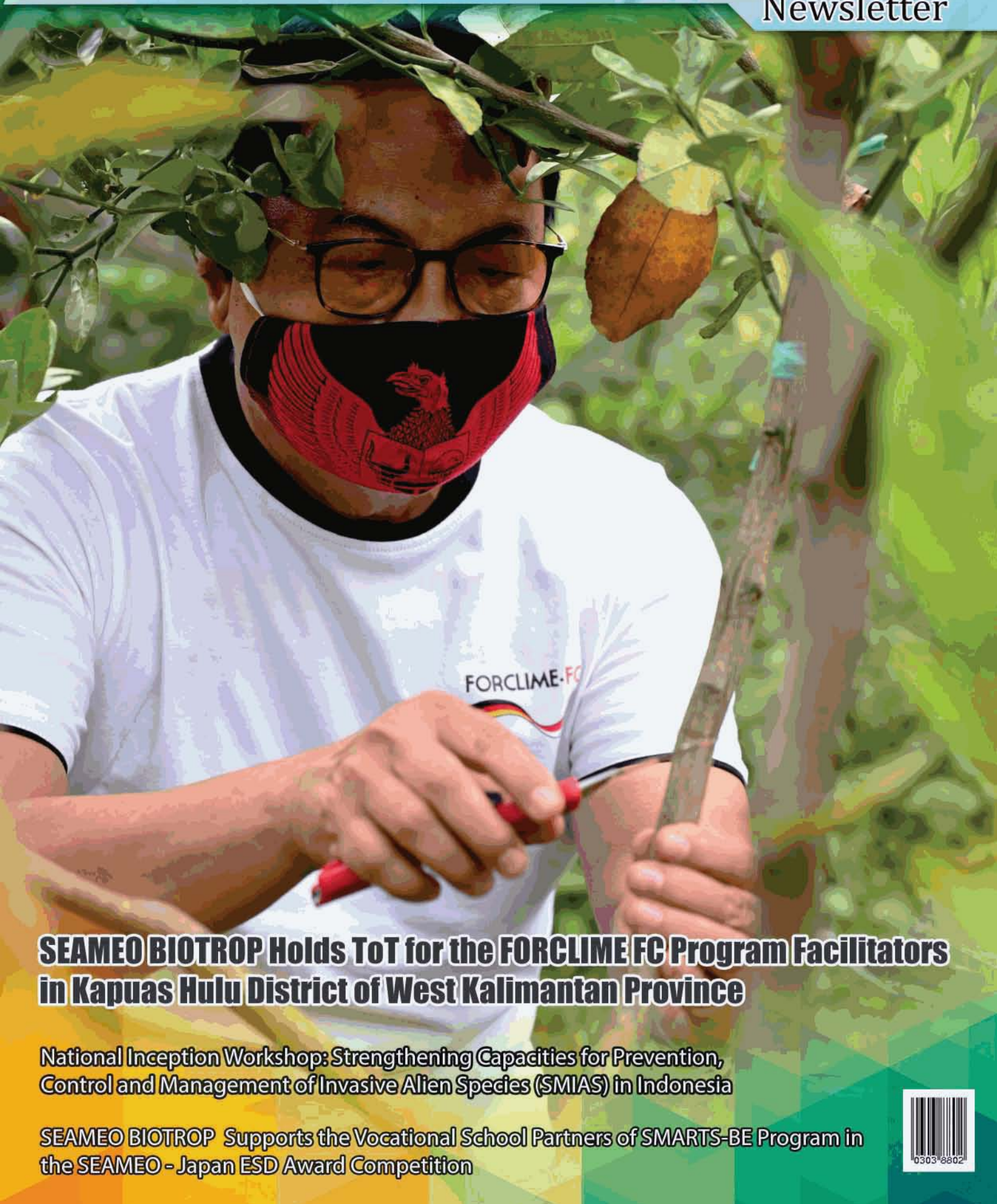




BIOTROP Courier

Newsletter



SEAMEO BIOTROP Holds ToT for the FORCLIME FC Program Facilitators in Kapuas Hulu District of West Kalimantan Province

National Inception Workshop: Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia

SEAMEO BIOTROP Supports the Vocational School Partners of SMARTS-BE Program in the SEAMEO - Japan ESD Award Competition



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Director's Message

Dear valued Readers,

Greetings from SEAMEO BIOTROP !

The third quarter of the year 2021 is still challenging for us, as the Covid-19 pandemic still has significant impacts on our program implementations. Many constraints are ahead of us. However, I choose to accept those constraints as opportunities. Challenging opportunities. In fact, during this pandemic, SEAMEO BIOTROP has found its way to embrace new collaborations with many stakeholders.

As one of collaboration program implementation, SEAMEO BIOTROP held a training of trainer for the FORCLIME's facilitators in Kapuas Hulu District, West Kalimantan Province. The training aimed to transfer knowledge on extracting essential oils and their derivative products and on utilizing non-wood forest products having economic value. In collaboration with FAO Indonesia and the Ministry of Environment and Forestry of the Republic of Indonesia (KLHK), SEAMEO BIOTROP held a National Inception Workshop with the theme "Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia" to provide integrated information to all stakeholders who will be involved and related to the process of preparing and developing project documents submitted by the Ministry of Environment and Forestry to the Global Environment Facility (GEF). The stakeholders consist of representatives from various government agencies, academia, private sectors, NGOs and local community groups. SEAMEO BIOTROP also supported nine vocational schools partners in SEAMEO BIOTROP's SMARTS-BE Program to participate in the 2021 SEAMEO-Japan ESD Award Competition. The SEAMEO-Japan ESD Award is an award program for schools launched by SEAMEO in collaboration with the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT Japan) and the UNESCO Asia Pacific Regional Bureau for Education. The SEAMEO-Japan Education for Sustainable Development (ESD) Award aimed to promote best practices that support ESD in schools across Southeast Asia.

The online seminar on Environmental Leader Talks on Plastic War: Challenge and Solution and an International Workshop on Loss and Damage Concept were also organized to show our awareness on tropical biodiversity enrichment from mountain to ocean and climate risk mitigation effort. SEAMEO BIOTROP also held several virtual technical guidance events on agricultural derivative products to increase the added value of agricultural products by making puree from California lemon and by introducing the production methods of fruit powder drink by using a vacuum dryer based on GHP, on Tissue Culture for the Provision of Cottonii Seaweed Seeds; on Fumigation in the Perspective of Integrated Pest Storage Management; and on Aquaponic Urban Farming. SEAMEO BIOTROP also shared its expertise in the training course on Improving the Capacity of Provincial Validation Teams and Prospective KLHS Documents Creators. Other webinars were organized to share the Centre's expertise to communities, such as Talk of Scientist on Entomology Practice and Pest Control in Controlling Food Safety and BIOTROP Leadership Management Program on Initiative Improvement and Multitasking Jobs.

Our Centre is also keen in updating its technologies to carry out its programs and activities, such as implementing nanophotometer technology, remote sensing and Geographic Information System. These technologies are adopted in our laboratories by our scientists who are the front line of our Centre's research activities.

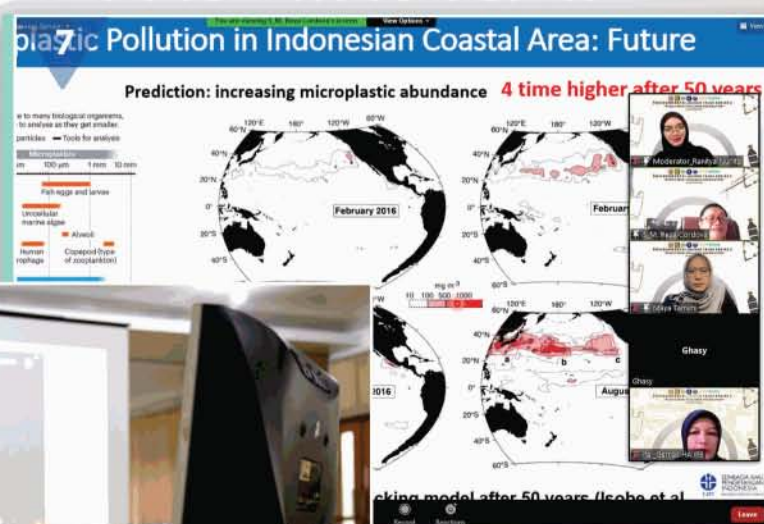
I do believe that the programs and activities in SEAMEO BIOTROP are within the scope of directions from the SEAMEO Secretariat which was uttered during the 2021 SEAMEO Centre Directors Meeting, i.e., Reimagine the Future by improving education, science and culture for the Southeast Asian region.

Keep up the optimism ! Save biodiversity ! Stay healthy and safe !

Happy reading!

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SEAMEO BIOTROP Holds Training of Trainer for the FORCLIME FC Program Facilitators in Kapuas Hulu District of West Kalimantan Province

FORCLIME FC (Forest and Climate Change Programme Financial Cooperation) is a collaborative development program between the Government of Indonesia and the Government of Germany to implement forest conservation strategies and sustainable forest management to reduce greenhouse gas emissions from the forestry sector and to elevate the livelihoods of rural communities. The FORCLIME FC is conducted in three districts, i.e., Kapuas Hulu District in West Kalimantan Province, Malinau District in North Kalimantan Province, and Berau District in East Kalimantan Province (source: <https://forclime-fc.org/index.php/id/aktivitas>).

As part of the program implementation, SEAMEO BIOTROP held an offline training of trainer (ToT) for the program facilitators in Kapuas Hulu District of West Kalimantan Province on 6-8 September 2021, in the Centre's campus in Bogor. The ToT was held following the health protocols regulations within the Restrictions on Community Activities (PPKM). The ToT was aimed to elevate the capacity and technical capabilities of the 9 facilitators of FORCLIME FC by focusing on knowledge transfers in sustainably managing forests for strengthening the economic welfare of the rural community. SEAMEO BIOTROP transferred the knowledge on extracting essential oils and their derivative products and on utilizing non-wood forest products having economic value.

The Training Coordinator, Dr Supriyanto explained that the ToT consisted of classroom and practice sessions. The training materials included: 1. introduction to essential oils and various issues in extracting essential oils; 2. formulating bio-enzymes and bio-pesticides; 3. formulating insect repellent products; 4. plant propagation using grafting method; 5. making of silage; and 6. introduction to non-wood forest products having economic value.

The District Team Leader of FORCLIME FC in Kapuas Hulu, Mr IGNN Sutedja stated that one of the activities carried out is planting trees that have economic value for the community, such as kratom (*Mitragyna speciosa*), which leaves are harvested by the community for medicinal purpose and citronella grass (*Cymbopogon nardus*), the source of citronella oil, which is among essential oils having high economic value.

In his opening remarks, Dr Zulhamsyah Imran stated that climate change is among the mega disruptions we are currently facing. "In relation to FORCLIME FC, we are talking about our contributions in reducing the greenhouse gas emissions. The FORCLIME FC programs have an important role in reducing such emissions from the forestry sector," said Dr Zulhamsyah. "It is expected that the facilitators of the FORCLIME FC can be the mediators and collectors of forests products to enter wider markets, which profits can be channeled to the surrounding communities to elevate their economic welfare", he further stated. Dr Zulhamsyah underlined the importance of mastering the Internet of Things in this era of Industry 4.0, especially in coping with the mega disruptions. (sis).



Dr Supriyanto explains about the occurrences of the rooting system from the grafted lemon plants



Dr Supriyanto explains the procedure of planting a grafted lemon plant in a pot

SEAMEO BIOTROP Supports the Vocational School Partners of SMARTS-BE Program in the SEAMEO -Japan ESD Award Competition

Nine vocational schools (SMK) partners of the SEAMEO BIOTROP SMARTS-BE mentoring program officially declared to participate in the 2021 SEAMEO-Japan ESD Award competition, through an Online Kick-Off Meeting on 13 July 2021. These schools are the target schools in the SEAMEO BIOTROP SMARTS-BE Program (Program of Independent School for Educational Vegetables and Fruit Plants Production). The SEAMEO-Japan ESD Award is an award program for schools launched by SEAMEO (the Southeast Asian Ministers of Education Organization) in collaboration with the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT Japan) and the UNESCO Asia and Pacific Regional Bureau for Education. The SEAMEO-Japan Education for Sustainable Development (ESD) Award was aimed to promote best practices that support ESD in schools across Southeast Asia. The ESD (Education for Sustainable Development) is defined as a learning process (or teaching approach) based on ideal standards and principles that emphasize sustainability aspects and pay attention to all levels and types of learning method to provide quality education and sustainable human development, including learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society.

In carrying out the mentoring program, SEAMEO BIOTROP formed a technical mentoring team consisted of researchers, creative teams, and administrative staff. Nine Vocational Schools (SMK) and their respective proposed themes to participate in the SEAMEO-Japan ESD Award competition were:

1. SMKN 2 Slawi with the theme "Inter-collaboration Education in the Crisis of Covid-19";
2. SMKN 1 Tulungagung with the theme "Productive Environmental Development: Quality Education Opportunities in the Covid-19 Crisis Era";
3. SMK PPN Saree with the theme "Developing Intensive Lemon Orchards and Its Derivative Products during the Covid-19 Pandemic";
4. SMKN 2 Metro with the theme "Entrepreneur Coaching School in the New Normal Era";
5. SMKN 1 Cibadak with the theme "Teaching Factory Lemon California in the Covid-19 Crisis Era";
6. SMKN 1 Pacet with the theme "Food Security Partnership to Support Agro-Eco-Edu Tourism in the Covid-19 Pandemic";
7. SMK PPN Mataram with the theme "Guided, Adaptive and Inclusive Learning Strategies to Strengthen the Quality of Education and Entrepreneurship in Schools";
8. SMKN 2 Subang with the theme "How to Change Education System by using the IT";
9. SMKN 63 Jakarta with the theme "Adaptive and Resilience Entrepreneurship Education in Urban Areas for Crisis Management of Covid-19".

The mentoring activities included a briefing on theme selection, planning, writing materials, preparation for filling out registration forms, video production, reviewing materials to be submitted, and registration with the SEAMEO Secretariat. Through these mentoring activities, it is expected that at least one SMK can receive the SEAMEO-Japan ESD Award in 2021.

The Deputy Director for Administration of SEAMEO BIOTROP, Dr Perdinan, delivered the opening remarks on behalf of the Director of SEAMEO BIOTROP. "Many thanks to the colleagues who participate in this Kick-Off Meeting to discuss about SEAMEO BIOTROP's initiative in promoting the work of SMK colleagues in the SEAMEO-Japan ESD Award. We thank our colleagues from the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, through its Bureau of Cooperation and Public Relation (BKHM), for their continuous support so that we can collaborate with SMK". Dr Perdinan also expressed his expectation that in the future, SMK would invite SEAMEO BIOTROP for evaluating and suggesting the development of SMK to become independent schools. This matter must be highlighted in the SEAMEO-Japan ESD Award for sustainable education development. "It is also important to determine how we can package the work of SMK through the SMARTS-BE mentoring program with various unique highlighted features, which results will be beneficial in a sustainable manner and directly to the community," he added. Furthermore, Dr Perdinan also conveyed 3 important components in the development of education through the SMARTS-BE program, namely: 1. institutional support, from the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, SMK, and SEAMEO BIOTROP; 2. funding support, started with the products development produced by SMK as Mikro, Small and Medium Enterprises, which supports funding sustainability; and 3. Human Resource support. Graduates of Junior High Schools are increasingly interested to join SMK as the government's role in supporting SMK are getting visible and stronger. Indonesia is expected to become an example for other countries in developing vocational schools by prioritizing independence.

The Kick-Off Meeting was continued with an explanation from the Coordinator of the SMARTS-BE program, Dr Supriyanto, about the chronologies and achievements of the SMARTS-BE Program. A subsequent discussion was held to dwell on the progress and obstacles experienced by the nine target schools in preparing materials for participating in the SEAMEO-Japan ESD Award competition.

The Kick-Off Meeting was also attended by the Bureau of Cooperation and Public Relations (BKHM) representatives and the Directorate of Vocational High School Development (PSMK) of the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. (rf)

SEAMEO BIOTROP's SMARTS-BE Program Holds Technical Guidance on Agricultural Derivative Products



The participants and Ms Elvina Agustin Rahayu, MP as resource person in the "Technical Guidance on Agricultural Derivative Products" event

The SMARTS-BE program of SEAMEO BIOTROP has been concentrating on increasing the added value of agricultural products through its partnership with agriculture vocational schools since 2018. In elaborating its partnership, the SMARTS-BE program held virtual technical guidance on 14-16 September 2021 with topics on the Production of California Lemon Powder Drink, the Puree Making of Several Agricultural Products, the Implementation of Good Handling Practices (GHP), the Halal Requirements, and the Required Distribution Permit for Marketing Agricultural Products. The technical guidance was aimed at 1. introducing the production methods of fruit powder drink by using a vacuum dryer based on GHP; 2. introducing the puree production methods of several agricultural products.

The Event Coordinator, Dr Supriyanto, explained that the materials provided in this technical guidance can be used in the teaching factory curriculum of the agriculture vocational schools for developing technologies in increasing the efficiency of processing agricultural products into marketable items.

Dr Zulhamsyah Imran, the Director of SEAMEO BIOTROP, opened the technical guidance. "This technical guidance is a form of SEAMEO BIOTROP's commitment to provide mentoring as well as to share scientific knowledge and building capacities of institutions and communities in conserving and managing tropical biology sustainably for the well-being of communities and the environment of Southeast Asia," stated Dr Zulhamsyah.

The first resource person was Ms Elvina Agustin Rahayu, MP, who presented the methods of making puree from California lemon. Puree is the basic ingredient for making the powder drinks. "The puree and powder forms can efficiently maintain the nutritional values of agricultural products," stated Ms Elvina. Mr Muhari, MPd, the second resource person, presented a simple and inexpensive vacuum evaporator for making puree from various agricultural products.

The technical guidance, joined by 145 participants from 35 agriculture vocational schools, provided knowledge on producing food products based on good handling practice (GHP) and halal requirements. Both requirements guarantee the hygiene, food safety, and halal status of the food products. The knowledge on good handling practice and halal requirements are important to be implemented by the students of agriculture vocational schools so that the students begin to properly produce and market processed agricultural products based on GHP and halal requirements with proper distribution permits. (sis)

Collaborations of SEAMEO BIOTROP, Institut Pertanian Bogor (IPB), the IPB Alumni Association, the Collaboration and Alumni Affairs, BPRS Botani, and IPB Press produced a very insightful Environmental Leader Talks Series 2 with the topic "Plastic War: Challenge and Solution" held on 21 August 2021. This webinar aimed to socialize the impact and risks of plastic usage, especially microplastic, to the environment and to share inputs, experiences, lesson-learned in overcoming the plastic wastes. The 950 enthusiastic participants came from both Indonesia and abroad, consisted of experts in environmental science, government agencies, research institutions, non-governmental organizations, private sectors, environmental activists groups, schools, students, and the general public.

The welcome remarks were presented by Prof Arif Satria, the Rector of Institut Pertanian Bogor, Mr Fathan Kamil, the Head of IPB Alumni, and Dr Zulhamsyah Imram, the Director of SEAMEO BIOTROP. In his welcome remarks, Prof Arif Satria stated that in facing the global climate change and the Covid-19 pandemic, it is a global call for paying more attention to environmental issues for sustainable life. "The progress of a nation is determined by the nation's capabilities in managing its natural resources for sustainable life", Prof Arif stated. "Environmental leadership is a leadership which integrating the ecological modernization approach with political ecology by developing human resources, initiating collaboration in technical, legal and policy aspects for overcoming the issues, and advocating conducive policies to all stakeholders in achieving the sustainable environment for sustainable life", he further added. Mr Fathan Kamil stated that in facing climate change issue we need a leadership that is committed to environmental issues.

Dr Zulhamsyah Imran mentioned that microplastic is a more threatening form of plastics for human beings as well as terrestrial and aquatic biotas. Hence, SEAMEO BIOTROP is committed to find solutions for issues related to wastes, especially plastic wastes. Three program thrusts of SEAMEO BIOTROP is already set up for overcoming the wastes issues, i.e., ecosystem restoration and conservation; the sustainable utilization of biodiversity, bioenergy for food security, and elevating resilience toward climate change. "However, above all knowledge and technologies, the most important aspect in dealing with wastes is the attitude change of human being," Dr Zulhamsyah stated.

Resource persons and topics presented in this Environmental Leader Talks 2 were:

1. Dr Muhammad Reza Cordova from the Oceanography Research Center of the Indonesian Institute of Sciences, who presented his slides on Plastic Pollution: Distribution, Movement and Disturbance Impact. He shared his experiences in observing the origin and pathway of plastic wastes from the households into lands and waters which eventually greatly and fatally impacted the terrestrial and aquatic biotas. He also explained about the microplastic pollution which influences the hormones of humans and biotas, genetic disorders and even diseases.
2. Ms. Maya Tamimi, MSc, from Unilever Indonesia, who shared her company's commitments to greatly reduce plastics for packaging their products, as well as initiating public movements to collect plastic wastes.
3. Mr Rofi Alhanif, the Asistant Deputy of Wastes Management of the Coordinating Ministry of Maritime Affairs and Investment, who explained the responsibility mapping in wastes management and regulations as well as strategic plans established by the Government of Indonesia for wastes management, in terrestrial and aquatic ecosystems.
4. Mr Rahyang Nusantara, M.I. Kom, the National Coordinator of the Plastic-bag Diet Movement, who shared his experiences in socializing the Plastic-bag Diet Movement to the general public, by conducting collaborations with government agencies, universities, schools and private sectors to provide inputs in regulating wastes, especially plastic wastes, in educating students and general public on the adverse effect on the environment when using plastic-bag.

The Environmental Ambassador from Institut Pertanian Bogor, Ms Siti Sarah Nisrina Sopuan, shared activities of IPB studens in Controlling Plastic Waste in the IPB campus and the environment surrounding the campus. One activist, "Mr River Defender", presented his virtual tour video on his group's activities in cleaning the Ciliwung River. Many positive comments from the participants were shared as great appreciations toward the resource persons, in the hopes that real implementations in dealing with wastes, especially plastic wastes, can be soon realized. (sis)



In enhancing the capabilities to conduct research in the modern biology field, SEAMEO BIOTROP has acquired a more advanced instrument called NanoPhotometer N50 IMPLINT. NanoPhotometer is a spectrophotometric measurement instrument that supports a variety of modern biology researches around the world. The spectrophotometrical analysis of DNA/RNA is one of the daily routines in every modern biology laboratory.

The NanoPhotometer N50 is a spectrophotometer instrument that has been equipped with technology that allows this instrument to work comprehensively and is very sensitive, even with very small sample volumes or even nano volumes (up to 0.3 μL can produce a very high level of uniformity of sample measurement results). In addition, this instrument also supports maximum sample processing, because it has a scanning spectrum range between 200-650 nm and is supported by dual fixed path lengths (0.67 and 0.07 mm), which can adjust automatically and support auto dilution (dilution factor 15 and 140), so that the sample analysis process can be completed in just 2.5-4.0 seconds. The high level of sensitivity also makes this spectrophotometer able to make accurate readings with a detection range ranging from 5-7,500 ng/ μL for nucleotide samples and 0.15-217 mg/mL for BSA (Bovine Serum Albumin) samples.

A nanodrop instrument is used to drop 1 μL of DNA sample on the NanoPhotometer. At the A260/280 light wave, NanoPhotometer will automatically show data in the form of DNA concentration (ng/L) and DNA purity in optical density (OD). The instrument will provide information on the purity of DNA or RNA with just a 1 μL sample. If the A260/280 ratio falls within the range of 1.8 - 2.0, DNA is considered pure. The lower the ratio value, the lower the quality of the DNA due to protein contamination. At the A260/280 light wave, pure total RNA has an absorption value of 1.8, while at the A260/230 light wave, it has an absorption value of 2.0 - 2.4.

Calculating the concentration and inspecting the quality of DNA aim at obtaining an excellent quantity and quality of isolated DNA to be used in subsequent analyses, such as qualitative/quantitative PCR and Real-Time PCR, cDNA synthesis, gene cloning, gene expression, molecular markers (RAPD/SSR/AFLP/RFLP/SNP), DNA barcoding, genomics, and transcriptomics. The success of subsequent analysis is determined by prior knowledge about the quantity and quality of DNA. If the DNA amount is pre-determined as sufficient and the quality is pre-determined to be pure, then if the subsequent studies failed, it is likely that the failures are not caused by the DNA quantity and quality.

NanoPhotometer is a device that measures both submicroliter and standard sample quantities. The integrated Label GuardTM Microliter Cell allows for cuvette-free submicroliter measurements. NanoPhotometer has a number of innovative features that make spectrophotometric measurements easier. NanoPhotometer is a trustworthy tool for nucleic acid and protein-based research, microarray analysis, and bacterial cell culture investigations in any genomics or proteomics laboratory. NanoPhotometer N50 is also a spectrophotometer with an integrated memory provider system that runs automatically and provides exceptional performance. As a result, it is capable of

supporting widely used data storage and protocols. In addition to having a built-in printer, the NanoPhotometer N50 may also be connected to a computer network through USB or Bluetooth for data export and printing.

For submicroliter measurements, NanoPhotometer has the capacity to determine sample concentrations with high precision, resilience, and consistent and exact findings. The system's main advantages are simple sample handling for extremely small and standard volumes in about 0.3 to 2 μL of sample, as well as high throughput rates due to very quick measuring durations. NanoPhotometer may also be used for Nano Volume applications, such as determining the quantity and quality of DNA, RNA, and proteins, as well as scanning other samples in seconds. The stand-alone design, featuring a simple touchscreen interface, a tiny footprint, and network integration, is ideal for lab bench use.

NanoPhotometer has a large dynamic range and excellent measurement reproducibility. NanoPhotometer's maintenance-free configuration, which does not require recalibration, also helps to save expenses and downtimes. This instrument is versatile in that it can be combined with a variety of additional supporting instruments, ensuring that data storage and transfer are not an issue with its LIMS technology. Furthermore, the instrument's compact size and basic style make it simple to relocate when needed.

Due to its approach, NanoPhotometer is an all-rounder for a variety of spectrophotometrical applications in a modern laboratory. The user can develop a variety of customized applications for their individual needs using the provided methods for single/multiple wavelengths and concentration measurements, full-spectrum scans, standard curve determinations, ratio computations, and even kinetics. The sample compression technology is supported by sample placement technology, made of two scratch-resistant quartz surfaces, which allows for precise analysis and reading of protein concentrations as well as accurate results. NanoPhotometer also allows for testing samples with organic solvents or detergent-based buffer. Testing the sample in a controlled and enclosed micro-environment also eliminates the possibility of sample evaporation. Furthermore, the real path technology of NanoPhotometer adds to the tool's robustness and ensures its long-term reliability. Therefore, this tool is very compatible for use in the analysis of dsDNA, ssDNA, RNA, miRNA, oligonucleotides, quantification of proteins, peptides, and antibodies. This tool can also be used to calculate cell density (OD600), identify sample properties using an absorbance spectrum between 200 and 900 nm, and generate standard curves.

DNA/RNA isolation is a common procedure at the Biotechnology Laboratory of SEAMEO BIOTROP. Prior to further use, it is critical to determine the concentration and purity level of DNA/RNA. Protein, phenol, and other chemical contaminants frequently contaminate isolated DNA/RNA. The purity level of isolated DNA/RNA can be properly determined by NanoPhotometer, which indicates that the isolated DNA/RNA is free of any impurities.

The Biotechnology Laboratory of SEAMEO BIOTROP has conducted research on DNA molecular markers (RAPD/SSR/ AFLP/ RFLP), protocols development for genomic library construction in agarwood, fingerprinting of resistant sengon (*Falcataria moluccana*) accessions against boktor pest and gall-rust disease using microsatellite markers, transcriptome assembly of the cambium of sengon (*Falcataria moluccana*)

trees infected and non-infected by gall-rust (*Uromycladium falcatarium*), trypsin inhibitor activities as the defense mechanism of sengon against pest infestation, gene expression analysis using RT-PCR, Identification, and expression of sesquiterpenesynthase (Sestps1), and Hmg-CoA Reductase-2 (Hmgr2) genes encoding agarwood in *Aquilaria malaccensis* Lamk and *Gyrinops versteegii* Domke.

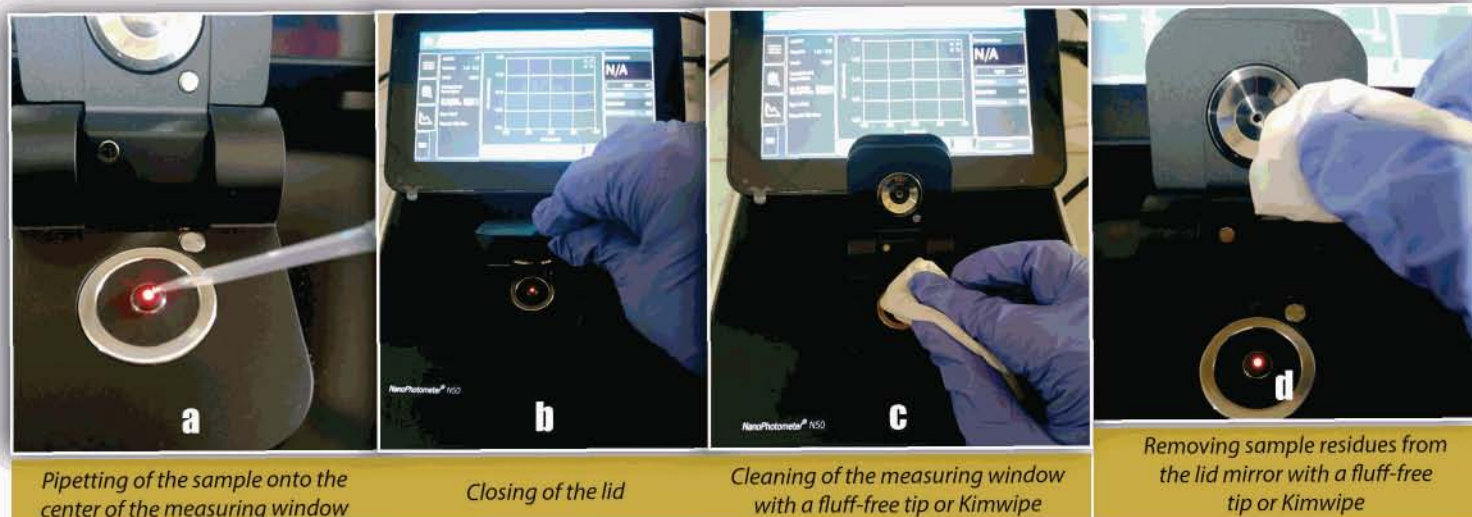


Figure 1 Cuvetteless measurement



Figure 2 NanoPhotometer offers an unmatched dynamic range and a very high reproducibility of measurements

The Papua Provincial Office of Forestry and Environment Service Holds Training Course on Improving the Capacity of Provincial Validation Teams and Prospective KLHS Documents Creators

In collaboration with the Global Green Growth Institute (GGGI), the Papua Province Forestry and Environment Service held a technical guidance for members of the Provincial Strategic Environmental Assessment (KLHS) validation team and prospective KLHS documents creators on 5 - 9 July 2021 at Suni Hotel & Convention Abepura, Jayapura, Papua. This event was a continuation of the previous KLHS preparation training course for the regional mid-term development plan (RPJMD) Working Group from 11 regencies of Papua Province.

The technical guidance was actively participated by 35 offline participants and 28 online participants, consisted of representatives of Papua provincial officials (OPD), representatives of Universitas Cenderawasih Jayapura, Universitas Ottow Geissler Jayapura, and Universitas Musamus Merauke. The validation team is established to validate the KLHS document, for various planning documents made by the districts/cities officials, including the regional mid-term development plan (RPJMD) KLHS documents from 11 regencies as a result of the December 2020 General Election.

The technical guidance was aimed to elevate the capacity of the provincial KLHS validation team and prospective KLHS documents creators. The expected output of this technical guidance is that the participants can validate the process, mechanisms and methodologies of creating the KLHS documents are in accordance with the Government's Regulation No. 46 Year 2016 concerning the Implementation of KLHS and other related regulations. The KLHS documents should depict the commitment of the local government to integrate the principles of sustainable development and the fulfillment of emission reduction targets and low-carbon development planning for Papua Province.

The resource persons in this technical guidance were Erik Teguh Primiantoro, SHut, the MES Director of Environmental Impact Prevention for Regional and Sector Policies (PDLKWS); Dr Fatma Djuwita, MSi, the Head of the Intermediate Environmental Impact Management from the Ministry of Environment and Forestry (KLHK); Mr Mirwansyah Prawiranegara, ST, MSc, the Head of Sub-Directorate for Detailed Spatial Planning for Region II DDL from the Ministry of ATR-BPN; Dr Zulhamsyah Imran, MSc Director of SEAMEO-BIOTROP; and Ms Sri Hidayat, SP, MSi, Director of KLHS Center Squad.

Discussions following the presentation concluded that several benefits of KLHS documents following the applicable regulations are: 1. being an instrument of environmental protection and management that integrates sustainable development principles into planning documents; 2. being the basis for preparing the Initial Draft (Ranwal) of the regional mid-term development plan (RPJMD), 3. being considered in the formulation of regional development policies and plans, and 4. serving as directions for the making of Regional Action Plans for Sustainable Development Goals (RAD TPB). Given the importance and cruciality of the benefits of KLHS documents for the process of completing the RPJMD document and the sustainability of development activities in the region, the resource persons at the technical guidance really expected that the district governments which have not started the

implementation of their RPJMD KLHS, immediately arrange a Working Group for creating KLHS documents and start the process as soon as possible to avoid unfulfilled implementation of development programs and activities in their area.

The Head of the Papua Provincial Office of Forestry and Environment Service Mr Yan Yap L. Ormuseray in his speech emphasized that this technical guidance was held especially to improve the quality of the regional mid-term development plan (RPJMD) KLHS documents from the 11 regencies created by the elected regents from the General Election held on December 9, 2020. Following the applicable laws and regulations, at a maximum of 6 months after the regent's inauguration, the regional mid-term development plan (RPJMD) KLHS documents containing the visions and missions and the priority policy directions of the elected regent must have been approved by the local DPRD as a Regional Regulation. If the RPJMD document has been completed without being accompanied by a validated KLHS document, the RPJMD document of the initial draft of regional regulations (Ranperda) will not be ratified by the DPRD. In that case, the RPJMD document will be rejected by the Directorate General of Regional Development of the Ministry of Home Affairs.

The regents of 7 of these 11 regencies have been inaugurated, namely Keerom, Merauke, Asmat, Bintang Mountains, Waropen, Yahukimo, and Supiori regencies. The other 4 regencies whose regents are still waiting for the inauguration schedule are Boven Digoel, Mamberamo Raya, Nabire, and Yalimo regencies. Of the 11 regencies that hosted General Election in Papua, only Asmat Regency that has validated the RPJMD KLHS documents and is currently making revisions in accordance with the recommendations of the provincial validation team.

Mr Taswin Munier, the GGGI Environment Policy Advisor, added that capacity building in the creation, preparation and validation of the KLHS documents in the Papua Province is part of GGGI's efforts in supporting the Papua Provincial Government to realize its commitment to green growth in line with the vision of sustainable development in Papua or Vision Papua 2100, and the Manokwari Declaration, which was signed on 7 October 2018 concerning Sustainable Development Based on Indigenous Territories in the Land of Papua, with the Common Vision of the Land of Papua, namely: "The Land of Papua is Peaceful, Sustainable, Sustainable and Dignified".



The Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran, delivers his presentations on carrying capacity of coastal area in the Technical Guidance for Members of the Provincial Strategic Environmental Assessment (KLHS) Validation Team and Prospective KLHS Documents Creators

(Written by Makawaru da Cunha I from PAPUAINside.com, JAYAPURA, translated into English by Sri Ismawati Soerianegara from SEAMEO BIOTROP)

National Inception Workshop: Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia

SEAMEO BIOTROP, in collaboration with FAO Indonesia and the Ministry of Environment and Forestry of the Republic of Indonesia (KLHK), held an online National Inception Workshop with the theme "Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia", on 12 and 13 July 2021. The National Inception Workshop activity is a series of events aimed to provide integrated information to all stakeholders who will be involved and related to the process of preparing and developing Project Documents to be submitted to the Global Environment Facility (GEF) in 2020. The stakeholders consist of representatives from various government agencies, academia, private sectors, NGOs, and local community groups.

Welcome remarks were delivered by Ir Laksmi Dhewanthi, MA, GEF Operational Focal Point; drh Indra Exploitasia, Director of Conservation and Biodiversity- KLHK; and Dr Ageng Setiawan Herianto, Assistant FAO Representative Indonesia. The workshop was opened by the Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran.

GEF Operational Focal Point, Ir Laksmi Dhewanthi, MA underlined 4 important things to keep in mind for the project implementation related to GEF:

1. GEF (Global Environmental Facilities), committed at the global level. Control and prevention of Invasive Alien Species (IAS) is an integral part of policies and implementation of biodiversity conservation policies. This project is an implementation of the convention of biological biodiversity. At the global level, there are set targets that need to be achieved.
2. Partnership and involvement of stakeholders who need to sit together to reach mutual understanding and agreement among stakeholders.
3. Good governance, transparency, and accountability, will function as the guards to ensure that we reach the goals, in line with the expected results in preparing the SMIAS document, prepared with supporting data and assumptions.
4. Sustainability, in which the SMIAS project only runs for a few years with limited funds.

The workshop provided a lot of information about the status, strategy, and updates on IAS management in Indonesia from various aspects. IAS management which always follows field conditions requires strategic and integrated approaches with developments at the national level.

Cooperation with international institutions requires clarity on how various efforts must be made and thought out together based on the challenges faced in the two project locations, namely in Bromo Tengger Semeru National Park and Bantimurung-Bulusaraung National Park. This project is also related to the formation, development, and implementation of a grand strategy, which involves raising awareness, increasing the capacity of all stakeholders related to IAS management, starting from the policy makers to the level of technical implementers in National Parks and other environments.

Assistant FAO Representative Indonesia Dr Ageng Setiawan Herianto expressed his highest appreciation to the executing agency, namely the Ministry of Environment and Forestry, represented by the Directorate General of Conservation of Natural Resources and Ecosystem, the more-than-200 active and enthusiast participants, to SEAMEO BIOTROP who, together with FAO Indonesia, organized this event, and also to Dr Arne Witt from CABl, as the Project Team Leader. (sb/iw)



Opening ceremony of the blended National Inception Workshop: Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia



Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran, delivers his opening remarks



Resource persons and participants of the National Inception Workshop: Strengthening Capacities for Prevention, Control and Management of Invasive Alien Species (SMIAS) in Indonesia

SEAMEO Centre Directors Meeting 2021: Reimagine the Future

The annual SEAMEO Centre Directors Meeting (CDM), the annual SEAMEO Centre Directors Meeting (CDM) 2021 is virtually conducted on 21 July 2021. The meeting is organised back to back with the 9th SEAMEO Integrated Operation Plan (SIOP) Workshop on 22 July 2021.

The SEAMEO CDM serves as a platform for the Centre Directors and Senior Officers of 26 SEAMEO Regional Centres/Network to share and discuss regional development programmes and work plans for improving education, science, and culture for the Southeast Asian region. The meeting is also a venue for expanding the developmental programmes with new partners and strengthening the existing partnerships.

The SEAMEO CDM 2021 is participated by approximately 220 participants, consisting of Centre Directors and Senior Officers from 26 SEAMEO Regional Centres/Network, one Associate Member Country, one Affiliate Member, and 21 partner organisations who are UN agencies, governmental organisations, development agencies, universities, and enterprises.

A total of 32 Working Papers, 12 from SEAMEO Secretariat and 20 from SEAMEO Centres/Network, were presented through ad-referendum. The highlighted working papers of SEAMEO Secretariat are such as Report on SEAMEO COVID-19 Accessible and Responsive Education Support (SEAMEO CARES), SEAMEO-UNESCO-GPE Collaboration: Online Course for Teachers of Learners with Disabilities, and SEAMEO Inter-Centre Collaboration Programmes.

The working paper of SEAMEO Regional Centres covers various areas of development such as Language Education; TVET; History Education; Science, Mathematics and STEM Education; Early Childhood Care Education and Parenting; Museum Architecture; Educational Leadership and Management; Health Education; Adult Education; Higher Education; Education Innovation Award; Community Education Development; Agricultural and Rural Innovation; South-East Asian Sales Competition; and Sufficiency Economy and Sustainability.

One of the highlights of 2021 CDM is the Sharing Session by the Key Partners on the topic 'Reimagine the Future', presented by UNESCO Asia Pacific Regional Bureau for Education, UNICEF EAPRO, International Task Force on Teachers for Education 2030, ASEAN Secretariat, and the Institute for the Promotion of Teaching Science and Technology (Thailand).

The sharing session is followed by the Marketplace or Networking Session with 21 partners who agree to present the proposed programmes and collaboration to the SEAMEO Regional Centres. The 26 SEAMEO Centres/Networks are encouraged to actively discuss and explore collaborative programmes with the invited partner institutions via 21 virtual meeting rooms. The details of the discussion and prospective collaborations among SEAMEO Units, and partners are presented after the Networking Session.

On the following day of 22 July 2021, the Workshop on the 9th SEAMEO Integrated Operation Plan (SIOP) is conducted with the SEAMEO Regional Centres to discuss and finalise the SEAMEO Integrated Operational Plan for FY 2021/2022 to 2025/2026, aligned with the SEAMEO Strategic Plan 2021-2030. The next SEAMEO CDM will be organised in July 2022. (seames)

SEAMEO BIOTROP Shares Opinions on Potential Utilization of Small Islands in Indonesia

Indonesia consists of approximately 17 thousand islands and most of them are small islands. As one of SEAMEO Centers in Indonesia, SEAMEO BIOTROP commits to promoting sustainable utilizations of ecosystems in Indonesia, among others coastal and islands ecosystems.

During an interview with the Maritime Fairtrade media on 31 August 2021, the Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran shared his opinions on the potentials of small islands in Indonesia. His opinions are based on his journeys from Sabang to Merauke in Indonesia. "Small islands in Indonesia are potentials to be developed into various economic and conservation activities. The ecosystems that surround the islands, such as mangroves, coral reefs, seagrass beds, can also be utilized as a better living ground for the aquatic biota," he stated.

In terms of economic utilizations, the islands' ecosystems can be developed into ecotourism areas, with many beautiful and panoramic spots, which attract tourists from home and abroad, such as the pink-sand coastal area in Lombok Island, the Raja Ampat diving resort, and many more. "Ecotourism has not been properly developed due to regulations, infrastructures and lack of information shared to the prospective tourists," he added.

Ecotourism is among sustainable livelihood options in the future and this is in line with the goals of SDG's number 8, namely sufficient income and economic growth. The economic value of these small islands cannot be achieved sustainably without sustainable resource management. (day)



The Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran, explains about the potential utilization of small islands in Indonesia to the journalist from Maritime Fairtrade media

SEAMEO BIOTROP held a 4-day online Aquaponics Urban Farming Technical Guidance from 25 August 2021 to 27 August 2021 and on 31 August 2021. This activity aimed to increase participants' awareness and understanding on the basic concepts of urban farming, as well as to provide knowledge about urban farming cultivation technology, one of which is aquaponic techniques. This activity provided practical opportunities and innovative project development for the participants.

The resource persons of this technical guidance were researchers in the field of aquaponics, namely Ms Shella Marlinda, MSi (SEAMEO BIOTROP Aquatic Laboratory Researcher), and Dr Ayi Rahmat, SPI, MSi (Lecturer of the Faculty of Fisheries and Marine Sciences, Institut Pertanian Bogor). In this training activity, participants received materials on:

- Introduction to aquaponics, seeding techniques, and introduction to aquaculture maintenance
- Aquaponics (harvesting) and introduction to aquaculture (stages of container preparation, understanding hatchery techniques)
- Practice: breeding, installation and selection of fish
- IoT Development for Aquaponics Applications

During the opening ceremony, the Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran delivered his welcome remarks and stated that urban farming is one of the agricultural cultivation techniques that need to be developed. "One of the developments of urban farming is the aquaponics technique



Ms Shella Marlinda, MSi, the resource person, delivers her presentation on Aquaponics

with a gravel fertigation system," he said. Currently, agricultural land is becoming more and more limited, so people are starting to look at areas that have water. Hence, the aquaponics development can be implemented from a small to a larger scales. "We can develop aquaponics in a household scale or a wider building scale," he added.

Participants registered for this technical training activity were 203 participants, which 48% of the participants were school teachers from all over Indonesia. Other participants were from government agencies, universities, private sectors and research institutions. (day).

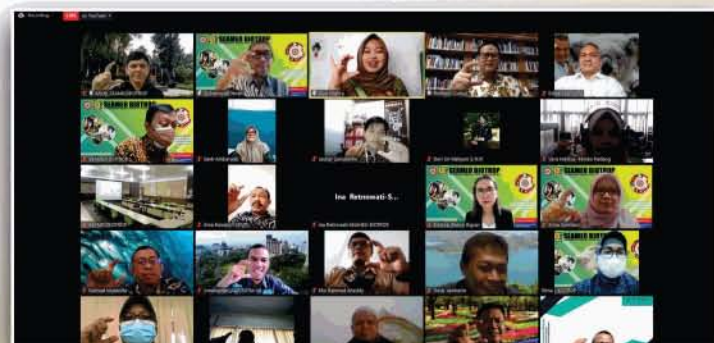
MOMI CLOUDIA Series 9: The Role of Research on Biodiversity Management as An Economic Driver

SEAMEO BIOTROP held a MOMI CLOUDIA webinar Series 9 with the theme "Good Governance on Managing Marine Biodiversity and Biotechnology: Lessons from Experience" on 14 September 2021. This webinar aimed to provide information on the importance of managing biodiversity in Indonesia, especially biodiversity in marine areas.

The resource person in this webinar was Prof Dr Ir Rokhmin Dahuri, MS, an expert in marine biodiversity management of the Faculty of Fisheries and Marine Science, Institut Pertanian Bogor (IPB). Prof Rokhmin is a former Minister of Marine Affairs and Fisheries within the period of 2001-2004. In this webinar, Prof Rokhmin delivered his presentation on the role and contribution of biodiversity and biotechnology resources for community welfare. He also shared his experiences in the management of marine areas in Indonesia. "It is pertinent to strengthen the contribution from research and development in maximizing the upstream and downstream industries, especially in scaling-up research findings to innovations to meet the national and export demands," Prof Rokhmin stated. He further shared that the role of SEAMEO BIOTROP as a research institution in managing biodiversity can be carried out through market-oriented research, inventions to achieve technological readiness, as well as collaboration with industries and the government to market the research results.

The webinar was opened by Dr Zulhamsyah Imran, the Director of SEAMEO BIOTROP. "This webinar is a sharing media to learn about experiences in managing biodiversity and biotechnology, to be developed for the nation's growth", said Dr Zulhamsyah. Therefore, SEAMEO BIOTROP as a tropical biology research center in Southeast Asia has a role in research and development to produce innovations from research results of biodiversity in Indonesia.

The webinar was attended by 123 participants, consisted of researchers, governmental officers, academics, and the general public, from all over Indonesia. (day)



Resource persons and participants of the MOMI CLOUDIA Series 9

SEAMEO BIOTROP held a training course on tissue culture for the provision of cottonii seaweed seeds on 26-29 July 2021. The activity aims to produce human resources who know and master the technology of cottonii seaweed tissue culture and all stages.

This activity was officially opened by Dr Efrini, SPd, MEd, Head of General Affairs, on behalf of the Acting Head of the Bureau of Cooperation and Public Relations, Ministry of Education, Culture, Research and Technology of the Republic of Indonesia. In her remarks, she indicated her expectation that this activity would accelerate the process of disseminating tissue culture technology produced by SEAMEO BIOTROP, so that it can be used optimally to meet the national demand of superior Cottonii seaweed seedlings to elevate seaweed in becoming a leading economical commodity of the coastal communities Indonesia. "This makes SEAMEO BIOTROP as an important part of the Ministry of Education, Culture, Research and Technology, which through research programs, quality education services and cooperation in the Indonesian and Southeast Asian regions supported by optimal infrastructure, capable of improving and developing research, education, science and culture", she added.

Cottonii seaweed is one of the leading commodities in the Indonesian fisheries and marine sectors. This commodity has a fairly high economic value because it produces carrageenan which functions as a thickener and stabilizer of food ingredients. SEAMEO BIOTROP has been conducting tissue culture research on Cottonii seaweed using somatic embryogenesis techniques

since 2010. Publications on the research results of Cottonii seaweed tissue culture at SEAMEO BIOTROP and test results for planting tissue culture seedlings in several Indonesian coastal waters were published in 2014.

In his remarks, the Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran said that this training could expand a good communication network among researchers from SEAMEO BIOTROP, universities, vocational schools, regional governments, private sectors, research institutes, NGOs and related ministries, so that research and development programs of the seaweed industry in Indonesia can synergize well with each other. "In 2014, SEAMEO BIOTROP established a collaboration program with the Directorate General of Aquaculture of the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia, to apply the research results of producing Cottonii seaweed seedlings in overcoming the lack of available sustainable superior seaweed seedlings in Indonesia", he explained.

The four-day training course featured Dr Ir Erina Sulistiani, MSi as the resource person. The training materials were tissue culture technique for the provision of plant and seaweed seedlings, the necessary equipment facilities and aseptic techniques in seaweed tissue culture, Cottonii seaweed tissue culture media and stages of Cottonii seaweed tissue culture. A total of 176 researchers, educators or practitioners in the field of plant biotechnology or aquaculture, especially in the field of seaweed, participated in the training course. (ap/rf)

Training Course on Fumigation in the Perspective of Integrated Pest Storage Management

A total of 483 participants joined virtual Training Course on Fumigation in the Perspective of Integrated Pest Storage Management. The event that was conducted on 13-14 July 2021 aimed to improve capacity of the participants in distinguishing insects, wood destroying organisms, archival materials, and museums. The participants were also expected to improve their capacity in conducting general pest control, integrated storage management technique, appropriate techniques of Sulfuryl Fluoride and fosfin fumigation.

In her report, the Training Coordinator, Ms Sri Widayanti, MSi said that the training was arranged to be conducted in March 2021. "This training was supposed to be held in March 2020 by offline platform. However, due to the prolonged Covid-19 pandemic, the training is conducted today, virtually", she said. "In this training, we originally targeted only 75 participants. But thank God, with the permission from Allah SWT, the registered participants reached 483 persons. We regretfully had to close the registration considering the Zoom user capacity is 500," she added. Participants were researchers and academics from government agencies, universities, schools, pest control/fumigator companies, food and feed companies and general public.

The Director of SEAMEO BIOTROP, Dr Zulhamsyah Imran, in his opening remarks, emphasized the importance of fumigation in storage management. "In the perspective of integrated storage pest management (PHGT), fumigation is still a very important

component and a mainstay to overcome the problem of storage pests, wood destroying organisms, archives, library and museum materials apart from preventive activities through sanitation," he said. He also added that the implementation of this training is very important to update knowledge on types of pests and their management. "Knowledge about the process and implementation of fumigation techniques must be possessed by fumigators, warehouse managers, food and feed industries, archive storage managers, herbarium collections and museums. In addition, parties who are not directly related to this matter, but as researchers or observers also need to update their knowledge about fumigants and fumigation. Before officially opening this activity, Dr Zulhamsyah Imran expressed his gratitude to the committee, participants, and related parties for their assistance in making this event possible to be conducted.

The materials provided in this training included: 1. Warehouse Pest Insects, Wood Destroying Organisms, Archive Materials, Museums and their Management; 2. General Pest Control; 3. Integrated Warehouse Pest Management (PHGT); 4. Fumigation Techniques of Sulfuryl Fluoride; 5. Phosphine Fumigation Technique. The training featured four resource persons, namely Dr Idham S. Harahap (Institut Pertanian Bogor/IPB dan Affiliate Scientist of SEAMEO BIOTROP), Yudhi Wahyudi (PT Tribhakti Inspektama), Ms Sri Widayanti, MSi (SEAMEO BIOTROP), and Ms Trijanti A. Widinni A., SP, MSi (SEAMEO BIOTROP). (rf)

In continuing its intention to get closer to schools, universities and communities, SEAMEO BIOTROP continues the BIOTROP to School webinar series, as follows:

Seri 9: Remote Sensing and Geographic Information System

This webinar was held in collaboration with Bogor Science Club, Forum Wacana, and Institut Pertanian Bogor on 19 July 2021. This webinar was aimed to introduce the concept of Remote Sensing and Geographical Information System (GIS) technologies, to present the urgency of precision agriculture and its relations to Agriculture 4.0, and to utilize remote sensing and GIS technologies for precision agriculture. The webinar was joined by 313 active participants from universities, government agencies, and private sectors. The resource persons and topics presented in this webinar were: 1. Mr Harry Imantho, MSc, the Head of Remote Sensing and Ecology Laboratory of SEAMEO BIOTROP, who presented his slides on Remote Sensing and GIS for Precision Agriculture. He explained about the definition, technologies and utilizations of Remote Sensing and Geographical Information System technologies in precision agriculture as well as sharing his experiences in applying Remote Sensing and GIS technologies in precision agriculture; 2. Mr Slamet Widodo, MSc who shared his knowledge on the Potency of GIS and Remote Sensing Technology for Strategic Environmental Assessment. (sis)

Seri 10: Biodiversity Survey: Learning Tropical Biology through Mapping

Mapping is an important tool to determine the existing biodiversity in an area. In implementing its mandate of training, SEAMEO BIOTROP held the 10th Seri of BIOTROP to School webinar, with the topic "Biodiversity Survey: Learning Tropical Biology through Mapping". The resource person was Mr Armaiki Yusmur, MSi, the Head of Biosystem Landscape and Management Laboratory. This laboratory conducts research and development on marginal land management and restoration, fungicide efficacy tests, as well as development of mycorrhiza inoculum and potential soil bacteria for reviving soil fertility. The resource person, Mr Armaiki Yusmur, MSi, shared his experiences in visiting the map points in various areas in Indonesia, both in terrestrial and aquatic ecosystems. He shared that the visits were conducted after looking at the Landsat imageries, to determine whether or not the conditions in certain map points were still the same or had changed into different conditions. He also shared several important aspects that needed to be prepared prior to the visits, such as itineraries of the journeys, modes of transportation, logistics, and funding. It is important to include local people who really understand the conditions and challenges that will be faced along the way to the map points locations and then, we have to make preparations based on the information. Mr Armaiki also shared that it is possible for students of vocational schools to learn about mapping by using the most current technologies. The students can start by identifying the vegetation around the schools' areas. He also offered the students to join the internship program in mapping and research collaborations with other institutions. (sis)

BIOTROP Leadership Management Program (BLMP) Workshop: Series 1: Initiative Improvement and Multitasking Jobs

BIOTROP Leadership Management Program (BLMP) is a program to improve the competence of human resources in SEAMEO BIOTROP in supporting a better management system by improving managerial soft and hard skills in various expertise. In general, the program will include a series of blended in-house workshops to trigger and maintain the leadership traits of the employees of SEAMEO BIOTROP. The first series of the in-house workshop was held on 22 June 2021 with the theme "Initiative Improvement and Multitasking Jobs".

"I do hope that this workshop will provide not only new knowledge, but also breakthrough and new ideas in accommodating initiatives and multitasking jobs as a skill that has to be owned by leaders and staff to support a better management system", explained Dr Zulhamsyah Imran, the Director of SEAMEO BIOTROP, in his opening remarks.



Mr Pratomo Bimawan Putra, ST, MEnt (left) and Mr Bayu Nurbaya, ST (right), resource persons of the BLMP Workshop

The presented materials and resource persons of this workshop were: 1. Leadership Stimulation through Initiatives at Work (by Mr Bayu Nurbaya, ST, the Head of Risk and Quality Management Group at Jasa Marga Tbk.; and 2. Multitasking Work Strategy includes Time Management (by Mr Pratomo Bimawan Putra, ST, MEnt, the Head of TransJawa Tollroad Regional Division at Jasa Marga Tbk. The workshop was actively participated by 30 participants, with Ms Dewi Suryani, MM, as the workshop's moderator (rh/jk/fj).



Participants of the BLMP Workshop

SEAMEO BIOTROP, in collaboration with the Center for Disaster Studies (PSB), LPPM Institut Pertanian Bogor, and PI AREA held an International Workshop with the theme "Mainstreaming Loss and Damage Among ASEAN Countries" on 31 July 2021 through online platform. This activity aimed to increase knowledge, understanding, and awareness of community regarding the concept of loss and damage in climate change, as well as mainstreaming the principles of loss and damage in daily life. A total of 156 participants of representatives of central and local governments, non-governmental organizations, various communities, associations and schools, development partners to various universities, academics and researchers were participated in this event.

The international workshop was officially opened by the Head of LPPM Institut Pertanian Bogor, Dr Ernani Rustiadi, MAg. The keynote speaker, Dr Zulhamsyah Imran, the Director of SEAMEO BIOTROP, delivered speech on the topic of loss and damage from a biodiversity perspective. "Biodiversity as the most affected factor, the challenges we face, when we lose biodiversity and loss and damage mechanisms solution in biodiversity perspective", he said.

This virtual workshop featured the following speakers:

1. Sonny Mumbunan, PhD. from the Research Center for Climate Change, Universitas Indonesia, which presented the topic of the importance of mainstreaming loss and damages with the developmental point of the development of loss and damage issues in Indonesia, loss and damage and its impact on various fields that appear due to climate change, loss and damage assessment due to climate change and its challenges.
2. Mr Mark De La Paz, MSc of the Conservation Marine Biologist from Bacolond, Philippines with the topic of loss and damage to the sea and its resources with the point of conveying the role of the ocean in controlling climate circulation and supporting life, ocean issues in dealing with climate change, especially in Southeast Asia and loss and damage to marine resources and their impact on humans.
3. Mr Prihadi Adhie, MMB, a Disaster Management Expert and MetroTV News Anchor, who delivered the topic appropriate management of disasters due to climate change, delivery of potential disasters due to climate change in Indonesia and the most appropriate disaster management for disasters caused by climate change.
4. Mr Mahawira S. Dillon, MSc of the Indonesia Cera Foundation, with the topic loss and damage in sustainable development, with the point adoption of renewable energy technology as a solution to overcome loss and damage in ASEAN vulnerable countries, overcoming the challenges of urbanization and improving people's welfare in ASEAN and realizing sustainable development with renewable energy.
5. Ms Annisa Hasanah, MSi the founder of Ecofunopoly with the topic of the best efforts and strategies for public awareness with the point the importance of raising public awareness regarding loss and damage, the most appropriate strategy or method to raise public awareness. (rf).

Talk of Affiliate Scientist Series 5: Entomology Practice and Pest Control in Controlling Food Safety

In realizing its commitment to keep the food/feed security and safety, SEAMEO BIOTROP held an online workshop "Talk of Affiliate Scientist Series 5: Entomology Practice and Pest Control in Controlling Food Safety" on 24 August 2021. This workshop aimed to provide information on the importance of pest control in maintaining food safety from the risks of contaminations by chemical, biological, or other substances. Those contaminations can cause adverse effects on human's and animal's health. The workshop also provided information on proper pest control techniques, both on-farm and off-farm or in post-harvest storage.

Resource persons and topics presented in this workshop were:

1. Dr Idham Sakti Harahap, affiliate scientist of SEAMEO BIOTROP from Institut Pertanian Bogor who presented the roles and contributions of the entomology field in guarding food safety.
2. Mr Arief Zakaria, Director of PT Ecopro Arztech Indonesia, who presented fumigation application techniques using phosphine (PH3).

As one of the regional centers in the field of tropical biology, pests are one of the areas of expertise at SEAMEO BIOTROP. In his

welcome remarks, the Director of SEAMEO BIOTROP, Dr Zulhamsyah stated that one of the potential threats related to food safety in the food production industry is insect pest contamination. "Insect infestations in food products can potentially reduce the quality of the products. The products recalled or returned by consumers and the loss of consumer confidence can cause financial losses to the industry," he said. Management of pest control in every production chain to the consumers needs to be considered, so that food safety is maintained. "Efforts in implementing and maintaining standards in the food industry related to food safety management systems, such as ISO 22000, Food Safety Management System (FSMS), Hazard Analysis Critical Control Point (HACCP), and Good Manufacturing Practice (GMP) need to be applied so that the food safety is kept in the highest level," he added.

A total of 119 participants joined this workshop. These participants were from universities, government agencies, private sectors, research institutions, and the general public across Indonesia. (day).