

The COMSTE
Accomplishment
Report

2009

Republic of the Philippines, Congressional Commission on Science and
Technology and Engineering

For public
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COMSTE ANNUAL REPORT 2009

The Congressional Commission on Science, Technology, and Engineering was created with the main goal of making the country Research and Development (R&D) globally competitive. To achieve these goals, COMSTE has evolved a strategy for Science and Technology (S&T) investments for the Philippines that focuses the investment portfolio into critical growth areas. Absent of an improvement in the way we innovate as a country, the competitive position of the Philippines in R&D can worsen with the recent slowdown in the world economy. So the key questions that were reviewed were: how do we effectively invest in R&D, so we can create new industries and jobs in high value added businesses, how can we improve the technology transfer from the academe to industry, what new processes and institutions will significantly change the return on the R&D investment by the government, and how do we leverage the investment of other countries in R&D into strategic R&D programs that change the competitive landscape for the Filipino researchers.

Faced with these and other questions, the panels were able to probe and identify the strengths and weaknesses of the country in terms of R&D and S&T. Coupled with a wealth of data accumulated by the secretariat, the rigorous discussions produced an accurate picture of where we are, what we want to achieve and how to do it. From this analysis the identification of priority projects, legislative and program initiatives was made possible.

COMSTE is comprised of the Technical Advisory Council (TAC) and members of the six panels, Agriculture and Food, Energy and Environment, Health Sciences, IT and IT-Enabled Industries, Electronics and Semiconductors, and Science, Mathematics

and Engineering (SME) Education. COMSTE set out to fulfill this goal with a multi-stage process; assessment of our competitive position in different fields, R&D priority definition for focused investment, articulating an S&T Strategy, and enlisting broad support for the new S&T agenda by starting new initiatives.

COMSTE's strategic initiatives provide a unique opportunity to integrate a new strategic S&T agenda into the nation's competitiveness plan during this time of global recession. The country requires a broad-based strategy to stay competitive in the global market, and COMSTE is spearheading this push with high visibility projects like IT for Agriculture, Telemedicine, Green Energy, and High Value Electronics.

New legislation, action plans, and new institutions that harness the benefits of Public-Private relationships are needed to change the way we innovate. Our game changing innovations will build new industries, new jobs, and new business opportunities and will help us stop being followers in S&T and provide us with avenues for building up a strong foundation of homegrown technological powerhouses.

COMSTE's pursuit of international collaboration in R&D is directed to attaining a 100 times return on investment by collaboration. An excellent example of this is our approach to Taiwan to create new Institutions and to gain their collaboration in several key R&D areas like Disaster Science, Remote Sensing, Electronic Chip Design and prototyping and Renewable Energy. The Taiwanese Industrial Technology Research Institute (ITRI) was created when their government realized the need to transform Taiwan's existing export industries, which were mainly centered on textiles, shoes and agriculture to sustainable fields of electronics,

machine tools and petrochemicals. This early public-private cooperative was the reason that Taiwan became the semiconductor and electronics giant that it is today. COMSTE signed an MOU with ITRI to lay the groundwork for our own Industrial Research and Development Institute (IRDI) as well as the Renewable Energy Research and Development Institute (RERDI), which will help propel our economy through advances in these two industries.

The Philippines has been identified by Goldman-Sachs as doing better than most emerging economies during the global crisis. The country is part of the so-called 'Next 11', a group of eleven countries whose economies Goldman-Sachs tagged in 2005 as "worth keeping an eye on" and within this group, Indonesia and the Philippines have out gained the field. In order to continue this trend we have to solidify our gains with our new strategic S&T plan and focus on developing and maintaining our competitive advantages.

2009 Operations

In conjunction with ITRI of Taiwan, the formation of the Industrial Research and Development institute (IRDI) was made possible. ITRI has expressed their willingness to help us through training and technology transfer. IRDI will provide the local electronics industry and academe the necessary assistance access to tools and equipment, which would otherwise be cost prohibitive for small, local industry players and to enable start-up companies through spin offs. PHP 100M has been allocated to this project and COMSTE is currently working with the DBM for the quick release of these funds.

Another PHP 100M has also been allocated for use in the formation and implementation of projects of the Renewable Energy Research and Development Institute (RERDI). RERDI is tasked to jumpstart innovative and R&D ideas and activities for renewable energy related SME's. This will stimulate the market for energy and environment goods and services and at the same time foster public-private relationships. COMSTE is working with the DBM for the release of these funds.

The Renewable Energy and Agriculture Conference sponsored by COMSTE (REACCT) was held in September. The conference helped push the implementation of the Renewable Energy Law by bringing together some of the biggest players in the Renewable Energy (RE) field around the world. Representatives of the governments of Brazil, South Korea, Russia, France, Canada, Laos, Vietnam, Singapore, Palau, Austria and Albania were among the many attendees. Some of the topics included the Philippines opportunities to capitalize on Biofuels, Carbon Financing, and RE technologies and support

systems. Creating a thriving domestic clean energy industry is that much closer to fulfillment thanks in part to the output of the conference.

COMSTE played a crucial role in the layout of the National Telehealth project and the allocation of PHP100M from the budget. Working with the UP Manila National Telehealth Center (UPM-NTC), the project is formulating business and technology models for deployment of 10 telemedicine clinics all-throughout the country. Currently, under the UPM-NTC, there are sites in Aurora, Batanes, and Quezon provinces. COMSTE is following up with DoH and DBM for the release of this funding.

The public elementary and high school database project had its funds released in May and promptly kicked off operations last July. The database will gather information on school leadership, enrolment, participation, and retention rates over the past three years. Effort will also be exerted to report the schools' achievement profiles with greater refinement than just average scores (e.g. how many scored 90 and higher, 75 - 89, etc). One goal of the project is to aid various stakeholders in the design of interventions as well as the continuous monitoring of the performance of schools vis-a-vis the impact of these interventions (e.g. sending those who fall above the 90th percentile to science high schools).

Extension of funding for the Engineering Research and Development for Technology (ERDT) beyond 2010 has been requested. The ERDT is a consortium of eight universities including: University of the Philippines - Diliman, Ateneo de Manila University, De La Salle University, Mapua Institute of Technology, Central Luzon State University, Mindanao State University Iligan, San Carlos University, and the University of the Philippines - Los Banos. The project needs at least

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PHP450 M per year for scholarships and a bill entitled The ASSET Act of 2009 has been submitted to the office of Senator Angara. The bill is set to be filed early January 2010.

COMSTE is supporting the drive for the Philippines to be accredited in the Washington Accord. The first step of the process is to form and incorporate the Philippine Accreditation Board for Engineering, Computing and Technology (PABECT), which is the entity that will represent the Philippines in the Washington Accord. The Washington Accord is a multi-lateral agreement among groups of jurisdictional agencies responsible for the accreditation of tertiary-level engineering programs within their jurisdictions. Through the Accord, the signatories recognize the substantial equivalence of engineering programs in satisfying the academic requirements for the practice of engineering at the professional level. By being a signatory of the Accord, the qualification of Filipino engineers can be better formally recognized, enabling them and Philippine companies to be more globally competitive. The project needs approximately PHP50 M to get off the ground. The PHP50M has already been included in the national budget proposal for 2010. As of December 2009, the budget has been approved on third reading. If it remains on the budget until it is passed into law, and money is speedily released, the application for provisional membership in the Washington Accord will be submitted in the first quarter of 2010.

The national citrus development program has been submitted for funding and implementation, building up science-based technology to enhance processing and produce disease-free planting materials. This project will bolster capacity building and enhance the marketing system for citrus fruits.

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A Research and Development Program for the enhancement and promotion of the culinary herb and spice industry in the country is in the works. This will enable the assessment of the current culinary herb and spice industry in the Philippines and come up with strategies on the promotion of enhanced production and utilization of culinary herbs and spices in the Philippines.

Marine resources decision support systems are being developed with the cooperation of the U.P. Marine Science Institute, Manila Observatory, Bureau of Fisheries, Aquatic Resources, NAMRIA and ERDT.

COMSTE was also able to attend the Taipei Summit – Photovoltaic (PV) Forum 2009 in Taiwan last October. Again agencies such as ITRI, The Department of Industry Technology, and the National Science Council (NSC) expressed their strong desire to collaborate with our government in areas such as Renewable energy, Disaster Mitigation, Biomedicine, Industrial design and Content creation. Minister Lee of the NSC mentioned that in response to the recent devastation both our countries have experienced due to the recent typhoons, it is urgent for both Taiwan and the RP to work together in Disaster Science.

A number of local renewable energy Industry players have been added to COMSTE's growing network. Those involved in PV power generation (CEPALCO), rural electrification through solar power (PAMATEC), and solar cooling (E. MARCS) have been added in the mix of contacts for possible future collaboration.

COMSTE's Plant site visit to San Carlos Bioenergy, Inc.'s Bioethanol Plant plays an integral role in acquiring information and inspiration to help develop other fields of innovation in the local RE industry. The Bioethanol plant is the largest of its

kind in the country and represents the beginning of a better energy future through the use of indigenous RE sources.

COMSTE attended the Philippines Sustainable Energy Finance (SEF) Program of the International Funding Corp. (IFC), a World Bank Group. This program aims to catalyze the private sector investments in sustainable energy. This engagement provided COMSTE with a means to utilize the Renewable Energy R&D Institute (RERDI) initiative in conjunction with the goals of international financial institutions such as the IFC.

The American and Canadian Embassies invited the COMSTE secretariat and Panel chairs to meet and discuss the establishment of better Science and Technology ties with both countries. Each of the six panels of COMSTE were able to discuss the initiatives of COMSTE and provide an avenue of communication with the Canadian Trade Commission Service and the American officers for Economics and Environment, S&T, and Energy. The discussion was able to produce an opportunity to share information about COMSTE with these two major players as well as the promise of collaboration in future priority projects.

COMSTE has also been very successful in passing legislation to support its ICT and business process outsourcing (BPO) industries. The Data Privacy Act has been passed in the House of Representatives, while the Technology Transfer has passed on 3rd reading in both Houses of Congress. One more pending bill, creating the Department of Information and Communications Technology (DICT) is on 2nd reading in a period of amendments. The COMSTE IT Panel played an active role in the committee amendments for this bill.

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Dialogue between the panels has also pushed the creation of an ICT for Agriculture project and the Disaster Science Center for the entire ASEAN. COMSTE held an initial stakeholder's meeting for the ICT for Agriculture Project in July, with Dr. Josefino Comiso, prominent NASA scientist, sharing the possible analyses to be had from the Moderate Resolution Imaging Spectroradiometer (MODIS) data for agriculture and disaster management purposes. The PAGASA has a MODIS receiver and receives data from NASA satellites twice a day. These data streams can be used for modeling and predictive purposes.

COMSTE also co-sponsored an ICT for Disaster Management lecture by Dr. Eric Rasmussen and Mr. Luke Beckman from the Innovative Support to Emergencies, Diseases and Disasters (InSTEDD), which opened up possibilities of using free tools online to coordinate disaster support and track post-disaster efforts. This was followed by a presentation by the National Institute of Geological Sciences (NIGS) on the use of the Light and Detection Radar (LIDAR) for land-use planning and flood prediction and mitigation.

Lastly, COMSTE also attended the Workshop on Non-Conventional Water Resources and Environmental Management in Water Scarce Countries in Singapore. This workshop showed how Singapore manages its water supply and demand from sourcing all the way to wastewater treatment by looking at water resources from the entire water cycle. This model can be used for future conference on Water and Sanitation to be held in aurora Province in 2010.

NEXT STEPS

COMSTE is lined up with a Climate Change Conference in February, with a focus on Disaster management and urban redevelopment. In March, there will be a Water & Sanitation conference in Baler, and COMSTE is poised to set out on regional consults and hit the countryside with road shows, highlighting projects, stirring up interest in S&T, and developing the spirit of the Filipino as an innovator. COMSTE recognizes that new industries are born of innovation, and with our ability to innovate and bring in game-changing services we can leapfrog technology and build up our S&T level to be at par with the rest of the global community.

The goal of achieving high standards of Technician Training and achieving International Certification for Technicians is in the pipeline. COMSTE will help endorse our top technical schools (ERDT) that will go for international accreditation while other technical schools not included in the ERDT will become polytechnic schools that can evolve and focus on technician training, welding, and other similar trades.

COMSTE is aiming to continue sustainable development by focusing efforts by laying out medium and long term solutions and avoiding the pitfalls of quick-fix, short term solutions. Building on relationships with the international community and creating stronger ties with S&T giants like Taiwan, Korea, and Japan is a necessity, as our future lies in our ability to utilize international collaboration and nurture progress with lessons gleaned from their experiences.

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The mapping out of a new strategic plan in S&T is a key area that COMSTE is keen on accomplishing. Our future plans include having increased R&D spending into focused national projects with Industry-Academe-Government all working together to achieve well-defined, specific goals.

COMSTE will continue to develop extensive R&D investments from international strategic alliances. This includes country to country co-development of new technology, and foreign investment in our high-tech companies.

COMSTE also aims to protect our new innovation culture by strengthening our Intellectual Property (IP) rights. With this, we can encourage S&T to expand and begin improving the lives of Filipinos on all economic levels. With Green Engineering Businesses, improved barangay medical services and utilizing IT for agriculture we aim to accomplish this.

In the field of Renewable Energy (RE), COMSTE is set to aid in the development of a new generation of hybrid RE power plants, Algae and Ethanol working in the same facility. With algae used as a system of carbon capture, the notable amounts of CO₂ produced in making ethanol would be negated and become a major plus for energy production and potential source of revenue through carbon credits.

COMSTE is also continuing to leverage our international ties to communicate our S&T strategies. This will help promote our plans and kick off future projects while making sure that our global competitiveness level remains high with the cooperation of our neighbors.

THE FOLLOWING ARE RESOURCE MATERIALS AVAILABLE TO COMSTE

Keynote Speech by Senator Edgardo J. Angara

Korea-Philippines Economic Cooperation Forum for Green Growth

5 November 2009 Seoul, Korea

Keynote Speech for REACCT Conference

H.E. Choi Joong-Kyung

Ambassador

Republic of South Korea to the Philippines

S&T R&D Strategy for Philippine Renewable Energy Competitiveness & Innovation

Usec. Fortunato T. de la Pena

Renewable Energy Program of the GOP

Asec. Matanog Mapandi

Department of Energy (DoE)

Forum on Global Opportunities in Solar & Wind Energy

- Ms. Alelie Fucell - President & CEO, Renewable Energy Test Center
- Mr. Niels Jacobsen - President, NorthWind Power Corporation
- Mr. Ramon Isberto - Head of Public Affairs, PLDT & Smart Communications, Inc.

Forum on Global Opportunities in Geothermal, Hydro and Ocean Energy Technologies

- Mr. Paul Aquino - President, Energy Development Corp.
- Mr Luis Miguel Aboitiz - President, Aboitiz Equity Ventures
- Fr. Daniel McNamara, S.J. - Ateneo de Davao

Keynote Address REACCT Conference

Rep. Joseph Emilio A. Abaya

Co-Chair, COMSTE

Prospects for Agriculture in Renewable Energy

Deputy Administrator Carlos Carpio of the Phil. Coconut Authority Secretary

Overview of the Philippine Biofuels Law and Existing Programs and Projects on Biofuels

Ms. Rosemarie Gumera

National Biofuels Board, Department of Energy

Statement on Environment

Atty. Antonio Oposa

Environmental lawyer / 2009 Ramon Magsaysay awardees

Forum on Global Opportunities in Biofuels

- Dr. Jose L. Cuello, Professor, Dept. of Agricultural & Biosystems Engg.,
University of Arizona
- Mr. Danilo P. Manayaga, Secura International Corp.

Forum on Carbon Financing

- Mr. Gao Pronove, CEO, EcoMarket Farms & Co-Founder, Greenhouse Gas
Management Inst.
- Dr. Terence Gosliner, California Academy of Sciences
- Ms. Joyceline Goco, Supervising Environmental Management Specialist,
DENR

Forum on Other Established RE Technologies and RE Support Systems

- Dr. Amador Muriel, Philippine-American Academy of Science and
Engineering
- Dr. Robert Wimmer, President & Chair, GrAT (Center for Appropriate
Technology), Vienna University of Technology, Austria

Presentation of Resolution of REACCT

Mr. Virgilio Fulgencio

Executive Director, NCC

Fr. Bienvenido Nebres, S.J.

Co-Chair, Technical Advisory Council - COMSTE and

President, Ateneo de Manila University

Updates on the APEC and ASEAN Engineer Registry

Engr. Eric Nera

Director and Past President

Philippine Technological Council (PTC)

The Philippine Accreditation Board on Engineering, Computing and Technology (PABECT) and the Washington Accord

Acad. Reynaldo Vera

NAST Focal Person on the Washington Accord Discussion & Resolutions

The Philippine Main Education Highway: Updates, Recommendations and Action Plans

Final report of the Presidential Task Force for Education (PTFE) Presented by

Fr. Ben Nebres, COMSTE TAC Member

Priority Initiatives as of May 28 2009

COMSTE Executive Director, Dr. Greg Tangonan

Executive Director's Presentation

COMSTE Executive Director, Dr. Greg Tangonan

Agriculture and Food Panel Presentation

Energy and Environment Panel Presentation

Electronics and Semiconductors Panel Presentation

Health Sciences Panel Presentation

IT and IT Enabled Industries Panel Presentation

Science, Math and Engineering (SME) Education Panel Presentation