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Making science work for you

Inside

Prepare for "The Big One" DOST makes Valley Fault Atlas available online

Are you preparing for "The Big One"?

For those not yet aware of what 'The Big One" is, then it is high time to know because it can spell a big difference in our lives – of being safe or not when the ground shakes and the earthquake comes at the least expected time.

According to the Department of Science and Technology - Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS), the Big One or an earthquake with a magnitude of no less than 7.2 in the Richter scale may be experienced in our lifetime. Also, there are specific locations that are considered most vulnerable to said earthquake because of their proximity to the so-called West Valley Fault.

The West Valley Fault system is an imaginary line marking the area where the different fault systems are located underground and are actively moving from where a big earthquake may originate.

The VFS is an active fault system composed of two fault segments: the 10-km long East

continued on page 2

Int'l Math Olympiad winners bag medals anew in local tilt

By Marco V. Melgar
S&T Media Service, *DOST-SEI*

Medalists in last year's International Mathematical Olympiad (IMO) proved their dominance anew as they comprised the Top Three winners in this year's Philippine Mathematical Olympiad (PMO).

Farrell Eldrian Wu of MGC New Life Christian Academy, first runner up in the previous PMO, this time topped the national tilt. He was also bronze medalist in the 56th IMO held in Chiang Mai, Thailand in July last year. With the victory, Wu took home P20,000 cash prize, trophy, and gifts from Sharp Calculators.

Joining Wu in the Top Three are national team co-members, Kyle Patrick Dulay of Philippine Science High School – Main Campus and Albert John Patupat of Holy Rosary College, who placed first and second runners-up, respectively. Dulay received P15,000 cash prize while Patupat got P10,000 along with trophies and gifts from Sharp Calculators.

Dulay won an honorable mention in last year's IMO while Patupat, then a rookie in the competition, brought home a bronze medal.

The winners were awarded in a ceremony held at the University of Santo Tomas recently.

With the result, Department of Science and Technology - Science Education Institute (DOST-SEI) Director Josette Biyo congratulated the winners and finalists, and expressed belief that the country is "getting closer and closer towards winning [its] first gold at the IMO."

"I'm sure that our team in the IMO always has a fighting chance that would increase each year that we join the IMO. And this PMO is one of our bases in having that feeling," Biyo said as she lauded the Mathematical Society of the Philippines (MSP) for another successful PMO.

"Our time to win gold at the IMO is coming very soon," she added.

The winners, together with the 17 other PMO finalists, will undergo training in April to May to determine who will comprise the national team set to compete in the 57th IMO in Hong

continued on page 2

Prepare for...
from page 1

Valley Fault (EVF) in Rizal and the 100 km long West Valley Fault (WVF) that runs through different cities and towns of Bulacan, Rizal, Metro Manila, Cavite, and Laguna. The WVF can generate a large earthquake with a magnitude of 7.2 or commonly known as "The Big One" which poses threat to people, livelihood, buildings, and infrastructures.

Many studies and researches on these fault system resulted in a collection of maps called the Valley Fault System (VFS) Atlas. This is a printed handbook of large scale maps showing in detail areas traversed by the Valley Fault System.

The good news is that the atlas can now be downloaded from the website of DOST-PHIVOLCS for easier access. The download is for free.

"The VFS Atlas, a tedious work done by our geologists from DOST-PHIVOLCS, was launched and distributed to local government officials on May 18, 2015. It shows areas traversed by the Valley Fault System," explains DOST Secretary Mario G. Montejo. "Since information on geological hazards is very important for disaster planning, we have been giving free copies of the VFS Atlas in CD form to different stakeholders upon request at the DOST-PHIVOLCS Main Office."

Montejo further said that the VFS Atlas may now be downloaded from DOST-PHIVOLCS' website at www.phivolcs.dost.gov.ph. As of December 2015, DOST-PHIVOLCS counted 99,609 registered downloads. PHIVOLCS has likewise given out 1,506 soft copies. Through these medium, the DOST-PHIVOLCS is able to disseminate the information to as many people and generate awareness on the need to be prepared.

Dr. Renato U. Solidum, Jr., Director of DOST-PHIVOLCS, says that the "key to people's awareness and preparedness for earthquakes, appropriate land use, contingency planning for disaster response, and design of houses, buildings and infrastructures, is the location of active faults. The Valley Fault System Atlas was conceptualized as a handy reference for everyone to serve as a guide in making sure that areas traversed by active faults are avoided as sites of houses and structures are considered in various mitigation and response actions to enhance the safety and resilience of communities to strong earthquake events."

The VFS Atlas will serve as a tool for disaster preparedness and management, an advocacy espoused by the DOST and its warning agencies to make communities safer in times of calamities. This initiative by DOST-PHIVOLCS strengthens the efforts of the department to make information readily available to all and help communities prepare in advance.

"The VFS Atlas will be our guide to making our communities safe and secured from the possible negative effects of an earthquake; by making our people aware of the hazards they can plan and implement preparedness programs like earthquake drills and retrofitting their houses. In so doing the DOST-PHIVOLCS is empowering our communities and our people to embrace a culture of safety because we cannot stop natural hazards from coming but we can definitely prepare to avert disasters from happening," concluded Montejo.

Winners of this year's Philippine Mathematical Olympiad Farrell Eldrian Wu of MGC New Life Christian Academy (middle), Kyle Patrick Dulay of Philippine Science High School – Main Campus and Albert John Patupat of Holy Rosary College during the awarding ceremony. Photo courtesy of www.pmo.ph.

Int'l Math...
from page 1

Kong this July 6-16, 2016. This year's IMO Philippines' Team Leader, Louie John Vallejo of MSP, will spearhead the summer training along with professors from UP and Ateneo de Manila University.

Biyo said DOST-SEI will continue to support the PMO and the country's participation in IMO and other international competitions as these platforms "clearly bring the best of our best students" who are eyed to become science professionals in the future.

"More than anything, we encourage you all to not just accept the challenge of pursuing excellence through competitions, but to build your character founded on honesty, integrity and nationalism. Be the leaders that we all desire to have," Biyo said.

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Science chief eyes copying "civet" coffee production process using S&T

By Joy M. Lazcano
S&T Media Service, *DOST-STII*

Department of Science and Technology (DOST) Secretary Mario G. Montejo revealed recently that he wants to look into the process of how the palm civet cat enriches the flavor of coffee and replicate it using science and technology.

This he shared during one of the pit stops in DOST Region 12's Science Nation Tour dubbed as Agham na Ramdam at the provincial capitol of Sultan Kudarat where the Regional Development Council (RDC) was in session.

"Very promising talaga itong civet coffee (Civet coffee is really very promising)," exclaimed Montejo. "Imagine the same coffee bean which cost P600 per 100 kilograms is sold around P8,000 once the civet digested and excreted it."

Palm civet *(Paradoxurus hermaphroditus)*, or balos in Cotabato, belongs to the family of Viverridae, a meerkat-like animal living in tropical forest and feast on berries.

The region, which is more popular for its tuna industry, is also making headways in the thriving coffee industry as its Mt. Matutum in South Cotabato is home to many B'laan tribal lands teeming with coffee plantations, including civet cats with their precious droppings.

"We would like to investigate what happens inside the civet that adds value to the coffee," explains Montejo.

Civets are known for their coffee bean droppings, considered as the most expensive coffee in the world. The cats have a natural process of digesting coffee beans, and turning the ingested beans into a flavorful beverage is something that DOST would want to study in the future.

At the RDC meeting presided by the provincial governor and includes a delegation of chief executives from local government and regional representatives of various national government agencies, Montejo presented the science department's programs and on-going projects that local government can possibly implement for their constituents.

He added that developing the local coffee industry would provide a sustainable growth as the local enterprises are providing the indigenous people who produce the raw coffee beans a stable livelihood. This is aside from the locals' protection of the natural habitat of civet.

"Just awhile ago, I called Secretary Mon Paje," Montejo revealed. "I told him of the good things that I have found out when I came here. So we plan to return so I can let him see it for himself."


civet cat.jpeg
Palm Civet

The science department is already on the eighth leg of its Science Nation Tour, a road show highlighting DOST programs and technologies aimed at making science and technology felt by the people.

Expert urges use of local scientist's studies for reclamation policies

By FATIMA M. MONCADA
S&T Media Service, *DOST-STII*

The Philippines has its own Environmental Impact System and policies for reclamation projects in place but Dr. Kelvin S. Rodolfo, corresponding member of the National Academy of Science and Technology (NAST), believes that these can be better implemented if the government will tap local scientists. NAST is an attached agency of the Department of Science and Technology (DOST).

In a DOST-NAST organized policy discussion held recently at Hotel Jen in Pasay City, Dr. Rodolfo proposed that rather than employing foreign consultants in feasibility assessments of reclamation projects in the country, Filipino scientists should instead be prioritized especially for projects ran by the government.

He lamented that though Philippine science is done well by Filipino scientists, they are "ignored and foreign consultants are instead used."

According to Dr. Rodolfo, the current practice is that feasibility assessments offered by international non-profit organizations such as the Japan International cooperation Agency (JICA) are used because they are free. Rodolfo pointed out that there are already a number of local scientific researches that assessed the viability of reclamation in various areas of the country.

Dr. Ely Anthony Ouano, former director of the Environmental Management Bureau who also delivered a lecture on the Environmental

continued on page 2


Dr. Kelvin S. Rodolfo, corresponding member of the DOST-National Academy of Science and Technology, discusses how Philippine science produced by Filipino scientists can aid in the enhancement of reclamation policies in the country.

Expert urges...
from page 3

Impact Assessment and its Use in Decision Making, said in an open forum that foreign-aided government projects are lawfully open for bidding to foreign consultants. And since organizations like JICA are offering free services, they are the ones who are usually chosen for feasibility assessments.

However, there are instances when projects are declared feasible despite the hazards and risks identified by separate studies done by Filipino experts.

Architect Felino "Jun" A. Palafox, Jr. of Palafox Architecture Group, Inc. related his experience during the conception of the 1976-1977 Metro Manila Plan (MMETROPLAN), a comprehensive urban plan for the country's capital. In his discussion on the advantages and disadvantages of reclamation, he mentioned that one of his recommendations regarding the Manila Bay area was that "No further developments shall be done beyond what was already reclaimed in 1976 until comprehensive detailed planning socio- economic, financial, engineering studies, etc. are done in the wider urban context of Manila Metropolitan region."

Academician Fernando Siringan explained in his introductory discussion that two factors should be considered in planning for reclamation, namely relative sea level rise and coastal erosion. Both phenomena, according to Dr. Rodolfo, are affecting the Manila Bay area negatively. This means that the sea level is continuously rising and the soil along the shore are further subsiding, making the area a hazardous site for reclamation. Additionally, the Manila Bay shore has a soft slope that makes the area more vulnerable to storm surges.

Arch. Felino "Jun" Palafox, Jr. says that there is nothing wrong in reclamation projects as long as it follow sound engineering practices.

Nevertheless, 40 years since Arch. Palafox's 1976 MMETROPLAN recommendation, a number of reclamation projects had already been completed along the Manila Bay.

Arch. Palafox, however, recognized that reclamation can in fact be beneficial to the Philippines. "A properly planned, designed, engineered, and implemented reclamation area can do the country a lot of good if done properly in the right place, at the right time, at the right land-use, type, and density, and correct comprehensive planning and development," he said.

The challenge then, according to Dr. Rodolfo, is for the government to recognize the studies made by Filipino scientists so that the country can avoid facing catastrophes caused by the improper implementation of reclamation.

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ROAD TRAIN, YOU'RE MY KIND OF RIDE. The DOST Hybrid Electric Road Train participated in the Bayanihan sa Daan Movement road sharing exercise on February 7, 2016 as it went on a 5.5 kilometer demo run from the SM Mall of Asia grounds to the Luneta Park and back. Bayanihan sa Daan showcased the idea of sharing the road using highly efficient alternative mass transport system like the DOST Road Hybrid Electric Road Train, a Filipino developed mass transport vehicle that runs both on diesel fuel and electricity using a 300kVA generator with 260 motor vehicle batteries. The train is composed of five interlinked airconditioned coaches that has a capacity of 240 passengers per trip. (Photo courtesy of the Bayanhan sa Daan Movement)