



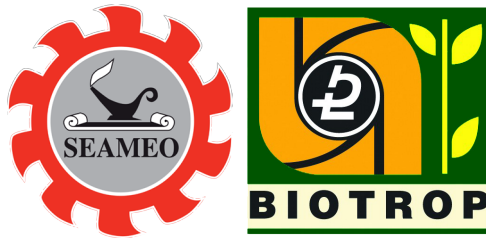
Annual Report FY 2018 - 2019



SEAMEO BIOTROP

Annual Report FY 2018 - 2019

Southeast Asian Regional Centre for Tropical Biology
Jalan Raya Tajur Km. 6
Bogor 16134, Indonesia



Vision

A Leading Centre in enriching and promoting the real values of tropical biology in Southeast Asia

Mission

To provide scientific knowledge and build capacities of institutions and communities in conserving and managing tropical biology sustainably for the well-being of communities and the environment of Southeast Asia

Message from the Governing Board Chair

On behalf of the SEAMEO BIOTROP Governing Board, I would like to extend my heartfelt congratulations to SEAMEO BIOTROP for surpassing its targets and accomplishing its planned activities for Fiscal Year (FY) 2018-2019. The results strongly show the Centre's persistent efforts to widen its contributions and visibilities in improving education in the Southeast Asian region.

I am especially impressed by the Centre's various activities involving schools' teachers and students, such as the Agriculture Vocational High Schools Fruit Tree Orchard (SMARTS-BE) Program. Through this program, the Centre took significant roles in enhancing school's teachers and graduates capabilities in supporting agriculture development in Indonesia. I wish this program can be adopted in other SEAMEO member countries in the future.

During the 57th Governing Board Meeting, held in Cambodia, the Board held a session to discuss about collaborative programs. From the papers presented, I am glad to know that during the FY 2018/2019, the Centre has successfully implemented several potential programs to be collaborated with SEAMEO Member Countries through the Board Members, particularly mushroom cultivation, school garden and ex-mining land rehabilitation. The programs implementation indicated that the Centre has relentlessly explored its expertise in certain tropical biology areas and is ready to share the best practices with beneficiaries in the Southeast Asian region.

Overall, the FY in review showed a significant period in the Centre's existence. I am truly happy with the continuous development in the Centre's research programs and activities, including the efforts to increase collaborative projects with the Governing Board member countries.

I would like to thank my colleagues in the SEAMEO BIOTROP Governing Board for their continued support to the Centre.

Mr Thao Sokunthia

Vice Dean of Faculty of Science
Royal University of Phnom Penh (RUPP)
SEAMEO BIOTROP Governing Board

Director's message

Over the past five decades, SEAMEO BIOTROP continues its commitment to provide scientific knowledge on tropical biology to address critical tropical biology problems in Southeast Asia. Through research, training and other learning activities, as well as information dissemination, the Centre forged ahead in achieving its vision to become "A Leading Centre in Promoting and Enriching Real Values of Tropical Biology in Southeast Asia".

At the end of Fiscal Year 2018/2019, it is a privileged to present the comprehensive achievement of SEAMEO BIOTROP, through the SEAMEO BIOTROP Annual Report Fiscal Year July 2018 – June 2019. The report covering programs and activities conducted by the Centre and presented in three main sections according to the Key Performance Indicators (KPI) set by SEAMEO secretariat, namely: Regional Leadership, Regional Visibility, and Solid Resource Base. I am proud to enlighten that in all sections, our Centre was able to enhance its performances.

To support the Sustainable Development Goals No. 4 on Quality Education, SEAMEO Secretariat promotes 7 Priority Areas (2015 - 2035). Priority area no. 4 is Promoting the Technical Vocational Education and Training. In 2016, the President of the Republic of Indonesia issued a Decree no. 9, aimed to revitalize vocational schools to improve human resource quality in Indonesia. Aligned with the SDG, SEAMEO Seven Priority Areas and the Presidential Decree, during the fiscal year under review, programs and activities were mostly designed for teachers and students to enable them to enhance their capabilities on agriculture and entrepreneurship. Through our flagship programs of SMARTS-BE, 30 vocational schools of agriculture were fostered to produce more qualified teachers and competitive graduates.

During the fiscal year under review, the Centre conducted 26 research and 32 training courses and other learning events related to tropical biology. A total of 2,433 individuals from government institutions, schools, universities, research centres and private sectors, benefited from the training activities. The Centre also inked 53 Memoranda of Understanding and Agreement during the period of July 2018 to June 2019. The Centre accommodated 5,341 visitors from 98 visits. This number significantly increased by 59% from the previous fiscal year. The Centre also facilitated 303 students and schools' officers to join the internship programs at the Centre's headquarter. On the Centre's resource management aspect, the Centre experienced increase on funding by 22.14%, and more than 70% of the Centre's staff members have involved in the Centre's staff development programs.

For all our auspicious achievements in FY 2018/2019, we would like to express our sincere appreciation and gratitude to our Governing Board members and their respective governments for the guidance and continued support in implementing our programs and activities. We are grateful to the Government of Indonesia and SEAMEO for financial support. We extend our sincere gratitude to our partners and stakeholders for their continuous support to our programs and activities.

Assoc. Prof. Dr IRDIKA MANSUR, M.For.Sc
Director of SEAMEO BIOTROP

Table Of Contents

EXECUTIVE SUMMARY

REGIONAL LEADERSHIP

RESEARCH AND DEVELOPMENT

Research Projects by In-house Researchers and Partners-Research Institutions

National School Garden Action Research Grant

PhD Thesis Grants Program

Youth Environmental Outreach (YEO) Grants Program

TRAINING AND OTHER LEARNING EVENTS

Regional, National and In-country Training Course, Seminars and Workshops

REGIONAL VISIBILITY

RECOGNITION AND BENCHMARKING

Partnership and Linkages

Expert Consultancies

Students Internship/On the Job Trainings

Visitors

INFORMATION EXCHANGE

Books and Proceeding

Journals and Newsletters

Library Services and Database

Promotion and Media Exposure

Audio-Visual Materials and Website Maintenance

Regional Biodiversity Video Competition

SPECIAL PROGRAM

Indonesian Biotechnology Information Center (IndoBIC)

Master of Science in Information Technology for Natural Resources Management

SOLID RESOURCE BASE

ADMINISTRATION AND MANAGEMENT

Staff Development

Facility Improvement and New Equipment

Product Development and Services

Financial Viability

NEXT YEAR'S PROGRAM AND ACTIVITIES

APPENDICES

Executive Summary

During the period under review SEAMEO BIOTROP continued to implement its 10th Five-Year Development Plan (FYDP 2017/2018 - 2021/2022) with the same FYDP theme as the previous fiscal year, "Forging Ahead with Tropical Biology for Environmental and Societal Transformations in Southeast Asia (Tropical BEST-SEA)". SEAMEO BIOTROP together with its external partners has worked to ensure that the year 2018 - 2019 be repleted with tangible results in education developing efforts in the Southeast Asia region.

In the Fiscal Year 2018-2019, SEAMEO BIOTROP continued to envision itself to be "A leading Centre in enriching and promoting the real values of tropical biology in Southeast Asia". The Centre prioritized schools and community as the beneficiaries of the conducted programs and activities .

This Annual Report presents the specific activities undertaken by SEAMEO BIOTROP in 3 SEAMEO's key result areas, namely regional leadership, regional visibility, and solid resource base.

REGIONAL LEADERSHIP

The Centre completed 19 research projects and one action research/community-based project through SEAMEO BIOTROP Youth Environmental Outreach (YEO) Grants Program during the first half of the Fiscal Year 2018/2019. Eleven of these completed research projects were conducted by the Centre's researchers and partner agencies, six by PhD Thesis Support Program grantees and two by Joint Research Program grantees. For the second half of the fiscal year in review, the Centre also started implementing 27 other more research projects through its researchers, partner-institutions, and special program grantees. All completed and on-going research projects dealt with the Centre's program thrusts under its 10th FYDP.

The Centre trained 2,952 individuals by conducting a total of 30 activities consisting of one international conference, one in-country training course, 12 national training courses, four seminars, two focus group discussions, four workshops, one community development action and four online training courses during the fiscal year in review. The training courses and other learning events were implemented either solely by the Centre or in partnership with other national, regional and international research and development organizations and academic institutions.

REGIONAL VISIBILITY

During FY 2018/2019, the Centre expanded its collaboration by signing Memoranda of Understanding and Agreements with 24 national and regional organizations. These partnerships covered conducting joint-research programs and learning events, developing and enhancing professional skills and providing technical assistances within common areas of interest.

Upon the support of the Secretary General of the Ministry of Education and Culture of Indonesia, the Centre conducted a special program namely the Agriculture Vocational School Vegetable and Fruit Tree Orchard Establishment (Sekolah Mandiri Produksi Tanaman Sayuran dan Buah Edukasi / SMARTS-BE). The SMARTS-BE program, launched during the golden anniversary celebration of the Centre in February 2018, aims to revitalize Vocational High Schools (Sekolah Menengah Kejuruan / SMK) by developing students' entrepreneurship skills to reduce the unemployment rate in Indonesia. This program is also inseparable from the Presidential Instruction No.9/2016 concerning Revitalization of Vocational High Schools in the Context of Improving the Quality and Competitiveness of Indonesian Human Resources. The SMARTS-BE program involved 30 schools in Indonesia, thus, to strengthen the collaboration with the schools, SEAMEO BIOTROP entered into 30 Memoranda of Understanding with these schools in implementing the SMARTS-BE program.

To continue realizing the Centre's commitment in enhancing the conservation and sustainable use of the region's biodiversity and natural resources, SEAMEO BIOTROP held its Third International Conference on Tropical Biology with theme "Conservation, Enhancement, and Sustainable Use of Indigenous Tropical Flora and Fauna". There were 227 scientists and practitioners consisted of 3 keynote speakers, 6 panel speakers, 32 oral presenters, 53 poster presenters, and 133 general participants. The invited speakers came from Malaysia, Singapore, Philippines, and Indonesia. The presenters for supporting papers came from Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand and Timor Leste and from many different universities, schools, research institutes, and private institutions in Indonesia. Our partner institutions were the Ministry of Environment and Forestry of the Republic of Indonesia, National Committee

for Indonesian Germ Plasms, Ministry of Agriculture of the Republic of Indonesia, Indonesian Institute of Science, Institut Pertanian Bogor (IPB University), Universiti Putra Malaysia, National University of Singapore, Forest Stewardship Council (FSC) Indonesia, Central Luzon State University Philippines, Burung Indonesia, Pampanga State Agricultural University Philippines, Cagayan State University Philippines, PT Sinarmas Tbk, Indonesia, Bank Mandiri, Bank Mandiri Syariah, and PT Garuda Food.

As the previous fiscal year, SEAMEO BIOTROP provided opportunities for internships and on-the-job trainings for students of secondary and vocational schools and universities. In FY 2018/2019, the Centre accommodated 303 students from 68 learning institutions. These internships and/or on-the-job trainings were on the following areas: pest control, hydroponic, natural products, biotechnology, herbarium, waste management, tissue culture, food and feed analysis, mushroom cultivation techniques, geographic information system, information technology and office administration. Moreover, the Centre also facilitated 22 undergraduate students from 7 universities and 1 institution to conduct their research.

During the fiscal year in review, SEAMEO BIOTROP accommodated 98 visits consisting of 5,431 people from various schools, universities, government agencies, private companies, communities as well as regional/international institutions. Through these visits, the Centre established working relationships with most of these organizations.

The Centre also published three books and a proceeding, three issues of BIOTROPIA in printed and online versions, four issues of BIOTROP Courier, as well as leaflets, banners and posters. All articles have been electronically uploaded in the Centre's online journal website that prospective users can download for free.

The Centre's library registered 134 serial publications (journals, proceedings, newsletters, annual reports and magazines), consisted of 98 as gifts and 36 as exchange. Currently, the Centre's library holds and manages 13,236 book collections.

During the fiscal year in review, the Centre uploaded 147 articles in its website (<http://www.biotrop.org>) consisting of 38 articles on the Centre's activities, three highlights of research results, 31 articles on events of SEAMEO Secretariat and other SEAMEO Centres and partner institutions, 63 selected photos on centre's activities, and 14 information updates in the Centre's publications section (e.g. proceedings, books, newsletters and annual report).

To further disseminate the centre's activities and research results, SEAMEO BIOTROP utilizes several social media platform, such as facebook (2,571 followers), Instagram (1,234 followers), and youtube channel (1,410 subscribers).

SOLID RESOURCE BASE

During the fiscal year under review, two Centre Staff members completed PhD degree at the Postgraduate School, Institut Pertanian Bogor (IPB University). Under the sponsorship from the Ministry of Education and Culture of Indonesia, two staff members also underwent degree study as part of the staff development program at Institut Pertanian Bogor (IPB University). The center also provided opportunities for staff development to more than 70 percent of staff members, such as attending training, conferences, seminars, workshops and symposia in Indonesia and abroad.

In FY 2018/2019, Product Development and Services Department (PDSD) produced a total of 334,491 seedlings of Teak (*Tectona grandis*) and 32,885 of Banana (*Musa* sp.), 4,350 of Anubias seedlings, Tin, Eucalyptus, Jabon (*Anthocephalus cadamba*), and Satoimo (*Colocasia esculenta* var. *antiquorum*) through tissue culture technique. PDSD also produced 45,440 baglogs of oyster mushroom (*Pleurotus ostreatus*) and wood ear mushroom (*Auricularia auricula*) which were distributed to private companies and individual clients.

As of June 2019, SEAMEO BIOTROP received a total fund equivalent to US\$ 1,729,573 from the Government of Indonesia during FY 2018/2019 for the operational use. The Centre also received a Special Educational Development Fund amounting to US\$ 71,000. Moreover, the Centre received donations in cash from various institutions and generated additional income from dormitory rentals and interests from bank savings.

REGIONAL LEADERSHIP



RESEARCH AND DEVELOPMENT

SEAMEO BIOTROP has been an innovation leader in tropical biology research for more than 50 years and continues to discover and implement novelties in research towards providing science-based information to relevant stakeholders and communities in Southeast Asia. The mandate to provide a continuum and complementation in the mission for basic and applied knowledge on tropical biology has led the Centre to undertake various types of research in terms of novelties, scope, methods, and approaches.

SEAMEO BIOTROP has been known as the pioneer in developing tissue culture technology on seaweed in the Southeast Asian region. This significant contribution of the Centre in seaweed propagation technology has been acknowledged by the Government of Indonesia (GoI) through the issuance of Presidential Decree (Perpres) number 33 of 2019 concerning Roadmap for the Development of the National Seaweed Industry 2018-2021. The Centre responds the decree by taking a lead of seaweed research as one of the flagships of National Research Priority (PRN) 2020 – 2024 in collaboration with other well-respected institutions including IPB University and Indonesian Institute of Sciences (LIPI). In this way, the Centre is not only contributing to the extraordinary advance of tropical biology research but also shaping the research itself.

Research Projects by In-house Researchers and Partners-Research Institutions

Based on its 10th Five-Year Development Plan by the theme “Tropical Biology for Environmental and Societal Transformations in Southeast Asia” the Centre funded 11 research projects in 2018 and 15 research projects in 2019, respectively through its in-house researchers and scholars from partner institutions. The focus of these research projects was targeted to three ecosystems, namely: forest, agriculture, and coastal with particular focus on mangroves restoration and rehabilitation. These research projects fall under any or a combination of the following theme strands: ecological restoration, ecological protection and conservation, and ecological sustainability and productivity enhancement.



Research field of “Effective Science-based Mangrove Restoration in Peninsular Malaysia”

These research activities received financial support from the GoI, called DIPA fund that is awarded to researchers through a selection process by Board of Director and leading scientists in the respective field. Nevertheless, with specific requirements, the fund can also be awarded to an overseas scientists in partnership with Indonesian scientists to conduct joint research. Within this scheme, the Indonesian scientists should become the research principal to receive and report the grant.

In the fiscal year 2018/2019, one of the ongoing joint research projects is between Indonesian and Malaysian researchers on the topic “Effective Science-based Mangrove Restoration in Peninsular Malaysia”. The project is critical for a mangrove rehabilitation program in Northern Sumatra and Peninsular Malaysia in response to climate change and shoreline erosion threats.

National School Garden Action Research Grant



Recipient of national School Garden Research Grant: Sekolah Alam Insan Mulia Surabaya

A total of seven schools in Indonesia received SEAMEO BIOTROP’s action research grants for the fiscal year 2018/2019 to improve the students’ nutrition, literacy and entrepreneurship within the frame of Centre School Garden Program. The awardee schools were from Yogyakarta, Sukabumi, Subang, Surabaya, and Malang with main interest on hydroponics and aquaponics-based school garden projects. This School Garden Program is in line with the mandate from the Ministry of Education and Culture, Republic of Indonesia to support education and curriculum development for K-12 students. In a broad scale, the program falls within the goal 4 of SDG’s, i.e. to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.



PhD Thesis Grants Program

Six PhD students awarded PhD thesis grants from SEAMEO BIOTROP in 2018 consisted of five students from IPB University and one student from Diponegoro University, respectively. In 2019, however, there was only one PhD student proposal from IPB University funded by the Centre. The PhD thesis grants program is designed as the Centre's path to assist qualified young scientists to establish their early careers.

Seven PhD research topics carried out in 2018 and 2019 were: 1) Study on Establishment of New Ecosystems and Its Relationships with Their Feeding Ecology: An Attempt of Sea Ranching for *Holothuria atra*; 2) An Integration of Stingless Bees and Nutmeg (*Myristica fragrans* Houtt) Plantation to Increase the Efficiency and Sustainability of Honey Production in West Halmahera Regency; 3) The Analysis of Microsatellite DNA Polymorphisms as a Base of Conservation of Local Swamp Buffalo from Southeast Sulawesi; 4) Modeling of Jakarta's Bay Small Scale Fisheries Sustainability using the Social-Ecological System Framework; 5) Trophic Structure of Macrozoobenthos Community on Mangrove Ecosystem; 6) Nanoparticle of Egg Yolk in Frozen Semen Diluent to Support Germ Plasm Conservation of Garut Sheep; and 7) Dwarf Buffalo from Sulawesi: Genetic Approach using Mitochondrial DNA and Genotyping to Support Dwarf Buffalo Conservation Management.

Youth Environmental Outreach (YEO) Grants Program

SEAMEO BIOTROP YEO grants program aims to improve the roles of the youth in assisting the community to more aware of the real values of tropical biology by supporting the implementation of meritorious action research project proposals from deserving youth organizations.

For 2018, the Centre disbursed grants to fund YEO based in Semarang, Central Java, namely the IKAMAT Foundation in collaboration with a primary school SMPN 3 Satu Atap. The project entitled "Water Quality Research Project for Aquaculture and Chemical Content in Mangrove-Based Foods". The project was driven by the fact that enormous pile of garbage found on the waterfront along Sayung River in Demak Regency polluting the water. In 2019, there was no YEO proposals passed the selection process by reviewers.



TRAINING AND OTHER LEARNING EVENTS

During the fiscal year in review, SEAMEO BIOTROP has implemented 32 training courses and other learning events related to tropical biology (Appendix 1). The activities consisted of one international conference, one in-country training course, one regional training course, fourteen national training course, four seminars, two focus group discussions, four workshops, one community development action and four online training courses. A total of 2,433 individuals from government institutions, schools, universities, research centres and private sectors benefited from these activities.

The Centre's activities during the period in review were offered either solely by the Centre or in partnership with national, regional and international institutions involved in tropical biology. Some highlights of the regional and national learning events are as follows:

Regional, National and In-country Training Course, Seminars and Workshops

- 3rd International Conference on Tropical Biology: "Conservation, Enhancement, and Sustainable Use of Local Flora and Fauna in Southeast Asia"

Two hundred and twenty-seven participants from government officers, scientists, teachers, lecturers, private companies, and practitioners attended the 3rd International Conference on Tropical Biology: "Conservation, Enhancement, and Sustainable Use of Local Flora and Fauna in Southeast Asia" held on 20 – 21 September 2018. The conference aimed to assess the successes, opportunities, and



Group photo of the Committee of the 3rd International Conference on Tropical Biology, the Keynote Speakers, and SEAMEO BIOTROP's Governing Board Members

gaps in the current practices, research efforts and policies related to the theme. The conference was officially opened by Dr Kirsfianti Linda Ginoga, Director of Forest Research Centre, Forest Research Development and Innovation Agency, Ministry of Environment and Forestry of the Republic of Indonesia (MoEF RI) representing the Minister of Environment and Forestry RI. The conference also served as the closing event for SEAMEO BIOTROP's year-long golden anniversary celebration. The participants came from Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, Vietnam, and Timor Leste.

Presented as keynote speakers at the conference were (1) Prof Mohamed Zakaria Hussin from the Faculty of Forestry, Universiti Putra Malaysia (UPM), on Gains and Challenges of Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna; (2) Prof Ani Mardiasuti from the Faculty of Forestry, IPB University on Diversity and Resiliency of Indigenous Tropical Flora and Fauna and Their Ecosystems; and (3) Assoc Prof Chew Fook Tim from the Department of Biological Sciences, the National University of Singapore (NUS) on Approaches, Technologies, and Innovation in Conservation, Enhancement and Sustainability Use of Indigenous Tropical Flora and Fauna.



The plenary session during the 3rd International Conference on Tropical Biology: "Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna"

The conference had four subthemes, namely: 1) Diversity and Resiliency of Indigenous Tropical Flora and Fauna and Their Ecosystems, 2) Approaches, Technologies and Innovations in Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna, 3) Socio-economic, Cultural and Ethical Aspects in Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna, and 4) Policies and Other Legal Frameworks in Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna. There were 94 oral presentations and 53 posters delivered in the conference.

During the closing program, SEAMEO BIOTROP recognized the participants whose papers and posters were adjudged as best during the conference. The best paper was awarded to Dr Kobsak Wanthongchai (first) from Kasetsart University, Ms Kanthi Hardina (second) from IPB University and Ms Rohani Shahrudin (third) from Universiti Malaysia Terengganu. In the meantime, the first, second and third best posters awarded to Ms Erniwati from Indonesian Institute of Sciences, Ms Atik Retnowati from Herbarium Bogoriense and Ms Arianne Julian from Central Luzon State University, respectively.

Dr Haryanto R. Putro, from the Faculty of Forestry, IPB University, delivered the conference synthesis, which emphasized the importance of effective conservation strategies and practices in sustaining the tropical flora and fauna, particularly the endangered ones. These efforts need contribution from all parties including local community and related government institutions in order to establish integrated conservation programs of tropical flora and fauna.

- **In-country Training Course on Urban Agriculture for Special Education Teachers and Community Learning Centre Educators**

The Centre in collaboration with SEAMEO Regional Centre for Special Education Needs (SEN), SEAMEO Regional Centre for Lifelong Learning (CELLL) and Nong Lam University (NLU) organized an In-country Training Course on Urban Agriculture for Special Education Teachers and Community Learning Centre Educators in Vietnam on 16 – 19 October 2018. Prof Nguyen Hay the NLU President, Dr Safani Baru the Acting Director of SEAMEO SEN, and Ms Vu Lan Chi from SEAMEO CELLL delivered their messages during the opening program. In the messages, Dr Safani Baru and Ms Vu Lan Chi Both thanked SEAMEO BIOTROP and NLU for organizing the training and encouraging the participants to learn much from the training.



Group photo of the participants of the In-Country Training Course on Urban Agriculture for Special Education Teachers and Community Learning Centre Educators

In general, the objective of the training course was to enhance basic knowledge and skills of the school teachers and community learning centre educators on specific agricultural production technologies that are appropriate for urban application. The technologies, furthermore, could be beneficial for their students and families as well as their communities.

A total of 31 participants attended the training course consisted of 12 participants from special education and early childhood

education teachers, and 19 participants from community learning centre educators from Ho Chi Minh. During the 4 days training, the participants received lectures and practical exercises on the following topics: (1) Overview of Urban Agriculture Concepts and Principles, (2) Hydroponic Production of Fruits and Vegetables, (3) Applied IoT in Vegetable and Fruit Production, (4) Container Gardening, (5) Special Education Approaches to Teach Agri-based Life Skills to Children with Special Needs, (6) The Roles of Schools and Community Learning Centres in Developing Life Skills Among Communities and Children with Special Needs, and (7) School/Household-based Composting of Organic Solid Waste. The participants also visited the Agri Hi-Tech Research and Development Centre of Ho Chi Minh at Cu Chi District to observe other production technologies such as fertigation, tissue culture propagation, mushroom cultivation, and aquaculture production.

- **3rd National Training Course on Establishing School Garden for Improving Students' Nutrition, Literacy and Entrepreneurship**



a. Participants of the 3rd National Training Course on Establishing School Garden for Improving Students' Nutrition, Literacy and Entrepreneurship, learned cultivating vegetable during a practicum session

b. The participants learned to plant seed on rockwool

SEAMEO BIOTROP conducted the third training course on school garden held on 23 – 27 July 2018 at its headquarter in Bogor in collaboration with the Regional Centre for Food and Nutrition (SEAMEO RECFON), the Regional Open Learning Centre (SEAMEO SEAMOLEC), and the Department of Education of Bogor City.

The general objective of this training course was to offer knowledge and understanding to participants on the importance of school garden program. A total of twenty-eight teachers from five provinces participated in this training course. Twelve participants were from schools in Bogor area. Their participation was one of the implementations of the MoU between SEAMEO BIOTROP and Bogor City Government.

After attending this training course, the participants were expected to implement the knowledge at their respective schools or community sustainably. The training course methods were lecturers and practices provided in the classroom and training fields within the Centre's compound. The training course materials were: 1) Nutrition's development; 2) Hydroponics and aquaponics; 3) Vegetable cultivations; 4) Verticulture and soil-based gardening in limited spaces; 5) Household scale composting of solid organic wastes and 6) Developing action research proposal on school garden program. The participants prepared an action plan on establishing a school garden in their respective schools and presented the plan on the last day of the training course, to fulfil the primary requirement of the training course.

- **Training on Isolation and Identification of *Aspergillus*, *Penicillium* and *Talaromyces* (28 – 31 August 2018)**

SEAMEO BIOTROP held a national training course on isolation and identification of three fungal genera from division Ascomycota, namely *Aspergillus*, *Penicillium* and *Talaromyces* at its headquarter on 28-31 August 2018 attended by twenty four participants. The training course featured Prof Robert A. Samson from Westerdijk Fungal Biodiversity Institute, Utrecht, the Netherlands, Prof Okky S. Dharmaputra from SEAMEO BIOTROP and Dr Gayuh Rahayu from IPB University as resource persons.

This training course aimed to provide knowledge on isolating and identifying morphologically and molecularly the fungal genera living in food and fruit materials and applying the appropriate species names, especially for the existing important species in Indonesia. Through this activity, the



Prof Robert A. Samson (grey shirt) shows how to count the fungal colonies during the Training Course on Isolation and Identification of *Aspergillus*, *Penicillium* and *Talaromyces*

participants had a good opportunity to share and discuss their knowledge and experiences in working with these three fungal species with prominent experts.

Four Centre's research assistants assisted the participants during the practicum sessions. The training course methods were lectures and practical works provided in the classroom and training fields within the Centre's compound. The training course modules were: 1) morphological characters of Ascomycota, 2) molecular approach in fungus systematics, 3) diversity of *Penicillium* and *Aspergillus* in stored food in Indonesia, 4) concept of fungus species and the impact of 'one fungus one name' system: *Aspergillus*, *Penicillium* and *Talaromyces*, 5) isolation and counting of fungal on foods and fruits, 6) fungal identification based on morphological characteristics, and 7) fungal identification based on molecular analysis.

- **Training on Disaster Mitigation in Coastal Areas for School Teachers**

SEAMEO BIOTROP conducted a training course on mapping and disaster mitigation in coastal areas at its headquarter in Bogor on 24-28 September 2018 attended by twenty-one school teachers. This training course aimed to improve the awareness and knowledge of training participants on types of disasters in coastal areas and their mitigation, the characteristics of disaster-prone areas and exposed areas, the use of Geographic Information System (GIS) and Remote Sensing (RS) to identify mangrove ecosystems as one of the efforts to mitigate coastal disasters, and the use of drones for taking aerial photos to map the distribution of ecosystem in coastal areas.

The training course methods were lectures and practices provided in the classroom, laboratory and the fields. The training course modules covered: 1) introduction to disasters in coastal areas, 2) introduction to RSGIS application for disaster mapping in coastal areas, 3) oceanographic and hydrodynamics aspects of coastal areas, 4) management of mangrove and coastal ecosystems in disaster mitigation of coastal areas, 5) data acquisition techniques for disaster management, 6) introduction to the GIS ArcGIS tool, 7) utilization of UAV technology for disaster mapping, 8) UAV data processing for disaster mapping, 9) identification of mangrove ecosystems as disaster mitigation effort in coastal areas, 10) utilization of the INARISK Portal for mapping disaster area vulnerability, 11) mapping of disaster areas, and 12) presentation of maps with ARCGIS/QGIS.

Prof Dewayany Sutrisno from Geospatial Information Agency (BIG); Mr Pratomo Cahyo Nugroho, ST, from Indonesian National Board for Disaster Management; Mr Armaiki Yusmur, M.Si., from SEAMEO BIOTROP; and Dr Samsul B. Agus from the Centre of Disaster Studies of IPB University were invited as resource persons.

- **Training Course on Herbarium Management for Biology Teachers from Forestry Vocational Schools and High Schools in Indonesia**

SEAMEO BIOTROP held the first training course on management of herbarium and plant identification at its headquarter in Bogor on 12-16 November 2018 attended by 26 biology teachers from various Forestry Vocational Schools and Senior High Schools in Indonesia. This activity aimed to improve knowledge and skills of teachers in producing and managing herbarium as well as using herbarium as a learning resource for students in identifying plants. A herbarium is defined as either preserved plant specimens or buildings where herbarium specimens are stored. A herbarium is a reference for plant identification; therefore, it became one of the critical learning media of plant biology and forestry.



Ms Indah Wahyuni (second from the left) explains the technique of preserving plants for herbarium collection

During the training, the participants visited Herbarium of SEAMEO BIOTROP (BIOT) and Herbarium of Hortus Botanicus Bogoriense (BOHB) at Bogor Botanical Garden to learn the familia of tree collection as well as management of species of weed and forest trees herbarium.

Resource persons during the training were Dr Iwan Hilwan from Faculty of Forestry IPB University; Dr Harry Wiriadinata from Indonesian Institute of Sciences (LIPI); Dr Sri S. Tjitrosoedirdjo, Mr Setiabudi, S.Hut, Mr Saiful Bachri, S.Si, Ms Indah Wahyuni, M.Si., and Mr Haritz Cahya Nugraha, MT, from SEAMEO



Dr Zulhamsyah Imran delivers his lecture during the Training Course on Disaster Mitigation in Coastal Areas for School Teachers

BIOTROP; as well as Mr Dima Meiyandi, S.Hut, Mr Dirga S. Pradana, S.Si, and Ms Mei Linda Mardalena, S.Si, from the EFForTS project.

The topics for the classroom session included: 1) Introduction to Dry Specimen Herbarium, Carpology and Arboretum, 2) Dendrology, 3) Identification of Tree Specimens, 4) Characters of Important Tree Familia, 5) Specimen Management and Procedure for using Specimens, 6) Database for Herbarium Specimen Collection, and 7) Identification of Dry Tree Herbarium Specimens. While for the practicum session were: 1) Identification of Tree Specimens, 2) Collection of Specimens for Dry Herbarium, and 3) Drying, Placing, Numbering, Preservation and Storage of Specimens.

• Seminar and Exhibition on Entrepreneurship Development in Agricultural Vocational High Schools

SEAMEO BIOTROP conducted a seminar and exhibition on entrepreneurship development in agricultural vocational high schools (SMK) at its headquarter in Bogor on 6 - 7 December 2018. This activity was attended by 118 students, teachers, principals from various partner agricultural vocational schools of the Centre in Indonesia, and community. The activity was held to support SEAMEO's Priority Area number 4 on Promoting Technical and Vocational Education mainly agricultural vocational high schools. It was intended to support technical and vocational schools to produce high-quality graduates and develop student's entrepreneurship skill. This activity's objective is also in line with the Government of Indonesia's goal of developing more self-reliant and globally competitive citizenry in the era of Industry 4.0 and MoEC's vocational high school revitalization program.

The seminar featured Dr Ruli Basuni (Head of Center for Development and Empowerment of Educators and Education Personnel (P4TK) of Agriculture), Dr Ahmad Junaedi (Vice Dean of Faculty of Agriculture IPB University), and Dr Supriyanto (SEAMEO BIOTROP Affiliate Scientist and SMARTS-BE Program Coordinator). They delivered the following topics, respectively: 1) Cooperation of SEAMEO BIOTROP and Agricultural Vocational School in supporting entrepreneurship in schools, 2) Role of Agriculture P4TK in encouraging entrepreneurship development in Agricultural Vocational High Schools, 3) The mechanism of transfer of agricultural technology from universities and research institutions to Agricultural Vocational High Schools, and Seasonal fruit development for teaching industry in the Schools.

The Centre also invited principals of SMK Muhammadiyah 3 Bandung, Mr Ir Agus Kundo Rahayu; SMKN 1 Cibadak, Mr Omit, and SMK Al Alif Blora, Mr M. Khoerul Amri, S.Pd. to share their entrepreneurship experiences on tips and tricks to start entrepreneurship development in their schools, i.e. business development of lemon juice and its processed products, and peanut entrepreneurship development. During the seminar, two Entrepreneurship Motivators, Mr Baban Sarbana, and Mr Wayan Supadno, also presented papers on Scaling Up Vocational Entrepreneurs and the Importance of Having Young Agricultural Entrepreneurs in Indonesia through Agricultural Vocational High Schools, respectively.

A total of 39 vocational schools showed their products during the exhibition. Among others: 1) SMKN 63 Jakarta, 2) SMKN 1 Pacet, 3) SMKN Pangkalan Kuras, 4) SMK Wikrama, 5) SMKN 1 Cibadak, 6) SMKN 2 Metro, Lampung, 7) SMK Al Alif, 8) SMKN 4 Bogor, and 9) SMK Muhammadiyah 3 Bandung, and 30 schools receiving SMARTS BE program.

During the event, participants visited some facilities of SEAMEO BIOTROP to learn about agri-based technologies such as mushroom cultivation and processing, hydroponics, aquaponics, plant nursery and tissue culture, essential oil production, and organic waste processing into compost.

• Workshop on the Development of Seaweed Industry in Central Sulawesi

SEAMEO BIOTROP in collaboration with the Central Sulawesi Maritime Affairs and Fisheries Agency conducted Workshop on the Development of Seaweed Industry in Central Sulawesi at its campus on 14 February 2019. As one of the pioneer institutions in the development of Cottonii seaweed (*Kappaphycus alvarezii*) tissue culture in Indonesia, SEAMEO BIOTROP supports Indonesia to become one of the largest seaweed industry centres in the world. The workshop was attended by



a. Dr Irdika Mansur delivers his opening remarks in the opening ceremony of the Seminar and Exhibition on Entrepreneurship Development in Agricultural Vocational High Schools
b. Opening ceremony of the Seminar and Exhibition on Entrepreneurship Development in Agricultural Vocational High Schools

various government and research institutions, universities and private industries in Indonesia engaged in seaweed cultivation and processing in Central Sulawesi.

Five seaweed experts namely: Dr Hassanuddin Atjo (Head of the Central Sulawesi DKP), Dr Erina Sulistiani, M.Si. (SEAMEO BIOTROP), Ms Emi Rusyani, SPI, MS (representative of the Head of Lampung Marine Aquaculture Center), Dr Iriani Setyaningsih (IPB University lecturer), and Mr Soerianto Kusnowirjono (Chair of the Indonesian Seaweed Industry Association) presented papers on 1) the Development of Seaweed Industry in Central Sulawesi; 2) Provision of Seaweed Seeds through Tissue Culture Technology; 3) Seaweed Seedlings from Tissue Culture and Its Cultivation by Indonesian Society; 4) Seaweed Processing Developed in university, household, and industry scales; and 5) the Development of Seaweed Industry in Indonesia as a Driver of the Economy of Coastal Communities, respectively.



Group photo of participants of the Workshop on the Development of Seaweed Industry in Central Sulawesi

On this occasion, SEAMEO BIOTROP also officially signed four Memoranda of Understanding (MoUs) represented by Dr Irdika Mansur (Director of SEAMEO BIOTROP), with Dr Hassanuddin Atjo (Head of the Central Sulawesi DKP), Dr Muhardi Hasanuddin (Dean of the Faculty of Agriculture of Tadulako University), Prof Burhanuddin Sundu (Dean of the Faculty of Animal Husbandry and Fisheries of Tadulako University), and Dr Muhd Nur Sangadji (Chair of the Community and Regional Development Study Center of Tadulako University). The MoU with the Central Sulawesi DKP will be run for five years, while the other three are active for three years.

- **Training of Trainers (ToT) on Identification and Management of Weeds and Invasive Plant Species (IAS) for Agriculture Vocational High School Teachers**



Activities during field practical work of the Training of Trainers on Identification and Management of Weeds and Invasive Plant Species (IAS) for Agriculture Vocational High School Teachers:

- a. Ms Sri Widayanti (left) shows the impact of pests on a leaf of a plant to a participant
- b. Participants observe a weed plant

SEAMEO BIOTROP conducted training on identification and management of weeds and invasive plant species (IAS) in annual and perennial agriculture systems on 25 – 30 March 2019 at its campus in Bogor. The training was participated by 16 Agriculture Vocational High Schools' teachers and four representatives from research institutions and companies across Indonesia. This activity aimed to support the revitalization program of vocational high schools in Indonesia through increasing and sharing knowledge and experiences of their teachers and their interaction with agroindustry practitioners regarding the management of weeds and invasive plant species.

Through field trip program to PTPN VIII and oil palm plantation at Sukamaju, Cibadak, Sukabumi, the training participants had opportunity to experience the vegetation analysis and weeds identification, and to obtain information on weed control management system that applied in the plantation.

The resource persons during this activity were Dr Soekisman Tjitrosoedirdjo, Dr Sri S. Tjitrosoedirdjo and Ms Sri Widayanti, MSi, of SEAMEO BIOTROP; and Mr Vicki Rizki Arneldi and Mr Waskito Aji of PT Syngenta Indonesia. During this training, the participants learned about: 1) Concept of weeds and invasive alien plant species; 2) Identification, taxonomy of weed species, and weed / invasive alien plant species database; 3) Competition between crops and weeds; 4) Vegetation analysis, sampling technique, and its data analysis; 5) Principal of weed / invasive plant species management (critical period, economic threshold and integrated management in production system); 6) Herbarium management procedure and its processing technique; 7) Weeds and invasive plant species management (manual, mechanical, chemical and biological control); and 8) Herbicide application technique and its analysis.

- 3rd Quarterly Public Seminar Series: “The Current Status of Taxonomy and Biodiversity of Toxigenic Fungi”



Prof Robert A. Samson (right, on the podium) answers questions from a participant during the 3rd Quarterly Public Seminar Series: “The Current Status of Taxonomy and Biodiversity of Toxigenic Fungi”

SEAMEO BIOTROP featured Prof Robert A. Samson from Westerdijk Fungal Biodiversity Institute, Utrecht, the Netherlands, in its third Quarterly Public Seminar 2018 to present a lecture on ‘The Current Status of Taxonomy and Biodiversity of Toxigenic Fungi’. This seminar was held on 30 August 2018 at the Centre’s headquarter in Bogor, attended by 53 participants from various research and government institutions, universities and companies.

Prof Samson began his presentation with a note about the importance of proper fungal recognition and identification. Even though many fungal species are beneficial for other living organisms, especially human, the number of toxic fungi are also abundant. Several genera of phylum Ascomycota, namely *Aspergillus*, *Penicillium*, *Fusarium* and *Talaromyces*, are well-known fungal species to produce important mycotoxins, such as aflatoxins, trichothecenes, ochratoxins, patulin and sterigmatocystin, which negatively affect the foods.

Prof Samson also presented the new taxonomies in important fungal genera along with the significance of the species and its properties using the polyphasic species concept. For example, a new taxonomic scheme of *Aspergillus* section *Circumdati* (yellow *Aspergilli*) which produces ochratoxin shows that the number of species is now more than 27 instead of eight species. Besides, the robust phylogenetic analyses which elucidate species delimitation, the data show that each species has a specific metabolite profile.

Prof Robert A. Samson engaged with the Dutch Species Register as a fungal specialist. He has been working at the Westerdijk Fungal Biodiversity Institute in Utrecht, the Netherlands, since 1970. In 1983 he became the Head of the Department of Services and Applied Research in the same institution, and he formally retired on 1 April 2011. His expertise in food-borne fungi such as *Penicillium* and *Aspergillus* has made him inaugurated as Emeritus Senior Researcher of Applied and Industrial Mycology research group. He has also been appointed as Adjunct Professor at the Kasetsart University in Bangkok, Thailand, since 2002 and the Portuguese Open University in Lisbon, Portugal, since 2009. To date, he has published 43 books in which his first book, together with Garry Cole, is a classical mycological publication describing the conidial ontogeny of Hyphomycetes. Throughout his outstanding career in mycological research, Prof Robert A. Samson has received many honors, including the recipient of the USFCC/J. Roger Porter Award by the American Society of Microbiology, an honorary membership in the Hungarian Society for Microbiology and the Mycological Society of America, an honorary degree from the Swedish University of Agricultural Sciences, and the de Bary Medal from the International Mycological Association.



Mr Fabian Brambach delivers his lecture during the 4th Quarterly Public Seminar Series: "A Characterization of Forest Communities at Different Elevations in Lore Lindu National Park, Central Sulawesi"

- **4th Quarterly Public Seminar: 'A Characterization of Forest Communities at Different Elevations in Lore Lindu National Park, Central Sulawesi'**

SEAMEO BIOTROP's 4th Quarterly Public Seminar (QPS) held on 27 September 2018 at the Centre's campus in Bogor, was focused on the characterization of forest communities at different elevations specifically at Lore Lindu National Park (LLNP) in Central Sulawesi. This seminar aimed to enhance understanding on the characteristics of forest communities at different elevations in LLNP. The seminar was attended by 42 participants from various institutions related to this topic, namely Bogor Botanical Garden Office, Centre of Plant Conservation Botanic Gardens – LIPI, Centre for Forest Research and Development of the Ministry of Environment and Forestry, Research Centre for Biology of Indonesia Institute of Science, Cibodas Botanical Garden Office, and university researcher.

The lecture was delivered by Mr Fabian Brambach, a researcher in Biodiversity, Macroecology and Biogeography who completed his study in Biology at University of Göttingen, Germany. Being a member of a research collaboration on flora conservation among the University of Göttingen, Germany, Tadulako University, Palu, and SEAMEO-BIOTROP, Mr Brambach has been establishing extensive plot-based tree inventories at different elevations in LLNP. Mr Brambach's research revealed that LLNP supports at least three different vegetation belts: sub-montane forest from 700 to ± 1400 m asl, lower montane forest from ± 1400 to 2000 m asl and upper montane forest above 2000 m asl. The vegetation belts differ markedly in their

species composition, general aspect and levels of endemism. The results of his research with his colleagues have been published in several reputable journals. In line with his interest and expertise, he has been registered as a member of Society for Tropical Ecology since 2014 and IUCN/SSC Global Tree Specialist Group since 2016.

- **1st Quarterly Public Seminar Series: "Development of Mine Reclamation Technology in Indonesia"**



Dr Irdika Mansur delivers his lecture during the 1st Quarterly Public Seminar Series: "Development of Mine Reclamation Technology in Indonesia"

SEAMEO BIOTROP held its 1st Quarterly Public Seminar (QPS) 2019 on 20 February 2019 at the Centre's campus in Bogor, focusing on the development of mining reclamation technology in Indonesia. This activity was attended by 72 participants coming from various universities, research institutions, government institutions and mining companies across Indonesia.

The seminar featured Dr Irdika Mansur, Director of SEAMEO BIOTROP and a mining reclamation expert from IPB University. Dr Irdika has been serving as Director of SEAMEO BIOTROP since 2015 and continue to establish both study and collaboration in mining reclamation technology. Dr Irdika is also a researcher and lecturer at the Silviculture Department of the Faculty of Forestry of IPB University, who has researched for more than 20 years on reclamation of ex-mining land using a silvicultural approach to manage mine wastewater in Indonesia.

This seminar aimed to increase participants' knowledge and understanding of mine reclamation and became a forum for disseminating information related to the topic. Mining reclamation technology and innovation in Indonesia have been continually developed in order to increase the quality of the reclamation results and to reduce the reclamation cost. This reclamation effort is also to restore ecological, economic and social functions.

Dr Irdika explained that the reclamation of ex-mining land includes land preparation using overburden, reduced soil material, erosion-sedimentation control, re-vegetation, and maintenance to ensure that the plants will grow properly. The effort for mine reclamation has been supported by research, regulation and supervision from the government to encourage mining companies to conduct their mine reclamation program. The establishment of Mine-Environmental Management Forum (FRHLBT and FKPLPI) also support the acceleration of the deployment of post-mining land reclamation technology. Dr Irdika emphasized that all the process has to be planned and prepared correctly; thus, the reclamation process will be successful.

- **Training of Trainers on Family Farming for Cambodian Vocational School Teachers**



SEAMEO BIOTROP conducted a training course on family farming for eight Cambodian vocational school teachers in its headquarters in Bogor on 24-28 June 2019. This activity aimed to provide basic knowledge and skills and to introduce concepts and principles of online learning about family farming activities. This training course is included in the Centre's Family Farming Program started this year.

Seven topics were delivered during the lecture and practicum sessions, namely: 1) Overview of Family Farming Concepts and Principles, by Dr Aslan; 2) Hydroponic Production of Vegetables and Fruits, by Ms Riana Hartati, S.Si; 3) Tissue Culture Concepts and Principles, by Dr Erina Sulistiani, M.Si.; 4) Mushroom Production Concepts, by Mr Samsul A. Yani, S.Si; 5) Aquaculture Concept and Principles, by Dr Ichsan Ahmad Fauzi and Ms Shella Marlinda, M.Si; 6) Household Scale Composting of Solid Organic Wastes, by Prof Arief Sabdo Yuwono; and 7) Soy Milk Production, by Ms Ir Novi Waskitasari. Participants also joined a field trip to SMKN 1 Cibadak (vocational school) in Sukabumi, West Java, which has developed and managed a lemon-based entrepreneurship program.

Activities during Training of Trainers on Family Farming for eight Cambodian Vocational School Teachers:

- a. Group photo of the participants*
- b. Prof Arief Sabdo Yuwono (right, blue shirt) explains about the composting technique to the participants*

REGIONAL VISIBILITY



RECOGNITION AND BENCHMARKING

Partnership and Linkages

SEAMEO BIOTROP established 53 new national Memoranda of Understanding and Agreement (MoUs/MoAs) with various institutions during the period in review. These collaborations are in form of joint research programs and capacity building activities, developing and enhancing professional skills, providing technical assistance, and products provision (Refer to Appendix 3). Thirty-nine of these MoU/A were signed in between July and December 2018 and fourteen of which were signed from January to June 2019, respectively.

SEAMEO BIOTROP in collaboration with the Directorate of Vocational Senior High School of Ministry of Education and Culture, Indonesia (MoEC) conducted Agriculture Vocational High Schools Fruit Tree Orchard (SMARTS-BE) Program since 2018. Through this program, 30 of 36 schools recommended by the Directorate of Vocational Senior High School of MoEC, Indonesia, were nominated as targeted schools. Those schools were selected based on the availability of horticulture teaching activities, land for cultivation, fruit processing unit, teacher's competency, the experience of the schools on fruit gardening, and school location. The selected 30 schools signed MoU with SEAMEO BIOTROP for SMARTS-BE Program implementation and effective for two years (2018-2020).

The SMARTS-BE program has potential to be implemented in other SEAMEO Member countries facilitated by SEAMEO Secretariat (SEAMES) and SEAMEO Centers in the respective countries. SEAMES could assist in promoting the idea to the Ministry of Education of the SEAMEO Member countries, while SEAMEO Centers as partners could facilitate SEAMEO BIOTROP to explore potential collaboration with relevant ministries, universities, research centers, and private companies to jointly implement the planning, training course, and supervision of the program.

Also, during this fiscal year period SEAMEO BIOTROP in collaboration with PT KIBO Trading had established another MoU that focusing on increasing human resource and institutional capacity. One of the MoU implementations is to facilitate Indonesian students from reputable universities in Indonesia to obtain working experience in Japan.

On 24 March 2019, SEAMEO BIOTROP actively participated in the Ciliwung Care Day Campaign. The event was organized by the Fisheries Student Association of IPB University (HIMASPER IPB) taking place at the Ciliwung Watershed, Kedung Badak, Bogor. This activity was coherence with the implementation of SEAMEO BIOTROP's Program Thrust in the improvement of environmental quality through community involvement. A total of 238 people from IPB student associations, IPB alumni association (HA), NGOs, local governments, and local communities living near the river joined this activity.

During the fiscal year under review, SEAMEO BIOTROP had also formalized its collaboration with several well respected national universities, namely: Sumatera Utara University in Medan, Bangka Belitung University in Merawang, Bangka Regency, Djuanda University in Bogor, Diponegoro University in Semarang, Papua University in Manokwari on research and training activities, staff/student exchange and consultation, and information exchange on tropical biology and related topics.

The Centre also strengthened its linkages with three research centres, one government agency, seven universities, eight private companies, and 34 schools.

Expert Consultancies

SEAMEO BIOTROP has been recognized by various government agencies and private institutions in Indonesia as a source of technical assistance in the area of its program thrusts. Among the significant technical assistance provided by the Centre's researchers and officers during FY 2018/2019 were as follows:

1. Training Course on Integrated Storage Pest Management for officers of PT Eastern Pearl Flour Mills in Makassar, South Sulawesi, Indonesia, on 16 - 20 July 2018 through Dr Idham Sakti Harahap and Ms Sri Widayanti, M.Si. as resource persons;
2. National Seminar on Biodiversity and Land Use Change held by Jambi University, Indonesia, on 27 September 2018 through Dr Irdika Mansur as a resource person;
3. PATPI-SEAFast International Conference Science-Based Ingredients: The future for food in Asia in Jakarta, Indonesia, on 3-5 October 2018 through Prof Okky Setyawati Dharmaputra as one of the paper presenters;
4. Research Workshop on Seaweed Cultivation – Seaweed Research Activities Stabilization in 2019 on 24-26 January 2019 in Gorontalo, North Sulawesi, Indonesia, through Dr Erina Sulistiani, M.Si. as a resource person;
5. Training Course on Tissue Culture for the officers of PT Haji Maming Batulicin, at Banjarmasin, South Kalimantan, Indonesia, on 4 February 2019 through Mr Samsul A. Yani as a resource person;

6. Presentation by Dr Supriyanto on Productive Restoration of Ex-Mining Site using Essential Oil-Bearing Plants during Socialization of Reclamation Implementation in Banten Province, Indonesia, organized by Energy and Mineral Resources Agency of Banten Provincial Government, on 28 March 2019.
7. Training Course on Plants Cultivation and Soil Chemical Technique for IUP-HKM holder in North Sumatra on 19-20 April 2019 through Dr Supriyanto as a resource person.

Comparing to FY 2017/2018, in the FY 2018/2019, the invitation to the Centre to share its expertise as resource persons increased by 106% from 15 to 31 letters of invitation.

On 27 - 29 May 2019, SEAMEO BIOTROP was invited by the Food and Agriculture Organization (FAO) to participate in the Global Launch of the United Nation (UN) Decade of Family Farming 2019-2028 program held at FAO headquarters in Rome, Italy. Represented by Dr Aslan as Acting Deputy Director for Program, the Centre presented its roles in fostering the youth and community to support the Family Farming Program Initiative in Indonesia and to assist the Government of Indonesia (Gol) in eradicating poverty level.

On 22 April 2019, Dr Irdika Mansur, M.For.Sc. SEAMEO BIOTROP's Director received an award in forest reclamation from the Director General of Watersheds and Protected Forests Management of the Ministry of Environment and Forestry (MoEF), Republic of Indonesia. This achievement is a recognition of his long run effort and novel ideas in rehabilitating ex-mining areas for more than two decades. Some of the activities are the integration of local tree species and the introduction of essential oil-bearing tree species on ex-mining reclamation program, and the establishment of swampy forest to manage acid mine drainage.

Students Internship/On the Job Trainings

In supporting the SDG no.4 on quality education, the Centre provides an opportunity for students, to enhance their knowledge and skill by joining internship or on the job training programs at SEAMEO BIOTROP.

During FY 2018/2019, the Centre facilitated the internship or on-the-job training for 303 students and teachers from 68 institutions (See Appendix 4). In the FY in review, the number of internship participants increased by 28% compared to FY 2017/2018. Detail participants of the programs are as follows: 233 vocational school/diploma students and teachers and 70 university students, respectively.

This internship or on-the-job trainings were on the following areas: biotechnology; aquaculture; silviculture; essential oil; entomology; GIS and Remote Sensing; pest and disease management; waste management; analyses of water, food and feed, and soil and plant; hydroponics; mushroom cultivation; phytopathology; biosystem and landscape management; invasive alien species and weed management; and office administration; and finance management.

Three internship students from the Computer Engineering Department of IPB Vocational Program namely: Bayu Ramdhani, Dandy Fajar Pratama, and Rifki Alfiansyah have developed a smart hydroponic system. The smart hydroponic system is an improved version of the conventional hydroponics, whereby a layer of digital technology is added, making it part of the Internet of Things (IoT) ecology, such as website-based monitoring, automated control of connected peripherals. Through this system, user will be able to automatically control the temperature, humidity, water and nutrient levels as well as to do online monitoring via web-based interface. This smart system has many benefits, including: 1) less water used (as it only uses water when necessary), 2) electricity efficiency (by automatically power the pump, fan, and lights), 3) higher yield of crops (by keeping the ideal level for the plant growth), and 4) less labor required (by making several tasks automatic). During the FY under review, the Centre also facilitated 22 undergraduate students from 7 universities and one government research institution to conduct their research.

Visitors

During the Fiscal Year 2018/2019, SEAMEO BIOTROP accommodated 98 visits consisting of 5,431 people from various schools, universities, government agencies, private companies, communities as well as regional/international institutions. During FY 2017/2018, the Centre received 3,348 visitors, thus, in the fiscal year under review, it can be seen that the number of visitors increased by 62% compared to visitors in the FY 2017/2018. Through the visits program, the Centre established mutual relationships with most of these organizations. Among the significant visits to the Centre are as follows:



Students from the Computer Engineering Department of IPB Vocational Program try to test their "smart hydroponic system" as part of IoT ecology system

1. On 15 November 2018, seven Delegates from Fujian Academy of Agricultural Sciences (FAAS) and Hualong Group, China had discussed with SEAMEO BIOTROP Director and Deputy Director for Administration on the possibility to conduct research collaboration with the Centre.
2. On 14 February 2019, the President of Hokkaido Agricultural Corporation Association in cooperation with PT KIBO Trading, visited the Centre to conduct Indonesian student internship program to Japan, specifically in the field of agriculture, agricultural technology, fisheries and animal husbandry.
3. On 18 February 2019, the representative from Principal Secretary, Ministry of Trade and Industry of Zanzibar, Managing Director and Corporate Secretary of Zanzibar State Trade Cooperation (ZSTC), Director General of the Small and Medium Industrial Development Agency-SMIDA Zanzibar visited SEAMEO BIOTROP. They were interested in applied technologies and seaweed tissue culture techniques developed by the Centre.
4. On 12 April 2019, seven representatives from Center for Scientific Data and Documentation, Indonesian Institute of Sciences had visited the Centre to initiate collaboration with SEAMEO BIOTROP's Scientists and Librarian on managing scientific, non-scientific data, information and documentation.
5. On 24 April 2019, the Acting President and 4 Staff of Kasetsart University (KU), Thailand, visited the Centre to strenghten relationship and develop further academic and research collaboration between KU and SEAMEO BIOTROP.
6. On 25 April 2019, twenty-five Participant from Six Countries on "IAEA/RAS 5079 Regional Training Course on Improving the Resilience to Drought and Heat Stress" which was held by Application of Isotope and Radiation (PAIR), National Nuclear Energy Agency of Indonesia visited SEAMEO BIOTROP to observe the progress of application of nuclear technology (radiation) on sorghum.



- a. Group photo of the delegates from the Ministry of Trade and Industry of Zanzibar, Zanzibar State Trade Cooperation, and Small and Medium Industrial Development
- b. Mr Saiful Bachri (left) listens to a question delivered by the acting President of Kasetsart University during the visit from Kasetsart University on 24 April 2019
- c. Mr Joner Situmorang answers questions delivered by a delegate from Fujian Academy of Agricultural Sciences (FAAS) and Hualong Group, China

INFORMATION EXCHANGE

Books and Proceeding

The Centre published books and proceeding during the fiscal year in review through the funding support from the Government of Indonesia (GoI) (Appendix 5). The titles and brief summary of the books and proceedings are as follows:

- Book on "Ecology of Bedugul Basin Bali" by Sutomo, I Dewa Putu Darma, Wawan Sujarwo, Arief Priyadi, Farid Kuswantoto and Rajif Iryadi

Forest areas in the Bedugul Basin are among the remaining tropical mountain rainforests in Bali, where they play significant roles in maintaining the ecosystem, preventing erosion, preserving biodiversity, and functioning as a water source and buffer zone for the surrounding areas, including the lower areas of Bali.

However, the mountain rainforests have been becoming more and more threatened as its extent and vegetation cover are declining due to the increased of human activities, climate change and natural disasters. This is also true for Bedugul, especially in forested areas near Beratan and Buyan Lakes, and also Mt. Pohen, which are frequently exposed to tourism activities and other anthropogenic disturbances. Hence, ecological research in these areas of Bedugul Basin is needed to assess and to anticipate any potential changes, so that its natural resources could be protected and sustained in the era of changing climate.

This book is a compilation of relevant research works that were conducted in Bedugul Basin from 2005 up to 2017. Most of these research works were conducted by the authors themselves and their colleagues as researchers at Bali Botanical Garden. The relatively new study of Species Distribution Modelling (SDM) using Biodiversity and Climate Change Virtual Laboratory (BCCVL) for *Dacrycarpus imbricatus* (which is one of the characteristic species of the area) is also discussed in this book. Another important and recent research output included in this book is the exploration of the autecology of an important endemic species, *Pinanga arinasae*, which is only found on Mt. Tapak, Bedugul.

- Book on **“A Practical Guide to Mushroom Pharming”** by Renato G. Reyes, Sofronio P. Kalau, Dana G. Vera Cruz, Kanya Tokunaga, Ryo Sumi, Nobuo Mori and Fumio Eguchi

Mushroom pharming, a term coined by the authors in their previous works, refers to the cultivation of medicinal mushrooms. This book is a revision of the authors' scholarly work published in 2009 titled “Mushroom Growing in the Tropics: A Practical Guide” that presents the basic (biology) and the applied (cultivation) aspects of edible and medicinal mushroom production. The topics cover the basic understanding of the biology of mushroom and its position in the biofunctional food industry up to postharvest processing. The basic requirements in establishing a typical mushroom pharm, together with the simplified guide in the tissue culture technique, preparation of culture media, isolation into pure culture and subculture, the preparation of grain spawn, planting and fruiting spawn, production of fruiting bodies, and troubleshooting up to post-harvest practices are also discussed in this book. This book also highlights the different mushroom recipes developed by the bachelor degree on science students in Hotel and Restaurant Management of Central Luzon State University under the mentorship of Dr Vana G. Vera Cruz (one of the authors of this book) and Ms Celeste D. Dela Cruz.

The authors acknowledge the artistic input of Mr John Walter E. Galicia in designing the cover of this book. The authors also extend their sincere gratitude to the Central Luzon State University and the SEAMEO BIOTROP for encouragement and support.

- Book on **“Penggunaan Larva (Maggot) Black Soldier Fly (BSF) dalam Pengolahan Limbah Organik [Using Larva of Black Soldier Fly (Maggot) to Process Organic Wastes]”** by Arief Sabdo Yuwono and Pricillia Dana Mentari

Black soldier fly (BSF) larvae (*Hermetia illucens*) (Diptera: Stratiomyidae) can be used as an agent for insect-based municipal organic waste processing technology. The utilization of BSF larvae as bio-processors of organic waste is important to produce compost and nutritious larvae biomass. Larvae of black soldier fly may be used to transform organic waste into valuable animal feedstuff, in the form of their last larval stage, the so-called prepupae. Revenues from sales of this potential animal feed can cover parts of the waste collection costs. The use of black soldier fly larvae is important for organic waste management, such as in processing market waste, municipal organic waste or dewatered faecal sludge. The limitation of black soldier fly larvae particularly related to the presence of heavy metals in the waste material, which can accumulate in the prepupae stage, hence, negatively affect the life history traits of the fly population. This book mostly contains results of research conducted by the authors and equipped with review results of a visit to the location where organic waste treatment was done using larvae (maggot) BSF. This book also contains references obtained from various sources, to enrich discussion.

- Book on **“Kultur Jaringan Rumput Laut Kotoni (*Kappaphycus alvarezii*) [Tissue Culture on Cottoni Seaweed (*Kappaphycus alvarezii*)]** by Erina Sulistiani and Samsul A. Yani

This is a reprinted version of the book, first published in 2014.

- Proceedings of **“SEAMEO BIOTROP Third International Conference on Tropical Biology: Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna”** edited by Jesus C. Fernandez and Cahyo Wibowo

This conference proceedings contains 3 keynote addresses, 23 oral-presented papers, 31 poster-presented papers on the recent issues, research gaps and efforts, as well as possible solutions and policies associated with the conservation, enhancement and sustainable use of indigenous tropical flora and fauna in Southeast Asia. This conference covered 4 subthemes, namely: (1) Diversity and Resiliency of Indigenous Tropical Flora and Fauna and Their Ecosystems; (2) Approaches, Technologies, and Innovations in Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna; (3) Socio-economic, Cultural, and Ethical Aspects in Conservation, Enhancement and Sustainable Use of Indigenous Flora and Fauna; and (4) Policies and Other Legal Frameworks in Conservation and Sustainable Use of Indigenous Flora and Fauna.

Journals and Newsletters

- BIOTROPIA

In relation to SEAMEO BIOTROP's 10th FYDP target of expanding the subject matter coverage, frequency of publication and readership of the Centre's journal, BIOTROPIA continued to collaborate with international conference organisers to publish qualified conference papers in the broad areas of tropical ecosystems and environmental impacts, biodiversity conservation and sustainable development, and biotechnology. As a result of this, the Centre received requests from the 3rd International Conference on Sustainable Agriculture and Food Security (ICSAFS) 2018 from Padjadjaran University, the 2nd International Conference on Tropical Silviculture (ICTS) 2019 from the Faculty of Forestry of IPB University, and the International Conference on Innovation in Technology and Management for Sustainable Agroindustry (ITaMSA) 2019 from Indonesian Agroindustry Association (AGRIN) in collaboration with the Department of Agroindustrial Technology, Faculty of Agricultural Engineering and Technology, IPB University. BIOTROPIA is also processing papers from the 3rd International Conference on Tropical Biology (ICTB) 2018 held by the Centre



During the fiscal year in review, the Centre published three issues of BIOTROPIA, i.e. Vol. 25 No. 2, Vol. 25 No.3 and Vol. 26 No.1. The online version can be accessed at <http://journal.biotrop.org>.

The Centre had also disseminated copies of BIOTROPIA to 96 partner institutions, 170 libraries of national and international universities, and 40 subscribers from various national and international research institutions.

- BIOTROP Courier

Four Centre's quarterly newsletters, namely BIOTROP Courier, have been published during the fiscal year in review (i.e. July-September 2018, October-December 2018, January-March 2019, and April - June 2019 issues).

The issues contained highlights of completed major activities of the Centre for the information of its stakeholders and the general public.

BIOTROP Courier is distributed to 720 various national and international institutions, including partner institutions, research centres, libraries, universities, subscribers, exchange partners, schools, and the general public.



- Articles, Technical Papers in Peer-Reviewed Journals, and Proceedings

In FY 2018/2019, SEAMEO BIOTROP's affiliated scientists published 90 articles in peer-reviewed journals and refereed proceedings. Some of these articles were the results of the scientists' research projects funded through DIPA (GoI Fund).

Library Services and Database



Visitors write down book titles they want to get from the library

The Centre's Library holds and manages 13,251 books, 17 e-books, 200 e-article and 2,034 internal documents (It covers articles in refereed journals, books, proceedings, research and training reports, modules, magazines and newsletters).

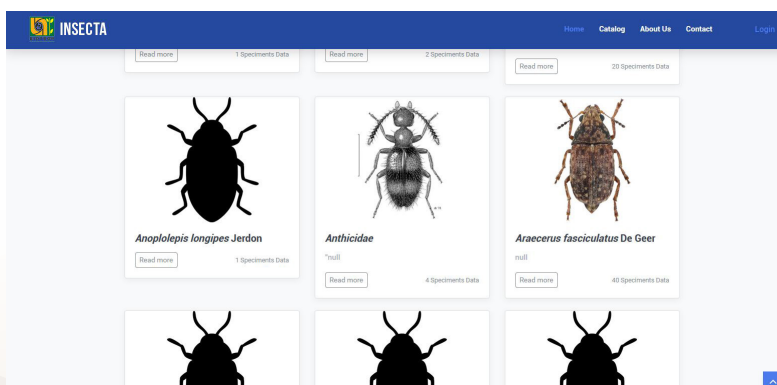
The Centre's Library collections were in the areas of SEAMEO BIOTROP program thrusts. In 2019, 4,044 books are related to the Centre's program thrust on Tropical Biology for Community Welfare (1,067 books on pest and diseases management; 1,302 books on biosystematics; 142 books on natural products; 1,372 books on biotechnology; 163 books on food and feed security and safety) and 1,371 books are related to the Centre's program thrust on Tropical Biology for Environmental Integrity (242 books on biodiversity conservation and management; 833 books on water, waste and ecosystem management; 123 books on

landscape restoration; 122 books on management of tropical ecosystem functions and services; and 51 books on ecosystems health monitoring).

The Centre's Library received 102 serial publications (journals, proceedings, newsletters, annual reports and magazines), as gifts and exchange from various institutions.

The Centre packaged and published the knowledge and information generated through its Centre's research, workshop, seminar and training activities through DIPA funding. During the fiscal year in review, a total of 98 new publications were added to the database. It covers articles in refereed journals, books, monographs, articles in proceedings, research and training reports, modules, journals and newsletters.

SEAMEO BIOTROP maintains a well-organized library collection and provides quality service to meet information needs of different library users by providing faster access to information, ensuring institutional memory through effective preservation technique of archival documents. The Centre continues to improve the archival system to provide easy access to various documents. The system allows the documents to be accessed via the SEAMEO BIOTROP website (Online Catalog: <http://lms.biotrop.org/opac>).



Examples of several insects contained in the SEAMEO BIOTROP's Insecta database

Promotion and Media Exposure

Efforts to increase access to SEAMEO BIOTROP's programs, facilities and services were sustained during the fiscal year in review to provide accurate and comprehensive information regarding the Centre to the public. This was carried out through various promotional materials, media releases, attendance to exhibitions, and visits to relevant institutions.

During the Centre's Golden Anniversary, the 3rd International Conference on Tropical Biology was held on 20 - 21 September 2018, which was witnessed by 24 national and local media partners. The event was covered in 8 national and local media. The articles covered the whole opening ceremony and keynote address presentations.

The Centre also participated in several educational exhibitions such as in the GAPP EXPO (Gebyar Agribisnis, Pangan dan Perikanan/Exhibition of Agribusiness, Food and Fisheries) held in Yogyakarta on 22 - 25 November 2018; National Education and Culture Conference (RNPK) event which was organized by the Indonesian Ministry of Education and Culture (MoEC) held in Jakarta on 11 - 13 February 2019; International Forum on Spice Route (IFSR) held in the National Museum of Indonesia on 19 - 23 March 2019; and Mine Reclamation Forum, organized by the Indonesian Ministry of Environment and Forestry held in Gedung Manggala Wanabakti, Jakarta on 22 - 24 April 2019.

SEAMEO BIOTROP promotes the Centre's activities and programs through social media, such as Facebook (2,571 followers), Instagram (1,234 followers), and Youtube Channel (1,410 subscribers).

Audio-Visual Materials and Website Maintenance



Educational video on oyster mushroom cultivation

SEAMEO BIOTROP believes that audiovisual materials can be an effective media for information dissemination and knowledge transfers. During the fiscal year in review, the Centre has developed 3 educational videos on oyster mushroom cultivation, catfish cultivation, and solid organic waste management.

To support the online training conducted by the Centre, videos of the live online sessions were recorded and uploaded to the Centre's Youtube channel to accommodate the participants who missed the live session. The recordings also serve as documentation for the online training sessions, to be used as future references. In total, 20 recorded videos were uploaded to the Centre's Youtube channel.

The Centre has also developed a new profile video to showcase the Centre's vision, mission, and program highlights to accommodate the 10th Five Year Development Plans.

To disseminate the Centre's activities, upcoming programs, publications, services and products, SEAMEO BIOTROP updates its website (<http://www.biotrop.org>) as timely and regularly as possible. During the fiscal year in review, 38 articles on the Centre's activities, 3 highlights of research results, 17 articles on events of SEAMEO Secretariat as well as other SEAMEO Centres and partner institutions were uploaded in SEAMEO BIOTROP's website. Additionally, 15 information updates on the Centre's new publications (e.g. proceedings, books, research reports, training/seminar reports, newsletters, and annual report) were also uploaded.



Tanda induk betina yang siap memijah antara lain: Perut yang besar dan lembek, serta alat kelamin berwarna kemerahan dan membesar

Educational video on catfish cultivation

Regional Biodiversity Video Competition

The online course and video competition, held in August to September 2018, was part of SEAMEO BIOTROP's golden anniversary celebration. It was aimed to promote biodiversity conservation among the youth, develop their potentials in creating a basic video for educational purposes and promote ecotourism via social media. A total of 34 teams from various high schools in Indonesia and the Philippines participated in the online course. However, only 16 teams submitted video entries for the competition.

SEAMEO BIOTROP's online video course and competition took off the Centre's biodiversity conservation photo competitions held annually since 2013 to create greater public awareness and support to biodiversity conservation efforts in Southeast Asia.

The winning videos were judged based on four main criteria, namely: (1) relevance to the theme, (2) clarity of the message, (3) video quality (sound, video and other aspects of aesthetics), and (4) creativity (novelty and animation). The judges were Dr Jesus C. Fernandez from SEAMEO BIOTROP, Dr Nyoto Santoso from IPB University, Drs Riza Marlon, freelance professional photographer, and Mr Herry Tjiang, a drone photography expert.

A team of students from SMK WAFA in Bandung, Indonesia bested 15 other school teams from Indonesia and the Philippines to win the first prize in SEAMEO BIOTROP's first online video production course cum competition on the theme "Promoting Biodiversity Conservation".

The winning video, titled "Exploring Ciwidey" (<https://www.youtube.com/watch?v=tlnJ0ilfAYs>), features Ciwidey's deer conservation farm, monkey rehabilitation centre and the uniqueness of Kawah Putih or White Lake.

The second prize went to the video titled "Lerak" (<https://www.youtube.com/watch?v=YnfTSernH-s>) produced by a team of students from SMK Wikrama in Bogor, Indonesia. "Take me Back" video (<https://www.youtube.com/watch?v=ao7x-iVQiixc>) by a team of students from St. Louis University-Laboratory High School in the Philippines was adjudged as the third prize winner. "Lerak" video promotes a local tree species called Lerak (*Sapindus rarak* DC) that produces fruits that can be processed as natural detergent. "Take Me Back" video projects the longing of the youth to bring back the original state of their environment where they grew up.



IndoBiC



SPECIAL PROGRAM

Indonesian Biotechnology Information Center (IndoBiC)

IndoBiC has implemented two seminars, two discussions, one field visit to farmers, one international conference and one regional workshop during FY 2018/2019. The number of activities carried out by IndoBiC has increased significantly through the years due to more collaborations and partnerships developed with various government and private institutions within Indonesia. IndoBiC's activities during the period in review were supported by several partner-institutions, namely: Coordinating Ministry of Economy, Michigan State University, The International Service for the Acquisition of Agri-biotech Applications (ISAAA), Croplife Indonesia, Indonesian Agency for Agricultural Research and Development (IAARD) of the Ministry of Agriculture of Indonesia, Indonesia Seed Society, and the Indonesian Society for Agricultural Biotechnology (PBPI).

Notable of these activities are as follows:

- Halal bi Halal and Biotech Discussion on Stacked Gene



The event was aimed to discuss the regulatory status of stack gene in Indonesia. This discussion is expected to provide information to relevant agencies and stakeholders in developing stacked plants in Indonesia. This was initiated by the Indonesia Biotechnology Information Centre (IndoBiC) in collaboration with Croplife Indonesia.

A discussion session during the Halal bi Halal and Biotech Discussion on Stacked Gene

- Seminar on Global Biotech Crops Adoption

The ISAAA report shows the global biotech crop area increased in 2017 by 3 percent or 4.7 million hectares. This increase is due primarily to greater profitability stemming from higher commodity prices, increased market demand both domestically and internationally, and the presence of available seed technologies. Developing countries reached 53 percent of the global biotech area planted. They have increased their biotech crop area and continue to allow farmers to adopt biotechnology in food production and smallholder farmers see the direct improvements this offers, allowing them to provide better lives for themselves and their families.

In economic sector, PG Economics reported biotech crops provided US\$186.1 billion in economic gains to some 17 million farmers, many of whom are female smallholder farmers solely responsible for the livelihood of their families and communities.



Group photo of speakers in the Seminar on Global Biotech Crops Adoption

Dr Paul Teng and Dr R. Aldemita of the ISAAA talked about the Global Status of Commercialized Biotech Crops in 2017 and Overview of Biotech Crop Adoption in Asia; Prof Dr Muhammad Herman, Member of the Technical Team of Biosafety Commission presented the Status of Biotechnology in Indonesia; while Prof Dr M. Parulian Hutagaol from IPB University delivered talks on Socio-economical impact of biotech crops.

The ISAAA report was also presented to over 200 members of the national and international academe, government representatives, and students during a two-day International Conference on Genetic Resources and Biotechnology (ICGRB) held on August 20-21, 2018.

The event was conducted by a collaborative effort between IndoBIC and Indonesian Agency for Agricultural Research and Development (IAARD) of the Ministry of Agriculture with support from Croplife Indonesia, and the International Services for the Acquisition of Agri-Biotech Applications (ISAAA).

- **Discussion on Regulation and Status of Stacked Event in Indonesia**



The event aimed to identify issues in relation to stacked breeding in the world and to formulate draft of stack breeding regulation in Indonesia. Nine participants attended this discussion, consisted of member of the Technical Team of Indonesia Biosafety Commission and representatives of Ministry of Agriculture and Coordinating Ministry of Economy.

A session during the Discussion on Regulation and Status of Stacked Event in Indonesia

- **Seminar on Modern Technology Adoption to Support Food Sustainability**

The seminar aimed to provide accurate information on biotechnology development, updating status of biotechnology regulation in Indonesia; and to provide information on the process of releasing biotech products in Indonesia. Indonesia has a regulation on the procedures for testing, evaluating, releasing, and withdrawing Genetically Engineered plant varieties, Ministry of Agriculture regulation 61/2011. The regulation speeds up the approval process, including aspects of the environmental safety approval process and field trials for GE crops. Under this regulation, limited field trials for the environmental safety assessment can be done in parallel with the adaptation trial for variety release. In addition, if the GE crop comes from approved conventional hybrids, that product will not require multi-location field trials and will only require one location field trial from one planting period.



A lecture session during the Seminar on Modern Technology Adoption to Support Food Sustainability

The discussion was attended by 34 participants including members of Variety Evaluation and Releasing Team of Indonesia, and the Technical Team of Indonesia Biosafety Commission.

- Field visit to Farmers



A three-day visit to farmers in Wonosobo and Banjarnegara was conducted to see the potato plantation, interview with potato farmers and see the people and the place that will benefit from biotechnology. Ten people from Michigan State University, IndoBIC, ICABIOGRAD and IVEGRI accompanied by employees from Simplot Plant Sciences participated in this trip. The J.R. Simplot Company is one of the largest privately held food and agribusiness companies in Indonesia. The company has developed the 3R gene LBR potato that they are bringing to Indonesia and Bangladesh.

Potato farmers select, count and pack their potato harvest

- The Pan-Asia Farmers Exchange Program



Speakers in the Pan-Asia Farmers Exchange Program

It's a platform of knowledge sharing and exchange on agricultural biotechnology. The participants have included farmer-leaders, scientists and the academia, media, government officers and policy makers. The participants learn how biotech crops go through a stringent, science-based regulatory process to ensure their safety to humans and animals and to the environment, how they are managed at farm level, and how they benefit the farmers and their communities. The event is a collaboration effort among ISAAA, Biotechnology Coalition of the Philippines, Crop Life Asia and Crop Life Philippines.

IndoBIC has facilitated four representatives from Indonesia to attend the event: Prof Dr Ir Ahmad Sulaeman, M.Sc. of Indonesia Biosafety Commission; Dr Ir Roy Alexander Sparringa, M.App.Sc of Indonesia Biosafety

Commission; Dr Widhi Dyah Sawitri of Gadjah Mada University and Prof Dr Ir Erizal Jamal, M.si., Head of Indonesia Center for Plant Variety Protection and Agriculture Permit, Ministry of Agriculture.

- The 15th ISBR Symposium “New Horizons in Biotechnology: Risk Analysis for a Sustainable Future” (Spain, 01 – 04 April 2019)

The event was aimed to discuss all aspects of the use of biotechnology in agriculture and food production, including their risk analyses and regulation. Dr Bambang Prasetya, chairman of Indonesian Biosafety Commission has been facilitated by IndoBIC to attend the event.



Speakers in the 15th ISBR Symposium “New Horizons in Biotechnology: Risk Analysis for a Sustainable Future”

MSc in IT for NRM

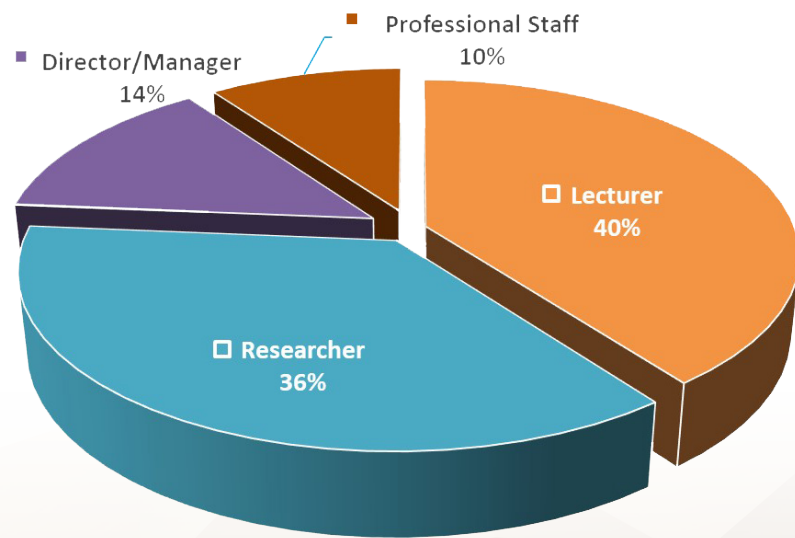


Master of Science in Information Technology for Natural Resources Management

Master of Science in Information Technology for Natural Resources Management (MIT) program established in 1998 as collaborative program of IPB University and SEAMEO Regional Centre for Tropical Biology (BIOTROP). In the implementation of the MIT program, IPB acts as implementers and providers of academic degree (degree-granting institution). On the other hand, SEAMEO BIOTROP provides full facilities, such as building, classroom and laboratory, for the implementation of the program. SEAMEO BIOTROP also offers wide network of international cooperation, especially with the countries of Southeast Asia under the auspices of SEAMEO, based in Bangkok. MIT is designed as an international program specifically to recruit students from Indonesia and the Southeast Asian region.

Since its establishment, 131 alumni has graduated from MIT. MIT alumni excell in their professional careers either as lecturers, researchers, professional staff, directors or managers in government and private institutions.

In FY 2018/2019, in line with the academic year 2018/2019, MIT served 17 active students. In this academic year, two students have accomplished their double degree program with Tsukuba University Japan and a student followed credit earning in Ehime University, Japan.



MIT students joint Double Degree program with Tsukuba University, Japan from June 2018 – July 2019

During this period MIT also organized 4 non-degree training on the application of GIS and Remote Sensing in Planning and Management; and Development of Spatial Dynamic Modeling to Support Decision Making on National Food Security Program, in collaboration with Capacity Building Department (CBD) of SEAMEO BIOTROP.

In fiscal year under review, MIT lecturers and students have been awarded a certificate of intellectual property rights (Hak Kekayaan Intelektual, HAKI) from the Ministry of Law and Human Rights of the Republic of Indonesia on research titled "Satellite-based Fertilizer Recommendation System for Oil Palm Plantation" dated on 13 June 2019.



LAMPIRAN PENCIPTA

No	Nama	Alamat
1	Kedang R. Sembodo	Bumi Cikar Indah Blok C.3/18, RT 01, RW 08, Kel. Cikar, Kec. Bogor Utara
2	FX Dwi Restawan	E. Helosa No. 02, RT 01, PC VI PKT, Kel. Belimbing, Kec. Bontang Barat
3	Sudrajat	E. Palau No. 6 Komplek IPB, RT 01, RW 05, Babakan, Kec. Dumbo
4	Indra Kalliana	Tegal Manggak No. 46, RT 03, RW 07, Kel. Tegalliga, Kec. Bogor Tengah
5	Herry Insentio	Tanah Baru Blok F No. 6, RT 07, RW 05, Kel. Tanah Baru, Kec. Bogor Utara
6	Selami	E. Dulu K-4 No. 18, RT 14, BTN PKT, Kel. Belimbing, Kec. Bontang Barat
7	Oky Dwi Purwanto	Ciledak Timur, RT 05, RW 05, Kel. Ciledak Timur, Kec. Bogor Barat
8	Arief Karna Wijayanto	Gg. Bangkong, RT 04, RW 10, Kel. Gunungbun, Kec. Bogor Barat
9	Rachmadi Indragraja	E. Parang No. 18, RT 02, PC VI PKT, Kel. Belimbing, Kec. Bontang Barat
10	Geot Roggo Pugo	E. Melati No. 16, RT 05, PC VI PKT, Kel. Belimbing, Kec. Bontang Barat
11	Apa Ghazma Niam	Bumi Cikar Indah Blok C.3/18, RT 01, RW 08, Kel. Cikar, Kec. Bogor Utara
12	Ajang Christianto	E. AM. Alimudin No. 75, RT 33, Melayu, Kec. Tonggongan
13	Abdul Rini Angkat	Komplek Perumahan Barcelona Reponcy Blok D-10, RT 31, Kel. Meyang Margensi, Kec. Kota Baru
14	Putriyani	E. Gg. Papanayan No.18, RT 14 BSD, Kel. Gunung Elai, Kec. Bontang Utara
15	Firiana Melik	E. Lily No.82, RT 02 PC VI PKT, Kel. Belimbing, Kec. Bontang Barat

LAMPIRAN PEMEGANG

No	Nama	Alamat
1	PT PUPUK KALIMANTAN TIMUR	E. Sawitjati No 1 Bontang, Kel. Gunung, Kec. Bontang Utara, Bontang 11
2	INSTITUT PERTANIAN BOGOR	Gd. AII, Nasionale Lt. 2, Komplek IPB Dumbo Bogor

Certificate of intellectual property rights (Hak Kekayaan Intelektual, HAKI) from the Ministry of Law and Human Rights of the Republic of Indonesia on research titled "Satellite-based Fertilizer Recommendation System for Oil Palm Plantation" dated on 13 June 2019

SOLID RESOURCE BASE



ADMINISTRATION AND MANAGEMENT

Staff Development

In the Fiscal Year under review, the Centre implemented staff development program to more than 70% of staff members by sending them to attend training, conferences, seminars, workshops and symposia in Indonesia and abroad (Appendix 6).

Centre Staff member, Dr Erina Sulistiani, M.Si. completed her PhD degree at the Postgraduate School, IPB University with a dissertation titled "*Agrobacterium tumefaciens*-Mediated genetic Transformation of *Kappaprychus alvarezii* using Gα genes to obtain hyposaline tolerance". The other staff member, Mr Sugih Mukti, has got his Bachelor Degree in information management from University Satya Negara Indonesia.

Under the scholarship of the Ministry of Education and Culture (MoEC), Indonesia, two staff members have been undergoing master degree study, as part of the staff development program, at IPB University, since 2018. They are Ms Risa Rosita, the Research Administration Assistant, major in Soil Biotechnology and the Environment, Postgraduate School and Ms Nijma Nurfadila, the Research Assistant in Phytopathology Laboratory major in Post-Harvest Technology.

Three staff members have been facilitated to pursue Postgraduate study at IPB University with personal initiatives (self funded), namely:

1. Mr Harry Imantho, M.Sc., Researcher and Coordinator of Remote Sensing and Ecology Laboratory, for a PhD degree in agricultural engineering, since 2017;
2. Mr Slamet Widodo, Research Assistant in Remote Sensing and Ecology Laboratory, for Master's degree in International Post Graduate Study Program in Information Technology for Natural Resources Management (MSc in IT for NRM), since 2017; and
3. Ms Anidah, Research Assistant of Biotechnology Laboratory, for Master's degree in Food Technology, since 2018.

Facility Improvement and New Equipment

During the fiscal year under review, the Centre conducted maintenance of its facilities as follows:

No	Facilities	Working Schedules
1	13 greenhouses cleaning	14 August to 27 September 2018
2	Wall fence construction	7 September 7 to 6 October 2018
3	Mosque and toilet renovation	12 September to 11 October 2018
4	Plumbing maintenance	8 November to 7 December 2018
5	Dormitory painting	12 November to 6 December 2018
6	Building and laboratory maintenance	29 November to 13 December 2018
7	Electricity line repairment	30 November to 14 December 2018
8	Main office building roof repairment	15 to 29 March 2019
9	Dormitory rood repairment	1 to 14 March 2019
10	Roadwork at Services Laboratory visited areas	14 to 27 May 2019



Greenhouse



Wall Fence



Prayer room



Plumbing line



Dormitory painting



Electricity



Toilet



Roof construction at the main office building



Sterilized bottles containing tissue culture plantlets are being put on a rack in the tissue culture laboratory

Product Development and Services

The Centre's Product Development and Services Department (PDSD) consists of 2 units, namely: Product Development Unit and Service Laboratory Unit. The Product Development Unit is assigned to produce high quality commercial biological products, such as tissue culture of forest and fruit tree seedlings, food crops, ornamental plants, and seaweeds; edible mushroom, and organic fertilizer. The Services Laboratory Unit, on the other hand, is assigned to provide sample testing services covering water, air, plant and soil, mineral, as well as food and feed. In FY 2018/2019, PSDS produced a total of 334,491 seedlings of Teak (*Tectona grandis*) and 32,885 of Banana (*Musa sp.*), Tin, *Eucalyptus spp.*, White Jabon (*Anthocephalus cadamba*), Red Jabon (*Anthocephalus macrophyllus*), Satoimo (*Colocasia esculenta* var. *antiquorum*) and *Anubias* through tissue culture technique. PSDS also produced 45,440 baglogs of oyster mushroom (*Pleurotus ostreatus*) and wood ear mushroom (*Auricularia auricula*) which were distributed to private companies and individual clients

In 2019, through Tissue Culture Laboratory, the Centre has a significant role in developing seaweed research roadmap in Indonesia to increase the supply of good quality of seaweed seeds. Therefore, for the period of 2020 - 2024, the Centre will implement the following activities:

1. Research on tissue culture technique for *Cotonii* seaweed seedlings cultivated in Tambalang and Saccol. The research on seaweed varieties in Tambalang and Saccol were expected to increase the diversity that can be cultivated in various regions of Indonesia;
2. Optimization of the method of tissue culture for the *Cotonii* seaweed variety from Maumere to increase the capacity of seed



A jati tree produced using tissue culture technique



Nursery of the plants propagated using tissue culture technique



Greenhouses to acclimatize plant seedlings produced using tissue culture technique



Seaweed produced using tissue culture technique

production;

3. Optimization of the plantlet acclimatization method (G1-G3) in a controlled environment on the coast area to increase the plantlet success life during the acclimation process;
4. Test for the growth performance and carrageenan content of *Cotonii*'s seaweed tissue culture of Maumere variety for six different planting cycles within three years.
5. Assembling and testing of the growth performance of GMO *Cotonii*'s seaweed to increase a resistant to environmental stress in vitro and coastal waters.

Financial Viability

In fiscal year (FY) 2018/2019, SEAMEO BIOTROP received US\$ 1,729,573, as Operating Fund from the Government of Indonesia (GoI) to cover staff salary and wages, operational expenses, and building and has also equipment maintenance. This amount is 22.14% higher than the previous fiscal year's 2017/2018. SEAMEO BIOTROP received Capital Fund from the GoI in the amount of US\$ 33.253. The Centre has received the annual Special Education and Development Fund (SEDF) of US\$ 70,995, nett of bank charges, from SEAMEO Secretariat which is intended for conducting regional and international training and seminars, research, Governing Board Meeting (GBM), and staff exchange programs.

Comparing to FY 2017/2018, during FY 2018/2019, the Centre enabled to increase its Unallocated Funds by 2.67% and Other Funds by 31.36% as the result of the Centre's income-generating activities and collaborative projects. The statement of operations and changes in fund balances for FY 2017/2018 compared to FY 2017/2018 is summarized below:

	FY 2017/2018	FY 2018/2019	%
<i>Capital Funds</i>	-		
<i>Operating Funds</i>	1,416,006	1,729,573	22.14
<i>Special Funds</i>	70,980	70,995	0.02
<i>Other Funds</i>	169,404	222,534	31.36
<i>Unallocated Funds</i>	240,154	246,573	2.67

NEXT YEAR'S PROGRAM AND ACTIVITIES

In accordance with the Centre's 10th Five-Years Development Plan (10th FYDP), during fiscal year 2019/2020, the Centre will conduct the following highlighted programs and activities:

1. SEAMEO BIOTROP 52nd Anniversary in February 2020. As usual practice, the Centre's Anniversary will be enlivened with year long programs and activities.
2. The 4th International Conference on Tropical Biology in September or October 2020 back to back with the GB meeting at the Centre's headquarter in Bogor, West Java, Indonesia.
3. Presentation on 2020 Research Proposal funded by Government of Indonesia (DIPA) in January – February 2020. The approved research will be conducted from March to December 2020.
4. On-line and Off line Training Course on the Centre's area of expertise in March – November 2020.
5. Publishing of at least three editions of BIOTROPIA Journal in April, August and December 2020 in regular and online versions.
6. Publishing four editions of the Centre's bulletin, BIOTROP COURIER in March, June, September and December 2020.
7. Publishing of quality reference materials such as books and training moduls.
8. In-country training on establishing school gardens for students' nutrition, literacy and entrepreneurship and School Garden Action Research Grants for Indonesian Teachers.
9. Implementation of research and training activities and Training needs assessment of schools on mangrove conservation and value adding for the Mangrove Conservation and Education Program with SEAMEO sister centers and other partner-institutions.

10. Implementation of SEAMEO BIOTROP's In-Country Training Course on Urban Farming Technologies for Teachers from Vocational and Special Education Schools and Community Learning Centres.
11. Expansion of SEAMEO STAR Village Program by conducting the life skills development trainings based on the needs of the villagers and establishing a community-based small-scale enterprise.
12. Staff Development activities by organizing in-house training courses on the professional skills that needed by the Centre's academic and administration staff members.
13. Internship and on-the job training program at SEAMEO BIOTROP in cooperation with vocational high schools, universities and other research institutions in Indonesia.
14. Quarterly Public Seminars on Trending Topics of Tropical Biology in March, June, September and December 2020
15. Information Dissemination on Tropical Biology in cooperation with PDII LIPI (Scientific Information and Documentation Centre of the Indonesian Institute of Sciences) on development scientific publication repository.



APPENDICES

Appendix 1. SEAMEO BIOTROP Research Projects in FY 2018/2019

No	Title of Research Projects	Researcher/s	Target Beneficiaries	Funding Sources	Partners
A. On-Going National Research Projects from In-House Researchers and Partner Agencies					
1	The Development of Invasive Alien Plant Species Management in The Framework of Rehabilitation of Invaded Ecosystems at Gunung Gede and Pangrango National Park	Dr Soekisman Tjitrosoedirdjo, M.Sc.	Scientific community, government institutions	GOI-DIPA	Balai Besar Taman Nasional Gunung Gede Pangrango
2	Extraction and Identification of Pheromone Compounds from Major Insect Pests on Stored Coffe Beans	Dr Idham Sakti Harahap	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Puslabfor Laboratory, Mabes Polri, Jakarta
3	Biological Agent Strategy for Restoring Marginal Land of Karst in Imogiri Yogyakarta: Step 1. Application of Selected Microbe and Modified Organic Soil Amendment Into Selected Plant Species Under Nursery CONDITION	Dr Dewi Wulandari	Scientific community, government institutions, private enterprise	GOI-DIPA	Faculty of Forestry Gadjah Mada University
4	Development of Ecosystem Health Index in Indonesia (2nd Year)	Prof Dr Ir Arief Sabdo Yuwono	Scientific community, government institutions, local community	GOI-DIPA	Indonesian Ministry of Environment and Forestry (KLHK), Ministry of Maritime Affairs and Fisheries
5	SENGON (<i>Falcataria moluccana</i>) RESISTANCE TO BOKTOR PEST (<i>Xystrocera festiva</i>) AND GALL RUST (<i>Uromycladium tepperianum</i>)	Dr Ir Ulfah J. Siregar, M.Agr.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	KPH Kediri, Jawa Timur, Community Forest in Jawa Barat
6	ELECTROSPINNING MEMBRANE BASED OIL PALM EMPTY FRUIT BUNCH CARBON NANOTUBES FOR WATER PURIFICATION	Dr Adisti Permatasari Putri Hartoyo, S.Hut., M.Si.	Scientific community, government institutions, local community	GOI-DIPA	IPN Physics Department, LIPI Cibinong Biomaterial Department, LIPI Serpong Physics Department, Universitas Indonesia, IPB Biochemical Lab, Universitas Gadjah Mada, PT Perkebuna Nusantara VIII, Bogor, IPB Culture Collection, Indonesia.

7	Improving Success Efforts of Mangrove Restoration in Sembilang National Park Area	Sri Utami	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Balai Taman Nasional Berbak dan Sembilang, Pusat Litbang Hutan Kementerian Lingkungan Hidup dan Kehutanan
8	Policy and Strategy of Sustainable Mangrove Ecosystem	Rommy Qurniati	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Universitas Lampung
9	Assessing Tropical Forest Soil Microbiome in Natural Forest, Industrial Forest and Oil Palm Plantation	Dr Neo Endra Lelana	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Balai Penelitian Lingkungan Hidup dan Kehutanan Palembang
10	Exploration of Mangrove Derived Endophytic Fungi for Bioproduction of Antioxidant and Anticancer Agent	Siti Irma Rahmawati, S.Pi., M.Agr., Ph.D.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Pusat Penelitian Bahan Alam, Lembaga Ilmu Pengetahuan Indonesia di Gunung Kidul, Yogyakarta
11	Dark Septate Endophytic Fungi (DSE) Diversity from Kalimantan Swamp Land Ecosystems and Their Role as a Rice Growth Promoter under Acidic Stress Conditions	Dr Surono, S.P., M.Agr.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Laboratorium Kimia Tanah, Lembaga Penelitian Tanah Indonesia, Bogor; Indonesian Swampland Agricultural institute; Indonesian Spice and Medicinal Crops Research Institute;
12	ASSESSING OF MANGROVE COVER CHANGE AND THE VULNERABILITY OF COASTAL COMMUNITY LIVELIHOODS FOR ADAPTATION STRATEGIES TO CLIMATE CHANGE IMPACT IN SOUTH SULAWESI	Abdul Malik, ST, MSi., Ph.D.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Universitas Negeri Makassar
13	Development Of Mint Oil Nanoformulation And Assessment Of Its Effectiveness Against Three Stored Product Insect Pests	Sri Widayanti, M.Si.	Scientific community, government, local community	GOI-DIPA	Laboratorium Nanoteknologi, Balai Besar Pasca Panen, Cimanggu, Bogor
14	Potential Fermentor To Inhibit Aspergillus flavus Producing Of Aflatoxin B1 For Increasing Of Cocoa Beans Quality	Nijma Nurfadila	Scientific community, government, local community	GOI-DIPA	Balai Penelitian Tanaman Industri dan Penyegar (BALITTRI), Kabupaten Sukabumi
15	Restoration Post Mining Soil by Using Signal Grass (Brachiaria decumbens) through the Utilization of Multi Strains Arbuscular Mycorrhiza and Azospirillum	Risa Rosita	Scientific community, government, local community	GOI-DIPA	Laboratory of Soil and Environmental Biotechnology (BTL) Bogor Agricultural Institute, and the Forest Microbiology Laboratory of the Ministry of Environment and Forestry (KLHK)

16	Detection of Aflatoxigenic Potention of 8 A.flavus Isolates from 4 Food Commodities in Indonesia by Multiplex PCR	Anidah	Scientific community, government institutions	GOI-DIPA	
17	GIS Development And Application Of Agriculture Land Valuation Model : A Vulnerability Analysis Approach	Slamet Widodo Sugiarto	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Badan Informasi Geospasial

B. On-Going Regional Research Projects from In-House Researchers and Partner Agencies

18	Contributions of Traditional and Indigenous Practices to Ecological Restoration of Selected Watersheds/Landscapes in Indonesia and the Philippines	Christine Wulandari, Ph.D.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	University of the Philippines Los Baños
19	Effective science-based mangrove restoration in Peninsular Malaysia	Dr Onrizal	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Departemen Kehutanan Semenanjung Malaysia; Guangxi University, China; Universiti Kebangsaan Malaysia"

C. On-Going Research Projects from PhD Thesis Support Grantees

20	The Potential Of Sentinel-1 Imagery In Developing Soil Water Content Model And Determining Soil Work Ability's Level	Harry Imantho, M.Sc.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Pusat Penelitian Gula Perkebunan Nusantara (PTPN) X Kediri, Jawa Timur
21	Anoa, Dwarf Buffalo from Sulawesi: Genetic Approach Using DNA Mitokondria and Genotyping to Support Anoa Conservation Management	Dwi Sendi Priyono	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Anoa Breeding Center-Manado, Bontomaranu Education Park Gowa, Taman Safari Indonesia-Cisarua; Lab. Biologi Molekuler-Pusat Penelitian Sumberdaya Hayati dan Bioteknologi (PPSHB), Institut Pertanian Bogor (IPB) Dramaga; PT.Genetika Science, Jakarta

D. On-Going Research projects from School Garden Teacher

22	"Nutrition For Achievment" Implementation My School Garden as A Nutrition Source and Entrepreneurship Media Bhayangkara Elementary School, Yogyakarta	Ratna Juwita Ghazali, S.Si.	Scientific community, government institutions, private enterprise	GOI-DIPA	
23	The Student of Intention to Act Increases on Nutrition and Food Problems Through One People One Hydroponic Technique	Solihin, S.Pd.	Scientific community, government institutions, local community	GOI-DIPA	
24	Management of School Garden Based on Student Participation by Youth Science Club Improving Inquiry and Entrepreneurship Skills in SMPN 1 Subang	Fera Maulidya Sukarno	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	
25	An Aquaponic System to Produce Black Rice and Catfish	Ari Setyowati, M.P.	Scientific community, government institutions, local community	GOI-DIPA	
26	The Impact of Aquaponics Implementation for Enhancing Students' Literacy, Nutrition and Entrepreneurship Skills	Dwi Setyaningsih, M.Pd. M.Sc.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	

E. Completed National Research Projects from In-House Researchers and Partner Agencies

1	Study on Sengon (<i>Falcataria moluccana</i>) Resistance to Boktor Pest (<i>Xystrocera festiva</i>) and Gall Rust (<i>Uromycladium tepperianum</i>) Part III	Dr Ir Ulfah J. Siregar	Scientific community, government institutions	GOI-DIPA	KPH Kediri, Perum Perhutani; Lab. Silvikultur, Fakultas Kehutanan, IPB; Puslit Bioteknologi-LIPI;
---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------	-----------------------------------------------	----------	---------------------------------------------------------------------------------------------------

2	The Balance of <i>Chromolaena odorata</i> and <i>Cecidochares connexa</i> Populations to Achieve an Effective Biological Control Output	Dr Soekisman Tjitrosoedirjo	Scientific community, government institutions, private entrepreneur and local community	GOI-DIPA	Fakultas Kehutanan, UGM Wanagama;
3	Mint Oil Nanoformulations: Its Effectiveness against <i>Tribolium castaneum</i> Phosphine Resistant Strains	Dr Idham Sakti Harahap	Scientific community, government institutions, private enterprise	GOI-DIPA	SEAMEO BIOTROP
4	Development of Ecosystem Health Index in Indonesia	Prof Dr Ir Arief Sabdo Yuwono, M.Sc.	Scientific community, government institutions, local community	GOI-DIPA	Kementerian Lingkungan Hidup dan Kehutanan (KLHK) serta Kementerian
5	Application of Selected Native Beneficial Soil Microorganisms Into Adapted Plant Species in Post Tin Mining Area, Bangka Island Indonesia	Dr Dewi Wulandari	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Kelautan dan Perikanan, IPB University, UII"
6	Evaluation of Acoustic Technology for Quantifying and Mapping Tropical Seagrass Habitats in Bintan Seawater	Prof Henry M. Manik, PhD.	Scientific community, government institutions, local community	GOI-DIPA	Faculty of Forestry, Gadjah Mada University
7	Assessment of Population Structure and Genetic Diversity of Indigenous Chicken Breeds in Indonesia and Malaysia to Support Their Sustainable Utilization	Dr Maria Ulfah, S.Pt., M.ScAgr.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Faculty of Marine Science and Fisheries Universitas Maritim Raja Ali Haji
8	Potency of Yeast as Biocontrol Agent of Ochratoxin A Producing Fungi and Its Effect on the Taste of Wet and Semi-Wet Processed Arabica Coffee	Prof Okky Setyawati Dharmaputra	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Faculty of Agriculture, University Putra Malaysia (UPM), Malaysia; Faculty of Veterinary Medicine, University Putra Malaysia (UPM), Malaysia
9	Ecology, Species Composition and Potential Application of the Enzyme Extraction of Marine Wood Borer from Mangrove Forest of Borneo	Dr Hj Farah Diba	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	SEAMEO BIOTROP
10	The Use of <i>Hermetia illucens</i> to Achieve Sustainable Cocoa Farming: Cocoa Pod Husk Bioconversion to Feed Supplement	Dr Ir Siswanto, DEA	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	IPB University

F. Completed Research Projects from PhD Thesis Support Grantees

11	Study on Establishment of New Ecosystem and Its Relation with their Feeding Ecology: An Attempt of Sea Ranching for <i>Holothuria atra</i>	Ir Retno Hartati, M.Sc.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	
12	An Integration of Stingless Bees and Nutmeg Plants (<i>Myristica fragrans</i> Houtt) to Increase the Efficiency and Sustainability of Honey Production in West Halmahera Regency	Hearty Salatnaya	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Laboratorium Entomologi, Pusat Penelitian Biologi, Lembaga Ilmu
13	The Analysis of Microsatellite DNA Polymorphisms as a Base to Conserve Local Swamp Buffalo of Southeast Sulawesi	Muh. Rusdin, S.Pt., M.Si.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Lembaga Ilmu Pengetahuan Indonesia (LIPI), Cibinong-Bogor"
14	Heavy Metal Accumulator Plants for Gold Mining Phytoremediation Program: Morpho-Physiological and Histochemical Analysis	Dr Ir Hamim, M.Si.	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Universiti Teknologi Malaysia
15	Modelling of Jakarta Bay Small Scale Fisheries Sustainability using Social Ecological System Framework	Robin	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Malaysia Genome Institute

16	Trophic Structure of Macrozoobenthos Community on Mangrove Ecosystem	Ananingtyas Septia Darmarini	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Doctoral Student at Faculty of Marine and Fisheries in Institut Pertanian Bogor
17	Nanoparticle of Egg Yolk in Frozen Semen Diluent to Support Germ Plasm Conservation of Garut Sheep	Oriza Savitri Ariantie	Scientific community, government institutions, private enterprise and local community	GOI-DIPA	Fakultas Kedokteran Hewan, Institut Pertanian Bogor; laboratorium Balai Inkubator Teknologi, kawasan Puspitek, Tangerang; Balai Besar Penelitian dan Pengembangan Pascapanen Pertanian, Bogor; laboratorium Balai Iradiasi Elektromekanik dan Instrumentasi (EIE) Pusat Aplikasi Isotop dan Iradiasi (PAIR) BATAN, Jakarta Selatan; Komisi Etik Hewan IPB"

G. Completed Research Projects from School Garden Teacher

18	Improving Cooperation and Nutrition among Special Need Students at School of Human Bekasi through Vertical and Raised Bed Organic Gardening Within the Teamwork Method of Learning	Tri Mariyanti, S.Pd.	Scientific community, government, local community	GOI-DIPA	SMPN 3 Satu Atap Demak; Universitas Diponegoro
----	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------	---------------------------------------------------	----------	------------------------------------------------

H. Completed Youth Environmental Outreach Grant Project

19	Water Quality Assessment for Aquaculture and Chemical Content of Mangrove - Based Food	Aditya Sukma Bahari	Scientific community, government, local community	GOI-DIPA	SMPN 3 Satu Atap Demak; Universitas Diponegoro
20	"Landscaping" as Project Based Learning: to Create an Artistic School Garden as Contextual and Integrated Learning Media in SMPN 13 Kota Sukabumi	Savitri Mutia Agustine	Scientific community, government, local community	GOI-DIPA	

Appendix 2. Training Courses, Workshops, Group Discussions, Seminars and Meetings Conducted during FY 2018/2019

No	Activities	Objectives	Date and Venue	Source of Fund	Types and number of participants			Collaborating Agency	Participant's Country
					F	M	Total		
A. National Training, Seminar, Workshop									
1	Third National Training on Establishing School Garden for Improving Students Literacy, Nutrition and Entrepreneurship	Offer knowledge and understanding to participants about the importance of School Garden program, and to prepare the participants in implementing the knowledge in their respective schools and community.	SEAMEO BIOTROP, 23 – 27 July 2018	Gol-DIPA	13	15	28		All Indonesian
2	Training Course on Warehouse Pest Management through Proper Fumigation Practices	Provide knowledge and skills on alternative warehouse pest control and management using various kinds of fumigants as well as the right fumigation techniques, and share experiences among the participants to overcome pest problems in their respective institutions.	SEAMEO BIOTROP, 27 – 29 August 2018	Gol-DIPA	38	12	50		All Indonesian
3	Training Course on Isolation and Identification of <i>Aspergillus</i> , <i>Penicillium</i> and <i>Talaromyces</i>	Deliver knowledge in isolating and identifying <i>Aspergillus</i> , <i>Penicillium</i> and <i>Talaromyces</i> in food and fruit materials morphologically and molecularly as well as applying the right species names especially for the important species existed in Indonesia. This activity also became a good opportunity to share and discuss participants' knowledge and experiences in working with these three fungi species.	SEAMEO BIOTROP, 28 - 31 August 2018	Gol-DIPA	5	19	24		All Indonesian
4	3 rd Quartely Public Seminar Series: "The Current Status of Taxonomy and Biodiversity of Toxigenic Fungi"	Prof Robert conveyed the increase of food-borne mycobiota biodiversity due to new taxonomic insights which give a more refined species delimitation. He also suggested all food mycologists to follow the current taxonomic schemes because correct species identification is still essential in tackling the problems of contamination of food and the possible production of mycotoxins.	SEAMEO BIOTROP, 30 August 2018	Gol-DIPA	15	38	53		All Indonesian
5	Training Course on Optimizing Spatial Technologies in Designing Zoning Plans of Coastal Areas and Small Islands	To obtain deeper insights on the following topics during the training: (1) the concept of RZWP-3-K as the basis for the preparation of marine spatial planning, (2) selection and acquisition of Open Ocean Data (OOD), (3) OOD processing techniques, (4) selection and acquisition of High-Resolution Satellite Imagery (CSRT) and Medium-Resolution Satellite Imagery (CSRM) data, (5) remote sensing data processing techniques,(6) spatial analysis techniques for coastal areas and	SEAMEO BIOTROP, 24 – 28 September 2018	Gol-DIPA	23	7	30		All Indonesian

		isle zonation, (7) data integration in the Indonesian Geography Elements Catalogue (KUGI), (8) software application for processing spatial data, and (9) introduction to the latest technology in the field of marine spatial data.						
6	Training Course on Disaster Mitigation in Coastal Areas for School Teachers	Improve the ability of training participants in understanding and knowing kinds of disasters in coastal areas and their mitigation, the characteristics of disaster-prone areas and exposed areas, the use of Geographic Information System (GIS) and Remote Sensing (RS) to identify mangrove ecosystems as one of the efforts to mitigate coastal disasters, and the use of drones for taking aerial photos to map the distribution of ecosystem in coastal areas.	SEAMEO BIOTROP, 24 – 28 September 2018	Gol-DIPA	11	10	21	All Indonesian
7	4 th Quarterly Public Seminar: 'A Characterization of Forest Communities at Different Elevations in Lore Lindu National Park, Central Sulawesi'	Enhance the knowledge on characterization of forest communities at different elevations in Lore Lindu National Park, Central Sulawesi.	SEAMEO BIOTROP, 27-Sep-18	Gol-DIPA	15	27	42	All Indonesian
8	Training Course on Spatial Analysis of Carrying Capacity and Land Capability to Support Regional Development Planning	Share knowledge and technical skills on the concept and regulation of the carrying capacity and the region capability, development of analysis methods of the carrying capacity and the region capability, integration of environmental and ecosystem services in calculating land carrying capacity, and technique for analyzing the carrying capacity and the region capability.	SEAMEO BIOTROP, 1 – 5 October 2018	Gol-DIPA	16	10	26	All Indonesian
9	Training Course on Spatial Dynamics Models for Decision Support in Food Security Program	Provide knowledge and skills to the participants to develop and utilize spatial models to prospect food adequacy, especially rice, at various administrative levels considering regional and demographic potentials.	BIOTROP, 15 - 19 October 2018	Gol-DIPA	19	7	26	All Indonesian
10	2 nd Training Course on the Application of Acoustic Technology for Ocean Resources Exploration and Quantification	The training emphasized on the importance of marine acoustic technology for observing, monitoring, and understanding marine ecosystems and resources, linked with the stock assessment and management, prediction of the potential effects of climate variability and climate change on recruitment, and mapping of historical and cultural sites and other archaeological resources in the ocean floor.	BIOTROP, 5 - 9 November 2018	Gol-DIPA	16	9	26	All Indonesian
11	Training Course on Herbarium Management for Forestry Vocational School and Biology High	Share knowledge and skills to school teachers in establishing and managing herbarium as well as using it as a learning resource for students in identifying plants. A field trip to Herbarium of SEAMEO BIOTROP (BIOT) dan Herbarium of	BIOTROP, 12 - 16 November 2018	Gol-DIPA	10	16	26	All Indonesian

	School Teachers in Indonesia	Hortus Botanicus Bogoriense (BOHB) at Bogor Botanical Garden was also held to learn the familia of tree collection as well as management of weed and forest herbarium.							
12	Workshop on Developing Agri-based STEM Education Materials in Indonesia	Providing help to technical and vocational schools, particularly agricultural vocational schools, to produce high quality graduates and enabling them to get a job easily and succeed specifically in the field of entrepreneurship. This is also in line with the Government of Indonesia's goal for developing more self-reliant and globally competitive citizens in the era of Industry 4.0. The workshop also provided the opportunity for some of the participants to share their schools' experiences in implementing STEM education models.	BIOTROP, 3 – 5 December 2018	Gol-DIPA	8	16	24	SEAQIS, SEAQIM	All Indonesian
13	Seminar and Exhibition on Entrepreneurship Development in Agricultural Vocational Schools	1) Cooperation of SEAMEO BIOTROP and Agricultural Vocational School in supporting entrepreneurship in schools, 2) Role of Agriculture P4TK in encouraging entrepreneurship development in Agricultural Vocational Schools, 3) The mechanism of transfer of agricultural technology from universities and research institutions to Agricultural Vocational Schools, and Seasonal fruit development for teaching industry in Agricultural Vocational Schools.	SEAMEO BIOTROP, 6 - 7 December 2018	Gol-DIPA	60	58	118		All Indonesian
14	Focus Group Discussion: "Establish the Synergy and Collaboration on Joint Management in Ciliwung River: Ciliwung Care Movement"	Synergize and create collaboration among stakeholders related to restoration and management of Ciliwung River, called 'Gerakan Cinta Ciliwung'. By the end of this FGD, action plans were formulated to map follow-up activities in different parts of the river, upstream and middle. Every stakeholder proposed follow-up actions related to their authority in the respective part of the river.	SEAMEO BIOTROP, 17 December 2018	Gol-DIPA	22	19	41	Alumni Association of IPB University (DPP HA IPB)	All Indonesian
15	Workshop on the Development of Seaweed Industry in Central Sulawesi	Identify opportunities, risks, and technology to ensure the quality and continuity of seaweed production in Central Sulawesi; To draft a concept of strategy for developing the cottonii seaweed industry, covering the supply of superior seeds from tissue culture techniques, site selection, as well as seaweed cultivation system and processing in Central Sulawesi; and to formulate an action plan for developing an integrated seaweed industrial estate in Central Sulawesi.	SEAMEO BIOTROP, 14 February 2019	Gol-DIPA	29	6	35		All Indonesian
16	1 st Quarterly Public Seminar Series:	Improve participants' knowledge and understanding on mine reclamation, and became	SEAMEO BIOTROP,	Gol-DIPA	27	65	72		All Indonesian

	"Development of Mine Reclamation Technology in Indonesia"	a forum for disseminating information related to the topic. Mining reclamation technology and innovation in Indonesia continues to be developed in order to reduce the reclamation cost and to increase the quality of the reclamation results. This reclamation effort is also to restore ecological, economic and social functions.	20 February 2019						
17	Workshop on Curriculum Development on Environment Engineering Master Program, Faculty of Civil and Planning Engineering, Universitas Islam Indonesia	Seek inputs from experts to face environment challenge towards industry 4.0 from environment engineering aspects, in order to design the Environment Engineering Master Program in UII as stated at the MoU. The MoU also stated that the implementation shall cover online lecture, joint research and internship.	Yogyakarta, 8 – 10 March 2019	Gol-DIPA	7	6	13		All Indonesian
18	Ciliwung Care Day	During the activity, participants cleaned up the trash in several places around the river and planting trees together. The plants planted were jambolan (<i>Syzygium cumini</i>), santol fruit (<i>Sandroricum koetjape</i>), teak (<i>Tectona grandis</i>), ebony (<i>Diospyros celebica</i>), gandaria (<i>Bauea macrophylla</i>), kepel (<i>Stelechocarpus burahol</i>), and jengkol (<i>Archidendron pauciflorum</i>).	Ciliwung Watershed, Kedung Badak, Bogor 24 March 2019	Gol-DIPA	-	-	238	Fisheries Student Association of IPB University (HIMASPER IPB)	
19	FGD Ciliwung II: "Establish the Synergy and Collaboration on Joint Management in Ciliwung River: Ciliwung Care Movement"	This activity was a follow-up coordination of the First FGD regarding restoration and management of Ciliwung River. This FGD was separated into two different sessions. The first session focused on identifying issues which need collaboration between institutions regarding management and utilization of Ciliwung River. The second session focused on prioritizing collaboration actions inside synergy and collaboration framework.	Gedung Alumni IPB, Bogor, 5 April 2019	Gol-DIPA	27	20	47	Alumni Association of IPB University (DPP HA IPB)	
20	Training of Trainers (ToT) on Identification and Management of Weeds and Invasive Plant Species (IAS) for Agriculture Vocational School Teachers	This activity aimed to support the revitalization program of vocational school in Indonesia through increasing and sharing knowledge and experience of its teachers and their interaction with agro industry practitioners regarding the management of weeds and invasive plant species.	SEAMEO BIOTROP, 25 – 30 March 2019	Gol-DIPA	12	8	20		All Indonesian
21	Training of Trainers (ToT) on Fumigation in The Perspective of Integrated Storage Pest Management	The activity was held to educate the participants in preventing and controlling pest infestations in the storage materials such as post-harvest, archives, library documents and museum.	SEAMEO BIOTROP, 8 – 11 April 2019	Gol-DIPA	35	16	51		All Indonesian
22	Training of Trainers on Utilization of Geospatial Information and Data for Land Potential Analysis	This five day training focused on theory and practice of managing and utilizing spatial data to improve softskills and hardskills of participant. It is important for participant, not only be able to process spatial data and operate GIS software,	SEAMEO BIOTROP, 22 - 26 April 2019	Gol-DIPA	26	9	31		All Indonesian

		but also understand purposes of every step in processing and analyzing spatial data to produce an analyzed map.						
23	Workshop on Food Processing to Enhance Nutrition Value for Community	This activity aimed to share knowledge on food processing to maintain food nutrition and to demonstrate the proper technique of cooking. After completing this training, participants are expected to be well understood about the concept of food processing and to implement it on their daily basis.	SEAMEO BIOTROP, 2 May 2019	Gol-DIPA	9	33	42	All Indonesian
24	2 nd Quarterly Public Seminar "Badan Usaha Milik Petani sebagai Jalan Menuju Kemandirian Petani Indonesia"	The seminar featured Prof. (Riset). Dr. Ir. Mohammad Winugroho, M.Sc , a lecturer from Graduate School Padjajaran University, Bandung, and Animal Husbandry Faculty of Gadjah Mada University, Yogyakarta. This seminar aimed to increase participants' knowledge and understanding on agriculture institutions in Indonesia, their advantages and weaknesses, and strategic means	SEAMEO BIOTROP, 20 June 2019	Gol-DIPA	27	26	53	All Indonesian
25	Training of Trainers on Spatial Modelling on Agriculture Resources Potential to Support Food Security Program	This activity aimed to share technocratic and objective knowledge to serve as an essential basis for practitioner, local government and academician to support the implementation of food security program in 4.0 industry on various administration level.	SEAMEO BIOTROP, 24 - 28 June 2019	Gol-DIPA	17	12	29	All Indonesian

B. International Conference

1	3 rd International Conference on Tropical Biology: "Conservation, Enhancement, and Sustainable Use of Local Flora and Fauna in Southeast Asia"	This conference aimed at assessing the successes, opportunities, and gaps in the current practices, research efforts and policies related to the theme. The conference was officially opened by Dr Kirsfianti Linda Ginoga, Director of Forest Research Centre, Forest Research Development and Innovation Agency, Ministry of Environment and Forestry of the Republic of Indonesia (MoEF RI) on behalf of the Minister of Environment and Forestry of the Republic of Indonesia. The conference also served as the closing event for SEAMEO BIOTROP's year-long golden anniversary celebration. The participants came from Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, Vietnam, and Timor Leste.	SEAMEO BIOTROP, 20 - 21 September 2019	Gol-DIPA	227	Cambodia, Malaysia, Myanmar, the Philippines, Thailand, Vietnam, and Timor Leste.
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------	----------	-----	-----------------------------------------------------------------------------------

C. In-country, Regional and International Training

1	In-country Training on Urban Agriculture for Special Education Teachers and Community Learning Centre Educators	In general, the training course was designed to enable school teachers and community learning centre educators to acquire basic knowledge and skills on specific agricultural production technologies appropriate for urban application to benefit their students and their families as well as their communities.	Nong Lam University, Vietnam, 16 – 19 October 2018	SEDF	17	14	31	Nong Lam University, SEAMEO SEN, SEAMEO CELLL	Vietnamese
2	Training of Trainers on Family Farming for Cambodian Vocational School Teachers	Family Farming Program is initiated to promote and share alternate farming activities, such as hydroponics, aquaponics, aquaculture, etc., around home and school environment. This program also serves as a mean in enhancing people's interest in farming activities. Family Farming program in SEAMEO BIOTROP is first implemented in 2019 through training activity as a collaboration effort between SEAMEO BIOTROP and SEAMEO Regional Centre for Technical Education Development (SEAMEO TED). In general, the objective of this training is to offer knowledge and understanding to participants on the importance of Family Farming program, so that they can implement the program in their respective institutions.	SEAMEO BIOTROP, 24 – 28 June 2019	Gol. DIPA – SEDF	7	1	8	SEAMEO Regional Centre for Technical Education Development (SEAMEO TED)	Cambodian

Appendix 3.
List of Memorandum of Understanding (MoU) / Memorandum of Agreement (MoA)
and Contracts Signed in FY 2018/2019

A. On-Going Memorandum of Understanding / Memorandum of Agreement and Contracts

No	Organization/Agency	Date Signed	Subject of Cooperation	Duration
1	SMK Kehutanan Bakti Rimba Bogor	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
2	SMK NEGERI 1 KALIBAGOR	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
3	SMK NEGERI 1 KEMANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
4	SMK NEGERI 1 KUALA KAMPAR	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
5	SMK NEGERI 1 SALAM	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
6	SMK NEGERI 1 WAIBAKUL	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
7	SMK NEGERI 5 JEMBER	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
8	SMK PP NEGERI 1 TEGALAMPEL	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
9	SMK PP NEGERI SAREE	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
10	SMK NEGERI 1 CIBADAK	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
11	SMK NEGERI 1 GELUMBANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
12	SMK NEGERI 1 KELAPA	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
13	SMK NEGERI 1 PACET	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
14	SMK NEGERI 1 TULUNGAGUNG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
15	SMK NEGERI 2 SUBANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
16	SMK NEGERI 1 TAPIN SELATAN	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
17	SMK NEGERI 2 PANDEGLANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
18	SMK NEGERI 63 JAKARTA	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
19	SMK NEGERI 2 METRO	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
20	SMK NEGERI 1 GONDANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
21	SMK NEGERI 6 MASNI	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
22	SMK NEGERI 1 TEMANGGUNG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
23	SMK NEGERI 2 SLAWI	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
24	SMK NEGERI 4 BOGOR	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
25	SMK NEGERI 57 JAKARTA	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
26	SMK NEGERI 2 MIMIKA	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
27	SMK NEGERI 5 KENDARI	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
28	SMK NEGERI 1 BAWEN	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)

29	SMK UNGGUL NEGERI 2 BANYUASIN III	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
30	SMK PP NEGERI MATARAM	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
31	SMK NEGERI 1 PETANG	1 August 2018	Improving the Quality of Vocational Education	1 August 2018 - 31 July 2020 (2 Years)
32	Pusat Penelitian dan Pengembangan Hortikultura , Balitbangtan	1 August 2018	Collaboration on the Development of Superior Fruit Plants throughout the Season for Empowerment of Vocational High Schools (SMK) in Indonesia	1 August 2018 - 31 July 2021 (3 Years)
33	Balai Penelitian dan Pengembangan Lingkungan Hidup dan Kehutanan (BP2LHK) Manado	24 October 2018	Development of post-mining land reclamation and development of flora and fauna	24 October 2018 - 31 July 2021 (3 Years)
34	SMK Negeri 1 Pangkalan Kerinci	9 October 2018	Organizing 4 Year Vocational Assistance Program	9 October 2018 - 23 October 2020 (3 Years)
35	PT Bio Sarana Indonesia	1 November 2018	Semi-field testing of the efficacy of natural fungicide "PESNAB 4EC" in oil palm nurseries	1 November 2018 - 1 June 2019 Addendum until 10 October 2021 (3 Years)
36	University of Sumatera Utara (USU)	-	<ol style="list-style-type: none"> 1. Joint implementation of research activities on tropical biology in a manner that will be mutually agreed between the Parties; 2. Provision of technical advice in research and development on tropical biology; 3. Joint conduct of training programs and other relevant learning events related to tropical biology; 4. Exchange of information materials on tropical biology; 5. Scientific staff and student exchange and consultations on relevant research, training, and other learning events; and 6. Other forms of cooperation whenever and wherever feasible opportunities evolve, and deemed as necessary and relevant. 	until 4 May 2019 (1 Years)
37	University Bangka Belitung	27 December 2018	<ol style="list-style-type: none"> 1. Joint implementation of research activities on tropical biology in a manner that will be mutually agreed between the Parties; 2. Provision of technical advice in research and development on tropical biology; 3. Joint conduct of training programs and other relevant learning events related to tropical biology; 4. Exchange of information materials on tropical biology; 5. Scientific staff and student exchange and consultations on relevant research, training, and other learning events; and 6. Other forms of cooperation whenever and wherever feasible opportunities evolve, and deemed as necessary and relevant. 	27 December 2018 - 28 August 2021 (3 Years)
38	PT Ithaca Resources	10 January 2019	Collaboration on the reclamation study center of ex-mining land and rehabilitation of watersheds (DAS)	10 Jan 2019 - 26 Dec 2021 (3 Years)
39	Dinas Kelautan Dan Perikanan Propinsi Sulawesi Tengah	14 February 2019	Development of tissue culture technology to produce <i>Cottonii</i> seaweed (<i>Kappaphycus alvarezii</i>) seeds for the people of Central Sulawesi	14 Feb 2019 - 10 Jan 2021 (5 Years)
40	IPB, Faculty of Forestry	1 February 2019	Collaboration with the publication of the journal BIOTROPIA	1 Feb 2019 - 14 Feb 2024 (5 Years)
41	SMK-PP Kutacane	4 March 2019	Improving the Quality of Vocational Education	4 Mar 2019 - 3 Mar 2022 (3 Years)
42	SMKIT Insan Toda	6 May 2019	Improving the Quality of Vocational Education	6 May 2019 - 6 May 2021 (2 Years)

43	Djuanda University	17 May 2019	<ol style="list-style-type: none"> 1. Joint implementation of research activities on tropical biology in a manner that will be mutually agreed between the Parties; 2. Provision of technical advice in research and development on tropical biology; 3. Joint conduct of training programs and other relevant learning events related to tropical biology; 4. Exchange of information materials on tropical biology; 5. Scientific staff and student exchange and consultations on relevant research, training, and other learning events; and 6. Other forms of cooperation whenever and wherever feasible opportunities evolve and deemed as necessary and relevant. 	17 May 2019 - 17 May 2021 (2 Years)
44	Djuanda University	17 May 2019	Student Internship to Japan	17 May 2019 - 17 May 2021 (2 Years)
45	Diponegoro University	April 2019	<ol style="list-style-type: none"> 1. Joint implementation of research activities on tropical biology in a manner that will be mutually agreed between the Parties; 2. Provision of technical advice in research and development on tropical biology; 3. Joint conduct of training programs and other relevant learning events related to tropical biology; 4. Exchange of information materials on tropical biology; 5. Scientific staff and student exchange and consultations on relevant research, training, and other learning events; and 6. Other forms of cooperation whenever and wherever feasible opportunities evolve, and deemed as necessary and relevant. 	1 April 2019 - 1 April 2024 (5 Years)
46	PT Kibo Trading	15 April 2019	Improvement of Human Resource and Institutional Capacity	15 April 2019 - 15 April 2022 (3 Years)
47	PT Kibo Trading	15 April 2019	Student internship to Japan	15 April 2019 - 15 April 2022 (3 Years)
48	University Papua	25 April 2019	<ol style="list-style-type: none"> 1. Joint implementation of research activities on tropical biology in a manner that will be mutually agreed between the Parties; 2. Provision of technical advice in research and development on tropical biology; 3. Joint conduct of training programs and other relevant learning events related to tropical biology; 4. Exchange of information materials on tropical biology; 5. Scientific staff and student exchange and consultations on relevant research, training, and other learning events; and 6. Other forms of cooperation whenever and wherever feasible opportunities evolve, and deemed as necessary and relevant. 	25 April 2019 - 25 April 2022 (3 Years)
49	PT Tirta Investama	4 March 2019	Contract on drinking water provider	4 March 2019 - 28 February 2020 (1 Year)
50	PT Bukit Asam	27 May 2019	Post-mining Study Center and watershed rehabilitation	27 May 2019 - 27 May 2019 (3 Years)
51	BBLITBANG Pasca Panen	29 May 2019	Research cooperation in the development of mint oil and formulation and the effectiveness of fumigant against three types of insect warehouse pests	29 May 2019 - 29 May 2020 (1 Year)
52	PT Amman Mineral Nusa Tenggara	1 June 2019	Extension for service on soil testing in laboratory for "Batu Hijau" project	1 June 2019 - 30 June 2020 (1 Year)

53	PT Haji Maming Batulicin	15 July 2019	Development of tissue culture technology to produce high quality <i>Cottonii</i> seaweed seedlings and consultation on tissue culture laboratory construction	15 July 2019 - 14 July 2021 (2 Years)
54	New Future Management Centre	16 July 2019	Cooperation for drone training and disaster quick mapping	-
55	PT Kasongan Bumi Kencana	22 July 2019	Development of swampy forest on tailing filling facility	22 July 2019 - 31 January 2021 (18 Months)

B. On-Going Memorandum of Understanding / Memorandum of Agreement and Contracts

No	Organization/Agency	Date Signed	Subject of Cooperation	Duration
1	PT. Amman Mineral Nusa Tenggara	4 July 2018	Laboratory Soil Testing Services for the Batu Hijau Project	4 July 2018 - 31 May 2019 (1 year)
2	PT Mitra Sukses Agrindo	5 November 2018	Field testing of the efficacy of Nogan P biofungicide (Made from: <i>Trichoderma</i> spp.) On diseases caused by <i>Ganoderma boninense</i> in oil palm seeds	5 November 2018 - 1 June 2019 (1 year)

Appendix 4.

List of Post and Undergraduate Students Who Conducted Researches, Internships and On-The-Job Trainings at SEAMEO BIOTROP during FY 2017/2018

A. Research

No	Name	Institution and Level	Research Title	Unit Affiliated	Supervisor
1	Emeldha Tresia	Bangka Belitung University, Kepulauan Bangka Belitung (S1)	The diversity of Arbuscular Mycorrhizal Fungi (AMF) in the Jering Menduyung Nature Park, West Bangka	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
2	Talitha	Bangka Belitung University, Kepulauan Bangka Belitung (S1)	Diversity of Phosphate Soluble Bacteria (PSB) in Jering Menduyung Nature Tourism Park, West Bangka	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
3	Tiara Octavia	Bangka Belitung University, Kepulauan Bangka Belitung (S1)	The diversity of Arbuscular Mycorrhizal Fungi (AMF)	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
4	Muhammad Rifqi Hariri, M.Si	Indonesian Institute of Sciences (LIPI), Bogor (S2)	<i>Typhonium</i> Data Update in Indonesia	Herbarium	Dr Sri Sudarmiyati
5	Alfi Laila Zuhriansah	Faculty of Forestry, IPB University, Bogor (S2)	Composting of lemongrass with additive substances and response to compost addition to cananga (<i>Cananga odorata</i>)	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
6	Nia Afriyanti	Faculty of Mathematics and Natural Sciences, Pakuan University, Purwokerto (S1)	Utilization of cassava waste (<i>Manihot esculenta</i>) as a media for growth and productivity of mushrooms (<i>Volvariella volvacea</i>).	Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
7	Wulantika	Bangka Belitung University, Kepulauan Bangka Belitung (S1)	Diversity and abundance of phosphate solvent fungi in Padang Sweep, Dusun Pejem, Bangka	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
8	Hermiati	Bangka Belitung University, Kepulauan Bangka Belitung (S1)	Diversity and abundance of non-symbiotic N ₂ bacteria in the fields of Sapu-sapu, Dusun Pejem, Bangka	Biosystem and Landscape Management Laboratory	Dr Irdika Mansur
9	Shinta Leny Cristiana	Faculty of Agriculture, IPB University, Bogor (S1)	The Effectiveness of essential oils of Nutmeg (<i>Myristica fragrans</i>) and cloves (<i>Syzygium aromaticum</i>) as fumigants for control of saw toothed grain beetle (<i>Oryzaephilus surinamensis</i> (L.))	Entomology Laboratory	Dr Idham Sakti Harahap
10	Hugo Ageniyen Jorgie Tarigan	Faculty of Agriculture, IPB University, Bogor (S1)	Effect of soursop (<i>Annona muricata</i>) extract leaf and pork bean leaf extract (<i>Tephrosia vogelii</i>) on the mortality of <i>Oryzaephilus surinamensis</i> (Coleoptera: silvanidae)	Entomology Laboratory	Dr Idham Sakti Harahap
11	Elsa Oktaviani	Faculty of Agriculture, IPB University, Bogor (S1)	The effectiveness of cardamom essential oil (<i>Amomum compactum</i>) and cinnamon (<i>Cinnamomum burmanii</i>) as fumigants for the control of <i>Oryzaephilus surinamensis</i> L. larvae (Coleoptera: Silvanidae)	Entomology Laboratory	Dr Idham Sakti Harahap
12	Agni Noor Muhammad	Faculty of Fisheries and Marine Sciences, Jenderal Soedirman University, Purwokerto (S1)	Analysis distribution of coral reef recovery due to increased sea surface temperature in the Thousand Islands	Remote Sensing and Ecology Laboratory	Slamet Widodo
13	Raymundus Santonius Situmorang	Faculty of Agriculture, Djuanda University, Bogor (S1)	Insecticide power of mimba leaf extract (<i>Azadirachta indica</i> A. Juss) and tembelekan leaf (<i>Lantana camara</i> L.) against warehouse pest (<i>Callosbruchus maculatus</i>)	Entomology Laboratory	Sri Widayanti, M.Si.
14	Hesti Maulida	Faculty of Agriculture, Djuanda University, Bogor (S1)	Insecticide power of jeruk purut leaf extract (<i>Citrus hystrix</i> D.C) with carrier zeolite formula on Motschulsky <i>Sitophilus zeamais</i> warehouse pest	Entomology Laboratory	Dr Idham Sakti Harahap
15	Aziez Setiawan	Faculty of Agriculture, Muhammadiyah University, Jakarta (S1)	Potential of coconut water as additional nutrition in the growth of white oyster mushrooms	Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
16	Dian Faisal	Faculty of Agriculture, Muhammadiyah University, Jakarta (S1)	Nutrition substitution in oyster mushroom growing media	Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.

17	Fia Rifta Syahrani	Faculty of Agriculture, Gajah Mada University, Yogyakarta (S1)	Effect of ZPT and light intensity on anubias plant growth	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
18	Samsu Adi Rahman	Faculty of Fisheries and Marine Sciences, General Sudirman University (S2)	Characterization of MOL and its utilization to control ice-ice disease on <i>Kappaphycus alvarezii</i> seaweed	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
19	Mohammad Akhbar Yassin	Faculty of Agriculture, Djuanda University, Bogor (S1)	Solubility of <i>Metarhizium anisoplae</i> and <i>Beauveria bassiana</i> against warehouse pests <i>Sitophilus oryzae</i>	Entomology Laboratory	Sri Widayanti, M.Si.
20	Indah Ayu Lestari	Faculty of Agriculture, Djuanda University, Bogor (S1)	Effect of planting media and AB Mix nutrient concentration on growth and yield of lettuce plants with Nutrient Film Technique (NFT) system	Hydroponic Greenhouse	Riana Hartati
21	Mochammad Ginanjar	Faculty of Agriculture, Djuanda University, Bogor (S1)	Growth and yield of kailan (<i>Brassica oleracea</i>) plants on various growing media and AB-MIX nutrient concentrations with hydroponic substrate systems	Hydroponic Greenhouse	Riana Hartati
22	Suharman	Faculty of Agriculture, Djuanda University, Bogor (S1)	Effect of fumigant basil essential oil (<i>Ocimum basilicum</i>) and clove (<i>Syzygium aromaticum</i>) on <i>Callosobruchus maculatus</i> mortality	Entomology Laboratory	Sri Widayanti, M.Si.

B. Internship and On-the-Job Training

No	Name	Institution / University	Research Title	Unit Affiliated	Supervisor
1	Esti Setyowati	Faculty of Agriculture, Brawijaya University (S1)	Isolation and Identification of Fungi	Phytopathology Laboratory	Ina Retnowati
2	Nurhalimah	Faculty of Agriculture, Brawijaya University (S1)	Isolation and Identification of Fungi	Phytopathology Laboratory	Ina Retnowati
3	Abdul Aziz	Faculty of Agriculture, Brawijaya University (S1)	Pest Control Management	Entomology Laboratory	Sri Widayanti, M.Si.
4	Putri Dewi Sartika	Faculty of Agriculture, Brawijaya University (S1)	Pest Control Management	Entomology Laboratory	Sri Widayanti, M.Si.
5	Yolanda Shafira Fahzinia	Faculty of Agriculture, Brawijaya University (S1)	Pest Control Management	Entomology Laboratory	Dr Erina Sulistiani, M.Si.
6	Pebrio Adi Prasetyo	Faculty of Agriculture, Brawijaya University (S1)	Mushroom Cultivation	Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
7	Kumala Purba Sari	Faculty of Agriculture, Brawijaya University (S1)	Mushroom Cultivation	Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
8	Fia Rifta Syahrani	Faculty of Agriculture, Brawijaya University (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
9	Holanda Lydianthy	Faculty of Agriculture, Brawijaya University (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
10	Hana Nurliani	Faculty of Agriculture, Brawijaya University (S1)	Observation of Mycorrhiza Genus	Biosystem and Landscape Management Laboratory	Risa Rosita
11	Qisthi Hilmi Kiasati	Faculty of Agriculture, Brawijaya University (S1)	Observation of Mycorrhiza Genus	Biosystem and Landscape Management Laboratory	Risa Rosita
12	Aditia Triananda	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
13	Saepulloh	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
14	Entus Munandi	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.

15	Hikmat	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
16	Emud	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
17	M. Ari Pajriansyah	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
18	TB. Heru Rahman	SMK Negeri 2 Pandeglang (Student)	Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory and Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
19	Muhammad Rizkci Sazilly	Lampung University (S1)	Identification of Mycorrhizal Fungi	Biosystem and Landscape Management Laboratory	Risa Rosita
20	Berekhya Glori Hernawati	Lampung University (S1)	Identification of Mycorrhizal Fungi	Biosystem and Landscape Management Laboratory	Risa Rosita
21	Maria Elysabeth Pandie	Christian Artha Wacana University (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
22	Prudensiana Efrida Ayu	Christian Artha Wacana University (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
23	Yulyza Rochmawatie	Department of Chemistry, Faculty of Mathematics and Natural Sciences, IPB University (S1)	Waste Management	Food and Feed Laboratory	Ratnanningsih
24	Rahayu Laelandi	Department of Chemistry, Faculty of Mathematics and Natural Sciences, IPB University (S1)	Waste Management	Water and Air Laboratory	Budi Cahyadi
25	Muhammad Aldifa Maulana	SMK Wikrama, Bogor (Student)	Office Administration	Finance and Accounting Department	Peri Siantuni
26	Frista Maulina Putri	SMK Wikrama, Bogor (Student)	Office Administration	Facilities Management Department	Siti Lastiah
27	Raysa Afni	SMK Wikrama, Bogor (Student)	Office Administration	Knowledge Management Department	Tika Tresnawati, M.Si.
28	Listiana Putri Utami	SMK Wikrama, Bogor (Student)	Office Administration	General Administration Department	Lidia Defita
29	Siti Syarah Namira Nur Azizah	SMK Wikrama (Student)	Office Administration	Human Resources Management Ddepartment	Yunita
30	Adriansyah Ramadhan	SMK Wikrama (Student)	Computer Network System	Product Development and Services Department	Zulkarnaen Noor Syarif
31	Luthfie Zikri Ramdhani	SMK Wikrama (Student)	Computer Network System	Product Development and Services Department	Zulkarnaen Noor Syarif
32	Fadhila Az Zahra	SMK Wikrama (Student)	Computer Network System	Knowledge Management Department	Lukman Haris
33	Deri Sukandar	SMK Wikrama (Student)	Computer Network System	Knowledge Management Department	Lukman Haris
34	Rizky Nasrullah	SMK Wikrama (Student)	Multimedia	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
35	Reysa Putri Kemala	SMK Wikrama (Student)	Multimedia	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
36	Irsan Irwansyah	Faculty of Mathematics and Natural Sciences, IPB University (S1)	Pengembangan sistem hidroponik untuk sayuran di Laboratorium Riset, SEAMEO BIOTROP [Development of hydroponic systems for vegetables at Research Laboratories, SEAMEO BIOTROP]	Hydroponic Unit	Riana Hartati
37	Siti Jamilah	Faculty of Mathematics and Natural Sciences, Nusa Bangsa University (S1)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin

38	Asia Salsabila	Faculty of Fisheries and Marine Sciences, Padjadjaran University (S1)	Pengaruh parameter oseanografis terhadap distribusi ikan [The effect of oceanographic parameters on fish distribution]	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
39	Mochammad Agung Seno Pambudi	Faculty of Fisheries and Marine Sciences, Padjadjaran University (S1)	Analisa pengaruh arus terhadap vegetasi pesisir menggunakan data penginderaan jauh [Analysis of the influence of currents on coastal vegetation using remote sensing data]	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
40	Raid Azhar Mawaffaq	Faculty of Fisheries and Marine Sciences, Padjadjaran University (S1)	Variabilitas temperatur laut pada fase Indian ocean Dipole (IOD) di perairan Jakarta dan Banten [Variabilitas temperatur laut pada fase Indian ocean Dipole (IOD) di perairan Jakarta dan Banten]	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
41	Evania Aprilia	Faculty of Fisheries and Marine Sciences, IPB University (S1)	Waste Management	Water and Air Laboratory	Budi Cahyadi
42	Nadya Febrianessa	Faculty of Fisheries and Marine Sciences, IPB University (S1)	Waste Management	Water and Air Laboratory	Budi Cahyadi
43	Nurul Azizah Amaliah	IPB Diploma Teknik dan Manajemen Lingkungan (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
44	Rita Puspitasari	IPB Diploma Teknik dan Manajemen Lingkungan (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
45	Riska Wardhani	IPB Diploma Teknik dan Manajemen Lingkungan (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
46	Mushawwir Sultan	IPB Fateta (S1)	Analisis aspek keteknikan pada proses produksi dan pengolahan jamur pangan [Analysis of engineering aspects in the process of producing and processing food mushrooms]	Laboratory of Mushroom Cultivation	Dr. Erina Sulistiani, M.Si.
47	Monita Yulianti	Faculty of Fisheries and Marine Sciences, IPB University (S1)	Mapping using the GIS System	Knowledge Management Department	Armaiki Yusmur, M.Si.
48	Ikhlas Yati	Faculty of Fisheries and Marine Sciences, IPB University (S1)	Plant Tissue Culture Techniques	Bioteknologi Laboratory	Anidah
49	Yulianti Garsita	Faculty of Fisheries and Marine Sciences, IPB University (S1)	Ornamental Fish Cultivation Techniques	Aquatic Laboratory	Dewi Yunianti
50	Latifah Nuraeni	Faculty of Agriculture, Djuanda University (S1)	Mushroom Cultivation	Laboratory of Mushroom Cultivation	Dr. Erina Sulistiani, M.Si.
51	Deyan Hidayat	Faculty of Agriculture, Djuanda University (S1)	Mushroom Cultivation	Laboratory of Mushroom Cultivation	Dr. Erina Sulistiani, M.Si.
52	Ratu rahmalia Rahayu	Faculty of Agriculture, Djuanda University (S1)	Mushroom Cultivation	Laboratory of Mushroom Cultivation	Dr. Erina Sulistiani, M.Si.
53	Tri Andika Putra	AMIK BSI Bogor (D3)	Development of IAS Identification Expert System	Knowledge Management Department	Armaiki Yusmur, M.Si.
54	Risal Dwi Putra	AMIK BSI Bogor (D3)	Development of IAS Identification Expert System	Knowledge Management Department	Armaiki Yusmur, M.Si.
55	Aldy Oktaviana	AMIK BSI Bogor (D3)	Development of Entomology Database	Knowledge Management Department	Armaiki Yusmur, M.Si.
56	M. Rawi Burhani	AMIK BSI Bogor (D3)	Development of Entomology Database	Knowledge Management Department	Armaiki Yusmur, M.Si.
57	Ahmad Rifki	AMIK BSI Bogor (D3)	Prototyping for SEAMEO BIOTROP New Website Design	Knowledge Management Department	Armaiki Yusmur, M.Si.
58	Muhammad Imaduddin Fathin	Sekolah Tinggi Perikanan (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr. Erina Sulistiani, M.Si.
59	Rivaldi	Sekolah Tinggi Perikanan (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr. Erina Sulistiani, M.Si.
60	Jordiansyah	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr. Erina Sulistiani, M.Si.

61	Endang Halipah	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
62	Robin	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
63	Ardiansyah	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
64	Daniel Claudio	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
65	Asmiah	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
66	Deby Suriyani	SMK Negeri 3 Tarakan (Student)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
67	Maulia Ningsih	SMK Miftahul Huda (Student)	Office Administration	General Administration Department	Lidia Defita
68	Trisha Natasya	SMK Miftahul Huda (Student)	Office Administration	Capacity Building Department	Dewanti Pratiwi
69	Ghina Apriyana	SMK Miftahul Huda (Student)	Office Administration	Cooperative Unit	Elvina Rahayu
70	M. Alfiansyah Syahroni	SMK Miftahul Huda (Student)	Office Administration	Product Development and Services Department	Novi Mayasari
71	M. Yuanda Aulia	SMK Miftahul Huda (Student)	Office Administration	Product Development and Services Department	Novi Mayasari
72	M. Fauzi	SMK Miftahul Huda (Student)	Office Administration	Product Development and Services Department	Novi Mayasari
73	Alpian Ragtan, SP	SMK-PP Negeri Kutacane (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani, Riana Hartati
74	Sabar Ulina manurung	SMK-PP Negeri Kutacane (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani, Riana Hartati
75	Ir. Siti Arifah	SMK-PP Negeri Kutacane (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani Riana Hartati
76	Mukhlis Siregar, SP	SMK-PP Negeri Kutacane (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani Riana Hartati
77	T. Rahmat Fardiansyah, SP	SMK-PP Negeri Bireuen (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani Riana Hartati
78	Nurmalia, S.HI, S.TP	SMK-PP Negeri Bireuen (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani Riana Hartati
79	Raden Salatiyanto, STP., M.Pd.	SMK N 1 Pangkalan Kuras (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
80	Nurhudi Muslimin, SP	SMK N 1 Pangkalan Kuras (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si

81	Muhammad Syukri, S.Pd., M.Pd.	SMK N 1 Pangkalan Kuras (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
82	Supriyanto, SP	SMK N 1 Pangkalan Kuras (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
83	Safra, SP	SMK N 1 Siak Kecil (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
84	Hardiyanto, S.Pd.	SMK N 1 Siak Kecil (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
85	Jarkasi, SP	SMK N 1 Siak Kecil (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
86	Eri, SP	SMK N 1 Siak Kecil (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
87	Muhammad Ripqi Lubis, SP., M.Si.	SMK N 1 Kuala Kampar (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani Riana Hartati, Jonner Situmorang, M.Si.
88	Sri Indrawati, SP	SMK Negeri 2 Metro Lampung (Teacher)	Food Security Program	Tissue Culture Laboratory, and Laboratory of Mushroom Cultivation	Samsul A. Yani
89	Febriyanti	SMK AK Nusa Bangsa (Student)	Waste Management	Water and Air Laboratory	Budi Cahyadi
90	Rivalda Febri Utami	SMK AK Nusa Bangsa (Student)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
91	Shelia Listyaning Pengestu	SMK AK Nusa Bangsa (Student)	Waste Management	Food and Feed Laboratory	Ratnanningsih
92	Indra Setiawan, SP.	PDD Politeknik Negeri Lampung Kabupaten Cianjur (Teacher)	Food Security Program	Tissue Culture Laboratory, Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani, Riana Hartati
93	Pebria Sisca, SP.	PDD Politeknik Negeri Lampung Kabupaten Cianjur (Teacher)	Food Security Program	Tissue Culture Laboratory, Mushroom Cultivation and Hydroponic Greenhouse	Samsul A. Yani, Riana Hartati
94	Rani Nuraeni, SP., M.M.Pd.	SMKN 1 Cibadak Sukabumi (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr. Erina Sulistiani, M.Si.
95	Hariyo Sulistiyo, SP	SMK Negeri 1 Tiloan, Central Sulawesi (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
96	Dra. Nur Azizah, M.Pd.	SMK Negeri 1 Lhoksukon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani

97	Mariani, SP	SMK Negeri 1 Lhoksukon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
98	Rizki Rahmawati, SP	SMK Negeri 1 Lhoksukon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
99	Anas, S.Ag., M.A	SMK Negeri 1 Pasie Raja, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
100	Roynisfan, S.Pd., M.Pd.	SMK Negeri 1 Pasie Raja, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
101	Abdil Kadir	SMK Negeri 1 Pasie Raja, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
102	Muhammad Chairuddin	SMK Negeri 1 Lhoksukon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
103	Taufiq Hidayatullah	SMK Negeri 1 Lhoksukon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory and Laboratory of Mushroom Cultivation	Jonner Situmorang, M.Si. and Samsul A. Yani
104	Sendy Egeten, SP.	SMK Pertanian Pembangunan Negeri Kalasey, North Sulawesi (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
105	Lerry J. Momongan, SP	SMK Pertanian Pembangunan Negeri Kalasey, Manado, North Sulawesi (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
106	I Ketut Sita, S.Pd.	SMK Negeri 1 Mopuya, Bolaang Mongondow Regency, North Sulawesi (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
107	Ridel Suruh, S.Pd., M.Si.	SMK Negeri 1 Mopuya, Bolaang Mongondow Regency, North Sulawesi (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
108	Ni Ketut Widiyawati, SP.	SMK Negeri 1 Mopuya, Bolaang Mongondow Regency, North Sulawesi (Teacher)	Food Security Program	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Samsul A. Yani, Riana Hartati, Jonner Situmorang, M.Si.
109	Mutiara Aulia Tri Wardhani	AKAMIGAS Balongan, Indramayu (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
110	Ichsan Enggar Kurniawan	AKAMIGAS Balongan, Indramayu (D3)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
111	Andyni Oktaviani Dwi Ulfa	AKAMIGAS Balongan, Indramayu (D3)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
112	Deswita Putri Rahmadania	AKAMIGAS Balongan, Indramayu (D3)	Waste Management	Food and Feed Laboratory	Ratnaningsih

113	Kania Sari Dewi, S.Tp.	SMK Pertanian Pembangunan Negeri Lembang (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
114	Erni Rahmayani, S.Tp.	SMK Pertanian Pembangunan Negeri Lembang (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
115	Martrieka Puspita, SP., M.Pd.	SMK Pertanian Pembangunan Negeri Lembang (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
116	Siti Suci Fauziah, SP.	SMK Pertanian Pembangunan Negeri Lembang (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
117	Ratih Ratini, SP.	SMK Pertanian Pembangunan Negeri Lembang (Teacher)	Food Security Program	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
118	Herwin Budiyanto	SMK Mentaya Hilir, Kalimantan Tengah (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si
119	Muhamad Fajrin	SMK Mentaya Hilir, Kalimantan Tengah (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si
120	Husnul Hasanah	SMK Mentaya Hilir, Kalimantan Tengah (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
121	Dr. Ir. Mohammad Hoesain, MP.	Jember University (Lecturer)	Weed Identification	Management of Invasive Alien Species in the Weed Laboratory	Dr Soekisman Tjitrosoedirdjo
122	Andi Suryadi, SP.	Mulawarman University (Lecturer)	Weed Identification	Management of Invasive Alien Species in the Weed Laboratory	Dr Soekisman Tjitrosoedirdjo
123	Puji Lestari, SP., M.Si.	Lampung University (Lecturer)	Weed Identification	Management of Invasive Alien Species in the Weed Laboratory	Dr Soekisman Tjitrosoedirdjo
124	Dr. Ir. Edy Syahputra, M.Si.	Tanjungpura University (Lecturer)	Weed Identification	Management of Invasive Alien Species in the Weed Laboratory	Dr Soekisman Tjitrosoedirdjo
125	Siti Nurhaliza Amrin	Faculty of Agriculture, Andalas University (S1)	Isolation and Identification of Fungi	Phytopathology Laboratory	Ina Retnowati
126	Rahma Syahyuti	Faculty of Agriculture, Andalas University (S1)	Isolation and Identification of Fungi	Phytopathology Laboratory	Ina Retnowati
127	Eva Zulaika	Faculty of Agriculture, Andalas University (S1)	Warehouse Pest Control	Entomology Laboratory	Sri Widayanti, M.Si.
128	Debby Wiliyan Saputri	Faculty of Agriculture, Andalas University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Harry Imantho, M.Sc.
129	Nabila Putri	Faculty of Agriculture, Andalas University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Harry Imantho, M.Sc.
130	M. Hakim	Faculty of Agriculture, Andalas University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Harry Imantho, M.Sc.
131	Alfret Anhar	Faculty of Agriculture, Andalas University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Harry Imantho, M.Sc.
132	Andi Windi Indrawati, S.TP., MP.	SMK Negeri SPP Wawotobi, Southeast Sulawesi (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.

133	Joko Prayogo, SE	SMK Negeri SPP Wawotobi, Southeast Sulawesi (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
134	Nunung Yusdin, SP., MM	SMK Negeri SPP Wawotobi, Southeast Sulawesi (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
135	Agus, SP.	SMK Negeri SPP Wawotobi, Southeast Sulawesi (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
136	Susinawari Ritonga, S.Pd.	SMK Negeri 1 Sosa, North Sumatera (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
137	Sri Fitriana HSB, S.Pd	SMK Negeri 1 Sosa, North Sumatera (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
138	Eideth Hehakaya, SP	SMK Negeri Taniwel, Maluku (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
139	Yulian Ennes Seitte, S.TP	SMK Negeri Taniwel, Maluku (Teacher)	Food Security Program	Laboratory of Mushroom Cultivation, Hydroponic Greenhouse and Natural Product Laboratory	Riana Hartati, Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
140	Soruduwaa Zega, SP	SMK Negeri 1 Gunungsitoli, North Sumatera (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
141	Edizon Zega, SST	SMK Negeri 1 Gunungsitoli, North Sumatera (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr. Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
142	Irma Herawaty Sitorus	SMK Negeri 1 Siborongborong, North Sumatera (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
143	Bambang Dite Wahyono, S.Pd., M.Pd.	SMK Negeri 6 Kendal (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
144	Yuni Sulistyarningsih, SP.	SMK Negeri 6 Kendal (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
145	Dwi Susanti, S.Tp.	SMK Negeri 6 Kendal (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr. Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
146	Ahmad Arif Syarifudin, S.Pd.	SMK Negeri 6 Kendal (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.

147	Alexandra, S.P	SMK Negeri 1 Kelapa, Bangka Belitung (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
148	Darmawasi, A.Md	SMK Negeri 1 Kelapa, Bangka Belitung (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
149	Lesta, S.P	SMK Negeri 1 Kelapa, Bangka Belitung (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, and Natural Product Laboratory	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si.
150	Ir. Maryam	SMKPP Negeri Bima, Nusa Tenggara Barat (NTB) (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory , Tissue Culture Laboratory , Hydroponic Greenhouse	Dr. Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
151	Lily Suryani, S.P	SMKPP Negeri Bima, Nusa Tenggara Barat (NTB) (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory , Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
152	Derisna Akhriani, S.P	SMKPP Negeri Bima, Nusa Tenggara Barat (NTB) (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory , Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
153	Eris Khususyaeri, S.Pd.	SMK Negeri 1 Sobang, Banten (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
154	Aris Fahrudin, S.E.	SMK Negeri 1 Sobang, Banten (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
155	Tajudin, S.Pd.	SMK Negeri 1 Sobang, Banten (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
156	Muhtarom, S.Pd.	SMK El Fhaluy Al Faizin Loa Kulu, East Kalimantan Timur (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
157	Hadi Suyitno	SMK El Fhaluy Al Faizin Loa Kulu, East Kalimantan (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
158	Bayu Eko Putro, SP.	SMK El Fhaluy Al Faizin Loa Kulu, East Kalimantan (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory, Tissue Culture Laboratory, Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati
159	Yunie Almaidah, SP.	SMK El Fhaluy Al Faizin Loa Kulu, East Kalimantan (Teacher)	Food Security Program	Making Soybean Milk, Laboratory of Mushroom Cultivation, Natural Product Laboratory , Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si., Jonner Situmorang, M.Si., Riana Hartati

160	Trisno Yuwono, SP.	SMK Negeri 1 Tlogosari, East Jawa (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si.
161	Sucipto, S.Pd.	SMK Negeri 1 Tlogosari, East Jawa (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si.
162	Fofa Arofi, SST, MP	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
163	Angga Tri Aditia Pemana, S.Pd, M.Pd.	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
164	Rahma Fitriani Darmaningtyas, SP.	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
165	Rizky Amallia, SP.	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
166	Muhammad Latif	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
167	Nitie Ma'rifatus Sholihah S.TP	SMK PP Banjarbaru, South Kalimantan (Teacher)	Food Security Program	Hydroponic Greenhouse and Natural Product Laboratory	Jonner Situmorang, M.Si., Riana Hartati
168	Ramli, SP.	SMK Negeri 2 Takengon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si.
169	Azhari Yusra	SMK Negeri 2 Takengon, Aceh (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si.
170	Usman	SMK Negeri 1 Cicalong Kulon, Cianjur (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si.
171	Muhamad Fahmi Dimas Saputra	SMK Negeri 1 Cicalong Kulon, Cianjur (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
172	Dita Stiani	SMK Negeri 1 Cicalong Kulon, Cianjur (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
173	Neni Nuryati	SMK Negeri 1 Cicalong Kulon, Cianjur (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
174	Rahmi Nursipah Sri Wahyuni	SMK Negeri 1 Cicalong Kulon, Cianjur (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
175	Murda Basukesti Gustama	SMK Negeri 1 Kuala Kampar, Pelalawan Regency, Riau (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
176	Wawan Riskiyanto	SMK Negeri 1 Kuala Kampar, Pelalawan Regency, Riau (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
177	Rendi Yanto	SMK Negeri 1 Kuala Kampar, Pelalawan Regency, Riau (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
178	Hengki Haryanto	SMK Negeri 1 Kuala Kampar, Pelalawan Regency, Riau (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
179	Dewi Andriani	SMK Negeri 1 Kuala Kampar, Pelalawan Regency, Riau (Teacher)	Plant Tissue Culture Techniques and Mushroom Cultivation	Tissue Culture Laboratory, Laboratory of Mushroom Cultivation	Dr Erina Sulistiani, M.Si..
180	Siti Hanifah Nur Apriliani	Faculty of Biology, Jenderal Soedirman University (S1)	Perbanyak jati secara teknik kultur jaringan (Propagation of teak using tissue culture techniques)	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..

181	Bella Ajeng Ayu Kirana	Faculty of Biology, Jenderal Soedirman University (S1)	Perbanyakkan bibit rumput laut jenis kotoni secara teknik kultur jaringan (Propagation of <i>Cottonii</i> seaweed using tissue culture techniques)	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
182	Maulana Tamyiz	Faculty of Biology, Jenderal Soedirman University (S1)	Perbanyakkan tanaman pisang melalui teknik kultur jaringan (Propagation of banana plants using tissue culture techniques)	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
183	Johanes De Britto Bintan Cahyo Adi	Faculty of Biology, Jenderal Soedirman University (S1)	Perbanyakkan tanaman talas jepang melalui teknik kultur jaringan (Propagation of satoimo plants using tissue culture techniques)	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
184	Dita Anggraeni Kusumawati	Faculty of Biology, Jenderal Soedirman University (S1)	Perbanyakkan gaharu dengan teknik kultur jaringan (Propagation of agarwood using tissue culture techniques)	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
185	Rosi Nurbaeti Putri	Faculty of Biology, Jenderal Soedirman University (S1)	Plant Tissue Culture Techniques and Mushroom Cultivation	Biotechnology Laboratory	Dewi Rahmawati, M.Si.
186	Dheasy Indriyani	Faculty of Biology, Jenderal Soedirman University (S1)	Tissue Culture Techniques	Biotechnology Laboratory	Dewi Rahmawati, M.Si.
187	Novita Lulu Sumarni	Faculty of Biology, Jenderal Soedirman University (S1)	Pertumbuhan tanaman bayam merah (<i>Amaranthus tricolor</i>) secara hidroponik pada sistem NFT dengan kesehatan nutrisi berbeda (The growth of red spinach (<i>Amaranthus tricolor</i>) using hydroponic techniques in the NFT system having different nutritional values)	Hydroponic Greenhouse	Riana Hartati
188	Resita Nursechan	Faculty of Biology, Jenderal Soedirman University (S1)	Pertumbuhan tanaman Pakcoy menggunakan sistem budidaya hidroponik dengan pupuk organik (Pakcoy plant growth using hydroponic cultivation system with organic fertilizer)	Hydroponic Greenhouse	Riana Hartati
189	Venue Tania	Faculty of Biology, Jenderal Soedirman University (S1)	Distillation of essential oils from lemon grass and production of derivative products	Natural Product Laboratory	Jonner Situmorang, M.Si.
190	Diah Perwita Sari	Faculty of Biology, Jenderal Soedirman University (S1)	Analysis of essential oil from sereh wangi to produce derivative products	Natural Product Laboratory	Jonner Situmorang, M.Si.
191	Puri Rahmawati	Faculty of Biology, Jenderal Soedirman University (S1)	Testing of warehouse pest resistance to phosphine	Entomology Laboratory	Sri Widayanti, M.Si.
192	Silvyana Mairanti	Faculty of Biology, Jenderal Soedirman University (S1)	Toxicity test of essential oil on warehouse pests	Entomology Laboratory	Sri Widayanti, M.Si.
193	Siti Nurhalisa	SMK GEO Informatika, Bogor (Student)	Pemetaan dan monitoring tanaman buah berbasis geolokasi topografi menggunakan ArcGIS 10.5 di SEAMEO BIOTROP [Mapping and monitoring of fruit plants based on topographic geolocation using ArcGIS 10.5 in SEAMEO BIOTROP]	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
194	M. Alief Hafidz	SMK GEO Informatika, Bogor (Student)	Mapping and monitoring of fruit plants based on topographic geolocation using ArcGIS 10.5 in SEAMEO BIOTROP	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
195	Manarul Hidayah	SMK GEO Informatika, Bogor (Student)	Mapping and monitoring of fruit plants based on topographic geolocation using ArcGIS 10.5 in SEAMEO BIOTROP	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
196	M. Iqbal Aryanto	SMK GEO Informatika, Bogor (Student)	Mapping and monitoring of fruit plants based on topographic geolocation using ArcGIS 10.5 in SEAMEO BIOTROP	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
197	Maulia Azzahra	SMK Bhakti Insani, Bogor (Student)	Office Administration	General Administration Department	Lidia Defita
198	Siti Nurlista	SMK Bhakti Insani, Bogor (Student)	Office Administration	Finance and Accounting Department	Supriyatno
199	Viola Diny Puspitasari	SMK Bhakti Insani, Bogor (Student)	Office Administration	Cooperative Unit	Riana Hartati

200	Eman Sulaeman	SMK Bhakti Insani, Bogor (Student)	Office Administration	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
201	Eko Bagus Ade K	SMK Bhakti Insani, Bogor (Student)	Office Administration	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
202	Sanya Octaviana Irwan	SMK Sumpah Pemuda 2, Jakarta (Student)	Office Administration	Capacity Building Department	Ulfah Zul Farisa
203	M. Dika Ramadhan Putra	SMK Sumpah Pemuda 2, Jakarta (Student)	Office Administration	Product Development and Services Department	Nopi Ramli
204	M. Ramdani	SMK Sumpah Pemuda 2, Jakarta (Student)	Office Administration	Product Development and Services Department	Nopi Ramli
205	Dita Aprilia	SMK Sumpah Pemuda 2, Jakarta (Student)	Office Administration	Facilities Management Department	Siti Lastiah
206	Alya Arianti	SMKIT Insan Toda, Bogor (Student)	Pembuatan WPAP Menggunakan Adobe Illustrator CS 6 (WPAP Creation Using Adobe Illustrator CS)	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
207	M. Firman Alamsyah	SMKIT Insan Toda, Bogor (Student)	Pembuatan Infografis menggunakan Adobe Photoshop CS 6 (Making infographics using Adobe Photoshop CS 6)	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
208	Rahmawati Sulistyia	SMAK Bogor (Student)	Verification of Testing Method for Chemical Oxygen Demand (COD) using Visible Spectrophotometry Technique)	Water and Air Laboratory	Budi Cahyadi
209	Muhammad Ihsan Fachriansnyah	SMAK Bogor (Student)	Verification Testing Method for Nitrite Content in Wastewater using Spectrophotometry)	Water and Air Laboratory	Budi Cahyadi
210	Salsabila Firdausi	SMAK Bogor (Student)	Waste Management	Water and Air Laboratory	Budi Cahyadi
211	Siti Mas Melati	SMAK Bogor (Student)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
212	Marcella Indriani	SMAK Bogor (Student)	Waste Management	Food and Feed Laboratory	Ratnanningsih
213	Brian Auliyai	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
214	Aiva Adachi	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
215	Suhendra Anwar	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
216	Putri Rezki Pertiwi	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
217	Ade Novitasari	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
218	Andro Clif Y. Purba	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
219	Afrilia Rengganis Pramesti	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
220	Puspa Widyarini	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
221	Adam Zulfikar Sanjaya	Faculty of Forestry, IPB University (S1)	Hydroponic Plant Cultivation	Hydroponic Greenhouse, Silviculture Laboratory	Riana Hartati, Sunardi Ikay
222	Rahmat Ilahi	Politeknik Pertanian Negeri Pangkep (D3)	Formulation of cooking oil waste and citronella extract to make solid soap	Natural Product Laboratory	Jonner Situmorang, M.Si.
223	Andi Pirdamayana	Politeknik Pertanian Negeri Pangkep, South Sulawesi (D3)	Formulation of cooking oil waste and citronella extract to make solid soap	Natural Product Laboratory	Jonner Situmorang, M.Si.
224	Bayu Ramadhani	Computer Engineering, Vocational School, IPB University (D3)	Computer Network System	Knowledge Management Department	Haritz Cahya Nugraha, M.T.

225	Dandy Fajar Pratama	Computer Engineering, Vocational School, IPB University (D3)	Computer Network System	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
226	Rifki Alfiansyah	Computer Engineering, Vocational School, IPB University (D3)	Computer Network System	Knowledge Management Department	Haritz Cahya Nugraha, M.T.
227	Muhammad Syafiq Haqul Basyir	Chemical Analysis, Vocational School, IPB University (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
228	Zhafira Aisyah Hanafi	Chemical Analysis, Vocational School, IPB University (D3)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
229	Gina Ashifa Ananda	Chemical Analysis, Vocational School, IPB University (D3)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
230	Evan Harianto, M.Pd	SMKN 1 Kuala Kampar Riau (Teacher)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
231	Jepri, S.E	SMKN 1 Kuala Kampar Riau (Teacher)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
232	Aida Hadzyl Aeni	SMK Negeri 2 Cilaku Cianjur (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
233	Cintya Kubra Nugraha	SMK Negeri 2 Cilaku Cianjur (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
234	Ita Rosita	SMK Negeri 2 Cilaku Cianjur (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
235	Muh Ramdhani	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
236	Sindi Julianti	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
237	Shintia Ledgeriana H.	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
238	Rizqy Madani	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
239	Anisa Fadila	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
240	Ade Ripaldi	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
241	Allensandra Nur	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati
242	Alfathan Rizky N.	SMK Muhammadiyah 3 Bandung (Student)	Plant Tissue Culture Techniques, Mushroom Cultivation and Hydroponic Plant Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory , Hydroponic Greenhouse	Dr Erina Sulistiani, M.Si. , Riana Hartati

243	Reza Oktavia	Andalas University, FMIPA (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
244	Fauziaturrahmi	Andalas University, FMIPA (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
245	Isma Wati	Andalas University, FMIPA (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
246	Ika Mardatillah	Andalas University, FMIPA (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
247	Roza	Andalas University, FMIPA (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
248	Fiqri Ramadhan	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si.
249	Samsul Muadi	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si
250	Aryo Ardiansyah	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si.
251	Burhan	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si.
252	Tiara Syakilla	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si.
253	Linda Lestari	SMK Kehutanan Bakti Rimba, Bogor (Student)	Plant Mapping in SEAMEO BIOTROP	Biosystem and Landscape Management Laboratory	Armaiki Yusmur, M.Si.
254	Eis Sarmini	SMK Negeri 1 Mantangai, Kapuas Regency, Central Kalimantan (Student)	Plant Tissue Culture Techniques and Mushroom Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si.
255	Siti Nurjanah	SMK Negeri 1 Mantangai, Kapuas Regency, Central Kalimantan (Student)	Plant Tissue Culture Techniques and Mushroom Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
256	Sepia nandia Wati	SMK Negeri 1 Mantangai, Kapuas Regency, Central Kalimantan (Student)	Plant Tissue Culture Techniques and Mushroom Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
257	Tharisa Luqizahra	MA Fathan Mubina, Bogor (Student)	Office Administration	HRMD	Yunita
258	Zulfa	MA Fathan Mubina, Bogor (Student)	Office Administration	Knowledge Management Department	Asep Saepudin
259	Meidina Nurhasanah	MA Fathan Mubina, Bogor (Student)	Office Administration	General Administration Department	Lidia Defita
260	Muhammad Rizal	MA Fathan Mubina, Bogor (Student)	Office Administration	General Administration Department	Lidia Defita
261	Al Amin Azhar	MA Fathan Mubina, Bogor (Student)	Office Administration	Knowledge Management Department	Asep Saepudin
262	Idrus Sapitra	MA Fathan Mubina, Bogor (Student)	Office Administration	Capacity Building Department	Rasyid Aulia Rahman
263	Aliahtul Husna, S.Pd	SMK Negeri 63 jakarta (Teacher)	Food Security Program	Tissue Culture Laboratory	Samsul A. Yani
264	Nurul Rachman, S.P	SMK Negeri 63 jakarta (Teacher)	Food Security Program	Tissue Culture Laboratory	Samsul A. Yani
265	A Djamilah, M.Si	SMK Negeri 63 jakarta (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si.
266	Endang Tri Wahyuni, M.Pd	SMK Negeri 63 jakarta (Teacher)	Food Security Program	Natural Product Laboratory	Jonner Situmorang, M.Si
267	Alfiya Mukhtar	SMK N 1 Sukaraja, Bogor (Student)	Office Administration	General Administration Department	Puput Nisausholiha
268	Alfira Mukhtar	SMK N 1 Sukaraja, Bogor (Student)	Office Administration	Cooperative Unit	Riana Hartati
269	Jesica Yolanda Enar	Politeknik Pembangunan Pertanian Manokwari, Irian Jaya (D3)	Plant Tissue Culture Techniques and Mushroom Cultivation	Laboratory of Mushroom Cultivation, Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
270	Kholidatusshofa	SMK Al Ittihad Cianjur (Student)	Waste Management	Water and Air Laboratory	Budi Cahyadi
271	St Vina Nur Fadilah	SMK Al Ittihad Cianjur (Student)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
272	Neneng Nur Hasanah	SMK Al Ittihad Cianjur (Student)	Waste Management	Food and Feed Laboratory	Ratnanningsih
273	Achmad Fauzi	Faculty of Mathematics and Natural Sciences, IPB University (S1)	Waste Management	Water and Air Laboratory	Budi Cahyadi

274	Riska Widya Apriyani	Faculty of Mathematics and Natural Sciences, IPB University (S1)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
275	Ervia Endang Muslimah	Faculty of Mathematics and Natural Sciences, IPB University (S1)	Waste Management	Food and Feed Laboratory	Ratnanningsih
276	Alicia Nathalia Angel Ganur	Faculty of Mathematics and Natural Sciences, IPB University (S1)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
277	Cindy Agustina	Chemical Analysis, Vocational School, IPB University (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
278	Ulfah Fauziah	Chemical Analysis, Vocational School, IPB University (D3)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin
279	Aisyatul Mardhiah	Chemical Analysis, Vocational School, IPB University (D3)	Waste Management	Food and Feed Laboratory	Ratnanningsih
280	Yusril Ihza	Chemical Analysis, Vocational School, IPB University (D3)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
281	Ayuning Sekar	Chemical Analysis, Vocational School, IPB University (D3)	Extraction of Essential Oils	Natural Product Laboratory	Jonner Situmorang, M.Si.
282	Elvia Rahmawati	UIN Maulana Malik Ibrahim Malang (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
283	Mita Devi Rohmah	UIN Maulana Malik Ibrahim Malang (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
284	Intan Popilia	UIN Maulana Malik Ibrahim Malang (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
285	Ferry Well	UIN Maulana Malik Ibrahim Malang (S1)	Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
286	Meygalintang Doananda	Faculty of Agriculture, Brawijaya University, Malang (S1)	Warehouse Pest Control	Entomology Laboratory	Sri Widayanti, M.Si.
287	Sachristy Dharu Prasasti Sugyah Putri	Faculty of Agriculture, Brawijaya University, Malang (S1)	Warehouse Pest Control	Entomology Laboratory	Sri Widayanti, M.Si.
288	Yessy Christi Agustina	Faculty of Agriculture, Brawijaya University, Malang (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
289	Vianny Dhearria Sihaloho	Faculty of Agriculture, Brawijaya University, Malang (S1)	Plant Tissue Culture Techniques	Tissue Culture Laboratory	Dr Erina Sulistiani, M.Si..
290	Herliana Arfiyanti	Faculty of Agriculture, Brawijaya University, Malang (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
291	Irma Latifah	Faculty of Agriculture, Brawijaya University, Malang (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
292	Alfarizky Aryonugroho	Faculty of Agriculture, Brawijaya University, Malang (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
293	Kamilia Baselli	Atma Jaya Catholic University of Indonesia, Jakarta (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
294	Meinanda Ashar	Atma Jaya Catholic University of Indonesia, Jakarta (S1)	Mycorrizha Genus Observation	Biosystem and Landscape Management Laboratory	Risa Rosita
295	Ade Pebryansyah Lubis	Faculty of Agricultural Technology, Jambi University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
296	Riki Pranita Bangun	Faculty of Agricultural Technology, Jambi University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
297	Ade Dwi Putra	Faculty of Agricultural Technology, Jambi University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto

298	Andreas Raja Halomoan Pakpahan	Faculty of Agricultural Technology, Jambi University (S1)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
299	Nur Azizah	Faculty of Agricultural Technology, Jambi University (S1)	Hydroponic	Hydroponic Greenhouse	Riana Hartati
300	Akmalia	Faculty of Agricultural Technology, Jambi University (S1)	Hydroponic	Hydroponic Greenhouse	Riana Hartati
301	Diana Sitompul	Faculty of Agricultural Technology, Jambi University (S1)	Hydroponic	Hydroponic Greenhouse	Riana Hartati
302	Multi Silvia Ayu	Faculty of Agricultural Technology, Jambi University (S1)	Hydroponic	Hydroponic Greenhouse	Riana Hartati
303	Teuku Adib Bariq Muzhaffar	SMA Kornita IPB, Bogor (S2)	Mapping using the GIS System	Remote Sensing and Ecology Laboratory	Slamet Widodo Sugiarto
304	Atiq Maulana S	Politeknik AKA Bogor (D3)	Waste Management	Water and Air Laboratory	Budi Cahyadi
305	M. Septian Alfarizi	Politeknik AKA Bogor (D3)	Waste Management	Soil and Plant Laboratory	Arif Nuryadin

Appendix 5. SEAMEO BIOTROP Publication

A. Articles, Technical Paper in Peer-Reviewed Journals and Proceedings.

Dharmaputra OS, Sunjaya, Retnowati I, Nurfadila N. 2018. Keanekaragaman serangga hama pala (*Myristica fragrans*) dan tingkat kerusakannya di penyimpanan. (Diversity of insect pest and (*Myristica fragrans*) percentage of damaged kernels in stored nutmeg). Jurnal Entomologi Indonesia (Indonesian Journal of Entomology) 15(2):57-64. DOI: 10.5994/jei.15.2.57

Dharmaputra OS, Listiyowati S, Nurwulansari IZ. 2018. Keragaman cendawan pascapanen pada umbi bawang merah varietas Bima Brebes. [Diversity of postharvest fungi on shallot bulbs variety Bima Brebes]. Jurnal Fitopatologi Indonesia 14(5):175-182. DOI: 10.14692/jfi.14.5.175

Nurtjahja K, Dharmaputra OS, Rahayu WP, Syarif R. 2018. Fungal population and aflatoxin contamination on stored gamma-irradiated nutmeg (*Myristica fragrans*) kernels. Jurnal Atom Indonesia 44(2):57-61

Rusma, S.L.L., Hamim S. Tjitrosoemito. 2018. Dampak ekstrak *M. micrantha* pada tumbuhan asing invasive *Chimonobambus quadrangularis*. [Impact of *M. micrantha* extract on invasive alien plant *Chimonobambus quadrangularis*]. Proceeding XXth Indonesian Weed Science Society Conference, Lampung, Indonesia, 6 – 7 November 2018.

Sri S. Tjitrosoedirdjo, I. Wahyuni, S. Bachri S. Tjitrosoedirdjo. 2018. Status on the studies of invasive alien plant species in Sumatra. International Symposium on Socio-ecological Transformation of Tropical Lowland Rainforest, Bali, Indonesia, 7-11 October 2018

Tjitrosoedirdjo, S., I. Wahyuni, S. Bachri, Sri S. Tjitrosoedirdjo. 2019. Balance of *Chromolaena odorata* and *Checidochares connexa* population to achieve an effective biological control. 9th International Workshop on the Biological Control and Management of Eupatorieae. Putrajaya, Malaysia 19-22 March 2019

Tjitrosoedirdjo, S. 2018. *Asystasia gangetica* subsp. *micrantha* in the coming release of glyphosate resistance corn in Indonesia. Proceeding International Symposium on Socio-ecological Transformation of Tropical Lowland Rainforest, Bali, Indonesia, 7-11 October 2018

Tjitrosoedirdjo, S. 2018. *Asystasia gangetica* subsp. *micrantha* in the coming release of glyphosate resistance corn in Indonesia. Proceeding International Symposium on Socio-ecological Transformation of Tropical Lowland Rainforest, Bali, Indonesia, 7-11 October 2018

B. Journals and Newsletters

BIOTROPIA Vol. 25 No. 2 August 2018. SEAMEO BIOTROP, Bogor.

BIOTROPIA Vol. 25 No. 3 December 2018. SEAMEO BIOTROP, Bogor.

BIOTROPIA Vol. 26 No. 1 April 2019. SEAMEO BIOTROP, Bogor.

Biotrop Courier Vol. XX, Quarter 3 2018. SEAMEO BIOTROP, Bogor.

Biotrop Courier Vol. XX, Quarter 4 2018. SEAMEO BIOTROP, Bogor.

Biotrop Courier Vol. XXI, Quarter 1 2019. SEAMEO BIOTROP, Bogor.

Biotrop Courier Vol. XXI, Quarter 2 2019. SEAMEO BIOTROP, Bogor.

C. Proceedings

Wibowo C, Fernandez JC, editors. 2018. Biotrop, Bogor. Proceedings of SEAMEO BIOTROP 3rd International Conference on Tropical Biology: Conservation, Enhancement and Sustainable Use of Indigenous Tropical Flora and Fauna, Bogor Indonesia, 20 – 21 September 2018.

Paembonan SA, Mansur I, Husna, Tuheteru FD, Arif A, Albasri, editors. Prosiding Seminar Nasional Silvikultur VI: Penerapan Silvikultur untuk Pengelolaan Hutan dan Pengentasan Kemiskinan, Kendari, Sulawesi Tenggara, Indonesia, 8 – 10 August 2018. [Silviculture Implementation on Forest Management and Poverty Alleviation, Kendari, Southeast Sulawesi, Indonesia, 8-10 August 2018].

D. Books

Reyes RG, Kalaw SP, Vera Cruz DG, Tokunaga K, Sumi R, Mori N, Eguchi F. 2018. A Practical Guide to Mushroom Pharming. SEAMEO BIOTROP, Bogor. 104p

Supriatna I. 2018. Transfer Embrio pada Ternak Sapi [Embryo Transfer in Cattle]. SEAMEO BIOTROP, Bogor. 134p

Sutomo, Darma IDP, Sujarwo W, Priyadi A, Kuswantoto F, Iryadi R. 2018. Ecology of Bedugul Basin in Bali. SEAMEO BIOTROP, Bogor. 94p

Yuwono AS, Mentari PD. Penggunaan Larva (Maggot) Black Soldier Fly (BSF) dalam Pengolahan Limbah Organik [Use of Black Soldier Fly (BSF) Larva (Maggot) in Organic Waste Processing]. SEAMEO BIOTROP, Bogor. 88p

E. Research Reports

Agustine SM, Santika, Lindawati L, Herliandini T. 2018. "Landscaping" as Project Based Learning: Creating an Artistic School Garden as Contextual and Integrated Learning Media in SMPN 13 Kota Sukabumi. BIOTROP, Bogor. 13p.

Ariantie OS. 2018. Nanoparticle of Egg Yolk in Frozen Semen Diluent to Support Germ Plasm Conservation of Garut Sheep. BIOTROP, Bogor. 25p.

Darmarini AS. 2018. Trophic Structure of Macrozoobenthos Community on Mangrove Ecosystem. BIOTROP, Bogor. 34p.

Dharmaputra OS, Retnowati I, Nurfadila N. 2018. Potency of Yeast as Biocontrol Agent of *Ochratoxin A* Producing Fungi and Its Effect on the Taste of Wet and Semi-Wet Processed Arabica Coffee. BIOTROP, Bogor. 45p.

Diba F, Rahim KAA, Ann CC. 2018. Ecology, Species Composition and Potential Application of the Enzyme Extraction of Marine Wood Borer from Mangrove Forest of Borneo. BIOTROP, Bogor. 96p.

Hamim. 2018. Heavy Metal Accumulator Plants for Gold Mining Phytoremediation Program: Morpho-Physiological and Histochemical Analysis. BIOTROP, Bogor. 30p.

Harahap IS, Widayanti S, Trijanti A., Asnan W, Widhiastuti H, Yanto H. 2018. Mint Oil Nanoformulations: Its Effectiveness against *Tribolium castaneum* Phosphine Resistant Strains. BIOTROP, Bogor. 106p.

Hartati R, Zainuri M, Ambariyanto, Widianingsih. 2018. Study on Establishment of New Ecosystem and Its Relation with Their Feeding Ecology: An Attempt of Sea Ranching for *Holothuria atra*. BIOTROP, Bogor. 92p.

Manik HM. 2018. Evaluation of Acoustic Technology for Quantifying and Mapping Tropical Seagrass Habitats in Bintan Seawater. BIOTROP, Bogor. 46p.

Mariyanti T. 2018. Improving Cooperation and Nutrition Among Special Need Students at School of Human Bekasi Through Vertical and Raised Bed Organic Gardening Within the Teamwork Method of Learning. BIOTROP, Bogor. 18p.

Pribadi R, Bahari AS, Fadilla WAN. 2018. Water Quality Assessment for Aquaculture and Chemical Content of Mangrove - Based Food. BIOTROP, Bogor. 62p.

Robin. 2018. Modelling Jakarta Bay Small Scale Fisheries Sustainability using Social Ecological System Framework. BIOTROP, Bogor. 61p.

Rusdin M. 2018. The Analysis of Microsatellite DNA Polymorphisms as a Base of Conservation of Local Swamp Buffalo of Southeast Sulawesi. BIOTROP, Bogor. 34p.

Salatnaya H. 2018. An Integration of Stingless Bees and Nutmeg Plants (*Myristica fragrans* Houtt) to Increase the Efficiency and Sustainability of Honey Production in West Halmahera Regency. BIOTROP, Bogor. .

Siregar UJ, Hartati S. 2018. Study on Sengon (*Falcataria moluccana*) Resistance to Borkor Pest (*Xylocopa festiva*) and Gall Rust (*Uromycladium tepperianum*) Part III. BIOTROP, Bogor. 64p.

Siswanto, Prakoso HT, Eris DD, Yusup CA, Aminudi, Jayanegara A. 2018. The Use of *Hermetia illucens* for Sustainable Cocoa Farming: Cocoa Pod Husk Bioconversion to Feed Supplement. BIOTROP, Bogor. 19p.

Tjitrosemito S, Tjitrosoedirdjo SS, Wahyuni I, Bachri S. 2018. The Balance of *Chromolaena odorata* and *Cecidochara connexa* Populations to Achieve an Effective Biological Control Output. BIOTROP, Bogor. 20p.

Ulfah M, Achmad H, Farajallah A, Alfiyan AK, Novita D. 2018. Assessment of Population Structure and Genetic Diversity of Indigenous Chicken Breeds in Indonesia and Malaysia to Support Their Sustainable Utilization. BIOTROP, Bogor. 27p.

Wulandari D. 2018. Application of Selected Native Beneficial Soil Microorganisms Into Adapted Plant Species In Post Tin Mining Area, Bangka Island Indonesia. BIOTROP, Bogor.

Yuwono AS, Wardiatno Y, Widyastuti R, Wulandari D. 2018. Development of Ecosystem Health Index in Indonesia. BIOTROP, Bogor. 52p.

**Appendix 6. Scientific Training Courses, Workshop, Conference and Symposia Attended
by SEAMEO BIOTROP Staff Member during FY 2018/2019**

No	Name	Title of Activity	Venue and Date	Title of Paper Presented
1	Mr Bambang Sulistio	Financial Monitoring and Evaluation Workshop of SEAMOLEC SEAMEO Working Unit period June 2018	SEAMEO RECFON, Jakarta, 3-5 July 2018	
2	Mr Ujang Sanusi	Financial Monitoring and Evaluation Workshop of SEAMOLEC SEAMEO Working Unit period June 2019	SEAMEO RECFON, Jakarta, 3-5 July 2018	
3	Mr Herman Apriyadi	Financial Monitoring and Evaluation Workshop of SEAMOLEC SEAMEO Working Unit period June 2020	SEAMEO RECFON, Jakarta, 3-5 July 2018	
4	Mr Supriyatno	Financial Monitoring and Evaluation Workshop of SEAMOLEC SEAMEO Working Unit period June 2021	SEAMEO RECFON, Jakarta, 3-5 July 2018	
5	Dr Jesus C. Fernandez	Meeting in relation to evaluation and discussion regarding the follow-up activities with the Directorate of Early Childhood Education and Community Education	MoEC, Jakarta, 5 July 2018	
6	Dr Irdika Mansur	National Coordination Meeting of Foreign Research Partners with the theme "Opportunities and Challenges of International Science and Technology Cooperation: Global Issues, Strategic Partnerships and Benefit Sharing"	Jakarta, 5 July 2018	
7	Dr Zulhamsyah Imran	National Coordination Meeting of Interests and Talent of Vocational Students	Grand Aceh Hotel Syariah, Aceh, 5-6 July 2018	
8	Mrs Sri Widayanti, M.Si.	Training Course on PHGT at PT Eastern Pearl Flour Mills	Makasar, 9-12 July 2018	
9	Mrs Yuni Puspita Sari, M.M.	National Seminar on Archives and Library: "Alertness of Archivists and Librarians Entering the Era of Industrial Revolution 4.0"	Bogor, 10-11 July 2018	
10	Ms Woro Kanti Darmastuti, M.Si.	National Seminar on Archives and Library: "Alertness of Archivists and Librarians Entering the Era of Industrial Revolution 4.0"	Bogor, 10-11 July 2018	
11	Mrs Herni Widhiastuti	National Seminar of the Indonesian Entomology Association (PEI) Palembang Branch 2018	Swarna Dipa Hotel, Palembang, 12-13 July 2018	
12	Mrs Trijanti A. Widinni Asnan	National Seminar of the Indonesian Entomology Association (PEI) Palembang Branch 2018	Hotel Swarna Dipa, Palembang, 12-13 July 2018	
13	Mr Dika Zulkarnaen	Training on Understanding Calibration Techniques of Mass, Temperature, Dimension and Volumetric	Fave Hotel LTC Glodok, Jakarta, 12-13 July 2018	
14	Dr Zulhamsyah Imran	SEAMEO Qitep in Science Regular Training Program 2018	SEAMEO Qitep in Science, Bandung, 12 July 2018	
15	Dr Irdika Mansur	Technical Assistance for development of Agricultural Vocational school	Hotel Mega Anggrek, Jakarta, 16 July 2013	
16	Dr Idham Sakti Harahap	Training on Integrated Warehouse Pest Management (IPM)	PT Eastern Pearl Flour Mills, Makasar, 16-20 July 2018	
17	Mrs Sri Widayanti, M.Si.	Training on Integrated Warehouse Pest Management (IPM)	PT Eastern Pearl Flour Mills, Makasar, 16-20 July 2018	
18	Dr Jesus C. Fernandez	SEAMEO Centre Directors Meeting (CDM)	Bangkok, Thailand, 16-20 July 2018	
19	Dr Zulhamsyah Imran	SEAMEO Centre Directors Meeting (CDM)	Bangkok, Thailand, 16-19 July 2018	
20	Mr Bambang Sulistio	Workshop on equalizing documents related to employees	SEAMEO CECCEP, Bandung, 16-17 July 2018	
21	Ms Lillys Betty Yulawati	Coordination Meeting of Seed Producers and Distributors and/or Forest Plant Seeds in 2018	UPTD SPTH, Sumedang, 18 July 2018	
22	Dr Zulhamsyah Imran	2 nd Strategic Environmental Assessment (SEA) Review Meeting	Jakarta, 20 July 2018	
23	Mr Lukman Haris	Improvement of SIMPel Administrator's Competence in accordance with Presidential Regulation No. 16, 2018	Banjarmasin, 6-9 August 2018	
24	Dr Irdika Mansur	National Seminar on Silviculture	Kendari, 8-10 August 2018	
25	Dr Zulhamsyah Imran	Indonesian PMCA Awardees Mini Seminar	Jakarta, 7 August 2018	
26	Mrs Rima Febriana	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	

27	Mr Peri Siantuni	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
28	Mrs Manik Hasri Nuksmandari	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
29	Mrs Rizkia Tirtani	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
30	Mr Indra Septian	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
31	Mr Dika Zulkarnaen	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
32	Mrs Syifa Fauzia	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
33	Mrs Risa Rosita	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
34	Mr Indrajit	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
35	Mr Yana	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
36	Mr Sunardi Ikey	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
37	Mr Iman	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
38	Mr Rasyid Aulia Rachman	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
39	Mr Asep Saepudin	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
40	Mr Dani Yudi Trisna	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
41	Mr Deki Zulkarnain	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
42	Mr Mulyadiana	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
43	Mr Hari Sudarman	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
44	Mr Erwan Prayogi	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
45	Mr Maulana Hasanudin	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
46	Mr Rudi Hartono	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
47	Mr Indra Ardiansyah	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
48	Mr Linggar	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
49	Mr Asim	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
50	Mr Khamelandi Astrian	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
51	Mr Hasan	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
52	Mr Chairul Hadi	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
53	Mr Agus Rukmana	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
54	Mr M. Sya'roni	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
55	Mr Achmad Syuhada	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
56	Mr Iwan Kurniawan	Training on Work Safety	SEAMEO BIOTROP, Bogor, 13-15 August 2018	
57	Mrs Tika Tresnawati, M.Si.	Submission of Incentives for Indexed Journals and workshop on Indonesian Journal Editors	Surabaya, 14-15 August 2018	
58	Mrs Sri Widayanti, M.Si.	Integrated Warehouse Pest Management Training at PT Bogasari	Jakarta, 15 August 2018	

59	Mr Ahmad Muhammad	Training and Certification for Air Sampling Personnel	LSP-PPT Migas Cepu-Jawa Tengah, 22-24 August 2018	
60	Mrs Santi Ambarwati, M.Si.	Technical Guidance for Analysis with Chemical Instruments for Traditional Medicine, Health Supplements and Cosmetics in 2018 Period III	Jakarta, 27 August 2018	
61	Mrs Rima Febriana	Technical Guidance and Socialization of PERPRES No. 16 of 2018	Bandung, 26-31 August 2018	
62	Mr Armaiki Yusmur, M.Si.	Seminar on Looking for Breakthrough Forest Rehabilitation and Former Mine Reclamation Policies to Support Emission Reduction Targets in Indonesia	Jakarta, 27 August 2018	
63	Dr Irdika Mansur	Inter Center Collaboration Meeting (ICCM) at SEAMEO CECCEP	Lembang, Bandung, 29-31 August 2018	
64	Dr Zulhamsyah Imran	Inter Center Collaboration Meeting (ICCM) at SEAMEO CECCEP	Lembang, Bandung, 29-31 August 2018	
65	Dr Jesus C. Fernandez	Inter Center Collaboration Meeting (ICCM) at SEAMEO CECCEP	Lembang, Bandung, 29-31 August 2018	
66	Mr Bambang Sulistio	Inter Center Collaboration Meeting (ICCM) at SEAMEO CECCEP	Lembang, Bandung, 29-31 August 2018	
67	Mrs Tenni Wahyuni	Inter Center Collaboration Meeting (ICCM) at SEAMEO CECCEP	Lembang, Bandung, 29-31 August 2018	
68	Mr Fitri Junaedy	Seminar and socialization licensing of foreign researchers in Indonesia	IPB Dramaga, Bogor, 29 August 2018	
69	Mrs Risa Rosita	Seminar and socialization licensing of foreign researchers in Indonesia	IPB Dramaga, Bogor, 29 August 2018	
70	Ms Indah Wahyuni, M.Si.	Millenials at Work "Workshop Karl Fischer Moisture Meter and Gas Chromatography"	Salak Tower Hotel Bogor, 30 August 2018	
71	Mrs Ratnaningsih	Millenials at Work "Workshop Karl Fischer Moisture Meter and Gas Chromatography"	Salak Tower Hotel Bogor, 30 August 2018	
72	Mrs Irma Indriani H	Millenials at Work "Workshop Karl Fischer Moisture Meter and Gas Chromatography"	Salak Tower Hotel Bogor, 30 August 2018	
73	Dr Irdika Mansur	National Seminar on "Biodiversity and Change in Land Use"	Universitas Jambi, 27 September 2018	
74	Dr Zulhamsyah Imran	Workshop on Assistance in Preparation of Strategic Environmental Studies	Sekretariat Daerah, Pemerinta Provinsi Kalimantan Tengah , Palangka Raya, 27-28 September 2018	
75	Mr Ramdani	Training on Halal Certificate	Bogor, 3 October 2018	
76	Dr Zulhamsyah Imran	Workshop on Synergy of Development of PAUD and Dikmas Programs with SEAMEO	Jakarta, 10-12 October 2018	
77	Dr Jesus C. Fernandez	Workshop on Synergy of Development of PAUD and Dikmas Programs with SEAMEO	Jakarta, 10-12 October 2018	
78	Dr Irdika Mansur	Pattern of Provision of Livestock Forage in Forest Conservation Framework	Direktorat Usaha Jasa Lingkungan dan Hasil Hutan Bukan Kayu Hutan Produksi , Jakarta, 10 October 2018	
79	Dr Zulhamsyah Imran	Development Program of School of Agricultural Vocational Supporting Food Security at SMKN 1 Pasie Raja of South Aceh Regency	Banda Aceh, 11-13 October 2018	
80	Mr Saiful Bachri	Research Seminar on Food Crops Research and Development Center	Bogor, 11 October 2018	
81	Ms Dewi Rahmawati, M.Si.	Research Seminar on Food Crops Research and Development Center	Bogor, 11 October 2018	
82	Dr Irdika Mansur	Meeting on Preparation of NSPK for Pollution Control and Environmental Damage	Bogor, 11 October 2018	
83	Dr Zulhamsyah Imran	Intercentre Collaboration Meeting	Bogor, 22-24 October 2018	
84	Mr Bambang Sulistio	Intercentre Collaboration Meeting	Bogor, 22-24 October 2018	
85	Dr Jesus C. Fernandez	Intercentre Collaboration Meeting	Bogor, 22-24 October 2018	
86	Mr Lukman Haris	Technical Guidance of Ministry of Education and Culture Procurement of Goods / Services Planning 2019 Phase II	Jakarta, 22-24 October 2018	
87	Mrs Santi Ambarwati, M.Si.	Migration Implementation Training from ISO/ IEC 17025: 2005 to ISO / IEC 17025/2017	Laboratorium Ilmu dan Teknologi Pakan, Fakultas Peternakan IPB,	

			Kampus IPB Darmaga, 23 October 2018	
88	Dr Zulhamsyah Imran	Development Program for Agricultural Vocational School Supporting Food Security	Ambon, 27-30 October 2018	
89	Dr Soekisman Tjitrosoedirdjo	Workshop on Handling & Making Maps for Distribution of Invasive Foreign Species in Conservation Areas	Jakarta, 30 October 2018	
90	Mrs Sri Widayanti, M.Si.	Training on Integrated Warehouse Pest Management (IPM) at PT Bogasari	PT Bogasari, Surabaya, 22 October 2018	
91	Dr Jesus C. Fernandez	Simposium Nasional Penelitian dan Pengembangan Peternakan 2018	Faculty of Animal Science, Gadjah Mada University, Yogyakarta, 4-6 November 2018	
92	Mr M. Tajudin	Financial Monitoring and Evaluation Workshop of SEAMOLEC SEAMEO Working Unit period October 2018	Yogyakarta, 4-6 November 2018	
93	Mrs Sri Widayanti, M.Si.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
94	Ms Sri Ismawati Soerianegara, M.Sc.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
95	Mrs Tenni Wahyuni	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
96	Mrs Tika Tresnawati, M.Si.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
97	Ms Zanne Sandriati Putri	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
98	Dr Erina Sulistiani, M.Si.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
99	Mr Armaiki Yusmur, M.Si.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
100	Ms Devi Septrianti	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
101	Mrs Dewi Suryani, M.M.	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
102	Mr Asep Syaefudin	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
103	Mr Bambang Sulistio	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
104	Mrs Rima Febriana	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
105	Mr Samsul A. Yani	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
106	Mr Eko Purwiyanto	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
107	Mr Saiful Bachri	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
108	Mrs Dewanti Pratiwi	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
109	Mr Alfi Dwi Nugroho	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
110	Dr Impron	Workshop on Strengthening Corporate Communication in SEAMEO Centres in Indonesia	SEAMEO BIOTROP, Bogor, 7-8 November 2018	
111	Mr Haritz Cahya Nugraha, M.T.	Scientific Training for Elementary Teachers in the Tangerang City Government by Utilizing Information and Communication Technology	Pudiklat Pegawai Kemendikbud, Sawangan Depok, 7-9 November 2018	
112	Ms Wati Madywati	Technical Guidance of Procurement Management Information System (SIMPel)	Bangka Belitung, 8-11 November 2018	
113	Mr Arif Nuryadin	Technical Guidance of Procurement Management Information System (SIMPel)	Bangka Belitung, 8-11 November 2018	
114	Mr Lukman Haris	Technical Guidance of Procurement Management Information System (SIMPel)	Bangka Belitung, 8-11 November 2018	
115	Ms Riana Hartati	Nutrition Training for High School Teachers / Equals: Nutrition for Achievement	Politeknik Kesehatan Kemenkes, Malang, 16 November 2018	
116	Dr Irdika Mansur	41 st SEAMEO High Officials Meeting, 26-29 November 2018	Bangkok, Thailand, 26-29 November 2018	

117	Dr Zulhamsyah Imran	41 st SEAMEO High Officials Meeting, 26-29 November 2018	Bangkok, Thailand, 26-29 November 2018	
118	Dr Zulhamsyah Imran	Workshop on KLHS Preparation and Validation	Makasar, 5-7 December 2018	
119	Dr Erina Sulistiani, M.Si.	Workshop on Preparation of Maritime 4.0 Roadmap	IPB ICC Bogor, 5 December 2018	
120	Mr Arif Nuryadin	Technical Guidance on Goods / Services Procurement Planning Phase III	Jakarta, 12-14 December 2018	
121	Mr Lukman Haris	Technical Guidance on Goods / Services Procurement Planning Phase III	Jakarta, 12-14 December 2018	
122	Mrs Shella Marlinda, M.Si.	Training in Ornamental Fish Feed Making Technology and Water Quality Test Techniques	Serpong, 12 December 2018	
123	Ms Lillys Betty Yulawati	FGD of Evaluation and Follow-Up Plan for Tropical Startup Development of Industrial Fruit Seeds	Bogor, 12 December 2018	
124	Mr Samsul A. Yani	Management of Marketing, Production and Cultivation of Mushroom Cultivation	Dinas Tenaga Kerja dan Transmigrasi Kota Bogor, 12-13 December 2018	
125	Mr Sugih Mukti	Management of Marketing, Production and Cultivation of Mushroom Cultivation	Dinas Tenaga Kerja dan Transmigrasi Kota Bogor, 12-13 December 2018	
126	Mr Jonner Situmorang, M.Si.	Workshop on Food Security in Vocational Schools	Jakarta, 8 January 2019	
127	Mrs Sri Widayanti, M.Si.	Implementation of Fumigation Technique	PTPN X Jember, 22-23 January 2019	
128	Dr Erina Sulistiani, M.Si.	Strengthening of Seaweed Research Activities year 2019	Loka Riset Budidaya Rumput Laut (LRBRL), KKP, Gorontalo, 24-26 January 2019	
129	Mr Samsul A. Yani	Technical Guidance on Requirements and Procedures for Exporting Aquarium Plants	PT Aquatic Plant Center Indonesia, Babakan Madang, Bogor, 24 January 2019	
130	Dr Irdika Mansur	Environmental Management Best Parctice Workshop	Universitas Lambung Mangkurat, Banjarmasin, 29 January – 1 February 2019	
131	Mr Armaiki Yusmur, M.Si.	Environmental Management Best Parctice Workshop	Universitas Lambung Mangkurat, Banjarmasin, 29 January – 1 Februari 2019	Management of the Indonesian Mining Environment
132	Mr Haritz Cahya Nugraha, M.T.	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
133	Mr Dani Yudi Trisna	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
134	Mr Asep Saepudin	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
135	Ms Zanne Sandriati Putri	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
136	Mr Rasyid Aulia Rachman	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
137	Mr Fitri Junaedy	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
138	Mr Indra Septian	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
139	Mr Zulkarnaen Noor Syarif	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
140	Mr Saiful Bachri	In-house training on Broadcasting	SEAMEO BIOTROP, Bogor, 29-31 January 2019	
141	Mr Samsul A. Yani	Tissue culture training for staf PT Haji Maming Batulicin, Tanah Bumbu Regency, Banjarmasin, South Kaimantan	Banjarmasin, South Kaimantan, 4 February 2019	
142	Ms Wati Madyawati	Workshop for Contract Expert on Procedures for Preparing Government Goods / Services Procurement Contract Plans	Jakarta, 7-8 February 2019	
143	Mrs Devi Septrianti	Workshop for Contract Expert on Procedures for Preparing Government Goods / Services Procurement Contract Plans	Jakarta, 7-8 February 2019	
144	Dr Zulhamsyah Imran	Discussion on Pre-Validation of KLHSD RZWP3K of South Sumatra Province	Gd. Manggala Wanabakti, Jakarta, 19 Februayi 2019	

145	Dr Irdika Mansur	Parents & Alumni Day "Catch Your Biggest Dream"	SMA Labschool Kebayoran, Jakarta Selatan, 21 February 2019	
146	Mr Lukman Haris	Technical Guidance for Improving Competency in LPSE Governance and SPSE Application Version 3.3	Hotel Salak Tower Bogor, 25-27 February 2019	
147	Dr Zulhamsyah Imran	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
148	Dr Irdika Mansur	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
149	Dr Aslan	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
150	Mrs Yuni Puspita Sari, M.M.	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
151	Mr Bambang Sulistio	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
152	Mr Arif Nuryadin	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
153	Mrs Dewi Suryani, M.M.	Inter Center Collaboration Meeting (ICCM)	Komplek Universitas Terbuka, Tangerang Selatan, 27-28 February 2019	
154	Mrs Devi Septrianti	Training on Treasurer of Admissions Fiscal Year 2019	The Mirah Hotel Bogor, 3-7 March 2019	
155	Mrs Dewi Suryani, M.M.	Workshop on School-Based Nutrition Promotion in the Southeast Asian Region (SEA-SNBP)	Hotel Holiday Inn Express, Jakarta, 14-15 March 2019	
156	Dr Zulhamsyah Imran	Focus Group Discussion (FGD) on Preparation of the KLHS Load Module	Gedung Manggala Wanabakti, Jakarta, 15 March 2019	
157	Mr Arif Nuryadin	Training of Officials Committing Maker of Work Unit Commitments in the Ministry of Education and Culture in 2019	Hotel Permata Bogor, 17-22 March 2019	
158	Dr Irdika Mansur	Seminars and Exhibitions of Vocational Schools Welcoming the Industrial Revolution 4.0	Kemendikbud, Jakarta, 21 March 2019	
159	Ms Zanne Sandriati Putri	Training on Writing in Mass Communication	The Jakarta Post Office, 20-22 March 2019	
160	Dr Aslan	B2B Discussion with the German - Indonesian Chamber of Industry and Commerce (EKONID)	LAZ Al Bunyan, Bogor, 26 March 2019	
161	Dr Zulhamsyah Imran	Acceleration of SEAMEO Programs in Palangkaraya City	Aquarius Boutique Hotel Palangka Raya, 27 March 2019	SEAMEO Initiation and Program in the Field of Life Sciences to Improve the Quality of Learning in Schools
162	Mrs Sri Widayanti, M.Si.	Seminar Proposal Uji Terap Tahun 2019	Balai Uji Terap Teknik dan Metode Karantina Pertanian, Cikarang, 26 March 2019	Testing of Sulfuryl fluoride fumigation against <i>Liposcelis</i> spp. on cinnamon bark
163	Ms. Dewi Rahmawati, M.Si.	Seminar of Breeding Based on Molecular Biology in Plants and Livestock to Improve Food Security in Indonesia	Balai Besar Penelitian Bioteknologi dan Sumberdaya Genetik Pertanian (BB-Biogen), Bogor, 26 March 2019	
164	Mrs Anidah	Seminar of Breeding Based on Molecular Biology in Plants and Livestock to Improve Food Security in Indonesia	Balai Besar Penelitian Bioteknologi dan Sumberdaya Genetik Pertanian (BB-Biogen), Bogor, 26 March 2019	
165	Dr Supriyanto	Reclamation Implementation Socialization in Banten Province.	Bintang Laguna Restaurant, Banten, 28 March 2019	Restoration of Post-Mining Land Productivity with Types of Essential Plants
166	Dr Zulhamsyah Imran	Socialization and Harmonization Activities of Mother PAUD in 2019	Jakarta, 2 April 2019	
167	Dr Irdika Mansur	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	

168	Dr Zulhamsyah Imran	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
169	Dr Aslan	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
170	Dr Erina Sulistiani, M.Si.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
171	Mr Agus Sujadi	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
172	Mr Alfi Dwi Nugroho	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
173	Mr Arif Nuryadin	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
174	Mr Armaiki Yusmur, M.Si.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
175	Mr Asep Saepudin	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
176	Mr Asep Syaefudin	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
177	Mr Asep Syarif Hidayat	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
178	Mr Bambang Sulistio	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
179	Mr Budi Cahyadi	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
180	Mrs Devi Septrianti	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
181	Mrs Dewi Suryani, M.M.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
182	Ms Eriza Falashifa	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
183	Mrs Ina Retnowati	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
184	Mr Lukman Haris	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
185	Mr M. Tajudin	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
186	Mrs Rima Febriana	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
187	Mr Rasyid Aulia Rachman	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
188	Mrs. Ratnaningsih	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
189	Mrs Riana Hartati	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
190	Mrs Rizkia Tirtani	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
191	Mr Samsul A. Yani	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
192	Mrs Santi Ambarwati, M.Si.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
193	Mrs Siti Lastiah	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
194	Mr Supriyatno	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
195	Mrs Tenni Wahyuni	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
196	Ms Wati Madyawati	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
197	Ms Woro Kanti Darmastuti, M.Si.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
198	Mrs Yuni Puspita Sari, M.M.	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
199	Mrs. Yunita	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	

200	Ms Zanne Sandriati Putri	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
201	Ms Elvina Rahayu	Workshop on Preparation of Program and Budget 2020 and Preparation of 57 th GBM Working Paper	Hotel 101 Bogor, 8-9 April 2019	
202	Mrs Ina Retnowati	Workshop on Measuring and Managing Mycotoxins in Raw Materials	Hotel Mercure Alam Sutera, Tangerang, 9 April 2019	
203	Mrs Syifa Fauzia	Workshop on Measuring and Managing Mycotoxins in Raw Materials	Hotel Mercure Alam Sutera, Tangerang, 9 April 2019	
204	Mr Haritz Cahya Nugraha, M.T.	SEAMEO Employee Job Performance Evaluation Technical Guidance	Fave Hotel Bogor, 11-13 April 2019	
205	Prof Dr Okky S. Dharmaputra	Follow-up Group Discussion Forum on Rice at Public Corporation BULOG	Kementerian Pertanian Jakarta, 12 April 2019	
206	Mr Samsul A. Yani	Training on Mushroom Cultivation	Lapas Cipinang, Jakarta, 15 April 2019	Mushroom Cultivation Techniques
207	Mr Sugih Mukti	Training on Mushroom Cultivation	Lapas Cipinang, Jakarta, 15 April 2019	Mushroom Cultivation Techniques
208	Dr Zulhamsyah Imran	Workshop on Center Staff Evaluation and Consolidation between Centers	Yogyakarta, 16-17 April 2019	
209	Dr Supriyanto	Training of Plant Cultivation and Soil Chemical Engineering for IUP-HKM Holders	Hotel Sabty Garden, Sumatera Utara, 19-21 April 2019	
210	Mr Arif Nuryadin	Training of Plant Cultivation and Soil Chemical Engineering for IUP-HKM Holders	Hotel Sabty Garden, Sumatera Utara, 19-21 April 2019	
211	Mr Samsul A. Yani	Dissemination of Fruit Region Development in 2019	Hotel Selabintana, Sukabumi, 22-23 April 2019	
212	Dr Erina Sulistiani, M.Si.	Seaweed Expert Meeting and Research Center in the Context of Establishing Tropical Seaweed Innovation Network (TSIN)	Hotel Aston & Resort Bogor, 22-23 April 2019	
213	Mr Armaiki Yusmur, M.Si.	Training on Strategic Environmental Assessment (KLHS)	The Luxon Hotel, Bandung, 22-26 April 2019	
214	Dr Irdika Mansur	National Coordinating Meeting on Forest Reclamation and Watershed Rehabilitation	Kementerian KLH, Jakarta, 23-24 April 2019	
215	Mrs Rima Febriana	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
216	Mr Haritz Cahya Nugraha, M.T.	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
217	Ms Woro Kanti Darmastuti, M.Si	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
218	Ms Zanne Sandriati Putri	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
219	Ms Indah Wahyuni, M.Si.	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
220	Ms Dewi Rahmawati, M.Si.	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
221	Mr Saiful Bachri	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
222	Mrs Herni Widhiastuti	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
223	Ms Riana Hartati	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
224	Mrs Shella Marlinda. M.Si.	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
225	Mrs Trijanti A. Widinni Asnan	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
226	Mrs Yunita	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
227	Mr Indra Septian	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
228	Ms Elvina Rahayu	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
229	Mrs Rizkia Tirtani	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
230	Mrs Ulfah Zul Farisa	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	

231	Ms Eriza Falashifa	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
232	Mr Zulkarnaen Noor Syarif	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
233	Ms Ryna M. Siahaan	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
234	Ms Puput Nisausholiha	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
235	Mr M. Wahyu Dewanto	Training of Trainers (ToT) Writing News Articles and Popular Articles for Newsletters and Digital Media	SEAMEO BIOTROP, Bogor, 23 April 2019	
236	Mr Riza Fadli Assegaf	Socialization of PUPR Ministerial Regulation 7/2019 and Practice of Preparation of Service Selection Documents	Cosmos Amaroossa Jakarta, 24-25 April 2019	
237	Mrs Rima Febriana	Focus Group Discussion (FGD) regarding Scientific Data Repositories for Big Data Support in Indonesia	Gedung PDDI LIPI, Jakarta, 26 April 2019	
238	Ms Woro Kanti Darmastuti, M.Si.	Focus Group Discussion (FGD) regarding Scientific Data Repositories for Big Data Support in Indonesia	Gedung PDDI LIPI, Jakarta, 26 April 2019	
239	Dr Erina Sulistiani, M.Si.	23 rd International Seaweed Symposium	Jeju, Korea Selatan, 27 April – 4 May 2019	Oral Presentation : Agrobacterium-Mediated Genetic Transformation of Seaweed <i>Kappaphycus alvarezii</i> Using Ga Gene and Callus Cultures
240	Mrs Rizkia Tirtani	Training on Protocol and Foreign Guest Reception	Hotel Mirah, Bogor, 29 April – 1 May 2019	
241	Ms Riana Hartati	Teacher Training of Trainer (ToT) in the Framework of Developing Model School of Nutrition Program for Achievement in Cirebon City	Politeknik Kesehatan Kemenkes Tasikmalaya Program Studi Gizi Cirebon, 3 May 2019	Development and Use of School Gardens for Nutrition, Literacy, and Entrepreneurship and the practice of making school gardens
242	Dr Irdika Mansur	Meeting of 7 th Priority Agenda Preparation 2020-2024 in Indonesia	Kementerian Pendidikan dan Kebudayaan, 10 May 2019	
243	Dr Zulhamsyah Imran	Discussion of Pre-Validation KLHS RZWP3K of Bangka Belitung Province	Gedung Manggala Wanabakti, Jakarta, 17 May 2019	
244	Mrs Dewi Suryani, M.M.	Synergy PLB Teacher Training Program with SEAMEO Center	Hotel Sany Rosa, Bandung, 17 May 2019	
245	Dr Erina Sulistiani, M.Si.	Tropical Seaweed Innovation Network (TSIN) Institutional Structure Coordination Meeting	Kementerian Koordinator Bidang Kemaritiman, 20 May 2019	
246	Mr M. Tajudin, M.M.	Workshop on Control of the Ministry of Education and Culture Program, Activities and Budget Implementation 2019	Hotel Horison, Bekasi, 21-23 May 2019	
247	Dr Irdika Mansur	Technical Guidance "Collaboration between BIOTROP VOCATIONAL SCHOOL - SEAMEO in Supporting Food Security	Hotel Mega Anggrek, Jakarta, 22 May 2019	
248	Mr Arif Nuryadin	Workshop on Planning and Evaluating the Budget Activities of SEAMOLEC SEAMEO Working Unit	SEAMEO RECFON, Jakarta, 22 May 2019	
249	Mr M. Tajudin, M.M.	Workshop on Planning and Evaluating the Budget Activities of SEAMOLEC SEAMEO Working Unit	SEAMEO RECFON, Jakarta, 22 May 2019	
250	Dr Zulhamsyah Imran	Digital Content Script Meeting	Kementerian Pendidikan dan Kebudayaan, Jakarta, 27 May 2019	
251	Ms Woro Kanti Darmastuti, M.Si.	Digital Content Script Meeting	Kementerian Pendidikan dan Kebudayaan, Jakarta, 27 May 2019	
252	Dr Irdika Mansur	Workshop on Making Soy Milk and Green Beans	Balai Pedukuhan Joho, Yogyakarta, 31 May – 1 June 2019	SEAMEO QITEP in Math, Kemendikbud
253	Dr Zulhamsyah Imran	Workshop on Preparation of the 2020 Budget Program and the SEAMEO Strategic Plan 2020-2024	SEAMEO CECCEP, Lembang, 13-15 June 2019	
254	Mr Arif Nuryadin	Workshop on Preparation of the 2020 Budget Program and the SEAMEO Strategic Plan 2020-2024	SEAMEO CECCEP, Lembang, 13-15 June 2019	
255	Mr Bambang Sulistio	Workshop on Preparation of the 2020 Budget Program and the SEAMEO Strategic Plan 2020-2024	SEAMEO CECCEP, Lembang, 13-15 June 2019	
256	Mr M. Tajudin, M.M.	Workshop on Preparation of the 2020 Budget Program and the SEAMEO Strategic Plan 2020-2024	SEAMEO CECCEP, Lembang, 13-15 June 2019	

257	Mr M. Tajudin, M.M.	Workshop on Integrating and Testing the 2019 SIMPROKA Application	Hotel The 101 Bogor, 19-21 June 2019	
258	Dr Zulhamsyah Imran	Civil Service Staff Discussion Meeting assigned to the SEAMEO Center	Kemendikbud, Jakarta, 19-20 June 2019	
259	Mrs Yuni Puspita Sari, M.M.	Civil Service Staff Discussion Meeting assigned to the SEAMEO Center	Kemendikbud, Jakarta, 19-20 June 2019	
260	Dr Zulhamsyah Imran	Discussion on Validation of KLHS RZWP3K of East Kalimantan Province SEAMEO Center	Direktorat Pencegahan Dampak Lingkungan Kebijakan Wilayah dan Sektor, Jakarta Pusat, 21 June 2019	
261	Mrs Dewi Suryani, M.M.	Meeting on Online Teacher Training Coordination by 7 SEAMEO Centers in Indonesia	Kementerian Pendidikan dan Kebudayaan, Jakarta, 25 June 2019	
262	Dr Aslan	2 nd Workshop Core and Network System Program SATREPS bLueCARES	Kementerian Kelautan dan Perikanan, Jakarta, 26-26 June 2019	
263	Prof Dr Okky S. Dharmaputra	Food Security and Food Safety Symposium: Finding New Concepts	Universitas Sahid, Jakarta, 27 June 2019	

SEAMEO BIOTROP Staff for FY 2018/2019

Name

Dr Irdika Mansur, M.For.Sc.
Centre Director

Dr Zulhamsyah Imran
Deputy Director for Administration

Dr Aslan
Acting Deputy Director for Program

Researchers

Prof Dr Okky Setyawati Dharmaputra
Fungi on foodstuff and their mycotoxin, Mycology, Biofungicide

Dr Sri Sudarmiyati Tjitrosoedirdjo, M.Sc.
Weed Taxonomy; Biological Control of Weeds

Dr Soekisman Tjitrosoedirdjo
Weed ecology/ Weed science

Dr Idham Sakti Harahap
Stored Product dan Urban Entomology

Prof Drh Bambang Purwantara, M.Sc. PhD.
Reproduction Biotechnology

Dr Supriyanto
Forest Biotechnology

Dr Ir Burhanuddin Masy'ud, M.Si
Natural Resources Conservation

Dr Ir Abdul Munif M.Sc.Agr.
Plant Pathology

Dr Ir Arief Sabdo Yuwono, M.Sc.
Environmental sanitation engineering, Environmental science, Air quality and noise management, and Waste management technology

Prof Ris Dr Muhammad Winugroho
Animal Feed and Nutrition (Big Ruminants)

Dr Sutomo
Ecological restoration, landscape ecology, remote sensing in ecology, plant community, forest and fire ecology, invasive species management, and plant and biodiversity conservation

Dr. Awang Maharijaya
Plant Biotechnology, Plant Breeding, Horticulture

Dr Dewi Wulandari
Soil Science, Plant Nutrition, Soil Microbiology and Biotechnology

Dr Ichsan Akhmad Fauzi
Aquaculture, Fish Feed Production

Supporting Staff

Dr Impron, M.Agr.Sc.
MIT Programme Coordinator

Mr Bambang Sulistio, S.Si
Finance and Accounting Department Manager

Mr Asep Syaefudin
Facilities Management Department Manager

Ms Rima Febriana, SE
Knowledge Management Department Manager

Mr Samsul A. Yani
Product Development and Services Department Manager

Ms Tenni Wahyuni, A.Md.
General Administration & Public Relation Department Manager

Ms Yuni Puspitasari, MM
Human Resources Management Department Manager

Ms Dewi Suryani, MM
Capacity Building and Community Development Department Manager

Dr Aslan
Research Department



SEAMEO BIOTROP Governing Board Members

BRUNEI DARUSSALAM

Mrs Zaitunah Haji Kurus

Head of School/Education Officer Special Level

School of Agro-Technology & Applied Sciences

Institute of Brunei Technical Education

Agro-Technology Campus

Jalan Wasan, Kampong Limau Manis, Mukim Pengkalan Batu Bh2323 Negara Brunei Darussalam

Phone : +673 7134008/+673 2683230

Fax : +673 2683133

Email : zaitunah.kurus@wvs.moe.edu.bn

zy_5262@yahoo.com

CAMBODIA

Mr Thao Sokunthia

Vice Dean of Faculty of Science

Royal University of Phnom Penh (RUPP)

Russian Federation Boulevard

Tuol Kork, Phnom Penh, Cambodia

Phone : (+855) 11 877194

Email : thaorupp@mail.com

14 June 2017 - 13 June 2020

INDONESIA

Dr Arif Satria

Rector

Bogor Agricultural University

Gd. Andi Hakim Nasoetion , Rektorat Lt.II

Kampus IPB Darmaga

Bogor 16680, Indonesia

Phone : +62(251)8622634

Fax : +62(251)8622708

Email : rektor@ipb.ac.id

birosekretariatrektoripb@gmail.com

30 August 2016 - 29 August 2019

LAO PDR**Mr Khamphone Mounlamai**

Deputy Director General of National Agriculture and Forestry Research Institute,
Ministry of Agriculture and Forestry (MAF).
Nongviengkham Vilage (Dongdok)
Saystatha Distric, Vientiane, Lao PDR
Phone : +856(20)21771594
Fax : +856(21)771593
Email : khamphonedpcd@gmail.com
4 July 2017 - 3 July 2020

MALAYSIA**Prof Datuk Dr. Asma Binti Ismail**

Vice Chancellor
Universiti Sains Malaysia
Level 6, Chancellery Building
Universiti Sains Malaysia
11800 Pulau Pinang, Malaysia
Phone : +604653 3101/3105
Fax : +604656 5401
Email : vc@usm.my
15 November 2019-14 November 2022

VIETNAM**Prof Nguyen Thi Lan**

President
Vietnam National University of Agriculture
Ngo Xuan Quang Street - Trauquy – Gialam
Hanoi , Vietnam
Phone : 84 4 38276346
Fax : 84 4 38276554
Email : lanjp2000@yahoo.com
nguyenlan@vnua.edu.vn
22 August 2017- 21 August 2020

MYANMAR**Dr San Win**

Pro-Rector, University of Forestry
Yezin, Nay Pyi Taw
Phone : +95-67-416 548
Mobile : +95-9-4485 33612
Fax : +95-67-416 681
Email : sanwin.env@gmail.com
3 October 2017 – 2 October 2020

PHILIPPINES**Dr Lilian A De Las Llagas**

Commission on Higher Education
4F HEDC Building
C P Garcia Avenue
Diliman, Quezon City
Philippines
Phone : +6302-4411168
Email : commllagasstaff@ched.gov.ph
25 August 2017 - 24 August 2020

SINGAPORE**A/P Chew Fook Tim**

Associate Professor (Biological Sciences)
and Vice Dean (Undergraduate Education and Student Life, Faculty of Science)
Department of Biological Sciences
National University of Singapore (NUS)
Lee Hiok Kwee Functional Genomics Laboratory
Cluster, Block S2, Level 5, Science Drive 4
Singapore 117543,
Phone : (65)-65161685
Fax : (65)-67792486
Email : dbscft@nus.edu.sg
24 July 2017– 23 July 2020

THAILAND**Asst Prof Dr Nikhom Laemsak**

Dean, Faculty of Forestry
Kasetsart University
50 Ngam Wong Wan Road
Chatuchak, Bangkok 10900
Phone : +66(0)25790170 Ext 109
Fax : +66(0)25614246
Email : fforcrw@ku.ac.th
25 August 2017 – 24 August 2020

TIMOR LESTE**Ir Acacio Guterres, M.Sc.**

Head, Faculty of Agriculture Department
National University of Timor Lorosae (UNTL)
Cidade Avenida De Lisboa Dili Timor Leste
Phone : +670 77488395
Email : acacio.guterres@gmail.com
8 June 2018-7 June 2021

SEAMEO BIOTROP

Southeast Asian Regional Centre for Tropical Biology

Jalan Raya Tajur Km. 6

Bogor 16134, Indonesia

Phone : Office: +62-251-8323848

Fax : Office: +62-251-8326851

Fax : gau@biotrop.org

www.biotrop.org