Introduction

Science that empowers lives.

This theme reiterates the indisputable fact that science is the foundation of tomorrow’s technologies, jobs and well-being, and its learning should therefore benefit not just students but society in general.

While the Science Education Institute of the Department of Science and Technology operates out of the fundamental need to provide educational opportunities to young people and help gain for the country a critical mass of S&T professionals, deepening the relationship between science and society and reinforcing public confidence in science is embedded in its principles.

DOST-SEI facilitates an informed engagement among its various stakeholders – from the professionals in the academy and industry to community leaders and citizens in general. Its efforts to generate interest in, and attitudes towards, science and technology must go beyond solely educational and need to be framed and understood in a wider social, cultural and political context.

This socially inclusive approach is necessary to achieve what is often called “scientific and technological literacy.” Only within this condition can the knowledge and understanding of science among the youth translate into effective craft and scientific values that will strengthen our collective power to move our country forward.

Science is the foundation of tomorrow’s technologies, jobs and well-being, and its learning should therefore benefit not just students but society in general.
MESSAGE FROM THE

Secretary

More than a quarter century of service to the Filipino people is truly an exemplary feat, and I congratulate the Science Education Institute (DOST-SEI) for attaining this significant milestone.

The DOST, through the SEI is proud to be able to give our youth access to quality education in the leading public and private institutions nationwide. Improvements in science, technology, engineering and mathematics education across all levels are critical to preparing our future scientists with the skills they need to meet the demands of a growing economy.

Driven by its mandate, the Institute has succeeded in bringing forth a tremendous increase in the number of applicants to its scholarship programs. Our call for more scientists and engineers is being heeded by our youth. We are optimistic that this new breed of future scientists and engineers will help us in achieving a smarter Philippines through the creation of S&T based solutions, by giving birth to innovations that will make our country become globally competitive and at the same time, improve the lives of the Filipino people.

For our S&T scholars and students, now is the best time to become scientists and engineers. Through enrichment programs, advanced teacher training methods, technology adoption in schools, industry partnerships, research and competitions, and numerous activities highlighted in the 2014 Annual Report, the DOST-SEI promises to provide an exciting and engaging educational environment.

Mabuhay!

MARIO G. MONTEJO
Secretary
Department of Science and Technology

I am deeply honored to once again share with you the accomplishments of our distinguished Institute during our year in review 2015.

In our core occupation of managing S&T scholarship programs, we continue to experience exceptional gains in the number of applicants resulting from the intensified information campaign that we began in 2014. When it was first implemented, the number of scholars we supported jumped by 21 percent, totaling 12,117. Now a year later, we experienced an even greater 55-percent surge, so that in 2015 we supported more than 18,700 scholars.

DOST-SEI is escalating the development of highly qualified human resources, one of the key drivers to regional growth and advancement, and amidst all this was the backdrop of the ASEAN integration, a historic phase wherein we, as a nation, must leverage interaction and cooperation to enhance our connectivity in the region.

It is important to note that the Institute has thus broadened its outlook for the enhancement of its capacity development programs, student mobility, research collaborations, regional academic conferences, and various activities that unleash the full capabilities of our students and academic institutions.

The real testament to our overall success can be seen through the many individual achievements celebrated by our students and staff. The tremendous success we continually enjoy every year would not be possible without their dedication and hard work, complemented by our results-oriented partnerships with academe, professionals, and various educational organizations. These have all shown equal commitment to work together to equip our students, and science and math teachers with advanced Science, Technology, Engineering and Mathematics education and teaching capability.

With the integration of the ASEAN community comes a new and more exciting phase in our learning journey. Backed by our various stakeholders in the private and public sectors, we will continue to play a key role in the development of S&T human resources and help our nation take its stand in the transformation of our region. On behalf of all of us at the Institute, I extend to you our deepest gratitude.

JOSETTE T. BIYO
Director
Highlights

Number of scholars on the rise
• In 2015, the DOST-SEI supported a total of 18,765 scholars, a 15-per cent jump from the 2014 total of 12,517.
• Region IV-A (CALABARZON) had the highest number of scholars with 2,149 or 14.81 percent of the total number. This was followed by the National Capital Region (NCR) and Region VII (Central Visayas Region).

New programs and policies tackled
• The research entitled Region IV-A (CALABARZON) had the highest number of scholars with 2,149 or 14.81 percent of the total number.
• The #Push4Science campaign successfully promoted the DOST-SEI Undergraduate Scholarship Programs, reaching out to municipalities that previously lacked examinees in the annual “In Touch with Excellence” recognition ceremony.

International linkages highlighted
• Moving Towards ASEAN Integration was the theme of the 2nd National Research Conference in Science and Mathematics Education held in October 2015. The event stressed the importance of ensuring that all research and innovations in STEM should meet international standards for greater marketability.

Teacher competencies enhanced
• A reorientation meeting attended by Regional Technical Coordinators, Regional Scholarship Project Staff and DOST-SEI officials and staff took place in General Santos City, South Cotabato on December 2-3, 2015. New policies and procedures governing the S&T Scholarship Programs were shared, and new targets were set for the effective and efficient delivery of services to various stakeholders.

Innovative teaching and learning methods introduced
• Courseware modules in science and mathematics were developed into a mobile application that can be downloaded for free using smartphones and tablets to help promote the use of mobile technology in education.
• The Institute also replicated and distributed Interactive Mathematics Courseware for Grades 1-6 and Interactive Science and Mathematics Courseware for Grades 7 and 8 to help improve the teaching and learning of these subjects among students in public elementary and secondary schools.

Competitions attract more scholars
• The 1st CanSat Satellite Competition was held with a total of 36 students and 12 coaches participated in a training held on August 24–28, 2015 and in the actual competition held in UP Los Baños during the 2015 World Space Week Celebration.

Science and Math champs bring home honors
• As in the previous years, the Philippine Mathematical Olympiad and its global counterpart the International Mathematics Olympiad showcased the math prowess of Filipino students who brought home Silver and Bronze medals and Honorable Mention certificates. Likewise, more students received Prizes and Certificates of High Distinction in the Australian Mathematics Olympiad.

Scholarship programs.
• The ASTHRDP-NSC conducted a benchmarking tour to universities focusing on the program’s overview, objectives, and expectations. This was followed by the National Capital Region (NCR) and Region VII (Central Visayas Region) with 32 percent, respectively.

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Student competencies enhanced
• A total of 428 teachers benefited from two-phased training program with the goal of developing the capacity of teachers in innovative teaching approaches and utilizing resources using STEM concepts that are aligned with the K to 12 curriculum.

Campaigns attract more scholars
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• The #Push4Science campaign successfully promoted the DOST-SEI Undergraduate Scholarship Programs, reaching out to municipalities that previously lacked examinees in 2014. It covered 18 out of 103 target municipalities or 17.4 percent in 2015 and served a total of 1,466 students from schools in several districts nationwide.

• For the other municipalities that were not directly reached, Scholarship Campaign Kits were provided to the PSICs and the university officials for their respective scholarship caravans. Posters, brochures and other collaterals were also distributed to all DOST-SEI attached agencies in Metro Manila to promote the scholarship program.

• The Science Explorer interactive science learning bus expanded its reach to more public elementary and secondary schools in the country. Additionally, the Climate Science Youth Camp, which ran from April 12-21, 2015, offered new and exciting activities focusing on Oceanography and Meteorology.

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• A total of 609 students from 210 schools, who won in international science and mathematics competitions were awarded with YES medals during the YES Awarding ceremonies in February, 2016. The number of awardees represents a 30% increase from 2014, highlighting the continuing exemplary achievement of Filipino youth in the fields of science and mathematics.

Promising Teaching and Learning Methods Introduced
• A total of 428 teachers benefited from two-phased training program with the goal of developing the capacity of teachers in innovative teaching approaches and utilizing resources using STEM concepts that are aligned with the K to 12 curriculum.

• The Science Teacher Academy for the Regions (STAR) project held a three-day workshop to plan targets for STAR trainings up to 2019 and was attended by 34 science and mathematics teachers.

• Hearing impaired students were the focus of a training workshop specifically designed to help teachers be more effective and creative in teaching science. Additionally, another project was implemented to help establish gender-responsive environment in the teaching and learning of secondary science.

• Elementary teachers from schools with predominantly indigenous students went through a four-phased training that aims to equip them with capabilities to teach science concepts and use local suitable materials and ideas for more culture-based learning. DOST-SEI launched this project to address inclusive development in education.

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As South East Asia forms a tighter economic community comprising 670 million people – and potentially establishing the sixth largest economy in the world – the need to harmonize policies for cooperation and integration among its member countries has become the crucial driving issue.

In our education sector, major shifts are taking place that include the K to 12 program, intensified knowledge exchange and foreign internships, among others. This adds a more expansive dimension to the Science Education Institute’s mission.

Developing Human Resources in Science and Technology
of accelerating the development of the country’s S&T human resources. Equipping our educational institutions and our students with the skills and competencies required by industries and the market place on a regional and global level is a must to ensure the youth’s employability in this era of economic integration and increased competition. Producing internationally competent human resources through quality higher education will lead to a stronger economy, better governance, and a more productive society.

**SCIENCE AND TECHNOLOGY SCHOLARSHIP PROGRAMS**

S&T Scholarship programs attract more students. Having intensified its initiatives to promote its S&T Scholarship programs, the Institute reports a yearly upsurge in the number of students both in the undergraduate and graduate levels. It is thus able to provide quality education to deserving students and contribute to the development of a scientifically and globally competitive citizenry.

In 2015, the DOST-SEI supported a total of 18,765 scholars, a 29 percent jump from the 2014 total of 14,495.

Of the 2015 figure, 85 percent or a total of 15,858 scholars were supported in the baccalaureate degree programs, 12 percent or 2,282 scholars in the master’s degree programs and three percent or 625 scholars in the doctoral degree programs. (see figure 1)

Scholars taking up baccalaureate degrees were supported through various Republic Acts (RA): RA 2067 (Merit Scholarship Program), RA 7687 (S&T Act of 1994) and RA 10612 (Fast-tracked S&T Scholarship Act of 2013).

The two previous scholarship programs are open to incoming college students, while the third is available to talented and deserving third year college students pursuing degrees in the priority areas of science and technology.

Table 1 shows the regional distribution of DOST-SEI undergraduate scholars. Report shows that as of end of 2015, SEI supported a total of 15,858 scholars. Of the said figure, 5,606 or 35.35 percent are new scholars, 9,470 or 59.72 percent are continuing scholars and 782 or 4.93 percent are technology graduates. Based on their home region, Region IV-A (CALABARZON) had the highest number of scholars with 2,349 or 14.81 percent of the total number. This was followed by the National Capital Region (NCR) and Region VIII (Central Visayas Region) with 1,954 scholars or 12.32 percent and 1,747 scholars or 11.02 percent, respectively.

Meanwhile, the Autonomous Region of Muslim Mindanao (ARMM) had the least number of scholars with 167 or 1.05 percent of the total number. Measures have been done to increase the number of qualifiers for the region such as Push for Science, review and enrichment programs for applicants among others. (see table 1)

**TABLE 1: Regional Distribution of DOST-SEI Undergraduate Scholars**

<table>
<thead>
<tr>
<th>Region</th>
<th>New</th>
<th>Continuing</th>
<th>Graduated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCR</td>
<td>4,633</td>
<td>8,336</td>
<td>2,889</td>
<td>15,858</td>
</tr>
<tr>
<td>I</td>
<td>201</td>
<td>628</td>
<td>24</td>
<td>873</td>
</tr>
<tr>
<td>II</td>
<td>199</td>
<td>314</td>
<td>22</td>
<td>535</td>
</tr>
<tr>
<td>III</td>
<td>456</td>
<td>870</td>
<td>86</td>
<td>1,312</td>
</tr>
<tr>
<td>IV-A</td>
<td>786</td>
<td>1,411</td>
<td>112</td>
<td>2,309</td>
</tr>
<tr>
<td>IV-B</td>
<td>162</td>
<td>278</td>
<td>20</td>
<td>460</td>
</tr>
<tr>
<td>V</td>
<td>429</td>
<td>778</td>
<td>64</td>
<td>1,271</td>
</tr>
<tr>
<td>VI</td>
<td>448</td>
<td>826</td>
<td>61</td>
<td>1,335</td>
</tr>
<tr>
<td>VII</td>
<td>502</td>
<td>1,084</td>
<td>81</td>
<td>1,767</td>
</tr>
<tr>
<td>VIII</td>
<td>335</td>
<td>470</td>
<td>28</td>
<td>833</td>
</tr>
<tr>
<td>IX</td>
<td>342</td>
<td>221</td>
<td>6</td>
<td>569</td>
</tr>
<tr>
<td>X</td>
<td>288</td>
<td>440</td>
<td>25</td>
<td>753</td>
</tr>
<tr>
<td>XI</td>
<td>288</td>
<td>440</td>
<td>25</td>
<td>753</td>
</tr>
<tr>
<td>XII</td>
<td>253</td>
<td>393</td>
<td>22</td>
<td>668</td>
</tr>
<tr>
<td>ARMM</td>
<td>67</td>
<td>96</td>
<td>4</td>
<td>167</td>
</tr>
<tr>
<td>CARAGA</td>
<td>190</td>
<td>251</td>
<td>23</td>
<td>464</td>
</tr>
<tr>
<td>CAR</td>
<td>643</td>
<td>1,779</td>
<td>112</td>
<td>2,534</td>
</tr>
<tr>
<td>Total</td>
<td>5,666</td>
<td>9,470</td>
<td>762</td>
<td>15,858</td>
</tr>
</tbody>
</table>

S&T Graduate Programs see huge jump in number of scholars.

The S&T Graduate Scholarship Programs include the Capacity Building Program in Science Education, Accelerated Science and Technology Human Resource Development Program (ASTHRDP) and Engineering Research and Development for Technology (ERDT).

**Capacity Building Program**

In 2015, SEI supported a total of 132 MS and 135 PhD scholars in science education – higher than 2014 attainment by 131 percent and 32 percent, respectively. This program aims to increase the number and improve the quality of S&T faculty members in Teacher Education Institutions that constitute the National Consortium in Graduate Science and Mathematics Education (NCCSME). The member-universities include: Ateneo de Manila University, Bicol University, Central Luzon State University, De La Salle University, Mariano Marcos State University, Mindanao State University-Mindanao State University- Matravi City, Philippine Normal University, University of San Carlos, Western Visayas State University and Western Mindanao State University.

**Engineering Research and Development for Technology (ERDT)**

In 2015 SEI supported a total of 833 MS and 178 PhD scholars – higher than 2014 by 27 percent and 38 percent, respectively. Similar to the other graduate scholarship programs, ERDT is on track to help the country attain a critical mass of Masters and Doctoral degree holders who will perform high-impact research in engineering and technology that are aligned with the National Science and Technology Plan (NSTP) and Medium-Term Development Program (MTDP). Eight universities make up its consortium offering quality masters and doctoral degrees in various engineering and technology fields. The ERDT Consortium is composed of: Ateneo de Manila University, De La Salle University, Central Luzon State University, Mapua Institute of Technology, Mindanao State University-Iligan Institute of Technology, University of the Philippines – Diliman, University of the Philippines –Los Baños, University of the Philippines –Manila, University of the Philippines -Visayas, University of San Carlos, University of Sto Tomás and Visayas State University.
**Number of SEI-DOST scholars rising annually**

The Institute’s efforts to promote its various scholarship programs have resulted in a steady upsurge in the number of municipalities being served by the campaign. Over the past five years, the percentage of municipalities served has climbed from 72 percent in 2011 to 95 percent in 2015. Out of 1,655 total number of municipalities and congressional districts, 1,571 now host their own scholars, while the number of municipalities that have no scholars dwindled from 470 to 84 in the same five-year period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Number of Municipalities and Congressional Districts*</th>
<th>NO. OF MUNICIPALITIES</th>
<th>Percentage of Municipalities Served Against Total Number of Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>with scholar</td>
<td>without scholar</td>
</tr>
<tr>
<td>2011</td>
<td>1,653</td>
<td>1,183</td>
<td>470</td>
</tr>
<tr>
<td>2012</td>
<td>1,653</td>
<td>1,221</td>
<td>432</td>
</tr>
<tr>
<td>2013</td>
<td>1,655</td>
<td>1,295</td>
<td>360</td>
</tr>
<tr>
<td>2014</td>
<td>1,655</td>
<td>1,443</td>
<td>212</td>
</tr>
<tr>
<td>2015</td>
<td>1,655</td>
<td>1,571</td>
<td>84</td>
</tr>
</tbody>
</table>

**Table 2:** Distribution of Graduate S&T Scholars by Graduate Scholarship Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Level</th>
<th>New</th>
<th>Continuing</th>
<th>Graduated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Education</td>
<td>MS</td>
<td>81</td>
<td>45</td>
<td>6</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>40</td>
<td>37</td>
<td>8</td>
<td>135</td>
</tr>
<tr>
<td>ASTHRDP</td>
<td>MS</td>
<td>334</td>
<td>610</td>
<td>108</td>
<td>1,377</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>96</td>
<td>161</td>
<td>87</td>
<td>312</td>
</tr>
<tr>
<td>SEI</td>
<td>MS</td>
<td>320</td>
<td>574</td>
<td>331</td>
<td>1,225</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>94</td>
<td>158</td>
<td>54</td>
<td>306</td>
</tr>
<tr>
<td>PCAARRD</td>
<td>MS</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>PCHRD</td>
<td>MS</td>
<td>14</td>
<td>45</td>
<td>6</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>0</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PCIEERD</td>
<td>MS</td>
<td>0</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PCH</td>
<td>MS</td>
<td>221</td>
<td>340</td>
<td>271</td>
<td>833</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>43</td>
<td>101</td>
<td>34</td>
<td>178</td>
</tr>
<tr>
<td>Total for All Programs</td>
<td>MS</td>
<td>636</td>
<td>1,018</td>
<td>628</td>
<td>2,282</td>
</tr>
<tr>
<td></td>
<td>PHD</td>
<td>177</td>
<td>349</td>
<td>59</td>
<td>625</td>
</tr>
</tbody>
</table>

More college students take 2015 JLSS Examination.

Following the implementation of Republic Act 10612 or the Fast-tracked S&T Scholarship Act of 2013, a total of 3,736 third year college students enrolled in Science, Technology, Engineering and Mathematics courses nationwide took the 2015 JLSS examination in 56 testing centers nationwide on July 12, 2015. This number represents an increase of 114 percent from the 2014 examinees.

As shown in Figure 2, Region VII (Central Visayas Region) had the highest number of examinees with 516 followed by Region VI (Western Visayas Region) and Region III (Central Luzon Region) with 442 and 341 examinees, respectively. The Cordillera Administrative Region (CAR) had the lowest number of examinees with only 28 examinees followed by the Autonomous Region of Muslim Mindanao (ARMM) and Region IV-B (MIMAROPA) with 42 and 65 examinees, respectively.

The examination has two course categories (Science and Engineering) with five subtests (Logical Reasoning, Science and Engineering, Mathematics, English Proficiency, and Teaching Aptitude Inventory), and has a total time allotment of 2 hours and 55 minutes.

A total of 1,030 college students qualified in the 2015 JLSS Examination representing 28 percent of the total number of examinees. The National Capital Region had the highest number of qualifiers registered at 105 or 50 percent of the 210 examinees in the region followed by Region VI with 104 qualifiers (24 percent) and Region VII with 101 qualifiers (20 percent). On the other hand, ARMM had the lowest number of qualifiers registered at 4 or 10 percent of the total examinees in the region (see figure 3), followed by CAR with 10 qualifiers (56 percent) and MIMAROPA with 16 qualifiers (25 percent).

The JLSS offers higher education scholarships to deserving students in STEM courses in their third year of undergraduate study, and provides incentives for them to become secondary school teachers, especially in their home regions, in order to contribute to the production of the country’s S&T human resource and encourage more students to pursue S&T-related careers.
ERDT Sandwich Program continues fruitful exchange.

The ERDT Sandwich Program is a fellowship that is offered to ERDT local graduate scholars to perform part of their researches in a university or research institution abroad for a maximum of one year. Aside from establishing linkage with an available laboratory for the chosen research topic, a scholar will also be able to gain broader approach and technical knowledge and experience in inter-cultural exchange.

As of November 2015, there have been 45 scholars given opportunities to conduct their researches with financial assistance under the ERDT Sandwich Program. Three more scholars are bound to do their research works in internationally reputable academic institutions in the following year. Out of the 45 grantees, 27 already graduated, 11 have already returned to the Philippines and are expected to graduate, and seven are still abroad conducting their researches.

The scholar applies to the Sandwich Program and the application is deliberated by the Fellowship Selection and Screening Committee (FSSC) of each of the ERDT Consortium member-universities. The FSSC gives priority to scholars pursuing research with topics identified to be gaps in the local R&D and cannot be completed locally due to lack of physical and technical resources, and expertise. The awarded scholars are expected to finish their theses or dissertations, contribute to technical knowledge, and transfer the technology/techniques that they have learned through the Sandwich Program.

Table 3 shows the yearly distribution of slots and the actual number and status of scholars who availed of the Sandwich Program.

ERDT Faculty Development Programs enhance faculty learning.

Foreign PhD Scholarships

To improve the faculty capability of UP Diliman/College of Engineering, faculty members are given opportunities to pursue advanced degrees in reputable, highly recognized international institutions abroad, preferably in the areas of specialization that need to be strengthened, through the ERDT Faculty Development Program – Foreign PhD Scholarship.

From 2008-2015, there are 46 faculty members who have been awarded with the scholarship. Three scholars have returned and are now doing minor revisions in their dissertations. Three scholars have requested extensions on their scholarships. Contracts of 6 scholars were terminated due to varying reasons. Nineteen scholars are still abroad and one scholar has been awarded with the scholarship this 2015 and expected to leave in 2016.

Post Doctoral Grant

The ERDT Post-Doctoral Grant is offered to faculty members who have doctoral degrees. The grant allows retooling and training of faculty members to ensure that researches conducted and proposed under the ERDT program are current and relevant. The grant is for a minimum of two months and a maximum period of one year with financial support.

There are already 12 recipients of the grant. Six faculty members received the grant in 2009, two in 2010, two in 2012, one in 2014, and one in 2015.

Faculty Research Dissemination Grant

The ERDT Faculty Research Dissemination Grant (FRDG) gives opportunity to faculty members of the Consortium to present their researches to an international audience belonging to the same field of specialization. Every year, this grant is awarded to deserving faculty members who wish to participate in international conferences or as a support to publish papers in ISI journals. This is similar to the Research Dissemination Grant to local graduate scholars. Over the years, a significant number of conference participation has been observed signifying a fertile research environment in engineering.

To date, a total of 303 research dissemination grants have been awarded since the beginning of ERDT. In 2015, the ERDT awarded the FRDG to 62 faculty recipients.

Faculty Research Grant

The Faculty Research Grant is implemented to help faculty members who are currently enrolled in the ERDT supported graduate programs in an ERDT member university to complete all their requirements leading to a successful thesis/dissertation defense.

Recipient of this grant is considered as an ERDT scholar with lateral entry and shall be awarded with the grant for a period of one year for Master’s and two years for PhD. In 2015, seven faculty members were awarded the grant. Table 4 shows the details of these recipients.
Science and Technology Learning Assistance Program (STLAP) continues.

**Summer Orientation and Enrichment Program**

Under the STLAP program, which is designed to help scholars assess and enhance their skills as well as to develop their character, the Summer Orientation and Enrichment Program (SOEP) drew a total of 2,928 incoming RA 7687 freshman scholars nationwide. This month-long refresher course focused mainly in four areas: Basic English, College Mathematics, Physics and Psycho-Social Skills Development. Tests were given to the participants on the first and last days of the program, to assess their knowledge in the above-mentioned subjects and to determine the gains afterwards.

Due to shift in the school calendar of some universities, the SOEP in the National Capitol Region (NCR) was conducted in two batches. Those whose classes started in June attended the SOEP at the Technological University of the Philippines-Manila from May 4 to 29, 2015 while those whose classes started in August had their SOEP at the University of the Philippines-Diliman from June 1 to 29, 2015.

**Summer Practical Training Program**

A total of 769 scholars participated in the Summer Practical Training Program (SPTP), which required them to undergo a minimum of six weeks or 240 hour, of practical experience along their field of specialization in a government agency or private company. The program is conducted in the summer prior to their last year in college.

Due to shift in the school calendar of some universities, the SOEP in the National Capitol Region (NCR) was conducted in two batches. Those whose classes started in June attended the SOEP at the Technological University of the Philippines-Manila from May 4 to 29, 2015 while those whose classes started in August had their SOEP at the University of the Philippines-Diliman from June 1 to 29, 2015.

**TABLE 5: STLAP activities conducted by various DOST-SEI scholar organizations**

<table>
<thead>
<tr>
<th>NAME OF SCHOLARS’ ORGANIZATION</th>
<th>REGION/UNIVERSITY</th>
<th>TITLE OF ACTIVITY</th>
<th>DATE</th>
<th>NO. OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOST-SEI PUP DOST Scholars’ Organization (DOST-SEI P50)</td>
<td>NCR/PUP-Manila</td>
<td>2015 General Assembly with a Theme, #INSPIRED</td>
<td>June 6, 2015</td>
<td>200</td>
</tr>
<tr>
<td>DOST-XI Alumni Association</td>
<td>XI</td>
<td>Development of Tracer System and Experts Pool of DOST Scholar Graduates in Region XI</td>
<td>June-December 2015</td>
<td>600</td>
</tr>
<tr>
<td>DOST-I</td>
<td>I</td>
<td>2015 DOST Scholars’ Summit</td>
<td>August 31, 2015</td>
<td>235</td>
</tr>
<tr>
<td>DOST XI Scholars’ Association</td>
<td>XI</td>
<td>2015 DOST XI Scholars’ Congress</td>
<td>November 20, 2015</td>
<td>210</td>
</tr>
<tr>
<td>DOST Scholars’ Association (DOSTSCAN)</td>
<td>NCR/RTU</td>
<td>Let’s Roll: DOST Scholars’ Collaboration Towards Excellence</td>
<td>December 17-18, 2015</td>
<td>77</td>
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</tbody>
</table>

**FIGURE 4: Regional Distribution of Scholars who Participated in the SOEP and SPTP**

A training supervisor is tasked to design a program of activities, orient them in office regulations, assign duties and responsibilities, discuss the output expected of them at the end of their training, and evaluate their performance.

**DOST-SEI Scholars complete JENESYS 2.0**

A total of 140 university students, out of 473 applicants from all over the country, successfully completed the Japan-East Asia Network of Exchange for Students and Youths (JENESYS 2.0) from March 2 to 10, 2015.

The JENESYS 2.0 is a youth exchange program between Japan and ASEAN Member States with the aim of promoting Japanese attractions, strengths and values, strengthening diplomatic relations among countries, fostering internationalization, and revitalizing the economy.

DOST-SEI evaluated the applicants based on the qualifications set by the Japan International Cooperation Center (JICE). Auxiliary information were also considered in the selection of participants which included their universities/collages and courses, home origin, academic awards,
"The Faculty Research Dissemination Grant of ERDT helps me share my laboratory's research results to a wider audience. The Grant also keeps me updated on recent results related to polymers and materials."

BRYAN B. PAJARITO, D. ENG.
Department of Chemical Engineering
UP Diliman
2015 ERDT Faculty Research Grant Recipient

"ERDT and Sandwich Program provided me with generous support financially and intellectually towards my goal of becoming a master's student. With the help of the ERDT Sandwich Program, I was able to collaborate with international research laboratories and different researchers in different countries. The Sandwich Program gave me the opportunity to establish international connections. It also helped me improve my view and way of life. I consider ERDT as once in a lifetime opportunity and a memorable experience. I will be forever grateful and shall return this favor to my countrymen."

JAN ALAIN CORVERA
MS ECE, Ateneo de Manila University
2015 ERDT Sandwich Program Recipient
Scuola Superiore Sant’Anna, Italy

"The ERDT Post Doc Grant provided me the opportunity to carry out pure research work that I have hungered since after finishing my PhD."

JAN ALAIN CORVERA
MS ECE, Ateneo de Manila University
2015 ERDT Sandwich Program Recipient
Scuola Superiore Sant’Anna, Italy

"The ERDT Faculty Development Program has enabled me to bring the Filipino talent on the international stage and develop it further through collaboration and inter-cultural exchanges."

NINO CHRISTOPHER B. RAMOS
Assistant Professor
EEEI, UP Diliman
Foreign PhD Scholarship Awardee
Osaka University, Japan

"The ERDT Post Doc Grant provided me the opportunity to carry out pure research work that I have hungered since after finishing my PhD."

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Scuola Superiore Sant’Anna, Italy

"The ERDT Faculty Development Program has enabled me to bring the Filipino talent on the international stage and develop it further through collaboration and inter-cultural exchanges."

WILLY F. ZALATAR
PhD Industrial Engineering
De La Salle University
2015 ERDT Faculty Research Grant Recipient

The program culminated with the presentation of each group's output based on the following measures: knowledge about Japan before their visit; findings about Japan gained through the program; and an action plan detailing the project which they would implement relative to their experiences in Japan.

Supervised by DOST employees, the Philippine delegation went through most of the itinerary in the following Prefectures: Tochigi, Mie and Aichi.

Activities included:
- Visit to historical places and the National Museum of Emerging Science and Innovation best known as Miraikan, where participants interacted with booths showcasing Japan’s latest innovation
- Courtesy call to the Officials of the above prefectural governments
- Visit to different factories or corporations where they received exposure to cutting-edge technologies and gathered insights for their current or future researches
- Interaction with the Japanese students of their assigned universities
- Immersion in certain villages where they experienced first-hand the Japanese way of life

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RECOGNITION OF DOST-SEI SCHOLARS

“In Touch with Excellence” honors outstanding scholar-graduates.

A total of 167 scholar-graduates, guests and DOST officials attended the annual recognition ceremony dubbed “In Touch with Excellence” in honor of the outstanding 2015 DOST-SEI scholar-graduates (BS and MS with honors and PhD graduates). The activity was conducted on July 28, 2015 at the Philippine International Convention Center, Pasay City.

At the end of Academic Year 2014-2015, the DOST-SEI Undergraduate Scholarship Programs produced a total of 781 scholar-graduates. Out of these graduates, 179 graduated with honors, and one completed the course earlier than the prescribed period. Among those who completed their courses with honors, 128 or 71 percent graduated cum laude, 42 or 23 percent magna cum laude, 4 or 2 percent were awarded with academic distinction, 3 or 2 percent graduated summa cum laude, 2 or 1 percent attained honorable mention, and 1 or 1 percent completed the course earlier than the prescribed period.

Dr. Rowena Cristina L. Guevara, DOST Undersecretary for Scientific and Technological Services and DOST Secretary Mario G. Montejo delivered their inspirational message and keynote speech, respectively. Secretary Montejo applauded the scholar-graduates for achieving excellence in their respective S&T programs and referred to them as welcome additions to the growing community of scientists, engineers, and innovators whom the country expects to contribute in national development.

SEI Director Dr. Josette Biyo also urged the honorees to continue learning, and promoted the Institute’s graduate scholarships available in highly specialized fields in the sciences and engineering.

In closing, Ernest Nathan Nogales, a BS Chemistry summa cum laude graduate from the University of the Philippines Diliman urged his co-honorees to embody the phrase “serve the people” in its fullest sense.

Dr. Montejo also announced the Career Incentive Program (CIP), a new program designed to contribute to the government’s call to strengthen the country’s S&T capabilities and help avert unemployment of DOST scholar-graduates. The overarching objective of the program is to create a sustainable reservoir of highly skilled and competent S & T professionals whom the DOST agencies and regional offices and private sector could tap and eventually hire/absorb for employment.

The program is available to MS and PhD scholar-graduates of the ASTHRDP and ERDT who assume the positions of Senior Science Research Specialist and Supervising Science Research Specialist, respectively.

Most of the participants were deployed at the Food and Nutrition Research Institute.

DOST Graduate Scholars benefit under Career Incentive Program.

In 2015, a total of 27 scholar-graduates participated in the Career Incentive Program (CIP), which is designed to contribute to the government’s call to strengthen the country’s S&T capabilities and help avert unemployment of DOST scholar-graduates. The overarching objective of the program is to create a sustainable reservoir of highly skilled and competent S & T professionals whom the DOST agencies and regional offices and private sector could tap and eventually hire/absorb for employment.

The program is available to MS and PhD scholar-graduates of the ASTHRDP and ERDT who assume the positions of Senior Science Research Specialist and Supervising Science Research Specialist, respectively.

Most of the participants were deployed at the Food and Nutrition Research Institute.
The research experience gained from being a DOST-SEI CIP Recipient was immensely helpful as it exposed the recipient on how the government’s science arm does research. DOST FNRI honed me not only on how to conduct a sound research but also on how to create a research that would benefit the Filipino people. The agency deepened my understanding on basic research and how to use those data in the development of innovative and healthy food products. The DOST-SEI CIP Program is not only financially rewarding but also intellectually fulfilling.

MR. IAN JOHN L. CASTRO
ASTHRDP scholar
MS Food Science
University of the Philippines-Los Banos
Senior Science Research Specialist

MS. NEDA A. CATALMA
ASTHRDP scholar
PhD Molecular Biology and Biotechnology
University of the Philippines-Los Banos
Supervising Science Research Specialist
Food and Nutrition Research Institute

“The Career Incentive Program of the DOST-Science Education Institute has helped me in the advancement of my career life. I was able to use modern and high tech Real-Time PCR (polymerase chain reaction) machine for nucleic acids amplification as well as advanced equipment for gel electrophoresis and newest model of the Gel Documentation System of Gel Imager for quality check of the amplified nucleic acids.”

Applications for S&T Specialist Eligibility evaluated under PD997.

In 2015, a total of 43 applications were received and evaluated for Civil Service Eligibility under Presidential Decree No. 997 (PD No. 997), a law that allows the issuance of Scientific and Technological (S&T) Specialist Eligibility to those whose expertise is gained through advanced education and sharpened by research and teaching experience to promote scientific research and invention towards the advancement of science. The S&T Specialist Eligibility is considered appropriate for personnel in the first and second level positions in the government whose courses are not covered by Bar, Board and other special laws.

Out of the total number of applications, 33 were endorsed by the DOST Secretary to the Civil Service Commission (CSC) Central Office and Regional Offices. The applicants were evaluated on the bases of their qualifications and the requirements of public service, in the preliminary and final evaluation by the Technical Working Group and Presidential Committee, respectively.

The DOST Secretary likewise endorsed the revisions on the PD No. 997 Implementing Rules and Regulations (IRR) to the Civil Service Commission for approval and implementation.

S&T SCHOLARSHIP PROGRAM POLICY

Reorientation meeting presents innovations and updates.

Sixty-three (63) Regional Technical Coordinators, Regional Scholarship Project Staff and DOST-SEI officials and staff attended a reorientation meeting in General Santos City, South Cotabato on December 2-3, 2015. Its aim was to update everyone on the S&T Scholarship Programs’ new policies and procedures, review the duties and responsibilities of the Scholarship Project Staff to be reflected in the Individual Performance Commitment and Review (IPCR) Form, and set their targets for the effective and efficient delivery of services to various stakeholders.

Dr. Josette T. Ribo, in her welcome address, emphasized DOST-SEI’s commitment to implement innovative approaches in its S&T Scholarship Program geared towards the development of the country’s S&T human resource who can help the government in crafting and implementing innovative goods and services to uplift the socio-economic status of the Filipino people, specifically those in the marginalized sectors.

Dr. Ribo also presented the strategic directions [2017-2027] of DOST-SEI, among which is to increase the number of S&T scholarship slots, i.e., from 3,500 to 6,000 for the Undergraduate Program; from 700 to 1,400 for Master’s Program and from 250 to 700 for the Doctoral Program. Such strategies are aimed at achieving the UNESCO benchmark, i.e., 380 R&D personnel per million population. DOST-SEI Consultant Prof. Fortunato T. de la Peña presented the consolidated regional statistical reports on S&T Scholarship Programs such as: availment, dropout and graduation rates; reasons for undergraduate scholarship drop-out/disqualifications; problems commonly encountered by the Regional Scholarship Coordinators.

PARTICIPANTS FROM THE MINDANAO CLUSTER DETERMINE SCHOLARSHIP ISSUES AND CONCERNS DURING THE WORKSHOP

Applications for S&T Specialist Eligibility evaluated under PD997.

In 2015, a total of 43 applications were received and evaluated for Civil Service Eligibility under Presidential Decree No. 997 (PD No. 997), a law that allows the issuance of Scientific and Technological (S&T) Specialist Eligibility to those whose expertise is gained through advanced education and sharpened by research and teaching experience to promote scientific research and invention towards the advancement of science. The S&T Specialist Eligibility is considered appropriate for personnel in the first and second level positions in the government whose courses are not covered by Bar, Board and other special laws.

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The DOST Secretary likewise endorsed the revisions on the PD No. 997 Implementing Rules and Regulations (IRR) to the Civil Service Commission for approval and implementation.
Roundtable discussion assesses priority S&T Courses.

On April 22, 2015, a Roundtable Discussion was conducted with the aim of reviewing and updating the list of priority S&T courses of the DOST-SEI Scholarship Programs in comparison with the current and projected manpower needs of the industry, the government and the academy. It also sought to align the DOST-SEI scholars’ chosen fields of specialization with the DOST national research agenda.

Held at the Astoria Hotel in Pasig City, the activity was attended by 70 officials and representatives from government agencies, private industries, academe, professional organizations and DOST-SEI.

Launched during the program was the Human Resources in Science and Technology in the Philippines, a research conducted and published by the Research Unit-S&T Manpower Education Research and Promotions Division of DOST-SEI. The research provides estimates on the number of human resource in science and technology in the country which can be used as empirical basis for policymakers in crafting legislations concerning improvement and maintenance of human capital in S&T necessary in knowledge creation and technological innovation.

The plenary talks that followed centered on these topics:
- Status of Human Resources in Agriculture, Aquatic and Natural Resources (AANR) by Dr. Melvin Carlos, Deputy Director, Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCARRD)
- Status of Health S&T Human Resources by Ms. Carina Rebulanan, Chief SSR, Philippine Council for Health Research and Development (PCIEERD)
- Philippine Labor Market Information: Status of S&T Manpower of the Philippines by Ms. Ruth Rodriguez, Staff Department of Labor and Employment (DOLE)
- Priority Science and Technology Courses: PCCI Perspective by Mr. Antonio Sayo, Co-Chairman, Philippine Chamber of Commerce and Industries (PCCI)

After due deliberation, the following courses shall now be included in the priority S&T courses of the DOST-SEI S&T Undergraduate Scholarship Programs:
- BS Aeronautical Engineering
- BS Aerospace Engineering
- BS Agribusiness Management
- BS Agricultural Economics
- BS Applied Statistics
- BS Industrial Design
- BS Industrial Pharmacy
- BS Mathematics and Science Teaching
- BS Marine Biology
- BS Marine Science
- BS Mechatronics Engineering
- BS Medical Technology
- BS Meteorology
- BS Microbiology
- BS Nutrition
- BS Nutrition and Dietetics
- BS Pharmacy
- BS Pharmacy major in Clinical Pharmacy
- BS Packaging Engineering
- BS Petroleum Engineering
- BS Psychology
- BS Public Health
- Doctor of Dental Medicine
- Doctor of Veterinary Medicine

The new list of priority S&T courses was presented and approved by the National Technical and Selection Committee (NTSC) on S&T Scholarships and the Advisory Committee on S&T Scholarships (ACSTS). The latter recommended for

Staff in the implementation of the S&T Scholarship Programs good practices in the implementation of S&T Scholarship Programs, recommendations for more efficient operations of the S&T Scholarship Programs, and strategic suggestions for DOST-SEI Scholarships in general.

Engr. Ramil T. Uy and Ms. Teresita Baluyos, Regional Technical Coordinators of DOST ROs VIII and X, respectively, presented their best practices in the implementation of scholarship programs in their respective regions. Engr. Uy imparted their strategies on how they attracted applicants and eventually enlisted scholars for all the municipalities of the Eastern Visayas Region. Ms. Baluyos, on the other hand, shared their approaches on empowering the scholars’ organizations in Central Mindanao Region and utilizing their assistance in promoting and implementing the DOST-SEI’s scholarship programs.

Other topics discussed included support for activities of scholars’ organizations, evaluation of scholars’ appeals and non-compliance cases, updates on the Scholarship Information System, and financial matters.
SEI to study and assess which among the listed courses will have a quota and premium in terms of stipend.

As off-shoot of the RTD, an Evaluation Team was created to assess the capability of the Palawan State University to offer the BS Petroleum Engineering and recommend actions based on the results/findings of the assessment. The team was headed by Prof. Fortunato T. de la Peña while the members were as follows: Dr. Benjamin Austria, Engr. Ernie Bacarra, Ms. Alicia L. Asuncion and Ms. Charilynn Joy Layas. The team conducted an ocular inspection of the facilities and equipment and interviewed some faculty members and students of the Department of Petroleum Engineering, PSU on November 26, 2015.

**ERDT Visiting Professors and Researchers.**

In 2015, the ERDT Visiting Professor program brought in 12 academic experts who gave lectures in the ERDT Consortium universities.

The ERDT Program provides for the invitation of internationally known professors to deliver lectures on key areas of engineering education, speak in symposia as well as help develop new curricula and strengthen existing ones. Direct beneficiaries of this component are ERDT scholars and, indirectly, their sending institutions. The ERDT consortium likewise benefits from this through R&D collaboration, technology transfer, and technical knowledge enhancement.

Similar to the Visiting Professor Program, another component of the ERDT HRD is the Visiting Researcher Program where researchers from reputable laboratories and research institutions are invited for a short or long term period to be part of the laboratory in a member consortium university. There are fewer visiting researchers than professors because most prospective visiting researchers could not stay for a long time in the country.

From 2008-2015, there had been 87 professors and four researchers invited. Table 7 shows the number of invited professors and researchers from 2008 to 2015.

### 4th ERDT Congress tackles agricultural competitiveitiveness.

Recognizing the pressing concerns of the agricultural sector and the possible contributions that the science and engineering community can provide, the ERDT with its two lead agricultural consortium universities Central Luzon State University and University of the Philippines Los Baños, successfully organized and conducted the 4th ERDT Congress on July 20, 2015 at the SMX Convention Center, Pasay City. With the theme “Agriculture and Science and Technology for Inclusive Growth”, the discussions centered on the various efforts done and collaborations needed to be forged to boost Philippine agricultural competitiveness.

Among the experts who gave plenary talks were Philippine Center for Postharvest Development and Mechanization Director Rex L. Bingahing who discussed “Farm Mechanization for Food Security,” Mie University Professor Emeritus Makoto Hoki who talked about “Agricultural Mechanization in the Asian Region,” and Phil-LiDAR 2 Project Program Leader Ariel C. Blanco who tackled “LiDAR and Geospatial Applications for Agricultural Land Resources Management.”

The 4th ERDT Congress, tagged as one of the official pre-events of the National Science and Technology Week 2015, culminated with the awarding of Best Posters and closing remarks delivered by ERDT UPLB Project Leader Dr. Arnold R. Elepaño.

### Conference highlights Human Resource Development in Agriculture.

Hundreds of foreign and local participants attended the joint conferences of the 12th ERDT, the 11th Annual Technical Committee and Governing Council Meetings of the United Nations Economic and Social Commission – Center for Sustainable Agricultural Mechanization (UNESCAP-CSAM), the 3rd Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific, and the 3rd ASEAN Conference on Agricultural and Biosystems Engineering.

The joint conferences were held on December 9 to 11, 2015 at the Century Park Hotel, Manila, and carried the theme “Human Resource Development for Sustainable Agricultural Mechanization.”

The joint conferences aimed to highlight the role of human resource development as a strategic pillar in the attainment of a sustainable mechanization in Asia and the Pacific, establish linkages and exchange of information among the countries in Asia and the Pacific on agricultural mechanization human resource development, and facilitate cooperation actions and mechanisms among different stakeholders in the field of human resource development in agricultural mechanization within the region.
UP and DOST hold joint regional conference.

More than a hundred representatives from AUN/SEED-Network, Southeast Asia Engineering Education Institute, RCEEE 2015, and the 11th ERDT Conference on Semiconductor Materials and Communications Technologies and Energy.

Both conferences carried the theme "Rethink, Enable, and Empower Smarter and Resilient Societies," and were held on November 16 and 17, 2015 at the Acacia Hotel in Filinvest City, Alabang, Metro Manila.

The AUN/SEED conference is an annual event that serves as a "platform to share the most updated technology and research of regional common issues, as well as publicize research works" of the AUN/SEED-net member institutions. It also allows opportunities for participants "to discuss future collaborations and activities related to each engineering field." The ERDT conference, meanwhile, is also a regular event for ERDT faculty and scholars to showcase their academic and research works.

The RCEEE 2015 and the 11th ERDT Conference featured five distinguished speakers. On the first day, Prof. Yukihiro Kobayashi of Hokkaido University talked about "Robot Technologies for Smart Agriculture" while Prof. Tomomi Ohtsuki of Keio University discussed "Self-Organization in Wireless Communications." The third speaker, Dr. Delfin Jay Sabido IX of IBM Systems, shared information on ongoing research and development activities in the local IT industry through his talk, "Analytics Solutions for Philippine Challenges in Disaster Preparedness, Agriculture and Healthcare."

On the second day, Prof. Costas Spanos of University California, Berkeley discussed about collaborative research activities that address large-scale societal needs through his talk, "In The Interest of Society - Collaborative Research Models and Their Application Towards Developing Sustainable Infrastructure in the Tropics," while Prof. Junichi Takada of Tokyo Institute of Technology shared the latest developments in "TV White Space for Rural Connectivity."

Apart from the keynote speakers, the said conferences were also graced by the Acting Executive Director and Chief Advisor of AUN/SEED-net, Dr. Uleda Tamon; Director of Science Education Institute of the Department of Science and Technology (DOST-SIE), Dr. Jossette Byos; and Dean of the UP College of Engineering and Program Leader of ERDT, Dr. Aura Matias; and Director of UP EEEI, Dr. John Richard Hizon, who delivered the opening messages on the first day.

Out of 89 paper presentations, the joint conferences gave out nine Best Paper Awards, which were handed out during the conference banquet.

As part of the conference program, the AUN/SEED delegates were brought to the Department of Science and Technology (DOST) compound in Bicutan, Taguig for a technical tour of the Electronics Product Development Center (EPDC) and the Advanced Device and Materials Testing Laboratory (ADMATEL).

2nd National Research Conference in Science and Mathematics Education highlights ASEAN integration.

A total of 204 scholars and faculty members from 10 member-universities of the ASTHRDP-NCGSME attended the 2nd National Research Conference in Science and Mathematics Education held at the Iloilo Midtown Hotel, Iloilo City last October 22-23, 2015.

The event’s theme: "Harnessing the Filipino Educator’s Potential for Research and Collaboration with ASEAN Scholars in Mathematics and Science Education."

In her message, Dr. Josette T. Biyo said that the Institute is in full support of the Conference as it aimed to identify innovative and effective research strategies in the field of Science and Mathematics Education. She added that she was confident that the activity would contribute to the elevation of the quality of research and education in our country by producing more effective pedagogically-sound learning strategies appropriate for the current Philippine educational system.

Dr. Ester R. Ogera, President of the Philippine Normal University, discussed the topic "Initiating Research Collaboration in ASEAN" while Dr. Catherine P. Vistro-Yu, Professor at the Mathematics Education Department, School of Education of Ateneo de Manila University talked about "Harnessing the Filipino Educator’s Potential for Research and Collaboration with ASEAN Scholars in Mathematics and Science Education."
The conference also highlighted the research outputs of scholars, 10 of which were presented through posters and 21 through oral presentations.

4th ASTHRDP-NSC Scholars’ Conference underscores international linkages.

Some of the country’s brightest and most promising scholars and faculty members of the National Science Consortium (NSC) shared their research outputs through oral and poster presentations in the 4th National Department of Science and Technology-Science Education Institute (DOST-SEI) Accelerated Science and Technology Human Resource Development Program-National Science Consortium (ASTHRDP-NSC) Scholars’ Conference (DOST-SEI ASTHRDP-NSC). The event took place on May 7 and 8, 2015.

In attendance were 265 scholars, faculty members, scientists and other guests. This year’s theme “Strengthening Linkages through Multi-disciplinary Collaboration,” aimed to instill the value of collaboration and partnership engagement between and/or among the scholar and/or scientist and experts in two or more disciplines or bodies of specialized knowledge to advance in two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems in which solutions are beyond the scope of a single discipline or area of research practice.

In his plenary presentation, Dr. Bas Bouman, Director of Global Rice Science Partnership (GRiSP) of the International Rice Research Institute (IRRI), stressed that the Philippines needs to invest in its human capital who shall undertake high-caliber researches geared toward development of new technologies that will address problems on rice production and ensuring the country’s food sufficiency.

Dr. Rowena Cristina L. Guevara, Undersecretary for Scientific and Technological Services of the Department of Science and Technology (DOST), shared her experiences as a DOST scholar and urged the scholar-participants to take advantage of the opportunities to pursue further studies abroad, then return and stay to serve in the country, embrace excellence and excel in their fields of specialization, and impart their knowledge and expertise to the younger ones. She also mentioned that the DOST-SEI is in the process of a Human Resource Development Plan, 2017-2027 in response to the need to accelerate the production of researchers, scientists and engineers (RSEs) in the country to be able to reach the UNESCO standard of having 380 RSEs per million population.

In the last plenary talk, Dr. Richard S. Abendan, Research and Industry Partnership Manager of USAID Science, Technology Research and Innovation for Development (STRIDE), presented models on academe-industry linkages which the universities could leverage to further enhance the capabilities of their faculty members, and their universities as a whole. He also encouraged the students to be confident in ‘selling’ their research outputs to the industries.

Dr. Fabian M. Dayrit, the Chairman of the ASTHRDP-National Science Consortium reported on the following: Annual Student Research Symposiums; Internal Mobility and Fund, Interdisciplinary Programs, Benchmarking with ASEAN and Improve on-time graduation rate. He also showed the graduation rate for each member-university and encouraged them to accelerate the figure in order to contribute significantly to the goal of the ASTHRDP.

“Alert the Balik-Scientists” was a segment of the conference moderated by Dr. Jose V. Camacho Jr., Dean of the Graduate School and ASTHRDP-NSC and Project Leader at the University of the Philippines-Los Baños. The following scientists shared their experiences, their professions and their personal insights: Dr. Larry Itag, Deputy Chief of Party of the RTI International team; Dr. Anton Joseph Villatora, Associate Professor at the Institute of Chemistry of the College of Science and concurrently the Deputy Director of the Office of the International Linkages, University of the Philippines-Diliman; Dr. Apollo Aquiza, Visiting Lecturer at Cornell University, Dr. Gonzalo Serafica, Consultant to various universities, R&D institutions, funding agencies and private companies on technology matters; Dr. Arnold Alguino, Professor and Chairman of the Physics Department, Mindanao State University–Iligan Institute for Technology, and Dr. Joseph Adrian Buensalido, Fellow in Infectious Diseases at the Wayne State University–Detroit Medical Center in Detroit, Michigan, USA.

The scientists concurred that while there is no problem in practicing their professions outside the Philippines, the scholars should make sure to return to the country, share the knowledge and expertise they gain in their fields of specialization and be active partners in bringing economic growth especially in the countryside.

The conference also served as a venue for the leaders of the ASTHRDP benchmarking groups to report their impressions and learnings of their ASEAN benchmarking tours aimed at developing curricula/ course descriptions particularly in three areas Climate Change and Disaster Preparedness, Material Science and Nanotechnology, and Natural Products and Drug Development. These would also be useful in strengthening linkages between universities/ research facilities, and forging collaborative researches in local and international levels, among others.

Six scholars were declared winners in the Best Poster Competition and awarded cash prizes and certificates for Agriculture/ Fisheries/ Environmental Science - Jennet R. Mag-aso (UPFL) and Jassy P. Punay (UPD); for Biology/ Chemistry/ Health Science/ Food Science/ Natural Products –Ramon Arvin Noel B. Santos (UST) and Maara Krisandra L. Mendosa (UST); for Computer Science/ Mathematics/ Statistics –Material Science/ Physics – Jayson A. Lucilo (UPD) and Lorenzo P. Lopez Jr. (UPD).

SCIENCE EDUCATION INSTITUTE | Annual Report 2015
ASTHRDP-NSC conducts benchmarking tour of Asian countries.

A benchmarking workshop took place from June 18 to 20, 2015 at The Legend Hotel in Puerto Princesa City, Palawan, with the objective of raising the competitiveness of the ASTHRDP-NSC in response to the changing research environment and to meet the S&T human resource requirements in the international level.

An ad-hoc technical working group was tasked to discuss strategies and plans to be undertaken by the Consortium in three priority areas, namely: Natural Products and Drug Development, Materials Science and Nanotechnology, and Climate Change and Disaster Preparedness.

Among the Initial projects and activities geared toward the realization of the objectives of the benchmarking activity included the collaboration with higher education institutions in several ASEAN countries.

The Natural Products and Drug Development Group was headed by Dr. Maribel Nonato, Program Coordinator and Vice Rector for Research and Innovation at the University of Santo Tomas. Other members include Dr. Fabian Dayrit of ADMU, Dr. Evangeline Amor of UPLB, Dr. Lourdes Cardenas of UPLB, and Ms. Josefina Fernandez of SEI. The group went to different universities and departments in Kuala Lumpur, Malaysia and Bangkok, Thailand on February 22-28, 2015.

The Materials Science and Nanotechnology Group was headed by Dr. Drexel Camacho, Program Coordinator and Director of Research and Advance Studies of the College of Science of De La Salle University. Other members include Dr. Erwin Enriquez of ADMU, Dr. Reynaldo Veganzon of MSU-IIT, Dr. Milagros Peralta of UPLB, Dr. Armando Somintac of UPD, Dr. Bernard John Tongol of IIST and Ms. Charilyn Joy Layus of SEI. The Group visited the National Taiwan University and Academia Sinica on March 10, 2015 and the Korea Advanced Institute of Science and Technology on March 12, 2015.

The Climate Change and Disaster Preparedness group departed for Taipei, Taiwan; and Bangkok, Thailand on March 15, 2015 and returned in the country on March 22, 2015. The seven-man group was headed by Dr. Gay Jane Perez, Program Coordinator and Associate Professor at the Institute of Environmental Science and Meteorology of the University of the Philippines-Diliman. Other members include: Dr. Gemma Naresma of ADMU, Dr. Felino Lansigan of UPLB, Dr. Edgar Valler of DLSU, Dr. Gay Defiesta of UPV, Dr. Josette T. Biyo of SEI and Ms. Ma. Daisy A. Demoni of SEI. The group visited the National Center for Disaster Response, Taiwan; Central Weather Bureau, Taiwan; National Taiwan University, Taiwan; Asian Disaster Preparedness Center, Thailand; and Asian Institute of Technology, Thailand.

A Benchmarking Diagnostic and Writeshop was conducted on August 17-19, 2015 at the Sunrise Holiday Mansion, Alfonso, Cavite. The writeshop was attended by 61 participants composed of the NSC Project Leaders, the adhoc Benchmarking Technical Working Groups (TWGs) and other faculty members from the NSC member-universities, a Resource Person from the Commission on Higher Education, and 11 officials and staff of the Science Education Institute. The activity aimed to develop roadmaps covering the period 2016-2020.

The three-day activity included plenary sessions and series of planning workshops for each of the identified areas. At the end of the writeshop, each TWG came up with the following information relevant to ASTHRDP-NSC identified benchmarking areas:

- Inventory of faculty members;
- Inventory of curricular programs/courses;
- Inventory of researches and other programs in the universities;
- Inventory of facilities;
- Strengths, gaps and needs of the ASTHRDP;
- Curricular Program/Courses/Lecturers;
- Strategies in enhancing the strengths/addressing the gaps and needs of the ASTHRDP;
- Setting targets; and
- Roadmap in each ASTHRDP identified benchmarking area.
South East Asia has become by far the most dynamic region not just in terms of growth but also of using new technologies effectively to drive manufacturing and exports. To successfully integrate with the rest of ASEAN, the country needs a sense of community and a strong regional identity, one that would allow us to work in harmony with other member states as we move towards a globally competitive single market and production base and as we work to attract foreign investments.

Building Science and Technology Culture
INCOMING THIRD YEAR STUDENTS FROM NOTRE DAME OF MARBEL UNIVERSITY IN KORONADAL CITY, SOUTH COTABATO POSE FOR A GROUP PHOOTO AFTER THE #PuSH4SCIENCE: MANAGING DOST SCHOLAR KAI CAMPAIGN SESSION HELD IN MAY 2015. SIXTY-THREE (63) STUDENTS ParticipATED IN THE SCHOLARSHIP CARAVAN.

Competitiveness is thus akin to attractiveness, and it hinges on the kind and quality of our programs particularly in S&T education. Our programs need to be responsive and relevant to the current national, regional and international environments. The affordability of our education and general linguistic advantage in using English should be rounded off with the creation of top caliber, multi-disciplinary and multi-cultural teaching and research personnel who will be highly regarded locally and internationally.

SPECIALIZED SCHOLARSHIP CAMPAIGNS

#Push4Science campaign gains more participants.

The campaign that aims to make the DOST-SEI Undergraduate S&T Scholarship Programs to municipalities that had no examinees in the 2014 Junior Level Science Scholarship Program reached 18 out of 103 target municipalities or 17.4 percent in 2015. It served a total of 1,466 students and teachers from schools in 18 universities covering the municipalities of Dinahugan and Dilasag in Aurora; Sarangani in Davao Occidental; Lake Sebu in Koronadal; Kalamansig, Lebak, and Palimbang in Sultan Kudarat; Malabon in Manila; Palanan, Quirino, Luna and Dinapigue in Isabela; and Cabaldaon, General M. Natividad, and Laur in Nueva Ecija.

The campaign followed the promote-inspire-persuade framework, engaging freshmen and sophomore college students enrolled in priority S&T courses to inspirational talks from ongoing scholars and scholar-graduates, interactive activities, and scholarship orientation. Application forms for the RA 10612 Program were also distributed to encourage students and school officials to go immediately through the application process.

For the other municipalities that were not directly reached, Scholarship Campaign Kits were provided to the PSTCs and the university officials for their respective scholarship caravans. Posters, brochures and other collaterals were also distributed in all DOST attached agencies in Metro Manila to promote the scholarship program.

ALTERNATIVE DELIVERY PROGRAMS AND INNOVATIONS

Science Explorer covers more ground.

Expanding its reach to more public elementary and secondary schools in the country, the Science Explorer conquered new grounds, bringing fun and interactive science learning to students straight from real-life scientists. In 2015, the Science Explorer served 2,731 students from 95 schools in various areas in Luzon.

The Science Explorer touched base with students from schools in northern, central and southern Luzon, as well as in the National Capital Region. (see table 8)

Strengthening its core of fun science activities, new modules developed included:

- Disaster Preparedness: Storm Chasing
- Food Science
- Fun Chemistry
- The Science of Storms
- Marine Geology
- Mangroves
- Materials Engineering
- River Geology
- Polymer Fun
- Weather Science
- Volcanoes
- Food Safety
- LED
- The Digestive System
- The Science of Light

**TABLE 8: Students and Schools covered by the Science Explorer 2015**

<table>
<thead>
<tr>
<th>VENUE</th>
<th>NO. OF STUDENTS</th>
<th>NO. OF SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahay Aruga, Manila</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Dalaguete, Aurora</td>
<td>368</td>
<td>4</td>
</tr>
<tr>
<td>Malabon and Nagar City</td>
<td>799</td>
<td>37</td>
</tr>
<tr>
<td>San Fernando, Naga City</td>
<td>196</td>
<td>22</td>
</tr>
<tr>
<td>Vigan</td>
<td>240</td>
<td>7</td>
</tr>
<tr>
<td>San Rafael, Bulacan</td>
<td>481</td>
<td>4</td>
</tr>
<tr>
<td>DOST-NCR</td>
<td>364</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>2731</td>
<td>95</td>
</tr>
</tbody>
</table>

INCOMING THIRD YEAR STUDENTS FROM NOTRE DAME OF MARBEL UNIVERSITY IN KORONADAL CITY, SOUTH COTABATO POSE FOR A GROUP PHOTO AFTER THE #PuSH4SCIENCE: MANAGING DOST SCHOLAR KAI CAMPAIGN SESSION HELD IN MAY 2015. SIXTY-THREE (63) STUDENTS PARTICIPATED IN THE SCHOLARSHIP CARAVAN.

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Students enjoy new activities in Climate Science Youth Camp.

From April 12 to 21, 2015, the DOST-SEI implemented the Climate Science Youth Camp focusing on Oceanography and Meteorology in partnership with Marine Science Institute of the University of the Philippines, De La Salle University – Araneta and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) – DOST.

The camp was held at the Camp J. Paul Resort of Masinloc, Zambales which featured new set of activities that cover major topics in Marine Science and Meteorology. The students and teachers from Region I, II, III and CAR teamed up with scientists to let the students get the feel of actual research and fieldwork done by experts such as Observing the Automatic Weather Station (AWS), Tracking the Cyclones, Water Filtration, Water Quality Sampling, Plankton Microscopy, Basic Snorkeling and Sea Safety and Survival. Participants of this camp were also immersed with the community of San Salvador Island in Masinloc adapting the Participatory Action Research which is a technique for data collection and analysis.

The Climate Science Youth Camp bridges the basics of climate science, the technology of hazards assessment and reduction with the concepts of innovation and leadership among public high school students through the exploration of the dynamics between the atmosphere and ocean and the effects of climate change on the earth’s systems.
Philippine Space Science Education Program attains new heights

Promoting space education in the country, the Institute continues its catalytic role in mainstreaming advanced sciences such as astronomy and space science into the basic education system.

The 1st Can Satellite Competition

SEI pioneered another innovative science competition that allows schools to adopt various approaches in teaching space science into the classroom. From the previous Tagisang Robotics Design: Build: Play: Competition team roster, 12 public and private high schools from NCR, Region III and IV-A have been selected to undergo basic can satellite development training on August 24-28, 2015 at the National Institute of Science and Mathematics Education for Development (NISMED), University of the Philippines, Diliman, Quezon City.

A total of 48 participants composed of three (3) students and a coach from each school attended the five-day training on basic electronics, programming and algorithm design, data logging and telemetry, sensor application, cansat integration and basic concepts on meteorology. The series of lectures and discussions focused on practical activities intended to hone the skills of students in designing their own instrumentation system using sensors and relevant software.

A can satellite or Cansat is a small satellite that can fit inside an ordinary soda can. Cansats can be tasked to perform various functions such as imaging, in situ monitoring, telemetry or navigation. It is usually launched to altitudes of 100-4,000 meters using rockets, drones or tethered balloons and weighs around 350g. Upon release, cansats parachute back to Earth while performing its missions and are retrieved upon landing.

The competition seeks to provide an opportunity for Filipino high school students to experience the process of satellite development. The primary mission is to measure atmospheric data using temperature, pressure and GPS sensors and transmit these data to a ground receiving station.
2015 World Space Week Celebration

About 100 students from Manila, Rizal, Bulacan and Laguna gathered in the 3-day celebration at the University of the Philippines-Los Baños Campus to participate in the 2015 World Space Week, the largest space event on Earth, celebrated every October 4-10 annually, as declared by the United Nations.

The launch of the first ever set of cansats in Philippine history by Filipino high school students marked a milestone for the 2015 World Space Week with the theme “Discovery.” The cansats were launched using a drone and were deployed at an altitude of 100 meters. A cansat uses a parachute to descend while performing the team’s pre-defined missions. The team with a more complex mission (e.g. telemetry, navigation) was given higher points than for simple missions (e.g. imaging, light and sound display). Upon retrieval, the teams were given time to perform data analysis which were presented to a panel of judges to determine the final score of the teams.

Grace Christian College was hailed as the champion of the 1st CanSat Competition and also earned the Best Systems Engineering Award receiving a total of Php 13,000 in cash prize. Placing second was the Philippine Science High School Main Campus while Makati Science High School placed third. The schools received Php 7,000 and Php 5,000 as cash prize respectively.

To add excitement to the students was the annual Water Rocket Competition where each team of high school students make a rocket from an ordinary PET bottle boosted by combining water and air pressure. Advancing to the international Water Rocket competition in the 22nd Asia Pacific Regional Space Agency Forum held in Bali, Indonesia was the team from Rizal National Science High School.

A Poster Making Contest was also conducted for elementary students in Los Baños, Laguna with the theme “Careers in Space” to entice them to become space enthusiasts at an early age. The contest allows the students to express their ideas of space in art form, increasing their curiosity and level of awareness in space science and astronomy.

The team from Grace Christian College topped 11 other participating schools in the first ever CAN Satellite Competition in the country with them as the Technical Committee Members and Judges (D.R. ENGR. MCING MAGNANAY of UP-EE, Mr. ROBERT BADARNA of DOST-RAGASA and Dr. ROGER MARISISE, Focal Person of PSSEP, A.S. RUBY CRISTOBAL, Chief SRS of STARMAP).
Filipino students display math mettle.

**Philippine Mathematical Olympiad.** A total of 213 high school students took part in the 2015 Philippine Mathematical Olympiad (PMO), the oldest and most prestigious national mathematics competition among secondary students in the country. In the National Stage of the competition, which was held at the University of Santo Tomas, Manila on January 23, 2016, twenty (20) finalists competed.

The PMO is organized and implemented by the Mathematical Society of the Philippines (MSP) in cooperation with SEI-DOST. It aims to improve mathematics education in the country by awakening greater interest in mathematics among students and teachers.

Table 9 shows the top three (3) winners in the 18th PMO.

### Table 9: Winners in the 18th Philippine Mathematical Olympiad

<table>
<thead>
<tr>
<th>NAME</th>
<th>SCHOOL</th>
<th>AWARD/PRIZE RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farrell Eldrian Wu</td>
<td>MGC New Life Christian Academy</td>
<td>Champion/First Place P20,000, Trophy, Medal, Cert</td>
</tr>
<tr>
<td>Kyle Patrick Dulay</td>
<td>Philippine Science High School – Main Campus</td>
<td>1st Runner up/2nd Place P15,000, Trophy, Medal, Cert</td>
</tr>
<tr>
<td>Albert John Patupat</td>
<td>Holy Rosary College</td>
<td>2nd Runner up/3rd Place P10,000, Trophy, Medal, Cert</td>
</tr>
</tbody>
</table>

The six members of the Philippine Team were announced on May 22. They were:

1. Clyde Wesley S. Ang (Chiang Kai Shek College)
2. Kyle Patrick F. Dulay (Philippine Science High School Main)
3. Raymond Joseph C. Fadi (Malakti Science High School)
4. Albert John L. Patupat (I Holy Rosary College)
5. Adrian Reginald C. Sy (St. Jude Catholic School)
6. Farrell Eldrian S. Wu (MGC New Life Christian Academy)

Even after the team was formed, the training continued during the Saturdays of June, leading up to a mock-IMO scenario where the contestants were housed in a hostel and sat for 4.5-hour exams administered on two consecutive days.

**International Mathematics Olympiad (IMO)**

Finalists of the 2015 Philippine Mathematical Olympiad (PMO) joined the 56th International Mathematical Olympiad (IMO) held in Chiang Mai, Thailand on July 4-16, 2015. The Philippine team was composed of six (6) students, one Team Leader and one Deputy Team Leader.
The International Mathematics Olympiad (IMO) is the largest, most prestigious and most difficult mathematics competition among the best secondary students in the world and is held annually in different countries. The list of students and their respective awards are shown in Table 10.

Dr. Richard Eden and Dr. Louise John Vallejo both of UP-Institute of Mathematics led the Philippine Team as Team Leader and Deputy Team Leader, respectively. The Philippine participation to the 56th IMO is jointly organized by SEI-DOST, the Mathematical Society of the Philippines, the IIP – Institute of Mathematics and Metrobank Foundation.

Australian Mathematics Olympiad (AMC)

Around 3,400 students from the Philippines were included among the 400,000 students from 40 countries that joined the AMC. The AMC is considered as one of the largest competitions in the world administered simultaneously in different countries worldwide. In 2015, the AMC was held on August 6, while the Awarding Ceremonies was held on October 23, 2015 at the Manila Grand Opera Hotel, Sta. Cruz, Manila. More than 300 students, parents and guests attended the said event.

Eighty-three (83) Filipino students from different schools received Certificates of Distinction.

BPI and DOST award best student projects.

The Bank of the Philippine Islands (BPI) and DOST hosted yet another successful Best Project of the Year Awards ceremony on March 12, 2015 at the Mind Museum Special Exhibition Hall, Bonifacio Global City.

The annual competition for Best Thesis by graduating students pursuing science courses in ten (10) accredited schools/universities aims to give recognition and incentives to students who excelled in the fields of science, namely: Biology, Mathematics, Chemistry, Physics, Engineering and Computer Science.

In 2014, twenty-nine (29) entries were submitted by the following accredited schools for evaluation:
1. Ateneo de Davao University
2. Ateneo de Manila University
3. De La Salle University
4. Saint Louis University
5. Silliman University
6. University of the Phis–Diliman
7. UP Los Banos
8. University of San Carlos
9. University of Santo Tomas
10. Xavier University

The preliminary judging of this project was conducted on January 27, 2015 wherein the Board of Judges selected the top six (6) finalists for the Applied and Basic Research Categories. The judges are composed of five (5) experts from DOST for the technical aspect and five (5) from BPI for the business aspect.

The top three (3) winners are shown in Table 12.

<table>
<thead>
<tr>
<th>TABLE 11: The 2015 Australian Mathematical Olympiad Awarders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIZE</strong></td>
</tr>
<tr>
<td>Perfect Score</td>
</tr>
<tr>
<td>1st Place</td>
</tr>
<tr>
<td>2nd Place</td>
</tr>
<tr>
<td>3rd Place</td>
</tr>
<tr>
<td><strong>PRIZE AROWNS</strong></td>
</tr>
<tr>
<td><strong>TOP SIX</strong></td>
</tr>
<tr>
<td><strong>APPLIED AND BASIC RESEARCH CATEGORIES</strong></td>
</tr>
<tr>
<td>First Place</td>
</tr>
<tr>
<td>Second Place</td>
</tr>
<tr>
<td>Third Place</td>
</tr>
</tbody>
</table>

2015 BPI-DOST PROJECT OF THE YEAR AWARDER, CHRISTIAN JOHN CAPRIO FROM ATENEO DE DAVAO UNIVERSITY, GRAND WINNER (MOSS): RAGA DARRA INTERVAL FROM UNIVERSITY OF THE PHILIPPINE DEVAAN, 1ST RUNNER UP (LEFT MOST); AND ADELAN JAN LAM FROM DE LA SALLE UNIVERSITY, SECOND RUNNER UP (RIGHT).
More students win YES Awards. In 2015, a total of 609 students from 210 schools, who won in international science and mathematics competitions, were awarded with YES medals during the YES Awarding ceremonies held at PHIVOLCS Auditorium, PHIVOLCS Bldg, C.P. Garcia Ave., U.P. Diliman, Quezon City on February 4, 2016. There are 316 awardees from NCR and 293 from the regions.

The number of awardees represents a 30% increase from 2014, highlighting the continuing exemplary achievement of Filipino youth in the fields of science and mathematics. Awardees receive medals of distinction awarded by the Secretary of Science and Technology or the DOST Regional Director toward the end of each year or early months of the following year.

The YES Medal signifies DOST’s high regard for excellence and competitiveness through the distinguished achievements of young Filipinos in international science and mathematics competitions.

INFORMATION DISSEMINATION AND COMMUNICATION

Strategic communication plan helps promote S&T programs.

In 2015, SEI implemented an arsenal of communication strategies to ignite the interest of students and the general public on issues involving science education in a fun, interesting, and engaging manner.

Through mass media, the Institute sent out 23 news articles, generating 88 media placements. In the realm of social media, the SEI official Facebook account has garnered 13,663 followers, rising from 10,410 in 2014.

Expanding its reach to the regions, SEI participated in one national exhibition and four regional exhibitions. It participated in the 2015 National Science and Technology Week where 606 participants were engaged during the five-day event. The exhibit featured 20 female DOST scholars and scientists who are exemplary in their fields. Entitled “She for We,” the exhibit also had labs where the students interacted with leading scientists and engineers.

SEI also conducted an activity for the youth entitled “Clash of Class: The Ultimate Battle of Science Smarts”. This is a two-day event where students from public elementary and secondary schools teamed up with DOST scholars in a context that tested their skills and wit in a series of science-based fun competitions. The event was attended by 232 students, teachers, and DOST scholars.

Reaching out to the peripherals, SEI participated in regional exhibitions shown in Table 13.

SEI participated as well in the Science Film Festival, an annual exhibition of science films for the youth shown in the entire world. All DOST regional offices and campuses of the Philippine Science High School System showed the 43 science films provided by SEI. A total of 21,444 students viewed the films nationwide in the different screening venues arranged by SEI and its partner institutions.

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Globalization, ubiquitous technologies, accelerated pace of innovation and a host of other developments form a vibrant environment that increasingly compels those in the teaching profession to stay on top of the learning curve and keep up with the requirements of their own students. Such a setting with its ever shifting demands can be both challenging and intimidating to education service providers.

Along with all the cooperating institutions in the private and public sectors, the Science Education Institute (SEI) recognizes the importance of enhancing the role of teacher education institutions.
More than just focusing on classroom technology, resources are channeled to projects that facilitate enhanced teacher education and teacher professional development. Helping them meet more stringent licensure requirements, enhance their professional development, and comprehend increasingly rigorous course content are valuable approaches that will deliver better and more equitable education at the primary and secondary levels, and produce longer-term and sustainable impact on the education of our children.

**STRENGTHENING CAPABILITIES IN SCIENCE & TECHNOLOGY EDUCATION**

Two-phased training sessions expand teacher competencies. In 2015, a total of 428 teachers benefited from these training programs implemented in partnership with the following universities: Mariano Marcos State University (MMSU), Central Luzon State University (CLSU), Philippine Normal University (PNU), Bicol University (BU), West Visayas State University (WVSU), and the Mindanao State University-Iligan Institute of Technology (MSU-IIT). The Department of Education Regional Offices were likewise involved in the implementation of these training programs.

The goal of the program is to develop the capacity of teachers in innovative teaching approaches and utilizing resources using STEM concepts that are aligned to the K to 12 curriculum. The trainings were done in two phases, beginning with a trainors-training, where faculty members of the universities were trained on STEM concepts, and subsequently, regional trainings where the trained faculty members cascaded these concepts to in-service teachers of their respective regions.

Table 14-16 show the details of the training programs conducted for university faculty and teachers. Both Trainors-Training and Regional Trainings in math and science consisted of input sessions on K-12 curriculum, workshops/lecture on Development and Assessment of High-Order Thinking Skills, development of lessons and teaching demonstration. Action plans for the conduct of the same training/workshop in respective schools were done.

Science teachers undergo gender-responsive pedagogy training.

With the aim of establishing a gender-responsive environment in the teaching and learning of secondary science, the project “Gender-responsive Pedagogy for Secondary Science” was implemented. It was composed of three phases: 1. development of data gathering instrument and gathering of baseline data, in which 74 science teachers participated.

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Science and Mathematics teachers learn disaster risk reduction and management.

A three-day training for science and mathematics teachers to enhance their knowledge on and responses to natural disasters was held as part of DOST-SEI’s continuing commitment to Republic Act No. 10121 or the DRRM Act of 2010. Held in Baler, Aurora from April 15 to 17 and in Virac, Catanduanes from April 21 to 23, 2015, the workshops drew the participation of 99 science and mathematics teachers.

In Phase 1 of the project, a survey to gather information on the current status of science teachers on gender sensitivity and awareness in teaching the subject. This was held in June 26, 2015 at the Dr. Jose Rizal Memorial School (JRMS) Calamba City. The result of the baseline study revealed that majority of the teachers were aware on the various aspects of gender responsive pedagogy, namely: (1) Teaching Methodology; (2) Lesson Planning; (3) Teaching and Learning Materials; (4) Language; and (5) Classroom Set-up.

Phase 2 of the project was a 3-day training on gender responsive teaching pedagogy. It consisted of lectures and discussion on gender sensitivity and gender responsiveness, lesson development and implementation, preparation of teaching and learning materials, and demonstrations of classroom arrangements. This was also held at JRMS, Calamba City on July 22-24, 2015.

Phase 3 or evaluation part, involved the application of the concepts on gender-responsive pedagogy in their science class, particularly in the aspects of lesson planning, selection of group leaders, recitation, group reporting, seating arrangement, preparation of visual aids and test construction. There were challenges reported in their implementation such as the unequal number of boys and girls, and consistency in performing the tasks stated.

Experts from PHIVOLCS, PAGASA, Office of Civil Defense, DENR-Mines and Geosciences Bureau, Department of Health, and Philippine Red Cross served as resource persons.

The output of the training was a DRRM plan for their schools.
Project Science Teacher Academy for the Regions (STAR) conducts goal-setting workshop

On November 24-26, 2015, thirty-four (34) science and mathematics trainers participated in a three-day workshop to plan targets for STAR trainings up to 2019 and to benchmark with similar initiatives abroad.

The workshop, held at the Subic Travellers Hotel in SBMA, Olongapo City, gathered STAR trainers from the six (6) partner universities, namely: 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). Also included were DepEd math and science supervisors from these regions.

The six partner universities presented their initiatives on STEM education while DepEd education program supervisors reported the sustainability of the STAR training in their respective regions.

Dr. Marlene B. Ferido from UPI NISIMED presented the current state of science and mathematics education in the Philippines during the plenary session while Dr. Sheryl Lyn C. Monterola of UP College of Education served as consultant and facilitator of the entire workshop.

THE THREE-DAY WORKSHOP INVOLVED PARTICIPANTS IN AN INTENSIVE SERIES OF DISCUSSIONS, GROUP ACTIVITIES AND LECTURES TO LAY DOWN STAR TRAINING TARGETS UP TO 2019 AND BENCHMARK WITH SIMILAR INITIATIVES ABROAD.
Senior citizens take part in Science Camp.

Senior citizens of Marikina City attended a two-day activity dubbed as Science Camp for Lolo and Lola, a workshop that exposed them to scientific concepts. Held in cooperation with the city’s Office of Senior Citizens Affairs, the project was in support of Republic Act No. 9257, otherwise known as the “Expanded Senior Citizens Act of 2003”.


Science teachers learn how to teach hearing impaired students.

A training-workshop specifically designed to help teachers be more creative and effective in teaching science to their hearing impaired students in a mainstream classroom was held in on July 22, 2015 at the PHIVOLCS Auditorium, Diliman, Quezon City. Twenty-seven elementary and 22 secondary teachers participated in the workshop.

SEI Director Dr. Josette Biyo stressed the importance of how a simple classroom teacher can make a big impact in the lives of students, and reiterated the duty of teachers to make learning enjoyable and worthwhile.

Senior citizens of Marikina City take part in various scientific activities during the two-day Science Camp for Lolo and Lola.

Science teachers learn how to teach hearing impaired students.

Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young.

– Henry Ford
Science education set to benefit indigenous pupils.

To address inclusive development in education, DOST-SEI launched this project to enable marginalized groups of people to participate in national development.

The project particularly caters to elementary teachers from schools with predominantly indigenous learners but also with ability to create local suitable materials and ideas that are culture-based and familiar to them.

The project is composed of the following stages/phases:

1. Orientation and ocular visits to schools in IP communities. The Institute’s project personnel and the IP focal persons from DepEd Region 3 and the Divisions of Tarlac and Pampanga visited the beneficiary schools in these provinces on July 28 and 29, 2015, respectively, to seek consent from the IP Elders and their communities to implement these initiatives and orient them on the project being proposed.

2. Focus Group Discussion (FGD). Discussions were held with the IP Elders and their communities about their knowledge systems and practices, and learning systems. The discussions focused on the aspects that can be appropriately integrated in the science subject. The perspective of the concerned communities regarding their practice of the scientific processes was also discussed. Their inputs were documented and used by the teachers as basis in the development of indigenized lesson plans. The FGD in Pampanga was held on September 21-22, 2015 while that in Tarlac was held on September 23-24, 2015.

3. Designing the training-workshop for teachers on the indigenization of science lessons. To form the design for the training-workshop for teachers on the indigenization of science lessons, the Institute and DepEd IPSEO conducted a workshop on October 5-6, 2015 at St. Scholastica’s Convent in Baguio City. A consultant from UP Baguio was invited to help the group develop the training design.

4. Training-workshop on the indigenization of science lesson (plans) for IP education. A training-workshop was conducted on November 23-27, 2015 in Pampanga to develop teaching materials in the form of indigenized lesson plans in science for Grade 3, and in any subject for Kinder and Grades 1-2 in which science can be incorporated or integrated. Experts were invited to guide teachers in the process. The topics in the lesson plans were identified in the context of the IPs’ indigenous knowledge and learning systems. The teachers selected topic/s from each grading period/quarter. The output of the training-workshop were eight lessons for Grade 3 (two lessons per quarter/grading period), and six lessons for Kinder and Grades 1-2 (two lessons per Grade level).

**Project HOTS develops inquiry-based science lesson plan.**

This professional development program was conducted for the benefit of 91 teachers of 29 elementary schools in the DepEd Division of Taguig City and Pateros.

The project consisted of two phases. Phase I was a 3-day, 21-hour seminar-workshop on developing inquiry-based activities and assessment tasks for targeted science lesson. The training was conducted from May 18 to 29, 2015 in three batches. The objective of the seminar-workshop was to collaboratively develop science lessons incorporating an inquiry-based activity and their diagnostic, formative, and summative forms of assessment.

Phase II was a school-based teacher-led follow-through. Schools were selected based on the following criteria: with large number of enrollees, implementing teachers preferably with minor or major in science, technology equipment like computers and LCD projectors, and ability to form a Lesson Study Group.

Follow through activities took place from August to October, 2015 in the following elementary schools:
- C.P. Sta. Teresa Elementary School
- Raging Tanay Elementary School (Main)
- Enlisted Men’s Signal Village Elementary School
- Daanghari Elementary School
- Silangan Elementary School
- Kapt. Eddie Reyes Memorial Elementary School
- Tipas Elementary School
- Maharlika Elementary School
- Taguig Integrated School
- Pateros Elementary School

**Participants of the Workshop on the Indigenization of Lesson Plans for Kinder and Grades 1-3 on 22-27 November 2015 at OTel Pampanga, San Fernando, Pampanga**

**Teacher Trainers Conducted Hands-on Activity During the May 2015 Training at SEI**

**PUPILS OF C.P. STA. TEREZA ELEMENTARY SCHOOL PARTICIPATED IN INDIVIDUAL ACTIVITIES SUPERVISED BY MS. ARARIE O ARAN, TEACHER IMPLEMENTER**
Lessons developed during the summer training were implemented in the 10 schools using the Lesson Study Cycle (LSC). This process entailed the creation of a Lesson Study Group per school to facilitate the follow through activities leading to the lesson implementation. The first teacher implementer conducted the lesson to a Grade 3 class. The lesson implementation was observed by other teachers, consultants from University of the Philippines- National Institute for Science and Mathematics Education Development (UP-NISMED), the Education Program Supervisor of the Division and SEI staff.

Lesson implementations and observations were fully documented. Post-lesson discussion were conducted wherein the first implementing teacher and the observers shared their opinions and reflections regarding the conduct of the lessons. The Lesson Study Group then chose which revisions will be applied in the second implementation conducted usually two days after the first implementation. The same process of observation and discussion was repeated for as long as there were observed areas for improvement in the lesson plan.

C. P. Sta. Teresa Elementary School and Taguig Integrated School were recognized as the two Most Promising School Implementer of the Lesson Study on December 9, 2015. Both schools received a set of ICT equipment composed of one (1) laptop, one (1) multi-function printer, one (1) LED projector and one (1) pocket wi-fi. The Schools Division of Taguig City-Pateros, through Education Program Supervisor Dr. Leticia E. Andor also received the same set in recognition of the division’s support and cooperation extended to Project HOTS since its inception in 2012.

A faculty paper entitled, “Improving the Use of Physical Manipulatives in Teaching Science Concepts Through Lesson Study” was submitted by Rolando M. Tan, technical staff of the UP-NISMED, the Education Program Supervisor of the Division and SEI staff.

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DOST SEI converts courseware to Mobile Application (CMApp)

The ubiquitous use of mobile devices like smartphones and tablets among the youth prompted DOST-SEI to convert its select Courseware modules in science and mathematics to run in Android operating systems. The converted modules were uploaded to Google Play Store and the DOST Courseware Mobile Application or CMApp and was launched on December 10, 2015.

DOST CMApp, which can be downloaded and installed for free, was rated as appropriate for age-group users by International Age Rating Coalition (IARC), a globally streamlined age classification process for digital games and mobile applications helping to ensure the consistent cross-platform accessibility of established, trusted age ratings by today’s digital consumers.

The project helped promote the use of mobile technology in education, in addition to stimulating greater socio-economic inclusion in learning.

DOST CMApp features ten (10) modules in science and mathematics each for Grades 7 and 8.
The CD/DVD copies of Grades 1-6 Interactive Courseware in Mathematics and Grades 7-8 Interactive Courseware in Science and Mathematics

Mobile IT Classroom (MITC) deployed in provinces.

The MITCs are air-conditioned 32-seater buses equipped with 16 working tables and educational technology facilities with interactive instructional/learning materials for students of science and mathematics. Each unit is also equipped with a generator set as a source of power for use in areas without electricity.

In 2015, there were only two MITC units deployed in the provinces. One MITC bus is deployed in Surigao del Norte, donated by SEI to the Local Government Unit (LGU) based on the request of Governor Sol F. Matugas, to be able to sustain its program on IT education. It was formally turned over to the LGU on 02 December 2015 at the Provincial Capitol, Surigao City.

The MITC unit deployed in the Province of Camarines Sur, through the Partido Development Administration (PDA), actively conducted trainings to students and teachers in various municipalities of the province. In 2015, the PDA trained a total of 1,458 students and 185 teachers in 19 elementary schools in the province.
SEI publishes and distributes **Compendium of Innovative Practices in Managing Large Classes**

From 2011 to 2014, the Search for Innovative Practices in Managing Large Classes for Effective Teaching and Learning of Science and Mathematics was conducted with the goal of documenting innovative practices in managing large classes that improved the quality of teaching and learning in classrooms with more than 51 students.

Ten of the 15 classroom management practices that qualified in the two search activities were found to improve the teaching and learning of science/mathematics of the students exposed to them. These practices were rewritten to simplify the procedures so interested teachers can follow and apply them.

These innovations were compiled, published and distributed to schools with large classes and to schools division offices of the Department of Education. The management practices could be used in its entirety or with modifications in classrooms with 50 or more students.

**Project ARISE launches 21st century educational environment.**

To meet the needs of the 21st Century learners, the Institute conceptualized, established and launched the 21st Century Classroom and Open Resource Center on December 10, 2015.

The 21st Century Classroom is designed to promote collaborative learning through various digital teaching technologies to help teachers and students connect with data and other resources.

The Open Resource Center meanwhile is an open learning space set to promote an atmosphere of academic and scientific research, discussion and collaboration where stakeholders could have free access to resources and interactive content, and features SEI innovations, projects, researches and training resources on science and mathematics education.

These two facilities are part of the project dubbed as **Access to Resources and Innovations in Science Education (ARISE)**. ARISE is an ecosystem of education, information and communications technology resources and innovations that will serve as a support system to the K to 12 and Science, Technology, Engineering, and Mathematics (STEM) education.

**As a 21st century learning support system, ARISE addresses the five critical areas:**
1) Standards; 2) Assessment of skills; 3) Curriculum and instruction; 4) Professional Development; and 5) Learning Environments.

DOST-SEI also conducted orientation for teachers, head teachers, and supervisors from the city schools division in Manila, Muntinlupa, Mandaluyong, Taguig-Pateros, Calamba City and Laguna.

The old Mobile Information Technology Classroom bus, which was previously deployed in Cebu City, was shipped back to SEI for repair and conversion into a **EUREKA! Science on the Go bus** in 2015. The bus is designed to be a mobile science classroom and laboratory facility that provides hands-on innovative experiences.
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.

During its conversion, the exterior (body and tires) and interior (main engine, sub-engine/air conditioning unit, other mechanical and electrical components, lightings, and other fixtures) of the bus were refurbished based on the design suited to accommodate participants for the trainings/workshops and laboratory activities. It will soon be equipped with various laboratory and ICT facilities.

The bus, which was launched on December 10, 2015, will serve as a venue for various training programs starting 2016.

RESEARCH ON S&T HUMAN RESOURCES AND EVALUATION OF DOST-SEI PROJECTS

Data on S&T skills migration updated.

The Institute completed the data gathering and analysis phase of the S&T skills migration study that was updated in 2014. The study covered the period 2005-2013, and has two components:

1) Emigration of Science and Technology-Educated Filipinos (Permanent Migrants),
2) OFWs with S&T occupations (Temporary migrants).

Secondary data from POEA for the temporary migrants and CFO for permanent migrants were utilized in this study.

In general, the annual outflow of newly-hired OFWs showed an upward trend, except in 2003 and 2009. On the average, there were 316,000 OFWs based on the data from 1998 to 2013. The yearly outflow of OFWs has doubled after 15 years, from around 220,000 in 1998 to about 465,000 in 2013.

The occupations of OFWs were reclassified by whether or not they were considered as S&T-related jobs. On average, about 6% (or around 18,000) of all OFWs had S&T occupations. The highest number of S&T OFWs was recorded in 2011 with about 31,000 (7%) while the lowest was in 1998 with only around 10,000 (4%).

There was a significant positive increase of 175% in 16-year period, from around 10 thousand in 1998 to almost 27 thousand in 2013 (see figure 6).

In terms of distribution of S&T OFWs by occupations, nursing and midwifery professionals comprise the highest number among other occupations,
both in terms of level and percentage, followed distantly by engineers and related professionals and other health professionals (see figure 7).

On the average, nurses and midwives made up 59 percent of all S&T OFWs, accounting to about 11,000. On the other hand, 28 percent of S&T OFWs (or around five thousand) were engineers and related professionals. Only eight percent (or 1,500) were health professionals. The remaining five percent (or 730) were IT and hard science professionals, namely, computing professionals, physicists, chemists and related professionals, life science professionals, or mathematicians, statisticians, and related professionals.

The annual outflow of nurses that dropped in the period of 2003-2005 began to increase again from 2006 until 2013, reaching to almost 18,000 in 2011. This number decreased slightly to about 17,000 in 2013. The annual outflow of engineers also started to increase in 2006 and peaked to almost 11,000 in 2011 before slightly reducing to 7,000 in 2013. Observably, engineers made up almost one third of all S&T OFWs from 2006 to 2008.

IT and hard science professionals comprised only a small proportion of S&T OFWs, although their expertise may not be a negligible loss.

Permanent Migrants
When the Filipino emigrants from 2005-2013 are grouped according to broad S&T Tertiary Degrees they have completed, more than one third or 39.67% belong to Health Professionals. This is followed by Engineering and Engineering Trades (27.99%), Computing Professional (10.62%), Architecture and Building (10.40%) and Teacher Training and Education Science (4.20%). The broad groups of S&T Tertiary Degrees with the least number of Filipino emigrants are the Environmental Protection (0.01%), Transport Services (0.04%) and Veterinary Professionals (0.54%).

Figure 9 shows that prior to migration to other countries, Nursing and Midwifery Professionals (21.07%) top the list of broad groups of S&T occupations that are documented by CFO. The Architects, Engineers and Related Professionals obtained 12.31%, while only 5.57% in the Health Professions (except nursing). Small proportions are observed for the Computing Professionals and Physicist, Chemists, Life Sciences, and Mathematicians, Statisticians and Related Professionals with only 2.09%, and less than 1%, respectively.

Tracer Study on DOST-SEI S&T Scholar Graduates
The Department of Science and Technology through the Science Education Institute (DOST-SEI) by virtue of Republic Act (R.A.) No. 7687 otherwise known as the S&T Scholarship Act of 1994 is mandated to undertake efforts on accelerating the production of the country’s S&T manpower capability through the grant of scholarships in mathematics, science, and technology. This TRACER (Tracking Actual Career Experience Report) study is conducted to determine the present situation and career movement of DOST undergraduate grantees and to document their contribution at the institutional, national and international levels. The
data for this study was obtained mainly from DOST-SEI scholar graduates who requested for clearance, either for official or personal purposes (e.g., employment/travel abroad) from 2000 to 2012 only. Thus, the results presented below may not necessarily reflect the actual situation of all scholar graduates of the program.

**Highlights:**

- A total of 3,426 scholar graduates were included in the analysis, which represents 15.3% of the total graduates from 2000 to 2012.
- RA7687 scholars comprised 83.5% of all tracked scholar graduates while 10% were Merit scholar graduates.
- About half (49.4%) of the subjects were graduates in Engineering courses, 10.5% in IT/ICT courses, and 9.6% in Technical/Technician courses. Only a few were graduates in Basic and Applied Sciences, 9.1% and 7.2%, respectively (see figure 11).
- Disaggregating the scholar graduates by employment status, 8 out of 10 were employed and 1 out of 10 were unemployed (see figure 12).
- Among the employed, 82.2% were holding permanent positions and 13.8% were employed either as contractual or temporary employees. About 4.0% did not specify their employment status (Figure 13).
- Most of the employed (73.2%) were working in private companies. The rest were either in the government (7.0%), in the academe (5.2%), or in NGOs/Foundation (0.4%) while 0.6% or 21 subjects did not specify the sector in which they were employed (see figure 12).
- In terms of employment location, only fifteen (15) or 0.4% were working overseas, while 84.0% were locally employed (Figure 14).
- Among those who were employed, 40.5% were working in the Engineering field, which is the highest among the occupational fields. 10.7% have jobs in Technical or Technician fields. However, a significant percentage (15.9%) was working in non-S&T fields. Only a few were involved in Basic and Applied Sciences, 6.2% and 7.9%, respectively. The same observation was also noted among those working in the academe/teaching (only 4.2%) (see figure 13).

Survey helps improve processes under S&T Scholarship Program

Due to the increasing number of applicants to the DOST-SEI Undergraduate S&T Scholarship Program, it became a necessity to review its policies and assess the quality of service provided at various stages to scholarship beneficiaries. The results of such a survey will provide valuable input to help improve the administration of the scholarship programs that the Institute offers.

The data collection was done at SEI in Bicutan, Taguig City during the application period from August to September 2014 among applicants to the 2015 S&T DOST Undergraduate Scholarship Program. A total of 854 accomplished feedback questionnaires were submitted by the respondents comprising 531 students, 294 parents and 29 relatives/friends. Majority of those applying for the scholarship program (84.0%) were from the public schools, while only a small percentage (14.8%) came from the private schools.

Source of Information about the Scholarship Program: Student-Respondents

As indicated in Figure 18, among the 573 student-respondents who accomplished the feedback questionnaires, majority (62.0%) cited school as the main source of information about the DOST-SEI undergraduate scholarship program. A little more than one-fifth (22.8%) and ten percent (10.5%) of the student-respondents mentioned friends and DOST website, as the source of information, respectively. Members of the family (1.1%), posters and brochures (0.9%) were also cited as the other sources of information about the program (Figure 18).

Majority (75.2%) of respondents rated very good to excellent on the overall scholarship application process (e.g. venue, assistance extended by DOST-SEI personnel, documentary requirements, etc.) The following comments and recommendations for the improvement of the delivery of services of the program were given by the respondent:

FIGURE 10: Percent Distribution of Tracked Scholar-Graduates by Course Taken

FIGURE 11: Percent Distribution of Tracked Scholar-Graduates by Course (Grouped)

FIGURE 12: Percent Distribution of Tracked Scholar-Graduates by Current Employment Status and Sector

FIGURE 13: Percent Distribution of Tracked Scholar-Graduates by Employment Status

FIGURE 14: Percent Distribution of Tracked Scholar-Graduates by Current Employment Status and Location

FIGURE 15: Percent Distribution of Tracked Scholar-Graduates by Occupational Field (Grouped)

FIGURE 16: Distribution of applicants to the 2015 DOST-SeI undergraduate S&T scholarship program by sex

FIGURE 17: Percentage distribution of applicants to the 2015 DOST-SeI undergraduate S&T scholarship by type of scholarship program applied for
**Table 17:** Local and International meeting and conferences

<table>
<thead>
<tr>
<th>EVENT</th>
<th>LOCATION</th>
<th>DATE</th>
<th>PARTICIPANTS</th>
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<tbody>
<tr>
<td>37th APEC HRDWG Meeting and 5th Meeting of the Policy Partnership on Science, Technology and Innovations (PPSTI)</td>
<td>Boracay, Aklan</td>
<td>May 13-19, 2015</td>
<td>Dr. Josette T. Biyo, Director; Ms. Imelda S. Sario, Sr. Science Research Specialist</td>
</tr>
<tr>
<td>International Conference on Science and Technology</td>
<td>De La Salle University, Manila</td>
<td>Sept 10-11, 2015</td>
<td>Ms. Maria Lourdes V. Felicitas, Science Research Specialist II; Ms. Ma. Cecilia M. Sacopla, Science Research Specialist II; Ms. Joan G. Salise, Science Research Specialist II; Ms. April S. Dumayag, Science Research Specialist II; Ms. Jobelle P. Gayas, Science Research Specialist II; Ms. Mary Angelica D.C. Palomo, Science Research Specialist I</td>
</tr>
<tr>
<td>9th ASEAN+3 Center for the Gifted on Science (ACGS) Board of Directors’ Meeting</td>
<td>Jeju, Republic of Korea</td>
<td>Nov 24-27, 2015</td>
<td>Dr. Josette T. Biyo, Director</td>
</tr>
<tr>
<td>International Conference on Education and Psychology</td>
<td>Nagoya, Japan</td>
<td>Nov 24-27, 2015</td>
<td>Ms. Joan Calise</td>
</tr>
</tbody>
</table>

- Provide more personnel/staff to assist during the application period.
- Add more centers/sites/branches/satellite offices for the submission of accomplished applications forms.
- Develop on-line submission of applications.
- Put direction/signboard from the DOST gates to SEI.
- Application forms should be available in school.
- Food/snacks should be made available in the area.
- Provide additional roofing for shelter outside.
- Include required documents in the checklist (e.g., certifications).
- Need for a wider coverage for the announcement so that more people will be informed and can apply.
- Need to update the SEI website on the status of the application process, the deadline of filing.
- Post in social networking sites so that people will be able to apply, specially those who really need the scholarship.

Many of the respondents likewise gave good comments about the SEI staff and the scholarship program. Feedback studies are thus recommended for other projects and activities of the Institute.

**International Association for the Evaluation of Educational Achievement (IEA).**

In 2015, DOST-SEI renewed its membership in the International Association for the Evaluation of Educational Achievement (IEA). The IEA is an independent, international cooperative of national research institutions and government research agencies that conducts comparative studies of educational achievements to gain an understanding of policies and practices within and across educational systems. The Philippines was represented by Dr. Josette T. Biyo, SEI Director, during the 55th Annual General Assembly of the IEA on October 3 to 9, 2015 in Mexico City. Dr. Biyo shared a study on TIMSS-Advanced 2008.
The diversity of socio-political and cultural occurrences in ASEAN entails the establishment of a robust communication infrastructure to deal with myriad issues like migration, social development, and disaster and risk mitigation to climate change and renewable energy, people and conflict resolution, among others.

DOST-SEI recognizes the importance of aligning the strategic goals on national development and poverty reduction of individual countries with ASEAN’s overall aspirational, transformational and universal development agenda to boost the region’s efficiency.
and productivity. Every step the Institute takes towards enhancing its ICT network that brings Filipinos closer to having accessible and comprehensive education, wherever they may be.

DEVELOPMENT OF INFORMATION NETWORK SYSTEMS FOR THE IMPROVEMENT OF S&T EDUCATION LINKAGES (MIS PROJECT)

Institute updates ICT architecture and manpower skills.

Software upgrades and content updates.

Among the improvements in the Institute’s ICT facilities was its internet connection, which was enhanced from 18MBps to 24MBps courtesy of Radium Telecoms, Inc.

The MIS unit also continuously monitored the Institute’s bandwidth utilization on a daily basis, generating reports on individual network usage, and updated periodically the network security measures and protocols.

The unit also performed regular updates in the Institute’s website (www.sei.dost.gov.ph) to ensure all content are in accordance with the DBM’s Transparency Seal initiative. Consequently, the Transparency Seal was updated every quarter.

In terms of content, 23 news articles were posted in the website throughout 2015, including the list of Junior Level Science Scholarship (JLSS) qualifiers. Further, the websites www.science-scholarships.ph and www.tagisangrobotics.ph of the Scholarship Division and the Tagisang Robotics project, respectively, were constantly maintained.

Hardware updates and personnel training.

The MIS unit obtained new switches, laptops, storages devices and other IT equipment, and installed a Wi-Fi access point at the Institute’s lobby and conference room to provide internet access for applicants and guests.

The unit also conducted a five (5) day in-house training entitled, “PHP Programming and MySQL Database Administration – Level 1.” Experts from University of the Philippines-Los Baños trained the selected SEI staff to develop their knowledge and skills on basic programming and database administration. The training aimed to provide participants with knowledge and understanding of the different Information Systems developed and implemented within the network.

Finally, the unit conducted hardware and software audit to evaluate and secure the network and to comply with the ICT policies and standards. Technical support for the IT network users of the Institute was continuously provided to help ease the accomplishment of the Institute’s programs and projects.
Gender and Development

Gender and Development Program continues line up of activities

In 2015, the Institute continued to implement various projects geared towards creating gender awareness, identifying gender issues, and mainstreaming gender perspective in its policies, programs and projects.

The activities are classified as organization-focused and client-focused. The first pertains to activities that are gender-responsive policies, programs and projects addressing the gender issues of employees, particularly those that affect women’s performance. Client-focused activities, on the other hand, are activities that address the gender issues of the DOST-SEI’s clients.

The GAD program is in response to Memorandum Circular 2011-01 on “creation, strengthening and institutionalization of the Gender and Development (GAD) Focal Point System”, and the PCW-NEDA-DBM Joint Circular 2012-01 on “the preparation of GAD Plan to implement Magna Carta of Women.”

Philippine Celebration of the International Women’s Day on March 08, 2015

The National Women’s Day celebration held on March 8, 2015 recognized and highlighted women’s key roles and accomplishments in leadership, power and decision-making. It was bannered by the theme “Juanas, Desisyon Mo ay Mahalaga sa Kinabukasan ng Bawat Isa, Ikaw Na!”

SEI employees united with Philippine Commission on Women (PCW) and other agencies at Quezon Memorial Circle, Quezon City, to pay tribute to all women leaders and encourage more women to lead in different sectors of society. Women or “Juanas”, as they were called, actively participated in the parade, simultaneous street dance, and inspirational talks.

DOST-wide Women’s Month Celebration

SEI also joined other DOST attached agencies in the celebration of Women’s Month on March 16, 2015. Among the highlights of the event was a poster making contest illustrating the role played by Filipino women in leadership, power, and decision making. Each agency also prepared a statement and chant, voicing out their views about the Women’s Month theme.

Other activities included dance marathon (Zumba and the street dance steps), forum on women’s leadership, exhibits and trade fair, and make-over session by Ricky Reyes. All participants actively joined the event and displayed the 2015 campaign shirt.
Framework Development Workshop for DOST-SEI

The DOST-SEI GAD Focal Point System (GFPS) held a Gender and Development Framework Workshop in Calamba, Laguna on June 22-23, 2015. The said activity was attended by members of the GAD Focal Point System (GFPS) composed of six (6) female and one (1) male employees, and Ms. Marita C. Pimentel, PCW-GAD Resource Pool member, served as the Resource Person during the workshop.

The activity aimed to develop GAD programs and plans from 2017 to 2020 and set the direction for DOST-SEI in order to achieve its vision of becoming the GAD leader in STEM Education.

GAD Audit Workshop

To determine the status of gender and development program implementation in SEI, the GAD Focal Point System organized a GAD Audit Workshop on December 9-10, 2015 also in Calamba, Laguna.

In the said workshop, the GFPS members were trained on the use of Gender Mainstreaming Evaluation Framework (GMEF) as a tool that enhances the GAD Planning and Budgeting. They were also oriented on the basic concepts and operations of GAD Audit.

2015 18-Day Campaign to End Violence Against Women

The 18-day campaign dubbed “End Violence Against Women (VAW)” is being observed every year from November 25 to December 12 based on Presidential Proclamation 1172 s. 2006. This campaign aims to raise awareness that violence against women is a public issue of national concern. As SEI’s support to the campaign, ten (10) female and five (5) male employees participated in the kick-off activity “Assembly of Anti-VAW Advocacy Supporters,” joining other government, non-government, and private sector stakeholders. This was held at Aliw Theater, Pasay City on November 25, 2015.

Moreover, SEI-GFPS organized a half-day activity on VAW in relation to this year’s theme “End VAW Now! It’s Our Duty! Gains and Ways Forward.” The activity aimed to increase awareness of SEI employees on Violence Against Women. This was held on December 1, 2015 at WGP Conference Hall, SEI, Bicutan, Taguig City.
Development and distribution of information, education and communication (IEC) materials on GAD

Recognizing the importance of IEC materials to effectively communicate GAD concepts to SEI employees and its clients. Pamphlets, flyers and bookmarks were distributed during the Launching of Project ARISE and Awarding ceremony of Project HOTS. Teachers from Taguig City and Pateros Division, Manila and Sta. Rosa received the kits containing GAD materials.

Collection of sex-disaggregated data

Expected to be of great use in identifying GAD issues, sex-disaggregated data have been included in all DOST-SEI projects accomplishment reports. The data shall form part of the database system to serve as basis in performance-based gender responsive planning.

Various seminars/trainings/forums on GAD

SEI has been an actively participates in forums/trainings/seminars concerning GAD. The SEI GAD Focal Point System attended the following:

- Roundtable Discussion on Designing for Healthy Work and Living Environment on February 5, 2015 in Roxas Blvd., Pasay City
- Roundtable Discussion on Molecular Pathogenesis of Infectious Diseases on February 20, 2015 in Roxas Blvd., Pasay City
- 4th GAD Planning and Budgeting on November 04, 2015 Occupational Safety and Health Center (OSHC), Agham Road, Quezon City
- Sustaining Gender Mainstreaming in DOST: 2015 GAD Focal Point Assembly on December 14-15, 2015 at DOST Executive Lounge, DOST, Bicutan, Taguig City
**S&T Capacity Building Activities**

**Scholars Under SEI Staff Development Program**

<table>
<thead>
<tr>
<th>STATUS</th>
<th>NAME</th>
<th>COURSE</th>
<th>START OF SCHOLARSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduated</td>
<td>Juan G. Salo</td>
<td>Master of Arts in Education</td>
<td>Batch 1: July 11, 2015, Batch 2: August 10, 2015</td>
</tr>
<tr>
<td>On-going</td>
<td>April S. Chua-Reyes</td>
<td>Master of Arts in Education (MBA)</td>
<td>Batch 1: July 11, 2015, Batch 2: August 10, 2015</td>
</tr>
</tbody>
</table>

**List of Employees Who Attended Conventions/Seminars/Trainings for the Year 2015**

<table>
<thead>
<tr>
<th>TITLE OF TRAINING/SEMINARS/WORKSHOPS</th>
<th>VENUE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7th Annual National Convention (ANC)</td>
<td>Crown Regency Resort and Convention Center, Main Road, Restored, Boracay Island, Province of Aklan</td>
</tr>
<tr>
<td>2</td>
<td>Project Management: Skills for Success</td>
<td>Activity Learning, Inc., 2nd Floor, Designmix Building, 59 Connecticut St., Greenhills, San Juan</td>
</tr>
<tr>
<td>3</td>
<td>Training for the Enhanced NAGA and Budget System Users and Technical Teams for Personnel</td>
<td>CDMA Main, Commonwealth Avenue, Quezon City</td>
</tr>
<tr>
<td>4</td>
<td>Public Sector HR Symposium and Philippine Society for Training and Development (PSTD)</td>
<td>Waterfront Hotel, Lahug, Cebu City</td>
</tr>
<tr>
<td>5</td>
<td>In-house Orientation and Orientation Programs on &quot;Employees Rights, Privileges &amp; Obligations&quot; and &quot;Sexual Harassment&quot;</td>
<td>W.S. Padilla Conference Room, Science Heritage Bldg., DOST Compound, Gen. Santos Ave., Diliman, Quezon City</td>
</tr>
<tr>
<td>6</td>
<td>Disaster Management Seminar entitled &quot;Tagay, Handa ka Ta Yang!&quot;</td>
<td>DOST Executive Lounge, DOST Compound, Gen. Santos Ave., Diliman, Quezon City</td>
</tr>
</tbody>
</table>

**TITLE OF TRAINING/SEMINARS/WORKSHOPS**

<table>
<thead>
<tr>
<th>VENUE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>W.S. Padilla Conference Room, Science Heritage Bldg., DOST Compound, Gen. Santos Ave., Diliman, Quezon City</td>
<td>July 14, 2015</td>
</tr>
<tr>
<td>DOST Compound, Gen. Santos Ave., Diliman, Quezon City</td>
<td>July 31, 2015</td>
</tr>
<tr>
<td>W.G. Padilla Conference Room, Science Heritage Bldg., DOST Compound, Gen. Santos Ave., Diliman, Quezon City</td>
<td>October 07-09, 2015</td>
</tr>
<tr>
<td>Cultural Center of the Philippines (CPP) and De La Salle University</td>
<td>October 11-14, 2015</td>
</tr>
<tr>
<td>Godwin-Jones Consultants, Inc.</td>
<td>October 20-22, 2015</td>
</tr>
<tr>
<td>Azota Residencia Hotel, Puerto Princesa City</td>
<td>October 21-24, 2015</td>
</tr>
<tr>
<td>Philippine Statistical Research Training Center, Quezon City</td>
<td>November 04-06 and 09-11, 2015</td>
</tr>
<tr>
<td>Hotel Kimberley, Mandaluyong</td>
<td>November 4-6, 2015</td>
</tr>
<tr>
<td>Grand Messing Hotel, Diliman City</td>
<td>November 10-11, 2015</td>
</tr>
<tr>
<td>UPR-Computational Science Research Center (CSRC), Diliman, Quezon City</td>
<td>December 01-03, 2015</td>
</tr>
<tr>
<td>CCRP Trade and Convention Center, Camp John Hay, Baguio City</td>
<td>December 01-03, 2015</td>
</tr>
</tbody>
</table>
Institutional Awards & Recognition

APEC Green Video Festival
Hyundai New Thinker Summit was recognized during the APEC Green Video Festival which is designed to increase science awareness and greater press coverage of Science, Technology and Innovation.

Loyalty Recognition

RECIPIENTS OF LOYALTY AWARD
(Per CSC MC No. 06, s. 2002)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Period of Continuous Government Service</th>
<th>No. of Years in the Gov't Service with Corresponding Loyalty Award Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Maria Teresa B. de Guzman</td>
<td>01-01-1990 to 12-31-2015</td>
<td>20</td>
</tr>
<tr>
<td>02</td>
<td>Aneta F. Gavina</td>
<td>01-01-1995 to 03-31-2015</td>
<td>15</td>
</tr>
<tr>
<td>03</td>
<td>Ako O. Asuncion</td>
<td>06-18-1975 to 06-17-2015</td>
<td>35</td>
</tr>
<tr>
<td>04</td>
<td>Mia Elisa R. Demesinis</td>
<td>09-26-1990 to 09-25-2015</td>
<td>20</td>
</tr>
<tr>
<td>05</td>
<td>Peter Graziano</td>
<td>04-01-2000 to 03-31-2015</td>
<td>5</td>
</tr>
<tr>
<td>08</td>
<td>Imelda S. Sario</td>
<td>10-05-1979 to 10-04-2000</td>
<td>30</td>
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<tr>
<td>07</td>
<td>Vergel P. Rebuta</td>
<td>08-01-1995 to 08-31-2015</td>
<td>15</td>
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</tbody>
</table>

Managing SEI Resources

STATEMENT OF ALLOTMENT & OBLIGATIONS
(Amount In Thousand Pesos)

<table>
<thead>
<tr>
<th>PS</th>
<th>MOOE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allotment</td>
<td>Obligation</td>
<td>Allotment</td>
</tr>
<tr>
<td>General Administration and Support Services</td>
<td>18,994</td>
<td>17,430</td>
</tr>
<tr>
<td>OPERATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research, Promotion and Development of S&amp;T Education and Training</td>
<td>10,540</td>
<td>10,411</td>
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<tr>
<td>Locally Funded Project – Support to the Presidential Implementation of PD 997</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Automatic Appropriations (LUP)</td>
<td>2,199</td>
<td>2,010</td>
</tr>
<tr>
<td>Total Budget</td>
<td>36,260</td>
<td>34,336</td>
</tr>
</tbody>
</table>

BUDGET DISTRIBUTION
(Amount In Thousand Pesos)

<table>
<thead>
<tr>
<th>Major Expense Class</th>
<th>Operations</th>
<th>GAAS (General Administration and Support Services)</th>
<th>Locally-Funded Project</th>
<th>Per Major Expense Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS</td>
<td>34,336</td>
<td>2,211,942</td>
<td>346</td>
<td>MOOE 2,202,402 98.64%</td>
</tr>
<tr>
<td>MOOE</td>
<td>2,211,942</td>
<td>98.89%</td>
<td></td>
<td></td>
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<tr>
<td>GaaS</td>
<td>24,450</td>
<td>1.09%</td>
<td></td>
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<tr>
<td>locally-Funded Project</td>
<td>346</td>
<td>1.02%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations</td>
<td>2,211,942</td>
<td>98.89%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Science Education Institute | Annual Report 2015
Organizational Chart

OFFICE OF THE DIRECTOR

Science and Technology Scholarship Division (STSD)
Science Education and Innovations Division (SEID)
Science and Technology Manpower Education Research and Promotions Division (STMERPD)
Finance and Administrative Division (FAD)

Key Officials

DR. JOSETTE T. BIYO
Director

ALICIA L. ASUNCION
Chief, Science and Technology Scholarship Division

ENGR. MARIA TERESA B. DE GUZMAN
Deputy Director

RUBY R. CRISTOBAL
Chief, Science and Technology Manpower Education Research and Promotions Division

Luz D. Rimorin
Chief, Finance and Administrative Division

RUBY D. LAÑA
Chief, Science Education and Innovations Division

Alicia L. Asuncion
Chief, Science and Technology Scholarship Division

Luz D. Rimorin
Chief, Finance and Administrative Division
Officers and Staff

OFFICE OF THE DIRECTOR

FINANCE AND ADMINISTRATIVE DIVISION

SCIENCE AND TECHNOLOGY MANPOWER EDUCATION RESEARCH AND PROMOTIONS DIVISION
SEI PUBLICATION COMMITTEE

JOSETTE T. BIYO
Chairman

RUBY R. CRISTOBAL
Vice-Chair

IMELDA S. SARIO
EDELMIRA B. BUSTAMANTE
PETER GERRY P. GAVINA
LIEZI M. DE LARA
ANITA E. GORGONIO
JEMMALYN MINIAO
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.