

## Forging Silver



## Casting Gold

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# Celebrating a quarter century of service

## "Forging Silver, Casting Gold."

In 2012, the Science Education Institute of the Department of Science and Technology (SEI-DOST) marked significant milestones.

It was the year in which the country set a record for garnering the highest number of elementary and high school students who have won medals in various international science and math competitions.

The year also saw a positive boost in outlook for everyone involved in enhancing our science and technology (S&T) capabilities. The continuing upswing of the economic environment translates to a healthier S&T climate that will only encourage more scholars to put their skills and knowledge to the service of the country. This state of affairs also gives SEI-DOST staff greater confidence to devise and implement strategies that will improve S&T education as well as create a nurturing and rewarding environment for local S&T professionals.

2012 was also the year that SEI-DOST turned 25 – marking its silver anniversary with the theme "Enabling the Next Generation through Innovations in Science Education." The agency showcased its past achievements and future directions as it reiterated its commitment to deliver services that directly aid in the improvement of S&T education and consequently in the economic development of the country.

This convergence of events, among many other significant accomplishments in the year in review, sets the stage for the development of what the DOST envisions as a "Smarter Philippines," in which S&T's transformative growth will propel the whole country to produce better products and services, improve productivity, contribute to better livelihood and employment opportunities, and enhance the Filipinos' quality of life.

Aligning itself fully with this vision, SEI-DOST looks forward to the next 25 years, when its current vision of producing adequate human resource capacity in S&T would hopefully have been realized. There are doubtlessly numerous other challenges that need to be hurdled along the way, and new demands will present other opportunities to be of service. Whatever may be the needs of the times, now and in the future, the agency will always be up to the task.





## message from the SECRETARY

A quarter century of service to the Filipino people is truly an exemplary feat, and I congratulate the proud men and women of the Science Education Institute for attaining this significant milestone.

It is only fitting at this point to look back and honor the various industry leaders that have gone through your doors. It is a fact that many of today's top scientists and innovators in our country were once SEI scholars. They were given opportunities to learn, grow and nurture their talents through the invaluable educational support from the Institute.

Driven by its mandate, the Institute has succeeded in bringing forth a tremendous increase in the number of applicants to its scholarship programs. In 2012 the number of undergraduate scholars that SEI supports is close to 10,000, with 3,359 undergraduate students qualifying for SY 2012-2013.

Our call for more scientists and engineers is being heeded by the 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 that run our economy and our lives. They can give birth to innovations that will make our country become globally competitive and improve the well-being of our citizens.

We are proud to be able to give them access to quality education in leading public and private institutions nationwide. Improvements in science, technology, engineering and mathematics education across all levels – but more importantly, during the students' formative years of elementary and high school – are critical to preparing our future scientists with the skills they need to meet the ever-evolving technological needs.

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 within the pages of this Annual Report, SEI-DOST promises to provide an exciting and engaging educational environment.



**MARIO G. MONTEJO**  
Secretary  
Department of Science and Technology



## message from the DIRECTOR

The Science Education Institute was founded 25 years ago brandishing one clear conviction: Science education is the cornerstone of sustainable development and one of the most important keys to our national competitiveness.

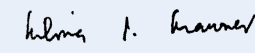
For the past two and a half decades, we have given and continue to give quality educational opportunities and experiences that transform and empower students to reach their potential and contribute to national development.

Over the years, the leaders, partners and employees of this Institute have been relentlessly driven by this commitment, investing huge amounts of time, knowledge and resources to fulfill our mandate and give our students a solid foundation to build their future. The continuous stream of new scholars that we support – tripling in number in just a one-year span from 2011 to 2012 – attests to the growing consciousness among the youth and their families of how important science education is to have successful careers and make meaningful contributions to the country.

To continue with our mission, we must consider our theme "Enabling the Next Generation through Innovations in Science Education" as a statement not just for our 25th anniversary but throughout our existence. We must continue to be vigilant so that our standards in delivering our promise will always be set high, and we must continue to have vision so we can steer our programs to ever more relevant directions.

We have indeed come a long way, but we still have a considerable distance to go before we can achieve our target level of S&T human resources. As the lead agency in implementing innovative S&T human resource development programs and projects in the country, we must improve institutional cooperation and enhance our own capacity. We must adopt knowledge-sharing with other institutions in different countries to develop appropriate strategies in advancing science education. Our students, in turn, must live up to the challenge put in front of them, and that is to nurture excellence, take full advantage of the support they get as scholars, and achieve aspirations for themselves and for the country.

For the next 25 years, we promise more innovations to enable our next generation of scientists to sustain the ideals of a Smarter Philippines.



**FILMA G. BRAWNER**  
Director  
Science Education Institute





# FORGING SILVER, CASTING GOLD

*In celebration of its silver year in 2012, the Science Education Institute paid its tribute to the people and organizations that helped achieve its targets in all of its 25 years.*



**SCHOLAR-GRADUATES SHARE SECRETS OF THEIR SUCCESS.** An academic event entitled "Forum: S&T Scholars, You Can Make It Right Here!" held on 17 September 2012 at the EDSA Shangri-la Hotel, opened the Institute's week-long anniversary celebration. The activity showcased successful scholar-graduates as they shared testimonials on how they made it in the country as professionals in the field of science and technology.

Among the successful SEI scholars who shared their experiences were Dr. Delfin Jay M. Sabido IX, Research and Development Executive at IBM, Philippines, Inc.; Engr. Jason Reggie Obos, Systems Manager at Procter and Gamble Distribution, Philippines, Inc.; Dr. Mark Pierre S. Dimamay, Scientist at St. Luke's College of Medicine; Dr. Roland V. Sarmago, Director for Research and Extension at UP Diliman's College of Science, and Dr. Ester B. Ogena, President of the Philippine Normal University.

*"Stay and serve." Former science scholars talked before current DOST-SEI scholars about their path to success and how they can make it in the country during the "S&T Scholars, you can make it right here!" activity held on 17 September 2012 at the EDSA Shangri-La Hotel as part of SEI's 25th Anniversary celebration.*



**SEI EXHIBITS PRIDE IN SCHOLARS.** As a fitting tribute to the prime beneficiaries of the Institute's flagship S&T Scholarship Program, an exhibit showcasing 25 former and ongoing scholars from 1987 to 2012 was featured at the EDSA Shangri-la Hotel and later at the SEI lobby in Bicutan, Taguig City. Twenty-five scholars who excel in their respective fields were chosen to represent their batch. The Silver Scholars include Dr. Julius Basilla and Ms. Jermie Artuz who represented years 1993 and 2000, respectively, gave testimonials for being honored as members of the prestigious group.







### HONORING OUR SILVER TREASURES.

With the theme "Enabling the Next Generation through Innovations in Science Education", the Institute's 25th anniversary also honored the Silver Scholars through the launching of the coffee table book where they are featured. The Institute likewise paid tribute to its Silver Loyalty Employees who have been key players in the implementation of its various programs and projects throughout the 25 years.

SEI also honored its Silver Pillars, the notable academic institutions, government agencies, private organizations and other individuals who helped the Institute in fulfilling its mandate.

**Shimmering tribute.** In celebration of its achievements in the past 25 years, SEI paid homage to its Silver Loyalty Employees or family members who have been key players in the implementation of the Institute's various programs and projects. The tribute, bestowed by DOST Undersecretary Foprtunato de la Peña and SEI Director Dr. Filma Brawner, was based on the employees' length of service and overall impact to the agency's goals. Awardees were categorized as Pioneers (20-24 years in service), Builders (15-19 years), Movers (10-14 years), and Innovators (5-9 years).

## ANNIVERSARY CHAPTER

### SEI LOYALTY AWARDEES

#### Pioneers (1987-1991) 20-24 years

1. Alicia L. Asuncion
2. Aida T. Ayran
3. Edelmira B. Bustamante
4. Maria Teresa R. Castillo
5. Ruby R. Cristobal
6. Josefina A. Fernandez
7. Lilia R. Lauron
8. Amparo F. Olarte
9. Levita G. Portugal
10. Josefina S. Sta. Maria
11. Racquel M. Tolentino
12. Ma. Daisy A. Demoni
13. Luz S. Rimorin
14. Gregorio B. Florendo
15. Dante T. Tulalian
16. Corazon A. Salacup
17. Zamora E. Ibrahim

#### Builders (1992-1996) 15-19 years

1. Josephine S. Feliciano
2. Anita E. Gorgonio
3. Vergel P. Rebuta
4. Maria Elena S. Agbuis
5. Susana F. Esquivel
6. Rodelio G. De Asis
7. Maria Lourdes V. Felicitas
8. Geraldine L. Subida
9. Liezl M. de Lara
10. Filma G. Brawner
11. Susan A. dela Pena
12. Marcelino G. Poliquit, Jr.
13. Nona L. Docor
14. Edwin B. Lopez
15. Celsa P. Tulalian
16. Gerald O. dela Cruz
17. Alona Rivera-Gasis

#### Movers (1997-2001) 10-14 years

1. Ma. Rochelle P. Garcia
2. Belmor D. Villamor
3. Roberto O. Nojadera
4. Dante G. Corral
5. Jose Naxiel V. Resolis
6. Jonathan C. Maratas
7. Norlyn A. Martinez
8. Florante M. Cabading
9. Lawrence B. Espanol

#### Innovators (2002-2006) 5-9 years

1. Charilyn Joy M. Layus
2. Cynthia T. Gayya
3. Ruby D. Lana
4. Imelda S. Sario
5. Mark John Paul R. Capistrano
6. Ma. Cecilia M. Sacopla
7. Sheryl C. Lejos
8. Michael F. Mina
9. Jovito C. Ortiz
10. Rubel P. Salac, Jr.





## Developing Human Resources in Science and Technology

## Inspiring The Next Generation

Every discovery creates a spark of excitement—that flicker of wonder that generates interest and expands one's world. Creating opportunities to sustain the youth's interest beyond that initial flashpoint is essential if we are to face the challenges of today's world and remain competitive in tomorrow's. We must therefore support a system in which more Filipino youths can fully engage in science and technology, can be allowed to think expansively and can sustain their eagerness to help shape the future. By getting them to talking, thinking and doing science, we can better their lives and enable them to contribute to national development.





## Building Our S&T Capabilities

**NUMBER OF UNDERGRADUATE SCHOLARS BUILDS UP.** The number of new scholars in the undergraduate level nearly tripled from 919 in 2011 to 2,715 in 2012. The said number emerged out of the 25,672 total fourth year high school students who took the 2012 DOST-SEI Undergraduate Scholarship Examination of which 3,359 (13%) qualified. Overall, the new scholars along with the continuing and graduating scholars bolstered the total number of undergraduate scholars into 9,565 as of 2012.

**MORE GRADUATES QUALIFY FOR MS AND PHD SCHOLARSHIP PROGRAMS.** Under the Accelerated Science and Technology Human Resources Development Program (ASTHRDP), more graduate students were awarded MS and PhD scholarship grants to fill in the country’s need for qualified individuals in identified S&T priority areas. The distribution of qualifiers for AY 2012-2013 is as follows:

LEVEL	NO. OF QUALIFIERS
MS	457
PhD	72
Thesis	19
Dissertation	3
<b>Total</b>	<b>551</b>

**OPPORTUNITIES OPEN UP FOR GRADUATE LEVEL SCHOLARS.** A series of orientation on scholarship policies and signing of the Scholarship Agreement was conducted for the new Engineering Research and Development Technology (ERDT) Program scholars for AY 2012-2013.

The third and last batch of **Master in Technology Management (MTM)** qualifiers, comprising 21 scholars coming from various DOST agencies and regional offices, had their orientation on scholarship policies and signing of Scholarship Agreement last 9 May 2012 at William G. Padolina Conference Room in SEI. A total of six (6) **PhD in Science Education** applicants qualified for the ASTHRDP, five (5) of which were interviewed on 21 June 2012 and are enrolled at the West Visayas State University, Iloilo City and one (1) applicant considered and evaluated by the National Executive Committee and is enrolled at De la Salle University, Taft Ave., Manila.

Meanwhile, on 22 June, SEI organized the orientation of eight (8) qualifiers of the **MS Physics Program** at the University of San Carlos in Cebu. Also on 7 September 2012, SEI held an orientation and contract signing for four (4) qualifiers under the **Sandwich Scholarship Program** held in collaboration with the DOST, the Manila Economic and Cultural Office and the Taipei Economic and Cultural Office. The scholars were to do researches for their theses/dissertations in Taiwan universities.

As of end of December 2012, forty-three (43) ASTHRDP scholars received financial assistance under the **Student Research Support Fund (SRSF)**, a new component of the ASTHRDP to provide additional support to the scholars to enable them to complete their researches and to participate in either local or international conferences/symposiums as oral or poster presenters.

**ENGINEERING FIELDS GAIN MORE SCHOLARS.** Under the Engineering Research and Development for Technology (ERDT) Program, the official list of qualifiers for AY 2012-2013 included **MS and PhD awardees**. Their orientation and contract signing was held on 18 October 2012 at the College of Engineering, UP Diliman.

LEVEL	NO. OF QUALIFIERS
MS	54
PhD	10
<b>Total</b>	<b>64</b>



*Ribbon Cutting Ceremony during the DOST-ASTHRDP Scholars’ Conference headed by Dr. Fabian M. Dayrit, National Science Consortium Chair; Sen. Edgardo Angara and DOST Secretary Mario G. Montejo*

**SCHOLARS’ GATHERINGS ORGANIZED.** Under the ERDT Program, a total of seven hundred forty (740) graduate scholars from ERDT member-universities, representatives from the government agencies and industries convened for the 1st ERDT Congress on 24 February 2012 at the PICC Manila. Foreign professors from the different countries presented their researches while selected ERDT scholars also presented their thesis/dissertation through poster presentation.

On 19-22 November 2012, the 8th ERDT Conference was held with 350 participants presenting their research results and/or getting feedback and ideas from experts and peers. Then on 7 December 2012, stakeholders from the government, industry, academe and NGOs attended the ERDT R&D Summit. This focused on strengthening ties that can lead to greater industry investments on various projects emerging from need-based research.

Likewise, for ASTHRDP, SEI-DOST conducted the 1st DOST-ASTHRDP Scholars’ Conference that showcased the scholars’ theses/dissertations through oral and poster presentations. The event was held on 27 February 2012 and was attended by 162 graduate scholars and 15 faculty members from various universities of the National Science Consortium (NSC). Sixty-four (64) posters were exhibited and twenty-seven (27) oral presentations were made in eight (8) parallel sessions. The event was graced by Sen. Edgardo Angara, DOST Sec. Mario Montejo, former DOST Sec. Dr. William Padolina, and ASTHRDP-NSC Chair Dr. Fabian Dayrit.

**PROJECT COMET TAKES OFF.** To ensure a steady supply of technically competent professionals needed in the country’s weather forecasting and other related activities, a program known as “Consortium for Meteorology Education and Training” or Project COMET was created via the signing of the Memorandum of Agreement on 14 March 2012 by the Presidents of the member-universities that include Mariano Marcos State University (MMSU), Central Luzon State University (CLSU), Bicol University (BU) and Visayas State University (VSU); Undersecretary for R&D, DOST-PAGASA; and AGHAM Partylist Representative.

**OUTSTANDING SCHOLARS RECOGNIZED.** In its annual ceremony dubbed as “In Touch with Excellence,” SEI recognized the scholars who graduated with honors, completed their degree earlier than the prescribed period and finished their MS and PhD degrees. The ceremony, held at the Hyatt Hotel, Manila on 12 July 2012 was attended by 163 scholar-graduates, their parents and mentors, 25 guests, and 31 SEI officials and staff. The event was part of the National Science and Technology Week (NSTW) Celebration of DOST.

*Dr. Raul R. Berger, Visiting Professor from Ohio State University, Texas, USA, delivers a plenary talk during the 8th ERDT Conference.*







## Strengthening Capabilities in Science and Technology Education

## Facing the Challenges through Innovation

Across the globe, requests are becoming more insistent among various learning institutions for more innovations in the teaching of science particularly at the basic school level to generate greater student interest. Responding appropriately, DOST-SEI is intensifying its own efforts at identifying and encouraging educational innovation and adequately equipping teacher-trainees with the needed skills and suite of resources to support institutions, students and all stakeholders in their quest to contribute to an increasingly science-empowered world.



### Educating our Educators

**ENRICHMENT PROGRAM HELPS SCHOOLS.** Over the years, SEI has observed that some schools in various municipalities have consistently been sending their top five percent of fourth year high school students to the Undergraduate Scholarship examinations but failing to produce qualifiers. To address this concern, the Institute launched an Enrichment Program to improve the quality of feeders to the S&T Human Resources Development program.

From July to November 2012, review classes for students from 64 high schools covering 65 municipalities in six regions were conducted to prepare them for the 2013 DOST-SEI S&T Undergraduate Scholarship Examination. Review materials and modules were developed by experts while a pool of science and mathematics teachers from the various campuses of the Philippine Science High School (PSHS) acted as the students’ reviewers and mentors. The enrichment materials included items in Biological Science, Physical Science, Mathematics and Linguistic Ability. Of the 428 students who attended the review sessions, 385 took the 2013 DOST-SEI Undergraduate Scholarship Examination on 18 November 2012 with 43 fallouts.

TABLE 1. REVIEW CENTERS/NUMBER OF PARTICIPATING SCHOOLS/NUMBER OF REVIEWEES				
Region/ Mentors	Review Centers/Participating Schools	Municipality	No. of Reviewees	No. of Participating Schools
1  PSHS Ilocos Region Campus	Bacarra National Comprehensive HS	Bacarra	9	11
	Cadaratan National High School	Bacarra	3	
	Nagrebcan National High School	Badoc	3	
	Pagsanahan National High School	Badoc	3	
	Banna National High School	Banna	3	
	Currimao National High School (Main)	Currimao	2	
	Currimao National High School (Pias)	Currimao	4	
	Dingras NHS/Lt. Edgar Foz MNHS	Dingras	7	
	Davila National High School	Davila	4	
	Don Salustiano Aquino MNHS	Piddig	5	
	Pinili National High School	Pinili	7	
	<i>* Mariano Marcos State University Laboratory High School, Laoag Campus, Laoag City, Ilocos Norte</i>			
	Sub-total		50	
	No. of students that took the DOST-SEI Exam		49	
3  PSHS Central Luzon Campus	PAMPANGA		49	13
	Angeles City National Trade School	Angeles City	9	
	Diosdado Macapagal High School	Mexico	6	
	San Vicente National High School	Lubao	8	
	Lubao NHS (Lubao Vocational School)	Lubao	6	
	Information & Communication Technology HS	San Fernando	3	
	Guillermo D. Mendoza National HS	Guagua	8	
	San Roque Dau High School	Lubao	6	
	<i>* Sindalan High School</i>	San Fernando City	3	
	TARLAC		50	
	Comillas High School	La Paz	10	
	Guevarra High School	La Paz	9	
	Anastacio G. Yumul High School	Concepcion	11	
	<i>*Caluluan High School</i>	Concepcion	10	
	Benigno S. Aquino National HS	Concepcion	10	
	Sub-total		99	
	No. of students that took the DOST-SEI Exam		89	

\* Review Center

TABLE 1. REVIEW CENTERS/NUMBER OF PARTICIPATING SCHOOLS/NUMBER OF REVIEWEES				
Region/ Mentors	Review Centers/Participating Schools	Municipality	No. of Reviewees	No. of Participating Schools
6  PSHS Western Visayas Campus	Balasan National High School	Balasan	9	6
	Batad National High School	Balasan	5	
	Carlos Lopez National High School	San Dionisio	5	
	Nicomedes Tubar Sr. National HS	San Dionisio	5	
	Roberto H. Tirol National High School	Concepcion	5	
	<i>*Estancia National High School</i>	Estancia	23	
	Sub-total		52	
	No. of students that took the DOST-SEI Exam		47	
7  PSHS Central Visayas Campus	CEBU		31	14
	Borbon NHS- Tabunan NHS Ext.	Borbon	2	
	Juan Dosado Mem. HS, Inc.	Sogod	6	
	Calumbuyan NHS- Tabunan NHS Ext.	Sogod	5	
	Mohon NHS- Tabunan NHS Ext	Sogod	2	
	Carmen NHS (Day)	Carmen	14	
	<i>*Passionist Sisters' School</i>	Catmon	2	
	BOHOL		40	
	Aguining National High School	C.P. Garcia	4	
	Handumon High School	Jetafe	3	
	Hingotanan National High School	Bien Unido	7	
	Hinlayagan National High School	Trinidad	5	
	Kauswagan National High Sschool	Trinidad	2	
	Mayor Inocencio Mendez High School	C.P. Garcia	2	
	Pres. CPG Tech. Voc. School	Bien Unido	9	
	Union High School	Ubay	8	
	<i>*Ubay National Science High School</i>			
	Sub-total		71	
	No. of students that took the DOST-SEI Exam		60	

\* Review Center





TABLE 1. REVIEW CENTERS/NUMBER OF PARTICIPATING SCHOOLS/NUMBER OF REVIEWEES				
Region/ Mentors	Review Centers/Participating Schools	Municipality	No. of Reviewees	No. of Participating Schools
10  PSHS Southern Mindanao Campus	BUKIDNON		55	11
	*Central Mindanao University	Maramag	8	
	Kalilangan National High School	Kalilangan	20	
	Kibawe National High School	Kibawe	7	
	Pangantucan Community High School	Pangantucan	5	
	San Andres National High School	Kadingilan	15	
10  PSHS Central Mindanao Campus	MISAMIS ORIENTAL		49	
	Holy Child High School	Kinoguitan	6	
	St. Rita's College of Balingasag	Balingasag	8	
	Dampil National High School	Lagonglong	7	
	St. Mary's Academy of Tagoloan	Tagoloan	7	
	*Salay National High School	Salay	15	
	Misamis Oriental National High School	Misamis Oriental	6	
	Sub-total		104	
	No. of students that took the DOST-SEI Exam		91	
CARAGA  PSHS Southern Mindanao Campus	Bacuag Nat'l Agro-Industrial School	Bacuag	5	9
	Claver National High School	Claver	8	
	Gigaquit Nat'l School of Home Industries	Gigaguit	10	
	Matin-ao National High School	Mainit	1	
	Campo National High School	Bacuag	1	
	Surigao City National High School	Surigao City	2	
	*Surigao del Norte National High School	Waghington	17	
	St. John School	Bacuag	4	
	Tagana-an National High School	Tagana-an	4	
	Sub-total		52	
	No. of students that took the DOST-SEI Exam		49	
	TOTAL NO. OF PARTICIPANTS		428	64
	TOTAL NO. OF STUDENTS THAT TOOK THE DOST-SEI EXAM		385	

\* Review Center

**TEACHERS PREPARE AGAINST DISASTERS.** Continuously responding to RA 10121 or the Philippine Disaster Risk Reduction and Management Act, SEI conducted Disaster Risk Reduction & Management (DRRM) training sessions particularly in the Mindanao regions where typhoons, floods and earthquakes constantly cause great damage to lives and properties. Seminar-workshops were held in Region 9- Pagadian City on 8-11 May; Region 10- Cagayan de Oro City and Region 11- Davao City on 24-27 April; and Region 12- Koronadal City on 17-20 April. A total of 179 science and mathematics teachers and faculty members participated in the four-day seminars that included valuable knowhow on climate change, flood, typhoon, earthquake, tsunami, landslide, volcano, as well as exercises on typhoon tracking and development of school evacuation plans. Experts from PHIVOLCS, PAGASA, Mines and Geosciences Bureau (MGB), and Office of Civil Defense (OCD) served as resource persons.



"Duck, cover and hold" demonstrated by workshop participants in their earthquake drill.



Dr. Nenalyn Defensor, CHED Commissioner (seated at the middle) together with SEI officials, speakers and participants of the Research Enhancement Training-Workshop held on September 4-6, 2012 at the Punta de Fabian Resort in Rizal.

**RESEARCH TRAINING ENHANCES TEACHING METHODS.** Twenty-six (26) teachers coming from schools and universities identified by the Commission on Higher Education as Centers of Development in Teacher Education participated in a Research Enhancement Training Workshop held on 4-6 September 2012 at the Punta de Fabian Resort in Baras, Rizal. The workshop focused on the importance of developing science and mathematics education research as a way of coming up with enhanced teaching methods, validating educational models, and innovative solutions to existing problems.

At the end of the training-workshop, each participating school came up with their respective research proposals, as follows:

TABLE 2. LIST OF RESEARCH PROPOSALS BY SCHOOL	
School	Research Proposal Title
Ateneo de Davao University	An Assessment of the Content Knowledge and Pedagogical Content Knowledge of Science and Mathematics Teachers in Davao Region in Relation with K to 12 Paradigm
Catanduanes State Colleges	Use of Bicol Catanduanes Language as Medium of Instruction in Teaching Thermodynamics
Cebu Normal University	Teaching Addition of Dissimilar Fractions in Large Classes
Central Bicol State University of Agriculture	Developing Climate change awareness in learning GHGs through video clips
Colegio de Dagupan	Readiness of Teacher Education Students in the Practice of Inquiry-Based Science Learning
Manuel S. Enverga University Foundation	Inquiry-Based Science Teaching in College Biology
University of San Agustin	Teaching Fractions through 5Es: A Lesson Study
Western Mindanao State University	Problems Encountered by Scholars of WMSU CED, Zamboanga City from 2007 to 2012
	Factors that Influence the College of Education Faculty of Universities and Colleges in Zamboanga City on Computer Use
Xavier University- Corrales Ave.	Scientific Inquiry Based Enhancement Among Pre-Service Teachers in Xavier University
Pangasinan State University - Bayombong	Pedagogical Content Knowledge and Research (PCK-R) of Science Teachers in Best Performing TEI's in Licensure Examination for Teachers





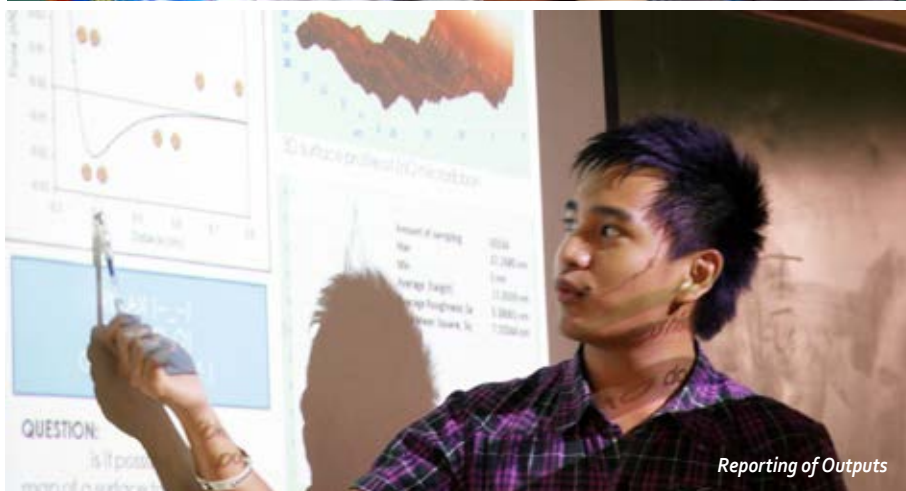
Atomic Force Microscope Station



Furnace Making Activity



Ceramic Materials Sample Preparation



Reporting of Outputs

### GLOBAL COMPETITIVENESS EYED IN SCIENCE EDUCATION.

Various activities of the Science Education and Innovations Division (SEID) aimed to enhance the competence and professional skills of Science and Mathematics teachers to meet the new and changing demands of science and mathematics education. From 11 April to 25 May 2012, SEI extended financial support to 10 participants for the 7-week 2012 Condensed Matter Physics Laboratory (CMPL) Summer Immersion Program in UP Diliman, where undergraduate students were provided opportunities to gain real scientific research experiences. Another program was a Short Course on Effective Teaching and Learning of Chemistry, a training program conducted by the Research Center for the Natural Sciences of the University of Santo Tomas (UST) to contribute to the improvement of the teaching and learning of chemistry in secondary schools, colleges and universities.

Through the initiative of the Bicol Physics Society, fourteen (14) teachers from state colleges and universities and Bachelor of Secondary Education (BSE) students major in Physics were trained in the use of improvised apparatus. The training was held on 21-26 May 2012 at the College of Education, Bicol University, Legazpi City. Finally, two separate activities – ChemCamp and ChemTeach 2012 were conducted by the Ateneo de Manila University to entice students to take Chemistry courses and help equip high school teachers with new teaching methodologies, update their knowledge, and try out new experiments in chemistry.

Other activities conducted to enhance teaching competence and competitiveness include:

- The 47th Annual National BIOTA Convention and Science Sessions – conducted by the Biology Teachers Association of the Philippines on 12-14 April 2012 at Ateneo de Naga University, Camarines Sur;

*The writers with the SEI and PSHS CMC personnel during and after the workshop.*



The Science Group

- 27th Philippine Chemistry Congress – held at the EDSA Shangri-La Hotel from 11-13 April 2012 to promote regional cooperation and collaboration among chemists and engineers across Asia-Pacific;
- 13th PSBMB RevUp on Molecular Biology and Biotechnology – a continuing education program for bioscience teachers, organized by the Philippine Society of Biotechnology and Molecular Biology held on 6 September 2012;



The Mathematics Group



The Abstract (Mental Ability) Group



The English (Verbal Ability) Group

- Workshop on Powerful Teaching Strategies to Enhance Learning – organized by the Philippine Center for Gifted Education, Inc. together with the Philippine Association for the Gifted in Quezon City from 30 November to 1 December 2012;
- 2012 ASET International Science Education Conference – organized by the Association of Science Education Taiwan at the National Taipei University of Education, Taipei, Taiwan on 13-15 December 2012 to foster international cooperation and linkages in the implementation of science education projects.

**“MOVE ON” REVITALIZES EDUCATION IN MINDANAO.** The project dubbed “Mindanao Opportunities for Vitalized Education and Onward Nurturing (MOVE ON) 2012” is an extension of the recently completed “Mindanao Opportunities for Vitalized Education and Upgrading of Science (MOVE UPS). Through mentoring, the project hopes to continue nurturing pupils in Muslim dominated elementary schools for them to have a better chance at quality education by qualifying in the National Competitive Examination (NCE) of the Philippine Science High School (PSHS) System and eventually enrolling in the PSHS Central Mindanao Campus (CMC) in Balo-i, Lanao del Norte.

On 13-14 April 2012, a workshop on the development of mentoring materials/modules to be used in the school-based mentoring sessions was held in Cagayan De Oro City. This was followed by aptitude tests conducted in 12 beneficiary schools on 29 June 2012 (for Lanao del Norte, Lanaodel Sur II-B and Marawi City) and 04 July 2012 (for Maguindanao), to identify the pupils who will comprise the mentoring classes. A total of 260 pupils (top 10 for Grade 6 and top 5 for Grade 5 per school including those in equal ranks) attended the mentoring classes.

Upon completion in 2013, Project MOVE ON has been proposed to be adapted in a Philippine Science High School campus in Luzon.

**ELDERLY EMPLOYEES GAIN KNOWLEDGE ON ASIAN HEALTH PRACTICES.** Forty (40) DOST employees from Bicutan area aged 60 years old and above participated in a two-day seminar on Asian Health Practices last August 14-15, 2012 at DOST Executive Lounge, Bicutan Taguig City. This capability building seminar workshop will increase awareness on the science behind the vast culture of traditional healing, researches done in this field, and how to use them safely. Experts from UERM Memorial Medical Center, St. Luke's Medical Center, UP Manila, De La Salle Health Sciences Institute and DOST scholars of MS Asian Health Practice presented lectures and demonstrations on health-related concerns for the elderly and proper practice of ventosa cupping and acupuncture.

*DOST Scholar of MS Asian Health Practice, Arnel Beleno (in black shirt), demonstrating to the participants the procedure for Ventosa. Right photo shows a participant's acupuncture experience.*







*A pupil uses the interactive software loaded in the Tablet PC being tested in an elementary school.*

**TABLET PCs HEIGHTEN MATHEMATICS LEARNING.** To determine the effect of technology in the teaching and learning of both elementary pupils and their teachers, SEI and its partner organizations pilot tested Tablet PCs loaded with interactive courseware in mathematics with selected topics/modules for Grade 1 pupils in elementary schools in Regions I, IVA, VIII, X and NCR. The team that monitored the activities to determine and evaluate the effect of the learning technology on the pupils' academic performance was comprised of some of the staff of SEI, UP-National Institute for Science and Mathematics Education Development (UP-NISMED), Advanced Science and Technology Institute (ASTI) and the Department of Education (DepEd).

The Pilot Testing, conducted from July to September 2012, produced positive feedback as the pupils' academic performance indicated an improvement while teachers exhibited an eagerness to teach mathematics with the use of technology. The Grade 1 Mathematics Courseware would be rolled out nationwide in 2013 while Grades 2 to 6 Mathematics Courseware will be developed starting in 2013 up to 2014.



*A group of students from Looc NHS doing a class activity during one monitoring visit.*

*(top right) DOST Assistant Secretary Robert O. Dizon and SEI Deputy Director Dr. Leticia V. Catris turn over the promotional materials of the Search for Innovative Practices in Managing Large Classes to Science Supervisors from the DepEd headed by Dr. Flordeliza Mayari to signal the start of the Search.*



**MODELS FOR MANAGING LARGE CLASSES RECOGNIZED.** Innovation is lauded when it comes to developing and implementing practices that enable teachers to effectively teach science and mathematics in large classroom settings. This project, which was launched in February 2011, entered its second year with six (6) proposals selected out of a total of 35 proposals submitted to SEI. Four (4) of the qualifiers were under the large class category that has a size of 50-70 students, while two (2) schools qualified under extra large class category of 71 students and above.

The six (6) school qualifiers received a grant of P100,000.00 each to implement the innovative practices in their respective proposal during the 2nd and 3rd quarters of SY2011-2012. The Search proper commenced with the administration of pre-test in the second week of August 2011 and ended with the administration of post-test to all students of the experimental classes in the last week of February 2012. The Monitoring Team composed of academic leaders from UP-NISMED, Polytechnic University of the Philippines (PUP), Philippine Normal University (PNU), Adamson University, Fort Bonifacio High School, DepEd, and SEI observed the classes, held focus group discussions (FGD) and interviewed the students and project team to evaluate the innovative practices of each school qualifier.

The Most Innovative Classroom Management Practices Award was given to Bacong National High School of Salug, Zamboanga del Norte for Bacong Developmental Instruction (Project BaDI) and Looc National High School, Calamba, Laguna for Flock Program in Managing Large Classes in a ceremony held on 31 August 2012 in Hyatt Hotel and Casino in Manila.

**PROJECT HOTS WARMS UP.** Preparatory activities were undertaken in 2012 for the pilot testing of the Hands-On Teaching and Learning of Science through inquiry (HOTS), a project that will showcase the use and measure the effectiveness of the inquiry approach in teaching Grade III science integrated with hands-on learning activities and technology such as computer notebooks, projectors, mobile laboratory carts and the internet. Initial



beneficiaries of the project are three elementary schools in Taguig City. SEI conducted extensive coordination with the DepEd, the Science Supervisor of school division of Taguig-Pateros, principals of the pilot schools, and other stakeholders and suppliers of mobile science labs, science equipment and instructional materials and references.

**INTERACTIVE COURSEWARE TESTED.** Ninety-eight (98) interactive Science and Mathematics modules for second year high schools were tested in March 2012 to assess their acceptability and appropriateness to the target users. The User Acceptance Testing (UAT) included an Orientation, Modules Testing, Focus Group Discussions and Survey Forms to determine the necessary modifications and directions for further development of the courseware. A total of 167 second year students from eight (8) regular public high schools participated in the testing. Overall results of the UAT registered positive responses from the students. The courseware would be finalized and rolled out once all the recommended revisions have been incorporated.



**MITC BUSES REACH FARTHER.** DOST-SEI continued to deploy the custom-made, air-conditioned Mobile IT Classroom (MITC) buses to far flung areas with no ICT facilities. In October 2012, SEI deployed the MITC bus from Davao City to DepEd Division of Surigao del Norte. The bus is furnished with 32 tiered seats and 16 working tables for students and two (2) for teachers, and is equipped with various education technology facilities consisting of 17 brand new Samsung laptops, brand new Epson LCD projector and screen, brand new Epson printer, interactive elementary science and mathematics (S&M) courseware, S&M learning materials in VHS tapes and CD formats, and public address system/lapel.

The deployment of another MITC bus in Camarines Sur was extended for three (3) years effective November 2012. The said bus was deployed in Camarines Sur since 2008 through the leadership of Mr. Antero Lim of Partido Development Administration. The bus caters to schools within the fourth Congressional District of Camarines Sur, benefitting a total of 1,673 students and teachers. Likewise, the MITC bus which is currently deployed in Cebu City had a total of 6,842 elementary and high school students learning science through computers and other educational technologies.

*(bottom, left) In 2012, the MITC Bus trained a total of 6,842 elementary and high school students in various municipalities in the province of Cebu.*

*(below) Mr. Rodelio de Asis turns over to Mr. Gersim Lumintac of DepEd Division of Surigao Del Norte brand new Samsung laptop computers and other educational facilities.*





### IMPROVING OUR COMPETITIVE EDGE IN THE IT-BPO INDUSTRY.

Recognizing the importance of the IT-BPO industry in the Philippine economy, SEI funded a project that aimed to identify gaps between the skills of new graduates and the needs of the industry. The project of Dr. Erniel B. Barrios, Project Director and Member of the UP Statistical Center Research Foundation Incorporated (UPSCRFI), was entitled "Inventory of Skills/Competency of Graduating Students and Entry-Level Workers in the Information Technology-Business Process Outsourcing (IT-BPO) Industry". The study conducted an inventory of current competency levels of graduating students based on Global Competitiveness Assessment Tool (GCAT) results. The strengths and weaknesses of the current supply of human resources and the gaps between the supply and the demand by the IT-BPO industry were identified. The study determined the ideal sample size and sample selection procedure of future examinees to save on cost for monitoring progress in interventions towards bridging those gaps. The results of the study can be used by policy-makers, educators, and researchers as basis in crafting intervention programs that will generate industry-prepared talents for the IT-BPO sector.



*Ms. Nide Marie Bombay of BPA/P presents the project updates and results of coordination meeting with DOST-SEI partner schools regarding GCAT administration and the conduct of e-AdEPT intervention.*

DOST-SEI also entered into a Memorandum of Agreement with the Business Processing Association of the Philippines (BPA/P) in August 2012 to implement the program on Developing Science & Technology Career Towards Global Competitiveness, National Productivity and Development. This is in support of the organization's priority initiative of developing talents that would provide a sufficient and reliable supply of qualified personnel that will propel the continued growth of the IT-BPO industry. Beginning August 2012, the program started implementing GCAT model to assess basic and behavioral skills profile, an electronic version of Advanced English Proficiency Training (e-AdEPT) to further enhance grammar, fluency, accent, listening skills and reading comprehension. Teachers are also empowered to train and administer e-AdEPT for succeeding batches of students. GCAT profiling is being administered to a sample of 10,000 students and the e-AdEPT intervention is being provided to around 1,875 students. The program is being implemented across fifteen (15) State Universities and Colleges (SUCs) and Higher Education Institutions (HEIs) in the National Capital Region.

In 2012, the assessment process began with 51 DOST-SEI scholars from Mapua Institute of Technology and Ateneo de Manila University. BPA/P is still in the process of evaluating/ assessing the IT infrastructure and bandwidth requirement for the conduct of GCAT to other partner schools. Also, other schools are still in the process of revising and finalizing the tripartite MOA between DOST-SEI, BPA/P and each of the participating schools for the conduct of "Train the Teacher Advanced English Pre-employment Training" (T<sub>3</sub> AdEPT).

### Profiling Our S&T Capabilities

**STUDY PAINTS PROFILE OF S&T HUMAN RESOURCES.** A project entitled "Human Resources in Science and Technology in the Philippines" presents a benchmark view of the country's reserve of S&T human resources. Policy makers, researchers and members of the academe will find the study invaluable as it classifies S&T workers in terms of age, sex, occupation, marital status, geographic (regional) distribution, overseas work status and other categorization. The study initially used 1990 and 2000 census data from the National Statistics Office (NSO), but upon finalization and printing in 2013, the study will also incorporate 2010 data.

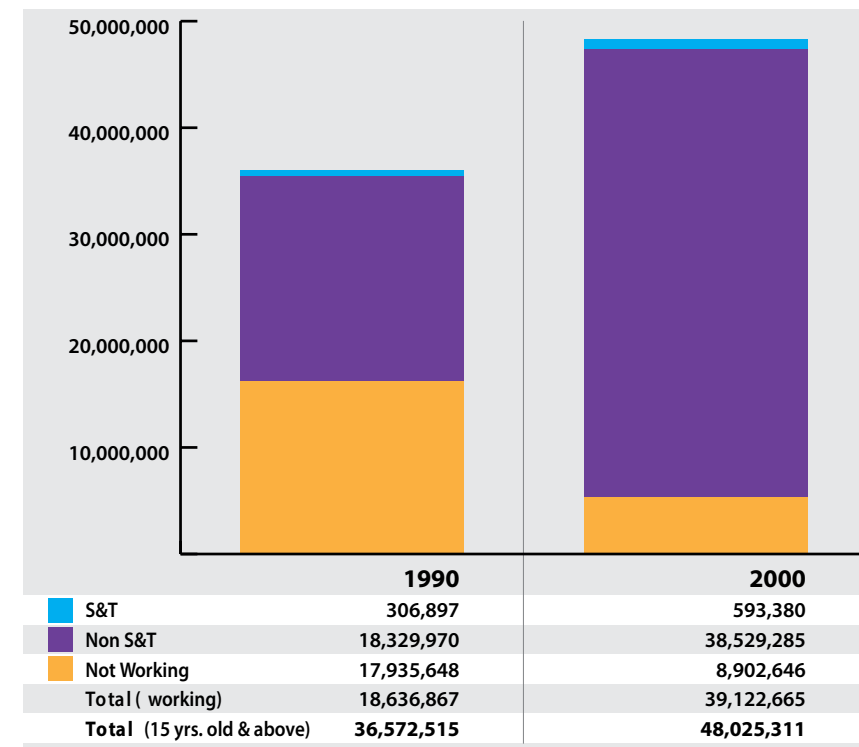


Figure 1. Work Status and S&T Classification of Filipino Workforce, 1990 and 2000

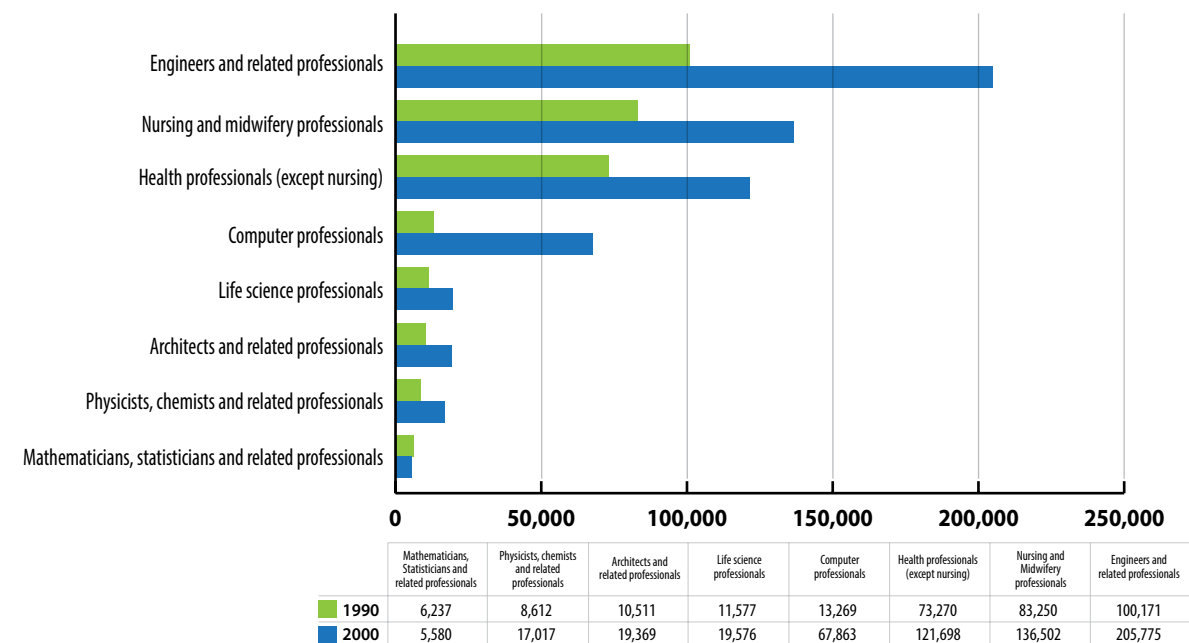


Figure 2. Distribution of HRST by S&T Occupation



**DOST SCHOLAR GRADUATES TRACED.** The Institute continued monitoring the activities of its scholar-graduates, upgrading its database on this population and determining their current situation and career movement after college graduation. The output for the study is a technical report covering both the RA 7687 and Merit scholarship programs.

A total of 2,783 scholar-graduates were included in the analysis, representing 13.5% of the total graduates from 2000 to 2011. In terms of employment, more than eight out of 10 were employed (Fig. 3), majority in the private sector while only seven out of 100 were in the government sector (Fig. 4). The study is expected to be finished and disseminated by the end of 2015.

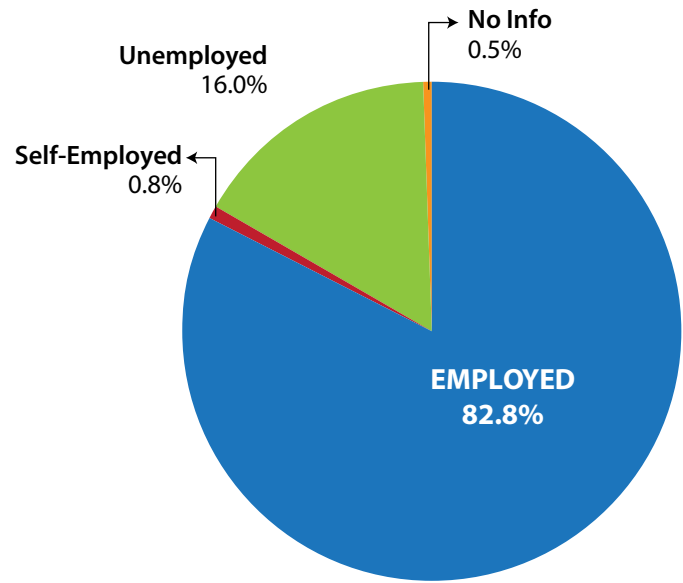


Figure 3. Distribution of Subjects by Current Employment Status

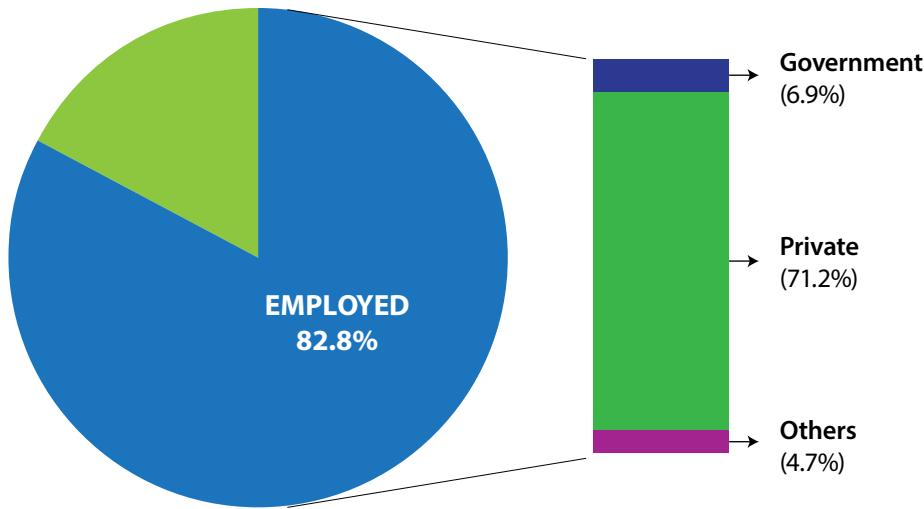


Figure 4. Distribution of Employed Subjects by Employment Sector



**MIGRATION OF S&T MANPOWER MONITORED.** As a follow-up to its two previous studies on S&T manpower migration, namely “Emigration of Science and Technology-Educated Filipinos (1998-2006)” and “Migration of S&T Manpower – Part II. OFWs”, DOST-SEI conceptualized a study on S&T Filipino migrants, both temporary and permanent. The aim is to provide comprehensive conclusions and policy recommendations that will lessen the negative impact of S&T skills migration and take advantage of the positive contributions of returning contract workers. The publication is expected to be disseminated by 2015.

**SEI PROGRAMS AND PROJECTS EVALUATED.** To determine the impact and effectiveness of the various projects and activities of the Institute vis-à-vis their objectives, SEI launched a full-year evaluation study beginning with four (4) projects, namely: Science Explorer, Science Camp, World Space Week and Tagisang Robotics. Component activities in each of these projects were rated by the participants, in terms of relevance, capacity to generate interest, and even appropriateness of the venue. The results, combined with the comments originating from the students, provide insights that will enable the Project Leaders and SEI Management to improve their various programs and quantify the levels of success of the projects.

**ONE-STOP PUBLICATION ON S&T HUMAN RESOURCES BEING DEVELOPED.** Also to be disseminated by 2015 is a comprehensive and integrated publication on S&T human resource indicators comprising statistics and other factors measuring the country’s S&T status as a contributor to nation-building. Among the statistics/indicators that will be included in the handbook are: (1) Enrollees and Graduates of S&T and Related Courses; (2) S&T-Educated Filipinos Emigrants; (3) S&T Overseas Filipino Workers; and (4) DOST-SEI Scholar-Graduates.

**S&T HR DATABASE SYSTEMS ESTABLISHED.** A system that enables the collection, sharing and management of data on S&T human resource and which facilitates the creation of other databases where relevant information on S&T HR and other indicators are stored and readily available was established. At present, building up, updating and maintenance of existing databases are being continued.





Developing Science  
and Technology  
Culture and Awareness

## Fostering a Growing S&T Culture

The development of effective and attractive science, technology, engineering and mathematics (STEM) curricula and teaching methods, along with improved teacher education and professional development are ultimately at the heart of the drive to make these disciplines and professions a more popular option for young learners. Through inquiry-based learning, the establishment of networks of institutions and other stakeholders, public-private partnerships, local and international competitions, campaigns, recognition programs and other initiatives, DOST-SEI is gradually attaining its long term goal of developing an all-encompassing and sustainable science culture, specifically among the youth, that translates into action as they become more engaged in science activities in their respective communities as well as in academic endeavors.



### The Widening Reach of Science

**SCIENCE EXPLORER COVERS MORE GROUND.** Modified from the former Mobile Information Technology Classroom, the Science Explorer bus served 2,838 students in 2012, a 15 percent increase from 2,402 in 2011. The project covered 14 destinations in the whole of Luzon, partnered with the UP Academic League of Chemical Engineering Students (UP-ALCHEMES) and Philippine Normal University Scholars’ Association, and conducted outreach programs for the Laura Vicuna Foundation shelter and the girls of Marillac Hills.

2012 SCIENCE EXPLORER ROADTRIPS		
Destination	Date	Number of Participants
UP Diliman	January	244
RMHS-Cubao	February	91
Naic	February	276
Krus na Ligas	March	81
Takbo Para sa Karunungan	March	27
Venus Transit/Camarines Norte	June	241
Bicol	June	368
Ilocos Norte	August	369
Angono	September	110
Science Discovery Center	October	66
NRCP	December	30
Malabon	December	92
Marillac Hills	August	40
Science Film Festival/Bicutan	November	705
NSTW/Pasay City	July	98
Total		2838



(top) Student participants in the Science Explorer take a peek at the sun as the planet Venus transits in front of it.

(left) Students from Albay learn the various effects of landslides through hands-on activity at the Science Explorer.

**MARINE SCIENCE CAMP DIVES DEEPER.** Promoting Marine Science as a field of study for post-secondary education, this year’s camp featured the theme “iSea: Peek, Plunge, Peer. Immersing to the Depths of the Sea, emerging to take the lead in the science community.” Held at the UP Bolinao Marine Science Laboratory in Pangasinan from 14-18 April 2012, the camp was attended by 57 high school students and teachers from Regions 4A, 4B, and 5 including the Bicol campus of the Philippine Science High School. With Camp Director Dr. Aletta Yñiguez, the Marine Science Camp featured highly interactive, laboratory-based activities, on-site field activities like GPS navigation Water Quality Sampling, Plankton Enumeration and Snorkeling, exposure trips on sea grass and giant clam, and community observation activities. This year’s Science Camp also introduced the topic “Underwater Photography as a Research Tool” conducted by Splash, an organization of technical divers engaged in underwater photography.



(left) Dr. Ronald Villanueva (far right), the Resident Scientist of UP Bolinao Marine Laboratory, tours the student in the giant clam ocean nursery and explains to the participants the importance of marine conservation.

(bottom left) Participants were engaged to do hands-on activities on determining the different species of sea grasses living in a certain area.

(below) Participants inspect the condition of the coral reef during their exposure trip.



**INTEREST IN TAGISANG ROBOTICS PICKS UP.** Interest in robotics as a curriculum for science and mathematics education came to an all-time high in 2012. Following a five-day intensive robotics training program from 29 May to 2 June, in which thirty-one (31) public and private high schools participated, school teams received their common Kit of Parts on 8 September 2012 and entered the 90-day robot building period in which they consulted industry engineers and experts from the academe. In the final competition held at the SMX Convention Center on 21-23 November, more than 400 students, teachers and robotics enthusiasts witnessed the elimination and final rounds. Benigno Aquino High School was named the Best Team while Tibagan High School, Makati Science High School and Bangkal High School won the Best Alliance Award for winning



in the final round. Malayan High School of Science won the Best Rookie Award among nine (9) other new teams in the elimination round. The event, conducted in partnership with Nido Fortified Science Discovery Center and SM Prime Holdings, Inc., was also well received by the media.



(top) At the end of the training sessions, students were tasked to wirelessly control the modified car using Bluetooth communication.



(top right) School-teams wait in line to get their robot inspected at the Pit Administrator's booth.



(right) Team Captains from the different school teams hold their school banner high and proud during the Opening Ceremony.



Teams fight with their best in the Elimination Round as their robots try to score as many goals as they can to be in the Final Round.

**WORLD SPACE WEEK TAKES OFF.** The Philippine celebration of World Space Week continued to bring space science activities to students, educators and the general public alike. Opening with an Astronomy Photo Exhibit at the Nido Fortified Science Discovery Center at the SM Mall of Asia on 4 October 2012, the celebration continued in UP-Los Baños, Laguna with the National Water Rocket Competition. Rizal National Science High School bested 14 other public high schools from Region IV-A and B. Other highlights of the celebration included lectures for teachers and training on rocket-making for students, a Star Party which was the largest telescope viewing activity in the country, and poster making contest, among others.

DOST-SEI also facilitated the country's hosting of the meeting of the 1st South East Asian Young Astronomers Collaboration, an organization composed of undergraduate, graduate students and post-doctoral fellows conducting research and education activities in astronomy and space science. The meeting, held in Puerto Princesa, Palawan on 5-7 November 2012, was viewed to help spur the development of astronomy in the country. Then on 8-14 December, two high school students from Rizal National Science High School, which won the National Water Rocket Competition, represented the Philippines in the Water Rocket side event during the 19th Asia Pacific Regional Space Agency Forum (APRSF) in Malaysia. Other activities included lectures and forums discussing the different Space Education and Astronomy programs held in each country.



An on-the-spot Poster Making Contest for elementary students is conducted during the World Space Week celebration held at the University of the Philippines – Los Baños on October 9, 2012.

Students line up for their turn to watch the night sky using a 17" equatorial telescope during the Star Party.

(left) "The winning shot" – Students from Rizal National Science High School try to adjust the launch angle to compliment the force needed by the rocket to hit the target.



(from L-R) Mr. Shinji Arasawa (student), Ms. Elena Bernardo (School Principal), Mr. Paulo dela Cruz (Student) and Dr. Rogel Mari Sese at the Water Rocket Event held in Putrajaya, Malaysia on December 8-9, 2012.





**LOCAL COMPETITIONS HEAT UP.** The partnership between DOST and Bank of the Philippine Islands (BPI) continues to reap notable research activities in the annual competition dubbed the **BPI-DOST Best Project of the Year Awards**. In 2012, Sarah Jane M. Calpo of St. Louis University won first place for her “iSketch: A Web-enabled Facial Composite Illustration System Employing the Featured-based Approach.” Second place went to Chiliast B. Juan of UP-Los Baños for his “Analysis on the Effect of Various Factors to the Voltage Drop of a Single-wire Earth Return (SWER) Distribution System in Lipa Soil Series” while third place went to Maxine Andrea T. Garcia of Ateneo de Manila University for her study entitled “Identification & Assessment of Bacterial Bioaerosols Present in Light Rail Transit (LRT) & Metro Rail Transit (MRT) Stations Using Terminal Restriction Fragment Length Polymorphism (T-RFLP) of 16S rRNA Gene.”

Over 3,500 high school students meanwhile took part in the **Philippine Mathematical Olympiad (PMO)**, but after the Qualifying Stage held on 13 October, this number was pared down to 208 students moving on to the Area Stage of the competition. In the National Stage held on 26 January 2013, out of 20 competing finalists, Justin Edric Yturzaeta of Jubilee Christian Academy won first place followed by St. Jude Catholic School’s Mikaela Angelina Uy and MGC New Life Christian Academy’s Farrell Eldrian Wu taking up third place.



From L-R: PMO Winners with Dr. Jumela Sarmiento, MSP President, Dr. Filma G. Brawner, SEI Director, Dr. Milagros Ibe, FUSE Representative, Farrell Eldrian Wu (3rd Placer), Mikaela Angelina Uy (2nd Placer), Justin Edric Yturzaeta (1st Placer), Fr. Onofre G. Inocencio, SDB, FUSE Trustee and Dr. Ricardo P. Laguda, FSC, President & Chancellor of DLSU-Manila.

(top right) PRO Finalist with BOJ Chair, Engr. Carlos Oppus of Ateneo De Manila University & BOJ Member Engr. Regie Gustilo of DLSU during Final Competition @ SM North EDSA.



Top 3 winners of the BPI-DOST Best Project of the Year Awards: (L-R) Chiliast B. Juan, UPLB, 2nd Placer, Sarah Jane M. Calpo, St. Louis University, Best Project (First Placer) & Maxine Andrea T. Garcia, Ateneo De Manila Univ., 3rd Placer.

Further demonstrating the growing importance of robotics as a field of study, the **Philippine Robotics Olympiad** drew the participation of 63 teams from the elementary level and 83 teams from the secondary level during the preliminary judging. The top 36 teams and top 40 teams from both levels, respectively, vied for the final judging conducted on 7 September 2012. The following schools emerged victorious in the competition and moved on to represent the country in the World Robot Olympiad.

LEVEL	AWARD	REGULAR CATEGORY	OPEN CATEGORY
Elementary	First Place	Dr. Caridad C. Labe Education Centrex Inc.	Grace Christian College
	Second Place	Marie Ernestine School, Cebu	Dr. Yangas Colleges, Inc.
	Third Place	De La Salle Zobel	
Secondary	First Place	Tibagan HS-Team A	Dr. Yangas Colleges Inc.
	Second Place	Makati Science HS	Grace Christian College
	Third Place	Tibagan HS-Team B	
Robot Soccer*	First Place	Philippine Science High School – Bicol Campus Team B	

**PH REAPS AWARDS IN INTERNATIONAL COMPETITIONS.** In one of the largest correspondence mathematics competitions in the world, the **Australian Mathematics Competition (AMC)**, four (4) Filipino students -- Farrel Eldrian Wu of MGC New Life Christian Academy, Brandon Ong of Chiang Kai Shek College, John Chuatak of St. Stephen’s High School, and Justin Yturzaeta of Jubilee Christian Academy – won AMC medals. The competition was conducted on 2 August 2012 and drew the participation of 3,617 students from Grade 3 to second year college from both public and private schools nationwide. They simultaneously competed with their counterparts from other participating countries like Australia, Brunei, Bulgaria, China, Hong Kong, Malaysia, Singapore, New Zealand, South Korea, Taiwan, and Thailand.



AMC Medalists with AMT Executive Director Prof. Peter Taylor, MTG President Dr. Simon Chua, Dr. Elena R. Ruiz of DepEd and Ms. Ruby R. Cristobal of SEI..



In addition to the four (4) AMC medalists, eight (8) other students were given the AMC Prize Award for making it to the top one percent of contestants: 1) Bryce Ainsley Sanchez of Grace Christian College; 2) Eion Chua of MGC New Life Christian Academy; 3) Dion Stephan Ong of Ateneo De Manila Grade School; 4) Matthew Eric Tan of St. Stephen's High School; 5) Patrick Nino Policarpio of Greenpark Montessori Learning Center; 6) Christian Philip Gelera of UP Integrated School; 7) Shaquille Wyan Que of Grace Christian College; and 8) Deany Hendrick Cheng of Grace Christian College.

Sixty-one (61) other students garnered Certificate of High Distinction for being in the top two percent of examinees in their year level.

Meanwhile, in the **International Mathematics Olympiad (IMO)**, which is touted as the most difficult mathematics competition among the best students in the world, a trio of Filipino math wizards brought distinction to the country by winning two bronze medals and an honorable mention award. The two medalists are Kenneth Tan Co of Philippine Science High School, Diliman Campus and Mikaela Angeline Uy of St. Jude Catholic School, Manila. Henry Jefferson Morco of Chang Kai Shek College received an Honorable Mention award. The Philippines ranked 73rd out of the 100 countries that competed at the 53rd IMO.



Philippine delegates to the 2012 IMO (center) with (L-R) former MSP President, Dr. Fidel Nemenzo, SEI Director Filma G. Brawner, Team Leader Dr. Julius Basilia (partly hidden), 2010 IMO Silver Medalist Carmela Antoinette Lao, MSP President Dr. Jumela Sarmiento and Deputy Team Leader Dr. Job Nable.

The Philippine delegation garnered a double victory in the **2012 World Robot Olympiad (WRO)**, which was held on 9-11 November 2012 in Malaysia. Out of a total of 405 teams from 30 countries, the entry of Dr. Yanga's Colleges Inc. called "Humanoid for Educational Reinforcement Operation (HERO)" won the Gold Medal award. Grace Christian College's entry, "I-Learn: Interactive Learning with Exciting and Advance Robot Navigation" won Silver Medal award. Their robot offers alternative learning that includes interactive activities and promotes critical thinking, problem solving skills and sportsmanship among students.



L-R: Dr. Yanga Colleges Inc. Team H.E.R.O. (Gold Medalist); Grace Christian College Team I-LEARN (Silver Medalist) with SEI Director, Dr. Filma G. Brawner, Felta President, Ms. Mylene Abiva and Organizers during the WRO 2012 Awarding in Malaysia.

**YES AWARDEES EXCEED NUMBERS.** Students who won the **Youth Excellence in Science (YES)** medals in 2012 exceeded those who won in the previous year by 19 percent. A total of 309 students garnered DOST's institutional award for exemplary performance in international science and mathematics competitions. There were 175 awardees from the National Capital Region and 134 from the provincial regions.



Meanwhile, the **Gawad Leadership and Innovations for Development Relevant to Science Education (Gawad LIDER)** marked its 3rd cycle as the highlight of the opening ceremonies of the 2012 National Science and Technology Week held at the SMX Convention Hall. The Exemplary Leadership Award-Individual Category was given to Dr. Rey Velasco of UP Los Baños while the Exemplary Leadership Award-Institutional Category went to ABS-CBN Foundation, Inc. E-Media. Each winner received a cash prize of P200,000 and Certificate of Recognition.

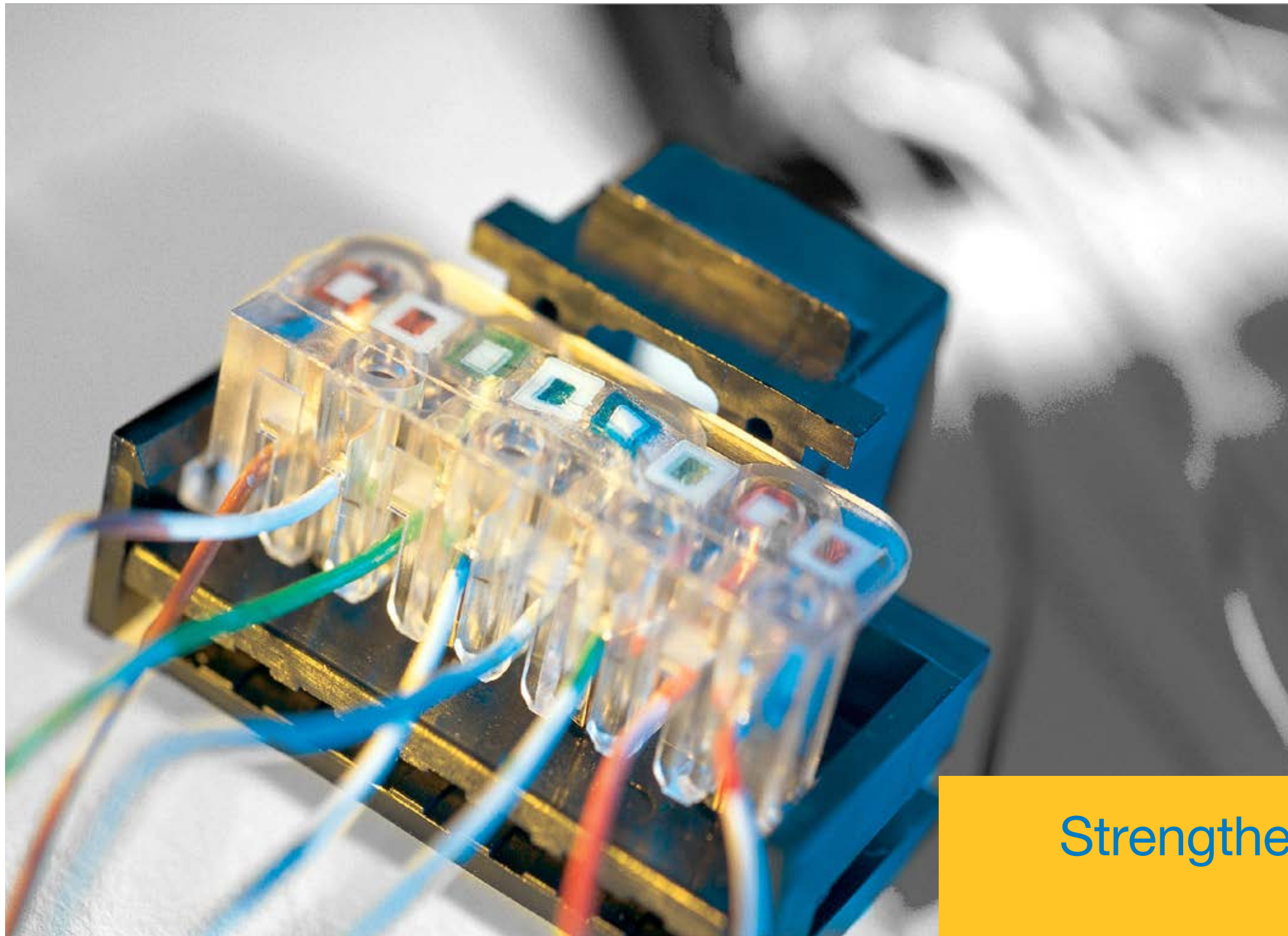


Senator Loren Legarda and DOST Secretary Mario Montejo hand the Plaque of Recognition to Dr. Luis Rey I. Velasco, renowned entomologist and former Chancellor of the University of the Philippines – Los Baños (UPLB), as he was conferred with the Exemplary Leadership Award (Individual category) in the 2012 GAWAD Lider Awards held during the opening day of the National Science and Technology Week on 12 July 2012 at the SMX Convention Center, Pasay City.



Ms. Marcela Claudette Sevilla receives the Plaque of Recognition in behalf of the ABS-CBN Foundation, Inc. (AFI) E-Media Group—the foundation's education arm producing the shows Sine'skwela, Mathinik, Hirayamanawari and the likes—for winning the Exemplary Leadership Award (Institution category) in the 2012 GAWAD Lider Awards. Also in the photo are SEI Director Dr. Filma Brawner (left most), Senator Loren Legarda, and DOST Secretary Mario Montejo.





## Creating Communication and Information Links

### Linking Science to the People

**NETWORK ENHANCEMENTS PROVIDE GREATER SERVICE.** During the year in review, the Institute enhanced its network infrastructure to achieve a stable internet connection, with up to 6mbps available to the network users. Network bandwidth utilization was continuously monitored on a daily basis, to include the generation of reports regarding individual network usage and periodic updates of network security measures and protocols.

Four new servers were acquired while a development server was installed to host the Information Systems being developed and modified according to the actual business process of the organizational unit(s) served. A web server was also installed to host the Intranet site of the Institute.

The MIS unit continued to administer [www.sei.dost.gov.ph](http://www.sei.dost.gov.ph), the agency's official website, and incorporated enhancements which include a video streaming capability made available during the Technical Training of participants of the 2012 Tagisang Robotics competition in May and during the Venus Transit activities of the Science Explorer held in Camarines Norte in June. The website was continuously updated with news articles on the various projects and activities of SEI, uploading of the required contents for the Philippine Transparency Seal – an initiative of the present Administration towards transparency in the government, and the different programs and projects of the Institute as well as the forms required to monitor and report the programs, projects and activities of the personnel and manage institutional finances. Various project websites such as [www.tagisangrobotics.ph](http://www.tagisangrobotics.ph) – the portal of the Tagisang Robotics project which hosts the different manuals and software drivers for the kit-of-parts used in building the robots that enhances the capabilities of high school students on robotics field; and [www.science-scholarships.ph](http://www.science-scholarships.ph) – the portal of the scholarship program of the agency, were also hosted and maintained by the MIS.

## Strengthening Our Connections

Students and educators will increasingly find themselves going to work in classrooms using digital tools. Maximizing the power of technology will therefore enable this sector, particularly from low-income families, to benefit from what has been termed the democratizer in education, and to address problems relating to the digital divide. As education and workplace skills become more dependent on technology, access to connectivity will bring empowerment, personalized learning capabilities, more informed educational choices, and improved quality of life.



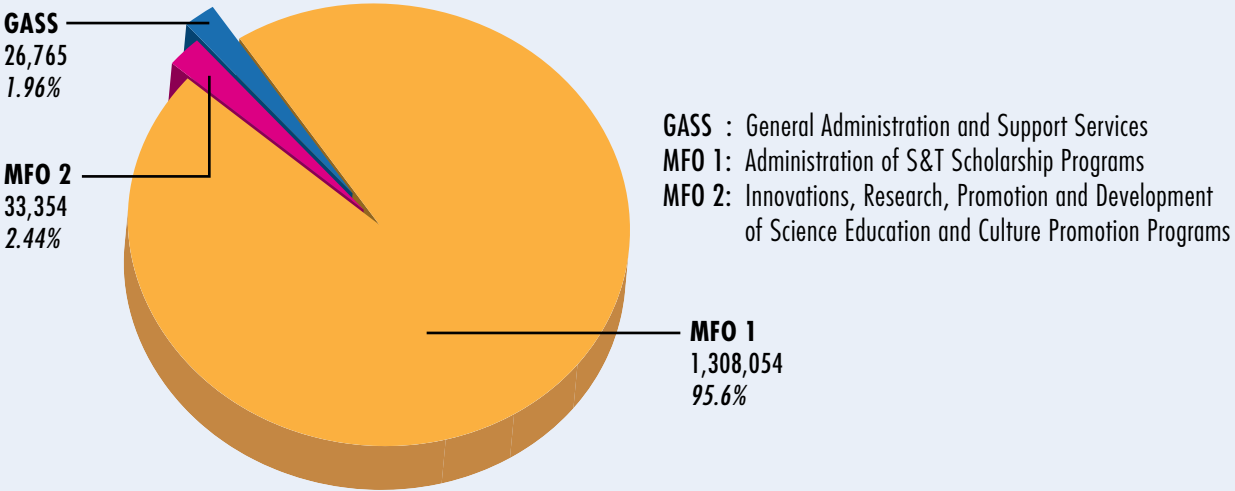
STATEMENT OF ALLOTMENT & OBLIGATIONS

(In thousand Pesos)

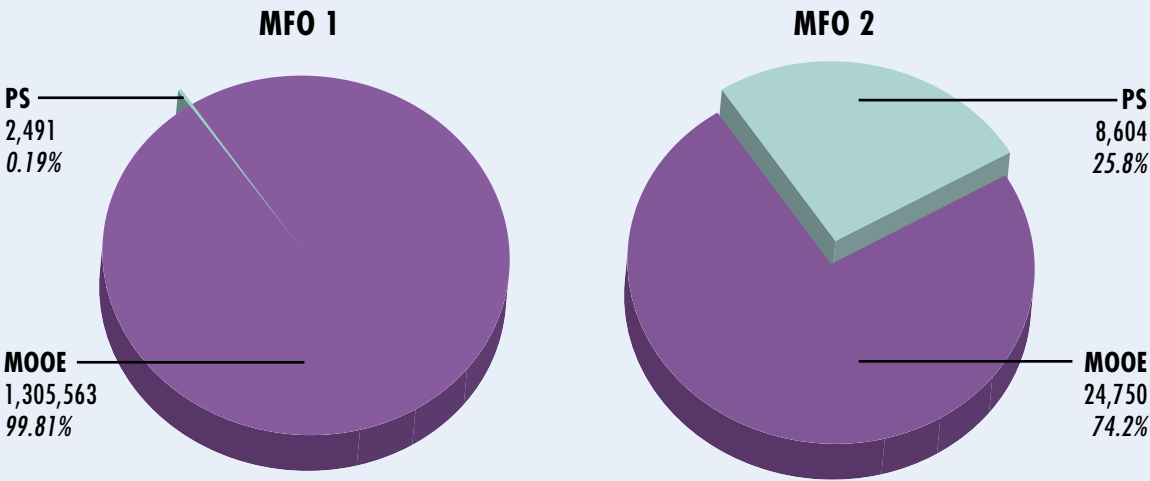
PAPs	PS		MOOE		CO		TOTAL	
	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation	Allotment	Obligation
General Administration and Support Services	19,389	19,349	6,720	6,005	1,200	1,198	27,309	26,552
Operations								
Development, Utilization and Implementation of Science and Technology Scholarships	2,493	2,491	1,305,672	1,305,563			1,308,165	1,308,054
Science Culture Development and Promotion	3,546	3,546	3,774	3,356			7,320	6,902
Research, Innovations and Training in Science Education	5,060	5,058	28,301	21,383			33,361	26,441
Continuing Appropriations				213				213
DOST-Transferred Funds				11				11
TOTAL	30,488	30,444	1,344,467	1,336,531	1,200	1,198	1,376,155	1,368,173

ACTUAL EXPENDITURES

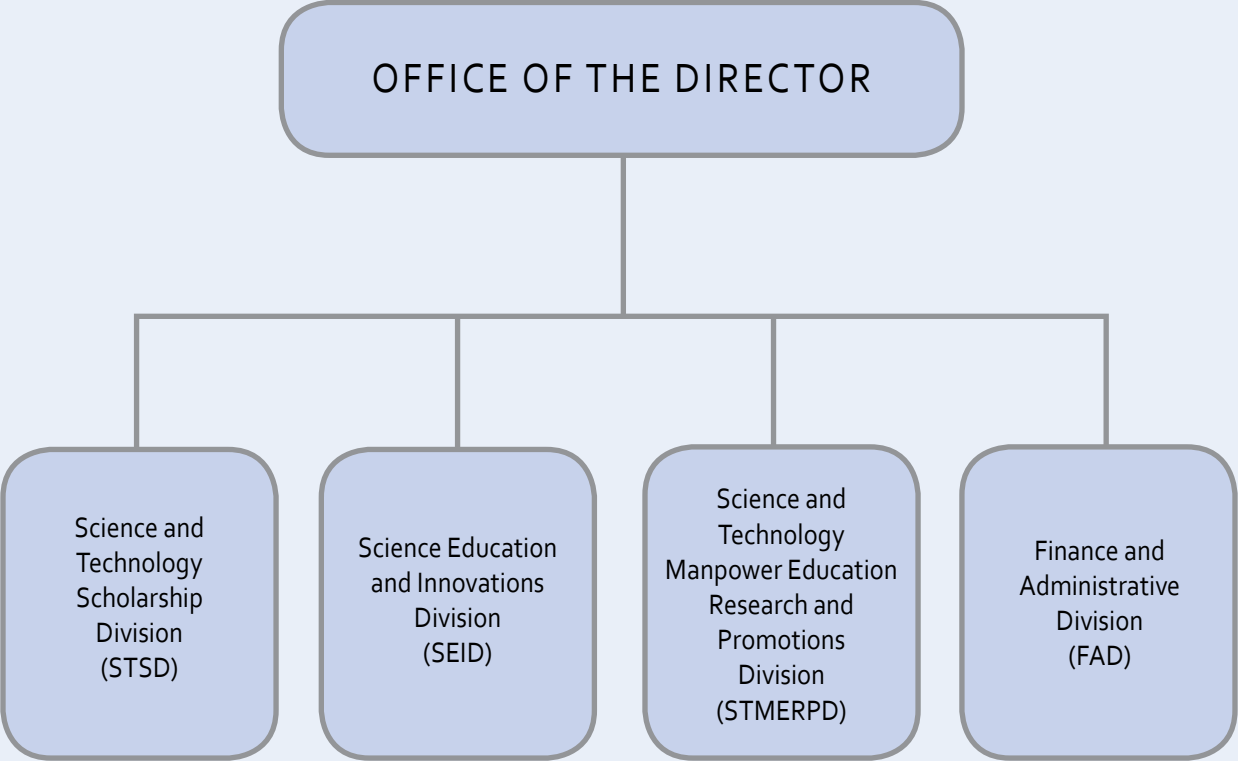
(Amount in Thousand Pesos)



PER MAJOR EXPENSE CLASS AND MAJOR FINAL OUTPUT









## OFFICERS AND STAFF







Enabling the Next Generation through Innovations in Science Education



**Science Education Institute**

1F/2F Science Heritage Building  
DOST Compound  
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Taguig City  
[www.sei.dost.gov.ph](http://www.sei.dost.gov.ph)