



Regional Master Classes in Plant Biosecurity (Indonesia)

Final Report (Project APBSF 006)

December 2019

AUTHOR

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This document should be cited as:

Cite these proceedings as:

Lovett, J. (Ed) 2019. *Regional Master Classes in Plant Biosecurity (Indonesia)*. Australian Plant Biosecurity Science Foundation, Canberra, Australia.

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1. Executive Summary

Following a successful International Master Class (IMC) sponsored by The Crawford Fund and The Plant Biosecurity Cooperative Research Centre (PBCRC), held in Denpasar, Bali, in January 2018 a number of proposals were received to mount a Regional Master Classes (RMC). Whereas the IMC had attracted Participants from across the archipelago, the RMC concept was to facilitate participation by taking Master Classes to the regions, focussing on specific interests in biosecurity while avoiding considerable costs in transport and accommodation. The Crawford Fund agreed to test this concept, with the support of the Foundation, and with valuable contributions from several other agencies.

The first RMC (RMC 1) was held in Salatiga from 10 to 16 February 2019 with 21 Participants, primarily from Java. The program comprised a mix of presentations by Indonesian and international speakers; workshops and exercises; development of projects, and the preparation of brief papers based on the Participants' own biosecurity experiences. These papers have been published by the Foundation (*'Biosecurity and Biodiversity: Keys to Promoting Local Food for Food Security and Food Sovereignty'*, © APBSF 2019).

A total of 23 'early career' Participants drawn, principally, from East Nusa Tenggara gathered in Kupang for RMC 2 (18 to 23 November 2019). Principal support came from the host university, Universitas Nusa Cendana (UNDANA), and the Foundation.

Since, in both RMCs, the Participants represented diverse public and private sectors good progress was made towards achieving the project's objective of creating a new network of biosecurity-aware individuals and organisations. This network is linking with the existing network developed by bilateral investments by the PBCRC in collaboration with Indonesian colleagues (2015-2018; <http://www.pbcrc.com.au/publications/pbcrc2264/>). While the bilateral relationship was enhanced, the involvement of CABI (RMC 1 and 2), CEBRA (RMC 1) and The Crawford Fund (RMC1) strengthened the Foundation's objective of raising its international profile.

2. Introduction

The Cooperative Research Centre for National Plant Biosecurity (CRCNPB) commenced bilateral engagement with Indonesia in 2006 through a year-long pilot study. Initial activities involved seed funding 20 small projects to identify topics for investigation with key partners who remain involved to this day.

The pilot year presaged the funding of a 5 year project starting in 2007 and launched by an *International Biosecurity Summit*, held in Bali. National policy personnel, the Director General of Higher Education and international academic experts, along with biosecurity experts from the two countries took part. Priorities from the Summit were formulated into a five-year agenda spear-headed by the newly established Australia Indonesia Biosecurity Community Management Project (AusIndoBIOCOM), www.ausindobiocom.net (PBCRC legacy website).

The strategic plan for AusIndoBIOCOM began with the Vision of '*Researching and applying ways of managing change in major issues such as biosecurity at international, national, regional and community level in order to alleviate poverty and related major social problems*'.

By the time the CRCNPB completed its term in 2012 the major outcomes of AusIndoBIOCOM included: 12 Higher Degree Research student completions supported in the field of plant biosecurity; a book *Managing Biosecurity Across Borders* (Springer 2011), containing chapters by 11 authors on aspects of plant biosecurity impacting on effective border management, and an enduring network with a commitment to promoting biosecurity to the benefit of Indonesia and Australia.

The Plant Biosecurity Cooperative Research Centre (PBCRC – 2012-2018) re-evaluated the Indonesia linkages and commenced a program of engagement which is being continued by the Australian Plant Biosecurity Science Foundation (APBSF).

Following an exploratory workshop in March 2015, a second *International Biosecurity Summit* was held in Denpasar in May 2015. The Australian and Indonesian governments were represented at high levels and maintain their engagement. A major contribution was made to the preparation of a PBCRC Thought Leadership Paper (TLP) "*Opportunities and Benefits for Collaboration on Indonesian Plant Biosecurity: A Bilateral Approach*", representing a rigorous analysis of biosecurity needs nationally, and how best these needs could operate in a bilateral framework. Importantly, a proposal to consolidate existing linkages led to an Agreement to form a Bilateral Plant Biosecurity Initiative (BPBI), formalised in April 2016.

Under BPBI's auspices four research projects were established, each hosted by one of the BPBI's core university partners www.pbcrc.com.au (legacy website). The four projects were completed before the close of the PBCRC on June 30 2018. The success of this venture encouraged BPBI and other collaborators to support the establishment of an Indonesian Biosecurity Foundation (IBF), formalised in October 2017 and with interests in common with those of the APBSF.

One early national outcome of IBF was the co-hosting of a Workshop, held in Bogor in September 2018, in conjunction with LIPI (Indonesian Institute of Sciences), CABI, the Crawford Fund and APBSF. Its chief outcome was a decision to promote the unification of Indonesia's disparate 'biosecurity' policies and regulations under the single banner BIOSECURITY and, through various agencies, to promote strongly the community awareness of a unified notion of biosecurity.

In January 2018 a Crawford Fund Master Class (IMC), co-funded by the PBCRC and supported by CABI was held in Denpasar when 26 participants from across the Indonesian archipelago met for two weeks of presentations and discussions with Indonesian and Australian biosecurity workers. Previously unknown to each other, following this experience the participants have created an enduring and very active network which is further expanding the compass of BPBI and IBF. Collected papers by participants '*Aspects of Biosecurity in Indonesia*' were published by PBCRC in January 2018.

An outcome of the Denpasar Master Class was receipt of a number of proposals to mount Regional Master Classes (RMC). Whereas the IMC had attracted Participants from across the

archipelago, the RMC concept was to facilitate participation by taking Master Classes to the regions, focussing on specific interests in biosecurity while avoiding considerable costs in transport and accommodation.

The first RMC (RMC 1) was held in Salatiga, Central Java, from 10 to 16 February 2019 hosted by Universitas Kristen Satya Wacana (UKSW) which under-wrote domestic costs; the second RMC (RMC 2) took place in Kupang, Nusa Tenggara from 19 to 23 November 2019, hosted by Universitas Nusa Cendana (UNDANA), again, with the host under-writing domestic costs. To complement local input, keynote speakers were engaged from CABI and CEBRA (RMC 1), the Australian National University, CABI, and the University of Queensland (RMC 2). Further input was provided by the Indonesian Institute of Sciences (LIPI), the Indonesian Biosecurity Foundation (IBF) and local members of staff of UKSW and UNDANA.

For each RMC, presentations, group and individual discussions were complemented by a field trip. At the request of the Rector, UNDANA, activities in Kupang commenced with an International Conference held on Monday 18 November. Several keynote speakers addressed more than 100 attendees on issues of significance in the context of the RMC theme '*Plant Biosecurity and Biodiversity in Dryland Areas in a Time of Climate Change*'. Details are provided in the program (Appendix 6).

3. Aim

The principal aim of the project was to further enhance Australian connections with networks in Indonesia initiated, principally, through PBCRC investment in the bilateral relationship, above, contributing to the APBSF's developing international interests and profile.

The inaugural Regional Master Class (RMC) was held in Salatiga, Central Java from 10-16 February 2019. Support committed for international presenters was provided by the Foundation and The Crawford Fund; domestic costs were met by the host university while CABI and CEBRA contributed 'in kind'. The topic was '*Biosecurity and Biodiversity: promoting local food for food security and food sovereignty*'. A Report was provided to the Foundation (March), complemented by a book of 'Short Communications' written by the Participants

The second RMC held in Kupang, East Nusa Tenggara from 19 to 23 November 2019. The RMC followed an International Conference on the topic ('*Plant Biosecurity and Biodiversity in Dryland Areas in a Time of Climate Change*') held on 18 November with more than 100 participants. Support was provided by the Foundation and the host university which generously provided accommodation for all Participants and Presenters in the same location, greatly enhancing opportunities for networking.

4. Methods/Process

For each RMC all Participants supplied an Abstract related to their work in advance of the proceedings. A book of Abstracts was provided to all Participants. Each Abstract was developed into an oral presentation, mostly complemented by a PowerPoint presentation. In the latter stages of the RMC time was set aside for the presentations, with the help of the Presenters, to be drawn together into a publication of Short Communications. For several Participants this was the first opportunity to prepare a publication in English, with professional assistance. For those planning scholarship applications this was a bonus outcome.

Lists of the Presenters (RMC 1 Appendix 1; RMC 2 Appendix 2); Participants (RMC 1 Appendix 3; RMC 2 Appendix 4) and the RMC Programs are provided (RMC 1 Appendix 5; RMC 2 Appendix 6). In most cases, information from the Participants' presentations are contained in the books of Short Communications emanating from the two RMCs and published by the Foundation. In brief, papers concerned aspects of biodiversity including a number of potential/little known crops; the changing role of women in agriculture; community-based attitudes to climate change; multidisciplinary approaches to climate change, and capacity building, including information literacy improvement for farmers.

5. Achievements, Impacts and Outcomes

- Formation of active biosecurity networks based on UKSW, Salatiga and UNDANA, Kupang and complementing networks from the Denpasar International Master Class (January 2018).
- Written report on both RMCs provided by 31 December 2019.
- Two books of Short Communications, published by the Foundation with ISBN numbers.
- Given the large number of UKSW and UNDANA staff taking part in the RMCs, a substantial increase in profile of biosecurity in teaching, research and extension programs has been achieved from a modest investment by the Foundation and its co-sponsors.

6. Discussion and Conclusion

Successful testing of the RMC concept in Salatiga was validated by the Kupang experience. Cost-sharing by the host universities exceeded expectations. The support provided was recognised by Participants in their evaluations. In Kupang, the Australian presenters, Professor Drenth and Professor Pogson were the most senior, active academics attracted to CRC/Foundation Master Classes thus far. Their scientific and 'mentoring' contributions were exemplary, as were those of Professor Enny from LIPI who gave generously of her time. Dr Costa from CABI is very active in South East Asia and, like his CABI counterparts in previous events – Dr Faheem in Bali and, notably, Dr Siva in Salatiga - proved particularly adept at engaging with Participants. Dr Titi Susilowati and Ms Linda Susilowati from UKSW used their experience of previous Master Classes to excellent effect.

Biodiversity, especially relating to less familiar crops and potential crops was a feature. This presents particular challenges to biosecurity as the crops themselves are imperfectly understood, let alone

potential pest and disease threats to adoption, productivity and food security. The increasing recognition of the important roles played by women in farming systems was another highlight.

More than 40 RMC Participants have now been added to the network created through bilateral linkages established, largely, through the efforts of the predecessors of APBSF. Requests to mount further RMCs are being received. Critical determinants in supporting these will be the willingness of a host university to underwrite local costs and the submission of a topic important in a regional context but contributing to the growing understanding of biosecurity risks and responses across Indonesia and Australia.

On the basis of the 2019 RMCs these are a highly cost-effective means of international capacity building while engaging Australian biosecurity experts in Foundation activities.

7. Recommendations

1. That the continued growth of the bilateral relationship with Indonesia be noted and publicised through APBSF communication channels.
2. That the Foundation note that IBF affiliates are considering developing a possible activity as a contribution to the International Year of Plant Health.
3. That the Foundation note that two approaches related to further bilateral engagement via RMCs can be expected. No positive indication as to the likelihood of Foundation financial support has been given.
4. That the Foundation note that members of the IBF remain committed to its ethos but are considering whether the Foundation ('Yayasan') is the optimal vehicle for garnering support in an evolving Indonesian R&D environment.
5. That the Foundation note that the investments made by the PBCRC through the Bilateral Plant Biosecurity Initiative are held in high esteem and that there is strong support for developing a second batch of co-funded investments.

8. Appendices, Publication

Appendix 1.	Presenters RMC 1
Appendix 2.	Presenters RMC 2
Appendix 3.	Participants RMC 1
Appendix 4.	Participants RMC 2
Appendix 5.	Program RMC 1
Appendix 6	Program RMC 2
Appendix 7	Review of RMC 1 by Dr Siva, CABI
Appendix 8	Evaluation by Participants RMC 1
Appendix 9	Evaluation by Participants RMC 2

Appendix 1: PRESENTERS (RMC 1)

Mr. Baharuddin, founder of Yayasan Qaryah Thayyibah (Serikat Paguyuban Petani/Farmer association), Kalibening, Salatiga. There are about 140 farmer groups under Qaryah Thayyibah's coordination.

Dra. Lusiawati Dewi, M.Sc. is a Senior Lecturer in Biology, Universitas Kristen Satya Wacana, Salatiga with research interests in local food innovation.

Professor Ian Falk, formerly Chair of Rural and Remote Education, Charles Darwin University (CDU), resident in Denpasar and associated with UKSW, UNMAS and UNANDA universities in Indonesia. Research interests and more than 200 refereed publications are in the areas of sociology and rural sociology; regional and community development, community capacity building and social capital.

Dr. Susie Hester, Senior Research Fellow, Business School, University of New England, Armidale, NSW; Deputy Director, Centre of Excellence for Biosecurity Risk Analysis (CEBRA). Research interests: bioeconomic modelling to solve issues related to pest and disease management; understanding the value of passive surveillance in biosecurity; tools for post-border surveillance of pests and diseases; impact assessment of biosecurity investments.

Dr Theo Litaay, is Senior Policy Advisor in The Executive Office of The President, Republic of Indonesia. He is also a Senior Lecturer in Law, Universitas Kristen Satya Wacana, Salatiga with research interests in cross border issues, Indigenous and Socio-legal Studies.

Professor John Lovett, was unable to attend the RMC in Salatiga, due to illness but played the major role in organisation of the international component and in ensuring RMC deliverables are met, including co-editing the book of papers resulting. Foundation Chairman, Plant Biosecurity Cooperative Research Centre, Australia. Formerly Managing Director, Grains Research and Development Corporation.

Dr. Eka Martiningsih is the Secretary of Indonesian Biosecurity Foundation. She is also Senior Lecturer in Agriculture, Universitas Mahasaraswati, Bali with research interests in local knowledge and gender balance in agricultural system.

Dr. Wiske Rotinsulu is Senior Lecturer in Agriculture and Head of International Affairs at Sam Ratulangi University, Manado, Sulawesi. In addition to biosecurity and biodiversity, her academic interests include natural resources management; environmental impact assessment, and geographical information systems (GIS) and remote sensing in resource management.

Dr. Sivapragasam, Regional Director of CABI, Malaysia. Dr. Siva started his career at the Malaysian Agricultural Research and Development Institute (MARDI) in June 1978 as a Research Officer, where he specialized in entomology and biological control of tropical insect pests. From October 2010 He joined CABI as a senior scientist. In the last six years, he has worked in almost all the Southeast Asian countries for CABI projects and its Plantwise programme. He has many years' experience in tropical pest management and related areas.

Dr. Drs. I Made Sukamerta, M.Pd is Rector of Universitas Mahasaraswati, Denpasar, Bali. He has worked with BPBI on many projects with his expertise on cultural studies.

Dr. Suryasatriya Trihandaru is the vice chairman of the Indonesian Biosecurity Foundation (IBF). He is also Pro-Vice Chancellor of Research at Universitas Kristen Satya Wacana, Salatiga

Appendix 2: PRESENTERS (RMC 2)

Dr. Arnaud Costa, CABI Associate. An agronomic consultant, researcher and lecturer with experience and knowledge in Integrated Pest Management (IPM), Invasive Pests, Chemical Ecology, Biological Control and Agro-ecology. 11 years of experience in research in entomology and 7 years experience as auditor or advisor for farmers and extension.

Professor Andre Drenth, Professorial Research Fellow, Centre for Horticulture Science, Queensland Alliance for Agriculture and Food Innovation. The University of Queensland, Brisbane UQ with expertise in agricultural plant science. He has published more than 126 Journal articles -17. Conference Papers (48), Newspaper Article (1), Research Reports (3)

Professor Ian Falk, formerly Charles Darwin University, long time resident in Denpasar and associated with UNMAS. Interests in sociology and rural sociology; regional and community development, community capacity building; social capital; adult learning, learning communities.

Eng Lucio Marçal Gomes, Chancellor of East Timor Coffee Institute (ETCI), Director East Timor Coffee Academy (ETICA) during 2003- 2012

Don Harrison Kadja, SP. M.Sc graduated from Universitas Gajah Mada where he focused on pests management. He has worked with a wide range on government institutions and NGOs at national and international levels, including PBCRC. In relation to biosecurity assumed responsibility for establishing the Remote Microscope facility at UNDANA in 2017. He is currently Secretary of the Agrotechnology Department of Fakultas Pertanian UNDANA.

Norman P.L.B. Riwu Kaho, SP. M.Sc. A Lecturer in UNDANA, interested in GIS and SAGA. Well known for his work on mapping and spatial analysis, include many collaborative works between UNDANA and NGOs. International publications include Narayan Monishk et al., (2017) Deployment of Open Data Kit for Information Management for Various Engineering Projects In Rural, Indonesia. International Research Journal of Electronics and Computer Engineering, [S.I.], v. 3, n. 1, p. 1-6, mar. 2017. ISSN 2412-4370; and Riwu Kaho, N.P.L.B; I. Mandaya & S. Hobgen Free Open Source Geospatial Tools for Improving Natural Resource Management. International Symposium on Geoinformatics (ISYG 2017).

Professor John Lovett, Chair, Australian Plant Biosecurity Science Foundation and Chair, Australian Research Council Centre of Excellence in Translational Photosynthesis. Foundation Chairman, Plant Biosecurity Cooperative Research Centre; formerly Managing Director, Grains Research and Development Corporation; Professor of Agronomy, University of New England; Professor of Agricultural Science, University of Tasmania. Interests in crop protection and plant biosecurity.

Dr I Wayan Mudita, M.Sc. PhD supported by CRC NPB. Dr Muditya's PhD research focussed on community management and governance of pests and diseases of local citrus in West Timor. During the course of the research, he worked closely with local communities at the village and sub-village levels. He used a mixed method approach to explore issues and to develop a community-based biosecurity management model for coping with the decline caused by pests and diseases in mandarin trees. Dr Mudita has experience in working with a wide range of government institutions and NGOs at national and international levels, including ACIAR, AusAID, USAid, CIDA, BirdLife International and FAO. In developing a collaborative approach to natural resources, fire, invasive species management his research on biosecurity of citrus was a pioneering project in seeking to include a social context to crop pest and disease management. Her has acted as Director of a number of research centres at UNDANA where he is currently Deputy Rector, Partnership.

Professor Barry Pogson, Deputy Director of the ARC Centre of Excellence in Plant Energy Biology (www.plantenergy.edu.au) and lead Chief Investigator on an International Wheat Yield Partnership grant to Improve Wheat Yield by Optimising Energy Use Efficiency (iwyp.org). Highly Cited Scientist, ASPB Top Cited Author Award for The Plant Cell; ANU Vice Chancellors Supervisor Award; Senior Editor, The Plant Cell; Co-editor, Science Advances. Chair, Global Plant Council, Fenner Medal from Australian Academy of Scientists. More significantly his group have received 4 national awards for research excellence, two awards for teaching and supervision excellence and six students have received University medals and/or awards for their honours thesis in the past ten years

Titi Susilowati Prabawa Ph.D. Serves as a lecturer in the graduate program of Development Studies and is Head of the Tourism Department and Head of the Sustainable Development Research Centre at Satya Wacana Christian University. Her research interest is related to the micro economy at the level of enterprises and individual entrepreneurs and she gives attention to the social, political and cultural environment of the economic dimensions of entrepreneurship. Related to these themes, she has conducted research in Central Java and in the Eastern part of Indonesia, such as Rote island in East Nusa Tenggara, Manado in North Sulawesi, Moluccas and Papua.

Professor Enny Sudarmonowati has been the Deputy Chair for Life Sciences of Indonesian Institute of Sciences (LIPI) since 2014 as well as a Chairperson of Indonesia National Committee of Man and Biosphere (MAB) UNESCO and since 2018 is the President of MAB ICC UNESCO. She is also the member of Biosafety National Commission, and a senior researcher at Research Centre for Biotechnology LIPI – Laboratory of Plant Molecular Genetic and Biosynthesis Pathway Alteration. Her main research areas are genetic conservation and genetic improvement of plants involving various techniques including molecular markers and genetic engineering including feedstock. She has published more than 200 scientific publications and two (2) granted patents and three (3) registered patents, and two (2) Plant Variety Protection (PVTs).

Linda Susilowati. A social scientist, currently working at the Faculty of Interdisciplinary Studies, Satya Wacana Christian University (Universitas Kristen Satya Wacana) as a lecturer in Social Psychology. Her research interests are related to womens empowerment, cultural studies, decision making, rural area development, and community engagement. Since 2018, she has been the Managing Editor of KRITIS: Journal of Interdisciplinary Studies. A member of the Bilateral Plant Biosecurity Initiative (Indonesia-Australia) she became Liaison Officer for the Indonesian Biosecurity Foundation. She runs projects under the Center of Sustainable Development Studies and Center of Religion, Pluralism, and Democracy. One of her on-going projects is training for trainers called “plant clinics” program as a tool to increase womens’ participation in village farmer groups in Central Java.

Ms Jenny E.R. Markus has 25 years’ experience in research and community development, working in research and community development with government institutions, NGOs and INGOs, as well as communities in East Nusa Tenggara and Lampung. Her research with various crops and foods supports food security and food diversity, as well as biodiversity and biosecurity and climate change in dryland areas.

Appendix 3: PARTICIPANTS (RMC 1).

Mr Shofyan Adi Cahyono is a young entrepreneur in an organic farming business named Sayur Organik Merbabu Farm. He is also currently taking his Master degree in Agriculture at Universitas Kristen Satya Wacana. Mr Cahyono is organising young farmers to manage organic farming businesses and encourage youth in his areas to be resourceful farmers.

Mr Yudhi Vanstepan Simorangkir is a student of the Postgraduate program in Development Studies in Universitas Kristen Satya Wacana. He is actively working as a coordinator in Gerakan Mahasiswa Kristen Indonesia (GMKI-Indonesian Christian Student Movement, a youth not-profit organisation that consists of Christian students from various regions in Indonesia). His work is related to indigenous crops from Sumatra named Andaliman.

Mr Bhakti Yudha Prawira is a staff member in Jetty and Silo Operation Department from PT Indofood Sukses Makmur, Bogasari Flour Mills Division, Jakarta. He is actively working on monitoring the quality of wheat production in Bogasari, including pests and diseases management.

Mr Muhammad Dudi Salmon Bayu Aji is a Section Head of Milling from PT Indofood Sukses Makmur, Bogasari Flour Mills Division, Jakarta. His work is related to food safety management progress. Some of his activities are leading his team on flour mixing, retail packaging, and premium packing.

Mr Wahyono is a Genetic Resources Officer from PT East West Seed Indonesia, West Java. His main responsibility is to provide genetic materials in order to support the breeding programmes. His works are related to plant breeding, DNA extraction, plant genomics, and genetic engineering.

Mr Muhamad Taufik Hariyadi is a Genetic Resources Officer from PT East West Seed Indonesia, West Java. He is actively working on collecting genetic materials around Indonesia, exchanging genetic materials from International GeneBanks, and conserving genetic materials through rejuvenation.

Mr Slamet Haryono is a Senior Assistant Manager on Plasma Support from PT Austindo Nusantara Jaya Agri. He is also currently taking his Master degree in Sociology at Universitas Sumatera Utara. His works are related to oil palm plantations, especially in West Kalimantan.

Ms Maria Matoetina Suprijono is a lecturer in Nutrition and Food Biochemistry from the Faculty of Agriculture Technology, Universitas Katholik Widya Mandala, Surabaya. Her background is in Community Nutrition and Food Science. She focuses her research and teaching in Food Nutrition, Food Biochemistry, Nutrition Evaluation, Nutrient Formulation and Fortification. She is a member of the Indonesian Association of Food Technologists. (Unable to attend.)

Mrs Lina Mardiyah is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). As a member of SPPQT she has a role on women empowerment programs in her village. Her ongoing program is to empower housewives from her village to have ability to process raw materials into various products.

Miss Hayuningtyas Dyah Cressidawati is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). Her work is related to the production of alternative local food. She is currently working on alternative healthier flour substitution from cassava named Mocaf flour.

Miss Endang Dwijayanti is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). She is currently working on organic farming management for her village through SPPQT. Participants, continued

Miss Agnes Cela Purwani is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). Her works are related to community awareness, capacity building, and integrated farming systems.

Mr Achmad Darajat Jumadil Kubro is a farmer and member of Serikat Paguyuban Petani Qaryah Thayyibah (SPPQT – Qaryah Thayyibah Farmer Groups Association). His works are related to integrated farming systems, food production, and capacity building.

Mrs Niken Widya Palupi is a program officer on training and development from Swisscontact Indonesia. She is also currently taking her doctoral degree in the Faculty of Agricultural Technology at Universitas Gadjah Mada, Yogyakarta. Her works are related to green production, market development, supply chain, and technology food-nutrition.

Mrs Rohning Sulistyani is on the extension staff from Department of Agriculture, Salatiga City Government. Her major work is on pests and diseases management. She is also working with local farmers and other stakeholders to develop an agritourism spot in Salatiga.

Mr Wilhelmus Terang Arga Sanjaya is a doctoral student in Microbiology, Department of Soil Science and Land Resources, Institut Pertanian Bogor, West Java. His current work is about bio- organic fertilizer for soil health and rice security.

Mr Dhanang Puspita is a Lecturer in Food Technology, Faculty of Medicine and Health Science, Universitas Kristen Satya Wacana. His research interests include natural pigments, food innovation, and food microbiology.

Mr Andreas Binar Aji Sukmana is a Lecturer in Microbiology, Faculty of Biology, Universitas Kristen Satya Wacana. His works are related to local food, microbiology, and biodiversity.

Mr Risya Pramana Situmorang is a Lecturer in Faculty of Biology, Universitas Kristen Satya Wacana. His works are related to biology education, food management, and farming systems.

Miss Monika Rahardjo is a Lecturer in Food Technology, Faculty of Medicine and Health Science, Universitas Kristen Satya Wacana. Her works include food technology, local crops, and food management.

Appendix 4: PARTICIPANTS (RMC 2)

No	Name	Institution	e-mail	Phone	Gender
1	Adi Berci Esti R.H.Liu	Fresh Grad Chemistry UNDANA	estyrhl@gmail.com	+6282146408094	Female
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Appendix 5. PROGRAM (RMC 1)

Time	Event
Arrival - 10 February 2019 (Sunday)	
14.00 -	Participants check in at the hotel
Day 1 – 11 February 2019 (Monday)	
08.00 – 09.00	Registration & Briefing about the program
09.00 – 09.30	Opening Ceremony: Rector UKSW
09:30 – 10:30	Orientation of Master Class and discussion of desired outcomes led by Professor Ian Falk and Dr Titi Susilowati
10:30 – 11:00	Morning refreshments
11:00 – 12:30	“What is biosecurity?” : Interactive discussion with the participants led by Professor Ian Falk and Dr. Susie Hester
12:30 – 13:30	Lunch (and networking)
13.30 – 14.30	“Bilateral Plant Biosecurity Initiative BPBI: Developing the Indonesian Biosecurity Foundation IBF” : led by Professor Ian Falk
14:30 – 14:45	Afternoon Refreshments
14.45 – 15.30	Participants’ Presentations
15.30 – 16:30	"Biosecurity Policy Development in Indonesia" led by Theo Litaay, Ph.D.
16.30 – 17:30	Concurrent sessions (3): responses to biosecurity issues raised from the opening addresses and Participant presentations moderated by Ms. Dina Banjarnahor, M.Sc.
Day 2 – 12 February 2019 (Tuesday)	
08.30 – 09.00	Review previous day’s activities led by Professor Ian Falk
09.00 – 10.30	“Biosecurity Risk” by Dr. Susie Hester
10.30 - 11.00	Morning Tea

Time	Event
11:00-12:30	“Biosecurity Response” by Dr. Susie Hester
12.30 – 14.00	Lunch (and networking)
14.00 – 15.30	Simulation Exercises led by Dr. Susie Hester
15.30 – 16.00	Afternoon refreshments
16.00 - 17.00	Group Exercises concluded
Day 3 – 13 February 2019 (Wednesday)	
08.30 – 09:00	Review previous day’s activities led by Dr. Susie Hester
09:00 – 10:30	“Biosecurity, Food Security and Food Sovereignty” by Dr. Sivapragasam
10:30 - 11:00	Morning Refreshments
11:00 – 12:30	“Trade and Market Access” by Dr. Sivapragasam
12.30 – 14.00	Lunch (and networking)
14.00 – 15.30	Group Exercises led by Dr. Sivapragasam
15.30 – 16.00	Afternoon Refreshments
16.00 – 17.00	Simulation Exercises concluded
Day 4 – 14 February 2019 (Thursday)	
08.30 – 09:00	Review previous day’s activities led by Dr. Sivapragasam
09.00 – 10.30	“Community involvement to strengthen food security in Indonesia” by Mr.Bahrudin
10.30 – 11.00	Morning Refreshments
11:00 – 12:30	"Education, Training, and Community Awareness: Capacity Building (Case Study in Subak Bali)" by Dr. Eka Martiningsih
12:30 – 14:00	Lunch

Time	Event
14:00 - 15:15	“Local food to contribute to food security” by Dr. Wiske Rostinsulu
15:15 - 15:45	Afternoon Refreshments
15:45 - 17:00	“Local foods for food security and food sovereignty” by Dra. Lusiawati Dewi, M.Sc.
17:00 – 17:45	Discussion groups (3) led by Dr. Yohanes Martono, M.Sc.
Day 5 – 15 February 2019 (Friday)	
08:30 – 09:00	Review previous day’s activities led by Dr. Titi Susilowati
09:00 – 10:30	“What Happens When Things Go Wrong?” by Dr. Sivapragasam
10:30 – 11:00	Morning Refreshments
11:00 – 12:30	“The Value to Universities and Other Institutions of Collaborating with IBF” by Dr.Suryasatria Trihandaru and Dr. Drs. I Made Sukamerta, M.Pd
12:30 – 14:00	Lunch / prayers
14:00 – 15:30	Future contributions to biosecurity and biodiversity by Participants, led by Dina Banjarnahor, M.Sc.
15:30 - 16:00	Afternoon Refreshments
16.00 – 17:30	Feedback: Consideration of papers to be produced from Master Class led by Prof. Ian Falk
Day 6 - 16 February 2019 (Saturday)	
08:30 – 09:00	Review of the week’s activities led by Dr. Sivapragasam
9:00 – 10:30	“Where to next?” led by Dr Titi Susilowati, Prof. Ian Falk and Dr. Sivapragasam
10:30 – 11:00	Morning Refreshments
11:00 – 12:00	Closing Ceremony and presentation of Master Class Certificates
12:00	Lunch and networking
	Participants depart

Appendix 6: PROGRAM (RMC 2)

Day 1: Monday, 18 November 2019	
International Seminar	
07.30-08.30	Registration for International Conference
08.30-09.00	Conference Opening Ceremony
09.00-09.15	Morning Refreshments
09.15-10.45	Keynote address by Professor Fred Benu, Rector of Nusa Cendana University
	Keynote address by Professor Barry Pogson, Australian National University
	Keynote address by Prof. Enny Sudarmonowati, Indonesian Institute of Sciences (LIPI)
10.45-12.15	Keynote address by Professor Andre Drenth, the University of Queensland
	Keynote address by Dr. Arnaud Costa
	Keynote address by Eng. Lucio Marcel Gomez, M.Eng., Rector of East Timor Coffee Institute
12.15-13.30	Lunch (Prayers or Networking)
13.30-16.00	Three Parallel Sessions, each consists of 10 oral presentation of maximum 15 minute each: Room A : Dryland Production Systems in a Time of Climate Change, and Community Roles in Managing Biodiversity and Biosecurity in a Time of Climate Change. Room B : Biodiversity and Biosecurity Risks and Responses in a Time of Climate Change Room C : Plant Ecosystem and Plant Genetic Diversity and Other related Fields
14.30-14.45	Afternoon Refreshments
16.00-17.00	Synthesis and Closing Ceremony
Day 2: Tuesday, 19 November 2019	
International Master Class	
08.00-08.30	Registration & Briefing about the program
09.00-09.30	Master Class Opening Ceremony
09.30-10.30	Orientation of Master Class and discussion of desired outcomes, led by Professor John Lovett and Dr. I Wayan Mudita
10.30-11.00	Morning refreshments
11.00-12.00	Dryland Production Systems in Nusa Tenggara in a Time of Climate Change, led by Prof. Enny Sudarmonowati.
12.30-13.30	Lunch (and networking)
13.30-14.30	Impact of climate change on dryland systems, led by Professor Barry Pogson
14.30-15.00	Afternoon Refreshments
15.00-16.00	Biosecurity and Biodiversity: why are they important? Interactive discussion with the participants led by Professor Ian Falk and Dr. I Wayan Mudita
16.00-17.00	Workshop Groups 1: Common themes and where we differ Facilitated by Dr. Arnaud Costa
17.00-18.00	Workshop Groups 2: How can we adapt dryland production systems to climate change? Facilitated by Professor Barry Pogson
Day 3: Wednesday, 20 November 2019	
08.00-08.30	Review previous day's activities, led by Professor Ian Falk and Dr. Maria Lobo
08.30-09.30	Participants' Presentations: Impacts of climate change on dryland production systems, facilitated by Professor John Lovett

09.30-10.30	Understanding biosecurity and biodiversity risk in a time of climate change, led by Dr. Arnaud Costa
10.30-11.00	Morning Tea
11.00-12.00	Responses to risk in a time of climate change, led by Dr. Arnaud Costa
12.30-13.30	Lunch (and networking)
13.30-14.00	Simulation Exercises led by Mr. Norman Riwu Kaho (Undana) and Dr. Yosep Seran Mau
14.00-14.30	Banana biodiversity and biosecurity, led by Professor Andre Drenth, the University of Queensland
14.30-15.30	Coffee biodiversity and biosecurity, led by Eng. Lucio Marcel Gomez, M.Eng., Rector of East Timor Coffee Institute
15.30-16.30	Discussion of approaches to these important crops. Lessons for other crops, led by Professor John Lovett.
16.30-17.30	Workshop Groups: How can we help to limit the impact of climate change on dryland cropping systems? led by Dr. Philippi de Rozari (Undana)
17.30-18.00	Assistance on Case Study's writing (RMC Team) (Dr. Antonius Ola and Prof. John Lovett)

Day 4: Thursday, 21 November 2019	
08.00-08.30	Field visit: banana biodiversity, cropping systems, and biosecurity
08.30-09.30	Field visit continued
09.30-10.30	Field visit continued
10.30-11.00	Morning refreshments
11.00-12.00	Field visit return
12.30-13.30	Lunch (and networking)
13.30-14.30	Community Involvement in ensuring biosecurity and protecting biodiversity, by Professor Ian Falk
14.30-14.45	Afternoon Refreshments
14.45-15.45	The Growing Role of Women in Dryland and Other Production Systems, by Ms Linda Susilowati
15.45-16.45	Discussion on role of women and community engagement in biodiversity and biosecurity awareness raising, led by Professor Ian Falk
16.45-17.30	Lessons learned from using social media for community awareness raising of biodiversity and biosecurity, by Mr. I Wayan Nampa and Dr. I Wayan Mudita (Undana)
17.30-18.00	Assistance on Case Study's writing (RMC Team) (Dr. Antonius Ola and Prof. John Lovett)

Day 5: Friday, 22 November 2019	
08.00-08.30	Review previous day's activities, led by Ms. Sri Widi Nugraheni and Dr. Maria Lobo
08.30-09.30	Roles of local food crops in supporting food security in dryland areas, led by Ms. Jenny Markus
09.30-10.30	Promoting Local Food Through Tourism Development, led by Dr. Titi Susilowati
10.30-11.00	Morning refreshments
11.00-12.00	Friday prayer and lunch
12.30-13.30	Friday prayer and lunch
13.30-14.30	Open Access GIS as a tool in managing biodiversity and biosecurity in dryland areas, by Mr. Norman Riwu Kaho (Undana)
14.30-15.00	Afternoon Refreshments

15.00-16.00	Lesson learned from using remote microscope in biodiversity and biosecurity awareness raising in dryland areas, by Mr. Don Kadja (Undana)
16.00-17.00	Discussion on integrating open access GIS, remote microscope, and social media in managing biodiversity and biosecurity in dryland areas, led by Mr. Norman Riwu Kaho (Undana) and Dr. Yosep Seran Mau (Undana)
17.00-17.30	Assistance on Case Study's writing (RMC Team) (Dr. Antonius Ola and Prof. John Lovett)

Day 6: Saturday, 23 November 2019	
08.00-08.30	Review of the week's activities led by Professor John Lovett and Dr. I Wayan Mudita
08.30-10.00	Where to next? led by Professor Ian Falk and Ms Linda Susilowati
10.00 -1030	Morning refreshments
10.30-10.45	The Indonesian Biosecurity Foundation, update by Professor Ian Falk and Dr.Ir.Eka Martuningsih, MS
10.45--11.00	The Australian Plant Biosecurity Science Foundation, update by Professor John Lovett and Dr.Ir.Eka Martuningsih,MS.
11.00-12.00	Closing Ceremony and presentation of Regional Master Class Certificates
12.30-13.30	Lunch and networking
	Participants depart

“Biosecurity and biodiversity: Keys to Promoting Local Food for Food Security and Food Sovereignty”

Introduction A Regional Master Class (RMC) in Plant Biosecurity was conducted in Salatiga, Central Java, Indonesia from 10-16 February 2019. It was hosted by Universitas Kristen Satya Wacana (UKSW) Salatiga, and supported by the Indonesian Biosecurity Foundation (IBF). The theme was *Biosecurity and Biodiversity: Keys to promoting Local food for Food Security and Food Sovereignty*, attracted 21 participants coming from various academic and professional backgrounds.

The objective of the RMC was to ensure that participants had the bigger picture on food security given the local and regional perspective of the issues. Classes consist of lectures, discussion sessions, video presentations, proposal development and group exercises on various biosecurity scenarios. Skills covered include those relevant to the following areas: 1. Market access, biosecurity and food policy; 2. Sustaining agriculture's natural resource base; 3. Global change and risk assessment, and 4. Science communication and information technology.

Day 1:

In the introductory orientation session, participants were given a backdrop on the work to date on biosecurity and food security in Indonesia and their potential possible outcomes. For the first time, participants were also exposed to the issues of food sovereignty. In addition, a presentation was given on the Bilateral Plant Biosecurity Initiative (BPBI): Developing the Indonesian Biosecurity Foundation (IBF) which highlighted the key features of IBF, its objectives and activities.

Participants were informed that biosecurity, as defined by FAO in 2010, is the strategic and integrated approach to analysing and managing relevant risks to human, animal, and plant life and health and the associated risks for the environment. Four strategies were underscored for biosecurity. These were: (1) early warning detection and response, (2) quarantine, trade, and market access, (3) biodiversity and environment, (4) education, training, community awareness. The 4 strategies were discussed broadly with the participants, and based on their topics of interests (trade, customs, government, etc.), each participant was requested to provide a brief proposal on an issue that needed to be fixed. Overall, this exercise provided participants the opportunity to develop a strategy or strategies on a biosecurity-related issue raised at the earlier introductory session either at the local, national, and international levels.

For encouraging group discussions and dynamics, participants were divided to 4 groups. The 4 groups were: Group 1: local food and biodiversity; Group 2: food security, food sovereignty and food safety; Group 3 (Cash crops, food crops, culture and market access) and Group 4 (entrepreneurship, food management, farming systems, and the role of government). Each group deliberated on various topics and reconciled with several lessons and challenges related to biosecurity and biodiversity in Indonesia which were noted for further action. Generally, the three most important things on biosecurity emerged from the group exercise. These were the need for Education, Training, Community Awareness. There is also a need for linking the work undertaken at the various levels to the regional government. It was noted that food security is the goal and biosecurity is how you get to it.

Day 2: covered topics on biosecurity risk and biosecurity response followed by simulation exercises. Several terminologies were discussed such as Biosecurity risk, Hazard, Risk = likelihood consequences etc. Other topics included Undertaking risk analysis; Decision about border biosecurity; Estimating risk via Bayesian network analysis; Simulation modelling, Expert judgement and decision trees. The probability topics included simulation and Scenario. Two categories of decisions were noted: Decision about entry of potentially invasion species (Pre border/ border biosecurity Decision of Control) and on decision of species after they arrived (Post border biosecurity).

Overall participants learnt about the concept of risk, probability risk management, risk assessment; the economic perspective about biosecurity, risk assessment and how it can be calculated for future impact; also predict about the benefits, biosecurity response and risk, and discounting analysis and different way to analysis businesses. It was emphasised that biosecurity is the goal and biodiversity is the tool.

Day 3: Two presentations covered the questions of Biosecurity, food security, and food sovereignty and their consequences on Trade and Market Access. The first presentation emphasised the need for a biosecurity plan and the second on Trade and market access. It was noted that the Biosecurity Plan is a strategic one based on prevention rather than cure. Prevention is done at a much lower cost. It was noted that the breach in biosecurity can be deliberate (mainly human related) or accidental. There are also other mechanisms that cause biosecurity concerns such as unusual climates, migratory birds and farming techniques. Food security is becoming a major concern with climate change and political turbulence. The importance of food sovereignty was highlighted. Several principles were noted; (i) Food for people, not for company; (ii) Value food providers; (iii) Localize food systems; (iv) Make decisions locally; (v) Build knowledge and skills; (vi) Work with nature. Projects and videos were presented to highlight several aspects of biosecurity, food security, the impact of invasive species, trade and market access. This was followed by group exercises and presentations on potential biosecurity problems in smallholder farms due to pests and diseases.

Day 4: there were three presentations which focused on: (i) Education, Training and Community Awareness for capacity building in Subak Bali which highlighted the four elements of nature and water conservation; (ii) How indigenous plants can contribute to food security using Dalugha as an example and (iii) The innovative development of Local foods for food security and food sovereignty using tempe as an example.

Day 5: there were three presentations viz, (i) 'What happens when things go wrong' which examined the consequences of biosecurity lapse using the potential problem of the invasive Fall Armyworm as an example; (ii) the value of Universities such as Mahasaraswati, Bali and UKSW, Salatiga and other institutions collaborating with IBF and (iii) Community involvement to strengthen food security in Indonesia with Pak Bahruddin, Qaryah Thayyibah (QT).

Appendix 8: EVALUATION BY PARTICIPANTS (RMC 1). 18 of 21 participants completed the *pro forma*, supplied.

1. What do you think is the SINGLE most important thing you have learned from the Master Class?
 - *The inseparable concepts of biodiversity, biosecurity, and food security.*
 - *How to value local commodities and cultural heritage as part of biosecurity and biodiversity.*
 - *The need to focus on community awareness to deliver better biosecurity and biodiversity outcomes.*
2. What were the most important aspects of the Master Class Activities for you?
 - *All materials were provided by presenters who are very competent in their field.*
 - *The balance of activities was good – we were involved. Discussion groups (41,2%), presentations/lecturers (23,5%), practical sessions (23,5%)*
3. Was anything you expected missing from the Master Class? If so what would you have liked to have been included?
 - *Field visit – 12 respondees made this nomination.*
4. How has your understanding of biosecurity principles and practices changed as a result of the Master Class?
 - *Significantly, especially that biosecurity is more than just understanding pests and diseases.*
 - *Sharing opinion, discussion, and expert’s experience about real cases that happened in many different areas and sectors enlarged our experience.*
5. Has the range of your professional contacts changed as a result of this Master Class? If so please give examples of what has happened.
 - *Absolutely, we met different people from many different sectors and backgrounds including all the speakers. 14 respondees were of this view – more ‘junior’ respondents felt that this would take time.*
6. How do you propose to pass on the information you have learned to colleagues in your home institution?
 - *Report, presentation, discussion and publish an article in home institution’s magazine.*
 - *Community workshops will be useful.*
7. Will it be difficult to implement the knowledge you have learned from the Master Class in your home institution? If so, please provide details.
 - *General view: No!!*
 - *However, some respondees felt that it may be more difficult to engage top management than farmers.*
8. What should be done now to reinforce the activities of this Master Class?
 - *Offer more RMC.*
 - *Regular meeting of RMC network, sharing information, building projects together.*
9. Were the accommodation, meals and general arrangements appropriate? If not, please provide details.
 - *Very appropriate.*
 - *Better adjustment for Moslem prayer time.*
10. If we ran the Master Class again, what changes would you recommend?
 - *Field trip (see 3, above).*
 - *Add more ‘sustainable agriculture’ content.*
 - *Include a little more ‘ice-breaking’ time.*
11. Are there any other comments you would like to make?
 - *“It was implemented so great and has major contribution to Indonesian people”.*
 - *The network that we get and build from RMC is priceless.*
 - *RMC need to be implemented in many regions in Indonesia.*

Appendix 9: EVALUATION BY PARTICIPANTS (RMC 2)

Responses were generally very consistent and are summarised, here (n=21). Some key words, emphasised in the MC, are high-lighted.

1. What do you think is the SINGLE most important thing you have learned from the Master Class?
*Getting new information and deep understanding of issues. **Multidisciplinary** approaches are critical. Importance of promoting **awareness** of issues. **Relationships** and **networking** are vital. We are dealing with problems for EVERYBODY.*
2. What were the most important aspects of the Master Class Activities for you?
*Opportunity to present – and write. Value of different points of view. Field visit. **Sharing knowledge and experience**. Quality of material provided by Presenters.*
3. Was anything you expected missing from the Master Class? If so, what would you have liked to have been included?
Nothing missing but more time for discussion and practice with ‘tools’ e.g. GIS would be valuable. Also, more technical group discussions. Presenters could bring videos of their own research to demonstrate to Participants.
4. How was your understanding of the issues raised changed as a result of the Master Class?
*Previously unaware of many issues – and how the MC topics relate to each other e.g. climate change in relation to pests and diseases. Understanding means we can now **influence**. Before Master Class thinking was ‘how can we solve climate change issue?’s. Now, ‘how can we adapt our systems to deal with them’.*
5. Has the range of the of your professional contacts changed as a result of this Masterclass? If so please give examples of what has happened?
Exposed to people of many different backgrounds and have a much wider network. Am now better equipped to make village communities more aware of biosecurity and biodiversity issues
6. How do you propose to pass on the information you have learned to colleagues in your home institution?
Sharing. Seminars and discussion in home institute. Local media and social media. Community presentations.
7. Will it be difficult to implement the knowledge you have learned from the Master Class in your colleagues and/or home institution? If so, please provide details.
Range of responses “not at all” to “difficult”. ‘Step by step’ approach needed to get attention and teach some unfamiliar topics. Free access to ‘tools’ (e.g. GIS) could be an issue. Different issues concern different people and meeting individual ‘tri dharma’ will be important (teaching, research and community service)
8. What should be done now to reinforce the activities of this Master Class?
We need to remain connected and to engage people from other backgrounds. Future meetings to maintain linkages and enhance knowledge. Field demonstrations important for villages.
9. Were the accommodation, meals and general arrangement appropriate? If not, please provide details.
“The Committee is terrific”. Accommodation and meals excellent. One query on ‘service’ and poor internet.
10. If we ran the Master Class again, what changes would you recommend?
Better advance understanding of what would be expected of Participants. More time for preparation before Master Class. More time for discussion and field visits. Opportunity to practice with ‘tools’. More time for paper preparation – one-on-one sessions with Presenters early in Master Class. Maybe have an evaluation each day to test understanding. Increase

social science content. "I would love to run in another city of Indonesia so we can meet scholars from other fields".

11. Are there any other comments you would like to make?

Thanks to the Organising Committee and Presenters. Thanks to the APBSF. It would be good to take the Master Class to the field. A Master Class with Participants from all over Indonesia would be excellent.

PUBLICATION *'Biosecurity and Biodiversity: Keys to Promoting Local Food for Food Security and Food Sovereignty'*, eds. John Lovett, Titi S. Prabawa, Linda Susilowati and Ian Falk © APBSF 2019.

9. Plain English Summary

Following a successful International Master Class (IMC) sponsored by The Crawford Fund and The Plant Biosecurity Cooperative Research Centre (PBCRC), held in Denpasar, Bali, in January 2018 a number of proposals was received to mount Regional Master Classes (RMC). A novel concept, a RMC would be based on co-funding with a local host, typically, a university; would focus on specific interests in biosecurity in defined regions of the archipelago, and would providing expert training and network development in a cost-effective manner.

Hosted by Universitas Kristen Sacaya Watana (Salatiga) the inaugural RMC was supported by The Crawford Fund, the Centre for Agriculture and Biosciences International (CABI), the Centre of Excellence for Biosecurity Risk Analysis (CEBRA) and the APBSF. 21 Participants, primarily from Java, and representing a diverse range of public and private sector interests, gathered in Salatiga 10 to 16 February. The Program comprised a mix of presentations by Indonesian and international speakers; workshops and exercises; development of four projects for which resources are being sought, and the preparation of brief papers based on the Participants' own biosecurity experiences. These papers have been published by the Foundation.

23 'early career' Participants drawn, principally, from East Nusa Tenggara gathered in Kupang for RMC 2 (18 to 23 November 2019). Principal support came from the host university, Universitas Nusa Cendana (UNDANA), and the Foundation. The Program followed the Salatiga model with the exception of Day 1 which, at the request of the Rector UNDANA, was presented as an International Conference.

Since the Participants represented diverse public and private sectors good progress was made towards achieving the project's objective of creating a new cohort of biosecurity-aware individuals and organisations. This network will link with the existing network developed by bilateral investments by the PBCRC in collaboration with Indonesian colleagues (2015-present). While the bilateral relationship will be enhanced, the involvement of CABI, CEBRA and The Crawford Fund will strengthen the Foundation's objective of raising its international profile.

10. Acknowledgements

The track record of UKSW in bilateral biosecurity activities was enhanced by its outstanding performance as host of the inaugural Regional Master Class (RMC 1). With support from Rector Dr Neil Rupidara, Dr Suryasatria Trihandaru, Dr Titi Susilowati and Ibu Linda Susilowati worked, tirelessly, with colleagues through the planning, execution and reporting phases. All Presenters (Appendix 1) made significant contributions. Special thanks are due to Dr Jerry Tambun (Chairman, IBF) and Dr. Drs I Made Sukamerta (Rector, UNMAS) long term supporters of bilateral activities.

Owing to indisposition the author was unable to attend RMC 1 in person. Professor Ian Falk willingly assumed many extra duties while fulfilling his role as a presenter and as a link to IBF. He was assisted by Dr Siva who assumed a coordinating role, as evidenced by his review (Appendix 7). As at the IMC held in Bali (2018) Dr Susie Hester (CEBRA) provided complementary disciplinary expertise.

Since 1992, The Crawford Fund has supported more than 50 Master Classes in 14 countries across Africa, the Asia-Pacific and Australia. Following the successful IMC held in Denpasar in 2018 Dr Colin Chartres (Chief Executive Officer) and Professor Shaun Coffey (Director of Training and Master Classes) approved this test of a shorter, focussed regional approach. The APBSF joined The Crawford Fund in providing financial support to complement that of UKSW.

As host for RMC 2 UNDANA provided very strong support through Rector Professor Fred Benu; Dr I Wayan Mudita, Vice Rector and a seasoned time collaborator with CRCNPB, PBCRC and the Foundation, and Dr Maria Lobos, Chair of the UNDANA Organising Committee the members of whom – including Ir Yosep Seran Mau, Ir Jenny E Markus and I Wayan Nampa - provided exemplary back up to all aspects of the RMC activities

Finally, the Participants in both RMCs contributed ideas and input which will further enhance the bilateral activities and network which is helping to promote biosecurity as a major national issue for Indonesia, and an issue which impacts internationally, not least on its near neighbours.

Sincere appreciation and thanks for this collaborative effort are extended to all of the above.



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