



Planetary Health in the Philippines: Urgency and Opportunity to Protect the Human Health and the Ecosystems' Health

The medical journal *The Lancet and the Rockefeller Foundation introduced the new field of planetary health in the year 2015. Planetary Health (PH) means the health of human civilization and the state of the natural systems on which it depends. In recent years, planetary health has evolved not just as an emerging field of scientific inquiry but also as a novel policy framework, invigorating ethical paradigm, and renewed basis for collective action that integrates both the health of people and the planet.

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DENR-EMB and private partners bare national finalists for the 2019 National Search for Sustainable and Eco-Friendly Schools

A total of 44 public and private schools have entered the national finals of the 2017 National Search for Sustainable and Eco-Friendly Schools, organized by the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB), in cooperation with the Department of Education (DepEd), Commission on Higher Education (CHED) and private sector partners.

Sixteen elementary schools, 16 high schools and 12 colleges made it through the regional eliminations and will now compete in their respective categories at the national level. Winners will be announced during the exhibition-cum-awarding ceremony that will be held on November 22, 2019 at the Novotel

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Planetary health orients itself around three core characteristics: a sharp focus on the human health impacts of accelerating environmental change; an emphasis on the scale of humanity's ecological footprint and the extent to which these global changes are likely to drive a majority of humanity's global burden of disease in coming years, hitting today's most vulnerable and future generations the hardest; and a sense of urgency to create a new trajectory for human stewardship of Earth's natural systems driven by these threats.

This field breaks down the silos and is incredibly interdisciplinary (has a unifying framework) as its bases lie in absolute respect for Mother Nature. It considers new queries on how to achieve essential changes in our relationships with natural systems. PH acknowledges the reality that a viable future is possible when diverse knowledge, skills, attitudes, and cultural understanding are brought to the table. Planetary health stems from the health sector's mounting recognition that the health of people and the health of the ecosystem/planet are tangled and indivisible.

We are now in a new geological era (a strongly suggested era), the Anthropocene, characterized by humanity's dramatic impact on Earth's natural systems. Although the average global citizen's health has improved over the past century, the health of our planet has sharply declined—putting historically recent, and fragile, public health gains at risk. Thus, the global environmental changes/ planetary health crises we experience in the form of climate change (cited as the top public health threat of the 21st century), biodiversity loss, ocean acidification, shortages of arable land and freshwater, pollution, changing biogeochemical flows and other ecosystem alterations are threatening the human health; affecting where, when, and how intensely infectious diseases emerge. Increased drought, declining pollinators, and extreme storms make it harder to grow food, and some crops are also becoming less nutritious because of atmospheric changes, making people more susceptible to malnutrition and disease. The most vulnerable are the most impacted. In a similar note, by witnessing the ecosystem's degradation can have severe consequences for our mental health - - eco-anxiety and eco-grief as new mental health terminologies are coined.

The Planetary Health Alliance (PHA) has given birth to a budding and exciting community of scholars and practitioners hailing not just from the field of human health but also from a wide diversity of disciplines and sectors. It gains an astounding reputation not only in academia but also in the realms of policy and practice, especially in the context of the United Nations Sustainable Development Goals. Planetary

health is about ensuring that Earth is a healthy home for humanity. It is also a movement to improve our stewardship of the planet, so that our legacy is an environment that improves human health rather than harming it.

As a tropical archipelagic country with a rising economy yet with chronic poverty and persistent inequality, the Philippines is undeniably a planetary health hotspot, prone to disasters and gradually affected by the manifestations of climate crisis. On the other hand, the country is also known for its rich natural capital, untapped energy, and inherent societal resilience, also has an immense potential to be a champion in planetary health transformation.

The batch (Short Course on Planetary Health Approach in Addressing Food Safety Considerations and Environmental Challenges held at the SEARCA Headquarters from 13-17 August 2018) is honored and privileged to co-organize this year's PATLEPAM's event. It would be the first national seminar-workshop with the theme centering in Planetary Health. Definitely a monumental educational event as the higher educational institutions (HEIs) in the country would come together on 26-28 November 2019 at Sulo Hotel, Quezon City. The main theme ***"Planetary Health: Preserving Our Home, Our Future"*** aims to generate planetary health solutions in the developing world - - introduction of the concept of planetary health to the Filipino academicians, discuss its domains, activities and current debates, explore the potential role of the country in this unifying new discipline and putting the Philippines on the map of Planetary Health as it embraces the moral imperative to take action. –

Jennet E. Razo, Ph.D. (PHA 2019 Travel Scholar ; Professor, Dept. of Biology, School of Natural Sciences, St. Louis University, Baguio City / Ph.D. in Environmental Science Candidate, School of Environmental Science and Management, University of the Philippines Los Baños)

References/Suggested links:

<https://planetaryhealthalliance.org/planetary-health>

<https://www.youtube.com/watch?v=G2yYfLZfLOI&t=422s>

The Future of Planetary Health and the Role of the Philippines by Renzo Guinto, MD DrPH (PH Lab and Harvard University)

https://fanssea.searca.org/news-and-updates/fanssea-news/searca-concludes-short-course-on-planetary-health?fbclid=IwAR0aMHpa_RttAQeI-GkmRqFzVaIKIAGTG7CWFJHxqPrye9Yik-kXgvWvhFMo

DENR-EMB and private partners ... from page 1

Cubao, Quezon City as part of the National Environmental Awareness Month pursuant further to the National Environmental Awareness and Education Act also known as Republic Act No. 9512.

DENR-EMB Director Willian Cuñado said the schools' response to the call for entries was "overwhelming". Now on its one decade, the nationwide competition aims to recognize educational institutions from the elementary, high school and tertiary levels with the best sustainable and environment-friendly programs and activities.

"We were amazed by their creativity and their commitment in implementing eco-friendly practices," he said.

"We need to start teaching our kids as early as we can to take responsibility in safeguarding our environment. Schools are dynamic focal points of learning and powerful vehicles of change. Parents and teachers can work together to spread the wonders of living an environmentally-smart lifestyle," he added.

Private sector partners to the program are Nestle Philippines, Inc. and One Meralco Foundation, Inc.

Prizes for the national level include: P50,000 - First Prize; P40,000 - Second Prize; P30,000 - Third Prize and plaques of recognition for elementary, secondary and tertiary education level winners.

For the elementary school level, the regional champions are: Rosa L. Susano Elementary School, Novaliches, Quezon City; Bolog Elementary School, Kiangnan, Ifugao; North Central Elementary School, Dagupan City, Pangasinan; Santiago North Central School SPED Center, Santiago City, Isabela; Cambitala Elementary School, Pantabangan, Nueva Ecija; Bukal Sur Elementary School, Candelaria, Quezon Province; Mag-saysay Central School in Palawan; Caranan North Elementary School, Pasacao, Camarines Sur; Yubo Elementary School, La Carlota City, Negros Occidental; La Paz Elementary School, Bogo City, Cebu; Tinambacan Elementary School, Jaro, Leyte; Zamboanga Central School SPED Center, Zamboanga City; Sagay Central School in Camiguin; Col. Rosalio C. Saldares Elementary School, Tagum City, Davao del Norte; Pakil Elementary School, Lebak, Sultan Kudarat and Sta. Josefa Central Elementary School in Agusan del Sur.

For the high school level, the regional champions are: Muntinlupa National High School, Muntinlupa City;

Baguio City National High School, Baguio City; Bang-bangolan National High School, San Fernando City, La Union; Santiago City National High School, Santiago City, Isabela; Camp Tinio National High School, Cabanatuan City, Nueva Ecija; Alabat Island National High School in Alabat, Quezon Province; Canubing National High School in Calapan City, Oriental Mindoro; Tiwi Agro-Industrial School in Albay; Concepcion L. Cazeñas Memorial School, Tobias Fornier, Antique Province; Lazi National Agricultural School in Siquijor; Isabel National Comprehensive High School in Leyte; Diplahan National High School in Zamboanga Sibugay; Bukidnon National High School in Malaybalay City; Salvacion National High School, Sto. Tomas, Davao del Norte; Kalamansig National High



School, Sultan Kudarat and Agusan del Sur National High School in the Municipality of San Francisco.

For the college level, the schools that made it to

the national level are: Urdaneta City University in Pangasinan; Isabela State University – Cabagan Campus, Isabela; University of the Assumption, San Fernando City, Pampanga; Batangas State University in Batangas City; Western Philippines University, Aborlan, Palawan; University of Sto. Tomas Legazpi in Albay; John B. Lacson Colleges Foundation, Bacolod City; Cebu Normal University, Cebu City; Universidad de Zamboanga in Zamboanga City; St. Mary's College of Tagum, Inc, Davao del Norte; Notre Dame of Dadiangas University, General Santos City and Agusan del Sur State College of Agriculture in Bunawan.

Prizes shall also be awarded for the special category entitled "Nestle Leadership for Water". This award is aimed at recognizing and promoting water management solutions and practices of schools. A prize of Php20,000 will be given to each of the winners at the national level for college, high school and elementary school categories. A prize of Php10,000 and certificate of recognition will be awarded to each of the regional winners of all categories.

"Education is a powerful tool to inspire positive behavior and attitude towards the environment and water stewardship. When students learn about the environment and water stewardship – they will not only see this in their textbooks but feel it in their surrounding as well, thanks to the many school policies and initiatives in place. Nestle is very much looking forward to this multi-sectoral partnership which we believe will encourage the nation, through our schools, to take care of our precious natural resources." said Maria Christine Ponce-Garcia, Assistant Vice President for Corporate Affairs of Nestle Philippines.

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For the elementary school level, the regional water leadership champions are: Xavier School San Juan, San Juan City; Balbal-losa Elementary School, San Juan, La Union; Santiago North Central School SPED Center, Santiago City, Isabela; Cambitala Elementary School, Pantabangan, Nueva Ecija; San Isidro Elementary School, Batangas City; Teresa C. Montellano Memorial School in Calapan City, Oriental Mindoro; Caranan North Elementary School, Pasacao, Camarines Sur; Tagbac Elementary School, Oton, Iloilo; La Paz Elementary School, Bogo City, Cebu; Ipil Elementary School, Ormoc City, Leyte; Zamboanga Central School SPED Center, Zamboanga City; Sagay Central School in Camiguin; Doña Asuncion Hizon Elementary School in Davao City; Katangawan Central Elementary School in General Santos City and Tungao Central Elementary School in Butuan City.

For the high school level, the regional water leadership champions are: Muntinlupa National High School, Muntinlupa City; Balong National High School, Tabuk City, Kalinga; Bangbangolan National High School, San Fernando City, La Union; Santiago City National High School, Santiago City, Isabela; Camp Tinio National High School, Cabanatuan City, Nueva Ecija; Talumpok Integrated School in Batangas City; Canubing National High School, Calapan City, Oriental Mindoro; Tiwi Agro-Industrial School, Albay; Granada National High School – Ballesteros Campus, Carles, Iloilo; Cabacungan National High School, Dulag, Leyte; Diplahan National High School, Zamboanga Sibugay; Bukidnon National High School in Malaybalay City; Salvacion National High School, Sto. Tomas, Davao del Norte; Malalag Cogon National High School, Malunog, Sarangani and Bayugan National Comprehensive High School, Bayugan City, Agusan del Sur.

For the college level, the schools that made it as regional water leadership champions are: Urdaneta City University in Pangasinan; University of the Assumption, San Fernando City, Pampanga; Batangas State University, Batangas City; Western Philippines University, Aborlan, Palawan; University of Sto. Tomas Legazpi, Albay; John B. Lacson Colleges Foundation of Bacolod City; Universidad de Zamboanga, Zamboanga City; Southern Baptist College, M'lang, Cotabato and Agusan del Sur State College of Agriculture and Technology in Bunawan.

Another special award entitled “Meralco Energy Leadership Award” will recognize schools that promote practices and initiatives in electrical safety, energy effi-

ciency and conservation. A prize of Php20,000 will be given to each of the winners at the national level for college, high school and elementary school categories. A prize of Php10,000 and certificate of recognition will be awarded to each of the regional winners of all categories.



Mr. Jeffrey Tarayao, President of One Meralco Foundation stated that "One of the things we can do as a foundation is help public and private schools better understand energy's role in our lives as it's something we should take care of,"

For the elementary school level, the regional energy leadership champions are: Rosa L. Susano Novalliches Elementary School, Quezon City; Pagudpud Central Elementary School, Ilocos Norte; Victoria Elementary School, San Mateo, Isabela; Cambitala Elementary School, Pantabangan, Nueva Ecija; San Isidro Elementary School, Batangas City; Dolores Elementary School in Sta. Cruz, Marinduque; Caranan North Elementary School, Pasacao, Camarines Sur; Tagbac Elementary School, Oton, Iloilo; La Paz Elementary School, Bogo City, Cebu; Tinambacan Elementary School, Jaro, Leyte; Zamboanga Central School SPED Center, Zamboanga City; Sagay Central School in Camiguin; Mangayon Elementary School in Compostela; Banisil Central Elementary School, General Santos City and Cabadbaran South Central Elementary School in Agusan del Norte.

For the high school level, the regional energy leadership champions are: Lakeview Integrated School, Muntinlupa City; Lepanto National High School, Mankayan, Benguet; Careal National High School, Dagupan City, Pangasinan; Raniag High School, Ramon, Isabela; Camp Tinio National High School in Cabanatuan City, Nueva Ecija; Talumpok Integrated School, Batangas City; Calintaan National High School, Occidental Mindoro; Tiwi Agro Industrial School, Albay; Granada National High School – Ballesteros Campus, Carles, Iloilo; Dr. Geronimo B. Zaldivar Memorial School of Fisheries, Albuera, Leyte; Diplahan National High School, Zamboanga Sibugay; Bukidnon National High School in Malaybalay City; Nabunturan Comprehensive National High School in Compostela Valley; Johnny Ang National High School, General Santos City and Claver National High School in Surigao del Norte.

For the college level, the schools that made it as regional energy leadership champions: Urdaneta City University in Pangasinan; University of the Assumption, San Fernando City, Pampanga; Batangas State University, Batangas City; Western Philippines University, Aborlan, Palawan; University of Sto. Tomas Legazpi, Albay; John B. Lacson Colleges Foundation of Bacolod City; Universidad de Zamboanga, Zamboanga City; Notre Dame of Dadiangas University in General Santos City and Agusan del Sur State College of Agriculture and Technology in Bunawan.



The Environmental Pollution Studies Laboratory (EPSL) of the Institute of Environmental Sciences and Meteorology (IESM), University of the Philippines Diliman have been actively conducting studies in partnership with various stakeholders and offices in the Philippines and abroad. Headed by Dr. Mylene G. Cayetano, the EPSL aims to understand environmental pollution, its impacts on the environment and societal implications using scientific approach.



A project funded by the UP Natural Sciences Research Institute (NSRI), one of their recent initiatives was the development of a method for the spatial estimation of $PM_{2.5}$ using satellite imaging, local emission factors and activity data in Cabanatuan, Nueva Ecija. Using air samplers, they monitored the area of Cabanatuan during both the wet and dry seasons of 2015, and analyzed the $PM_{2.5}$ in the residential, commercial and field areas.

A study was also conducted in Quezon City in 2017, in partnership with BEMAC Electric Transportation Philippines Inc., comparing the levels of carbon dioxide, nitrous oxide and particulate matter emissions between conventional and electric tricycle fleets.

A recent initiative, done with Bicol University also studied the effects of the 2018 Mount Mayon eruption to the air quality in Guinobatan, Albay. The ash fall brought about by prevailing winds affected most of the nearby city and municipalities, covering most of the areas in a one-centimeter thick blanket of ash and seeping in through the closed windows and doors of homes.

EPSL, with the Asian Development Bank, is currently conducting a detailed inventory of the different household cooking practices and field sampling indoor cooking air pollution, monitoring $PM_{2.5}$, carbon monoxide, carbon dioxide, nitrogen dioxide and sulfur dioxide levels.

One initiative, funded by the Office of the Vice Chancellor for Research and Development, currently aims to check the population of benthic macroinvertebrates in Cabuyao, Laguna and how it changes upstream and downstream, and depending on the seasons. This initiative also checks whether the rivers' water quality parameters are compliant with the water quality guidelines of the Department of Environment and

Natural Resources and if it has a direct effect on the benthos' population.

The long-standing AirToday.ph initiative with the Rotary Club of Makati and the Lung Center of the Philippines which monitors the air quality in four major areas in the metro, specifically in Ayala, EDSA-Muñoz, the Lung Center of the Philippines, and along España Boulevard using four roadside monitoring stations. The air quality at each site, which can range from very good to hazardous, is recorded per minute and compiled monthly, and can be tracked publicly using the www.AirToday.ph website and the airtoday.ph mobile phone app (android and iOS).

Some programs and projects of EPSL have developed further from previous years like Program SCALE's third component, Project TRACe Fish which aims to trace organics and heavy metals in commodity fish, create method development optimization, and check the extent of human impacts on the aquaculture in Laguna de Bay. Together with the Laguna Lake Development Authority, and the Department of Science and Technology, the EPSL established research sites in Biñan and Pila, Laguna, set up fish cages for *tilapia* and *bangus*, and regularly checked the water quality parameters in the research sites such as pH levels, temperature, dissolved oxygen and nutrients like ammonia-nitrate, nitrous-nitrate, and phosphate.

As Program SCALE's now on its second year, the researchers continuously monitor the water quality of Laguna Lake and are studying the Lake Primary Productivity or how productive the lake is since fisherfolk rely on the natural population of producers like algae and plankton for the fish. They have also begun analyzing the flesh of the harvested fish for any presence of heavy metals like lead and cadmium.

For the past year, EPSL has conducted numerous studies and initiatives that focus on air and water quality, and each project has proven their significance in furthering development and raising awareness about issues that affect not only those in the environmental fields but also the policy makers and the general public.

The EPSL is located at the Institute of Environmental Science and Meteorology, National Science Complex, UP Diliman.

For more information, you may contact the head of EPSL,

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CLSU'S INITIATIVES ON ENVIRONMENTAL RESEARCH AND EXTENSION

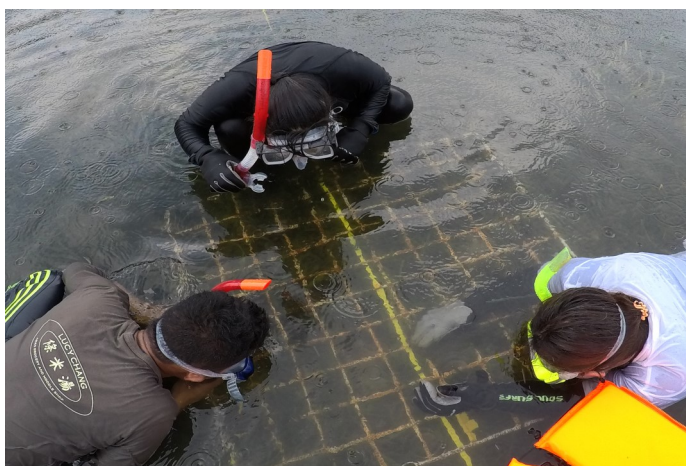
Development of Botanical Pesticides



The Institute for Climate Change and Environmental Management (ICCEM) received Php 4.9M from Department of Science and Technology-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) for the project titled “Development of Botanical Pesticides from Indigenous Plants in Selected Forest Ecosystems in Central Luzon.”

This three-year project, spearheaded by Dr. Annie Melinda Paz-Alberto, aims to develop botanical pesticides from indigenous plants in selected forest ecosystems in Central Luzon against fungal pathogens of onion (*Colletotrichum gloeosporioides*, *Gibberella moniliformis*, *Botrytis cinerea* and *Aspergillus niger*), eggplant (*Phytophthora infestans*) and tomato (*C. gloeosporioides*, *Alternaria solani* and *P. infestans*), as well as insect pests of onion particularly the armyworm and leaf miner, and green herbicides against *Echinochloa* sp. and *Cyperus* sp.

The project entails upgrading of the Biotechnology Laboratory, thus DOST-PCAARRD granted another Php5M from their Institutional Development Grant Program. New set of laboratory equipment will be acquired to detect the phytochemical components and chemical compounds of the indigenous plants responsible in the pesticidal properties of these plants, mass production of explants, modern media preparation and maintaining a sterile environment and standard laboratory practices.



Coastal Resource Management in Zambales

The Commission on Higher Education (CHED) granted ICCEM P14.9M for the project, titled “Coastal Resource Management integrating Coastal resource assessment and valuation, Carrying capacity, Climate change adaptation and Disaster risk reduction in the Province of Zambales: A Systems Approach”.

Dr. Annie Melinda Paz-Alberto oversees the attainment of its goal of optimally allocating land and water use regarding Zambales as a system. It has five (5) project components: (1) Bio-physical Assessment, Socio-economic Assessment Carrying Capacity and Economic Valuation; (2) Disaster Risk Assessment; (3) Assessment of Climate Change Adaptation Strategies; (4) Coastal Resource Management using Gurobi software; and (5) IEC Production, Promotion and Technology Transfer. The project commenced in July 2018 and is expected to end in June 2020.



LGU Palayan City LCCAP Training

The Institute for Climate Change and Environmental Management conducted a 10-day training workshop on the Formulation of Enhanced Local Climate Change Action Plan (LCCAP) last March 18-22 and March 25-29, 2019. It was attended by the planning core team of the local government unit of Palayan City, Nueva Ecija with a total number of 27 participants.

The team eagerly participated and cooperated in the various activities necessary to formulate an LCCAP by going through the four (4) modules: Module A: Getting Ready for LCCAP Formulation; Module B: Data Gathering, Assessment and Analysis; Module C: Planning, Prioritizing, and Budgeting; and Module D: Monitoring, Evaluating, Adjusting and Modifying. Greenhouse Gas Inventory is the additional feature of the enhanced LCCAP.

On the last day of the training, representatives from each assigned sector presented their draft plans. The training-workshop was made possible through the City Disaster Risk Reduction Management Office and City Planning and Development Office, headed by Mr. Ferdinand Hidalgo and Engr. Margarita Angeles.

WESTERN MINDANAO STATE UNIVERSITY

Forum on Environmental Impact Assessment (EIA) Capability Building at WMSU Social Hall last August 30, 2019

By: Milagros S. Delfino
CFES, Faculty

The College of Forestry and Environmental Studies (CFES) in partnership with the Environmental Management Bureau-Department of Environment and Natural Resources (EMB-DENR) R-IX conducted a Forum on Environmental Impact Assessment (EIA). The events aims to update the stakeholders on the current EIA process in the country. The said activity was participated in by by the faculty, staff and students from the College of Forestry of the Western Mindanao State University .



Forester Rene S. Giron, EMB-DENR, R-IX giving overview of EIA in the Philippines.

Workshop on the Preparation of Teaching Tools and Materials for the BS Environmental Science Curriculum of WMSU last June 25-26, 2019 at the Garden Orchid Hotel, Zamboanga City

By: Kean Roe F. Mazo
CFES Faculty



Dr. Milabel E. Ho, University President together with the Participants and Resource Persons

Aiming to provide a quality instructional material for BS Environmental Science (BSES) program of the university, a workshop on the preparation of Teaching Tools and Materials (TTM) was conducted last June 25-26, 2019 at the Garden Orchid Hotel, Zamboanga City.

The workshop was designed to capacitate the participants in writing effective and quality instructional materials for WMSU-CFES students.

The workshop was sponsored by the USAID- Protect Wildlife as one of their strategies to assist local universities to strengthen and develop their extension and research and development agenda on biodiversity conservation.

The workshop also outlined the University's Teaching Tools and Materials and enabled the university to prepare in electronic form based on the OBE-dized syllabi that was developed.

WMSU Arbor Day Celebration

The Western Mindanao State University participated in the tree planting activity that was conducted in celebration of Arbor Day. The activity was spearheaded by the City Government of Zamboanga through the Office of the City Environment and Natural Resources last June 25, 2019 at the Pasonanca Natural Park.



Forester Kalnasa, WMSU CFES Faculty doing the Planting of the Tree

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