

# BIOTROP Courier



**Prof Bambang P.S. Brodjonegoro, PhD, the Minister of RISTEK/BRIN of Indonesia Praises SEAMEO BIOTROP in Down Streaming Results of Research Activities**

**BIOTROP's 52<sup>nd</sup> Anniversary: Learning and Sharing Innovations for Community**

**BIOTROP Decrees to Conduct Working-from-Home Protocol as One of the Strategies to Prevent the Spread of COVID-19 in the Centre**

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## Director's Message

Dear valued readers,

The year of 2019 has passed, and now we are at the beginning of 2020. This year, the Centre will continue to implement the highlighted programmes as stated in SEAMEO BIOTROP's Five Year Development Programmes for 2017-2022.

In the first quarter of 2020, the Centre was honoured to welcome Prof Bambang P.S. Brodjonegoro, PhD, the Minister of Research and Technology/National Research and Innovation Agency of the Republic of Indonesia on 23 January 2020 in our Campus. During the visit, the Minister recognised the Centre's significant achievements presented through the mini-exhibition. The Centre celebrated its 52<sup>nd</sup> anniversary on 26-27 February 2020 with the theme 'Learning and Sharing Innovations for Communities'. During the event, the Centre inked six Memoranda of Understanding with five institutions and one company. The celebration was enlivened with talk shows and exhibition on modern farming participated by over 700 participants. We awarded a Lifetime Achievement Awards to four of our scientists and Dharma Bhakti Badge Awards to 72 staff for their long-term and high dedication to the Centre.

Back-to-back with the anniversary celebration, the Centre hosted the first Inter-Centre Collaboration Meeting on 24-25 February 2020 which was attended by Board of Directors and staff of seven SEAMEO Centres in Indonesia to discuss integrated budget and programmes for 2020.

As a form of our service to the community, our Centre facilitated two training courses, i.e., on plant tissue culture and on geographic information system, held in February 2020, for 50 lecturers and teachers of various Agricultural Development Polytechnics and Agricultural Development Vocational High Schools throughout Indonesia under the Ministry of Agriculture of the Republic of Indonesia. We also enhanced the quality of our training materials by conducting in-house training course on training materials preparation in January 2020, which was participated by our researchers, research assistants and administrative staff.

All articles you will read in this issue will broaden your horizon. We wish the best to all of you for the whole year of 2020.

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## Prof Bambang P. S. Brodjonegoro, PhD, the Minister of RISTEK/BRIN of Indonesia Praises SEAMEO BIOTROP in Down Streaming Results of Research Activities



A souvenir handover from Dr Irdika Mansur (right) to Prof Bambang Brodjonegoro (left)

"In the next 3-5 years, research in Indonesia should focus on three aspects, i.e. 1) appropriate technology, 2) value-added products, and 3) improvement of local content or import substitution," said Prof Bambang P. S. Brodjonegoro, PhD, the Minister of Research and Technology/National Research and Innovation Agency (RISTEK/BRIN) of the Republic of Indonesia, in his directional speech during his visit to SEAMEO BIOTROP on 23 January 2020.

During the meeting session, Dr Irdika Mansur, Director of SEAMEO BIOTROP, briefly introduced the profile and achievements of SEAMEO BIOTROP, in particular on research activities. In response to Dr Irdika's presentation, Prof Bambang admitted that his visit is an eye-opener into the excellent continuing research activities that have been conducted by researchers at SEAMEO BIOTROP. He appreciated the facts that research carried out in SEAMEO BIOTROP ranges from basic research to applied research, both of which are equally important and support one another. He mentioned that basic research provides results that function as bases for applied research, while any challenges found in applied research are worth as substances for basic research.

In relation to environmental aspects that the Centre has been focusing on, Prof Bambang recognised the urgency of ex-mining land restoration to re-establish productive land. Therefore, he would support the restoration efforts, especially by providing more lenient regulations to smooth up the research on ex-mining land restoration and the implementation of the research results.



Dr Sri Sudarmiyati (right) and Dr Soekisman Tjitrosemito (middle) show books of invasive plant species to Prof Bambang Brodjonegoro (left)

In regards to agricultural products, he urged the researchers to conduct research on genetics and food technology, in the sense of appropriate technology, to elevate the value-added of agricultural products. He strongly suggested the researchers maintain a close relationship with the agro-industrial world to get information on which agricultural products that are currently in demand globally. In the same spirit, he also urged the researchers to persistently share the applicable research results to the farmers, not only as a science but also as promising income-generating avenues for the farmers, so that the farmers are triggered to become corporate farmers.

Prof Bambang praised SEAMEO BIOTROP for actively disseminating and sharing research products to vocational schools and universities throughout Indonesia while providing assistance in implementing the research results and developing the students' entrepreneurial skill in marketing the resulted agricultural products.

He further elaborated the essential reason for establishing BRIN (Badan Riset dan Inovasi National/National Research and Innovation Agency) which is to integrate all research and development institutions under one agency, so that all aspects of research and development are focused towards national research and development. He also emphasised the importance of linking research and education by involving vocational and university students in disseminating research results. To accommodate research in agriculture, BRIN will establish agriculture research cluster. BRIN takes the role as administrator and negotiator to smooth up any challenging regulations that are potential in becoming obstacles for conducting research and development in Indonesia. In taking this role, BRIN will need comprehensive inputs from the researchers.

After the meeting session, Prof Bambang visited mini-exhibition of products and technology developed by BIOTROP. (sis)



## SEAMEO BIOTROP Explores Cooperation with Government of Padang City



*Meeting atmosphere of SEAMEO Centres in Indonesia and Government of Padang City*

High officials from the Government of Padang City, West Sumatra, visited BIOTROP's Campus in Bogor on 13 February 2020 and conducted a meeting to discuss potential collaboration with the Centre for city development. The meeting was also participated by other SEAMEO Centres in Indonesia, namely SEAMEO RECFFON, SEAMOLEC, CECCEP, QITEP in Science, QITEP in Mathematics and QITEP in Language, which will also conduct collaboration with the Government of Padang City.

The Regional Secretary of Padang City, Mr Amasrul, in his remarks, said that Padang City has abundant natural resources that still need to be developed. He also emphasised the importance of improving the skills of officials and residents of Padang City in various fields of expertise to succeed in the natural resource management plan which leads to the increase of community welfare.

In his remarks, BIOTROP's Deputy Director for Administration, Dr Zulhamsyah Imran, said that the memorandum of understanding (MoU) that will be signed in the near future would



*Director of SEAMEO RECFFON, dr. Mughtaruiddin Mansyur, PhD, delivers a presentation of the Centre to the meeting participants*

be duly implemented in the form of effective action plans for the benefits of Padang people. The Centre will fully support the implementation of the MoU by providing experts, training activities, consultation and any other activities needed by the Padang City.

Dr Gatot Hari Priowirjanto, Coordinator of SEAMEO Centres Indonesia, added that the Government of Padang City could collaborate with BIOTROP for the development of urban forests as well as fresh water lobster and fish farming. He also encouraged the Padang City Government to establish cooperation with the government of other Southeast Asian's cities.

On this occasion, Padang City Officials also visited Hydroponics Unit, Aquaponics Unit, Edible Mushroom Cultivation Unit and Tissue Culture Unit of the Centre.

Also attending the meeting was Acting Task (PLT) Head of the Bureau of Cooperation and Public Relations of Secretariat General of the Ministry of Education and Culture of Indonesia, Drs Ade Erlangga Masdiana, MSi. (zsp)

## SEAMEO Centres in Indonesia Determine Budget and Programme for 2020

SEAMEO Centres in Indonesia conducted their first Inter-Centre Collaboration Meeting (ICCM) in 2020 on 24-25 February 2020 at BIOTROP's campus in Bogor to discuss the Centres' budget and programme implementation plan for 2020. A total of 41 representatives from seven SEAMEO Centres in Indonesia, consisted of the Board of Directors and staff, participated in this activity.

During the two-day discussion, the Centres had a brainstorm in the direction and evaluation of their programmes for the application of the Public Service Agency (BLU) scheme and functional non-tax revenue (PNBP). The Centres invited Ms Yulma Santi, MT, from Centre for Agro-based Industry (BBIA) to share the management of functional PNBP in BBIA as a BLU under the Ministry of Industry as well as Mr Achmad Sanusi and Mr Cahyo Indartomo from the Directorate General of Budget of the Ministry of Finance of the Republic of Indonesia to share knowledge on the government policy on functional PNBP application and management.



*Participants focus on the meeting*

The meeting also emphasised joint programmes among the Centres, including blended training course which was initiated by SEAMOLEC. The Centres also talked over the follow-up to the cooperation programme in STEM education with the Ministry of Education, Youth and Sport of Timor Leste, which was initiated by RECFFON and SEAQIS. Another topic was the implementation of the border school programme initiated by SEAMEO Secretariat Bangkok since 2019. (zsp)

## BIOTROP Facilitates the Ministry of Agriculture to Elevate the Capacity of Its Human Resources

SEAMEO BIOTROP in collaboration with the Ministry of Agriculture of the Republic of Indonesia conducted a training course on Plant Tissue Culture on 10-14 February 2020 as well as a training course and professional certification on Application of Geographic Information Systems (GIS) on 10-17 February 2020 to support the Ministry's Strategic Command for Agricultural Development (Kostra Tani) programme. These activities were participated by 50 lecturers and teachers of various Agricultural Development Polytechnics and Agricultural Development Vocational High Schools throughout Indonesia under the Ministry of Agriculture.

"Kostra Tani is an agricultural development programme applied at the subdistrict level by optimising duties, functions and roles of the Agricultural Counseling Center (BPP) in actualising national food sovereignty. To implement this programme, it is necessary for the actors, including lecturers and teachers of agriculture-based schools, to have specific skills that can help in overcoming problems in the field. Therefore, we collaborate with BIOTROP to hold these tissue culture and GIS training courses with the hope that the capacity of our educational staff will improve," said Dr Idha Widi Arsanti, Head of Agricultural Education Center of the Ministry, in her remarks. Dr Idha also mentioned that in agriculture, the plant tissue culture technique contributes to maintaining the quality of the seedlings in large quantities, while the GIS would be useful for agricultural development planning.

Dr Zulhamsyah Imran, BIOTROP's Deputy Director for Administration, officially opened the activities. In his opening remarks, he emphasised that the Agricultural Development Polytechnics and Agricultural Development Vocational High Schools are expected to generate superior and internationally competitive human resources in agriculture field. The schools will not only become sources of information for the community, especially farmers but also act as facilitators and motivators for them in utilising various information and learning resources.

"BIOTROP has developed a plant tissue culture technique since 1985. To date, many collaborations have been established with various institutions both for the provision of the seedlings and for technology transfer. The Centre has also made a cooperation

agreement with the Ministry's Agricultural Education Centre in terms of elevating its human resources' capability," said Dr Zulham. Meanwhile, in terms of GIS, BIOTROP has conducted research and experienced in delivering knowledge to the community. For the past three years, there were more than ten training courses that had been held. The Centre had previously conducted a training course and professional certification on GIS for fourteen staff of the Ministry.

For the tissue culture training course, BIOTROP featured its two experts, namely Dr Erina Sulistiani and Samsul Ahmad Yani, SSI. They delivered 14 topics in classroom and practicum sessions, including 1) tissue culture techniques for the production of plant seedlings, 2) plant micropropagation techniques, 3) facilitation of the production of plant seedlings by tissue culture techniques and aseptic techniques, 4) introduction and maintenance of tissue culture laboratory facilities and equipment, 5) tissue culture media for plant seedling production, 6) stock solutions of macro and micronutrients, 7) stock solutions of Fe-EDTA, Vitamins, BAP, IAA and growth regulators, 8) culture media making, 9) micropropagation of horticultural, medicinal and plantation species, 10) sterilisation of explants (seeds, shoots, tubers and rhizomes), 11) introduction of subcultures (elongation of shoots and shoot multiplication), 12) plant nursery management with tissue culture techniques, 13) acclimatisation media, and 14) post-acclimatisation maintenance.



Participants pay attention to the lecture



Participants prepare the plants for tissue culture process

Meanwhile, for the GIS training course, the resource persons were Dr Aslan, Harry Imantho, MSc, Armaiki Yusmur, MSI, and Slamet Widodo, SSI from BIOTROP, Dr Impron and Yon Sugiarto, MSc from IPB University and Iwan Setiawan, MPI from PT Agrisoft Citra Buana. They also presented their topics in classroom and practicum sessions, consisting of 1) introduction to GIS and remote sensing, 2) introduction to GIS software (proprietary and open-source software), 3) data acquisition using Global Positioning System (GPS) and drones to support precision agriculture, 4) image data processing, interpretation of satellite imagery and digitisation of spatial data, 5) geodatabase preparation, 6) working with attribute data, 7) spatial and non-spatial data integration,

8) spatial data analysis for precision agriculture, and 9) cartography and map layout for dissemination purposes.

At the end of the training course, an examination on GIS was conducted to measure participants' competence in GIS. Upon completing the GIS training course, the participants were provided with professional certification on GIS as proof of their competence.

By joining these training courses, it was expected that the participants could make an action plan to be implemented in their respective institutions and transfer the knowledge to their students. (zsp)



A group photo with participants of the training courses



Mr Harry Imantho, MSc, delivers his lecture to the participants



Participants conduct practicum session using software



Participants try using a GPS (Global Positioning System) tool



Participants learn how to fly a drone



## BIOTROP's 52<sup>nd</sup> Anniversary: Learning and Sharing Innovations for Community

SEAMEO BIOTROP celebrated its 52<sup>nd</sup> anniversary on 26-27 February 2020 by bringing up the theme 'Learning and Sharing Innovations for Community', which emphasises the Centre's focus to disseminate various BIOTROP excellent innovations to the community as well as to build and strengthen the support of stakeholders at national and regional levels in promoting the real values of tropical biology in Southeast Asia.

Dr Irdika Mansur, BIOTROP's Director, in his remarks, conveyed that the Centre has contributed not only to the development of higher education through a high standard of research and publication but also to primary and secondary education to support Science, Technology, Engineering and Mathematics (STEM) education. "The research results could easily be applied by vocational students and the general public, not merely as scientific references for higher education. For example, BIOTROP conducts various studies on urban agriculture to find best practices to be implemented by the community," he said.

Dr Irdika also added that vocational schools (SMKs) would be the spearhead in agricultural development in Indonesia. For this reason, BIOTROP has fostered more than 100 SMKs in Indonesia to support the SMK Revitalisation and Food Security programmes, in collaboration with the Directorate of SMK Development. At the initiative of Dr Didik Suhardi who was then serving as Secretary-General of the Ministry of Education and Culture of the Republic of Indonesia, BIOTROP has been establishing a seasonless fruit development programme (SMARTS-BE programme) targeting schools and has been training and establishing fruit orchards in 36 selected Agricultural SMKs throughout Indonesia since 2018.

Meanwhile, in his remarks, the Minister of Education and Culture of the Republic of Indonesia, represented by Prof Dr Arif Satria (Rector of IPB University), stated that in the 4.0 technology era which is based on big data, internet of things-based technology, the Centre has active roles in enriching learning material for students. BIOTROP introduces school garden technology, hydroponics, aquaponics, SMARTS-BE, Teaching Factory and entrepreneurial expertise to schools. IPB University and BIOTROP strengthen their cooperation through various collaborative activities in the field of programmes and the use of laboratory facilities, information dissemination on research publications, and joint movement on Indonesia's biodiversity conservation.

The Mayor of Bogor, Dr Bima Arya, in his remarks, stated that BIOTROP has contributed to the planning of Bogor City to be an environmentally-friendly city, while continuing the community development activities. Collaborations between Bogor City and the Centre include the establishment of the Centre as Bogor Community Learning Park, a million-parks city planning, entrepreneurial skill development, as well as teacher training programmes for schools in solid waste management, urban agriculture, school gardens and mushroom cultivation.

Deputy Director for Programme of SEAMEO Secretariat, Bangkok, Dr Wahyudi, in his remarks, conveyed that BIOTROP is increasingly strengthening its commitment to developing creative innovations and increasing its integrity as a leading tropical biology research institution through research, training, dissemination and collaboration expansion with potential partners.



*Dr Irdika Mansur cuts the cone-shaped rice as a symbol of the anniversary celebration*

On this occasion, a Memorandum of Understanding (MoU) between the Secretary-General of the Indonesian Ministry of Education and Culture of the Republic of Indonesia and the Government of Padang City was signed. BIOTROP also signed six MoUs with the Government of Bogor City, Tropical Horticulture Study Centre (PKHT) of IPB University, Karawang International Industrial City, *Yayasan Konservasi Alam Nusantara* / The Nature Conservancy Indonesia (YKAN/TNC), IPB Alumni Association, and the Padang City Cooperative and SME Office.

Two new BIOTROP programmes were also launched at the event, namely Agro-ecoeduwisata and Coastal and Marine Bioresources Exploration: from Discovery to Innovation. Agro-ecoeduwisata is a collaborative program between the Centre and PKHT which aims to introduce agricultural and environmental science and technology through inclusive visits that adopt elements of education and ecotourism. Meanwhile, Coastal and Marine Bioresources Exploration: from Discovery to Innovation is an exploration programme for marine and coastal biological resources to find and create new innovations for the benefit of the community, especially in the Southeast Asian region.

The two-day celebration was enlivened by Talk shows and Exhibition on Tropical Biology Education and Community Empowerment. Talk shows with the theme of hydroponics, aquaponics, edible mushroom cultivation, plant tissue culture, potted fruit plants and essential oil featured the Centre's researchers and staff as resource persons, namely Riana Hartati, S.Si, Shella Marlinda, MSI, Samsul Ahmad Yani, S.Si, Dr Erina Sulistiani, Dr Supriyanto and Jonner Situmorang, MSI.

The exhibition featured BIOTROP's products and technologies, which were the results of excellent research achievements over the past 52 years. The exhibition was also participated by five fostered SMKs (SMK 2 Subang, SMK 1 Pacet, SMK 4 Bogor, SMK 57 Jakarta and SMK Wikrama), PKHT, the BIOTROP Women's Association and the Bogor Women's Farmers Group.

As a tribute to senior researchers and staff, BIOTROP's Director also presented the Lifetime Achievement Award to Prof Dr Okky Setyawati Dharmaputra, Dr Soekisman Tjitrosemito, Dr Sri Sudarmiyati Tjitrosloedirjo and Dr Supriyanto, as well as the Dharma Bhakti Badge Award to 72 staff for their 10, 20 and 30 year-high dedication to the Centre. (zsp)



Mayor of Bogor City, Dr. Bima Arya, delivers his remarks



Deputy Director for Programme and Development of SEAMEO Secretariat, Dr. Wahyudi, (right) handovers a Dharma Bhakti Badge Award to Dr Irdika Mansur (left)



BIOTROP's Research Assistants give an explanation to visitors of exhibition



Rector of IPB University, Dr Arif Satria, (left) and Dr Irdika Mansur visit the exhibition stands

## Let's Meet Our Dedicated Senior Scientists!

During the ceremony of SEAMEO BIOTROP's 52<sup>nd</sup> anniversary celebration on 26 February 2020, the Centre awarded Lifetime Achievement Awards to four of its senior scientists for their long-term and high dedication to the Centre. Let's get to know them better!



### Prof Dr Okky Setyawati Dharmaputra

is a mycologist who has joined SEAMEO BIOTROP since 1975. She earned her Bachelor's degree in Biology from the Faculty of Biology, Universitas Jenderal Soedirman, Purwokerto, Indonesia, in 1975. Her DEA (Diplome d'Etudes Approfondie) and Docteur de 3<sup>ème</sup> Cycle degrees in Ecology and Phytopathology were obtained from the Université de Sciences et Technique du Languedoc, Montpellier, France, in 1980 and 1983, respectively.

Since 1985, Prof Dr Okky Setyawati Dharmaputra has been in charge of various national and international research projects related to fungi and mycotoxins in food and feed ingredients. She has been one of the experts in the Food and Drug Monitoring Agency (BPOM) since 2005. Prof Dr Okky was also responsible for collaborative research between BIOTROP and Public Corporation BULOG in 1989-1991 and 1993-1994, as well as cooperation between the Centre and ACIAR (The Australian Centre for International Agricultural Research) in 2001 to 2006.

Until present, she has published more than 90 scientific publications, mainly on postharvest fungi and mycotoxins, both at national and international levels.

### Dr Sri Sudarmiyati Tjitrosoedirdjo

is a plant taxonomist who has joined SEAMEO BIOTROP since 1974. Her expertise includes a taxonomy of Asteraceae family, bryophytes, weed plants, as well as invasive alien plant species. She completed her Bachelor degree at the Faculty of Biology, Universitas Gadjah Mada, Yogyakarta, Indonesia, in 1976 with botany as her research area. She earned her Master's Degree in ecology from the University of College North Wales, Bangor, England, in 1982, and a Doctorate from IPB University in 2000 specialising in plant taxonomy.

During her career at BIOTROP, Dr Sri Sudarmiyati Tjitrosoedirdjo established the SEAMEO BIOTROP Herbarium (BIOT) and is a curator of the BIOT Herbarium specialising in weed and invasive alien plant species in Indonesia and Southeast Asia, the forest vegetation of Sumatra and West Kalimantan, as well as Bryophyta and Lichen of West Java and West Sumatra with the total collection of 16,800 specimens.

Dr Sri Sudarmiyati Tjitrosoedirdjo also actively provides training courses in the management of weeds and invasive plant species in the agricultural, plantation and forestry ecosystems. In 2001 to 2012, she conducted regional training on Bryophyta and Lichen in collaboration with Göttingen University and the National University of Singapore. At present, she is involved as one of the counterparts of IPB University's research collaboration with Göttingen University under Collaborative Research Centre 990: Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems in Sumatra, Indonesia.

Dr Sri Sudarmiyati Tjitrosoedirdjo has published the results of her research in various national and international journals. Together with her colleagues, she has also written three books about weeds and invasive alien plants species.







### Dr Soekisman Tjitrosemito

is a weed scientist who has joined SEAMEO BIOTROP since 1973. He earned his Bachelor's degree from the Faculty of Agriculture of the University of Western Australia in 1974, then a Master's degree in agronomy from the University of Philippines at Los Banos, Philippines, in 1976, and a Doctoral Degree from the Faculty of Science and Technology of Kobe University, Japan, in 1991.

Dr Soekisman Tjitrosemito dedicates himself to research in ecology and the management of invasive alien plant species and terrestrial weed species, and their biocontrol agents. His research on Insect Community Structure in Exotic Invasive Plant Species, Pest Management in the Silvicultural Intensive Area in Kalimantan, and Management of Invasive Alien Plant Species in Several National Parks in Indonesia (Bukit Barisan Selatan National Park, Gunung Gede Pangrango National Park and Baluran National Park) have been cited and used as a reference for other studies.

Over the past 40 years, Dr Soekisman Tjitrosemito has collaborated with various researchers and institutions, both from Indonesia and abroad, and has produced more than 150 publications in the form of monographs, proceedings, journals, book chapters and books.



### Dr Supriyanto

is a silviculturist who has joined SEAMEO BIOTROP since 1981. He completed his undergraduate education at the Faculty of Forestry, Universitas Gadjah Mada in 1981 and earned his Doctorate from the Faculty of Science, Nancy University, France in 1989 in the field of Plant Physiology and Forest Biotechnology.

Dr Supriyanto has accomplished many studies related to silviculture. His research interests include soil carbon management; mycorrhizae; plant physiology; sorghum mutase breeding for food, feed, fuel and fibre; forest health monitoring; seed technology; essential oil; forest honey bees in West Kalimantan as a natural product; fruit tree and agricultural energy.

During his 40-year career as a researcher, Dr Supriyanto has collaborated with various researchers, both from Indonesia and abroad, and produced more than 50 publications in the form of monographs, proceedings, journals, books and book chapters. (zsp)



A group photo with the recipients of BIOTROP's Lifetime Achievement Award

## BIOTROP, Bogor City Government Formalise Their Collaboration

SEAMEO BIOTROP extends its collaboration with the Government of Bogor City by signing a Memorandum of Understanding (MoU) during the Centre's 52<sup>nd</sup> anniversary celebration on 26 February 2020 at BIOTROP's campus in Bogor. This three-year MoU focuses in socio-economic development to support the Green City programmes of Bogor City, and was signed by BIOTROP's Director, Dr Irdika Mansur, and the Mayor of Bogor City, Dr Bima Arya.

The collaboration covers 1) implementation of the Bogor City programme as a School Garden City for students' nutrition improvement, literacy and entrepreneurship; 2) implementation of training programmes for high school teachers and students in the preparation of scientific work; 3) assistance of a healthy school programme; 4) development and application of appropriate tropical biology-based technology including urban farming for community empowerment; 5) implementation of remote sensing technology and geographic information systems applications in planning and monitoring urban development and agricultural sector development, mapping of food insecurity, disaster vulnerability and regional tax objects, as well as enhancing the capacity of human resources; 6) studies in the fields of innovation, technology, economics, development, social, culture and government; and 7) environmental management and protection. (zsp)



*Dr Irdika Mansur (left) and Dr Bima Arya (right) take a photo after signing the MoU*

## BIOTROP and Six SEAMEO Centres in Indonesia Institute Potential Collaborations with Padang City Government

During the celebration of SEAMEO BIOTROP 52<sup>nd</sup> anniversary on 26 February 2020 at BIOTROP's headquarter, seven SEAMEO Centres in Indonesia inked a one-year Memorandum of Understanding (MoU) with Padang City Government. The MoU was signed by the Secretary-General of the Ministry of Education and Culture of the Republic of Indonesia, Prof Dr Ainun Na'im, representing the seven SEAMEO Centres in Indonesia and Mr Mahyeldi Ansharullah, SP, the Mayor of Padang City, representing Padang City Government.

The MoU was established to formalise the technology transfer programmes from the seven SEAMEO Centres in Indonesia to enhance the development of Padang City. For BIOTROP, the MoU particularly covers research and training activities, empowerment and community facilitation, seminars, symposiums, workshops and focus group discussion related to tropical biology to improve the capacity of human resources for managing natural resources in Padang City, which lead to the improvement of community welfare.

In the same day, BIOTROP also signed a MoU with the Cooperatives of Small and Medium Enterprises Office of Padang City, effective for three years. The MoU was signed by BIOTROP's Director, Dr Irdika Mansur, and Head of the Cooperatives and Small and Medium Enterprises Office of Padang City, Mr Syuhandra, SH. The scopes of the collaboration also focus in the development of human resources through socialisation, education, training activities and assistance service. (zsp)



*A group photo of SEAMEO Centres Indonesia and the Government of Padang City*

## Networking Development

For the first quarter of this year, we have established eight Memoranda of Understanding (MoUs) with six institutions and two companies as follows.

Date of signing — 26 February 2020  
Partner — Yayasan Konservasi Alam Nusantara / The Nature Conservancy Indonesia  
Topic — Research on conservation and sustainable use of coastal and marine resources in Indonesia  
Duration — 2 Years

Date of signing — 26 February 2020  
Partner — Dinas Koperasi dan Usaha Kecil dan Menengah Kota Padang  
Topic — Improvement of the capacity and competence of apparatus and micro small business entrepreneurs in the Padang City Cooperative and SME Office  
Duration — 3 Years

Date of signing — 26 February 2020  
Partner — Pusat Kajian Hortikultura Tropika of IPB University  
Topic — Research, innovation, promotion and Agro Eco Edu Tourism  
Duration — 3 Years

Date of signing — 26 February 2020  
Partner — Government of Bogor City  
Topic — Socio-economy development of Bogor City as a Green City  
Duration — 3 Years

Date of signing — 26 February 2020  
Partner — Alumni Association of IPB University  
Topic — Provision of research and consultation with experts and training instructors, community empowerment in the utilisation of tropical biological resources, and a job training for IPB fresh graduates.  
Duration — 3 Years

Date of signing — 26 February 2020  
Partner — PT Maligi Permata Industrial Estate  
Topic — Development of green industrial city, community learning park, and Science Technology Engineering and Mathematics (STEM) Education Park in Karawang Regency  
Duration — 3 Years

Date of signing — 01 March 2020  
Partner — Universitas Islam Negeri Bandung  
Topic — Research and education  
Duration — 3 Years

Date of signing — 04 March 2020  
Partner — MSC Co., Ltd.  
Topic — Seaweed tissue culture  
Duration — 3 Years

## BIOTROP Standardises Training Materials for Its Online Training Course

SEAMEO BIOTROP conducted an in-house training course on preparation of training materials and online training management for its 46 staff on 28-29 January 2020 at its Campus. This activity was intended to 1) provide understanding related to the development of standardised training material; 2) develop web-based training material tailored to the training topics; 3) improve the training quality by using standardised training material; and 4) manage professional online training courses.

“Training course is one of the Centre’s ways to disseminate its knowledge and technology to society. Through this activity, we share the applicable results of our research activities,” said Dr Irdika Mansur, BIOTROP’s Director, in his opening remarks. Following the digital era, he added, BIOTROP is developing the concept of online training to spread knowledge more broadly with the help of internet which can reach remote areas. Such online training activity can also be participated by anyone anywhere at any time. Therefore, effective online training material and management are required.

The activity featured four experts, namely Retno Hendryanti, PhD from Telkom University as well as Zahrani Balqis, MA, Puryanto, MDs, and Muhammad Muslim Rifai, SKom from SEAMOLEC,

who delivered five topics as follows: 1) introduction to training material writing and its techniques, 2) practicum on the preparation of training material, 3) preparation of web-based training material 4) management of Massive Open Online Course (MOOC), and 5) management of e-certificates. (zsp)



A resource person delivers a lecture to the participants



## BIOTROP Introduces Swampy Forest System for an Eco-friendly Mining

Armaiki Yusmur, MSI, a research assistant of SEAMEO BIOTROP, was invited by the Centre of Environmental Technology Study (CETS) of Universitas Islam Indonesia (UII) to be a resource person for the Eco-friendly and Safety Mining training course held on 21-22 December 2019 in Yogyakarta.

In this event, Armaiki shared about the mining impacts on aquatic ecosystem and its rehabilitation with 21 participants coming from various Indonesian universities and research institutions. He explained to the audience that mining activities, without a proper precaution, could affect aquatic ecosystems negatively by changing the river/drainage flow rate patterns, producing acid mine drainage and causing erosion and sedimentation.

He then emphasised that the pH of acid mine drainage is very acidic, and it could be less than 4; thus, it is necessary to improve the quality of mine water in accordance with the environmental quality standards set by the government before it is safely discharged into public waters. To process such water, active methods (aeration and lime application) and passive methods (aerobic/anaerobic wetland, open limestone channel, Anoxic Limestone Drainage (ALD), Successive Alkalinity Producing System (SAPS), vertical flow reactors and so on) are usually used.

"With regard to the acid mine drainage management, BIOTROP has proposed a swampy forest method, which is a modified wetland by introducing swamp tree species to the system that function as a heavy metal accumulator," he said. The swampy forest as a passive

treatment system for managing acid mine drainage would significantly reduce the cost for liming and ensure the sustainability of the treatment even if the mining operation has completed. This eventually helps to protect public water from long-term pollution, caused by untreated acid mine drainage produced in the ex-mining sites. In this method, acid mine water flows from the void into the swampy forest which size depends on the rate of water flow to be managed. Hyperaccumulator plants such as cattail (*Typha* sp.) and yellow cheesewood (*Nuclea orientalis*) are planted in a basin area that is located before the compliance point to help in accumulating the metals.

He further explained that in a swampy forest system, an anaerobic condition is applied to the wetland ecosystem to avoid oxidation process and to stimulate the growth of sulfate-reducing bacteria. These bacteria increase alkalinity and remove metals in the form of sulfide deposits; thus, calcium mineral to neutralise the pH of the water is no longer used. The growth of microbes is also supported by the plants' root systems.

In his presentation, Armaiki also mentioned that in the development of the swampy forest system, it is also necessary to analyse rainfall, location suitability, system design, flow and discharge types and substrate at the base of the swampy forest.

Also attending the activity as resource persons were Prof Dr Ir Cahyono Agus Dwi Koranto, MAgr-Sc, from Universitas Gadjah Mada and Azham Umar Abidin, MPH, from UII. (zsp)



Mr Armaiki Yusmur delivers his presentation to participants



The use of hyperaccumulator plants in swampy forest technology for passive acid mine drainage management



Large-scale swampy forest technology development for acid mine drainage management in 53 ha of void

# BIOTROP Decreases to Conduct Working-from-Home Protocol as One of the Strategies to Prevent the Spread of COVID-19 in the Centre

The pandemic of Corona Virus Disease (COVID) 19 significantly influences implementations of programmes of SEAMEO Centres. During the first Inter-Centre Collaboration Meeting (ICCM) held at SEAMEO BIOTROP, Bogor on 24-25 February 2020, the Centres informed the meeting about the cancellation of regional training courses due to travel warning regulation in the Southeast Asian countries. Finally, the World Health Organization (WHO) declared COVID-19 as a pandemic on 11 March 2020, pointing to the over 118,000 cases of the coronavirus illness in over 110 countries and territories around the world and the sustained risk of further global spread (<https://time.com/5791661/who-corona-virus-pandemic-declaration/>). On 12 March 2020, the Secretary-General of the Ministry of Education and Culture of the Republic of Indonesia issued a letter No. 35492/A.AS/HK/2020 to request all institutions under the Ministry of Education and Culture of the Republic of Indonesia to postpone all events that invite participants from outside the region until the COVID 19 issue subsided.

Through a letter No. 36603/A.A5/OT/2020, dated 15 March 2020, on spread prevention of COVID-19, the Secretary-General of the Ministry of Education and Culture of the Republic of Indonesia required all institutions under the Ministry of Education and Culture of the Republic of Indonesia to take actions, including conduct Work-From-Home (WFH) policy for the staff. The regulation shall be applied, started from 16 March 2020. The WFH policy was also supported by the letter of SEAMEO Secretariat, reference No. 12.401/272/20, dated 16 March 2020 on the update on COVID-19 SEAMEO Secretariat Response and Strategy.

Following the letters of the Secretary-General of the Ministry of Education and Culture of the Republic of Indonesia and SEAMEO Secretariat, SEAMEO BIOTROP Director issued a letter No. 783/S.Edaran/III/2020 dated 16 March 2020 on regulation to prevent COVID-19 spread in SEAMEO BIOTROP. The letter included the instruction for the staff to conduct WFH started from 17 to 27 March 2020. However, during the said period, alternately, two managers will have to work at the office from 09.00 – 14.00 hours. The Centre also provided vehicles to pick up and send off the managers and staff who have to come to the office. Except for the face-to-face training activities, seminars and workshops, the Centre's still provided administrative services and activities through online communication, by implementing online meetings. The Centre has also decided to postpone or cancel the reception of external visitors, as well as scientific visit and internship programme for students.

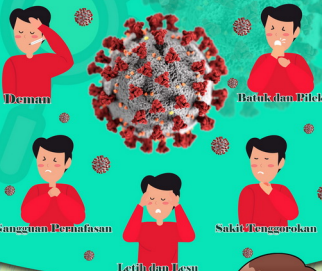
Concerning the severe global issue on COVID 19 and referring to the Decree of the Head of National Agency for Disaster Management (BNPB) No. 13/A/2020 on the extension of disaster emergency status caused by the COVID-19 in Indonesia, through the letter No. 829/S.Edaran/III/2020, dated 27 March 2020, the Centre Director extended the regulation of WFH until 9 April 2020. (rf)

## Mengenal Perbedaan Covid - 19, Influenza dan Pilek

### Covid - 19

adalah virus baru penyebab penyakit saluran pernafasan. Virus ini berasal dari Cina. Covid - 19 merupakan satu keluarga dengan virus penyebab SARS dan MERS.

#### Gejala Klinis



### Influenza dan Pilek

Influenza dan pilek memiliki gejala yang mirip, sehingga terkadang penderita sulit membedakannya. Padahal influenza memberikan dampak yang lebih besar dibandingkan pilek.



#### INFLUENZA ≠ PILEK



#### Pencegahan

##### Covid - 19

- Sering cuci tangan pake sabun dan air mengalir
- Ketika bersin dan batuk, tutuplah mulut dan hidung dengan lengan bagian atas atau tissue
- Hindari banyak menyentuh mata, Hidung dan Mulut
- Jika mengalami batuk, pilek dan sesak napas, segera pergi ke rumah sakit rujukan yang telah ditunjuk
- Hindari berada di sekitar orang lain, Jika harus berada disekitar orang lain, maka aturilah jarak antara orang satu dengan orang lainnya minimal 1,5 meter

##### Influenza dan pilek

- Sering cuci tangan pake sabun dan air mengalir.
- Dapatkan vaksin flu.
- Hindari banyak menyentuh mata, Hidung dan Mulut.
- Jika merasa sakit sebaiknya tetap dirumah.
- Hindari berada disekitar orang sakit.

# Superior Fruit and Agriculture Festival: Promoting BIOTROP's Tissue Culture and Essential Oil Products to the South Sumatran People

SEAMEO BIOTROP was invited to join the 3<sup>rd</sup> Superior Fruit and Agriculture Festival held on 10-12 January 2020 at Griya Agung (South Sumatra Governor's Palace), Palembang. In this event, the Centre introduced plant tissue culture and essential oil distillation techniques to the visitors. BIOTROP also displayed strawberry, satomo taro, fig, teak and banana seedlings as the products of tissue culture and essential oil derivative products such as aromatherapy, soap, mosquito repellent oil and perfume.

The festival was initiated by the IPB University Alumni Association of the South Sumatra Regional Council in collaboration with the South Sumatra Provincial Government to promote the potency of superior local fruit and agriculture crops as well as to develop and enhance the roles of the local community to promote various processed products of South Sumatra's superior fruits as a mean to increase the creative economy in various industries.

Asep Saepudin (Knowledge Management Department) and Iman (Natural Products Laboratory) were assigned to participate in the festival. (zsp)



*Mr Asep Saepudin explains a BIOTROP's product to the wife of South Sumatra's Governor*

## Let's Visit Our Centre!

During the 1<sup>st</sup> Quarter of 2020 (January-March), SEAMEO BIOTROP welcomed visitors from academic, research and government institutions, and companies, namely:

Ministry of RISTEK/BRIN of Indonesia	23 January 2020	SMP Islam Al-Umm Bogor	14 February 2020
SMP IT Al-Haraki Depok	29 January 2020	SMP Azhari Islamic School Jakarta	18 February 2020
SMK Unggul Negeri 2 Banyuasin	03 February 2020	PKK Dramaga Bogor	27 February 2020
MTs Al-Husna Tangerang	11 February 2020	DKPP Kota Bogor	03 March 2020
SMKN 1 Sukabumi	12 February 2020	SMKN 1 Cibadak Sukabumi	11 March 2020
Government of Padang City	13 February 2020	MTs Negeri 32 Jakarta	12 March 2020

The Centre introduced its facilities and technologies to the groups and opened any possible collaboration in any aspect of tropical biology.

