



# THE Industrial WHEEL

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## EVSU hosts second int'l research confab



PHOTO BY LLB ARPON

**FOR ASEAN AND BEYOND.** Prominent figures in the field of research namely (from left to right) Dr. Aiko Sakurai, Dr. Elizabeth Maly, Dr. Dominador O. Aguirre, Jr., Dr. Ramil Perez, Dr. Ma. Cristina Caintic, Dr. Felixberto Avestruz, Dr. Zahangir Alam, Dr. M Sultana Alam, Dr. Paciente Cordero.

By JOHN SYDRIC T. RENDEZA

Researchers from different parts of the country gathered yesterday during the second International STEAM Research Congress at Summit Hotel, Marasbaras, Tacloban City, to tackle innovations in the fields

**of science, technology, engineering, agriculture and mathematics.**

With 227 registered professionals, graduate students, undergraduate and senior high students as participants, the research congress is anchored to the theme “Innovative, Novel, and Value-Laden Technologies for ASEAN and Beyond”.

Dr. Dominador O. Aguirre, Jr., university president and the congress chair, said that Eastern Visayas State University is hosting the conference for the second time now as a way to maintain an environment where higher learning institutions play a high significance to science and development.

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## NEWS

# Malaysian innovator talks on gender gap in STEM education

By CHRISTIANNE FAITH  
A. MAHINAY

**Although women's engagement in the higher education is increasing, they are still underrepresented in the Science, Technology, Engineering and Mathematics (STEM) fields according to studies carried out by Dr. M Sultana Alam, Assistant Professor from the Universiti Tunku Abdul Rahman, Malaysia.**

Dr. Alam cited that only 17 women have won a Nobel Prize in physics, chemistry or medicine since Marie Curie in 1903, compared to 572 men.

"Equality is very important in the Science and Technology in order to understand one of the factors and key points on the lack of participation on STEM," Dr. Alam said.

Moreover, women are found to be not continuing their position because of their traditional roles and technology perceptions.

This underrepresentation of women in STEM translates into the loss of talent and knowledge which hinders countries

from reaching their maximum development.

Meanwhile, Prof. Benedicto Militante from the EVSU-Tanauan Campus raised a question to Dr. Alam as to whether there is an impact in the country's economy and what are the suggested procedures if there is a greater percentage of males than females enrolling to STEM-related subjects particularly during colleges or universities admission test.

"There should be campaigns or seminars to

be conducted for this issue because the problem is not many women are educated in STEM educations. We have to change the ideology and belief system," Dr. Alam answered.

Undergraduate student researchers from the University like Mary Yolle S. Corcilles has also addressed her questions to Dr. Alam on the discussion if the Malaysian professor would still consider the factors that she mentioned in her presentation to be still the real factors that influence women in choosing their career paths especially in STEM education considering the fact that women are now given the *STEM continued on Page 4*



PHOTO BY LLB ARPON

**SOCIAL CLIMATE.** Dr. M Sultana Alam of University Tunku Abdul Rahman in Malaysia discusses about gender differences in competitiveness to better understand social science in economics.

# Philippines needs critical mass of scientists - Dr. Culaba



PHOTO BY LLB ARPON

**INNOVATIVE WAYS.** De La Salle University Full Professor and EVSU alumnus, Dr. Alvin B. Culaba of the National Academy of Science and Technology focused his keynote speech on creating value-laden innovation in a circular economy.

By CHRISTIANNE FAITH  
A. MAHINAY

**If the country really wants to be globally competitive, it has to create and push more innovations from being physically resource-based and labor-intensive to being more capital-intensive said Dr. Alvin B. Culaba, keynote speaker and professor from the De La Salle University, Manila.**

“At the moment, we are in the company of

these countries now. At least not in the lowest level of competitiveness. But we are actually moving forward. So if we want to be globally competitive, we have to move up the value ladder,” Dr. Culaba emphasized.

According to trends, between 2012 and 2018, the Philippines’ competitiveness has gone down by 65 but landed around 94 in 2012.

“You can see that our global competitiveness

of the Southeast Asian technology is not very encouraging. But at least there is always an opportunity for us to grow or to improve. Of course when we say we are at the bottom, there is no way but to go up. If you are at the top, that’s even the most difficult because to sustain at the top, what likely is going to happen is that you will go down,” he added.

Dr. Culaba is thinking if it is a good sign that the country has been moving up for few years but gone down in the recent two years.

“As a scientist, we should be able to explain why we have a drop in the recent times, our competitiveness ranking. Our capacity for innovation though is still at the rank 41st and you know this is for the period of 2011-2017,” he mentioned.

Dr. Culaba with other researchers see this statistics as the country’s weak spot or is having a difficulty in sustaining the country’s researches or innovations.

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## NEWS

# Biochemical engineering for sustainable innovation

By ALYSSA ISABEL  
D. PAGARAO

As the field of technology and engineering brought several environmental destructions, one of our engineers in the Asia Pacific Region, Professor Dr. Md Zahangir Alam continues to promote a sustainable and economical engineering innovation.

Dr. Zahangir Alam a Chair of Bioenvironmental Engineering Research Centre (BERC) from Kuala Lumpur is one of the plenary speaker of the 2nd International STEAM Congress at Summit Hotel, Tacloban City on August 28, 2018 discussed sustainability



PHOTO BY LLB ARPON

**WASTE MINIMIZATION.** Biochemical Engineering Professor, Dr. Zahangir Alam from Malaysia promotes the utilization of economical biochemical production for life sustainability in his plenary session this afternoon.

and innovation with his best research paper on biochemical engineering.

“Innovations in line with sustainability. Innovation and sustainability isn’t together. Sustainability is to sustain.

How do we sustain? For example, we solve one problem and create two problems. Otherwise, we solve two problems and create one problem. Basically, we are solving *BERC continued on Page 7*

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same opportunities with men.

“We have not yet completed the research actually but based on the initial data gathered, self-esteem is one of the several factors that affect women in choosing their career paths,” the plenary speaker explained.

To counter these gender gap problems,

Dr. Alam stated on her recommendations that educators must stress the importance of effort and hard work in achieving success in math-intensive careers.

She further included in her recommendations that future researches may investigate the participation of young women in STEM education from high school level and the factors

influencing young girl’s decision-making process in the early stages of choosing career paths to STEM education.

Dr. M. Sultana Alam is the wife of Dr. Zahangir Alam, also one of the plenary speakers who is a professor in Biochemical Engineering at the International Islamic University Malaysia, Kuala Lumpur. •

# Business prof advocates innovation for humanity

By CLIFFORD F. COLIBAO

**“We in the academic sector cannot rest because there are younger generations who will look up to us as examples and they need to know the importance of innovation,” Founder and Chairman of the Benita and Catalino Yap Foundation said on his plenary session yesterday at the Summit Hotel.**

Mr. Antonio S. Yap, a former entrepreneurship

professor at De La Salle University Taft emphasized his views on the humanitarian implications of innovation, focusing on the pivotal role the academic sector plays in ensuring an inclusive development in the society.

Mr. Yap reminded the participants of the International STEAM Research Congress that they are more than just social change agents and urged them to focus their

researches and ventures on helping humanity.

“When we do innovation, is it because we really wanted to help or is it just our pride? Is it just the recognition we will receive?” asked Mr. Yap regarding the consciousness of the participants about their educational responsibility.

The founder of the Kapampangan Development Foundation also believes that the world we live in requires a different concept of education.

“I believe in the idea that we are all given the opportunity to screw up every day. But the challenge is to recover from the screw up and repeat the mistakes and hopefully we come up with a better solution – that to me is education.”

Mr. Yap ended his plenary session by encouraging the participants to venture more into creating better roles in the society and innovating in the more important things in life, which to him is social enterprises.

“We are a part of ASEAN and other communities. We must first feed the people and try to help humanity.” •



PHOTO BY LLB ARPON

**14 YEARS OF EXCELLENCE.** Founder and Chairman of Benita and Catalino Yap foundation, Mr. Antonio S. Yap encouraged educators to innovate not for recognition but to help humanity.

## NEWS

# “Unshaken”

By CHARMAINE JOY  
B. RONDINA

**“Infrastructure is not enough to rebuild people’s lives,” said Dr. Elizabeth Maly, RIDes Asst. Professor as she discussed the Housing Recovery after the 2011 Great East Japan Earthquake during her plenary session of the 2nd International Research Congress.**

On March 11, 2011, Japan faced one of its biggest misfortunes. The earthquake which has a magnitude of 9.0-9.1, was the most powerful earthquake recorded in Japan and the fourth in the world. It triggered powerful tsunami waves that reached up to 133 ft and ended with 15, 896 deaths, 121,776 totally collapsed buildings, and a total damage amounting to 360 Billion USD.

The tsunami brought by the earthquake caused a cooling system failure at the Fukushima Daiichi Nuclear Powerplant which resulted in a level-7 nuclear meltdown and release of



PHOTO BY LLB ARPON

**ARCHITECTURE FOR HUMANITY.** Dr. Elizabeth Maly of Tohoku University in Japan believes that sustainable infrastructure with the welfare of the people on its heart provides for a better and effective social development.

radioactive materials.

Due to the damage that their community has faced, the Japanese government implemented a collective relocation program. Three housing recovery phases were made, namely the Evacuation for the first phase, Temporary housing for the second, and permanent housing for the third. The government used a Hazard Map in order to choose the most ideal places to build the relocation areas.

The first few houses that were built weren’t the best for the residents for it was said to be too hot during the summer and too cold during the winter because of the materials

used to create the shelters. With that, the government decided to improve the materials and design of the relocation houses.

Dr. Maly also emphasized how much the community relies more on the government and also believes that there should be more community involvement and that people should think beyond infrastructure and give much greater attention to psychological aspects as well.

“With that I think I could say that although Japan is a rich country, we don’t have the solutions and it’s not going perfectly for everybody,” said. Dr. Mal. •

## “Disaster education should be practical... to save more lives”: Dr. Sakurai

By DAN JAKE BASALO

Associate Professor in Toyo Eiwa University, Japan and deputy head of the International Collaborating Center on Disaster Education Research and Implementation, International Research Institute of Disaster Science (IRIDeS), Dr. Aiko Sakurai, focused on the

role of the academe in educating students about past disasters on her plenary session yesterday.

In her session, Dr. Sakurai discussed her study on Action-Oriented on Disaster Education in Ishinomaki City, where she taught fourth graders for seven years, comparing data from affected and non-affected areas.

In this research, *DRRM continued on Page 9*



PHOTO BY LLB ARPON

**SAFETY FIRST.** Toyo Eiwa University Assistant Professor, Dr. Aiko Sakurai pushed for an extensive investment of Disaster Risk Reduction Management education to make sure that the horrendous effects of Super Typhoon Yolanda will not happen again.

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problems and creating problems. So basically that is not sustainability. So sustainability must be a cyclic loop,” Dr. Zahangir Alam explained.

According to Dr. Alam sustainability has to be in a cyclic loop because if it otherwise, sustainability will stop at some points.

“How can we get innovation? Basically we have ideas, Agriculture biotechnology, industrial biotechnology, and health care biotechnology. These three are parts of biotechnology is part of biochemical engineering and are used for sustainability,” Dr. Zahangir expounded.

The production of enzymes from sludge through biochemical procedure anchored with the objective of turning wastes into useful products also undergoes environment-friendly treatments.

“Sustainability is the whole example of the entire pace. Enzyme is the driving force into production if sugar. These sugar is converted into bioethanol. Bioethanol and the residues are solid and the liquid. This solid is converted into bio-compost or bio-fertilizer,” explained his procedure of the process.

The biochemical procedure of the production was related

to the term sustainability and how it implies to their respective fields.

“In the cycle, you cannot find any waste here. As you can imagine, there is no waste on the process, that exactly is sustainability,” further explained on the scientific approach of innovation and technology.

Dr. Alam further emphasized how sustainability and innovation works on his field of study – biochemical and environmental engineering and specifically detailed the procedure of his study on sludge to enzyme production. •

## NEWS

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He also mentioned a report published by the World Education News & Reviews (WENR) on March 16, 2018, that shows the lack of cluster performance in producing innovators, researchers and knowledge producers here in the Philippines in comparison to nearby ASEAN members.

“The task of catching up with the achievement of these countries may be daunting, but in the right push, given the right direction and the relentless support of the government, we will be able to achieve progress in the near future”, Dr. Aguirre quoted.

Dr. Maura Cristobal Consolacion, Regional Director of Commission of Higher Education, mentioned a CHED research policy that defines research as the ultimate expression of an individual’s innovative and creative power.

She added a CHED mandate that higher education institutions should ensure that the academic environment nurtures and supports Filipino research talents, however, most universities and colleges only take focus on instruction.

“A country that wants

to be a player in the global economy needs bulk and well-funded research and development initiatives of its own, because in today’s economy, knowledge is the greatest creator of wealth”, Dr. Consolacion said.

Former EVSU alumnus and academician for De La Salle University, Dr. Alvin Culaba, stressed the importance of moving up from labor-intensive to innovative country if Philippines wants to be globally competitive and at par with the neighboring countries in terms of research.

“At least there is always opportunity for us to grow or to improve. Of course when we say we are at the bottom, there is no way but to go up. If you are at the top, that’s even the most difficult because to sustain at the top, likely is going to happen is that you’re going down”, Dr. Culaba added.

Current research congress features well-known researchers in the academic circle, such as Mr. Antonio S. Yap, Founder and Chairman of Benita & Catalino Yap Foundation, Dr. Zahangir Alam of International Islamic University of Malaysia, Dr. Sultana Alam, Assistant Professor

of Universiti Tunku Abdul Rahman in Malaysia, Dr. Elizabeth Maly, Assistant Professor of Tohoku University in Japan, Dr. Aiko Sakurai, Associate Professor of Toyo Eiwa University in Japan, and Dr. Jedeliza Ferrater – Head of Plant Pathology, East-West Seed Co., Inc., Philippines.

After the plenary sessions, the Provincial Government of Leyte headed by Gov. Leopoldo Dominico L. Petilla, sponsored a welcome dinner and fellowship night for the speakers and participants of the research congress.

Before the dinner, Gov. Petilla delivered a message to the attendees of the fellowship night which highlighted the region’s progress in helping farmers by introducing them to new farming techniques and technology.

“I cannot really speak about STEAM but I am one of the great believers of these things”, Gov. Petilla added. •

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she found out that the topographical location of educational institutions is crucial in the determination of the safety hazards for the students.

Dr. Sukarai then pushed for a curriculum management where schools in Japan were taught how to utilize a topography map, to

study and be able to know how to observe post-disaster events.

“Knowledge is not enough, we need to foster children on how the disaster occurred,” Dr. Sakurai said.

During the implementation of said curriculum management on 2012-2014, the risk was decreased and schools

were moved to safer places, some children were able to overcome their earthquake and tsunami experience and people were already aware on how to use a topography map.

“It’s more like an investment to human development” Dr. Sakurai emphasized. •

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“We have already a massive investment in human resource development, more scholarships, masters, doctorates. But where do they go?” he explained.

Furthermore, there is a human resource for Filipinos but no hub or opportunities for researchers which

make them distant from neighboring countries.

“If we really do a lot of innovation activities which will translate to competitiveness, it will create jobs, new industries and new businesses. It can expand existing businesses and good jobs,” Dr. Culaba emphasized.

Otherwise, if there

are no innovations, there will be no place for scientists and engineers to utilize their skills and talent.

“That’s why we need to be innovators. We need to create innovations for us to be competitive. And so, we will have a place for our scientists and engineers,” Dr. Culaba said. •

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**EDITORIAL**

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# Keeping Up

**The second installation of the STEAM International Research Congress proved that Eastern Visayas State University is serious in taking the lead in creating a strengthened research sector in the region as a response to the alarming lack-lustered performance of the Philippines in the international research arena.**

Addressing the need to serve as a platform for innovation and driver of competitiveness and inclusive growth, EVSU assembled almost 90 researches majorly created by professionals. However, it is to be noted that this year's confab will feature research outputs from high school and undergraduate students. This means that the administration is recognizing the potent role played by the younger generation in advancing Science, Technology, Engineering, Agri-fisheries and Mathematics.

Hence, there is a need to strengthen the support-system for undergraduate students who, like their professional counterparts,

can come up with quality researches if given more upkeep and attention from the administration. We could start by installing laboratories equipped with state-of-the-art facilities that will allow for an actual, real-life application of the students' theories. Also, upgrading the university's archive of researches into an online, accessible library of approved researches from both the graduate and undergraduate schools may do well in establishing a credible pool of researches that could also be used for future references and collaborations between and among interested parties.

Eastern Visayas State University puts a high premium on research and

development. But the challenge is still there. Much as it is essential for the university to establish a formidable international reputation in the fields of research, addressing the issues on a grassroots level and making these researches relevant to its immediate community will make this endeavor more inclusive and effective.

As what the University President said, "The task of keeping up with the achievements of other countries is daunting, however, given the right push, given the right direction and the relentless support from the government, we will be able to reach our targets in the near future." And that is something we all look forward to.

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