

SCIENCE *and* **TECHNOLOGY** **POST**

VOL. XXVIII FIRST QUARTER 2010

Who is responsible in managing our bioresources?

A SPECIAL BIODIVERSITY ISSUE





The S&T Post Editorial Board continues its commitment of bringing science and technology news and information to the public, hand-in-hand with the DOST MediaCore.

From left: Joy M. Lazcano, James B. Intia, Framelia V. Anonas, Ms. Ma. Isabel Carag-Dario, Aristotle P. Carandang, Maria Judith L. Sablan, and Valiant P. Rosales.

Biodiversity talks

One setback in fixing our eyes on progress and development is that we forget to take time and smell the flowers. Until the flowers, as well as the bees, are gone.

The United Nations declared the year 2010 as "International Year of Biodiversity" to raise awareness of the importance of conserving biodiversity for human well-being. It also aims to promote understanding of the economic value of biodiversity, according to the IYB website.

The S&T Post took this as an opportune time to revisit what we have in our biodiversity-rich country and what we may lose if we don't give attention. In this issue, we feature some interesting endemic species and initiatives that monitor and protect our biodiversity. We also have a special report on the latest findings on genetic diversity in Asia which gives us a better sense on who we are as a people.

This issue's guest science journalist, Mr. Paul Icamina of Malaya, takes us several thousand feet above sea level to face the issues that confront our Ifugao brothers, the keepers of biodiversity in the world-renowned Banawe Rice Terraces. Meanwhile, a commentary from Dr. William Dar gives us a better understanding on the El Niño phenomenon expected to hit the country hard this year. This period of dryness will of course have an impact to our biodiversity.

This issue also introduces a new section, "4 Teens," which will cater to high school students. In future issues, we will hear more from our teens as we open this section to their contributions. We at the S&T Post believe that by encouraging our students to participate, we can help raise genuine interest in science and technology among the youth. They are our future scientists, researchers, and science communicators; thus, it is never too early to get them involved.

As we help in making people appreciate and conserve our country's rich biodiversity, let us continue thinking of ways to live in harmony with nature. Let us not forget that biodiversity is vital to our survival. Biodiversity is life, and we must make sure that this life goes on to our children and their children's children.

Framelia

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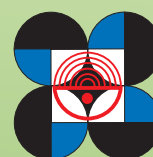
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Cover photo: Biodiversity in the city is possible at the La Mesa Ecopark in Quezon City, currently one of the most popular places nowadays in Metro Manila for people who want to take a break from the heat of the concrete jungle.
(Photo by Gerry De Jesus)

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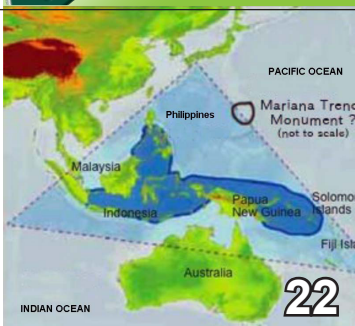
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Government researchers extract yellow, black, gray textile dyes from talisay leaves

By ARLENE OBMERGA
S&T Media Service, PTRI

THE LEAVES of talisay (*Terminalia catappa*) are a natural source of yellow, black, and gray dyes for textiles. "A tropical tree that grows 25–40 meters high, talisay or tropical almond not only provides shade but its tannin-rich leaves also produce essential dyes when extracted and processed," Philippine Textile Research Institute Director Carlos C. Tomboc explained.

PTRI researchers developed a technology in producing talisay dye powder by boiling the chopped, steeped leaves. The liquid extract is filtered and fed to a spray dryer. The resulting powder is collected and stored in clean, dry, and air-tight amber bottles at ambient temperature to maintain the physical properties of the natural dye powder and extend its shelf-life, explains Julius Leño Jr., a PTRI senior science research specialist.

The talisay dye powder is yellowish, stable in air and light, and easily soluble in water creating a rich yellow dye bath. Gray or black shade forms when ferrous sulfate is added during dye application on textile or other materials.

Materials dyed with talisay went through tests of colorfastness and washing. Depending on the type of materials dyed, dyed material washed for an hour showed no change in color and no staining.

Talisay thrives on beaches and sandy coasts. The leaves, green fruits, and sometimes the roots are used locally for tanning leather. The wood is used for building houses and boats while the seeds contain oil and are edible.

Other plant-based dye powders that PTRI researches developed include indigo (*Indigofera tinctoria*) for blue pigment; bakawan lalake (*Rhizophora apiculata*), bakawan babae (*Rhizophora mucronata*), pagatpat (*Sonneratia alba*), antsoan dilaw (*Senna spectabilis*), gmelina (*Gmelina arborea*), kamachile (*Pithecellobium dulce*), and duhat (*Syzygium cumini*) for brown; mangium (*Acacia mangium*) for beige; karkis (*Albizia lebbekoides*) and mahogany (*Swietenia macrophylla*) for reddish brown; sampalok (*Tamarindus indica*) for red.

Ipil-ipil (*Leucaena leucocephala*) for khaki, light maroon, brown, old rose, and purple; narra (*Pterocarpus indicus*) and kapok (*Ceiba pentandra*) for light pink to pinkish brown; langka (*Artocarpus heterophyllus*) for yellow; balete (*Ficus balete*) for reddish maroon, khaki, light violet, and brown; agoho (*Casuarina equisetifolia*) for brownish maroon; binunga (*Macaranga tanarius*) for brown and grayish black; madre de cacao (*Gliricidia sepium*) for light pink, pinkish brown, and light brown; tubang bakod (*Jatropha curcas*) for brown, pink, beige, and brownish orange; and katuray (*Sesbania grandiflora*) for brown and light pink.

Currently, only indigo dye powder is commercially available at Aklan State University in Banga, Aklan and in R'Teh Handicrafts in Baler, Aurora.

Small volume of dye powder from mahogany, sampalok, talisay, and indigo can be obtained from PTRI at nominal cost. It transfers natural dye extraction and application technologies to interested parties through trainings.

PTRI makes tropical fiber processing cheaper, easier

By ARLENE R. OBMERGA
S&T Media Service, PTRI

THE PHILIPPINE Textile Research Institute, an attached agency of the Department of Science and Technology offers a portfolio of tropical fiber technologies that can enhance quality and trim production cost by up to 35 percent in the pre-treatment of abaca, banana, and pineapple fibers.

PTRI Director Carlos C. Tomboc that improved fiber degumming technology, which saves producers 20–35 percent in cost, will make plant derived fibers competitive and acceptable to the end-users. Fibers undergo degumming to reduce the plants' glue-like or gum content and make them clean and spinnable.

Marites de Leon, a PTRI senior science research specialist, explained that reducing chemical inputs in the pre-treatment of pineapple fibers also cuts cost by about 25 percent.

Banana fibers, degummed immediately after "woolenization," showed residual gum content of 10 percent. This is comparable to the established 10.53 percent, 35 percent cutback in processing cost, and 14 percent shorter treatment cycle.

Residual gum content affects the fibers' fine quality, de Leon said. The fibers go through a series of chemical and mechanical treatment to achieve the crimp property of wool for better processing.

Meanwhile, the modified processing technology for abaca fibers is more effective in reducing gum content than the standard process, de Leon added. Processed fibers



have residual gum content of 6.81 percent, 21 percent reduction in pretreatment cost, and 12 percent shorter treatment cycle.

Dr. Tomboc said PTRI is focused to enhance its technology transfer program and technical services, promotion of the use of indigenous resources, and development of technical competence in textile production and quality assurance.

PCIERD awards S&T fora and competitions winners

By MA. JUDITH L. SABLAN
S&T Media Service, STII



PCIERD AWARDED the winners of the 8th Regional S&T Fora and Competitions and 4th Industry and Energy R&D Consortia Competitions during its 28th Anniversary, March 17, 2010 at the Hyatt Hotel, Manila.

Dr. Leilanie O. Suerte from the Mines and Geosciences Bureau bagged the first prize for the Regional S&T Fora Competitions for her study entitled "Magmatism and Hydrothermal System at the Kingking Porphyry Copper Deposit: An Insight into the Mineralization of the Copper-Gold Belt in Southeastern Mindanao." Ms. Prima Fe R. Franco from Mariano Marcos State University won second prize for her study "First and Second Generation Bioethanol Production from Sweet Sorghum Using Locally Isolated Microorganisms," and third prize was won by Dr. Marina A. Alipon from Forest Products

Research and Development Institute for her entry "Development and Commercialization of Locally Designed Digital Wood Moisture Meter." Winners received cash prizes of P300,000 (first prize), P250,000 (second prize), and P200,000 (third prize).

Consortia competition winners are: the Ilocos Consortium for Industry and Energy Research and Development (ICI-ERD), first prize; Cordillera Industry and Energy Research and Development Consortium (CIERDEC), second prize; and Eastern Visayas Consortium for Industry and Energy Research and Development (EVCIERD), third prize. PCIERD R&D Consortia are regional networks of institutions that conduct and implement R&D programs under PCIERD. Winners received cash prizes of P200,000 (first prize), P150,000 (second prize), and

P100,000 (third prize).

The S&T fora and competition is a biennial award established by PCIERD to give due recognition to outstanding researches in industry and energy, and to researchers and scientists who contributed to the country's economic growth. It is awarded every two years to ensure that projects are completed within the period.

PCEIRD is one of the five sectoral planning councils of the Department of Science and Technology created through Executive Order 128 on March 17, 1982. It is mandated to formulate strategies, policies, programs and projects for S&T development and provide funds for R&D, particularly those with application in industry, energy, utilities, and infrastructure sectors.

DOST 9 customer rating improves through effective use of ICT

By THELMA EMATA-DIEGO
S&T Media Service, DOST-9

THE DEPARTMENT of Science and Technology Regional Office No. 9 (DOST-9) gained a 99.85 percent rating from its customers for the year 2009, surpassing its target of 95 percent very satisfactory customer rating. Customer approval improved largely due to the regional office's efficient service enhanced by the use of information and communication technologies.

As one of the premier ICT advocates in Zamboanga Peninsula region, DOST-9 faced the challenge of continuous improvement of service levels to meet increasing business demands while holding the line on costs. One of its strategies is the development and maintenance of information systems and databases to efficiently carry out key business processes.

The DOST-9 has successfully implemented the following information systems developed in-house:

Document Tracking System (DTS) – an online information system that gives every personnel an access to incoming and outgoing documents, such as letters, memos, and others. The system can quickly track any communication received or sent. Employees in charge of the DTS update the system on any action done or remarks on specific documents received. The DTS is very helpful especially when the regional director or officer-in-charge are on official travel. Using DTS, the office can easily monitor the statuses of requests or inquiries and check if these are properly handled and acted on.

Procurement Database System (PDS) – a comprehensive purchasing system accessible thru the local network of DOST-9 (Intranet). The system involves all processes

on procurement starting from the preparation of purchase requests, bid quotations, abstract of bids, purchase orders, inspection and acceptance reports, obligation requests, and disbursement vouchers. The system provides quick search, reports generation, and historical trend in the purchasing section. With the volume of documentary requirements in the government procurement system, the DOST-9 PDS is very helpful in streamlining the procurement processes.

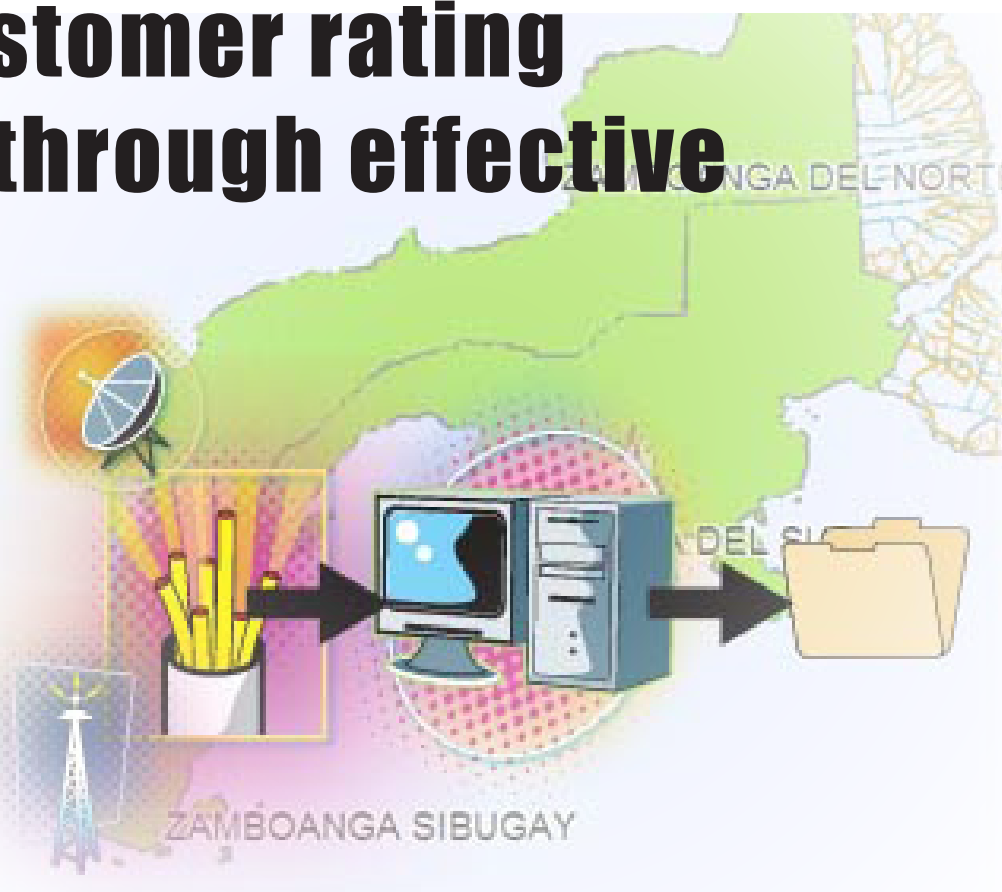
Scholarship Information and Database System (SIDS) – the system provides updated information and status of on-going and previous scholars under the DOST-SEI undergraduate scholarship program. Thru the system, financial benefits (monthly stipends, tuitions, etc) granted to each scholar can be easily monitored.

Project Information Sheet Management System (PISMS) – the system manages the general information, project details, and project status of new and existing project beneficiaries under the DOST's Small Enterprises Technology Upgrading Program (SET-UP) and Grants-In-Aid (GIA). The system is capable of tracking the status of repayment of each

SET-UP beneficiary on a specific period.

DOST- 9 File-Server – this serves as the repository of DOST-9 files. The server is accessible thru the DOST-9 Intranet and configured to provide online security access to DOST-9 employees or legitimate users regardless of access locations (inside or outside of office) at a 24/7 basis. The system may seem very simple but it is very beneficial and advantageous to DOST-9 employees especially in meeting deadlines on submission of reports.

These information systems manage the day-to-day tasks and responsibilities of the DOST – 9 management and staff. The ICT environment increases the productivity, reliability, accuracy, and competitiveness of the office in providing quality services to its customers. Also, it introduces the employees to the new IT trends and technologies, making DOST-9 employees at par with, or even ahead of, their counterparts specifically on the use and advancement of ICT in the public sector. The DOST-9 believes that the ICT initiatives has helped the office in attaining its ISO targets on functional objectives, including customer satisfaction.





<http://www.sidlakpinoy.com/>

Filipino company develops bricks from rice hull ash, alluvial silt

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

A DELUGE of earth in the riverbanks after a strong downpour may seem an unpleasant sight for most, but not for Mr. Emmanuel Alkuino who spent over three decades perfecting bricks made out of rice hull ash and alluvial silts.

"During rains, large deposits of silts fill the riverbanks. We at SIDLAKPINOY try to find a way to make this useful," says Mr. Alkuino. "Sidlakpinoy" is a wordplay in the Visayan language which means "shine forth, Filipino."

After spending a long time doing researches, Alkuino came up with an innovation and reinvented bricks out of silts and rice hull ash deposits. He called his bricks "SIDLAKAN Reinforced Fire Bricks."

Alluvial silts are soil or granulized rocks deposited at the bottom of the river or any body of water. This debris is often ubiquitous in riverbanks after a strong downpour. Rice hulls are used to fuel the kiln for baking the bricks. Consequently, hulls are reduced to ashes during the process which, in turn, make a good raw material for the

bricks when combined with the silts. Silt and rice hull ash contain sulfur, a component that makes cement durable.

The SIDLAKAN Reinforced Fire Bricks was one of the technologies introduced during the Investment Forum hosted by the Philippine Council for Industry and Energy Research and Development (PCIERD) of the Department of Science and Technology (DOST) under the program Technology Innovation for Commercial (TECHNICOM).

TECHNICOM is a DOST initiative aimed at providing funds to fast track the transfer and commercialization of research results especially those generated by member institutes of the National Research and Development Network (NRDN). Meanwhile, the Investment Forum showcased available technologies on food products/processes, construction, equipment, and process technologies, all ready for adoption by interested private firms.

According to Alkuino, president of the SIDLAKPINOY, Inc. which manufactures the SIDLAKAN bricks and other high per-

formance farming equipment, the company manufactures 5-15,000 bricks per day. These bricks are five times stronger than the usual hollow blocks and users could save 50 percent on construction expenses.

Moreover, the technology has undergone a battery of tests against heat, wind, and excessive rains. Stress tests on these bricks show that they are stable even under extreme weather conditions. Houses that use the bricks are also cooler and more stylish compared with houses that use regular construction materials.

The Sidlakan brick, a recipient of DOST technology support in 1998, can also be customized depending on the clients' preference.

According to Alkuino, the company has manufactured bricks in all sizes for homes in Mindanao, including the Gawad-Kalinga project in Natidasan, Malaybalay City, Bukidnon. Alkuino dreams that in the near future, many low-cost but quality homes outside Bukidnon will be built using the sidlakan bricks from the lowly alluvial silts.

NAST names Dr. Fabian Dayrit Academician

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

AMONG HIS most popular initiatives include "Project Blue Skies", started out as a thesis and later evolved into Ateneo de Manila's all-out war against smoke pollution. The project-turned-campaign required vehicle emission testings in applying for vehicle stickers in entering the lush Ateneo de Manila University premises. This initiative was adopted later by the Land Transportation Office as a prerequisite for vehicle registrations.

This measure proves Dr. Fabian Dayrit's innovativeness in responding to the needs of the Filipinos today through scientific researches.

Dr. Dayrit is conferred in 2009 with the rank and title of Academician by the National Academy of Science and Technology, an advisory council of the Department of Science and Technology.

Among his important contributions to S&T were his published scientific papers on Virgin Coconut Oil (VCO).

Contrary to the product's popularity in the market, little is written in the scientific journals in the world about VCO's scientific properties. Thus, his published works documented basic scientific data on VCO which gave him due recognition from the international S&T community.

He also developed an analytical methodology for detecting 3-monochloropropane diol or 3-MCPD, a compound found in soy sauce which is exported in Europe and the US. The compound, found to be carcinogenic, is banned in said regions. Previously, analysis of 3-MCPD was solely undertaken in the laboratories in England. This prompted Dr. Dayrit and his group to develop a local but internationally accepted methodology in analyzing the products. The research had encouraging results and was later published in a European journal on food safety and analysis.

Meanwhile, Dr. Dayrit's involvement in natural products especially on *Vitex negundo* (lagundi) became the scientific basis for its



analysis and use. A local pharmaceutical company adopted Dr. Dayrit's scientific findings in the production of its line of lagundi herbal medicine products.

He has also explored the use of nuclear magnetic resonance for chemical and structural analysis of polysaccharides, especially of carrageenan from Philippine seaweed.

Dr. Dayrit was a BS Chemistry cum laude at the Ateneo de Manila University and received his MA and PhD degrees in Chemistry from Princeton University.

Currently, Dayrit is dean of the Ateneo's School of Science and Engineering.

His pursuit of researches in the area of herbal medicine led to his conferment as Presidential Lingkod Bayan awardee for Government Service in 1988. He was later awarded Ten Outstanding Young Men (TOYM) in the field of Chemistry in 1995. He also received the Achievement Award in Chemistry Education and the National Academy of Science and Technology Award for Best Paper in 1995.

Last year, he was awarded "Tanging Parangal sa Patnubay ng Sining at Kalinangan" from the City of Manila. The award is Manila's version of the National Artist awards. It honors Filipinos striving for excellence in their fields and who continually promote our national cultural identity in their work.

Dr. Dayrit is currently the chairman of the Technical Panel for the Nanotechnology Program in the country which launched its roadmap on priority areas for development this year. The program aims at exploring the many possibilities of development in nanotech which ranges from super small electronic gadgets to hybrid medicines and pest proof agricultural products.

NAST is mandated by the Philippine government to recognize outstanding achievements in science and technology and to serve as a reservoir of competent scientific and technological manpower for the country. It is also the advisory body to the President of the Republic of the Philippines and the Cabinet on policies concerning science and technology in the country.

PGMA confers national scientist rank and title to Domingo, Concepcion

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

PRES. GLORIA Macapagal Arroyo conferred the National Scientist rank and title to Dr. Ernesto O. Domingo and Dr. Mercedes B. Concepcion February 15, 2009 at the Rizal Hall in Malacañang Palace.

Recognized as two of the pillars of Philippine science community, Domingo and Concepcion received the highest recognition given to Filipino individuals for their contributions in furthering science and technology in the Philippines. Moreover, the title National Scientist is bestowed to Filipinos considered as national treasures in the field of science.

Dr. Ernesto O. Domingo was recognized for his contribution as a scientist, researcher, educator, administrator and a professional in the field of Gastroenterology and Internal Medicine. Among his most important contributions were the studies made on the parasite *Schistosoma granuloma* and its effect on the human liver. His suggestions and recommendations led to the development of a vaccine to counter the parasite. He also led the establishment of the first Schistomiasis Research Laboratory in the University of the Philippines, following the Schistomiasis Laboratory in Research Institute for Tropical Medicine.

Domingo steered the establishment of the Liver Study Group, which pursued comprehensive studies and the development of the cure for Hepatitis-B. He also made a significant contribution in formalizing the National Circuit Course program which encourages the continuous learning in the field of medicine and the establishment of Institute of Socio-Biomedical research, now known as the National Institutes for Health in UP.

Dr. Mercedes B. Concepcion, meanwhile, was recognized for her expertise in the field of demographics and population.

MERCEDES B. CONCEPCION, PhD

Internationally recognized demography expert is new National Scientist

Dr. Mercedes B. Concepcion, an internationally recognized expert in demography and an Academician, was declared National Scientist through President Gloria Arroyo's Proclamation No. 1980 issued on January 14, 2010. Dr. Concepcion was conferred the rank and title of National Scientist for her outstanding contributions in the field of demography. This is the highest honor that the Philippine government can bestow on a Filipino scientist for his/her outstanding contributions to science and technology. Her outstanding accomplishments covered the study of population composition and trends and their implications for social and economic development, the growth of urbanization, the situation of the elderly, and employment. Said studies resulted in the formulation of population policies here and abroad.

Demography and population

The subject of demography is often associated with the name of Dr. Concepcion.

The subject of demography is often associated with the name of Dr. Concepcion

The woman who was honored as the first Filipino demographer by the Philippine American Foundation in 2002 has racked up many "firsts" in her distinguished career. She was the first Filipino staff member of the United Nations Statistical Training Centre set up at the University of the Philippines (UP) in 1955, the first director of the newly established Population Institute at the UP in 1965, the first and sole Philippine Representative to the United Nations Population Commission in 1967, the first woman to chair this UN Population Commission from 1969 to 1977, and the first Asian woman to be elected President of the International Union for the Scientific Study of Population in 1981-1985.

The Vatican recognized Dr. Concepcion's expertise when it invited her to be one of two Asian members of the special committee for studies on problems of population and birth control (popularly known as the Birth Control Commission) in November 1964 which led to the promulgation of the



famous encyclical *Humanae Vitae* in 1968. She was also selected by the United Nations Economic Commission for Asia and the Far East (now the Economic and Social Commission for Asia and the Pacific) to be a member and later chairperson of the Preparatory Committees for the Asian Population Conferences of 1963, 1972, 1984, and 1994.

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Recognized as the "Demographers' Demographer," she was awarded by the United Nations Population Award in 2005. Her numerous studies and papers on the implication of the growing population, demographic trends, and the changing socio-behavioral patterns served as bases in crafting national policies on population.

She was likewise instrumental in the establishment of University of the Philippines population Institute which pushed the creation of the National Population Policy and Family Planning Programs in the country.

In addition, she led the review of the Philippine Statistical System that gave way

to the creation of the National Statistical Coordination Board. Her leadership played a vital role in the United Nations Population Commission while her stint as a member of the Scientific Advisory Committee of the World Fertility Surveys of the World Health Organization and the United Nations University was noteworthy. Concepcion also had significant role in setting policies and programs for population in and outside the country.

Dr. Domingo and Dr. Concepcion are lifetime members of the National Academy of Science and Technology (NAST) of DOST.

Pres. Arroyo led the conferment ceremony for Dr. Domingo and Dr. Concepcion in Malacañang together with Executive Secretary Eduardo Ermita, DOST Secretary Estrella F. Alabastro, and NAST President Emil Q. Javier.

ERNESTO DOMINGO, MD

Liver Specialist and Medical Educator is the Newest National Scientist

Academician Ernesto O. Domingo, MD, by virtue of Malacañang Proclamation 1979 issued on January 14, 2010, was conferred the title and rank of National Scientist, the highest award that the Philippine government can confer on a Filipino scientist for his or her excellent accomplishments in science and technology.

Among the outstanding scientific contributions of Dr. Domingo are: elucidation of the nature of *SCHISTOSOME GRANULOMA* and its role in hepatosplenic disease; the pathophysiology of hepatosplenic Schistosomiasis japonica in humans; the epidemiology and control of Hepatitis B; and the pathophysiology, clinical behavior, and treatment of hepatocellular carcinoma in Filipinos. Results of his hepatitis research have been used in the formulation and implementation of policies and programs of the Department of Health and private sector on hepatitis B immunization

and routine hepatitis B and C screening of blood for transfusion.

A graduate of Doctor of Medicine from the University of the Philippines Manila in 1961 (eighth in a class of 100, third in the physicians' licensure examination with a record 98 percent in internal medicine), Dr. Domingo specialized in internal medicine at the Philippine General Hospital and in Gastroenterology Hepatology at the Case Western Reserve University in Cleveland, Ohio, USA.

Results of his hepatitis research have been used in the formulation of policies and programs of the DOH

Major studies

He joined the faculty of the Department of Medicine in the College of Medicine in 1967. He organized and led the Liver Study Group (LSG) which has conducted major studies on viral hepatitis including hepatitis A, B, C, D, E, and G. He and his LSG co-workers with the Research Institute for Tropical Medicine (RITM) of the Department of



Health have developed technologies associated with viral hepatitis. These include the rapid epidemiologic assessment for HbeAG positive individuals, production of diagnostic reagents for the testing of Hepatitis B virus carrier individuals and microparticle agglutination test for Hepatitis C. Findings from these studies were utilized by the Department of Health in developing the policy on hepatitis B immunization.

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CONCEPCION . . . from page 8

Other involvements

Dr. Concepcion, together with the late Acting UP President Enrique T. Virata and Professor Philip M. Hauser of the University of Chicago, worked for the establishment of the UP Population Institute (UPPI) in 1964 with funding assistance from the Ford Foundation. This Institute served as the secretariat of the ad hoc Population Commission that was instrumental in the enactment of the Population Act of 1971 that provided for a national population policy and a family planning program. Through the years, the UPPI has earned a reputation as a prime research and training center on population-related fields.

In 1986, Dr. Concepcion chaired the Committee to Review the Philippine Statistical System which led to the reorganization of the country's statistical offices and to the establishment of the National Statistical Coordination Board (NSCB). Twenty years later, she was again appointed to the Committee to Review the Philippine Statistical System.

Research efforts

Her research efforts have gained recognition not only locally but also internationally. Under her leadership, the Population Institute collaborated with its counterpart institutions in Southeast Asia to undertake joint research projects on population and family planning. She headed the Organi-

zation of Demographic Associates (ODA) composed of leading population institutes in Asia. The ODA planned and implemented research studies on migration, urbanization, the elderly and population and development issues in the late 1970s and early 1980s. The research results were used by the region's policy makers and programme managers as guides to effective population and programme management. She was also tapped by the World Health Organization in the 80s to chair the Steering Committee on the Social and Psychological Determinants of Fertility Regulation, a committee that reviewed research and action programme proposals for funding.

Degrees and authorships

Dr. Concepcion obtained her B.Sc. degree in chemistry from the UP in 1951. A recipient of a Colombo Plan fellowship she pursued studies in Biostatistics at the School of Hygiene and Tropical Medicine of the University of Sydney in Australia in 1953-54. In 1958 she garnered a Population Council fellowship to take up studies in Sociology/Demography at the University of Chicago where she obtained a Ph.D. in 1963. She has authored innumerable publications and served scores of consultancies with the United Nations Population Fund, the UN Development Fund, the UN Statistical Office, the World Health Organization, the UN Training and Research Institute for the Advancement of Women and the Economic and

Social Commission for Asia and the Pacific.

Honors and Awards

Dr. Concepcion has been honored by several institutions and organizations. In 1970, the Ateneo de Manila University invested her with a Doctor of Humane Letters (*honoris causa*) and two years later she received the Rafael Salas Population and Development Award. The UP named her one of its University Professors in 1988. For her invaluable contributions at regional, national and international levels in the field of demography, the United Nations conferred on her its 2005 UN Population Award while the UP Alumni Association voted to give her the Distinguished Alumna Award in 2006.

In 1992, Dr. Concepcion was elected Academician by the National Academy of Science and Technology. In May 2009, the NAST membership endorsed Academician Concepcion to President GM Arroyo for the Order of National Scientist.

At present, National Scientist Concepcion continues to be busy with the Commission on Population where she serves as Board member. She also chairs the NSCB Technical Committee on Population and Housing Statistics. She serves as Vice-President of the Executive Council of the National Academy of Science and Technology, and Vice-President of the Pangarap Foundation for Street Children. **(By NAST Secretariat)**

DOMINGO . . . from page 9

Dr. Domingo developed and helped implement the clinical fellowship program in the clinical departments of the Philippine General Hospital (PGH). He established the Clinical Epidemiology Unit (CEU), now a Department, which served both government and private institutions. As Chancellor of UP Manila, he led the reorganization of UP Manila in 1988 that resulted in the establishment of the Institutes of Socio-Biomedical Research, which later became the National Institutes of Health. As Director of the UP Postgraduate School of Medicine he implemented a nationwide continuing medical education program for medical practitioners.

Awards and recognitions

His contributions to society have

earned him numerous awards and recognitions. The Philippine College of Physicians awarded him the Distinguished Teacher Award in 1983 and the Most Distinguished Physicians Award (highest award) in 1994. He also received the Dangal ng Bayan Award from the Civil Service Commission, Saint Brother Miguel Febres Cordero Award by the De La Salle University, Outstanding Professional in Medicine by the University of the Philippines Alumni Association, and Most Distinguished Alumnus by the UP College of Medicine, among others. In 2008, he was designated Centennial Fellow of UP and in 2009, he became a Fellow of the American Gastroenterological Association.

Dr. Domingo was elected Academician by the National Academy of Science and

Technology (NAST) in 1992. In May 2009, NAST members approved the endorsement on Academician Domingo to President GM Arroyo to receive the Order of National Scientist.

His scientific and technological publications total 122 original research papers published locally and abroad. National Scientist Ernesto O. Domingo continues his research and service to the nation by acting as adviser and consultant to major research projects. He is a founding member of the Universal Clinical Health Care Advocacy Group which is conducting studies on the reforms needed to achieve universal health care for Filipinos. **(By NAST Secretariat)**

CERN to mentor RP physicists

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



Secretary Estrella F. Alabastro and CERN Director Emmanuel Tsesmelis seal their pact after signing the "Expression of Interest" [Joy M. Lazcano, S&T Media Service, STII]

Secretary Estrella F. Alabastro led the signing of the "Expression of Interest" between the Philippines and the European Organization for Nuclear Research (CERN), a document formalizing joint DOST and CERN scientific and mentoring activities in the field of physics in the Country. Photo shows (middle) CERN Director Emmanuel Tsesmelis and CERN physicist Albert de Roeck (right-most). [Joy M. Lazcano, S&T Media Service, STII]



THE PHILIPPINES through the Department of Science and Technology (DOST) and the European Organization for Nuclear Research (CERN) recently signed the Expression of Interest, a document that qualifies both parties to formally develop a framework on reciprocal scientific, technical, and educational activities.

The Expression of Interest is the first step towards furthering joint scientific researches, mentoring, and technical trainings to boost human capacity in the field of physics in the country.

This opens up opportunities for Filipino Physicists to complete their postgraduate studies in European Universities participating in the CERN research program. Moreover, vital Summer Programs and other training programs on Physics and Science

Education for Filipino Science teachers may be organized as well.

It will also facilitate linkages and possible project collaborations with other institutions and member nations.

However, CERN distanced itself on the Nuclear Power issues in the country.

CERN is one of the world's largest and most respected scientific research centers. It is where the World Wide Web (www) was invented. It also works to develop beneficial applications from nuclear energy to humans.

According to DOST's Philippine Nuclear Research Institute (PNRI) Director Alu-manda De la Rosa, there are medical applications that have been recently developed from nuclear energy. One is the Positron

Emission Tomography - Computed Tomography or PET-CT, a medical imaging device to detect cancer tumours.

Furthermore, CERN Director Emmanuel Tsesmelis was impressed at the two institutions at University of the Philippines National Institute of Physics and at PhilRice. "People there (UP) are very much in tune at what we do at CERN."

He also expressed his optimism that more Filipinos will work at CERN as researchers and scientists.

There are about 2,500 scientists in 40 member countries that work at CERN. However, in the country, only a few are actively working as Nuclear Physicists. At PNRI, only two Nuclear Physicists are left at its facility in Quezon City.

2010: International

By MADELEINE RICAFFRENT
S&T Media Service, PCAMRD

THE UNITED Nations proclaimed 2010 as the International Year of Biodiversity (IYB). The celebration's theme is "Biodiversity is life. Biodiversity is our life." With this, people all over the world are working to safeguard the vast irreplaceable natural wealth and lessen biodiversity loss.

The IYB is an initiative of the United Nations Secretariat of the Convention on Biological Diversity (SCBD) which aims to raise public awareness on the importance of biodiversity and the consequences of its loss. It will also promote the engagement of the public and other sectors for the implementation of the Convention on Biological Diversity. It will also celebrate the successes in realizing the target of achieving a significant reduction in the rate of biodiversity loss by 2010.

The IYB is an opportune time to increase the awareness and understanding of the importance of biodiversity in sustaining life on earth.

But first, we have to know what biodiversity is and its importance before we can fully work towards its protection and conservation. Only a small portion of Southeast Asia's over 500 million people know what biodiversity means.

What is biodiversity?

Biodiversity covers the full range of ecosystems, their component species, and the genetic variety of those species produced by nature or through human intervention. The world grows, moves, changes and reproduces, from the smallest to the largest, because of biodiversity.

Importance of Biodiversity

As food source. Biodiversity is the web of life. It is where we get the food we eat. Nature provides the plant and animal resources for our food. Biodiversity makes an essential contribution to feeding the world by providing fish, pork, beef, grains, and fruits for nutrition to people all over the world.

According to the United Nations Food and Agriculture Organization, "of the 7,000 species of plants that have been domesticated over the 10,000-year history of agriculture, only 30 percent account for the cast majority of the food we eat every day.

As medicinal source. A wide range of medicinal resources and pharmaceutical drugs come from biodiversity. Plants, particularly the herbs, have been known to have preventive, curative, and therapeutic properties. Using plants and animals as medicinal sources have been practiced by our forefathers millions of years ago.

The IYB is
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al Year of Biodiversity

If we do not work to prevent the fast and continued loss of our biodiversity, we will be losing around 13 million hectares of forest cover each year. If this happens, we would have a hard time developing better kinds of medicine to cure both existing and emerging illnesses.

As source of livelihood. The economy of millions of people depends on biodiversity as a source of livelihood. Income-generating industries such as agriculture, fisheries, and forestry rely on biodiversity.

There are also livelihood opportunities from ecotourism. Nature is being "sold" to tourists, encouraging an alternative means to travel, learn and appreciate our environment. The involvement of local communities makes them active stakeholders which prompt them to protect biodiversity while benefiting from the income that eco-tourism provides for.

As protection. The ecological goods that biodiversity provides are the clean air

we breathe, the potable water we drink, and the land that we till from which our food comes from. The thick forests protect us from the harmful effects of the sun and from floods.

We have to be grateful to biodiversity for helping us recover from natural phenomena such as the La Niña and El Niño by providing elements required to cope with the changes that these phenomena brought.

Our present state

Our planet's natural resources – the plants, animals and other species – are being lost at unprecedented rates due to deforestation, uncontrolled mining, rampant wildlife hunting, endless land conversion, and other destructive human activities.

The number of genetic resources has dropped, and this is blamed to the world's overall rising temperature. Significant changes in planting season have been noticed. Floods have become worse, claiming many lives, properties, and biodiversity. Our

water tributaries are fast drying up, thus greatly reducing our sources of food.

We do not want to reach the state of extinction -- the permanent effect of losing biodiversity.

What we can do: An Imperative and Collective Act

It is not yet too late. Let us do our part in working towards the conservation and protection of our biodiversity. Each one of us has an important role to play in saving our biodiversity. In our own little ways, we can reduce the use of non-biodegradable materials in our day-to-day living. We can conserve and use water wisely and sparingly.

Other tips: recycle and segregate our wastes, practice and promote organic farming, use compost as fertilizer and organic substances as pesticides, adopt vermiculture and promote intercropping, and help clean our seas, rivers and waterways.

Let us save and protect biodiversity. By this, we are also saving and protecting mankind.



Of the total number of species, 3,500 are native to the Philippines and cannot be found anywhere else.

Getting to know some endangered

By MARIA JUDITH L. SABLAN
S&T Media Service, STI

A COUNTRY rich in biodiversity, the Philippines has more than 15,000 species of flora. About 8,000 of these are vascular plants, or those with conducting tissues that transport water and minerals to the different parts of the plant. Some 7,000 species are composed of algae, mosses, fungi, ferns, and fern allies.

Of the total number of species, 3,500 are native to the Philippines and cannot be found anywhere else. The International Union for Conservation of Nature and Natural Resources (IUCN) based in Switzerland placed the country in the so-called red list because of the increasing number of extinct and threatened plants which now totals 227.

Currently, there are 37 species that are critically endangered, 28 are endangered, 128 are vulnerable, three are conservation-dependent, and 24 are near-threatened, while about seven species have insufficient data. Most of these plant species are found in lowland moist tropical forest habitats such as rainforest.

Endangered plant species

Some of the endangered plant species in the Philippines include the tree fern (*Cyathea* spp.), almaciga (*Agathis philippinensis*), belladonna (*Paneolatus* spp.), jade vine (*Strongylodon macrobotrys*), Philippine date palm (*Phoenix hanceana* Naud. var. *philippinensis* Becc.), kanyon or lulupak (*Lilium philippinense* Baker), waling-waling (*Vanda sanderiana* Reichb.f.), bungang-ipot (*Areca ipot* Becc.), Philippine camia (*Hedychium philippinense* K. Schum.), and Cebu cinnamon (*Cinnamomum cebuense* Koster).

Almaciga trees are found at high elevation in almost all the Philippine islands. These trees can be used in building or housing construction. However, since the cutting of almaciga trees was prohibited in the

country, the tree was tapped for other non-timber uses. Experts from the Department of Science and Technology's Forest Products Research and Development Institute (FPRDI) trained forest dwellers in some provinces of the country on proper collection, processing, and trade of Almaciga resin. They also developed technology in processing and refining Almaciga resin as raw material for varnish, paint, and other related products.

Vanda or waling-waling, on the other hand, originated from the warm islands of the South Pacific. Places like Malaysia, Thailand, Borneo, and the Philippines, particularly the foot of Mount Apo, are natural homes to these rare epiphytic orchid species. It is hailed as the "Queen of Philippine Orchids." The orchid has long, trailing roots that draw moisture and nutrients from the air. Its long-lasting blooms make this orchid popular among breeders and cut flower enthusiasts. Moreover, it easily crossbreeds with several other orchid species. Some varieties, in fact, were used in successful hybridizations.

Called "tayabak" in the vernacular, the jade vine is another endangered plant species in the country. The luminescent aquamarine blooms of this tropical vine are unique in the plant kingdom. Its flowers are the color of jade, and they hang in bunches up to 90 cm long. Each clawlike flower is about 7.5 cm long. Each flower, looking like a stout butterfly with folded wings, attracts bees, butterflies, birds, and bats.

The Philippine camia or white ginger is also known as the Philippine garland. It is an epiphytic herb with one to three stems. The flowers are white with a shade of yellow, its edges crinkled. The fruit has three sides which turns orange-yellow in color and its seeds are dark red. Camia grows on trunks and branches of trees. The rhizome, or its creeping rootstalk, is used as medium

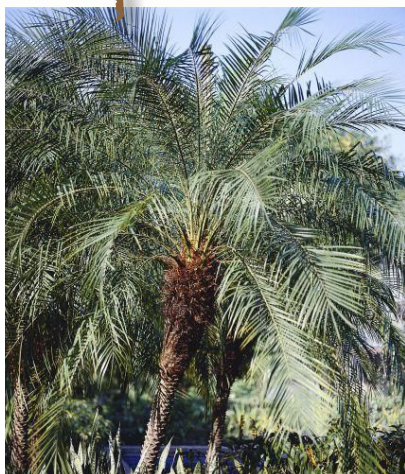
in growing orchids. Its conservation status is very rare.

The Philippine date palm, locally known as "voyavoy" is an erect palm growing alone, its trunk rising up to 10 meters tall and its diameter up to 25 cm. The leaves grow up to 1 m long with leaflets at the lower portion. Its fruits are oblong which turn black when mature. The voyavoy is found mostly on grasslands and occasionally, along mountain streams at low medium altitudes. The plant is usually used for ornamental purposes. The fruit is used for food while the leaves are used to make raincoats, bags, hats, baskets, and others. Up north in Batanes, the leaves are used in making "vakul", an Ivatan headgear, and "kanayi", a vest.

"Pakong buwaya" or tree fern (*Cyathea* spp.) thrives well in high altitude areas like Baguio. It is occasionally planted in gardens and grows up to seven meters. The trunk is covered with black and still interlacing roots. The young fronds are boiled and eaten as vegetable. The rhizome hairs are considered in Chinese medicine as drug for coagulating blood and for rheumatic problems. It is also used as an old man's tonic. The rhizome itself is used topically for wounds and ulcers, and in handicraft making and construction material such as fencing post. There are 26 endemic species of *Cyathea* in the Philippines.

Areca ipot Becc. locally known as "Bungang-ipot" is a small stocky tree that reaches four meters in height. The plant belongs to the Palmae family. The dark green leaves, about 1.5 m in length, are gracefully curved outward and appear to be swollen near the base. It bears clusters of flowers. It is normally found in primary forests at low and medium altitudes. Its deep orange fruit has a flattened base and a rounded top, while the seeds are oval-shaped. Some

Endangered plants in the Philippines



“It’s time for governments to get serious about saving species and make sure that it’s high on their agendas, as we are rapidly running out of time.”

Jane Smart

Director, Biodiversity Conservation Group
- IUCN



people use the nuts for betel-chewing.

There are still many endangered species in the country, but too little is known about them to be able to officially call them endangered.

Dark scenario

Deforestation is the major contributing factor to the loss of natural habitat of the country’s endangered species. Other reasons why species become endangered include overcollection or exploitation, introduction of other species, disease, pollution, and limited distribution, among others.

The ballooning of the country’s population has jeopardized its forest cover. Between 1990 and 2005, the Philippines lost a third of its forest cover, as the country gave way to the demand for non-agricultural land.

The current deforestation rate is around two percent per year, which is a 20 percent drop from the rate of the 1990s. This puts the country among the top 10 countries with the highest deforestation rates in the world together, namely Honduras, Nigeria, Benin, Ghana, Indonesia, Nepal, North Korea, Ecuador, and Haiti.

Dr. Raul Kamantigue Suarez, a professor in the Department of Ecology, Evolution and Marine Biology at the University of California, Santa Barbara and recently a grantee of DOST’s Balik Scientist Program described the state of Philippine deforestation as “a national Spolarium because when painted, the picture will emerge dark, violent and disturbing such as Juan Luna’s masterpiece.”

Deforestation does not only cause the loss of natural habitats that may eventually lead to species extinction. Its other effects include erosion, massive flooding, river siltation, and drought, all of which had terrible, if not tragic, effect to the country especially during the last decade. Devastating environmental catastrophes that frequently hit

the country such as landslides in Baguio, provinces of Aurora and Quezon, Ormoc, Guinsaugon, Leyte, and flooding in Metro Manila were partly, if not entirely, due to the decline in our forest cover.

Such kinds of tragedies increased environmental awareness in the country. A number of non-government organizations and advocacy groups are clamoring to save the environment and preserve our biodiversity reserves and wildlife protected areas in their pristine state. According to the Herbarium Digital Library, plant conservation in the Philippines actually started when Republic Act 3983 was passed in December 3, 1932 to protect wild flowers and other plants from extinction. For the past years, more specific laws were enacted to protect and conserve our forest and wildlife, including the endangered species.

Time to take action

Globally, an international agreement called Convention on Biological Diversity was negotiated under the umbrella of the United Nations to conserve biodiversity. Critical plant sites or centers of plant diversity were identified as areas of great importance for conservation. Locally, these areas include Mount Apo in Mindanao, Mount Pulog in Luzon, Camiguin Island, Bohol Island, Batanes Island, Sibuyan Island in Romblon Province, and Palanan Wilderness area in Luzon.

The responsibility of taking action in the game of conservation does not only rest on the shoulders of scientists and environmentalists. Jane Smart, Director of IUCN’s Biodiversity Conservation Group said, “It’s time for governments to get serious about saving species and make sure that it’s high on their agendas, as we are rapidly running out of time.” With the declaration of 2010 as International Year of Biodiversity (IYB), each one should be reminded of his/her role in conserving biodiversity as part of the community, country, and the planet.

SPECIAL REPORT

By PAUL M. ICAMINA
Malaya

IFUGAOS: GUARDIANS OF BIODIVERSITY

THE DESIGNATION of the Ifugao rice terraces as a World Heritage site may compromise its very nature, according to a new United Nations report.

“THE PROTECTION of the terraces for their aesthetic and ethnological importance fails to support their function as an ongoing sustainable economy,” observes the State of the World Indigenous Peoples report.

The report, made by the Secretariat of the Permanent Forum on Indigenous Issues of the UN Department of Economic and Social Affairs, is the first ever UN publication on the state of the world’s indigenous peoples.

In 1995, the Ifugao rice terraces in the Central Cordillera, in Northern Luzon, was declared “living cultural landscapes” and included in the Unesco (UN Educational, Scientific and Cultural Organization) list of endangered World Heritage sites.

The next year, the rice terraces were listed as one of the world’s best examples of soil and water conservation technology by the American Society of Civil Engineers.

“The attention attracted by the labeling of the terraces as ‘heritage’ can compromise the continued sustainability of management by introducing requirements, seen by many in the community as static and confining,” the UN report observes. “At the same time, the heightened attention has stimulated tourism and associated risks to traditional management.”

The growing market for wooden handicrafts and cash crops, for example, leads to intensified forest harvesting. There has also been an increase in the construction of buildings to accommodate tourism.

The buildings, the report says, “exemplify the clash” between the land management values under traditional practices as compared with the ‘heritage sites’ of the Unesco list.

While past land management placed importance and protection on the forests above the terraces in their role as water sources and soil stabilizers, the “heritage” view delineates the terraces from the rest of the landscape as the places of greatest importance and protection.

As a result, more recent houses are built for the most part in the *muyong* zone of the mountain above the terraces.

“Indigenous peoples’ traditional livelihoods are threatened not only by extractive industries or huge development projects,” the report points out, “but also by efforts that are aimed at preserving and celebrating indigenous peoples’ cultures and the environment.”

“In some cases, indigenous peoples have been forced off their lands for the establishment of natural parks, while even the World Heritage designation can have unintended consequences.”

That bodes ill for the indigenous peoples who are the caretakers of the rice terraces.

The 2,000-year-old Banaue Rice Terraces are carved 5,000 feet high in 10,360 square kilometers of mountains in of Kalunga, Apayao, Benguet, Mountain Province, and Ifugao.

Most of the terraces are safeguarded by the Ifugaos, or "People of the Earth" whose culture revolves around rice.

They safeguard the biodiversity of rice itself as well as the environmental milieu that nurtures the crop. As tourism and the outside world encroach on this world, the rice terraces and the Ifugao culture are under threat.

State of the world's indigenous peoples

Worldwide, according to the UN report, the indigenous peoples who make up one-third of the world's poorest now suffer alarming conditions in all countries. Indigenous peoples make up five percent or around 370 million of the world's population.

"Every day, indigenous communities all over the world face issues of violence and brutality, continuing assimilation policies, dispossession of land, marginalization, forced removal or relocation, denial of land rights, impacts of large-scale development, abuses by military forces and a host of other abuses," the UN report observes.

They suffer from disproportionately high rates of poverty, health problems, crime, and human rights abuses.

In the United States, according to the report, a Native American is 600 times more likely to contract tuberculosis and 62 per cent more likely to commit suicide than the general population. In Australia, an indigenous child can expect to die 20 years earlier than his non-native compatriot.

Indigenous peoples' life expectancy is up to 20 years lower than their non-indigenous counterparts. The life expectancy gap is 20 years in Nepal, while in Guatemala it is

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13 years and in New Zealand it is 11.

Indigenous peoples experience disproportionately high levels of maternal and infant mortality, malnutrition, cardiovascular illnesses, HIV/AIDS and other infectious diseases such as malaria and tuberculosis.

The suicide rates of indigenous peoples, particularly among youth, are considerably higher in many countries, for example, up to 11 times the national average for the Inuit in Canada.

Displacement and dispossession

One of the most significant threats is the displacement of indigenous peoples from their lands, territories and resources. The report details several examples of displacement, separation and eviction, including in Malaysia, Indonesia, Thailand, Hawaii, Rwanda, Burundi, Uganda, Democratic Re-

public of the Congo and Colombia.

"When indigenous peoples have reacted and tried to assert their rights, they have suffered physical abuse, imprisonment, torture and even death," it says.

"We believe (the report) is going to be crucial for governments and for the UN to address more seriously and comprehensively the issues of indigenous people," says UN Permanent Forum on Indigenous Issues Chairperson Vicki Tauli-Corpuz, a Filipino. "It's very daring and bold in a sense because it does identify countries and the situation of indigenous peoples in various countries both in the developed world as well as in the developing world."

"When indigenous peoples have reacted and tried to assert their rights, they have suffered physical abuse, imprisonment, torture and even death," the report observes, stressing that their rights to their own lands and territories must be respected while they need to develop their own definitions and indicators of poverty and well-being.

"Indigenous peoples suffer from the consequences of historic injustice, including colonization, dispossession of their lands, territories and resources, oppression and discrimination, as well as lack of control over their own ways of life. Their right to development has been largely denied by colonial and modern States in the pursuit of economic growth," it adds, warning that the importance of land and territories to indigenous cultural identity cannot be stressed enough.

Indigenous peoples, like those who safeguard the Banaue rice terraces, are the stewards of some of the most biologically diverse areas, accumulating an immeasurable amount of traditional knowledge about their ecosystems.

It is about time that their lives – and livelihood – are protected as well.

Green becomes her

Why women should be at the forefront in biodiversity conservation

By LOUIE ALONSO BELMONTE
S&T Media Service, STII

IN A small and sleepy farming village in Abra, 45-year old Aurora Bernal wakes up at exactly four in the morning to manage a small vegetable farm – the main source of her family's livelihood.

Her farm produce will be sold in a nearby market while some of the vegetables will be cooked for family's lunch and dinner.

"This is our way of life here. Our produce is the main source of our income. It sends my three children to school and brings food to our table," Aurora said.

Aurora is not alone. In the Philippines, almost half of the country's population is comprised of women (49.72 percent) and many of them are dependent on the environment for sustenance.

The country's rural women, for instance, directly depend on the country's rich biodiversity for their livelihood and survival.

Like Aurora, women living in rural areas and indigenous communities consider biodiversity as the cornerstone of their work, their belief systems and their basic survival.

The United Nations (UN) earlier cited the crucial role of biodiversity in the lives of economically-disadvantaged women. The country's rural women, for instance, directly depend on the country's rich biodiversity for their livelihood and survival. In fact, the Food and Agriculture Organization (FAO) declared that more than half of all the food that is grown on a global scale is produced by women.

Gender issue plays a significant role in



the conservation of biodiversity partly due to the different roles both women and men play in the agricultural household. Women's lives vary greatly from men because of socialization patterns related to gender. When it comes to environment, Filipino women play distinct roles from managing plants and animals in forests, drylands, wetlands and agriculture; in collecting water, fuel and food for domestic use and income generation; and in overseeing land and water resources.

Through these activities, women contribute time, energy, skills and personal visions to family and community development. Their extensive experience makes them an invaluable source of knowledge and expertise on environmental management.

The destruction of the Philippine environment has been an alarming trend for decades. Among the disturbing occurrences are extensive deforestation, destructive fishing, air and water pollution, clogging waterways by solid waste and the floods and landslides attendant to these.

These environmental damages affect women's livelihood, food security, and overall health and well-being which limit their participation and empowerment. With environmental degradation comes climate change, the consequences of which are most felt by the country, especially with the recent devastation of typhoons Ondoy and Pepeng late last year that destroyed lives and millions worth of crops and properties throughout the nation.

Just like its rural counterparts, biodiversity degradation also affects women in urban areas, especially those living in low-lying communities and those considered as informal settlers.

Those with greatest vulnerabilities to disasters are the economically-disadvantaged women and children who have no means to protect themselves from natural hazards nor have the resources to weather and survive the aftermath of calamities.

UN gender experts said that sustainable development is not possible without

the empowerment of women and gender equality. The active participation of women and the integration of gender issues in environmental policies and actions are critical determinants for the implementations of the Philippine government's commitments to the Beijing Platform for Action (1995) and the UN Millennium Development Goals (MDGs).

Despite the wide recognition of the crucial roles of women in environment and sustainable development, discriminatory structures and attitudes still result in deeply entrenched patterns of gender inequality in various communities.

Rural women in particular have an intense interaction with natural resources, given their heavy involvement in collecting and producing food, fuel, medicinal remedies and necessary raw materials for their household and community.

Their knowledge was passed down through many generations. These women frequently gained an intense understanding of their environment and of biodiversity in particular, yet their contributions to conservation go unrecognized.

Taking concrete action

With the UN's declaration of 2010 as the International Year of Biodiversity, it raises

the needed awareness among the public and generate pressure on world's leaders to curb the unprecedented loss in biodiversity due to human activity.

As gender issue plays a significant role in biodiversity conservation, and the livelihood and survival of women and their families are at stake, women should take collective action to protect Mother Earth.

Questions are now posed on how women can participate in biodiversity conservation. The following are few suggestions from women's advocates on how women in general can contribute to conserve the country's rich biodiversity:

- Organized women's groups, in partnership with various local government organizations and national government agencies, can go to rural areas, schools, barangays and municipalities all over the country to educate women and men on biodiversity, how it helps their livelihood and survival, and teach them ways to protect and conserve the environment.
- Reduce carbon footprints by using energy efficient light bulbs in households. This simple step reduces the individual's carbon footprint by approximately 450 pounds annually.

- Government agencies that are involved in planning and policies, especially on the issue of biodiversity, should ensure that women, especially rural and indigenous women, should have a full participation in discussion, consultations and decision-making processes on policies, action plans and laws with regards to climate change, sustainable development and environment and natural resource management.
- Women in government should be vigilant to ensure that policies and measures on disaster risk management, reduction and rehabilitation are gender responsive.
- Support calls for the promotion of genuine sustainable development, sustainable natural resource management and biodiversity-based ecological agriculture which empower rural and indigenous women.

There is no such thing as big and small when it comes to women's contribution in biodiversity conservation. Since biodiversity is the life and survival of most women on this side of the world, Filipino women should take concrete actions to preserve Mother Earth one step at a time.

WE NEED A STRATEGY . . . from page 25

phenomenon. A warming world will make the drought-prone areas even more vulnerable. In fact, scientists predict that the drylands will expand by 11 percent, and we will experience increased frequency and severity of droughts and heavy rainfall events across the globe.

It is therefore important for the country to immediately map out and implement a long-term strategy to cope with El Niño and climate change. Foremost are sustained investments on water conservation and management and dryland agricultural research. Beyond the provision of deep well pumps, the construction of water harvesting structures must be pursued in a war footing.

The absence of a long term strategy and institutional mechanism for drought mitigation and adaptation puts the whole country in a reactive situation. This makes poor dry-

land communities quite vulnerable to the vagaries of climate change.

Among others, the engine that will move this forward is a proactive organization that will generate and adapt appropriate innovations and policies for the country to cope with climate change and El Niño.

Along with this, House Bill 6752 establishing a Philippine Dryland Research Institute (PhilDRI) has been filed by Rep. Leonardo Q. Montemayor in the 14th Congress. PhilDRI will be the country's first line of defense against drought and climate change. Likewise, PhilDRI will substantially contribute to poverty alleviation by generating and mobilizing science and technology to improve the livelihoods of poor communities in the drylands.

Together with drought, several crises

confront global agriculture today. Warming temperatures, floods, increasing land degradation, rising food prices, zooming energy demand and population explosion are creating extreme challenges to feed the world. We can avert this potential "climageddon" through a strong political will and collective action by the global community.

Therefore, our challenge today is to go on a war footing to implement measures to cope with the current drought. On top of this, we need a long-term strategy to address the challenges of climate change and El Niño rather than pursuing reactive measures to address such events. We therefore need institutional mechanisms like PhilDRI to develop and implement a strategy of adaptation and mitigation for our farmers to surmount climate change and the continuing onslaught of El Niño.

Who is responsible in managing our bioresources?

By ARISTOTLE P. CARANDANG
Chief-CRPD, STII

PHILIPPINES FAST becoming next land of the dodo" was the catchy title of Michael Bengwayan's article (Asia Observer, August 2002). Just in case the line did not catch the attention of the powers that be, then the 'dodo', a large, flightless bird that is now extinct, truly deserved its sad fate. And that would truly be a frightening future for the country's ecosystem. Such certainty has been amplified, time and again, by biodiversity experts, conservationists, and advocates.

Hotspots can be hotter

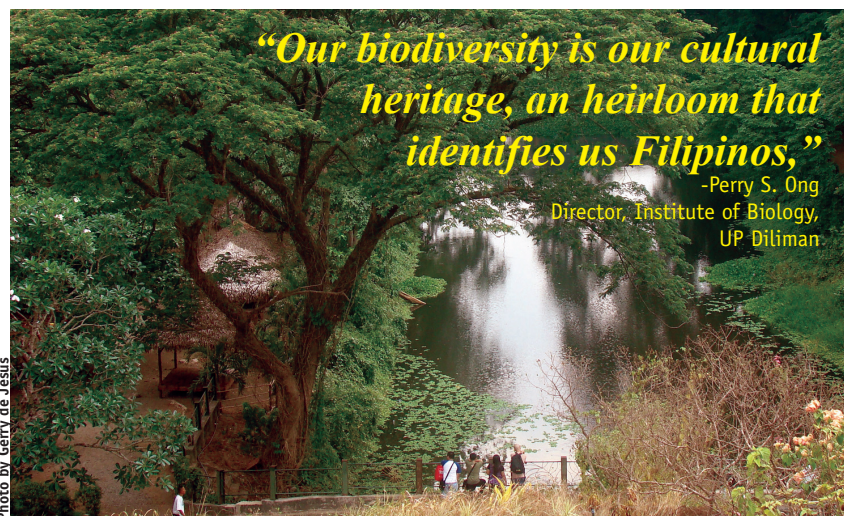
Loss of habitat is said to be the culprit to the endangerment of plant and animal species, or worse, their extinction. But looking closely, destruction of habitat is only an end result. We have no one else to blame but us humans. Some even say that we are the most destructive of all the species that have roamed the planet; for it is the thinking human that has the insatiable lust for progress which, most of the time, spells destruction to our ecology.

Dr. Perry S. Ong, Director of the Institute of Biology -University of the Philippines Diliman, said that the Philippines is now listed as one of the 17 mega-diversity areas in the world because of its unique and highly diverse biological resources.

"Our biodiversity is our cultural heritage, an heirloom that identifies us Filipinos," he said. But it is paradoxical that though the Philippines is known as a mega-diverse area, it is also a "hotspot" at the same time.

Dr. Ong pointed out that the degraded state and the degree of threat against the country's biodiversity has also made the Philippines as the "hottest of diversity hotspots." Experts define biodiversity hotspot as "a biogeographic region with a significant reservoir of biodiversity that is threatened with destruction."

Management of biodiversity and bioresources has strong biological basis according to experts. Unfortunately, the problems that are biological in nature cannot be solved by biological solution alone. "The problem that confront the survival of our bioresources re-



quires human actions," Dr. Ong explained.

Collapse of societies

"The survival or collapse of societies depends on how their inhabitants are able to manage their bioresources," said Dr. Agnes C. Rola, dean of the University of the Philippines Los Baños-College of Public Affairs, in her paper "Bioresource Management and Our Common Future." Dr. Rola stressed that bioresource management involves responsible use of our living resources- plants, animals, and the natural environment that support these, for both traditional and new applications. "The use of bioresources varies temporally and spatially," she added.

Previously, bioresources were managed in a sustainable manner because of the influence of religious practices and other cultural norms. There was collective action among the villagers who shared responsibilities in safeguarding their land, water, and other biological resources for sustainable use.

Undoubtedly, the primary drivers of the state of the bioresources in the country are the demand for food, clothing, and shelter. But supply is not renewable. With continuous and unguarded exploitation, depletion of resources and eventual extinction of the different species of flora and fauna would be the end result.

Whose call is bioresources management?

Dr. Rola stressed that decisions and actions for resource management are not events that occur by themselves. She explained that they were a product of complex competition

and collaboration among institutions.

The national government and its agencies have the capacity to make bioresources management decisions because of political clout, and financial and technical capacities. Meanwhile, local government units are mandated to protect the environment and impose appropriate sanctions/penalties for acts that endanger the environment. Even the barangay captains are given the responsibility to "enforce the laws related to protection of the environment." The Local Government Code invokes the participation of the civil society, and the involvement of the private sector in providing opportunities for financing and developing local enterprises. The Code likewise provides for the due recognition of ancestral domains and other customary rights in protected areas.

One recommendation for the country is to make bioresources management an integral part of the development plans. Rola said that we need innovative ways to develop this natural capital, as well as "more thinking on how we, as a society, can do collective actions for the sustainable management of our bioresources."

The enormity of the problem brought about by the diversity of issues surrounding bioresources has once again put the national government in the center stage. To 'pass the buck' would not be wise, and to delay actions on the already degraded and continuously deteriorating state of the country's bioresources would be worse. This concern is a ticking bomb ready to explode anytime.

Who's your daddy?

Study traces genetic origin of Asian people

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

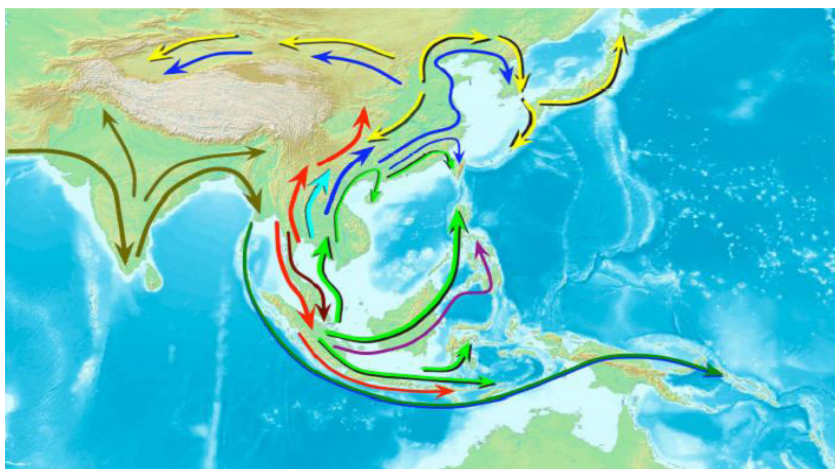
WE MAY differ in color, language, and ethnicity, but people in East and Southeast Asia have a deep connection: we share a common human origin. This is according to the study entitled "Mapping Human Genetic Diversity in Asia" by the Human Genome Organization (HUGO) Pan-Asian SNP (for "single nucleotide polymorphism") Consortium.

The study which analyzed the genetic make-up of 73 populations across 10 Asian countries traced the routes likely taken by pre-historic Asians as they migrated from coast to coast.

Over 90 scientists worked together to trace the origin of people in said area, including Dr. Maria Corazon De Ungria, Gayvelline Calacal, Frederick Delfin, Jazelyn Salvador, Kristina Tabbada, Lilian Villamor, and Henry Perdigon of the DNA Analysis Laboratory of the Natural Sciences Research Institute in the University of the Philippines Diliman; and Dr. Eva Maria Cutiongco-de la Paz and Dr. Carmencita Padilla of the Institute of Human Genetics - National Institutes of Health (IHG-NIH) of the University of the Philippines Manila.

The study supported a single wave of migration into Asia, raising questions on earlier theories of multiple inflows from both northern and southern routes into Asia. East Asians, according to the study, mainly originated from Southeast Asia with some minor traces from the Central-South Asian groups. The study suggests that people from China, Hong Kong, Japan, North and South Korea, and Taiwan mainly came from Southeast Asia – perhaps Thailand, Malaysia, Indonesia, or the Philippines.

The study revealed that the most recent common ancestors of Asians arrived first in India. Some of these ancestors later migrated to Thailand, and then to the Southern area which are known today as Malaysia, Indonesia, and the Philippines. An analysis on the probable routes of Asian ancestors showed that the first group of settlers appeared to have gone very far south before successfully settling down. These settlers were Malay Negritos, Philippine Negritos, the East Indonesians, and early settlers



This figure shows plausible routes of pre-historical migration of Asian human populations. According to the study, the most recent common ancestors of Asians arrived first in India (aqua-green). Later, some of them migrated to Thailand, and South to the lands known today as Malaysia, Indonesia, and the Philippines. The first group of settlers must have gone very far south before they settled successfully. These included the Malay Negritos (brown), Philippine Negritos (purple), the East Indonesians, and early settlers of the Pacific Islands (dark green). Thereafter, one or several groups of people migrated North, mixed with previous settlers there and, finally, formed various populations we now refer to as Austronesian (light green), Austro-Asiatic (red), Tai-Kadai (dark blue), Hmong-Mien (light blue), and Altaic (yellow).

of the Pacific Islands. The greater genetic diversity characteristic of populations in southern part of Asia support this proposition. The study also found that genetic ancestry is highly correlated with geography and linguistic affiliation— people who live in the same location and speak the same language generally have the same ancestral origins.

"It is amazing how we can use science to better understand our ancient past, and realize how we are different and how we are the same," said Dr. De Ungria who worked on analyzing Philippine samples, including those collected from Philippine Negritos and regional populations. "In fact, one could put forward that our DNA definitely codes for a common denominator in Asia amidst the apparent diversity of populations, culture, beliefs and languages."

Dr. De Ungria focused on Philippine population samples with over 5000 single nucleotide polymorphism (SNP) markers using microarray technology at the Genome Institute of Singapore (GIS).

"I hope that we can take this discovery to the next level- by providing more support for our own Philippine scientists to undertake this worthwhile endeavor of studying our past in order to look towards the future. This discovery will help us recognize our

common origin and underscore the need for unity amidst apparent diversity in our Asian homeland," she added.

Professor Edison Liu, Executive Director at the GIS and the President of the HUGO said, "This study was a milestone not only in the science that emerged, but the consortium that was formed. Ten Asian countries came together in the spirit of solidarity to understand how we were related as a people, and we finished with a truly Asian scientific community."

"We overcame shortage of funds and diverse operational constraints through partnerships, good will, and cultural sensitivity," Liu, initiator and coordinator of this research, revealed. "Our next goal is to expand this collaboration to all of Asia including Central Asia and the Polynesian Islands, and to be more detailed in our genomic analysis. We plan therefore to include structural variations and over a million single nucleotide polymorphisms in the next analysis."

The study created an enormous genotype database which is publicly accessible at <http://www4a.biotech.or.th/PASNP>. This site also provides an important up-to-date reference to scientists of diverse fields, such as human genetics and disease, medicine, anthropology, linguistics, and archaeology.

Coral Triangle Initiative

To safeguard marine and coastal biological resources

By ESTER C. ZARAGOZA
S&T Media Service, PCAMRD

SIX COUNTRIES have committed to safeguard the marine and coastal biological resources in the area called "The Coral Triangle, a geographic area encompassing about six million square kilometers of ocean and coastal waters in Southeast Asia and the Western Pacific.

Aptly named "The Coral Triangle Initiative" (CTI), the multilateral project was officially launched in December 2007 during the 13th Conference of the Parties to the UN Framework Convention on Climate Change in Bali, Indonesia. The Coral Triangle includes Malaysia, Indonesia, Philippines, Papua New Guinea, Timor Leste, and Solomon Islands.

President Susilo Bambang Yudoyono of Indonesia in early 2007 proposed the CTI for reefs, fisheries and food security to safeguard the marine and coastal biological resources of the region. Series of meetings and activities resulted in the formal declaration of the CTI on coral reefs, fisheries and food security in September 2007 with 21 heads of states across the Asia Pacific in attendance during the Asia Pacific Economic Cooperation (APEC) meeting.

Currently, the CT6 countries are developing their Plan of Action on the following major goals: a) designating and effectively managing "priority seascapes", b) applying an "ecosystem approach" to the management of fisheries and other marine resources, c) establishing networks of MPAs, d) implementing measures to strengthen resilience and adaptation to climate change, and e) strengthening measures to protect threatened marine species.

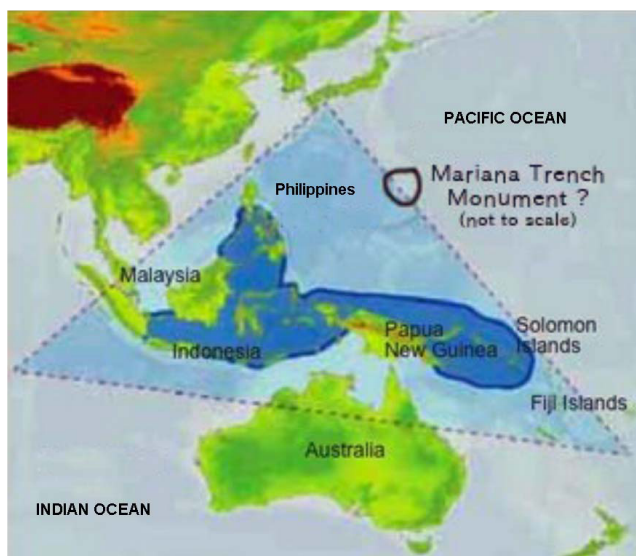
In a related development, the First Regional Exchange Program participated in by the CT6 countries was held in Cebu, Philippines last year to address strategies for "Enhancing Local Government and Stakeholder Capacity for Ecosystem-based Fisheries Management (EBFM)."

The Regional Exchange aimed to provide CT6 countries with concepts, models, lessons and approaches to EBFM, share experiences, participate in the Second Conference of Coastal Municipalities of the Philippines, share best practices, catalyze change and reform across the CTI region, and promote the conservation of critical biodiversity resources. Participants to the Regional Exchange had lecture, conference with coastal municipalities, and field work around Cebu and Bohol by visiting LGUs with coastal management activities under the FISH project. Visited were the towns of Ubay, C.P. Garcia, Bien Unido, and Talibon.

The participants noted that LGUs in the Philippines provided a very effective level for implementing coastal and fisheries resources management within their authority, resources and familiarity with the resource users to exert control and management. They were also impressed with the well-informed and educated national and local coastal resource management (CRM)

leaders, such as Mayor Rodrigo Alanano of Dauin, Negros Oriental, Mayor Eulogio S. Tupa of Palompon, Leyte and Mayor Jessu Edora of Masinloc, Zambales, among others.

US Support to the CTI Program Integrator through Mr. Peter Colier, Chief of Project and Dr. Stacey A. Tighe, Senior Regional Coordinator rolled up the Regional Exchange Program. The Department of Environment and Natural Resources, the Philippine National CTI Coordinating Committee, hosted the Regional Exchange with technical support from the USAID/BFAR FISH Project in Cebu. This Exchange Program was funded under the USAID Coral Triangle Support Program which is being implemented by the NGO consortium of World Wildlife Fund, The Nature Conservancy and the Conservation International with a US\$ 41M support from the USAID for five years.



TRIVIA FOR TEENS

History

The term biological diversity was coined by Thomas Lovejoy in 1980, while the word biodiversity itself was coined by the entomologist E. O. Wilson in 1986, in a report for the first American Forum on biological diversity organized by the National Research Council.

Source: *Soulé and Wilcox (1980)*

Person

Charles Robert Darwin (12 February 1809–19 April 1882) was a British naturalist who achieved lasting fame as originator of the theory of evolution through natural and sexual selection

Source: *darwin-online.org.uk*

"When Charles Darwin was writing *The Origin of Species* he recognised the significance of (biodiversity), but the connections with research (in that field) today were only recently pinned down". (Fathom: the source for online learning)

FilmBio

Dome (1996): Directed by Jason Bloom and starring Pauly Shore and Stephen Baldwin. Tagline: Bud and Doyle are here to save the world. But who's gonna save the world from Bud and Doyle? Plot Summary: Bud and Doyle's girlfriends just dumped them. Now the two friends get trapped in the "Bio-Dome" trying to show their girlfriends that they too are environmentally correct. Will they even get out of the big bubble?

Source: *IMDb*

Numbers

Brazil is said to represent 1/5 of the world biodiversity, with 50,000 plant species, 5,000 vertebrates, 10-15 million insects, millions of microorganisms, etc. India is said to represent 8% of the recorded species, with 47,000 plants species and 81,000 animals.

Source: *www.biodiversityhotspots.org*

Thing

A biodiversity hotspot is a region with many endemic species. Hotspots tend to occur in areas of historically limited human impact and are generally very productive. As a result of the

pressures of the growing human population, human activity in many of these areas is increasing dramatically. Most of these hotspots are located in the tropics.

Source: *www.biodiversityhotspots.org*

Wordplay

What do you get if you cross ...

a carrier pigeon with a woodpecker ?

A bird that knocks before delivering a message!

a cow and a goat ?

Butter from a butter!

a dinosaur with a dog ?

Tyrannnosaurus Rex!

a puppy and a bunny?

A rabid dog!

Literature

First published on 24 November 1859, *The Origin of Species* (full title *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*) by British naturalist Charles Darwin is one of the pivotal works in scientific history, and arguably the pre-eminent work in biology. In it, Darwin makes "one long argument" for his theory that "groups" of organisms (which we now call populations), rather than individual organisms, gradually evolve through the process of natural selection—a mechanism effectively introduced to the public at large by the book.

Source: *Mayr (1982)*

Quotes

The contribution of visible life to biodiversity is very small indeed. (Sean Nee)

Biodiversity is the one of the bigger wealths of the planet, and nevertheless the less recognized as such. (E. O. Wilson)

The value of biodiversity is more than the sum of its parts. (Byran G. Norton)

Without habitat, there is no wildlife. It's that simple.

(Wildlife Habitat Canada)

Biodiversity trends at Mt. Isarog

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

Nestled at the heart of Camarines Sur is Mt. Isarog, rising grandiosely on the horizon of the fabled Bicol province. Its 1,966 meters above sea level height teems with rich biodiversity and picturesque views. Verdant flowing forests and refreshing cool waters beckon hikers like some mystical fairy.

Mt. Isarog is actually a volcano. In fact, it is classified as potentially active by the Philippine Institute for Volcanology and Seismology. But don't let this set you back. Mt. Isarog is the Philippine's treasure chest of rare species that can only be found in the country. A visit to the famous Mt. Isarog National Park would make you realize how blessed we are to host these rare species.

Mt. Isarog is home to many endemic species. It boasts of 143 species of birds, plus many rare species of mammals. Populating its thick forest cover are the Philippine deer, shrew mouse, shrew rat, striped shrew rat, and an array of monkeys, bats, wildcats and wild pigs. Other rare inhabitants in the area are the isolated forest frog and a blind snake called *Typhlops jagorii*.

In a study by the Department of Science and Technology's Philippine

Council for Agriculture, Forestry and Natural Resources Research and Development, it was found that dominant species in the area were 'baboy damo' (*Sus scrofa*), 'bayakan' (*Pteopus speciosus*), 'unggoy' (*Macaca fascicularis*), and 'punay' (*Gallus lumba luzonica*).

Some 1,300 species of plants also dot Mt Isarog, giving the volcano its lively colors. The largest flower genus in the world called *Rafflesia* can also be found in the area. There are also hardwood trees, mosses, ferns and various varieties of colorful orchids.

Mt. Isarog is made more enchanting by mushrooms and a number of colorful insects like butterflies which are staples in fairy tales. But butterflies not only make Mt. Isarog beautiful, they also help in pollinating crops. They are also good indicators of balance because they are sensitive to pesticides and toxins. In Mt. Isarog, there are 41 butterfly species under 29 genera and 7 families, according to another PCARRD study. The butterfly families found were Nymphalidae (13 spp.), Pieridae (9 spp.), Papilionidae (8 spp.), Danaidae (7 spp.), Satyridae (3 spp.), and Lycaenidae and Hesperiidae (1 spp.)

Mt. Isarog appears to be a paradise to our endemic species. However, the PCARRD studies are not all good news. Noted in the study is the decline in the population of 'sawa' (*Phyton reticulares*), 'sabit' (*Spizaeus philipensis*), 'usa' (*Cervus marianus*) and 'salibad' (*Microhierax erythrogynys*). Further, more butterflies fluttered around cultivated areas than in forest areas, indicating some disturbance in the latter.

PCARRD's findings showed that there is a continuing degradation of the biodiversity population of the animal species in Mt.

Isarog. PCARRD also noted the significant differences of biodiversity population among the barangays in Mt. Isarog. This implies that the barangays' conservation efforts were not consistent, as some communities appear to be more active than the others in the implementation of reforestation and wildlife protection program.

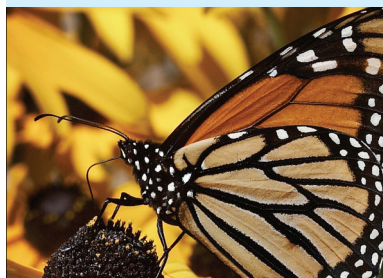
To avert the further degradation of biodiversity in Mt. Isarog, PCARRD recommended the strengthening of reforestation programs to bring back the trees that serve as homes to most of the animals and insects living in the area. The Council also reiterated calls for wildlife conservation and management in Mt. Isarog. Likewise, it pushed for the implementation of an active monitoring system, plus improved data gathering tool and procedures, to keep an eye on the biodiversity in Mt. Isarog.

Other activities looked into that could help improve the biodiversity in Mt. Isarog include the following: partnership and collaboration among various agencies and institutions; capability building to strengthen community-based organizations; aggressive information and education campaign; strict enforcement of policies and laws particularly along visitor management; and selection of key leaders in the communities and partner agencies.

Mt. Isarog has so much to offer to those interested in knowing more about endemic plants and animals in the country. The rich biodiversity in this one single place is a testament on how God has blessed this country with so much life.

When traveling down south of Luzon, don't forget to check out Mt. Isarog National Park's rare plants and animals that continue to call this volcano "home."

Mt. Isarog is the Philippine's treasure chest of rare species that can only be found in the country.



We need a strategy for El Niño

By WILLIAM D. DAR
Director General, ICRISAT

WITH THE onset of summer, the country is now experiencing the adverse effects of El Niño, especially in the agriculture sector. PAGASA estimates 40 to 60 percent reduction in rainfall as an effect of the phenomenon and that the prolonged drought may last until June. Hardest hit are Cagayan and Isabela, our major sources of rice.

The Department of Agriculture (DA) estimates that the severe dry spell could reduce paddy rice production by 816,372 tons worth P12.24 billion. Even a milder effect could reduce crop losses to 264,940 tons.

With this, rice imports this year may hit a record 2.4 million tons as the country makes up for the crop damage inflicted by typhoons Ondoy, Pepeng and Santi. The production of other crops like corn, sugar cane, vegetables, and other agricultural products will also be severely affected.

Understanding El Niño

The El Niño phenomenon is an abnormal weather pattern caused by the warming of the Pacific Ocean. South American fisherman named this phenomenon El Niño as it occurs during the time of the birth of the child Christ. It forms part of what is called the "Southern Oscillation," a see-saw pattern of reversing surface air pressure between the eastern and western tropical Pacific.

Occurring every two to seven years, it triggers climatic aberrations around the world like warming in South America, torrential rains in North America and drought in Southeast and South Asia and Australia.

In the Philippines, El Niño causes drought and ensuing events like food, water, and energy shortages; land degradation; salt water intrusion; disruption of normal human activities; human and health problems; and significant reduction of agro-industrial productivity.

The current El Niño phenomenon is the eighth event to occur in the country since 1965. PAGASA says that it is a "moderate to strong" El Niño and not as worse as the one in 1997 to 1998, the strongest in recent



We need a long-term strategy to address the challenges of climate change and El Niño rather than pursuing reactive measures to address such events.

history, affecting the whole country and inflicting damage worth P8.5 billion.

Coping with drought

Even as drought is here, there are several measures which our farmers and the government could do to adapt to its effects and sustain farm productivity. The India-based International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and its partners recommend a four-pronged, science-based approach.

First is growing drought-tolerant crops to match the available length of the growing season and low soil moisture. ICRISAT and its partners in the Philippines have introduced several improved varieties of sorghum, pigeonpea, chickpea and peanut, all of which are more drought tolerant than currently grown crops.

Second is a contingent action plan to be mapped out with farmers by the DA and local government units (LGUs) to replace affected crops with those which are more drought tolerant. Farmers should grow other crops that mature earlier to escape drought. Short duration crops thrive and yield well even with scarce water as they mature before soil moisture gets depleted.

Likewise, an action plan for producing seeds of dryland and other alternate crops should be put in place by the DA.

Third is the efficient management of natural resources, harvesting water in the rainy season, arresting land degradation and conserving soil moisture. Towards this, ICRISAT recommends growing improved crops on soils conserved through natural ways and pursued through community participation. This is the essence of what scientists call as integrated genetic and natural resource management (IGNRM).

Fourth is empowering stakeholders through capacity building and enabling the national government and LGUs to formulate policies supportive of dryland agriculture. Likewise, suitable institutional mechanisms for credit, market linkages, rural infrastructure and other support services need to be ensured. The effectiveness of drought mitigation strategies depends on institutional arrangements available to provide regulation as well as technical and financial assistance.

ICRISAT also recommends growing an array of crops together with livestock along with other income-generating activities that can lessen the risks of total crop failure and enhance farm income.

Long term strategy

Climate change is real and El Niño will further aggravate its effects, most especially to the poorest of the poor in the dryland and rainfed areas. Just like El Niño, the impact of climate change on global temperatures and rainfall pattern will be a continuing

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DOST support makes local crops work for Abra folks

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

FOLKS FROM Abra need not look far to search for materials for their business. Most of them can simply check out what's in their backyard.

"We have plenty of bamboos in our backyard," says Carlo Balneg, an entrepreneur from Bumagcat, Tayum, Abra. Balneg shares that he has been trained from childhood to work on various crafts out of bamboo. "My father used to own this shop," he adds, referring to the shop that now bears his name, with a sizeable 20 x 30 production area for placemats and 10x10 for other products.

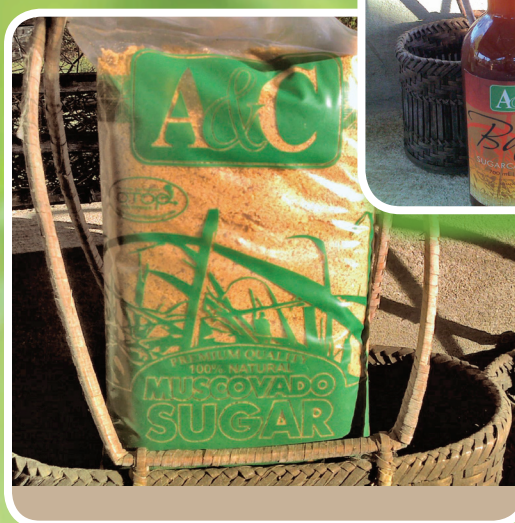
The shop started as a decrepit tent with crude and definitely outdated tools. Balneg was able to improve production by undergoing trainings and doing some research on design trends. Radical changes came when his application to the Department of Science and Technology's Small and Medium Enterprises Technology Upgrading Program (DOST-SETUP) was approved, following his father's hand-over of the shop to him. Through a loan worth P375,000 granted last year, Balneg was able to buy various machines and tools to make his business flourish like the bamboos in his backyard.

From manual procedures, his jump into technology has made bamboocrafting much easier. Technology enabled him to make the bamboos in equal length, width, and thickness – with a smooth finished surface – easier, faster and better.

"It's good that I previously trained in assembling and operating machines, even in mixing paint," he tells. "Through SETUP's support, I was able to put all my trainings in practice." Some of the new equipment he acquired through SETUP include three-in-one machine (circular saw, jointer and thicknesser), tables saw, bench drill, miter saw, and many others. Some were fabricated to suit his requirements.

During this visit, Balneg's 140 staff were all busy working to meet their target of 36,000 pieces of placemats ordered by a foreign-based client. His other bamboo products – such as folding table, bamboo trays, and others – also have good market share.





At 30, Balneg bagged the 2009 Sipag at Tyaga Award (provincial level) and was finalist in the One Town, One Product national level. He was also honored as one of the two Most Inspiring CAR Micro Entrepreneurs at the Teen Negosyo Edition III in Baguio City in 2008.

Balneg is thankful that bamboos are abundant in Abra, which is good for his business. He is aware that depleting bamboos will not only be bad for his business but also for the environment. Thus, as his way of ensuring the continuous supply of raw materials, he encourages his suppliers of raw materials to plant or replenish their bamboo plantations.

Vegetables in noodles

When he saw on TV about a new product called squash canton, Arturo Talledo of Mudiit, Dolores, Abra could not contain his excitement. "There are plenty of squash in Abra, so I know I would not run out of ingredients," he gushes.

He trained under DOST's Food and Nutrition Research Institute to learn the basics of vegetable noodle production. Finally, he added squash and malunggay noodles to his main product, flour-based miki. "It was difficult at the start because my workers used manual procedures," he admits. But since squash and malunggay were aplenty in Abra, he went on with production.

Informed by FNRI of the SETUP program, he immediately applied, knowing that technology will help improve his production.

Soon he was awarded with a P200,000 loan from SETUP which he used to buy equipment such as noodle machine, dough mixer, and dryer. The dough mixer enabled Talledo's workers to efficiently and quickly knead large quantities of dough while the noodle machine cut the kneaded flour into noodle strands of equal size faster than any human can. The dryer enabled Talledo to dry up the noodles, rain or shine, and have them ready for packing in a few hours.

"Thanks to technology, both my production and income doubled," he shares. On regular days, Talledo's Miki Commercial produces 175 kilos of noodles. He now has six full-time workers plus some on-call helpers. Moreover, his previously backyard only business now has a building of its own.

FNRI also helped Talledo in designing his packaging, using materials that give enough protection to his noodles and visual design that attract buyers. He also gets regular technical advice from DOST.

"I am going into *camote* noodle production soon," he revealed as he glimpsed at an area in his backyard which, expect- edly, was teeming with lush, leafy camote.

Sugarcane's sweet-sour prospects

Lorma Azurin of Agtangao, Abra first thought that vinegar would bring her family the extra income it needs out of the sugarcane she planted as an alternate crop in her backyard. But DOST-Abra's Menandro Buenafe and Alice Balacua had other ideas: Why not expand her product into *basi*, a local wine made of sugarcane, and muscovado?

Azurin realized that indeed there was more to sugarcane than vinegar. Through DOST's Grant-In-Aid, she was able to attend trainings to help her in producing high-quality *basi* and muscovado. DOST also helped her firm A&C Enterprises in the initial printing of packaging for the sugarcane products, as well as in installing a rice hull furnace for muscovado production.

Soon the sweet *basi* and muscovado, as well as the sour vinegar, gained followings and market. A&C Enterprises sugarcane products soon became a familiar sight in Bangued market.

"One thing about our products," Azurin pitched, "is that they are 100 percent organic. No chemical fertilizer was applied."

Projects in the pipeline

For 2010, DOST-Abra has lined up 10 projects for SETUP funding and nine for GIA funding, according to Buenafe, Provincial Science and Technology Director for Abra. And yes, most of the firms used materials and crops that are endemic in Abra.



By CHARINA A. JAVIER
S&T Media Service, *FNRI*

RECENT RESULTS of the National Nutrition and Health Survey (NNHeS II) by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST) showed that more Filipinos have hypertension, high fasting blood sugar, and high cholesterol and triglyceride levels, which are risk factors to cardiovascular diseases, diabetes, and other lifestyle-related diseases.

The NNHeS II showed that one in every four Filipino adults (25.3 percent) has hypertension or a blood pressure (BP) reading equal to or higher than 140/90 millimeter mercury (mmHg). The prevalence of hypertension significantly increased from 22.5 percent in 2003 to 25.3 percent in 2008 based on single BP determination.

The survey further showed that 11 in every 100 (10.8 percent) have pre-hypertension or a BP reading at the range of 130-139/85-89 mmHg. High BP increases with age starting from age 40-49 years.

The prevalence of high fasting blood sugar (FBS), an indicator of diabetes mellitus, is 5 in every 100 Filipino, based on the NNHeS II. The prevalence increased, though not significant, from 2003 with 3.4 percent to 4.8 percent in 2008. The prevalence of

may progress to diabetes mellitus in a few years if not prevented.

Hyperglycemia is an FBS level greater than 125 milligrams per deciliter (mg/dL), while IFG is an FBS level in the range of 110-125 mg/dL. Dyslipidemia or abnormal lipid levels significantly increased from 2003 to 2008.

The NNHeS II showed that one in every ten (10.2 percent) Filipino adults has high total cholesterol level, while 21 in every 100 (21.2 percent) are borderline high. Furthermore, 15 in every 100 (14.6 percent) have high triglyceride level, while 16 in every 100 (15.5 percent) are borderline high.

The prevalence of low high-density lipoprotein-cholesterol (HDL-c) level increased from 54.2 percent in 2003 to 64.1 percent in 2008. In contrast, the prevalence of high low-density lipoprotein-cholesterol (LDL-c) level did not change much, from 11.7 percent in 2003 to 11.8 percent in 2008.

A person is considered to have a low HDL-c level if the fasting blood measurement is less than 40 mg/dl while a high LDL-c level of the fasting blood measurement is greater than or equal to 160 mg/dl.

Hypertension, high FBS, and dyslipidemia are major risk factors to lifestyle-

FNRI survey says more Filipinos at risk to lifestyle-related diseases

high FBS or hyperglycemia peaks at age 50-59 years.

Moreover, the survey showed that 3 in every 100 Filipinos have impaired fasting glucose (IFG). IFG

related diseases, particularly cardiovascular diseases, diabetes mellitus, and cancer. These lifestyle-related diseases are among the diseases that currently dominate the list of leading causes of death in the country. These are also leading causes of morbidity, particularly diseases of the heart and the vascular system.

The government is intensively campaigning for healthy lifestyle to prevent these risk factors and diseases. The healthy lifestyle campaign promotes transformation of various settings into healthy settings, such as healthy workplace, healthy-eating place, healthy communities and healthy schools, among others.

Message 10 of the Nutritional Guidelines for Filipinos (NGF) developed by the Technical Working Group led by the FNRI-DOST recommends that, for a healthy lifestyle and good nutrition, Filipinos should exercise regularly, do not smoke, and avoid drinking alcoholic beverages.

The NGF also suggests eating a variety of foods everyday, consuming more fruits, vegetables, rootcrops and legumes, as these are rich sources of fiber that help lower cholesterol level and prolong the response time of our body to blood glucose levels, and limiting the intake of salty foods to help prevent hypertension.

(For more information on food and nutrition, contact: Dr. Mario V. Capanzana, Director, Food and Nutrition Research Institute, Department of Science and Technology, Bicutan, Taguig City; Trunkline: 837-2071 local 2296 or 2287; Telephone/Fax No.: 837-3164; e-mail: mvc@fnri.dost.gov.ph or mar_v_c@yahoo.com; FNRI website: <http://www.fnri.dost.gov.ph>)

DOST's Industrial Technology Development Institute (ITDI) and the Association of South East Asian Nation Foundation sealed their agreement to support the ASEAN participation in the 4th International Environmental Technology Verification (ETV) Forum and International Working Group (IWG) on ETV through a Memorandum of Agreement signed on

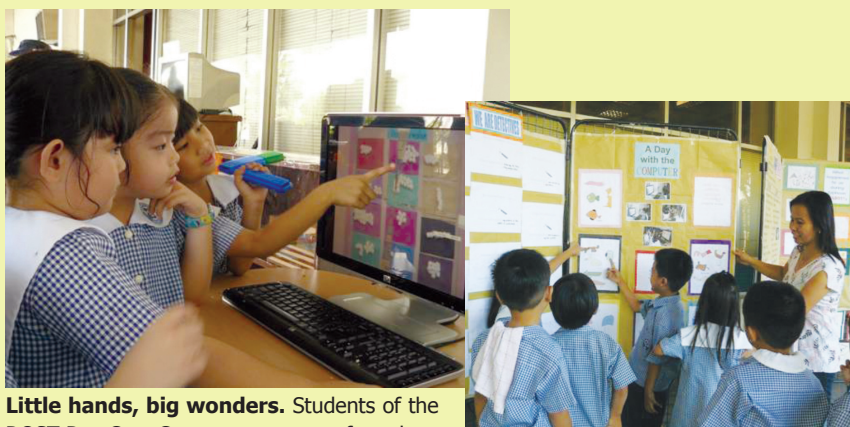


February 1, 2010 at the Metrology Building, DOST Compound, Bicutan, Taguig City. ETV is a process of scientifically validating the environmental soundness of new developed technologies. The Philippines is the first Asian country to host the ETV Forum which is an international activity. Photo shows (L-R) Dr. Filemon A. Uriarte, Jr., ASEAN Foundation Executive Director; Dr. Estrella F. Alabastro, DOST Secretary; and Dr. Nuna E. Almanzor, ITDI Director. **[Joy M. Lazcano, S&T Media Service, STII]**

STII is Anti-Graft Compliant. DOST's Science and Technology Information Institute (STII) notched 8th place in the top ten government agencies compliant to the anti-graft measures set by the Presidential Anti-Graft Commission (PAGC) through its Integrity Development Action Plan. Some 177



government agencies in the country were evaluated by PAGC. Receiving the award for STII-DOST is Aristotle P. Carandang, Chief Science Research Specialist, STII-DOST, during the awarding ceremonies held February 9 at the Land Bank of the Philippines in Malate. Others in the photo are (L-R) Alberto A. Bernardo, Commissioner, PAGC; Teresita D. Baltazar, Commissioner, PAGC; Constanca P. De Guzman, Secretary, PAGC. **[Joy M. Lazcano, S&T Media Service, STII]**



Little hands, big wonders. Students of the DOST Day Care Center as young as four show off what their little hands can do to prove that science can be as fun as it is educational in a two-day event of science wonders dubbed as "Science Fair 2010" at the DOST Main Building, Bicutan, Taguig. The event, initiated by the DOST-Science Education Institute, featured exhibits on a variety of interesting topics, video presentation, and hands-on little experiments that the students conceptualized and designed themselves. The DOST Day Care Center (prep and kindergarten levels) caters to children of DOST employees. Because of the school's increasing popularity, according to Ms Edna Ebon (bottom-left), administrator of the Center, there is a move to open the Center as well to the grandchildren of DOST staff **(Photos and text by Mary Charlotte Fresco- DOST-OASEC).**

Contributors



Dr. William Dar is a 1988 Ten Outstanding Young Men (TOYM) Awardee for Agricultural Research. He is the first Filipino and Asian Director General of *International Crops Research Institute for the Semi-Arid Tropics* (ICRISAT) based in Hyderabad, Andhra Pradesh, India.



Paul M. Icamina is a science journalist currently with the *Malaya*, a national newspaper founded in 1981 with the mission of giving the public the truth fairly and responsibly.



Ester C. Zaragoza, is the Officer-In-Charge of the Marine Resources Division, Philippine Council for Aquatic and Marine Research and Development.



Charina A. Javier, Science Research Specialist I of the Food and Nutrition Research Institute, is involved in nutrition promotion activities of the Food and Nutrition Research Institute.

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