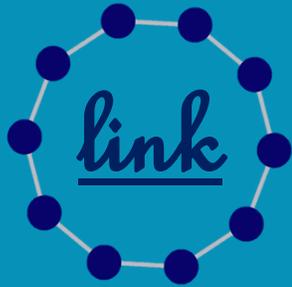


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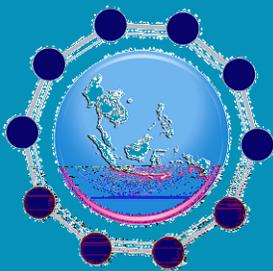
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ASEAN—NDI

ASEAN-NDI is designed to operate in a hub-and-spokes model. The outer circles (blue) signify the 10 member states bonded by the spirit of solidarity and cooperation (gray circle). The overall blue shade of the logo suggests peace, stability, and health security.

The network is meant to ensure that health technology development and the capacity of member states are appropriately maximized and managed according to regional health needs.

ASEAN-NDI to support vaccine security through R&D

By: Nico Angelo C. Parungao

Science Research Specialist II, Philippine Council for Health Research and Development - Institution Development Division

With the aim to achieve vaccine security in the region, representatives from ASEAN member states gathered on October 1-3, 2014 in Phuket, Thailand to discuss opportunities for cooperation.

Organized by the National Vaccines Institute (NVI), Ministry of Health, Thailand, in cooperation with the World Health Organization (WHO), the event was attended by national authorities and experts in various areas of vaccine and immunization. Among the delegates are ASEAN-NDI staff, Dr. Maria Ruth B. Pineda-Cortel (ASEAN - US Fellow on Health) and Mr. Nico Angelo C. Parungao.

Dr. Pineda-Cortel presented the ASEAN Network for Drugs, Diagnostics, Vaccines, and Traditional Medicines Innovation (ASEAN-NDI) as a prospective model for vaccine security collaboration in research and development (R&D) highlighting the mandate of the Network and how it could develop synergies in the region and increase vaccines R&D competitiveness and production.

With vaccine development as one of its major arms, ASEAN-NDI is the platform to promote vaccine R&D in the region. "ASEAN holds a lot of potential in vaccine development and although we're at different stages of economic and health development, if we collaborate, resources will be properly aligned and efforts



Fig. 1. Dr. Maria Ruth Pineda-Cortel presents ASEAN-NDI initiatives and opportunities for R & D collaborations during the "Workshop among ASEAN countries on opportunities for regional vaccine security."

won't be repetitive," told Dr. Pineda-Cortel.

In her presentation, it was shown that ASEAN is divided into three clusters in terms of vaccine production and supply: the producers, the recipients, and the purchasers.

The producers which are considered regional vaccine hub include Indonesia, Thailand, and Vietnam while the recipients which rely on vaccines funded by donors and NGO-facilitated vaccines programs include Cambodia, Lao PDR, and Myanmar. The purchasers consist of Brunei, Malaysia, Philippines, and Singapore.

Available information also shows that Singapore, Cambodia, and Indonesia have the

most number of institutions involved in vaccine R&D. "But even though many institutions are involved in vaccine R&D, most of the efforts include target discovery and screening and only a few ASEAN institution are involved in clinical trials, manufacturing, monitoring, and evaluation," said Dr. Pineda-Cortel.

The current status of vaccine innovation in ASEAN, the various ASEAN-based vaccines manufacturers, and the selected diseases targeted by vaccine R&D in ASEAN were also presented.

ASEAN-NDI will be hosting a Community of Practice Workshop on Vaccine development in October 2015.

FERCAP and PHREB Conference calls for Integration of Ethics in Health Research

By: Sabrina Arra P. Elechosa

Science Research Specialist II, Philippine Council for Health Research and Development - Institution Development Division

The importance of research ethics is recognized institutionally in many Asian and Western Pacific countries. To empower and strengthen collaborative networks of national ethical research systems and stakeholders, the 14th Forum for Ethical Review Committees in Asia and the Western Pacific (FERCAP) International Conference and 1st Philippine Health Research Ethics Board (PHREB) National Conference were held last November 23-26, 2014 at Taal Vista Hotel, Tagaytay City, Philippines. With the theme “Embedding Ethics in National Health Research System,” the conference aims to: (1) describe concepts, best practices, and initiatives towards embedding ethics in national health research systems; (2) highlight the use of systems approach in promoting research ethics; (3) identify gaps and barriers to good ethical infrastructures; (4) suggest options and future directions in maintaining highest ethical and scientific standards; and (5) develop relevant models of partnership and alliance building in ethical research promoting empowerment of stakeholders within the context of diverse Asian cultures and pluralistic socio-economic-political systems.

In his keynote message, Dr. Jaime C. Montoya, Executive Director of the Philippine Council for Health Research and Development of the Department of Science and Technology, highlighted the importance of embedding ethics in health research by incorporating ethics in policy development and project conceptualization



Fig. 1. Dr. Jaime C. Montoya, Executive Director of PCHRD-DOST, delivering his keynote message during the conference (Photo taken by DOST-STII).

and implementation, human resources development and ethics advocacy. He also shared the efforts of the Philippines in promoting ethics through the National Ethics Committee (NEC) and the Philippine Health Research Ethics Board (PHREB).

The event, attended by around 800 participants from Asia and the Western Pacific Region, served as a venue for sharing current initiatives and best practices related to research ethics. Discussions on the integration

of ethical research governance in diverse fields; ASEAN harmonization in science research and biotechnology; duties and responsibilities of stakeholders; and issues, challenges and concerns in ethics presented by both local and foreign delegates were showcased. Poster exhibits were also featured to present the participating institution's ethics committee and the efforts they render in promoting ethical culture. FERCAP Committee meeting and general assembly were also conducted during the event's pre- and post-conference program.



Fig. 2. Logos of the collaborating agencies.

Solar powered mobile water purifier for disaster relief

By: **Saowaluk Chaleawler-t-umpon, Chonlada Pokhum, Chamorn Chawengkijwanich, Nuttaporn Pimpha**

National Nanotechnology Center, National Science and Technology Development Agency, Thailand Science Park, Paholyothin Rd., Pathumthani 12120, Thailand

Access to clean drinking water is a top priority for all nations under normal circumstances and especially during disaster. Consequently, the development of innovative solutions based on immediate needs is indispensable.

During the major flooding which critically affected Thailand in 2011, the access to clean drinking water became a serious problem since flood water carries bacteria like *Escherichia coli* that can cause diarrhea, abdominal pain, fever and other life threatening infections. The conventional ceramic filter with filtering size between 0.3 - 0.8 micrometers in diameter is good enough to filter the bacteria. However, the microbial colonization in the filtering material usually contaminates the water in later usage. To help citizens get clean drinking water during natural disasters, the National Nanotechnology Center (NANOTEC), Thailand, initiated a project utilizing nanotechnology. NANOTEC aims to i) develop a bactericidal ceramic filter impregnated with silver nanoparticles and ii) design a mobile water purifier system with solar power supply.

A mobile clean drinking water filtration unit with nanocomposite filter was developed to purify dirty natural surface water without chemical treatments. Silver nanoparticles (Fig. 1), known as excellent antibacterial agents, were used in

the fabrication of ceramic filters (Fig. 1) for bactericidal function. For long-term silver efficacy, the silver atoms were chemically bonded to the ceramic filter's surface. Compared to conventional ceramic filter, nanocomposite ceramic filter provides extra security by killing or incapacitating bacteria in the water and at the same time, preventing the growth of bacteria, known as bio-film formation, inside the ceramic matrix. The filtering function is long lasting with no detectable silver nanoparticle in the filtered water.

To provide access to clean and safe drinking water to communities affected by the flooding in Thailand, the nanocomposite filter was equipped with a mobile solar operating system named SOS unit. The solar-powered mobile unit was easi-

ly integrated into a flat hull boat (Fig. 2-a), a trailer (Fig. 2-b) or a pick-up truck (Fig. 2-c). Field testing at Noy River in Angthong province and Chaopraya River in Ayutthaya province was done in collaboration with the Thai Red Cross Society. The quality of filtered water met the 2010 guide standard of drinking water by the Department of Health, Ministry of Public Health, Thailand. This technology was filed for petty-patent and license for use in private sectors. The prototype was donated to Thai Red Cross to minimize the suffering of rural communities during the recent flooding. Not only in Thailand, the SOS unit is ready to provide emergency help to ASEAN community.



Fig. 1. The ceramic filter (a) and silver nanocomposite filter (b) developed and fabricated by NANOTEC. (Photos taken by the authors, 2014).



Fig. 2. Field testing of the silver nanocomposite filter. Filter was assembled into the solar-powered SOS unit and placed in a flat hull boat, a trailer and also a pick-up truck (a, b, c). Water taken from Chaopraya river (an agricultural area in Ayutthaya province, Thailand): before (left) and after (right) filtration. (Taken by authors, 2014).

Philippines pioneers MD – PhD Molecular Medicine Straight Program

By: Abigail P. Miranda

Project Assistant III, Philippine Council for Health Research and Development - Institution Development Division



Fig. 1. MD – PhD Molecular Medicine Batch 5 Memorandum of Understanding signing between the UP – Manila and the DOST – PCHRD. (From left to right, bottom) Dr. Coralie Therese Dimacali, Assoc. Dean for Academic Development; Dr. Marie Josephine De Luna, Vice Chancellor for Academic Affairs; USec. Fortunato De La Peña, DOST Undersecretary for R and D; Dr. Jaime Montoya, PCHRD Executive Director and Dr. Agnes Mejia, Dean, College of Medicine with the MD – PhD Mentors and the new batch of Scholars.

The Department of Science and Technology (DOST) through the Philippine Council for Health Research and Development (PCHRD) - Institution Development Division (IDD) continuously supports the MD – PhD Molecular Medicine Program in collaboration with the University of the Philippines – Manila (UPM), College of Medicine. Currently, a total of forty seven (47) scholars are being supported on its fifth year of implementation. This scholarship program is a part of the Accelerated Science and Technology Human Resource Develop-

ment Program (ASTHRDP) of the DOST – PCHRD, which aims to develop human resource capacities to increase the country's global competitiveness and innovative capability in health research and development.

The MD – PhD Molecular Medicine is a pioneering eight-year straight curriculum program developed to produce physician-scientists which will further enhance basic and applied biomedical researches contributing to cutting edge technologies aligned with the national S&T goals. Furthermore, this pro-

gram is DOST's initiative to ensure that there will be enough pool of scientists who are experts in both clinical and research aspects of medical science in the future.

Maximum of ten students are chosen annually for this program. Applicants with undergraduate degree Latin honors (Cum Laude, Magna Cum Laude and Summa Cum Laude) with at least 90% NMAT rating qualify for the screening.

Fish conservation and water quality analysis in the development of the Upper Paunglaung Hydropower Project in Myanmar

By: Mie Mie Kyaw

ASEAN-U.S. Science and Technology Fellow (Myanmar), and Assistant Lecturer, Department of Zoology, University of Patheingyi, Ministry of Education, Myanmar.

Myanmar has an urgent need in protecting the well-being of the people by conserving fresh-water fisheries and water quality, and by radically increasing electricity production.

Fish is important as a major food for the growing human population need but fish stocks are gradually threatened in the Paung-laung river by the destruction of aquatic habi-

tats, water pollution (toxic chemicals), illegal economic production, use of small net mesh sizes, over-fishing and use of illegal methods such as battery shocked type fishing; all indicating an existing need for better conservation measures. Similarly, water quality is critically important not only for fish but also for local inhabitants that utilize the river as source of food and water.

Another problem in Myanmar is chronic shortage of electricity (currently available to only 33 per cent of the population). To at least answer these problems, there are plans for the expansion of hydropower projects but these plans may threaten aquatic life by altering flow rate and sedimentation rate, water quality and turbidity. These may also cause mixing of water current with

Continued on page 5

DOST revives *Balik Scientist Program*

By: Ma. Anya Yasmin A. Roslin

Project Officer I, Office of the Undersecretary for S & T

The study of the Department of Science and Technology - Science Education Institute (DOST-SEI) on the international migration of S&T workers published in 2011 states that, for the last 12 years, Filipino S&T workers outflow to other countries increased from 9,877 in 1998 to 24,504 in 2009. SEI explained that the Philippines may never catch up to the continuous rise of the number of S&T workers needed for a country to be industrialized if proper measures are not put in place, thus

the need for our S&T experts and R&D professionals to be in the country to provide technological development towards socio-economic prosperity.

The revival of the *Balik Scientist Program* (BSP) under DOST in 1993 paved way to the return to the country of highly trained Filipino S&T professionals and has been instrumental in providing solutions to national concerns, especially in areas where there are limited experts residing in the country.

Over the years,

DOST through the BSP encourages overseas Filipino Scientists and technology experts to return or reside in the Philippines to help accelerate R&D in areas such as agriculture, food security, disaster mitigation and management, biotechnology, genomics, drug discovery, and emerging technologies.

Presently, the BSP provides support to any foreign-based scientist, professional and technologist, who is of Filipino descent willing to share their expertise in accelerating S&T.



Local and private institutions seeking the technical assistance of a Filipino expert based abroad may also apply for DOST assistance through the Program.

Interested parties may send email to the BSP Secretariat at ousec.rd@gmail.com or you may visit our website at bsp.dost.gov.ph for more information.

Fish conservation ... from page 4

toxic chemicals and heavy metals from illegal economic production of gold and lead at the upstream and downstream of the upper Paunglaung Hydropower project. These hydropower outcomes may adversely impact on local inhabitants' health as well as fish survival and its breeding. Indeed, water sanitation and water supply become a challenge among local inhabitants. Hence, the need for implementation of appropriate design of reservoirs, water quality analysis system, dams and hydro-power equipment including the provision of fish ladders is essential.

Adequate provision must also be made for research accompanying projects to continuously assess

factors such as aquatic habitat destruction, water quality, and fish survival rates that will ensure conservation of fish and other aquatic life, sustainable supply of electricity, socio-economic improvement and health protection of local people. Direct impacts of chemical and other types of pollution in freshwater ecosystems were recorded by on-going researches. Various fish species are found in the reservoir and in the downstream of the hydropower dam, which are greatly affected by heavy metal contamination. Expertise from neighbouring ASEAN countries may be solicited to enhance the output of the research and better serve the community.



Fig. 1. Upper Paung-Laung Hydropower Project in Myanmar. The river serves as a source of livelihood (fisheries) among the local community as seen in the photos above (Photos taken by the author).



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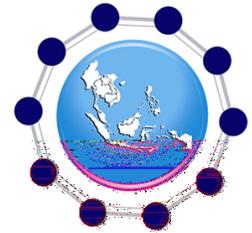
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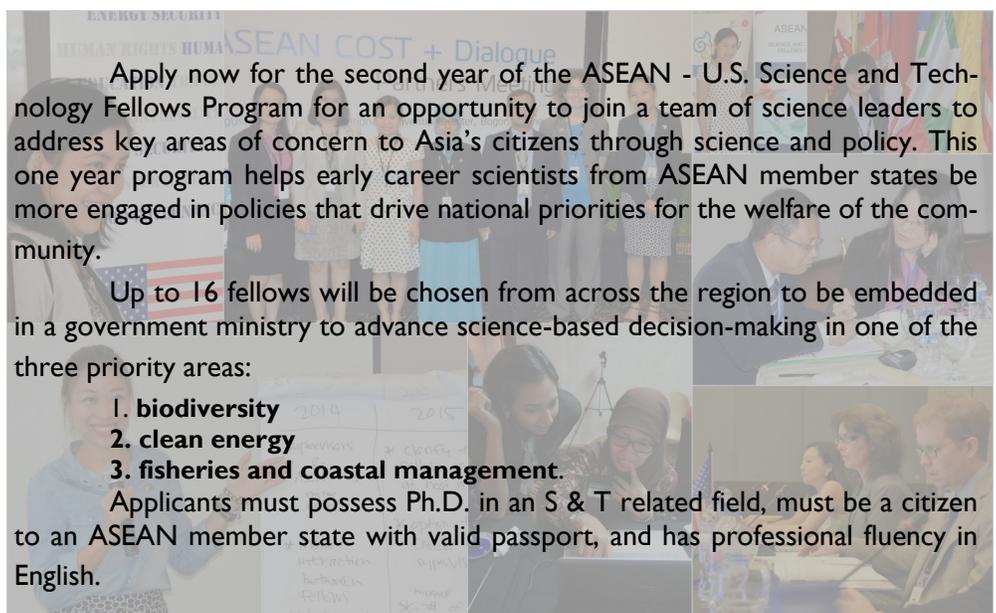


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