NCGSME is composed of the following institutions: Ateneo de Manila University, Bicol University, Central Luzon State University, De la Salle University, Mariano Marcos State University, Mindanao State University-Marawi City, Philippine Normal University, University of San Carlos, Western Mindanao State University, and West Visayas State University.

5TH ERDT CONGRESS

The Engineering Research and Development for Technology (ERDT) held its 5th Congress on 17 February 2017 at the SMX Convention Center in Pasay City with the theme “Intensifying Academe-Industry collaboration for Research and Development in the Philippines”.

The event articulated the challenges, new directions and best practices in academe-industry collaboration, citing the latter’s key role in contributing to the advancement of the global competitiveness of the Philippine economy. This was emphasized in the presentation by Dr. David Hall, Chief Party fo the USAID STRIDE (Science, Technology, Research and Innovation for Development), wherein he stated that the most relevant technology research that contributes to inclusive economic growth tends to be led by industry and driven by need. He also shared some strategies that would address the struggles of many universities to build collaborative relationships that are crucial for creating a critical mass of research activity.

During the plenary session on Research Proposal and Publication, Dr. Aristotle T. Ubando, Associate Professor of the Department of Engineering at De La Salle University, provided guidelines in the selection of a funding organization and a step wise process for writing effective proposals. His colleague in the same university, Dr. Kathleen B. Aviso of the Department of Chemical Engineering, gave guidelines on research content, the anatomy of an effective scientific article, the publication cycle, and the role of networking and international collaboration in ensuring a successful publication of one’s work.

During the plenary session on Academe-Industry Collaboration, Dr. Evelyn B. Taboada, Professor of the Department of Chemical Engineering at University of San Carlos, shared her experience in collaborating with Mango Waste Biorefinery -- how the project contributed to the waste management of the community and led to the discovery of mango peels and seeds as good sources of commercially viable products. She explained that the technology was soon transferred to industry for commercial-scale implementation.

Dr. Bryan B. Pajarito, Associate Professor of the Department of Chemical Engineering at UP Diliman, discussed how the initiatives of the academe, through UP and collaborating agencies like Philippine Insurers and Reinsurers Association (PIRA), USAID, and various government offices, came up with

initiatives that aided in identifying problems and providing solutions for the benefit of the rubber industry.

Representing the industry sector, Dr. Danilo Lachica, president of Semiconductor and Electronics Industries in the Philippines, Inc. (SEPI) discussed the need for an overall strategy to guide industry players on how to up the value chain and consider new products and technologies to position the country as an investment destination for manufacturing advanced products, deploying new technologies and pursuing higher value activities.

2ND INTERNATIONAL GRADUATE SCHOLARS’ CONFERENCE

Around 400 S&T scholars, National Science Consortium faculty members, foreign participants and DOST officials attended the 2nd international Science Graduates Scholars’ Conference held at the PICC in Pasay City on 24-25 May 2017.

With the theme “From Discoveries Today to Innovations Tomorrow”, the two-day conference featured a total of 264 abstracts of MS and PhD scholars under the Accelerated Science and Technology Human Resources Development Program (ASTHRDP).

In her keynote speech, Dr. Christina Binag, President of National Research Council of the Philippines (NRCP) shared the National Unified Health Research agenda and the NRCP Research Track.

Her talk was followed by the ceremonial ribbon cutting that opened the poster exhibit. This was graced by DOST Undersecretary Brenda Nazareth-Manzano, SEI Director Dr. Josette T. Biyo, NSC Steering Committee Chairman Dr. Fabian M. Dayrit, and the University Project Leaders.

International guest speakers included Dr. Misni Misran of the University of Malaya, Dr. Takayuki Nagai of Kitasato University, and Dr. Eun Woo Park of Seoul National University. Other distinguished guests included Dr. Arnel Salvador of UP

TABLE 15: WINNERS OF THE TECHNICAL POSTER COMPETITION
Category 1 Aquaculture / Fisheries / Environmental Science
First Place: - Justine Bennette H. Millado, MS Entomology, UPLB Research Title: <i>Bio Control of a Philippine Population of Taxarhynchites splendens (Miedemann) (Diptera: Culicidae) Against Aedes aegypti (Linn.) Ae. Albopictus (Skuse), and Culex quinquefasciatus say (Diptera: Culicidae)</i>
Second Place: - Garner Algo L. Alolod, MS Fisheries (Fish Processing Technology), UPV Research Title: <i>Bioactivity and Functionality of Gelatin Hydrolysates from the Skin of Oneknife Unicomfish (Nasa thynnaides).</i>
Third Place: - Rowena E. Cadiz, MS Fisheries (Aguaculture), UPV Research Title: <i>Comparative Efficacies of Tilapia Green Water and Biofloc Technology (Bft) in Suppressing Population Growth of Green Vibrios and Vibria parahaemalyticus in the intensive Tank Culture of Penaeus vannamei</i>
Category 2 Biology/ Health Science / Food Science / Chemistry / Natural Products
First Place: - Karin Mae M. Ortega, MS Pharmacy, UST Research Title: <i>Anti-Angiogenic and Amp-Activated Protein Kinase Activities of Gracilaria cananopifalia I.G. Agardh Extracts</i>
Second Place: - Yamkippur V. Perez, MS Chemistry, ADMU Research Title: <i>Cyclodextrin Metal-Organic Framework (CDMOF) Synthesis and its Potential in Loading Bio-Active Molecules</i>
Third Place: - Julius Adrie A. Garcia, MS Chemistry, UST Research Title: <i>Xrcc3c.562A>G, Xrcc3c.280C>T and Xrcc4G-1394T Single Nucleotide Polymorphisms and Breast and Colorectal Cancer Risk: Association with Lifestyle, Family History of Cancer and Reproductive Health</i>
Category 3 Mathematics/ Statistics / Computing / Physics / Materials Science
First Place: - Stephen L. Flores, MS Physics / USC Research Title: <i>Nonlinear Properties of Kapp-Iota Carrageenan Binary Gels</i>
Second Place: - Racquel U. Tabornal, MS Applied Mathematics / UPD Research Title: <i>Mathematical Modelling on Competition and Cooperation of Species</i>
Third Place: - Christian P. Umali, MS Statistics, UPLB Research Title: <i>Uncertainty and Sensitivity Analyses in Developing Composite Provincial Level Food Security Indices</i>

Diliman, Dr. Napoleon Juanillo Jr. of Commission on Higher Education (CHED), Mr. Emerson Atanacio of the Philippine Chamber of Commerce and Industry, and Dr. Josette T. Biyo of SEI.

The ASTHRDP Scholars are from the NSC member universities, namely: Ateneo de Manila University, Central Luzon State University, De La Salle University, Mindanao State University-Iligan Institute of Technology, UP Diliman, UP Los Banos, UP Manila, UP Visayas, University of San Carlos, UST and Visayas State University. **(See Table 15)**

PROJECT ARISE INTENSIFIES ACTIVITIES

The Institute spearheaded the conceptualization and design of the 21st Century Model Classroom (21st CLEM) for five (5) pilot schools of the Department of Education Division of Lipa City, Batangas.

Under the project “Effectiveness of 21st Century Learning Environment Model as a Support System to Teaching and Learning of Science and Mathematics”, the classrooms were equipped with 21st century furniture such as trapezoid tables, mobile caddy, lectern and maker space along with teaching and learning technologies such as interactive projector, visualizer, laptop computers, 3D printer, smart television, and virtual and augmented reality tools. This environment is expected to produce holistically developed students with 21st century skills in communication, collaboration critical thinking and creativity, while promoting STEM Education. The beneficiary schools were:

- Bolbok INHS
- Inosloban Marawoy INHS
- Lipa City Science INHS
- Pinagtongulan INHS
- San Celestino INHS

SEI also conducted the first two out of ten teacher-trainings on Science, Mathematics and English. In 2017, the following trainings were conducted:

- 3D Modelling and Printing using Autodesk Fusion 360** - held on 23-24 November 2017 in partnership with MechaniWeb, the seminar-workshop involved 25 participants, five from each school composed of science, math, TLE teachers and ICT Coordinators. They designed 3D models and printed a sample prototype in the XYZ Da Vinci 1.0 3D printer. The activity aims to integrate the 3D modelling skills to teaching and conduct of research projects as well as develop 21st century common core skills among teachers and students.



(LEFT) PARTICIPANTS FROM THE FIVE SCHOOL-BENEFICIARIES DESIGN A 3D MODEL USING AUTODESK FUSION 360.

(BELOW) GIRL PARTICIPANTS FROM BOLBOK INHS AND SAN CELESTINO INHS TEST THEIR MBOT ROBOTS IN THE LINE TRACK.



- Robotics: Learning to Code and Improving Competitiveness** – held on 7-8 December 2017 at Inosloban-Marawoy INHS in partnership with Data Science and Technology Corp., the seminar-workshop involved 25 participants, five from each school composed of science and math teachers and robotics coach with two Grades 7-11 students. They learned the basics of robotics programming using Makeblock’s Mbot, Inex Board and the popular coding software Scratch It. Each school finished the exercises or activities such as robot programming for movements, using light sensors, ultrasonic sensors, and executing line tracing. The seminar-workshop aims to integrate the robotics skills into physics and mathematics teaching.

The series of teacher-trainings will be continued in succeeding years along with the conduct of researches on the effectiveness of the model to teaching and learning of science and mathematics.

ARISE ON TOUR

To reach out to more beneficiaries, SEI conducted several regional and national events to expose teachers and students to innovations and emerging trends in education technologies.

- Distribution of the DOST Courseware.** Several science and mathematics teachers from Ilocos region received free copies of the DOST Courseware in Science and Mathematics. The courseware was disseminated on 17-18 March 2017 during the 3rd Division ICT Congress dubbed “Level-Up: Re-Engineering Innovations Towards Inclusive Growth and Global Competitiveness”, conducted by the Department of Education, City Schools Division of Batac Ilocos Norte at Plaza del Norte Hotel and Convention Center, Laoag City.

- The DOST Courseware and Augmented Reality for Teaching and Learning.** During the “Kids Fair: Bright! Right from the Start!” interactive science fair held at the Megatrade Hall of SM Megamall in Mandaluyong City on 22 April 2017, the Institute also featured its DOST Courseware and Augmented Reality for Teaching and Learning.



CHILDREN AND PARENTS TRY THE AUGMENTED REALITY 4D+ CARDS ON ANIMALS, SOLAR SYSTEM, DINOSAURS AND OCTALAND DURING THE KIDS FAIR.



(ABOVE) TEACHERS FROM DEPED DIVISION OF DAVAO OCCIDENTAL EXPLORE THE DOST COURSEWARE IN SCIENCE AND MATHEMATICS.



(TOP RIGHT) MUSLIM COLLEGE STUDENTS TRY THE AUGMENTED REALITY ANIMAL 4D+ CARDS DURING THE DEMONSTRATION OF EDUCATION TECHNOLOGY TOOLS IN RSTW DAVAO CITY.



(RIGHT) STUDENTS DELIGHT THEMSELVES WITH THE AUGMENTED REALITY SPACE 4D+ CARDS DURING DEMONSTRATION AND HANDS-ON ACTIVITIES AT THE 2017 NSTW.

3. Seminar –Workshop on “DOST-SEI 21st Century Model Classroom. Held at the DOST Provincial Science and Technology Center, Davao Occidental, this activity introduced the “DOST-SEI 21st Century Model Classroom, Use of Virtual and Augmented Reality Tools for Teaching and Learning and DOST Courseware for Science and Mathematics”. This was attended by select teachers from DepEd Division of Davao Occidental and was held on 25-26 May 2017 at the Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST), Malita, Davao Occidental.

The same presentation on “DOST-SEI 21st Century Model Classroom” was conducted during the following occasions:

- the Regional Science and Technology Week Celebration 2017, at the NCC Mall Activity Area, Davao City on 5 July 2017
- Regional Science and Technology Week Celebration 2017- Region 1, Candon City Civic Center, Candon City, Ilocos Sur, 3-4 October 2017

FACILITY AND BENCHMARKING GUESTS

A total of 1,459 students, teachers, education superintendents and supervisors, scholars, representatives of LGUs, NGOs, members of the House of Representatives and other stakeholders participated in benchmarking the 21st Century Model Classroom and attended in the briefing on 21st century learning environment and emerging education technologies. **(See Tables 16 & 17)**



(ABOVE) STUDENTS AND TEACHERS FROM PHILIPPINE SCIENCE HIGH SCHOOL – MIMAROPA TRY THE STUDENT RESPONSE SYSTEM (SRS) BY PUNCHING THEIR ANSWERS THROUGH A CLICKER.



(LEFT) STEM TRACK STUDENTS FROM SIGNAL VILLAGE NHS OF TAGUIG CITY, CHECKS THE BASIC LISER ROBOTICS

TABLE 16: Number of Visitors/Guests by Region

Region	No. of Visitors
1	160
3	41
4A	406
4B	39
5	2
6	34
10	1
11	112
NCR	764
Total	1,559

TABLE 17: Number of Group Visits by Type of Organization

Type of Organization	Count
Elementary School	103
Secondary School	108
Tertiary	7
Department of Education Division Office	7
Local Government Unit	1
Government Org.	9
NGO	4
House of Representatives	1
Stakeholder	8
International Organization	1
Media	7
Total	256

DOST COURSEWARE MOBILE APPLICATION (CMAPP) FEATURES EXCITING UPGRADES

DOST CMAPP, the collection of mobile applications produced by the Science Education Institute which features the DOST Courseware and other technology-related applications that could be downloaded and operated through Android devices like smartphones and tablets, features the following accomplishments in 2017:

DOST COURSEWARE GRADES 1-6 MATHEMATICS ON GOOGLE PLAY STORE

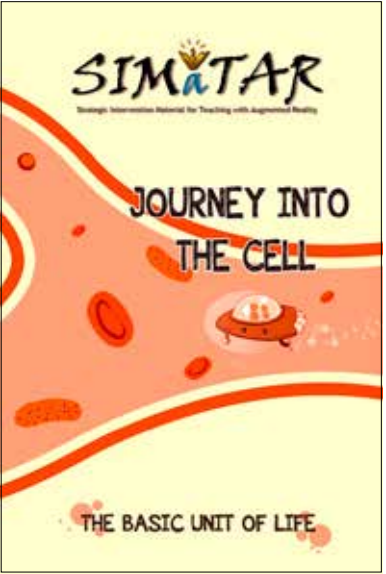
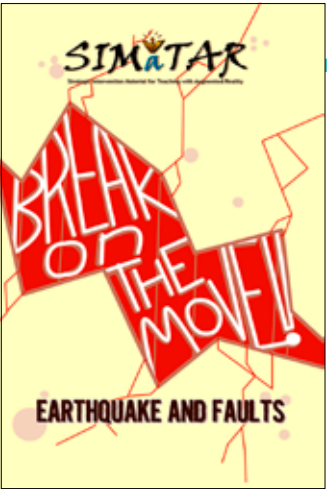
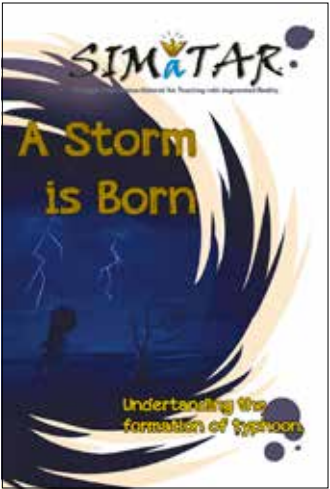
To reach out to a wider audience and beneficiaries, sixty (60) modules in Grades 1-6 Mathematics were uploaded to Google Play Store in addition to the ten modules in Grade 7 and ten modules in Grade 8. A total of 11,464 installs were made in 2017 as shown in Table 18.

Grade/Subject	No. of Installs
Grade 7 - Science	1,594
Grade 7 – Mathematics	1,617
Grade 8 -Science	3,215
Grade 8 – Mathematics	2,308
Grade 1-6 Mathematics	2,730
Total	11,464



THE GRADES 1-6 MATHEMATICS UPLOADED TO GOOGLE PLAY IN APRIL 2017 AND THE GRADES 7 AND 8 SCIENCE AND MATHEMATICS UPLOADED SINCE 2015.

Installations from other countries were also observed like United States, India, Iraq, Canada, Germany, Egypt, Pakistan, Bangladesh, Algeria, South Africa, Ghana, Israel, United Arab Emirates, Saudi Arabia and Turkey. (See Figures 6 & 7)



DEVELOPMENT OF STRATEGIC INTERVENTION MATERIALS FOR TEACHING WITH AUGMENTED REALITY (SIMaTAR)

Strategic Intervention Materials for Teaching with Augmented Reality (SIMaTAR) is a collection of teaching and learning materials in Science Grade 8 using augmented reality technology to produce information, increase knowledge, explore new spaces and places and greatly improve experience through digital immersion in different 3D and 4D environments. The five modules are:

- A Storm is Born: Understanding Formation of Typhoon
- Break on the Move: Earthquake and Faults
- Journey Into the Cell: The Basic Unit of Life
- The Amazing Visitors of Planet Earth: Comets, Meteors and Asteroids
- What’s the Matter: The Particle Nature of Matter

These Strategic Intervention Materials (SIMs) are modules developed by the national winner of SEI project “Search for Innovative Practices in Managing Large Classes” in 2014 led by Venus Reyes-Metilla of Surigao City NHS, Surigao del Norte under the research project “Beating the Numbers through Strategic Intervention Materials: Innovative Science Teaching in Large Classes”.

Along with the production of the print copies of SIMaTAR, a mobile application for Google Android and Apple IOS were also developed as a tool to augment the materials creating markers in the print modules that allow the digital assets to be read by scanning with smartphone or tablet cameras. User Acceptance Testing (UAT) of SIMaTAR shall commence in 2018 in selected schools.



THE FIVE STRATEGIC INTERVENTION MATERIALS FOR TEACHING WITH AUGMENTED REALITY (SIMaTAR) PRINT MODULES.

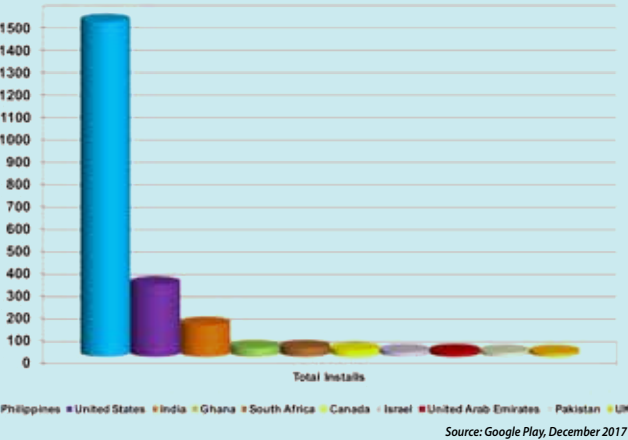


FIGURE 6: Grade 1-6 Mathematics (Installs by Country - Top 10)

Installations made for the Grades 1-6 modules in Mathematics by country show the Philippines with the most number of installs at 1,494 followed by the United States at 322 and India at 141. The rest of the countries installed the courseware 38 times and below for a total of 2,232 installs from 47 countries as of December 2017.

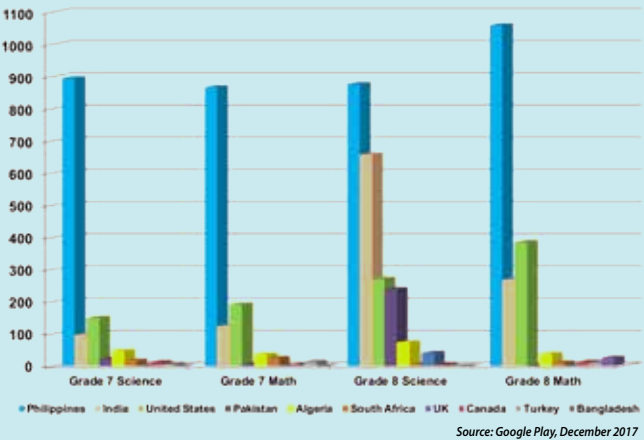


FIGURE 7: Grade 7-8 Science and Mathematics (Installs by Country - Top 10)

Installations made for the Grades 7-8 modules in Science and Mathematics by country show the Philippines with the most number of installs at 3,695 followed by India at 1,146, the United States at 977, Pakistan at 266 and Algeria at 192. The rest of the countries installed the courseware 59 times and below for a total of 6,514 installs from 16 countries as of December 2017.



DR. AIDA YAP OF UP NISMED DELIVERING A LECTURE DURING THE TRAINING.

EUREKA! SCIENCE ON THE GO CONTINUES MISSION IN RIZAL

The Institute, in cooperation with Subject Education Specialists in Elementary Mathematics from the University of the Philippines National Institute of Science and Mathematics Education Development (UP NISMED), conducted a training entitled “Developing Technology-Enhanced Lessons for Improving Grade 2 Pupils’ Mathematics Skills” at the University of Rizal System-Morong Campus, Morong, Rizal on 8-10 March 2017.

The activity was part of the ongoing project of Eureka! Science On the Go, that provides hands-on innovative teaching and learning activities to the S&M teachers in areas where there are limited or no information and communications technology (ICT) facility and laboratory equipment.

A total of 15 teachers acquired skills in using the interactive courseware for Grade 2 Mathematics, and taught lessons incorporating the use of the courseware in teaching.

TECHNOLOGY PACKAGE FOR STUDENT LEARNING AND EMPOWERMENT PROJECT EVALUATED

DOST-SEI initiated in 2017 an evaluation project intended to determine the effectiveness of the DOST Courseware for Grades 1-6 Mathematics. The Courseware was launched in 2014 and replicated in 2015. Compact disc (CD) copies were disseminated to various schools in the country. Moreover, CD copies of the courseware were distributed to four sets of participants of the on-site training entitled “Developing Technology-Enhanced Lessons for Improving Grade 2 Pupil’s Mathematics Skills”, which were conducted in 2016 and 2017 at the DepEd Divisions of Biñan City, Calamba City, Santa Rosa City in Laguna and University of Rizal System-Morong Campus in Morong, Rizal.

The results of the evaluation may be used by SEI in improving the quality of the software packages that will be developed and distributed in the future. The project was outsourced to UP NISMED in December 2017 and will be implemented in 2018.

INNOBOX COMPETITION LAUNCHED

To provide an avenue for teachers to showcase their most innovative ideas in teaching science, the Project InnoBox was launched as a competition for elementary and secondary teachers to design and develop innovative resources in science. Open to all public and private schools nationwide, InnoBox encourages the use of new or existing educational material that can be incorporated in teaching in an innovative manner.

In 2017, the DOST-SEI convened the National Steering Committee (NSC), composed of Dr. Raul C. La Rosa (DepEd-Bureau of Learning Resources, Cebu), Dr. Soledad Ulep (UP NISMED), Dr. Sheryl Lyn Monterola (UP Diliman), Dr. Rosario Margarita Aligada (Miriam College), and Dr. Gladys Nivera (PNU), to develop the mechanics that were disseminated through the DepEd and DOST-SEI website.



A total of 76 project proposals were received and were evaluated by the technical committee on November 24, 2017. Out of the 76 proposals, the committee selected three proposals per category. See Table 19 for the official qualifiers to the Search for each category.

On 7 December 2017, DOST-SEI conducted the “Proposal Presentation, Orientation, and Awarding of Grant” wherein each qualifier presented their proposed innovation and the technical committee gave inputs to further enhance their proposals. Each qualifier received a Php 50,000 grant which will be used to implement the proposed innovation, and was awarded a Certificate of Recognition. In 2018, the technical committee will observe the use of the proposed innovative

teaching and learning resources in science and conduct interview and focus group discussion with the project team and select students. The winners, one per category, will receive Php 100,000 cash prize in 2018.

TABLE 19: Official Qualifiers to the INNOBOX Competition per Category		
Name of Qualifiers	School	Title of the Innovation
GRADES 3-6 CATEGORY		
Rachel T. Bulaqui	Queens Row Elementary School	“Electrically Manipulated Musculoskeletal System Model with Digestive System and Respiratory System”
Rosbee S. Ramirez	Pio Valenzuela Elementary School	“Efficacy and Integrated Science Process Skills (BISPS) Through Learning Stations in the Performance of Selected Grade 5 Pupils in Pio Valenzuela Elementary School”
Kim Alvin C. De Lara	Niogan Elementary School	“Contextualization and Localization: An Integrated Climate Change Adaptation Activity Sheets in Science 5”
GRADES 7-10 CATEGORY		
John Patrick G. Lazaro	Dolores National High School	“Facilitated Instructional Approach Using Ray Toolkits for Improving Academic Performance and Conceptual Understanding in Lenses”
Marc Vener C. Del Carmen	Congressional Integrated High School	“Laro ng Lahi” - Based Activities in Mechanics
Jocelyn R. Pedernal	Rizal High School	“Effectiveness of Rizal Interactive Science Education (RISE) Software in Teaching Grade Nine Students”
GRADES 11-12 CATEGORY		
Rommel Carl R. Peralta	Ligao National High School	“InnoCUBES (Innovative and Creative Use of Blocks in Exploring Science)”
Jessica Luz M. Brigola/ Ken Joseph E. Clemente	Parañaque National High School (Main)-Senior High School And University Of Santo Tomas Senior High School	“Project SIGLA: Science Classroom Innovation through a Gamified Laboratory Application (Virtual Reality for Android)”
Benito A. Baje	Philippine Science High School – Central Visayas Campus	“DALOY: Drone-based depth and Atmospheric Level Open-source monitoring device for the Filipino Youth”

TABLE 20: Project SUNRISE Milestone Activities				
Event	Attendee	Duration	Venue	Milestone
Attendance to the Coordination Meeting & Planning for Introducing Nuclear Sciences & Technology to Secondary Schools	Dr. Josette T. Biyo	27 Feb. – 3 March 2017	Yogyakarta, Indonesia	Review & evaluation of the impact of introducing nuclear S&T to secondary schools thru pilot initiatives Assessment of the impact of pilot implementation Planning of common strategies for enhancement of proposed IAEA TC project RAS.20166007 on Educating Secondary Students and Science Teachers on Nuclear Science & Technology for TC cycle 2018-2021
Attendance to 11th Meeting of ASEAN+3 Center for the Gifted in Science Board of Directors	Dr. Josette T. Biyo	23 Nov. 2017	Seoul, Republic of Korea	Report on completed activities: 8th ASEAN+3 Student Camp and Teacher Workshop for the Gifted in Science on 15-20 Jan. 2017 in Beijing, China; 6th ASEAN+3 Junior Science Odyssey on 10-15 July 2017 in Ha Noi, Viet Nam; Da Vinci Science Award & Scholarship on 19 Oct. 2018 in Nay Pyi Taw, Myanmar Preparation report on the 9th ASEAN+3 Student Camp and Teacher Workshop for the gifted on 5-12 January 2018 in Suwon, ROK and the 7th ASEAN+3 Junior Science Odyssey on July 2018 in Malaysia Discussion of new ACGS activities
Attendance to the World Association of Lesson Studies 2017 International Conference	Ms Amparo F. Olarte	21-30 November 2017	Nagoya, Japan	Presentation of paper on academic supervision in the implementation of lesson study Participation during paper presentations School visits

ESTABLISHING LINKAGES WITH ACADEME, INDUSTRY AND RESEARCH INSTITUTIONS FOR CAPACITY BUILDING IN STEM

A total of 40 STAR trainors, together with 18 DepEd teachers from various divisions of Metro Manila, participated in an international conference called “TRANSFORMING LEARNING THROUGH ACTIVE PARTNERSHIP: Conference and Workshop on Harnessing ASEAN Experiences on the Use of Language in Teaching Science and Mathematics.”

Held on 5-7 December 2017 in Malate, Manila, the conference hosted two guest speakers from the Southeast Asian Ministers of Education Organization, Regional Center for Education in Science and Mathematics (SEAMEO RECSAM). These were Science Specialist Mr. Dominador Mangao and Mathematics Specialist Mr. Pedro Lucis Montecillo.

The activity was part of the ongoing commitment to establish and maintain local and international linkages with international organizations in science and mathematics for the purpose of collaboration, capacity building or exchange of information. The participants recognized the effects of

teaching science and mathematics using a second language, gained skills on how to incorporate language skills into their teaching methods, and developed activities to address language-related issues in their science and mathematics classrooms.

MORE EDUCATIONAL OPPORTUNITIES WITH PROJECT SUNRISE

The Institute continues to explore and implement innovative programs and projects to support its mission of accelerating the development of S&T human resources. As such, its officials and project staff need to constantly explore opportunities to learn the latest trends, ideas, and practices in science and mathematics education.

Through the project Support to Upgrading and Networking for Research and Innovation in Science Education (SUNRISE), DOST-SEI’s officials and employees continue to receive exposure to local and international communities and maintain linkages with foreign institutions for greater collaboration and benchmarking to raise the quality of programs and projects implemented by the institute.
(See Table 20)

PROJECT HOTS EVALUATED

After being implemented over a four-year period, from 2013-2016, the project dubbed “Hands-On Teaching and Learning of Science” or HOTS was deemed ready to be assessed for its overall merit, worth and significance.

The project provides professional development opportunity for elementary science teachers in the Schools Division of Taguig City and Pateros. It consisted of two phases: a seminar-workshop on the features and models of inquiry based teaching, development of research lesson, presentation and peer review, and formulation of long term goals and sub-goals; and a school-based follow-through where the inquiry-based science lesson was implemented.

Ten (10) schools were chosen for Phase II of the project, with participants composed of Grade 3 (2013 & 2015) and Grade 4 (2014 & 2016) elementary teachers, some school and district science coordinators and some principals. The trainings were conducted by the staff of the UP National Institute of Science and Mathematics Education Development (UP NISMED) except in 2015 where trainers were mainly from DepED Taguig City-Pateros.

UP NISMED was tapped to carry out the evaluation of the project. Respondents composed of all the teachers, school administrators, education supervisors, students, and other staff involved in the project were required to answer the following questions:

- How successful was the Project HOTS in establishing collaborative relationships among teachers, teacher educators, and instructional leaders in promoting inquiry in science teaching through the lesson study?
- How successful was the Project HOTS in empowering teachers to develop and implement inquiry-based activities and assessment?
- How effective was inquiry approach in promoting higher order thinking among students?
- How effective was the lesson plan as a teacher professional development model for Project HOTS?
- What lessons do teachers take with them from their experience in inquiry-based teaching and lesson study through Project HOTS?

Evaluation activities were set to continue the following year.

Organizational Excellence



AS THE SCIENCE EDUCATION INSTITUTE STRIVES TO KEEP PACE WITH THE COMPETITIVE, MULTI-FACETED AND DYNAMIC EDUCATIONAL ENVIRONMENTS LOCALLY AND ABROAD, WE CONSTANTLY FACE THE NEED TO MANAGE DATA, RESOURCES AND PROCESSES, IN ORDER TO ENSURE EXCELLENCE IN PROVIDING THE VERY BEST OPPORTUNITIES FOR OUR STUDENTS, RESEARCHERS, FACULTY MEMBERS AND OTHER STAKEHOLDERS.

IN OUR EFFORTS TO MEET THIS CHALLENGE, WE GIVE EQUALLY EMINENT FOCUS ON ENHANCING AND UNDERSTANDING MORE ABOUT THE EFFECTIVENESS AND EFFICIENCY OF OUR CURRENT SERVICE DELIVERY AREAS OF SCHOLARSHIP, PROMOTIONS, INNOVATIONS AND RESEARCH. WE ASSESS OUR CURRENT PERFORMANCE IN THE DESIGN AND DELIVERY OF OUR ADMINISTRATIVE SERVICES THAT SUPPORT OUR CORE MISSION, LOOKING INTO INTERNAL AS WELL AS EXTERNAL CHANNELS OF IMPROVEMENT TO PROVIDE TANGIBLE BENEFITS THAT WILL BE CRITICAL TO OUR LONG-TERM SUCCESS.

STUDY PROVIDES BASELINE INFORMATION ON USE OF ICT AMONG S&M TEACHERS

A total of 325 science and mathematics teachers from 16 S&T-oriented high schools from Manila and Regions 2, 5, 6 and 11 participated in a study that aims to establish baseline information on how ICT is being used in teaching Science and Mathematics (S&M) subjects in their schools.

The questionnaire used in the data collection was patterned after the instrument used by Western Australia (2006) in its paper on teacher ICT skills of Western Australian government school teachers. The questionnaire includes the following sections: (1) demographic characteristics (e.g., age, sex, marital status, and years of teaching experience) (2) ICT resource and facilities; (3) ICT knowledge and skills; (4) access to ICT-related trainings; (5) attitude towards ICT; (6) personal and professional use of ICT; (7) application of ICT in the classroom; (8) assessing student outcomes using ICT; and (9) obstacles encountered in using ICT .

Descriptive statistics, differential and correlational analyses were employed in the analysis of data, using the Statistical Package for Social Sciences (SPSS) version 13.0.

The results of the study has the following highlights:

- Among the respondents, there were more female teachers (242 or 74.5%) than male teachers (83 or 25.5%). The average age of teachers was 40; the youngest was 25, while the oldest was 63 years. The average teaching experience was approximately 15 years, ranging from as low as one year to 40 years long.
- Among the ICT applications, (i.e., Word processing, Internet, File navigation, Email, Presentation packages, Spreadsheets, and Databases), word processing and file navigation are the basic suite of ICT applications used by more than 90% of S&M teachers. Around eight out of 10 S&M teachers have used spreadsheets (88%), presentation software (88%), Internet (87%), and email (87%). Only 47% of S&M teachers have ever used a database. Science teachers have higher usage of all ICT applications than mathematics teachers.

- The mean ICT skills of S&M teachers was 50 (Note: Perfect score is 84), with standard deviation of 23 indicating a large variation of ICT skills level among them. Independent samples t-test (t=2.29, df=323) revealed science teachers have significantly higher ICT skills than mathematics teachers, 53 and 47, respectively.
- In terms of ICT resources, about eight out 10 S&M teachers said that the following resources are available in their schools: desktop/laptop computer for teacher use (82%), desktop computers for student/teacher use elsewhere in school (81%), and printer (80%). Seventy-one percent (71%) of S&M teachers said that Internet and digital projectors for student or teacher use in classroom are available to their schools. The least available ICT resources are school intranet (27%) and digital cameras (44%). Resources that have not been widely utilized are school intranet and digital cameras.
- The ICT-related trainings mostly undergone by S&M teachers were related to the use of computers/basic computer (68%), word processing (57%), spreadsheets (55%), and presentation software (54%). Only 47% of teachers have taken trainings on integrating ICT in teaching and learning. Less than 10% of S&M teachers underwent training on microprocessors and applications, advanced course for applications/standard tools, advanced course for Internet use, and course on multimedia operations. Only 10% underwent training on databases.
- The mean attitude towards ICT of S&M teachers was 37 (Note: Perfect score is 44), with standard deviation of 7. The mean ICT integration index of S&M teachers is 61 (Note: Perfect score is 122), with standard deviation of 19 indicating a large variance in the level of integration among the teachers. Compared to mathematics teachers, science teachers have significantly higher positive attitude towards ICT use (38 and 34 scores, respectively), and significantly science teachers also have higher ICT integration in teaching, as compared to mathematics teachers with 67 and 54 index scores, respectively.

This study provides empirical information on availability of ICT resources and how they are being used and integrated by teachers in teaching science and mathematics subjects. Despite relatively high level of ICT skills and knowledge and positive attitude towards ICT, S&M teachers had low

integration of ICT in teaching science or mathematics subjects. Notably, there was also a low percentage of S&M teachers who took training on ICT integration in teaching and learning. Further analysis on the relationship among availability of ICT resource, ICT skills and knowledge, attitude towards ICT use, and integration of ICT in teaching should be conducted to understand the pedagogical process that links these variables for a successful ICT integration into teaching of science and mathematics, which may translate to optimized student learning.

DISAGGREGATED DATA BY SEX AMONG SCHOLAR-GRADUATES

The S&T Human Resource Development Fact Sheet UPDATE No. 2 highlights the DOST-SEI S&T Scholars from 2010-2016 and 2012-2016 and Human Resources in S&T Disaggregated Data by Sex, Philippines (1990, 2000 and 2010).

This handy reference on S&T HRD statistics is useful in providing pertinent information to students, researchers, professionals, industries and policy makers, particularly as empirical basis in crafting policies and programs related to S&T human resource development in the country. Highlights of the Fact Sheet include:

- Engineering and Technology are the most preferred fields of study by both male and female scholar-graduates and scholar-supported in the undergraduate level
- Physics and Mathematics are the most preferred fields of study by both male and female among MS scholars in S&M Education Program. Under the ASTHRDP, MS Physics is the most subscribed by male scholars supported, and MS Biology among female scholars. For the ERDTP, the largest numbers of male scholars are enrolled in Electrical Engineering. On the other hand, the largest numbers of female scholars supported are enrolled in Agricultural Engineering.
- In the PhD level, Mathematics and Biology are the most preferred field of study by both male and female scholars in the S&M Education and ASTHRD programs. The top three fields of study subscribed by PhD scholars in the ERDT Program are Chemical Engineering, Agricultural Engineering and Environmental Engineering.

- The S&T human resources in 1990, 2000 and 2010 indicated an almost equal number of male and female. Significant increases in the number of male and female nursing and midwifery and computer professionals were also noted in the same period.

SEI RAMPS UP DIGITIZATION OF SCHOLARSHIP DOCUMENTS

With the aim of facilitating the management, archiving, preservation, and retrieval of pertinent scholarship documents, the Institute increased its efforts to digitize the records of the scholars that it has supported through the years.

In 2017, A total of 16,773 scholarship documents were digitized comprising 28,185 pages. Table 21 shows the distribution of documents that were scanned:

Table 21: Scholarship Documents Digitized in FY 2017		
Document Type	DOCUMENTS	PAGES
Others	3789	6659
Contract	1091	3204
Reply Slip	333	364
Registration Form	656	758
Birth Certificate	1264	1512
Notice of Award	901	922
Endorsement Letter	34	34
Landbank	404	450
Additional Undertaking	313	331
Clearance for travel abroad	213	223
Report of Grades	1108	2494
Information Sheet	1480	3248
Examination Registration Form	1088	1528
Certification	2313	2700
Electric Bill	1071	2995
Affidavit	317	332
Test Permit	62	62
Cedula	286	320
Diploma	50	49
TOTAL	16,773	28,185

Milestones

1987

Signing of Executive 128 Reorganizing the National Science and Technology Authority to the Department of Science and Technology and creating the Science Education Institute



1988

- ♦ The first year of Philippine participation in the International Mathematical Olympiad (IMO) held in Canberra, Australia
- ♦ Continued support to the Regional Science Teacher Center (RSTC) in upgrading the teaching capability of science and math teachers in the pre-service and in-service level
- ♦ Implementation of the Career Incentives Program (CIP) to ensure immediate on-the-job training for DOST-SEI scholar graduates

1989

Jerome Khohayting of Xavier School won a silver medal for the country in the 30th International Mathematics Olympiad held in Germany

1990

Dr. Juan Salcedo Jr. Science Education Award was launched in recognition of the outstanding accomplishments of elementary, secondary and tertiary teachers in the field of science and mathematics

1991

Implementation of Scholarship Program for PSHS Graduates and Junior Level Assistance Program in Engineering to guarantee a steady supply of S&T Manpower

1992

DOST-SEI provided financial assistance to High School teachers to upgrade their research capabilities in support of the improving the delivery of science and mathematics instructions in schools

1993

The Science and Technology Education Plan (STEP) was approved for implementation to develop a scientifically and technologically literate citizenry and accelerate the development of S&T manpower needed for social and economic growth. The STEP is a 5-year Plan that focuses on the development of teachers and learners though the various strategies identified by various stakeholders in science education

1994

- ♦ The Republic Act 7687 (S&T Scholarship Act) was enacted to provide S&T scholarships to poor but deserving students in the various regions of the country
- ♦ The Gawad AGKATEK (Agham, Kapaligiran at Teknolohiya) was launched to recognize outstanding projects that promote science, environment and technology at the community level



SEI EMPLOYEES DOING THEIR ACTIVITY ON BASIC DATABASE MANAGEMENT AND ADMINISTRATION TRAINING.



THE ICT NETWORK USERS OF SEI LEARN ABOUT IT INFORMATION SECURITY DURING AN ORIENTATION HELD ON 6-7 DECEMBER 2017.

CONTINUING IMPROVEMENT OF NETWORK INFRASTRUCTURE AND CONDUCT OF TRAINING OF NETWORK USERS SUPPORT VITAL OPERATIONS

In order to provide better service to the various divisions and units of the Institute, the MIS Unit upgraded the internet connection of SEI from 24MBps to 30MBps. Eight (8) new wireless access points were installed to support the increasing number of wireless devices, and acquired Anti-virus software to provide endpoint security throughout the SEI Local Area Network.

The Institute's website, www.sei.dost.gov.ph, was continuously maintained and updated to ensure compliance with the DBM's

Transparency Seal initiative. Thus, the Transparency Seal was updated every quarter. Further, news articles were posted throughout the year to provide easy access to information about SEI programs, projects and services. Likewise, a total of 16,773 scholarship documents were digitized to facilitate the management, archiving and retrieval of scholars' records.

Preventive Maintenance of computers were also conducted regularly to ensure that computer units in the network are in good working condition. Server rack and computers were purchased to enhance the connectivity of various network, and provide adequate space for storage devices and firewall for network security. Other peripherals and devices including printers, cabinets, and memory card reader were purchased for the improvement of service delivery.

ICT LITERACY TRAINING

To develop awareness on ICT literacy among SEI employees, the following orientation/trainings were conducted:

- Basic Database Management and Administration for SEI



WOMEN PARTICIPANTS DURING THE APEC WOMEN IN STEM WORKSHOP IN VIETNAM ON 14-15 MAY 2017.

employees held last 23-24 November 2017, which aimed to strengthen the practice of database management to SEI personnel administering the division's database

- Orientation on Computer and Data Security for SEI employees conducted last 6-7 December 2017, which aimed to strengthen and enhance the knowledge on ICT.

SEI CONTINUES CONDUCT OF GENDER AND DEVELOPMENT EFFORTS

The Institute enacted several activities in 2017 with the aim of developing gender sensitivity and awareness within the organization and among its clients and establishing mechanisms to institutionalize Gender And Development (GAD) in its programs and projects.

1. Capacity-building activity on GAD for GFPS members and SEI employees

i. Participation in APEC Women in STEM, Hanoi, Vietnam. SEI sponsored the participation of its GAD Focal Point System (GFPS) Technical Working Group member Ms. Jobelle Gayas to the workshop held on 14-15 May 2017. The workshop provided an avenue for the discussion of tangible ideas for the implementation of recommendations to strengthen the participation of girls and women into the STEM fields. It highlighted the best and emerging practices in the region across the four STEM framework pillars of Enabling Environment, Education, Employment and Entrepreneurship; and identified specific opportunities for action and public-private sector partnerships that can propel APEC forward in terms of supporting women in STEM fields.

Based on the experience, SEI GFPS proposed several interventions for increasing the number of women in these fields, such as strengthening partnership and collaboration with industries; career orientation program for women; training of more quality teachers; training programs on Gender Responsive Teaching Strategies, and other initiatives.

Milestones

1995

Participation in the Third International Mathematics and Science Study (TIMMS) by Grade 4 and Grade 8 students in the selected schools to assess performance in science and mathematics

1996

Launching and uploading of the Science and Technology Education Network (STEdNet) and SEI Home Page to enhance and expand linkages in Science Education

1997

- ♦ Republic Act 8248, "Further Strengthening the Science and Technology Program of the Government" was enacted to supplement the RA 7687 by giving prioritization to beneficiaries from the fifth and sixth class municipalities and created the Science and Technology Human Resource Development Council (S&T HRD Council)

- ♦ Project RISE (Rescue Initiatives for Science Education) was implemented following a presidential directive to arrest the deterioration of Philippine science education and raise it to internationally-competitive standards.

- ♦ Supported ABS-CBN educational show Sineskwela in developing appropriate science lessons for students to build up science knowledge and its application in a fun and entertaining way

1998

- ♦ Started the project "Assessment of Scientific and Technological Manpower Resources" (ASTMAR) to gather information on needs and current resources of the secondary schools in the country

- ♦ Implemented recognition programs for talented Filipino students through the Search for the Outstanding Youth Science-Researchers (TOYS), Philippine Physics Olympiad (PPO), and Gawad AGKATEK in the First Science and Technology Youth Summit held at the Philippine Science High School

1999

- ♦ Philippine Participation in the Third International Mathematics and Science Study-Repeat (TIMMS-R) as part of a ten-year study program to review science and mathematics curricula in various countries.

- ♦ Deployment of the first Mobile Information Technology Classroom (MITC) unit to CARAGA Region

- ♦ The adoption of Science and Technology Education Plan (STEP) 2 sets the action agenda

on science and technology from 2000 to 2004 based on the evaluation and lessons learned from STEP

2000

- ♦ Launched the Philippine S&T Scholarships Website (www.science-scholarships.ph)

- ♦ The establishment of Philippine S&T Education Database accelerated the development of science education database

(RIGHT) MR. ROBLAS WITH DOST UNDERSECRETARY FOR R&D BESIDE THE SEI POSTER ON THE GENDER PERSPECTIVES ON THE SCIENCE EXPLORER.



ii. Gender Summit 10 Asia Pacific. SEI sponsored the participation of Mr. Ivan Roblas to the Gender Summit 10 Asia Pacific, which had the theme “Better Science and Innovation through Gender Diversity and Inclusive Engagement” on 25 May 2017 at the Hitotsubashi Hall, Tokyo, Japan.

As the highlight of the participation, Mr. Roblas was included as a poster presenter in the conference. Several researchers, policy makers, students, and gender equality advocates viewed the poster which centered on the gender perspectives on the Science Explorer.

The GAD was recommended to increase researches that may be presented before other similar conferences. Among the proposed topics were:

- Career breaks in the Philippines
- Comparative study on gender in science and technology human resources in the Philippines and the ASEAN
- Unconscious biases in SEI and the scientific community

Some programs considered for implementation were:

- Institutionalization of gender innovations
- Creation of gender databases
- Conduct and production of researches on gender

Mr. Roblas also met with the Work-Life Support and Diversity Office of the Japan Aerospace Exploration Agency (JAXA) and shared experiences in implementing programs for gender and development. Dr. Hiroko Mukai, Director of the Office, presented data on the workforce in JAXA in the gender perspective, the history of gender equality in Japan and their response to it, and their future plans to becoming gender equal.

iii. Training on “Statistics for Gender and Development”. This one-week training enabled the participants to develop the basic skills to read, interpret and use gender statistics correctly. It also enabled them to



PARTICIPANTS OF THE TRAINING ON STATISTICS FOR GENDER AND DEVELOPMENT.

learn how to incorporate a gender perspective in all stages of the data production stages. It was organized by the Philippine Statistical Research and Training Institute from 9-13 October 2017.

The Institute sponsored the participation of three GFPS TWG members namely: Cynthia Gayya, Mark Ivan Roblas and Jobelle Gayas.



(ABOVE) SEI EMPLOYEES WHO PARTICIPATED IN THE GENDER SENSITIVITY TRAINING.

(RIGHT) SEI PARTICIPATED IN THE DOST-WIDE GAD FOCAL POINT ASSEMBLY



iv. Gender-sensitivity training for SEI employees.

Held on 4-6 December 2017 at Estancia Tagaytay City in compliance with section 27 of RA 9710 or the Magna Carta of Women, the training was attended by 11 employees (3 male and 8 female). It was designed to raise awareness about the need to address gender issues and eliminate all forms of gender inequality.

v. Participation in GAD Focal Point Assembly in Tagaytay City.

On 6-8 December 2017, SEI's GAD

Secretariat, Ms. Czarina Ysabelle Wu, attended this annual assembly intended to equip the GFPS with the skills and understanding of Gender Mainstreaming Evaluation Framework (GMEF) and the Harmonized Gender and Development Guidelines (HGDG). These two evaluation tools are endorsed by the Philippine Commission on Women (PCW) and the Philippine Statistics Authority (PSA).

The GMEF is accomplished each year and the responses are used to evaluate each government agency's performance and compliance with the mandatory 5%

Milestones

2001

The Project Mindanao Upgrading of Science Teachers (MUST) targeted Grade 5 and 6 teachers from ARMM to boost their capabilities in teaching science and mathematics

2002

♦ Dr. Josette T. Biyo of PSHS Iloilo won the first Grand Award for Intel Excellence in Teaching and four other students begged the first Grand Awards inn the Team and Individual Category of

the Intel Science and Engineering Fair (ISEF) held on May 12, 2002 in Kentucky, USA

- ♦ Project Grants for Educational Assistance on Technology Courses for Muslims (Project GrEAT-M) provide scholarship in technical courses to improve the quality of life of Muslim youths
- ♦ Project harnessing Opportunities and Potential Through Education in Science (HOPES) integrates the science/mathematics curriculum with the cultural values of Bangsa Moro and other ethnic groups in Mindanao

2003

- ♦ Airing of Radyo Eskwela sa Science and Math (Titser's Iskul on the air) on DZMM's Bago "Yan Ah Radio Program (630Hz) to help the teachers update their knowledge of science concepts and expose them to different teaching strategies
- ♦ Science and Technology Research Initiatives for Development (STRIDE) conducted studies and surveys on the factors or variables affecting the performance of students in science and mathematics

- ♦ Project ASTMAR sets the stage for the 2nd National Survey on Science and Technology Education

2004

- ♦ Creation of Advisory Committee consisting of DOST, UP College of Science, UP-NISMED and DepEd to formulate the Philippine Spae Science

Education Program (PSSEP) in coordination with UNESCO, DENR-NAMRIA, DOST-PHIVOLCS and DOST-PAGASA

- ♦ Publication of the book entitled Benchmarking: Effective Practices in Science and Mathematics identified effective practices of top performing schools in science and mathematics that can be used as models in raising the quality of science and mathematics teaching-learning in the Philippines

2005

- ♦ Publication of the Philippine Science Framework for basic Education and Teacher Education which served as a blueprint for developing effective science and mathematics curriculum and as a guide in setting standards for competencies in basic science and mathematics education
- ♦ Marked the first World Space Week celebration in the country as a way to promote the value of space science and technology in education and national development



(ABOVE) PARTICIPANTS DO THEIR SHARE IN VALIDATING THE GAD TOOLKIT.



PARTICIPANTS DURING THE FORUM ON GAME-CHANGING WOMEN.

GAD budget allocation. Meanwhile the HGDG evaluates each project, whether it is Gender Sensitive, Gender Responsive or no GAD aspect at all. This tool is also used to evaluate if a certain project could be allocated to the mandatory budget.

vi. **GAD Toolkit Validation Workshop**

Organized by DOST Central Office for GFPS on 7-8 November 2017, the activity was intended to finalize the DOST-developed GAD toolkit which comprises several modules in gender and development. It features the DOST GAD Framework, the gender profile of science, technology and innovation in the country, DOST-led economic empowerment programs, GAD policy agenda, and different GAD trainings.

2. **Participation in the 2017 DOST Women's Month Celebration.**

With the theme "WE (Women Empowerment) Make Change Work for Women", a DOST-wide celebration was conducted on 10 March 2017 at the DOST Executive



SEI EMPLOYEES WHO PARTICIPATED IN "FIRE SAFETY AND PREVENTION" SEMINAR ORGANIZED BY SEI FGPS.

3. **Seminar on 'Fire Safety and Prevention' for SEI employees**

In observance of both the National Fire Prevention Month and National Women's Celebration Month, SEI through the GFPS held a forum on 22 March 2017 with the aim of increasing employees' awareness of fire prevention and protection. Female firefighters were invited as resource persons to demonstrate to all participants the exercise of gender equality in this field.

4. **GAD midyear planning for GFPS members, executive and technical working group**

The activity focused on the enhancement of 2018 GAD plan and budget to ensure that the agency was complying with the mandated 5% GAD budget. Also held was a re-orientation on the GAD tools developed by the agency to serve as guide in integrating gender perspective in project concepts, in integrating gender perspective in research proposals, and in conducting other activities related to encouraging the pipeline of women in STEM fields. This project was held on 19-20 July 2017 at the Day's Hotel Tagaytay City.

Lounge. The activities aimed to inform and engage women as stakeholders of government programs and services; create and facilitate platforms to discuss good practices, gaps, challenges, and commitments in pursuing gender and development (GAD); and inspire and empower women and girls to be agents of change.

SEI employees participated in a forum on "Women are Game Changers" followed by testimonial session on Successful DOST-Assisted Women Entrepreneur. Also conducted were Zumba sessions, Beauty and Wellness seminars, and nutrition counseling.

The SEI GAD Focal Point System also invited everyone to participate in the online advocacy of Philippine Commission on Women, #BilangBabae, which was conducted from 1-20 March, 2017. The said activity gathered women netizens' perspective on two things: (1) the changes that they want to see relative to women's issues and concerns, and (2) how they see themselves contributing to make these changes happen.

Milestones

2006

- Organized the Graduate Program Science Education Consortium consisting of four major learning institutions in Visayas and Mindanao to offer Ph.D. Program in science education
- SEI was recognized as the Best Accounting Office by the Association of Government Accountants of the Philippines (AGAP), Inc.

2007

- Philippine Participation in Teacher Education and Development Study in Mathematics (TEDS-M) as an opportunity to conduct research on teacher education system and learn from approaches used by other countries in primary and secondary mathematics teaching
- The Youth Excellence in Science (YES) Awards was established as an annual recognition of students winning gold, silver, or bronze medals in international science and mathematics competitions

- Started the implementation of the Accelerated Science and Technology Human Resource Development Program (ASTHRDP), through an initial P100M funding by DOST
- Celebration of the Institute's 20th Anniversary with the theme "Vision 20/20"

2008

- Implementation of Engineering Research and Development for Technology (ERDT) MS and Ph.D. Scholarship Program to upgrade the qualifications of practicing engineers as a strategy to implement the National S&T Plan (NSTP) and in accordance with the Medium Term Development Plan (MTDP)

- Publication of the first volume of the Science and Technology Skills Migration Study, which provided baseline data on the out flow of S&T professionals to other countries
- Publication of the 2nd National Survey on Science and Technology Education under the Assessment of Scientific and Technological Manpower Resources (ASTMAR) Project, to assess capabilities of primary, secondary, and

- higher education institutions in delivering science and mathematics education as baseline for future programs
- Philippine Hosting ASEAN Youth Science Summit (AYSS) as a component of the ASEAN S&T week (ASTW) to arise students awareness on the global, regional, and national issues to act, with resolve and urgency held on July 8-10 2008 at the Trades Hotel, Pasay City



NUTRITIONIST CYNTHIA GAYYA GIVING THE LACTATION ROOM ORIENTATION.



IEC MATERIALS ON GAD BEING DISTRIBUTED DURING THE SCHOLARSHIP ORIENTATION.



DR. ESTER OGENA WAS AWARDED FOR HER UNWAVERING COMMITMENT TO EXCELLENCE, DEDICATED SERVICE, AND REMARKABLE LEADERSHIP DURING HER TERM AS DIRECTOR OF DOST-SEI FOR 20 YEARS.



SEC. FORTUNATO DE LA PEÑA WAS AWARDED IN RECOGNITION OF HIS UNWAVERING SUPPORT TO THE PROGRAMS OF THE SCIENCE EDUCATION INSTITUTE AS SECRETARY AND FORMER SUPERVISING UNDERSECRETARY FOR S&T SERVICES OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY.

5. Conducted an Orientation on the “Lactation Room”

In compliance with RA 10028 known as the Expanded Rooming-in Act, SEI has released a breastfeeding in workplace policy under SEI Admin Order No. 2017.003 stating that all breastfeeding employees are encouraged to continue breastfeeding and allowed to express milk during work hours beyond their given lunch breaks. To facilitate this, SEI established a Lactation Room equipped with materials and a station for the privacy of lactating mothers. The orientation, led by registered nutritionist, Ms. Cynthia Gayya, was held on 4 August 2017 for female employees on the use of the new room and on their rights under the law. She started with giving a brief orientation on the effects, advantages, and nutrition facts of breastfeeding to the baby and their relationship with their parents. The orientation was also a requirement for the Mother-Baby Friendly Workplace Certification from the Department of Health.

6. Distribution of IEC materials on gender issues to S&T scholars during orientation.

The GFPS distributed GAD kits with materials that promote awareness on RA 9262 or the Anti Violence Against Women and Children Act of 2004 along with information materials on SEI’s Scholarship Program during the scholarship orientation. The goal was to help address the gender issue that there are fewer women compared to men applying in the fields of Science, Technology, Engineering, Agriculture and Mathematics.

DOST-SEI 30TH ANNIVERSARY: STAKEHOLDERS’ RECOGNITION AND EMPLOYEES’ NIGHT

Bannered the theme "Service, Excellence and Innovation", DOST-SEI celebrated its pearl anniversary with a recognition program for the Institute’s Scholarship Champions, Institutional Pillars and Individual Cornerstones. The occasion - a form of

giving back to the organizations and individuals who contributed in fulfilling the Institute’s mandate of producing a critical mass of scientists and engineers -- was in keeping with the program that was formulated by the Anniversary Sub-Committee on Promotions and Main Event, which was tasked to highlight the accomplishments of SEI and the contributions of its partners.

Promotional materials such as banners, exhibits, corporate giveaways, tokens, and the 30th Anniversary logo design were used to commemorate the Institue’s 30th year. Press releases and advertorials were also produced and disseminated through the SEI website and in social media, radio programs, newspapers and TV networks to inform various audiences on the accomplishments of SEI throughout its 30 years of existence. The event was held at the PICC in Pasay City on 27-28 September 2017.



THE SEI STAKEHOLDERS DURING THE RECOGNITION PROGRAM.

Milestones

2009

- ◆ Philippine Team composed of PSHD students trained and completed in the FIRST Robotics Competition held in Hawaii, USA, Received Rookie All Star and Highest Seed Award qualifying the team to the FRC Championship held in Atlanta, Georgia
- ◆ Development of Interactive Science and Mathematics Courseware for Secondary Level Schools, utilizing information technology to make 300 science and 260 mathematics lessons more understandable and fun for students

2010

- ◆ Launched the mobile science learning facility “Science Explorer”, which serves underequipped schools in the country by providing fun and interactive STEM learning modules
- ◆ Philippine hosting id World Robot Olympiad (WRO), a global robotics competition, which SEI co-organized with Felta Multimedia, Inc.
- ◆ Carmella Antoinette Lao of St.Jude Catholic School brought home the second silver medal to the country in the IMO held in Kazakhstan

2011

- ◆ Year 1 of the Tagisang Robotics: Design, Build, Play Competition, which aimed to challenge students in building robots and playing in a team-centered game and promoting the values of cooperation and friendly competition
- ◆ Publication of the second volume of Migration of S&T Manpower providing a picture of temporary migration among Filipinos, specially OFW’s who have S&T occupations as classified by the International Labor Organization (ILO)

2012

Celebration of the Institute’s 25th Anniversary with the theme: “Forging Silver, Casting Gold”

2013

- ◆ Signing of the R.A. 10612 or the Fast-Track S&T Scholarship Act of 2013, which aimed to Science graduates that will reinforce the teaching force in the implementation of the L-12 curriculum

- ◆ Launching of the Mindanao Opportunities for Vitalized Education and Onward Nurturing (Project MOVE ON) to provide favorable environment in Muslim dominated schools for science and math learning

2014

- ◆ Implemented the Youth Science Camp in partnership with HARI Foundation, Inc. on 1-8 April in Puerto Galera, Oriental Mindoro

- ◆ Launching of the strategic campaign “#Push4Science:Maging DOST Scholar Ka!” to massively promote undergraduate scholarship programs to priority municipalities in compliance with the provisions of the enabling laws

- ◆ Inception of the Science Teacher Academy for the Regions (Project STAR) as an organized scheme of training programs to improve science and math teaching in the regions
- ◆ Recognition of SEI as Best Accounting Office by AGAP, Inc. for the second time



(ABOVE) SEC. FORTUNATO DELA PEÑA IN A GROUP PHOTO WITH THE OFFICIALS AND STAFF OF THE DOST-SCIENCE EDUCATION INSTITUTE.



MR. PETER GERRY P. GAVINA OF S&T SCHOLARSHIP DIVISION RECEIVING AN AWARD AS ONE OF THE MODEL EMPLOYEE OF THE INSTITUTE.

EMPLOYEES' NIGHT

To honor the hard-working men and women of the Institute, the 30th Anniversary celebration also included a side event dubbed "SEI Employees Night". This served as an avenue for the management to extend its appreciation for employees who have exemplified excellence in their rendition of service. The occasion was organized by the SEI Employees Association.

The evening celebration, which was held on 29 September 2017 also at the PICC, showcased the employees' creativity and camaraderie, as they performed and competed in lively team competitions. The event was graced by SEI Director Josette Biyo and DOST Secretary Fortunato de la Pena.



DR. JOSETTE T. BIYO TOGETHER WITH THE STMERPD EMPLOYEES DURING THE EMPLOYEES' NIGHT EVENT.
(TOPMOST) LOYALTY AWARDEES WHO RENDERED 11 TO 20 YEARS IN SERVICE AT SEI.

Milestones

2015

- ◆ Inaugural conduct of the Can Satellite Competition during the 2015 World Space Week celebration in Los Baños, Laguna as a means to invite students in space science related careers
- ◆ Publication of the Human Resources in Science and Technology (HRST) in the Philippines Study to aid in crafting policies that will enhance the country's uman capital in S&T and innovation

2016

- ◆ Farrell Eldrian Wu (MGC New Life Christian Academy) and Kyle Patrick Dulay (PSHS Main) won the country's first two Gold Medals including two Silver Medals woon by Clyde Wesley Ang of Chiang Kai Shek College and Albert John Patupat of Holy Rosary College in the 57th IMO with the Philippines maintaining its 17th rank in the world-the highest feat yet for the Philippines

- ◆ Philippine hosting of the 5th ASEAN Plus Three Junior Science Odyssey (APTJSO), an international laboratory skills competition held on 12-18 June at UP Los Baños
- ◆ Philippine hosting of the science education side events at the 23rd Asia Pacific Regional Space Agency Forum (APRSAF) highlighted by the Water Rocker and Can Satellite Competitions

- ◆ Launching of imake, wemake competition in partnership with Intel Philippines and Emerson Electric Asia LTD to boost the Maker Space initiatives in the country and entice high school students to venture into STEM courses

- ◆ Inaugural conduct of the Indie Siyensya Film Making Competition with the theme: "Capturing the Colors of Science" to develop a culture of science among the Filipino youth using film as a medium

STATEMENT OF ALLOTMENT & OBLIGATIONS

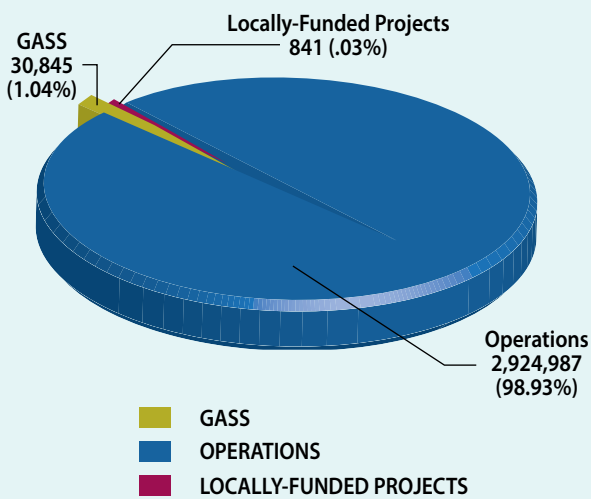
(Amount In Thousand Pesos)

PAPS	PS		MOOE		CO		TOTAL		% Utilization
	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation	
General Administration and Support Services	20,106	19,802	6,070	5,989	5,125	5,054	31,301	30,845	98.54%
OPERATIONS									
Development, Utilization and Implementation of S&T Scholarships	5,381	5,351	2,881,478	2,881,357			2,886,859	2,886,708	99.99%
Research, Promotion and Development of S&T Education and Training	12,943	12,929	23,661	22,889			36,604	35,818	97.85%
Locally Funded Project: Support to the Presidential Implementing PD 997			1,052	841	-	-	1,052	841	79.94%
Automatic Appropriations (RLIP)	2,503	2,461					2,503	2,461	98.32%
Total Budget	40,933	40,543	2,912,261	2,911,076	5,125	5,054	2,958,319	2,956,673	99.94%

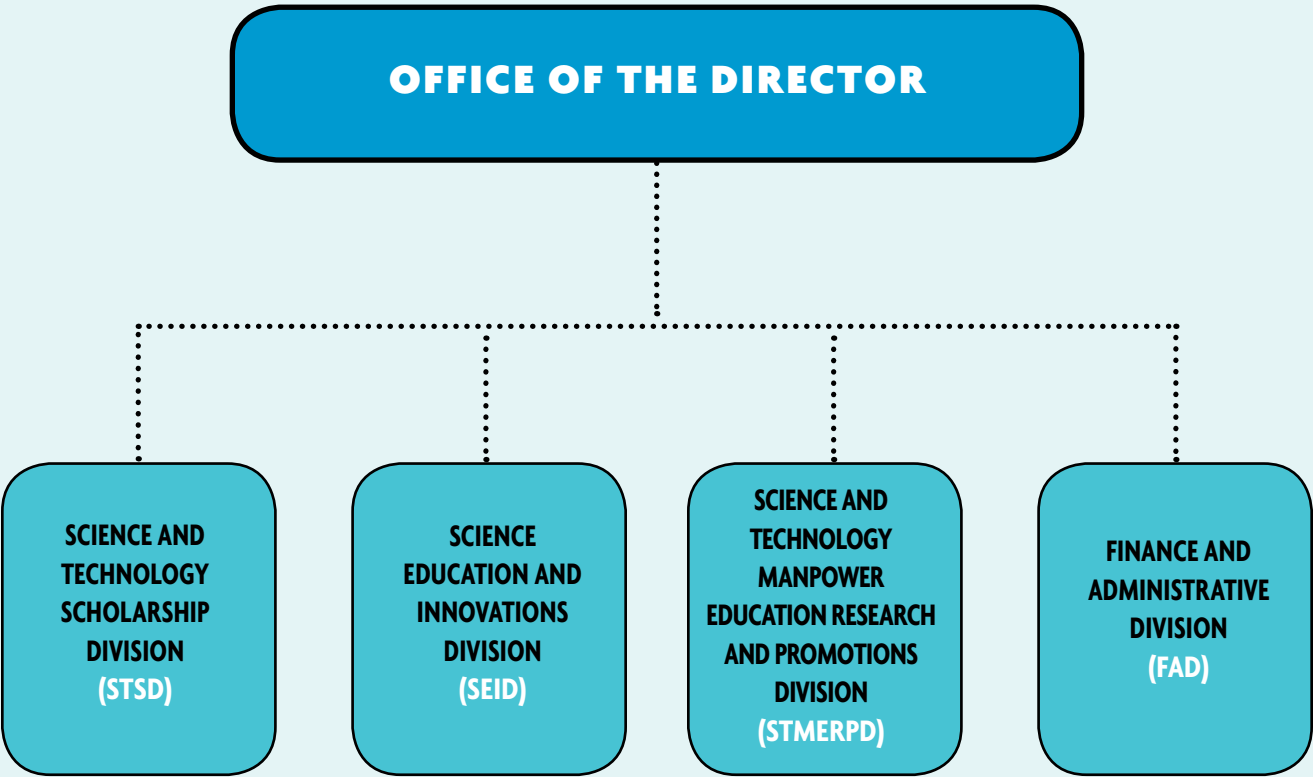
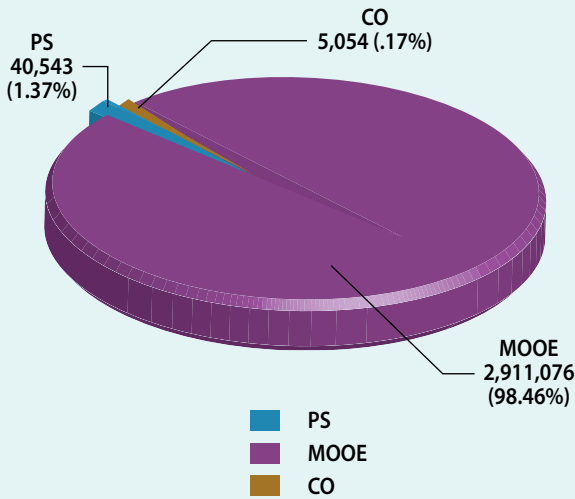
BUDGET DISTRIBUTION

(Amount In Thousand Pesos)

ACTUAL EXPENDITURES (FY 2017)



PER MAJOR EXPENSE CLASS



Key Officials



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Director



ALBERT G. MARIÑO
Deputy Director



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Chief, Science and Technology Manpower Education
Research and Promotions Division



RUBY CAROLIZA D. LAÑA
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MEMBERS

MANDATE PER EO 128

- Undertake science education and training;
- Administer scholarships, awards and grants;
- Undertake science and technology manpower development; and
- Formulate plans and establish programs and projects for the promotion and development of science and technology education and training in coordination with DepEd, CHED and other institutions of learning.

VISION

DOST-SEI shall develop the country's human resource capacity in science and technology required to produce demand-driven outputs that meet global standards.

MISSION

DOST-SEI's mission is to accelerate the development of S&T human resources of the country by administering undergraduate and graduate scholarships and advanced specialized trainings; promote S&T culture and develop innovative science education programs.



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Science Education Institute

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