



Science for the Filipinos

EDITORIAL

Science, technology, and innovation in the expanding Filipino society

Science, technology, and innovation are a triumvirate known as the engines of growth. However, these engines only work their maximum when revved up by people who seriously want to see this country running neck-to-neck with its neighbors in the economic highway.

For this reason, the Department of Science and Technology has been exerting a great deal of effort to make Filipinos aware of and appreciate the role of science in their daily life. Such may be an uphill battle but the visionary Science Secretary Mario G. Montejo ensures that no stone is left unturned in DOST's staunch promotion and advocacy of initiatives that will bring about maximum socio-economic benefit to the expanding Filipino society.

Noticeably, the Department's priority programs, projects, and activities, and the Secretary himself, have been prominent in all media: print, broadcast, and cyber.

In its own small yet tangible way, the S&T Post finds it befitting to close the year by showcasing in this issue the DOST's accomplishments in 2011 and its plans and programs until 2016.

This issue highlights DOST's programs underpinned by Sec. Montejo's five-point agenda that are anchored on the social contract of the President Benigno Simeon C. Aquino III. Such agenda include: DOST Solutions to Pressing National Problems; Developing Appropriate Technologies that Create Growth in the Countryside; Improving Industry Competitiveness; Use S&T to Enhance Government and Social Services; and Building Capacity in Emerging Technologies

Leveraging on collective action using mutlisectoral approach to solve multifaceted situation, the DOST underscores the value of oneness, of working together as a family with a common vision. Gladly, the Department is a Lone Ranger no more in its drive to achieve national progress through S&T. It has strengthened its alliances and now works closely with other government offices, academic institutions, private organizations, and even some people's and non-government organizations.

Moreover, the strength of this administration can be measured in its internal effort to let everyone in the DOST system work cohesively towards a common goal. With a solid core, the energy radiates to all its partners especially to the general population where it has a social contract to fulfill – that is making science, technology, and innovation help in nation building. This is science working for the Filipinos.

And we call this Filipinnovation!

Aristotle P. Carandang



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Research on emerging science now mapped out till 2018



Sec. Mario Montejo addresses the stakeholders before the setting of the roadmaps on emerging science.

By FRAMELIA V. ANONAS S&T Media Service

RESEARCHERS IN the country can now program their research activities in emerging science with the setting up of the sector's research and development roadmaps.

Led by the Department of Science and Technology's Philippine Council for Industry, Energy and Emerging Technology (DOST-PCIEERD) last October, the crafting of the R&D roadmaps involved stakeholders in the fields of genomics and nanotechnology.

"One important thing that you should consider in crafting the roadmaps is the final outcome of the research activity," Sec. Mario Montejo advised the stakeholders during the workshop. "In the end, the final product that comes from research should uplift the lives of the Filipino people."

Genomics refers to the study of genomes, or the complete set of genetic material of organisms. Getting down to gene level leads to a better understand-

ing of living organisms and how they can be improved. In the country, genomics R&D are commonly done in the areas of agriculture, health, nutrition, Filipino ethnicity, nutrigenomics, biotechnology, biodiversity, and forensic.

Meanwhile, nanotechnology, also called the "science of small," involves the study of things at the atomic level. At this level, there are properties and functions not present in larger dimensions but can be designed and controlled at the nano level. Nanotechnology researches in the country are in the areas of biotechnology, materials science, and information and communications technology.

In the field of health genomics, R&D will focus more on the development of diagnostic kits for commonly-encountered diseases. This effort leads to a "Filipinized personal medicine" that addresses unique conditions of Filipinos in infectious, lifestyle, and

cardiovascular diseases, and cancer. Also set in the pipeline are functional and designer foods that can treat ailments, molecular marker studiers, deoxyribonucleic acid or DNA finger-printing, novel enzymes development, sustainable drug discovery, and bioenergy production, among others.

Another important activity in the country will be the Human Genome Project which will provide important information on the Filipino identity.

Stakeholders also cited the importance of resource-sharing among DOST-assisted research institutions and human resource development to achieve the goals of genomics research in the next seven years.

In nanotechnology, research activities will center on addressing the top ten problems of the world in the next 50 years, including energy, water, food, environment, and poverty, among others.

In the field of ICT and semiconductors, nanotechnology research will be geared toward building core facilities for nanometrology, solar cell testing, and failure analysis. Also set in the pipeline are nanomaterial samples preparation, chemical analysis and imaging, advanced materials, and high resolution characterization.

Nanotechnology studies with energy applications will focus on device structures, bulk heterojunction type solar cells, water-splitting photovoltaic system, and hydrogen fuel cells.

The stakeholders in this field also laid out plans to develop human resources, linkages, and marketing schemes of potential technologies to the industry.

DOST genomics program to focus on health, agriculture, and biodiversity

By LUISA LUMIOAN S&T Media Service, STII

DEPARTMENT OF Science and Technology Secretary Mario G. Montejo, in his address during the launching of the Philippine Genomics Center in Shangrila Hotel Makati City, last November 28, 2011, said that DOST will focus its genomics program on health, agriculture, livestock, fisheries and biodiversity.

Genomics, a flagship program of DOST, can be a "game-changing tool that could offer enormous rewards to our people," according to Secretary Montejo.

Genomics is a science concerned with the study of the genomes or the complete set of genes in an organism. A goal in genomics is the sequencing of the genome of the whole organism which may lead to applications in medicine, agriculture, ecology, and bioprocessing.

Sec. Montejo said that DOST will provide funding support on health re-

searches on diseases such as dengue, TB, AH1N1, cancer, cardiovascular diseases and diabetes and genomic studies on endemic crops, staples, bio-products fisheries and livestock to significantly enhance agricultural production.

Current initiatives in genomics include improving the brood stock for the cultured bangus and tilapia, fighting bunchy top virus affecting abaca, and addressing the dreaded Panama disease now affecting banana growers in Mindanao, Montejo said.

Montejo emphasized in his speech that translating genome-based research into practical solution is trans-disciplinary and multi-sectoral responsibility. It involves intricate collaboration across scientific disciplines and linkages between public research and development institutions, policy makers, academe and industry sectors.

"Putting together a cohesive ge-

nomics initiative in a developing country, however, is no easy task. It requires a critical mass of scientists and experts to develop a sustainable program, and appropriate resources to support the operational and infrastructure demands of research and development," he said.

To achieve critical mass of scientists and experts, DOST embarks on Balik Scientist Program that will bring home top Filipino scientists, informatics experts and engineers now working outside the Philippines to mentor domestic scholars and supervise genomerelated projects. DOST will also support genomics research projects aligned with development priorities through grants from its councils such as Philippine Council for Industry, Energy and Emerging Technology Research and Development, Philippine Council on Health Research and Development, and Philippine Council on Agriculture Aquatic and Natural Resources Research and Development.

Enriched juice helps improve kids' nutrition

By IMELDA ANGELES-AGDEPPA S & T Media Service, FNRI

THE LATEST National Nutrition Survey of the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST) revealed that 2 out of 10 six to 12 year-old children in the Philippines have iron-deficiency anemia.

Iron-deficiency anemia or IDA is a condition where an individual has hemoglobin level below the acceptable normal level of 120 grams/liter because of prolonged low intake of iron-rich foods.

As reported in the same survey, households who get adequate amounts of iron from their diet is only 1 out of 10 households while households getting adequate vitamin A is only 2 out of 10. Only 3 out of 10 households have adequate amounts of vitamin C and calories.

Fortifying or enriching ready-to-drink (RTD) commonly-consumed beverages offers a great opportunity in addressing the gap between consumption and requirement of the body for certain nutrients. Filling-up the nutrient gap experienced by children improves their nutritional status.

Beverage as a vehicle for fortification is easy to administer, more consistent and least obstructive because it is consumed without further processing or cooking. Nutrijuice is an orange-based juice drink enriched with iron, vitamins A and C, zinc and lysine.

Iron is the main component of the red blood cells for the development of hemoglobin that delivers oxygen from the lungs to the different parts of the



body including the brain. Vitamins A and C and zinc help in improving the immune response to fight against infections while zinc promotes growth and lysine helps improves appetite.

DOST-PTRI team gets 2011 PAGASA award

By GEORGE ROBERT E. VALENCIA III S&T Media Service, STII

THE TEAM led by Ms. Nora Mangalindan, Research and Development (R&D) Division Chief of DOST Philippine Textile Research Institute (PTRI), was given this year's PAGASA Award by the Philippine Civil Service Commission (CSC). This honor is bestowed yearly to outstanding public officials and employees on the basis of their work performance and its impacts to society.

The Team earned this laurel by its active development of Philippine tropical fibers in its aim to help the country's textile industry. Pineapple, abaca and banana, among other tropical fibers, are the team's current priority. Blended with other textile fibers, these three are commercially recognized materials for apparels, home linens and upholstery.

The team was able to establish technologies that improve the rate of production and overall quality of the finished textiles from these sources. This accomplishment even led to DOST-PTRI's active participation in the authoring of Republic Act 9242 that prescribes all government officials and employees to use Philippine tropical fabrics as office uniforms back in 2004.

At present, the R&D Team also works on the development of three other tropical sources of fibers; namely, water hyacinth, jute plant or saluyot and maguey. According to Ms. Mangalindan, this batch of natural fibers will be formally launched

in DOST-PTRI early in 2012, and garment prototypes are being created from these sources.

When asked about the Team's dynamics, Ms. Mangalindan said that theirs is not so different from most government groups. She said what is important is that each member contributes his or her best effort to achieve the goal of the Institute being served, and do this with utmost transparency or integrity.

Through the Team's efforts, the country's textile technology remains at par with foreign counterparts, and profits from some of its abundant natural resources.

The DOST-PTRI R&D Team was formally bestowed the PAGASA Award at the Malacañang Palace last November 9, 2011, by Philippine Executive Secretary Paquito Ochoa Jr.. The event was followed by a Testimonial Dinner held at the Philippine International Convention Center.



The R&D team from the Department of Science and Technology's Philippine Textile Research Institute bagged this year's Pagasa Award of the Civil Service Commission. Awarded were (from left to right) Agustin Bordallo, Jr., Eduardo Marin, Nora Mangalindan, Rita Delfin, Marites de Leon, Ernesto Dangaran, Jr. and Ronald Pechera with their medals of honor from Civil Service Commission Chair Francisco Duque and Executive Secretary Paquito Ochoa, Jr. at the Malacañang Palace.

Nutri-juice is a product of a publicprivate partnership that started when Coca-Cola engaged in more nutritious products and tapped the FNRI to conduct a study on Nutrijuice and provide scientific evidences on its benefits.

In the FNRI study, two 200 milliliter pouches of Nutrijuice were given daily to school kids in Pinaglabanan Elementary School in San Juan Metro Manila for 100 days.

Results showed that the percentage

of anemia decreased significantly from 100 percent at start of the feeding to 13 percent at end of the feeding period.

In another study in Quirino province, Nutrijuice was given to 5,000 school kids. Similar results were revealed where anemia prevalence decreased from 100 percent to 60 percent at end of the feeding period. Last year, Nutrijuice was given to about 30,000 kids nationwide.

Based on the scientific evidences obtained, Nutrijuice can improve the nu-

tritional status of children and could best be sold in school canteens at an affordable cost to encourage consumption by children.

For more information on food and nutrition, contact: Dr. Mario V. Capanzana, Director, Food and Nutrition Research Institute, Department of Science and Technology, General Santos Avenue, Bicutan, Taguig City; Tel/Fax Num: 8372934 and 8373164; email: mvc@fnri.dost.gov.ph, mar_v_c@yahoo.com; FNRI-DOST website: http://www.fnri.dost.gov.ph.

DOST-NRCP prez goes on air for int'I science confab

By JOSELITO ALONTE CARTECIANO S&T Media Service, NRCP – RIDD/IDS





IN A live interview with ABS-CBN DZMM's Bago Yah, Ah! host Nelson Lubao last Sunday, October 23, 2011, National Research Council of the Philippines President Alvin B. Culaba announced NRCP's forthcoming major activity, the 12th International Council for Science (ICSU) Regional Committee Meeting for Asia and the Pacific. The conference will be held on 11 – 12 November 2011 at Marriott Hotel Cebu in Cebu City.

According to Dr. Culaba, the conference will feature the sharing best practices and lessons in science and health education promotion, green productivity strategy, and other issues in a changing urban environment.

Prof. Bruce H. John McKellar, chair of the School of Physics in the University of Melbourne, Australia will talk about Australia's experience in promoting science and health education, and in enhancing public awareness on government science policies. Prof. McKellar's discussion will also touch on Australia's strategies in carrying out the five health promotion areas namely:

building healthy public policy; creating supportive environments; developing personal skills; strengthening community action; and reorienting health services.

Meanwhile, Prof. Sootttiporn Chittmittrapap, secretary general of the National Research Council of Thailand will present important issues about health and well-being in a changing urban environment. These will include relevant concerns on water, nutrients, food and health; housing, indoor environment and health; transport, land use, outdoor air quality, physical activity and health; urban waste (management) and health; energy and urban metabolism; as well as integrated system analysis.

Further, Prof. Hong-Kum Lee, president of the Korea Polar Research Institute, Republic of Korea will discuss the advantages of the application of "green productivity strategy" in enhancing a nation's productivity and environmental performance to achieve socio-economic development. Green productivity basically employs the appropriate techniques, technologies, and management system to produce environmentally compatible goods and services, Dr. Culaba informed.

On Lubao's inquiry on the composition of participants, Dr. Culaba said that the conference will have participants from other member-nations including China, Kuala Lumpur, Malaysia, India, Iran, and Sri Lanka. On the local front, over a hundred NRCP members from Mindanao and Visayas will convene at the Central Mindanao University and the University of the Philippines Tacloban, respectively, for their annual general assembly that coincides with the ICSU activity. Meanwhile, invited NRCP members from Luzon will converge at the NRCP conference hall at its office in Taguig City for panel discussions via web-video conference with their colleagues in the Vis-Min areas, Dr. Culaba added.

The live interviewed was wrappedup with Dr. Culaba's message of gratitude to Lubao for the opportunity of disseminating the information regarding NRCP's activity.

The International Council for Science Regional Office for Asia and the Pacific (ROAP) was established in Kuala Lumpur, Malaysia in September 2006 primarily to promote the development of science in the developing countries Asia and strengthen their influence on international research. Since its foundation, various countries hosted its annual committee meetings, Dr. Culaba said.

In 2010, during 11th committee meeting in Singapore, the previous NRCP President and DOST Philippine Council for Health Research and Development Executive Directtor Dr. Jaime C. Montoya represented the country. In February last year, Dr. Ester B. Ogena, chairperson of the NRCP Division for governmental, educational, and international policies and president of the Philippine Normal University, represented the country through DOST-NRCP at the ICSU Ad Hoc Review Panel on Science Education in Paris, France.

Bago Yan, Ah! produced by the ABS-CBN Foundation, Inc., is an educational radio program that airs every Sunday, 4:30-6:00 PM, over DZMM (630kHz) and telecast via ANC Channel. For years now, the program has been an effective medium in developing science and technology culture among Filipinos, especially the youth. It features topics and discussions that will increase the comprehension and appreciation of Filipinos for science and technology. It also provides Filipino listeners access to valuable information that educate and empower them to make the right choices and decisions, as well as to improve the quality of their lives. Congressman Angelo B. Palmones hosted the program for 12 years until his retirement on 2009.

DOST to partner closely with health industry management sector

By ALAN TAULE S&T Media Service, STII



DOST Secretary Mario G. Montejo (seated, center right) with the officers of the Healthcare Information Management OutsourcingAssociation of the Philippines (HIMOAP). Seated from the left are ICTO Commissioner Monchito Ibrahim, ICTO Executive Director Louis Casambre, HIMOAP president Myla Rose Reyes (2nd from right), and eData Services CEO Fred Kumetz.

DOST SECRETARY Mario G. Montejo expressed full support to the healthcare information management sector, adding that the Department of Science and Technology is committed to engender the right business environment for the industry to grow for years to come.

The Science Secretary made this assurance at the opening ceremonies of the 2nd Healthcare Information Management Outsourcing Services Congress, which brought together companies, regulators, and trade associations engaged in this field to discuss the latest developments and trends as well as the latest opportunities in healthcare information management (HIM).

In his keynote message, he paid tribute to the contributions of the sector to the domestic economy, with more than P4.323 billion in revenues and 14,000 jobs generated in 2010. Montejo said that through the newly-created

Information and Communications Technology Office (ICTO), the DOST shall work closely with the Healthcare Information Management Outsourcing Association of the Philippines (HIMOAP) to "zoom in and nurture the basic elements needed for HIMOAP to achieve success and sustainability in a highly-competitive global environment." Specifically, one of HIMOAP's medium-term goals is to achieve an annual average growth rate of 25 percent, hit revenues of P43 billion, and generate 80,000 jobs by 2016.

"The government will focus on the elements that can help sustain the growth of the industry, such as education and training support, customization of curricula, infrastructure buildup, and forward-looking investment incentives," explained Secretary Montejo. He also added that government understood the fundamental importance of a holistic human resource and industry development since HIM is basically about people helping people.

"We believe that one of government's primary roles is to be an enabler, to create possibilities for the industry. We can do this through our broad network of experts across a wide range of disciplines... We hope that HIMOAP can work with us to tap into this rich and extensive brainpower network," Montejo said.

As an agency under the DOST wing, the ICTO shall be tasked with the accelerated development of a wired government and integration of government IT systems under a unified platform. Likewise, ICTO will concentrate on the areas of human resource development through education in order to produce globally competitive ICT manpower and promoting a climate conducive for further growth.

TRC, NABCOR to set up rice Technology post-harvest facility in NE differences

By JOSEPH U. VIZCARRA S&T MEDIA SERVICE, TRC

THE TECHNOLOGY Resource Center (TRC) and the National Agribusiness Corporation (NABCOR) have jointly committed to pool their resources to help augment the country's supply of rice by setting up a rice post-harvest facility in Cabiao, Nueva Ecija.

TRC Director General Dennis Cunanan and NABCOR President Honesto Baniqued said the joint project falls under the food sufficiency program of the Aquino administration. Under the plan, Cunanan said the project would capitalize on the post-harvest facility previously acquired by the TRC in the province. "With the strength of NABCOR's operational and technical expertise in the industry, the project is indeed very promising," Cunanan noted, "and we hope it is but the start of a long and enduring partnership between the two institutions."

TRC and NABCOR are both government-owned and controlled corporations (GOCC's). They are, respectively, under the administrative supervision of the Department of Science and Technology (DOST) and the Department of Agriculture (DA).

Meanwhile, TRC has recently moved to its new location at Jacinta II Building, EDSA, Guadalupe Nuevo, Makati City (beside MMDA office) to be more accessible to Filipinos on the lookout for feasible self-employment and entrepreneurship opportunities.

TRC Director General Dennis L. Cunanan is optimistic that the relocation would translate into more and better public service opportunities for the 34-year old government institution. "With increased public access to TRC's more popular services, such as our livelihood trainings, library services and self-learning technology manuals," Cunanan noted, "we trust that more and more entrepreneurs would get to take full advantage of other opportunities the government offers through the TRC"

TRC is a government-owned and controlled corporation (GOCC) under the administrative supervision of DOST. The agency is mandated to transform the country's technology assets into business success stories that redound to better life for the Filipinos.



ERRATUM:

This should be the photo of Merl's Suman sa Lihiya featured in the Third Quarter issue of S&T Post. We apologize for the error.

Technology differences do not hinder unified problemsolving, says science chief

By ALAN TAULE S&T Media Service, STII

"TECHNOLOGY PECULIARITIES must not prevent nor detract us from a unified problem-solving approach to our shared but currently endangered fate and inheritance."

This was the central message of DOST Secretary Mario G. Montejo in his keynote speech during the opening ceremonies of the 2011-2012 Inter-Sessional Panel of the United Nations Commission on Science and Technology for Development (UNCSTD) at the New World Hotel, Makati City

In his talk, Secretary Montejo recognized the importance of science and technology for development, particularly the role of information technology in shaping and reconfiguring today's economic environment.

Yet he also acknowledged the presence of a knowledge divide among developed and developing countries, and that this gap is creating a tension of opposites in their hierarchy of needs.

As such, he said, it is urgent for UNCSTD Member States to identify immediate and pressing issues that commonly affect them such as health and food security, as well as environment management and protection, among many others. These issues, he said, are

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NAST Academician gets top Southeast Asian Scientist Award

By ALAN C. TAULE S&T Media Service, STII

NAST ACADEMICIAN Ramon C. Barba, widely acknowledged as the country's leading mango researcher, received the 2011 Dioscoro L. Umali Achievement Award in Agricultural Development in ceremonies coinciding with the 45th founding anniversary of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA).

Dr. Barba was cited for his many groundbreaking contributions in agriculture, especially on the mango fruit—foremost of which is his 1974 discovery of mango flower induction by potassium nitrate. His discovery, which led to a significant increase in flower production which allowed growers to program mango production according to market demands, facilitated the development of agribusiness ventures throughout the country.

Yet despite holding a patent for

this technology, he opted to forego royalty payments so that Filipino mango farmers will be able to use it without additional cost.

Dr. Barba is also known for research breakthroughs in banana micropropagation and tissue culture of sugarcane and calamansi that left lasting impacts on the agribusiness potentials of such commodities in the global market.

Throughout his productive career, Dr. Barba has been cited for his research achievements, including the NAST Academician in 2004, IBM/DOST Science and Technology Award in 1989, Rizal Pro Patria Presidential Award for Tissue Culture in 1980, and as among the Ten Outstanding Young Men in 1974 for agriculture.

He also appeared in a 2008 docu-

mentary by the World Intellectual Property Office as one of the role models for creativity and innovation.

SEARCA Director Gil C. Saguiguit, Jr., UP Los Banos Chancellor Rex Victor O. Cruz, Dioscoro L. Umali Foundation (DLUF) Nelia T. Gonzales, and National Scientist Dolores A. Ramirez presented the Dioscoro L. Umali Award to Dr. Barba. The Award is a collaboration between the National Academy of Science and Technology, SEARCA, and DLUF.

The Award was named in honor of the late National Scientist and first Director of SEARCA. It is conferred to an outstanding Southeast Asian national whose work has positively impacted on the development of agriculture and the quality of rural community life in the region. It comes with a cash award of US\$10,000 and a plaque of citation.



Dr. Ramon C. Barba receives the Dioscoro L. Umali Achievement Award at SEARCA, UP Los Banos. From left are SEARCA Director Gil C. Saguigit, Jr., former FNRI Director Corazon V.C. Barba (spouse of the awardee), Dr. Barba, DLUF President Nelia T. Gonzales, and National Scientist Dolores A. Ramirez.

IPO Phil boss urges more Davao inventions

By JOY M. LAZCANO S&T Media Service, STII

"THERE IS money in invention and innovation," Intellectual Property Philippines Director General Ricardo Blancaflor pointed out even as he urged Southern Mindanao inventors to invent and innovate more technologies to help in the country's development.

During the closing ceremony of the Regional Invention Contests and Exhibits 2011(RICE) Nov. 20 hosted by the Department of Science and Technology Region 11 at the NCCC Mall, Davao City, DG Blancaflor said that inventions and innovations generate patents, trademarks, and copy rights which in turn are translated to economic progress and development.

Blancaflor cited a popular fast food chain in the country specializing in roasted chicken which was sold a few years back to another fast food giant for a whopping Php 3 billion. "The price tag for the company's trademark alone is estimated at Php 2 billion," he revealed.

Meanwhile, Dr. Warlito Vicente, Chairperson for the Regional Health Research and Development Council (RHRDC) was overwhelmed at the warm response of the local inventors in the first Health Research and Development Expo held simultaneously during the RICE 2011.

Winners for the Graduate Creative Poster Exhibit include Herman L. Sorongon, Jr., MD, FPUA, Glinard L. Quezada, MD, Katrina Jo. T. Caballero, MD. of Davao Doctors Hospital for their "Laparoscopic Management for Left Ovarian Vein Syndrome: A Case Report" in first place; Glinard L. Quezada, MD, Anthony D. Araral, MD for the "Comparison of Gastrointestinal Symptoms Before and After Surgery in Patients who Underwent Laparoscopic Cholecystectomy" in second and Ofelia C. Lariego, RN, MAN of the University of Mindanao for her research on "Development of Dengue Elimination and Control Program for Selected Areas of Catigan Toril and Binugao" in third.

While winners in the Undergraduate Creative Poster Exhibit are Mr. Melvin S. Pasaporte, MitchellRev M. Toleco, and Dulce M. Flores, Ph.D. of the University of the Philippines Mindanao for the research "Lutein Content of Selected Local Fruit and Vegetables"; Maureen Betty A. Braga, Alexis Nico S. De Manuel, Charmae A. De Paz, Christina A. Jamora, Rucill Margarett Q. Peñaloga, Romwil Jasan M. Sedano, and Crystal Joy L. Seloterio of the San Pedro College for the "Determination of Total Mercury in Yellow fin Tuna (Thunnus albacores) Sold in Bankerohan Public Market, Davao City"; Dulce M. Flores, Ph.D. (Adviser), Ms. Kristine Mae Y. Abao, and MitchellRey M. Toleco of UP Mindanao for the "Inhibition of Angiotensin I-Converting Enzyme (ACE) by Indigenous Fermented Foods".

In the Graduate Creative Health Product Exhibit category, winners are Michael A. Casas of Philippine Science Highschool-Southern Mindanao Campus for his "Optimization of Pectin Extraction from the Peels of Citrus microcarpa (Kalamansi) and Proximate Analysis of the Residue for Selected Parameters"; Florie C. Casalan of University of Immaculate Concepcion for her "Liquid Dishwashing Soap" and "Passion Fruit Soap".

In the Highschool Oral Health Research Competition all winners came from the University of Immaculate Concepcion - High School Department and they are Jannah Razel P. Barluado, and Mrs. Lorena Alcanzar (Adviser) of for the "Saba Banana (Musa acuminata x balbisiana colla (ABB Group) cv. Saba) Peelings as Potential Calcium and Potassium Supplement"; Marie Xandria Kintanar and Aldrick Oropa Mrs. Lorena B. Alcanzar (Adviser) for their "Antiseptic Properties of Jackfruit (Artocarpus heterophyllus) Leaves, Stem, Bark, Roots, Ripe and Unripe Peelings Extracts Against Staphylococcus aureus, Staphy-



Intellectual Property Philippines Director General Ricardo Blancaflor urged Southern Mindanao inventors to invent and innovate more technologies to help in the country's development. (Photo by Framelia V. Anonas, S&T Media Service)

lococcus epidermidis, Escherichia coli, Pseudomonas aeruginosa and Salmonella enteriditis"; Mary Therese Docoy, Kent Raven Olario, with Mrs. Lorena B. Alcanzar (Adviser) for the Antibacterial Property of Atis (Annona squamosa L.) Leaves and Ginger (Zingiber officinale) Extracts against Salmonella enteritidis, Staphylococcus epidermidis and Pseudomonas aeruginosa.

While in the Undergraduate Oral Health Research Competition winners are Dawn Emeral delos Santos, Ian Oliver Caluag, Stephanie Hannah Dapanas, Kirby Kate Devaras, Jean Dianne Son with Prof. Fatima May R. Tesoro, MSPharm, RPh (Adviser) of the San Pedro College for the "Cholesterol Lowering Activity of Flavonoids from Persea americana (Avocado) Leaf Tea"; Rogelio L. Rivera, Jr., Irene Vie G. Itable, Chrismy Shane M. Daquiado with Ms. Judee N. Nogodula (Adviser) of the University of

continued next page

DOST experts iron out tech transfer, intellectual property guidelines

"THE MOST important thing is for researchers to understand the full impact of why government is awarding them money from the Filipino people."

This was the central message by DOST Planning and Evaluation Service Director Bernie S. Justimbaste when he welcomed the participants of the DOST-Wide Consultative Workshop on the Proposed Guidelines on Intellectual Property (IP) Valuation, Commercialization, and Information Sharing, and the DOST IP Policy.

Hinged on the idea that scientific discovery is a human achievement, Justimbaste said that people who received government grants to advance the frontiers of scientific knowledge and understanding must be obligated to take the next step. This means that they should now put such discoveries to benefit the most number of people in the form of new products, processes, and services.

Such is the overarching goal of RA 10055 or the Philippine Technology Transfer Act of 2009, Justimbaste added.

Held at the DOST Executive Lounge on 11 October 2011, this Consultative Workshop was conducted for the purpose of introducing to the DOST system said guidelines, which were the result of the passing of Republic Act 10055 or the Philippine Technology Transfer Act of 2009 and its Implementing Rules and Regulations. The workshop also aimed to draw their vital inputs and suggestions that will lay the beginnings for a new, more relevant and appropriate policy on intellectual property under the new legislative environment.

Dr. Albert P. Aquino, director of the Socio-Economic Research Division of the Philippine Council for Agriculture, Aquatic and Marine, Forestry, and Natural Resources Research and Development (PCAARRD), hosted the event and discussed the highlights of the tech transfer law.

Particularly, Aquino idenified the rights and responsibilities of government funding agencies (GFAs), research and development institutions (RDIs), and researchers. The primary purpose of the law is to ensure that the results of publicly-funded research projects reach the Filipino people in the form of new products, know-how, and services, he said

Meanwhile, DOST Undersecretary for S&T Services Fortunato T. de la Peña discussed the salient features of the proposed guidelines, highlighting their key purpose as a general framework for all parties involved in the research effort.

These guidelines, he said, should aim for a balanced equation between

the need to protect intellectual property to preserve the integrity of the creative process, and the societal obligation to bring these research results to benefit humankind in general, like in the ongoing race to stop the spread of dengue.

Moreover, Undersecretary de la Peña emphasized that because of their general tone of openness and transparency, these guidelines call for RDIs to establish technology transfer protocols to determine, among others, the most efficient modes of transfer or commercialization of their research outputs.

At the end of the workshop, a number of valuable inputs were derived from the workshop proper. Among the most notable is the need for greater legal guidance in the standing prohibition of copyright ownership by government researchers and the legal means to circumvent it, and on being properly advised when researchers opt to establish spin-off firms.

Likewise, it was agreed by the participants for the creation of a DOST-Wide Committee to craft a new IP Policy for the Department that will serve as template for non-DOST GFAs, and to set a series of "appreciation discussions" with GFAs and RDIs to hammer home the fundamental value of these new law, regulations, and guidelines. (Alan C. Taule, S&T Media Service)

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Immaculate Concepcion for their "Phytochemical and Antimicrobial Screenings of Five Medicinal Plants used ad Folkloric Medicine by Mindanaoan Lumads"; while Grace Chen L. Lauza, Jeanie C. Majarucon, and Sarah Kay P. Pudpud placed third for the "Safety and Efficacy of Formulated Syrup from Passion Fruit (Passiflora edulis flavicarpa) Peel Extract as an Anti-inflammatory Agent against Carrageenan-induced Paw Edema of Albino Rats".

Finally, in the Graduate Oral Health Research Competition all winners came from the davao Doctors Hospital with Heather C. De Vera, MD, and Rizalina K. Mata, MD (Adviser) placed first for their "A Randomized Controlled Study on the Use of Guava Leaves Extract (Psidium guajava) Ointment Compared to Mupirocin Ointment for Treatment of Impetigo in Children"; second place winners were Christine Angeline Taneng, MD, and Ameleen B. Bangayan, MD (Ad-

viser) for their "Pediatric Nutritional Screening Tool to Identify Children at Risk of Malnutrition in a Tertiary Hospital in Davao City"; and Janice M. Cezar, MD, and Ninfa J. Villanueva, MD (Adviser) for the "Mitral Valve Regurgitation and its Correlation with the CPKMB Level and Clinical Findings in Childern with Dengue Fever and Dengue Hemorrhagic Fever Admitted at the Pediatric Intensive Care Unit (PICU) in a Tertiary Hospital in Davao City".

One-stop shop of assistance to MSMEs eyed

By JOY M. LAZCANO S&T Media Service, STII

VARIOUS REGIONAL service offices of the government plan on creating a one--stop shop of government assistance to the micro, small, and medium enterprises (MSMEs) in Region 4-A.

The move is dubbed as the convergence of support to MSMEs and jump-started a One Fair, One Exhibit that featured MSMEs that were recipients of various government assistance that supported their growth in the market.

The initiative has received the nod from various government line agencies such as the Department of Science and Technology (DOST), Department of Agriculture (DA), Department of Agrarian Reform (DAR), Department of Trade and Industry (DTI) and Bureau of Fisheries and Aquatic Resources (BFAR).

"We plan to launch this initiative and come up with the terms of reference on how we can harmonize the various government assistances to our MSMEs on the first quarter of next year," DOST Regional Director Alexander Madrigal revealed.

The plan will create a pool of government assistance ready for discharge according to the need of a particular MSME. This will complement and optimize the various assistances given by the government.

According to Madrigal, government line agencies have various programs and expertise that offer to support the growth of MSMEs especially in the rural areas. "It would be great if the government could offer a one-stop shop of assistance to our small enterprises to complement the limited government resources," explained Madrigal.

Madrigal added that the harmony between government agencies is a vital component of the firm's success. "Through this initiative, you will only see the line 'Government-assisted product" in the labels and will no longer reflect the names of the agencies involved, Madrigal explained.

"Imagine DOST could provide science based technologies that will suite a product, DA could provide the entrepreneur with links on where to get raw materials while DTI could help in the marketing of these products through local and national trade fairs ", Madrigal elaborated.

Madrigal also said that the Regional Development Council in Region 4-A could lead all the agencies involved.

Moreover, Sta. Rosa Mayor Arlene Arcillas has pledge her support over the planned support convergence in the region. "This is the city's way of supporting our local MSMEs," Arcillas said.

And as an expression of support and solidarity, representatives of various agencies have signed the commitment board during the launching ceremonies.

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prompted by rapid population growth and increased domestic and cross-border mobility.

"These pervasive concerns should lead us to agree on a joint strategy or strategies to cut down and manage the risks, [since] shared risks can be best managed through shared resources," Montejo pointed out. "In this way, we raise our chances to overcome any outsized and compelling threat."

The solution, he suggested, lies in creating more clearly-defined information sharing arrangements to deepen the knowledge base of individual countries, step up technology development, and optimize benefits.

"The power of ICT becomes a critical enabling tool," Montejo said. "I am hopeful we can try and reach a mutually-acceptable working agreement on information and technology exchanges."

The United Nations Commission on Science and Technology for Development was established in 1992 to serve as a forum for the following objectives: (1) the examination of science and technology questions and their implications for development; (2) the advancement of understanding on S&T policies, particularly in respect to developing countries; and (3) the formulation of recommendations and guidelines on S&T matters within the United

Nations system.

At the 14th UNCSTD Session in Geneva, DOST Undersecretary Fortunato T. de la Pena was elected Chair for the 15th Session of the Commission.

The 2011-2012 Inter-Sessional Panel addresses two priority themes: (1) innovation, research, technology transfer for mutual advantage, entrepreneurship and collaborative development in the information society; (2) open access, virtual science libraries, geospatial analysis and other complementary ICT, S&T, engineering, and mathematics assets to address development issues, with particular attention to education.



High cost in knowledge and technology hinders innovation

By JOY M. LAZCANO S&T Media Service, STII

THE HIGH cost for knowledge and technology is regarded as one of the barriers for firms in the country to make bold steps in innovating products and services.

This was revealed in a survey conducted by the Department of Science and Technology (DOST) aimed at generating baseline information on innovative behavior of establishments as a basis for government policies in the future.

Experts describe innovation as the major economic driver on productivity and competitiveness of companies. According to Dr. Jose Ramon Albert, Senior Research Fellow of PIDS, "Innovation need not be purely technology based, it could be in the form of organizational innovation or marketing innovations."

The 2009 Survey of Innovation

Activities (SIA) studied 500 establishments from four study areas of Quezon City, Metro-Cebu, Davao City, and the Philippine Economic Zone Authority in Cavite and Laguna.

The survey is a joint activity by DOST, International Development Research Centre, National Statistics Office and with assistance from the Philippine Institute for Development Studies (PIDS).

Other barriers that hinder companies to make necessary innovations, the survey showed, include the limited government support to medium sized firms and the lack of knowledge linkages from the government and research institutions.

The survey also revealed that about two-thirds of medium and large establishments are involved in innovation activities compared to a third for micro-establishments and about a half for small firms.

About two in five firms are product innovators and 44 percent are process innovators.

According to DOST Undersecretary and Chairman of the Filipinnovation Fortunato T. De la Peña, "The 2009 SIA is a government initiative that aims to give us a better understanding of the present situation of our local firms and also to provide us with indicators for benchmarking our national performance in relation to innovation."

However, the 2009 SIA recommends further strengthening of the policy framework for innovation. It suggests that government should be aggressive in promoting its various programs supporting small to medium enterprises in developing innovations in products and services.

PCHRD GC OKs new set of R&D projects

By EDMON B. AGRON S&T Media Service, PCHRD

THE PHILIPPINE Council for Health Research and Development (PCHRD) Governing Council in its 125th Meeting held 5 October 2011 approved several projects, bringing a total of 29 new R&D projects approved for the year.

PCHRD Executive Director Dr. Jaime Montoya said that as of September 2011, "we have 12 completed and 65 on-going projects."

The approved projects are the following:

- Study on the usefulness of microscopic observation drug-susceptibility (MODS) assay in a level II mycobacteriology laboratory in the Philippine setting;
- Natural transovarial transmission of dengue virus in Aedes egypti mosqui-

toes in Cebu City;

- Nutritional, therapeutic and prophylactic properties of Malunggay (Moringa olifera); and
- Development, technical and clinical testing of Philippine-made volumecycled mechanical ventilator.

PCHRD priorities for 2011-2016 include discovery of new drugs from natural substances, development of diagnostic kits for priority diseases, genome and molecular technology applications, ICT applications for health, development of hospital equipments and biomedical devices and functional foods research, Montoya revealed.

The study on the usefulness of MODS Assay in a level II mycobacteriology labo-

ratory in the Philippines is expected to produce a rapid, low cost and accurate diagnostic method in detecting tuberculosis. Through this project, the conventional 6-8 week period of TB detection will hopefully be reduced to approximately 1-2 weeks. This will improve disease management through early detection and application of appropriate treatment and will prevent or minimize the development of multi-drug resistant tuberculosis (MDR-TB) in the country.

Meanwhile, the study on the natural transovarial transmission of dengue virus in Aedes aegypti mosquitoes will validate whether the acquired virus of an adult female mosquito can be transferred to its succeeding generations through "vertical route" transmission.

Natural dye industry in PH in living color

By JOY CAMILLE A. BALDO S&T Media Service. PTRI

Research Institute (PTRI) is at full blast to empower the country's natural dye industry through a holistic approach to revive an existing Natural Dye Common Service Facility (CSF) in Aklan. This endeavor, resulting from the collaboration between PTRI and the Rural Development Administration (RDA) of Korea, strives to reinforce and enhance the capabilities of the Natural Dye CSF in Aklan through the intervention of Korean natural dye technologies, products, and marketing approaches.

Fueled by a grant from the RDA of Korea worth US\$15,000 and US\$2,500 from DOST, the three-year project entails a bottom-up approach towards a sustainable natural dye industry for the province. "The project aims to establish a small scale demonstration plantation of selected dye sources, improve manpower and natural dyeing facilities of the Aklan CSF, and adopt, transfer and verify Korean natural dye technologies for local use," explained Ms. Argentina Cariño of PTRI's Research and Development Division (RDD). "It will also determine the growth, yield and economic rotation of a managed natural dyes plantation as well as its production cost and investment returns," she added.

Under PTRI's leadership, the project steadily realized its goals for the past two years of implementation. In partnership with Aklan State University (ASU), the Institute led the set-up and maintenance of a demonstration plantation of indigo and marigold inside the Banga Campus of ASU to provide ample raw materials for research and production purposes. The indigo and marigold plants were eventually propagated in large scale.

"Currently, there is a huge and urgent demand for Philippine indigo dye, thus we have opted to focus on the development of a post-harvest technology for its dye powder processing," said Cariño. In fact, Philippine exporting companies Soumak Collections and Eairth, whose indigo powders were initially sourced from China, are now buying their indigo dye powders from Aklan CSF. Their product line ranges from linens, bags, shawls, apparels and accessories inspired by traditional designs in the country, which are all being marketed internationally in the Asia-Pacific, Europe, and North America.

"The indigo dye powder production technology is also being adopted in Aurora and Negros Occidental," shares Ms. Cariño. Ruben Teh of Baler, Aurora has commercialized the technology in response to the growing demand in the local market, resulting in a five percent increase in his income as commercial producer of the indigo powder.

"To date, we have transferred the technology to ASU in order to sustain the increasing demand for Philippine indigo dye powder," she added. In addition to the marigold, three more Korean dye sources, safflower, bamboo, and sappan, are also currently propagated. The technology involved in the use and application of these three Korean dye sources are being adopted at the Aklan CSF. Researches conducted by PTRI confirmed the quality of dye sources propagated in Aklan as comparable to other dye sources from other locations, as well as that obtained from PTRI.

The project is also well on its way in creating a team of experts on the development, upgrading, improvement, and application of natural dye technologies in the province. As a start, PTRI acquired and fabricated additional dyeing equipment, auxiliary chemicals and other materials needed for the Aklan CSF. Through the International Symposium and Exhibition on Natural Dyes held in Korea, PTRI natural dye experts,



Small scale natural dye farm; Makato, Aklan, Philippines

Julius Leaño and Rudy Fenoy, learned techniques in the extraction, dye application and processing of natural dyes, as well as farm management and post harvest technologies from Korean experts as well as other nationals. The learnings were echoed by PTRI to the Aklan CSF dyers. "The piña weaving industry of Aklan has greatly benefitted from the training courses conducted by PTRI on natural dyeing of handwoven piña, piña-seda and abaca fabrics," shared Ms. Cariño.

The Aklan CSF now caters to the weavers, entrepreneurs and manufacturers who outsource dyeing services. It provides natural dyeing services to Aklan-based weaving companies and PTRI's SME partners like the Dela Cruz House of Piña, La Herminia Piña Weaving Industry, Soumak Collections and Eairth. All of these enterprises capitalize on the manufacture and trade of naturally-dyed products.

Encouraged by the weaving industries' clamor for eco-friendly products, PTRI expanded the scope of natural dyeing application thru intensive trainings for textiles and crafts businesses as well as independent enterprises in Aklan such as the Dela Cruz House of Piña, the Heritage Arts and Crafts, and the

Handicraft of Aklan Multi-purpose Cooperative (HAMPCO). Ms. Cariño recalled the gratitude expressed by the trainees, especially the dyers who have been exposed to high toxicity levels from the use of synthetic dyes for years.

Impact assessment on the weaving industries in Aklan which received training on the extraction and application of natural dyes on piña, piña-silk and abaca fabrics revealed very positive feedback. The training recipients reported a very promising 5 to 10 percent increase in their sales after only three months from the conduct of training.

To complete the package of services for the industry, PTRI shall be assisting the enterprises on the proper labeling of their naturallydyed products. Labels shall include the colorfastness rating of the dyed fabrics as well as the proper handling which includes washing, ironing, and others. The naturally-dyed fabrics and apparels are also being promoted in collaboration with various weavers and fashion designers. A New York-based Filipino Fashion Designer, Anthony Cruz Legarda featured naturally-dyed piña, piña-seda and other indigenous fibers in his collection showcased at the 2010 and 2011 New York Fashion Week.

On its third year (2012), the project assures a significant leap in the natural dye industry through a series of activities and outputs including a natural dye technology symposium and conference; development of a website dedicated for the Aklan CSF and natural dye technology development efforts in the country as a whole; publication of technical papers and journals on the researches conducted at the CSF; and production of natural dyeing instructional videos and materials to aide trainings.

With the heightened global clamor for eco-friendly products, the use of natural dyes is sure to add a premium value to the high-quality products of the weaving industries in Aklan. "Establishing a natural dye industry in Aklan has great potential to become one of the province's major industries to complement its growing lucrative industry of handweaving piña, piña-seda and abaca fibers," said PTRI Director Carlos Tomboc. "With continued efforts to boost the natural dye industry in the province, we can guarantee that the natural dye industry in the country is headed for better days," he added.

DOST 2011 and beyond



Science fo

By Aristotle P. Carandang and Framelia V. Anonas

"One time, one goal, one direction, one thinking." This is how Secretary Mario G. Montejo sees the Department of Science and Technology running during his term. He believes Nasa Siyensiya ang Pag-asa (In science, there is hope) – a battle cry that became the theme of the 2011 National Science and Technology Week.

Trying to solidify the core – the diverse DOST system composed of 20 agencies and 16 regional offices, Secretary Montejo underscored the goals of the Department: 1) Use S&T to attain maximum socio-economic benefit for the Filipino People; 2) Use S&T to find solutions; 3) Develop appropriate technology for countryside development; 4) Use S&T to make our industries competitive; 5) Develop emerging technologies; and 5) Use S&T to deliver government services.

Resources are limited as they always are in government offices, but Secretary Montejo assured, "The DOST continues to reorient and redirect its efforts towards achieving outcomes that lead the nation closer to development goals embodied in the President's social contract with the Filipino people."

Science and technology cover such a broad range, making it both a challenge and an opportunity to the DOST family.

"The DOST is blessed by the fact that we are given the opportunity to serve our people in almost every aspect of their lives – from health to food to energy to education to transportation, clothing, and entrepreneurship," DOST Undersecretary Fortunato T. Dela Peña explained.

"I believe DOST is also blessed because we have good people, good managers and good co-operators. We are also fortunate that the national leadership and many people from the legislative and other branches of government have faith in DOST," he added.

Accomplishments in 2011

Undeniably, the Department became very visible in the year

2011. Its increased visibility in all media – print, broadcast (television and radio), and cyber – has led to a more promising reality in terms of letting the people know of DOST's programs and activities that help alleviate their lot. Among the most notable technologies and services the Department launched and pursued in 2011 include the following:

Ovicidal-Larvicidal (OL) Trap. Composed of a black canister, lawanit strip and organic pellets to be mixed into a water solution, this kit attracts female mosquitoes to lay eggs on the solution-drenched lawanit strip then kills the eggs and larvae.

Drug Development. Continuing its research successes in the now well-known medicines that were developed from endemic local medicinal plants, DOST gets deeper in developing drug solutions to fight dengue, cancer, and emerging and neglected tropical diseases.

Nanoclay Water Filter. Using nanotechnology, this water filter



r the Filipinos

uses a special kind of clay to filter water and make it clean, potable, and safe.

Automated Guideway Transit. This is a mass transport system that uses a single rail as its guideway. DOST has high hopes that the AGT will help bring people to their destinations faster and safer at a less cost.

Automatic Weather Stations and other equipment. These facilities, using models, detect weather conditions and can be used to predict up to a seven-day weather outlook.

Flood Sensors. These equipment have special sensors that measure rainfall and predict possible floods.

PINOY Foods. In its constant fight against malnutrition, DOST developed the Package for the Improvement of Nutrition of Young Children with three components, namely 1) the development of complementary food mixes for children 6-35 months old, 2) a 120-day feeding of food mixes to local children,

and 3) proper nutrition training of health workers, barangay nutrition scholars, and mothers.

SETUP. The Small Enterprise Technology Upgrading Program provides a package of intervention to micro, small and medium entrepreneurs to help them make a crack in the market.

Technology-related policies. (RA 10055, IP Valuation, assistance to researchers and inventors, etc.) These policies lay down the ground to enable the DOST to extend more support to its clientele, such as researchers, entrepreneurs, technology adoptors, inventors, etc.

Laboratory Services. The laboratories in the DOST research institutions and regional offices are continuously upgraded to ensure that accurate and quality analytical, calibration, and metrological testings continue to be benchmarks in standard and accuracy in the country.

Biotechnology, Genomics, and Nanotechnology. Biotechnology and

the two emerging sciences have very good potential applications in the country that promise to have significant economic and social returns; thus, researches and activities along these areas are highly encouraged.

Scholarships and Human Resource Development. DOST provides scholarship from secondary to tertiary to graduate and post-graduate, and also provides and supports training to develop and strengthen a critical mass of experts in the S&T sector.

Juan Time. In a country that has cultural and geographical diversity, the best common factor that can unite all people in its 7,100 islands is time. Through the Philippine Standard Time (PST) set by DOST as the official timekeeper of the country, Philippine residents can synchronize time pieces to have only one ("Juan") time.

STARBOOKS. The S&T Academic and Research-Based Openly-Operated KioskS are stand-alone digital libraries that can be installed



in public libraries and other establishments to make S&T information more accessible to people in the countryside.

Information Dissemination. S&T information is itself a commodity that is marketed to various sectors. Thus DOST is on the offensive when it comes to information dissemination to meet the information needs of its various clientele. It has also joined the social media bandwagon to make the Department more accessible to the masses, as well as to generate feedback from its various audiences.

Plans and programs in 2012 and beyond

To integrate all activities for the coming year, DOST held recently in Subic, Zambales a planning activity that gathered the Department's executive and management committees. The planning activity had the following objectives: 1) To achieve a better understanding and appreciation of the programs being initiated by different DOST agencies; 2) To attain greater 4 Cs - consensus, coherence, collaboration and commitment – on said program initiatives; and 3) To lay down organizational strategies to facilitate their 2012 implementation.

Emphasizing the importance of said planning activity in DOST's directions in 2012, Sec. Montejo said, "We are a unique agency of government because our role is developmental in an area which has shown stability to contribute significantly to a nation's development and growth in science and technology."

With an average of 10 programs per agency, DOST, according to Usec. dela Peña, looks forward to around 200 breakthroughs next year "which will show to our people that local technology works.

The DOST Secretary was optimistic that by December 2012, the Department can announce to the Filipinos and to the world that there would be accomplishments in drug discovery, services to the electronics and semiconductors industry, solar desalination, forensic science, probiotics, disaster risk 3D mapping, providing access to high quality seeds, coral restoration, thin client computing, water treatment technologies, nanoprocessed textiles, tion of radiopharmaceuticals, AGT transport systems, and addressing malnutrition, among others.

"Imagine also the impact of existing 559 small and medium enterprises (SMEs) that have improved

their productivity, profitability and ability to employ more Filipinos. We will be able to achieve these — our targets, our consensus, coherence, collaboration and commitment on all initiatives that you have presented," Sec. Montejo assured to all those present during the planning activity.

DOST management also emphasized the importance of several activities that have to be practiced in every DOST office and agency to keep things running well. Among these are creating or creativity, planning, communicating, organizing, motivating, and controlling.

"The other things that we need to look at are embodied in our Filipinnovation strategies such as investing in human capital development; expanding our technology business incubation and acceleration programs; regenerating the policy environment for innovations; and influencing the Filipino mindset regarding the role of innovations, science and technology in the improvement of the quality of lives of Filipinos," Secretary Montejo disclosed. He added that amid all the efforts of the entire Department, the DOST family always has to be scientific, innovative, relevant, humane and upright.

The Councils

The year 2011 witnessed major changes in the organizational structure of Department when some of its sectoral planning councils merged. From the original five councils, there are now three—less in number but fortified in strength.

There emerged during the year the Philippine Council for Agriculture, Aquatic, and Forestry Research and Development or PCAARRD from the merging of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) and the Philippine Council for Aquatic and Marine Research and Development (PCAMRD). In the previous year, the Philippine Council for Industry, Energy, and Emerging Research and Technology Development (PCIEERD) was created when the former Philippine Council for Industry and Energy Research and Development (PCIERD) was combined with the Philippine Council for Advanced Research and Development (PCASTRD). Meanwhile, the Philippine Council for Health Research and Development remains.

For PCAARRD, the next five years will make S&T the driving force for the agriculture, fisheries and natural resources (AFNR) sectors and as well as PCAARRD's latest addition, the marine sector, through food production and nutritional security; viable rural livelihood and increased farmers income; increased economic sustainability and global competitiveness; and resilient environment rehabilitation of natural resources.

PCAARRD's strategy is to transform these agenda into concrete action projects through the High Impact Technology Solutions or HITS. The Council, working together with the National Agriculture and Resources Research and Development

Network (NARRDN), will support 29 priority commodities, in which nine are of national priority. Among the priorities include rice, climate change, vegetables, soil and water resources, water management, crops like mango and banana, goat, biofuels, and watershed management.

NARRDN is composed of various R&D partners, state universities and colleges (SUCs), research and development institutions (RDIs) and stakeholders. PCAARRD also networks with other government agencies such as the Department of Agrarian Reform (DAR) on commodities such as cacao and coffee; the Department of Agriculture (DA) on organic vegetables and pineapple; and the Department of Environment and Natural Resources (DENR) on Giant Bamboo and vetiver

PCAARRD's HITS program is anchored on the goal of rolling out mature technologies for farmers, entrepreneurs, and the industry. PCAARRD employ three strategies to boost increase productivity and improve the quality of S&T products: anchoring S&T products and services; linking the stakeholders with the industry; and providing major S&T interventions.

Meanwhile, the Techno-

Mart Program, **PCAARRD** has pushed agri-based products from the farms and communities to the appropriate markets. These greatly help our local farmers and entrepreneurs get that needed exposure on their products and the needed linkage with key industry players in the market. PCAARRD continuously strives to advance S&T policies, knowledge and information, practices, and innovations. In the next five years, PCAARRD hopes that its efforts will prove beneficial not just for the AFNR sector but also to the quality of life of the people.

For PCHRD, it has aligned itself to the Department's thrusts and focuses on world-class and transformational programs. The seven programs for year 2012 and beyond are the following:

Drug discovery. PCHRD is studying tawa-tawa or euphorbia hirta, to determine not only its supposed anti-viral and anti-inflammatory properties, but also its supposed ability to help increase platelets in dengue patients. It is also looking into immunoliposomes as vehicles for drug delivery in cancer treatment to specifically target cancer cells thereby maximizing the dose of the drugs and minimizing their side effects.

Diagnostics. The Council is developing rapid diagnostic confirmatory test for dengue and MOD assay for detection of multi-drug resistant tuberculosis which will shorten the period in determining if the culture is positive for multi-drug resistant tuberculosis.

Hospital equipment and biomedical devices. It will redevelop and redesign locally engineered equipment and biomedical devices that will be cheaper and more available to the Philippines.

Genomics. A "Filipinized medicine" based on genetic make-up of the Filipinos wll be one important research in this field.

Information and Communication Technology in health. PCHRD is pursuing the development of the Rx Box which is the heart of the telehealth program to enable Filipino patients from the far flung areas to access best medical care. It is also developing the Philippine National



Health Registry which will contain all the researches in the health sector and the Natural Products Research Database which will provide the possible candidates for the herbal medicine program.

Functional Foods. The Council is looking at the nutritional health benefits of malunggay in terms of dietary fiber, composition, and bioavailability of micronutrients such as iron zinc and calcium, the efficacy of malunggay in improving the health of children 8-10 years old, as well as its lactogenic effects, anti-oxidant properties, glucose-lowering ability and its effect on lipid profiles.

Chronobiology. The agency is consolidating the published researches about the health problems of workers in the Business Process Outsource industry. The immediate goal is to develop research priorities and research strategies in addressing the problems of the BPO industry.

Meanwhile, PCIEERD will concentrate in implementing R&D solutions to high-impact industries, such as mine and and minerals where it will implement a better mine program through the development of simple and adaptable technologies, and technologies that will add value to the metals and mineral products. In the semicon and electronics industries, the main activities will be assembly and packaging of integrated circuits. In the furniture Industry, PCIEERD is set to establish One-Stop Shop Furniture Testing Center and Satellite Structural Furniture Testing Center. Moreover, in the Food Industry, PCIEERD will enhance testing laboratories at RDIs & DOST ROs.

In its energy program, PCIEERD will focus on energy efficient technologies for office and commercial buildings, sustainable transport such as high-performance electric jeepney and customized local road vehicle; renewable energy such as biogas systems, wind, solar thermal, micro hydro, and biofuels; and disaster risk reduction.

PCIEERD has likewise planned out its emerging technology sector. In genomics, PCIEERD will concentrate on its health, agriculture, and biodiversity applications. In nanotechnology, focus of R&D will be nanosensors and nanodiagnostics, nanostructures, nano-based technologies, and nanometrology. In biotechnology, PCEERD will zero in on sago resource utilization, enhancement of biotechnology products and services for food, feed and other agro-industrial applications, and bio-energy.

The RDIs

Pushing for more research and development, the DOST has continued to strengthen its Research and Development Institutes (RDIs) such as the Advanced Science and Technology Institute (ASTI), Food and Nutrition Research Institute (FNRI), Forest Products Research and Development Institute (FPRDI), Industrial Technology Development Institute (ITDI), Metals Industry Research and Development Center (MIRDC), Philippine Nuclear Research Institute (PNRI), and Philippine Textile Research Institute (PTRI).

Collectively, these RDIs have extensively worked on various research and development activities covering a wide range of works. These include, among others, nanotechnology, genomics, biotechnology, information and communications technology, drugs development, indigenous fabrics and natural dyes, metals, nuclear technology, and food and nutrition – all with expected applications to benefit individual Filipinos and the country in general.

In 2011, some of the researches that were rolled out, commercialized, and/or adapted were the OL Trap, iron-fortified rice, complementary foods, and nano water filter.

This year, researches in the RDIs will concentrate on providing solutions to malnutrition through the development of mutiple micronutrient-based mix and extending the shelf-life of brown rice and developing brown rice-based food products, and nutrigenomics. For transport sector applications, R&D will focus on the fabrication of electric hybrid road train prototype; machine building and on machinery parts and accessories manufacture; surface finishing technologies; and value adding of Philippine mineral and metal resources.

R&D on nuclear S & T interventions will also zero in on solving national problems such as portable detection system for harmful algal bloom toxin, new polymer products, and others; on enhancing national competitiveness such as the production and distribution of Tc-99m generators, full automation of the Multipurpose Irradiation Facility, radiation studies on Brontispa longissima, and others; and nuclear safety such as the formulation and amendment of PNRI nuclear/radiation safety standards and regulations.

In regard to forest products R&D, DOST will concentrate on developing appropriate technologies to create growth in the countryside which will be incorporated in FPR-DI's Bamboo Enhancement S&T Program, as well as the continuous development and improvement of kilns and various dryers, and of portable preservative treatment plant for bamboo and other wood products. FPRDI is also set to harness technology to improve industry competitiveness which it will implement through the establishment of

Furniture Testing Centers, and the development of biomass pelletizer and wood preservatives from indigenous materials.

For R&D on industrial technology, DOST through ITDI will continue its initiatives in the design and development of process equipment for food processing firms, and of technologies with applications in food processing, water, industrial chemicals, and nanotechnology.

In textile R&D, PTRI will focus on the development of next generation textiles through the application of advance processing technologies on indigenous fibers such as of pineapple and banana. Nanofiber applications will also be developed for various uses such as gas mask filter, vacuum cleaners filter, filter media for water purification, and protective clothing. Moreover, PTRI will also focus on the development of composite materials from non-woven fabrics for industrial uses such as needle punching, lamination, and hand-laying.

The Service Institutes

Unknown to many, the DOST delivers a wide array of services that ranges from the most technical to the most ordinary. Among its service institutes are the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Philippine Institute of Volcanology and Seismology (Phivolcs), Philippine Science High School System (PSHS), Science Education Institute (SEI), Science and Technology Information Institute (STII), Technology Application and Promotion Institute (TAPI), Technology Resource Center (TRC), and Information and Communications Technology Office (ICTO) - the latest addition to the growing DOST family.

The services offered by these institutes range from weather and climate information, geological information, human resource development through scholarship programs, scientific-technological and popular information and databases, inventions and inventors assistance including intellectual property and intellectual property rights protection, and livelihood assistance, among others.

The year 2011 witnessed the intense collective information dissemination initiatives of the institutes, as well as the enhancement of their core services.

In hazard mitigation, several programs have been put in place and continue to be taken into higher levels, such as the mainstreaming of disaster risk reduction into local development process thru the use of REDAS software, establishment of tsunami early warning system, deployment of landslide sensors in high risk areas, flood forecast, astronomy, and improvement of weather, earthquake and volcano monitoring systems.

The Philippine Standard Time, set by PAGASA, was also widely promoted for compliance among government agencies and other partner academic and private institutions through the "Juan Time" movement initiated by DOST.

In the field of information and communications technology, DOST through ICTO will pursue in 2012 the National ICT Governance Pro-

gram, eGovernment Program, ICT Industry Development Program, and Internet For All Program.

The scholarship program for undergraduates in 2012 will also broaden in scope through the accommodation on two scholars per municipality and 10 scholars per congressional district with no municipalities. Other programs such as capacity building, Science Explorer, and Science Camp will be revitalized in 2012.

DOST scholars have shown excellent achievements in national and international competitions, and in 2012, SEI aims to continue to "Go for the Gold" including other areas apart from Physics and Math. It will also continue to support research in curriculum, pedagogy, and science and mathematics learning and teaching. DOST will also strengthen efforts in improving the performance in low performing schools in municipalities without scholars so that students in these schools may qualify in the undergraduate scholarship examination.

Alongside, PSHS will also conduct curriculum review in 2012 for development of new PSHS curriculum in a K-12 framework. Also set in 2012 is the establishment of two new PSHS campuses in Regions



1VA and 1X. PSHS is also looking at the full integration of an E-based curriculum in teaching and the development of an E-learning Hub (E-Library), among others.

In the area of technology infor-

mation dissemination, TRC in 2012 will be busy on several programs set to provide incubation support for countryside agri-aqua tech startups, promote popular utilization of technologies through training, assist LGUs implement livelihood intervention, promote commercial use of validated DOST-assisted technologies, and generate revenues. In technology commercialization, DOST through TRC will promote commercial use of validated DOST-assisted technologies, contribute tech-based support to food sufficiency program, provide support for open-source tech startups, and generate and utilize revenues.

In science information and promotion, STII continues to implement its "Changing the Mindset" program which is anchored on the principle that S&T information generates knowledge that will evolve into solutions to pressing national problems. To achieve this, STII will continue its strong involvement on program launches, support in campaign partnerships with stakeholders, initiate capacity building activities in S&T information and promotion; develop innovative IEC campaigns such as the Push the Good News and other frontline services; and harness social networking, marketing, and mobilization.

In making S&T information more accessible and available in communities that need it most, STII developed STARBOOKS which will be promoted more extensively nationwide in 2012.

In the coming years, it is expected that a more unified action of disseminating information on the services offered by the Department including research results together with the latest developments within shall be made known to all its publics; all of which contribute to national development.



The Collegial Bodies.

There are two collegial bodies that provide advise to the science community – the National Academy of Science and Technology Philippines (NAST Phl) and the National Research Council of the Philippines (NRCP).

The NAST Philippines or the Academy, on the other hand, continues to recognize outstanding achievements in S&T as promote meaningful incentives to those engaged in scientific and technological incentives. In 2011, it has awarded the rank and title of National Scientist to two distinguished individuals – Bienvenido F. Nebres, SJ and Dr. Raul V. Fabella; including awards for various scientific achievements of outstanding Filipino scientists.

Meanwhile, the NRCP has enabled greater participation in pushing for sense of ownership with the community, increased funding and income generation through land use projects and linkages, improved competencies of NRCP researchers and project management staff, improved quality of advisory and consultancy services, and more recipients of research grants in Visayas and Mindanao. As one of its highlights for 2011, NRCP is now ISO 9001: 2008 certified.

Researches produced by the NRCP have brought immense increase of scientific literature that are needed and used by our universities and colleges, and with policy to

make the researches in printed format in searchable and down-loadable form, its availability to students will further increase. With membership from all known disciplines in both hard and soft science, the Council has been and being continuously tapped to provide policy advise in a multidisciplinary, integrative and holistic manner and perspective; it has contributed to significant national laws and policies. The NRCP through its grant-in-aid to R&D, has supported research capacity-building of the academe and encouraged the production of research-based information and knowledge, and helps promote the scientific culture of the country.

In the next five years, NRCP intends to make science more peoplecentered and socially relevant.

The Regional Offices.

DOST's regional offices are implementors of all programs instituted in the Central Office and service institutes. These are the front-liners in providing DOST services to the communities. For 2012, regional offices are expected to implement more revitalized and broadened services as they share the commitment of the DOST central offices and service institutes.

(With reports from Joy Lazcano, Ma. Lourdes Torno, Ma. Luisa Lumioan, George Valencia, Allan Mauro Marfal, Allan Ace Aclan, Ceejay Valerio, and Arjay Escondo)

Agri-econ experts eye opportunities amid challenges in PH agriculture

By ARISTOTLE P. CARANDANG S&T Media Service, STII

BATAC CITY, Ilocos Norte – The agriculture sector in the country still finds opportunities in the rapidly changing food markets in Asia and the fast urbanization and transformation of the supply chain, agricultural economist Dr. Arsenio M. Balisacan said during the 48th Convention of the Philippine Agricultural Economics and Development (PAEDA) held in this city.

The convention hosted by the Mariano Marcos State University (MMSU) gathered agricultural economic experts and development practitioners from all over the Philippines to discuss the challenges of enhancing the competitiveness of Philippine agriculture.

Such opportunities were found amid the current challenges affecting the agriculture sector, such as the economic aspect.

"It will take us 44 years to double our income," Dr. Balisacan revealed. "Other countries such as Thailand, Indonesia, and Vietnam are far more advanced and will be able to double their incomes in much shorter period."

Yet another opportunity is the rapidly-diversifying trend in food consumption, which leads to income growth and urbanization, Balisacan added.

In changing food consumption trend, the share of rice consumption declines in favor of rapid diversification into non-rice, high value food products. These include processed food and fresh fruits and vegetables. For Balisacan, changing food consumption offers a big opportunity for farmers to diversify to high value, more profitable crops.

On the other hand, the sector is currently facing some key policy and governance constraints. According to Balisacan, some of the barriers include the extremely high cost in doing business in the country which is affected by the poor quality of institutions and infrastructure; and corruption.

"Development is hampered by policy and governance constraints," Balisacan said, pointing out that the country's economic growth does not always translate to reducing poverty and hunger.

In the 2011-2012 Global Competitiveness Report, out of 139 countries the Philippines ranked 125 and 104 in terms of Institutions (governance) and Infrastructure, respectively. Other Asian countries fared much better: Indonesia (61, 82), Thailand (64 and 35), Vietnam (74, 83), China (49, 50), and India (58, 86).

Such sad reality tells that agriculture is no longer the engine to poverty reduction. However, experts expect that agriculture will continue to provide solutions for poverty reduction despite non-farm economy being eyed as engine to poverty reduction. But in many provinces in the country, non-agricultural income growth has been the main engine for poverty reduction, not only in urban but also in rural areas. Dr. Balisacan said that relative response of poverty to sectoral growth varies significantly across rural and urban areas.

Dr. Albert P. Aquino, convention chair and PAEDA vice president said that this year's convention is a "milestone for this foremost is a gathering of agricultural and applied economics professionals and practitioners, and it is the first time in many years that we held the convention outside Manila." He stressed that the strategic shift underlined the association's relevance and commitment to rural development and signalled it engagement not only in the national arena, but more so, at the grassroots level.



In a written message, Ilocos Norte Governor Imee R. Marcos underscored the importance of the agricultural sector in economic development. "In Ilocos Norte, apart from tourism, the agriculture and fisheries sectors remain to be the province's engine of growth as they continue employ farm workers and fisher folks that supports the population," she said.

The PAEDA was established in 1954 by pioneer Filipino professionals in agricultural and development economics from the University of the Philippines Los Baños and various government offices. Its primary objective is to promote small-farmer productivity and profitability in the Philippines.

The 48th Biennial Convention of PAEDA on 20-21 October 2011 was brought to Ilocos Norte through the cooperation of the Department of Science and Technology-Philippine Council for Agriculture, Aquaculture and Natural Resources Research and Development (DOST-PCAARRD), WorldFish Center, SEARCA, DA-Bureau of Agricultural Research, National Economic Development Authority, Millennium Development Goal Fund, Central Luzon State University, and MMSU.

Panama disease can be managed – DOST

By ARISTOTLE P. CARANDANG S&T Media Service, STII

THE DREADED "Panama disease" caused by the fungus Fusarium oxysporum f. sp. cubense which is now affecting hectares of banana plantations in Mindanao can be managed, according to experts from the Department of Science and Technology (DOST).

"Dialogues with the stakeholders and careful studies on banana in the country revealed positive results in curbing the menace brought about by Fusarium wilt, more popularly known as Panama disease," said Dr. Patricio S. Faylon, executive director of DOST's Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD).

Panama disease affects the roots of banana plants. It is resistant to fungicide and cannot be controlled chemically. Based on its impact on export production, Panama disease is one of the most destructive plant diseases in modern times.

To manage said disease, experts laid out short and long term solutions, most urgent of which were early detection and eradication. Experts said that plants attacked by Fusarium wilt should be immediately uprooted and burned along with the soil on which it was planted.

This is the basic way of arresting the spread of infection in both plant and soil, experts added.

Caution was mentioned, however, since Fusarium is a fungus that thrives on soil and burning of the soil may destroy the fungi on the topsoil but not those beneath it. Here, use of microorgranisms such as Trichoderma may prove beneficial to counter the effect of the disease-causing fungus.

For continuous monitoring of pos-



The host banana plant has internal discoloration of its vascular system, a classic symptom of Panama disease. (Photo from http://www.plantmanagementnetwork.org)

sible spread of the disease, Faylon said that farmers will be trained to recognize symptoms early. "A protocol for management of the disease should also be shared as widely as possible," Faylon added.

With regard to long term solutions, the science department said that an important initiative has been considered such as the Fusarium-resistant variety of Cavendish called GCTCV 119 for replanting in infected areas. Also, partners will be piloting fertilization methods to include the use of organic fertilizer. Toward this initiative, Bioversity International through Lapan-

day Foods Corporation in Davao City will produce 1,000 planting materials through tissue culture to be distributed to the members of the Philippine Banana Growers and Exporters Association or PBGEA.

The mother plants for the tissue culture will come from the National Germplasm Collection housed at the Bureau of Plant Industry – Davao National Crops Research and Development Center (BPI-DNCRDC). Bioversity International and DOST-PCAARRD will develop the protocol for crop management with the latter leading the monitoring and evaluation.

Novel creations shine in Davao invention contest

By FRAMELIA V. ANONAS S&T Media Service, STII

NOVEL PRODUCTS from Southern Mindanao's creative minds dominated the awards in the first Regional Invention Contest and Exhibit (RICE) held 17-20 November at Davao City's NCCC Mall.

For Likha Award, named as the Outstanding Utility Model is Manolo Tamparong's Compressed Air Thermal Fuel Oil Dryer.

Meanwhile, the Sibol Award, or the Outstanding Creative Research for independent inventor, went to Mary Jane Barluado's Squash Seeds Sunblock Lotion – Vitamin E Enriched.

For the award's college category, University of Mindanao's Development of a Line Disconnection System by Kris Logie Mallorca, John Mark Coloma, Rae Reyes, and Edezon Virtudazo bagged the outstanding student creative research. For the high school category, Compostela National High School pocketed the award through The Leaves of Snake Plant (Sansevieria trifasciata) as Natural Fiber by Lovely Asur and Angelou Angway. Advisers are Engr. Maria Christina Condez and Debbie Teruel for the high school category.

The inventiveness and resourcefulness of the awardees and contest participants caught the interest of Intellectual Property Office Philippines Director General Ricardo Blancaflor.

"The gold mine of Davao is not only its natural resources," said Dr. Blancaflor, keynote speaker of the RICE awarding ceremony. "What will make Davao rich are the creative minds of Davaoeños."

Winning invention and researches

Tamparong's thermal fuel oil dryer converts used cooking oil into quality bio-fuel for internal combustion engines and other industrial applications. Since the facility is locally made, it can be easily and quickly mass-produced as cheaper alternative to imported brands. The availability of this

machine will help address the problem of proper disposal of used cooking oil, converting it from a menace that clogs the waterways into an efficient bio-fuel.

Meanwhile, squash seeds, normally processed into snack items, can be a good sunblock lotion, as found out by Baluado. "Squash seeds are natural rich source of zinc, an active ingredient in sunblocks that protects cells, heals wounds, and prevents skin inflammation," Baluado explained. The vitamin E-enriched product was tried

by nine volunteers who all reported that the squash seed sunblock works similarly with or even better than expensive commercial brands.

"Disconnection of power lines due to theft and tampering of electric meters and power lines have always been big problems of power distribution



The line disconnection system developed by this student's team got the nods of the judges for the outstanding creative research in the college category.

companies," the abstract of the University of Mindanao student researchers said. To address this problem, the team developed the line disconnection system that, when embedded into current systems, will enable power distribution companies to easily disconnect and reconnect electric lines of their subscribers.

Further, the study of the CNHS stu-

continued next page



Snake plant fibers, according to the winning creative research in the high school category are comparable with commercial fibers.



Squash seeds are no longer just snacks items—they can now be developed into beauty products too.

Link up with businessmen, llonggo inventor tells colleagues

ILOILO CITY --- Drawing on his own experience in making a crack in competitions and in the market, Philip Cruz, president of Herbanext Incorporated, told Ilonggo inventors to improve their craft and learn from business people. Cruz is one of the breed of inventors who successfully crossed over from mind to market with his practical inventions, including the awarded kinetic fish feeder.

"Invent and re-invent," the Negros-based Cruz told to an audience of established and budding inventors from the Western Visayas during opening of the Regional Invention Contest and Exhibit at the Amigo Plaza Mall in Iloilo City.

"Creating a product is not the end. Don't stop there," he said.

He also advised the inventors to tap business people to bring their product to the market. "When I was just starting, I was like most inventors—I did not trust business people because you have to disclose many things to them," he admitted. "But then I married a business person and my perspective changed."

He realized business people could actually help in finding market to in-

ventions "because they think differently from us." When he was preparing his tea products to market, he wanted them fully packed in small but sturdy containers, he said. But when his wife saw his concept, she said it would not sell. It was then he realized that there are many things that he should learn about consumer behavior and practical considerations like supermarket shelf space and product competition.

"We should now change our way of thinking, including the old-time concept of 'publish or perish'," he said. "Now, it should be 'patent or perish'."

Cruz was referring to patenting, a form of intellectual property rights granted to an inventor for a limited period. Many inventors even today continue to create products but fail to have them patented. This is quite risky as their products can be copied by unscrupulous people and make profits by selling the copied products in the market.

Cruz likewise encouraged participants, saying that joining contests such as the RICE is very important. "My career (as an inventor) started after I won in the Department of Science and Technology's Philippine Council for Industry and Energy Research and Devel-

opment award," he said. "Other participants had entries on alternative energy while I had something about bangus. (milkfish)"

But he won, and that started his long and successful career in creating products that he later successfully marketed. His awarded technology, the kinetic fish feeder, has been out in the market, helping aqua-farmers simplify their feeding management.

Cruz also developed an all-weather sea cage for farming fish which used less expensive raw materials but same quality and sold it at a fraction of the cost of its imported counterpart. His success in creating innovative products that had high market potentials earned him the recognition of DOST as one of the 50 Men and Women in Science in 2008.

According to DOST 6 Regional Director Rowen Gellonga, winners in said categories will qualify for the National Invention Contest and Exhibit in 2012. DOST's Technology Application and Promotion Institute also provides technical and funding support to winners who will compete in both national and international invention contests (Framelia V. Anonas, S&T Media Service)

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dents revealed that snake plant fiber is comparable with commercial fibers in four parameters of sensory evaluation test by the group. Thus, the plant which is endemic to the region is found to be a possible source of natural fiber that has the potential to make a crack in the local and international fiber industry.

Inventors in Davao

According to Department of Science and Technology (DOST) Region 11 Director Anthony Sales, the RICE 11 is the first ever regionwide invention contest. "The four outstanding inventions will qualify for the National Invention Contest and Exhibit to be held in Manila next year," Dr. Sales said.

The four winning inventions bested

92 other participants, including contenders to the regionwide health research contest held simultaneously with the RICE. The health research contest, funded by the DOST's Philippine Council for Health Research and Development, had its own set of winners.

Region 11 inventors have apparently increased awareness of the importance of securing patent rights. Records of IPO Philippines showed that from January to October this year, Region 11 had 126 patent applications, a 38 percent jump from the same period last year. Patents protect inventors from the illegal use of their products by other profit-oriented parties. At the same time, patents give inventors rights to collect royalties should their products be legally and commercially used

by other parties.

Filings from the region compose 12 percent of the national figure, revealed Blancaflor. Outside of Metro Manila, Region 11 ranks third in the number of patent applications filed.

"The increase in patent applications suggests that creativity and innovation are likewise intensifying in the region," observed Blancaflor.

RICE, which started this year, will be held every other year to give local inventors enough time to develop their works, said Dr. Edgar Garcia, director of DOST's Technology Application and Promotion Institute, DOST 11's main partner in organizing RICE events nationwide.

DOST awards winners in 2011 Bicol invention contest

By P.O.LUCENA/D.A. PEÑA S&T Media Service, DOST V

THE DEPARTMENT of Science and Technology (DOST) Region V in cooperation with the Technology Application and Promotion Institute (DOST-TAPI) announced the winners of the 2011 Bicol Regional Invention Contest and Exhibits (BRICE) held 18-20 October 2011 at the Entertainment Plaza, Pacific Mall, Legazpi City.

The Likha Award - Utility Model category went to Legazpi City-based Nicanor Balbin of the Bicol University College of Industrial Technology for the model "Automative Charging System of Safety Device." The Industrial Design category, meanwhile, was bagged by Bicol University College of Industrial Technology's Dr. Erlinda C. Relucio and Danilo L. Relucio's "Charcoal Stove Organizer." For the Creative Research category, Drs. Cesar and Alex Bermundo and Rex C. Ballester, all of Naga City, pocketed the first prize for their work "The Item Bank and Test Formulator."

Moreover, the Sibol Award - Student Creative Research for College was

given to the work "Small-Scale Multi-Commodity Dryer" by Denmark M. Condino of the Don Emilio B. Espinosa State College for Agricultural Technology in Masbate City. The Sibol Award - Student Creative Research for High School went to the research "Abaca Wastes Profile: Basis for Innovating Technologies" by Alfred John M. Malinis of Polangui General Comprehensive High School in Albay.

The regional winners received cash prizes and certificates of recognition from Engr. Manuel Sn. B. Lucena, Jr., assistant regional director for technical operations at DOST V, Engr. Arnulfo P. Malinis, a multi-awarded Bicolano inventor, and Dr. Colorado of TAPI.

The entries were judged based on the criteria set by DOST-TAPI for each category. Engr. Victor Ramon B. Goyena, Civil Engineer-Entrepreneur and Dr. Ma. Josefina P. Abilay, Regional Director, chaired separate board of judges for the Likha Award and Sibol Award respectively. Said first prize winners will represent Bicol Region in the 2012 National Invention Contest and Exhibits (NICE).

The three-day activity also featured Invent School Program (ISP) for selected secondary students, Trivia Contest and S&T Video Presentations.

"Filipinos are believed to be the most creative yet skillful imitators in the world. Nonetheless, I would say that many Filipinos have contributed much in enhancing the living condition of our people", Dir. Bri as told an audience consisting of hundreds of professional and would-be inventors, makers, designers and researchers.

"There should be more Steve Jobs in the country whose ingenuity and creativity led to the creation and development of innovative and commerciable products. Even without obtaining a college diploma, he has served as an inspiration to all of us", he added.



Participants and advisers of the three-day DOST-TAPI were actively involved in the Invent School Program (ISP) held 18-20 October 2011 at the Pacific Mall, Legazpi City.

DOST-Marinduque program, trainings, consultancy yield proud results

By BERNARDO T. CARINGAL

DOST-MARINDUQUE-ORGANIZED PROGRAM and trainings have shown very good results, basing on the outputs and outcomes of participants. These include the DOST-Academe Technology-Based Enterprise Development (DATBED) program, wrought iron forming technology training, and Consultancy for Agricultural Productivity Enhancement (CAPE).

Opportunities offered by DATBED

DOST-Technology Application and Promotion Institute's DATBED Program assisted Marinduque State College students in applying their science and technology-based entrepreneurial projects in real life.

After being granted a total of P180,610.00, for three (3) projects entitled: 1) "Utilization of Squash into Cup cakes and Bread"; 2) "Utilization of Papaya and Coconut Milk into Cup Cakes"; and 3) "Utilization of Sweet Potato into Camote Sticks and Camote Tops Juice", the student-beneficiaries were able to implement their projects for at least four months.

In the evaluation and impact assessment conducted by DOST-TAPI's Rosemarie L. Olaer, she noted that the project "Utilization of Squash into Cup Cakes and Bread" by Juvilyn Driza is ongoing in her own household and is set to have its own separate area of production. Driza believed that through the DOST DATBED program, the problem on unemployment can be reduced and there will be a brighter future for students who will venture on their own chosen S & T based business activities.

Four more new projects are in the offing, namely "Fish Processing Project" of the MSC-School of Fisheries; and "Utilization of San Fernando into Cookies", "Veggie Crackers" and "Smoked Fish Production" of the MSC Main Campus. Wrought iron forming technology training outputs

DOST-PSTC Marinduque, in coordination with the Provincial Government of Marinduque thru the Technology and Livelihood Development Center (TLDC) and the TESDA-Marinduque, held recently a two-day training on Wrought Iron Forming Technology.

The 30 individuals from different government agencies and shops, including hobbyists, received training from the DOST Metals Industry Development Council's (MIRDC) Engr. Edilbert dela Peña and Alfredo Anchores.

During the hands on activity, Anchores showed how to use the metal bender, twister and curler, which, according to participants, were "easy to use" and that "they produce quality products in less time."

Sample products from the training include tables, flower vase holder and twisted metals that may be used as accent for grills, gates and similar products. The Provincial Government allotted budget for the acquisition of wrought iron equipment that can be borrowed by interested individuals and institutions such as TESDA and MSC for their specific projects.

Fish pond operators enhance productivity through DOST-CAPE

Five fish ponds operators, namely Sta. Cruz-based Mayor Percival Morales, Norberto Billones, and Jose Rocero Sr.; and Torrijos-based Mamerto Pilar, and Petra Pilar reported good turn out during an evaluation visit by DOST-PSTD Marinduque, Venchito R. Murillo of FOMMCOm and MSC School of Fisheries staff. Said farm beneficiaries were very excited with their implementation of bangus and prawn production/cropping cycle last August 2011.



Juvilyn Driza, Marinduque State College student and beneficiary of DOST-DATBED, is proud of the outputs of her project "Utilization of Squash into Cup Cakes and Bread." With her is DOST-TAPI's Rodemarie Olaer.



Engr. Alfredo Anchores demonstrates the metal bender, twister and curler.



Outputs of the training include (LR) Coffee table, vase stand, center table



Evaluation visit to DOST-CAPE beneficiaries in Sta. Cruz and Torrijos, both in Marinduque, yielded good results.

Rombion State U hosts DOST-PAGASA-ASTI Automated Weather Station

By BILSHAN F. SERVAÑEZ

REALIZING THE need for agrometeorological data for agricultural research and production, the Romblon State University headed by Dr. Jeter S. Sespeñe immediately said "yes" when asked to host the Department of Science and Technology – Philippine Atmospheric, Geophysical and Astronomical Services Administration's (DOST-PAGASA) Automated Weather Station (AWS).

The first to be installed in the MI-MAROPA region, the AWS is a compact equipment that records daily rainfall amount, average daily temperature, relative humidity, air pressure, and wind speed and direction. Aside from gathering the minimum and maximum values for each parameter, the AWS also gathers data for rainfall intensity and rainfall duration.

The P0.3M worth AWS is a selfcontained equipment that generates its own power from an array of solar cells. It has a data logger and a data transmitter that sends weather data every 15 minutes. The data could be accessed through the internet in the website http://:202.90.149.66/predict/station.php/.

DOST's Advanced Science and Technology Institute (ASTI) designed and developed the data logger and transmitter that made the weather station fully automated and internet accessible. The AWS website, through ASTI, provides users with options on what data to gather and the duration or interval of the data to be gathered. It also provides graphs of data on demand.

Prof. Edgar Fadallan is projectin-charge at RSU's end while Esdras Fajutagana handled the building of foundation and perimeter fencing needed by the AWS. Romeo Paras Jr. and Alejandro Patilla supervised the installation of the unit on June 22, 2011 just when Tropical Depression Falcon was in the Philippine Area of Responsibility. Falcon provided enough rainfall and gustiness to test the unit.

The unit has the station name RSU Odiongan, Romblon. Moreover, two more stations will be established later at the RSU Sibuyan and Sta Fe campuses. Earlier, Dr. Sespeñe requested PAGASA to put up an agro-meteorological station at the Agpudlos campus.

With the AWS installed in these places and in several other places in the country, PAGASA could get a clearer picture of the weather across the nation and could make accurate weather forecasts. RSU and the rest of Romblomanons would also be benefited by the project as the agro-meteorological data gathered from the AWS may be used in agricultural researches and in production planning.



DOST PSTC, PAGASA, and ASTI personnel turn over the Automated Weather Sstation to Romblon State University President Jeter Sespeñe (5th from left) and staff'

DOST V inks MOA LGUs in Camarines Sur

"COLLABORATION BETWEEN and among government agencies, local government units (LGUs), communities and the people, particularly those engaged in business is one effective way to trigger regional development. This partnership is an innovative approach and strategy to develop communities through projects that will establish future industries. Kaya dapat natin itong alagaan at palaguin."

So said Dir. Tomas B. Briñas, Regional Director, Department of Science and Technology (DOST) Region V to an audience consisting of 50 project beneficiaries and representatives from the academe and media during the signing of the Memorandum of Agreement (MOA) with three (3) LGUs in the Province of Camarines Sur last 15 November 2011 at Regent Hotel, Naga City.



MOA signing between DOST V and LGU-Gainza represented by Mayor William A. Abilay for "Community Based Project: Establishment of Food Processing Center for Production of Crab Paste with an approved budget of P 614,155.00

The Department of Science and Technology (DOST) Region V thru the MOA will soon implement Community-Based Projects together with the Metro Naga Development Council (MNDC). The three LGU-beneficiaries are Milaor, Bula and Gainza, Camarines Sur. DOST V's assistance to these LGUs consists of appropriate and relevant technological innovations and interventions.

LGU-Milaor represented by Hon. Rogelio A. Flores, Milaor municipal mayor, and the Agas Producers Federation (APF) inked MOA for the project "Community-Based Project: Improvement of Processing and Production of Footwear Using Agas". This involves a fund-

ing assistance of Php 771,880 for provision of stalk dehydration, drying cabinet, blower, biomass furnace, hydraulic swing arm cutter, spray gun, compressor, stainless vat, grinding machine, handloom, heavy duty sewing machine, twinning machine and spot welding machine. Training on Natural Dye Extraction and Utilization was earlier provided by Philippine Textile Research Institute (DOST-PTRI).

For "Pilot Project for the Establishment of Common Service Facility for Bamboo Processing", LGU-Bula through the Office of Hon. Benjamin S. Decena, Bula municipal mayor, and the Bula-Bambuza Producers Cooperative (BBPC) is allocated a funding support of Php 1,241,280. S&T intervention includes the acquisition of universal circular saw, joint planer, automatic planer, laminating table, twin rip saw, treatment vat and kiln dryer.

Meanwhile, "Production of Crab Paste" in Gainza was granted a funding assistance amounting to Php 614,155 for the acquisition of mechanical crab meat extractor, stainless working table, cabinet dryer, heavy duty burner, pressure retort cooker, digital weighing scale and hammer mill. Hon. William A. Abilay, Municipal Mayor, representing LGU-Gainza and president of the Cagbunga



MOA signing between DOST V and LGU-Bula Pilot represented by Dir. Tomas B. Briñas and Hon. Benjamin S. Decena [Project for the Establishment of Common Service Facility (CSF) for Bamboo Processing" by with a total project cost of P 1,241,280.00]

Crab-Paste Producers Association of Gainza (CCPPAG) led the signing of MOA for this project. This project is a major component of a comprehensive industry jointly undertaken by other government agencies and the Libmanan

Pulantuna Planters Federation, Inc.

During the open forum, it was emphasized that project-beneficiaries are enjoined to constitute a "Business Health Board" as



Mayor Rogelio A. Flores , LGU-Milaor and DOST RD Briñas for the "Community Based Project: Improvement of Processing and Production of Footwear Using Agas" with funding assistance of P 781, 880.00

stipulated in the MOA. The board shall review and assess the level/status of business operation that could serve also as advisory council/body. Its members may come from multi-sectoral representatives from LGU, Department of Trade and Industry (DTI V), DOST V, MNDC and business community. Another

important aspect is the formulation/adoption of operating policies to ensure sustainability of the Common Service Facilities (CSFs) and develop a favorable condition for business activities.

Dir. Briñas also intimated the possibility of these CSFs eventually

evolving into business incubators and after three (3) to five (5) years transferred and efficiently managed by the beneficiaries themselves.

The MOAs ensure that DOST V and other government agencies will extend support and sustain relevant projects for countryside development. Successful projects of LGUs and NGOs could serve as exemplary models to other LGUs and stakeholders for their livelihood and development projects in the region.

Lolo Natomo's metal touch is DOST's touch

By DOST I

"Malaki ang nagbago sa buhay. Dati, mahirap ang trabaho dahil mano-mano. Ngayon, maganda na ang takbo ng negosyo at tinanggap na rin sa market ang produkto. Kung hindi sa tulong ng DOST, wala lahat ito."

hat could make a 33 year-old thresher business in a distant barangay boom through generations? Is Midas' touch alive in the metal crafts of a family of artisans?

Natomo is the firm's name and being foreign-sounding, it naturally flickers in one's mind. It is Renato and Mosuela combined, the name of the son of the Natomo Manufacturing, Inc. patriarch who is an award-winning lolo inventor who did not even finish high school but would embarrass any engineer with the ingenuity of his creations. He is Lolo Narciso Mosuela, the mind and hands behind the esteemed thresher and Superkalan in Luzon.

Born into a family of farmers, Lolo Ciso had to put up with the ways of the field. Long years of tough work gave rise to a business that would earn his name great esteem in the metal world.

It wasn't an easy start for Natomo as a business, especially in an off-town place where farming was the main livelihood. The problem was always capital, facilities and equipment to start.

It was in 1978 when his first invention came about, a rice thresher. Motorized, it consumed about 1.5 gallons of gasoline for a hectare of palay they needed to thresh in one day. This opened an entirely new horizon for Lolo Ciso and his family. His neighbors started to take notice and patronize Natomo's newly-discovered machine. It was the answer to the farmers' prayer of a faster way to thresh their harvests.

And so a business was born. It started as Natomo Light Metal Craft with the thresher as main product. He and a friend pooled



their money to build additional units. The little business was going well until gasoline prices soared and production was stopped.

Superkalan

But the ingenious mind of Lolo Ciso did not stop. It was working all the while. "Simple lang naman akong tao eh. May kanyakanya tayong hilig, pangarap. Ako eh nasuot sa iisang hilig:

> ang pagtuklas ng mga di pangkarinawang gamit na kinakailangan sa buhay," said the Lolo inventor.

The oil price hike offered an opportunity as it resulted in two things: manufacture of metal threshers and the creation of the Superkalan. The latter is a stove that uses anything for fuel. It does not emit smoke or carbon which causes stains in pots, and this feature became it biggest come-on to customers.

He initially sold it for P80 and had to compete with the fivepeso clay stoves in the market. He and his sons went as far as holding demos of the stove in barangays and schools. Kids called it "super," Lolo Ciso said, after witnessing his demo. Then teachers started branding it Superkalan.

When his stoves began to show rust, his Superkalan was jokingly called Superkalawang. This set the Natomo team working. Aluminum alloy replaced iron as raw material. A



heat regulator, a chimney for the smoke, and a hollowed bottom to contain ashes for easy disposal were all added to enhance the Superkalan. Soon people began to recognize its practicality and orders for the stove overwhelmed Natomo Manufacturing. Production was costly and they knew that accommodating all orders would mean a huge capital.

Now comes DOST

With the impending abeyance of the thresher and Superkalan's production, Lolo Ciso knocked on the doors of the Department of Science and Technology (DOST) through La Union Provincial Director Dr. Ismael Gurtiza.

When it rains, it pours; so they say. For DOST's hand in the business signaled the start of a full-blast business for Natomo Manufacturing. DOST, through the Grants-in-Aid (GIA) program, provided Natomo a total of P232,000 which was used to acquire tools and equipment such as aluminum forging machine, spot welding machine, air compressor, bar cutter, hand drills, disk sander, and others.

The Development Bank of the Philippines (DBP) also lent an amount of P1.2 million, for the construction of Natomo's manufacturing plant at Barangay Ubbog, Bangar, La Union, all payable in three years without interest.

Also, Lolo Ciso was able to avail of P 497,000 through DOST's Small Enterprise Upgrading Program (SET-UP) that provides upgrading assistance to Small and Medium Enterprises for increased productivity. Lolo Ciso used the amount to acquire sheet metal roller, table lathe machine, box bender, low pressure high density spray gun, and construction of painting booth.

Natomo further availed a P 490,020 raw material assistance from the Venture Financing Program of the Technology Application and Promotion Institute of DOST for the production of the Thresher and Superkalan payable in three years without interest. Not long, Natomo Light Metal Craft became Natomo Manufacturing, Inc.

"Malaki ang nagbago sa buhay," Lolo Ciso said. "Dati, mahirap ang trabaho dahil mano-mano. Ngayon, maganda na ang takbo ng negosyo at tinanggap na rin sa market ang produkto. Kung hindi sa tulong ng DOST, wala lahat ito."

Lolo Ciso also expressed gratefulness over DOST's support to make their business stable through the years, as it did not stop in the financial grants. In addition, it offered shop-based trainings and seminars and consultancy services that provided important knowledge and skills to sustain Natomo. The staff all went through Manufacturing for Productivity Extension; Cleaner Production Technology Assessment; Industrious, Systematic, Time-bound, Innovative, Value for Work; Electroplating Technology, and the 5S (Sort, Sweep, Systematize, Sanitize, and Self-Discipline) seminars and trainings.

DOST-touched

Although sale of the thresher and the Superkalan is seasonal, the entire business is now selling millions after DOST's "touch." Its annual gross sales have reached P8 million compared with the P3.5 million minus DOST's interventions. The business was also able to create more jobs starting with 17 employees to as many as 55 now. For this, Natomo became a household name in award-giving bodies. Among the most prominent recognitions he received were the Globe Masigasig Award, National Outstanding MSME, and Outstanding MSME for Luzon.

With DOST beside Natomo Manufacturing Inc.'s enterprise, it has expanded its market from Luzon to as far as the National Capital Region (NCR), and even abroad. Some 24 units of the Natomo Superkalan were exported to East Timor through the Philippine Rice, Food and Agricultural Organization of the United Nations in 2006. The product was evaluated in Japan along with other brands and was chosen the most durable and efficient.

His shop has also become a training ground for Science and Technology students, some of whom even won in the International Exhibit for Young Inventors at the Japan Institute of Invention and Innovation in 2004.

Lolo Ciso's brains plus DOST's hand have resulted in immeasurable gains for the Natomo family and for the community. What else could this multi-awarded Superlolo ask for?

"Gusto ko lang tapusin ang lahat ng mga nasa isip kong gusto ko pang gawin... tulad ng Rotary Palay Dryer...," beamed Lolo Ciso

With DOST always behind Natomo Manufacturing, Inc., there is no doubt that whatever creation is lurking in the inventor's mind, it is sure to spawn bigger profits and more employment opportunities for the community.



Science and Math Seminar-Workshop

Participants and delegates troop to the Seminar-Workshop on Strengthening the Capacity of Future Pillars of Science and Mathematics Education, an event organized by the DOST's Science Education Institute (SEI) at the Heritage Hote,I to discuss and address the most pressing issues of



science and mathematics teachers in the Philippines. In picture are Dr. Filma Brawner, SEI Director (2nd from left), Dr. Merle Tan, Director of the UP National Institute of Science and Mathematics Education Development (3rd from left), Professor Chun Yen Chang, the event's Keynote Speaker and Director of the Science Education Center of the National Taiwan Normal University (left center, in jacket), and DOST Administrative and Legal Services Director Elizabeth Fontanilla (right center, in red), concurrent Officer-in-Charge of the SEI Office of Deputy Director. (Alan C. Taule, S&T Media Service)

DOST-PINOY baby

Baby Jian Damalerio was accorded the title "Department of Science and

Technology-PINOY kid" for having gained the most weight in the 120-day feeding component of the Package for Improvement of Nutrition of Young Children (PINOY)

which fed children 6-35 months old and trained health and nutrition workers, and mothers on proper nutrition. The local government of Mahaplag. Levte gave her cash prize, along with other

government of Mahaplag, Leyte gave her cash prize, along with other babies, who were all underweight but reached normal weight after the feeding. With her are DOST Leyte Provincial director John Glenn Ocaña



MPLEX Completion

DOST Assistant Secretary Robert O. Dizon hands the Certificate of Completion to Mr. Conrado Baltazar as a successful beneficiary of the Department's Manufacturing Productivity Extension (MPEX) Program in ceremonies held in conjunction with the 48th anniversary of DOST 4-A Regional Office in Los Banos, Laguna. Also in picture are DOST 4-A Regional Director Alexander Madrigal, PhD (far right) and Mr. Jovito Gonzales (2nd from right) of the DOST's Technology Application and Promotion Institute. (Alan C. Taule, S&T Media Service)

Japanese Ambassador courtesy call

The Hon. Toshinao Urabe, Ambassador of Japan to the Philippines, made a courtesy call to DOST Secretary Mario G. Montejo at his office in the DOST Complex in Bicutan, Taguig City. From left are Messrs Masayuki Harigai and Akio Yonezawa, Second Secretaries of the Japanese Embassy, Ambassador Urabe, DOST Secretary Montejo, DOST Undersecretary for R&D Graciano P. Yumul, and Ms. Ma. Elena Leus, head of the DOST International Technology Cooperation Unit. (Alan C. Taule, S&T Media Service)



Science Journalism Workshop

DOST-STII resource persons, along with PSciJourn officers, trained these students of Marinduque State College in science journalism, photojournalism, media relations, and entrepreneurship. (Framelia V. Anonas, S&T Media Service)



Juan Time in the City of Seven Lakes

The city government of San Pablo, Laguna adopts the Juan Time campaign of the Department of Science and Technology to synchronize time pieces in San Pablo City with the Philippine Standard Time (PST). In a simple ceremony, City Mayor Vicente Amante represented by the City Administrator Loreto Amante unveils the GPS clock which is in sync with the PST. In photo are DOST-STII Chief Science Research Specialist Aristotle Carandang (leftmost), San Pablo City Administrator Loreto Amante, SM City San Pablo Mall Manager Timothy Exconde, City Councilor Arnel Ticzon, and Lion's Club President Rosy Tiu. (Arjay Escondo, S&T Media Service, STII)

Philippine Genome Center Launch

DOST Secretary
Mario G. Montejo holds
the ceremonial plaque for
the Philippine Genome
Center (PGC) together
with UP President Alfredo
Pascual (center)for
PGC's formal launching
at Makati Shangri-la. In
his keynote address,
Secretary Montejo noted
that genomics research
is an example of a



transformational technology DOST will pursue and support. Also in picture are members of the PGC executive committee. From left: Dr. Eva Maria Cutiongco-de la Paz, Dr. Gisela P. Concepcion, Dr. Maria Corazon A. de Ungria, Dr. Cynthia P. Saloma, Dr. Carmencita David Padilla (Executive Director, PGC), Dr. Ernelea P. Cao, Prof. Peter Sy, and Dr. Arturo O. Lluisma.



"Nasa Siyensya ang Pag-asa"