The First International Conference on Sustainable Plantation: Better Environment with Better Prosperity, Harmonization of Humankind and Nature.

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Abstract. The first International Conference for Sustainable Plantation (First ICSP) was conducted at IPB International Convention Center (IICC), Bogor, Indonesia. It was conducted to facilitate exchanges among estate crops researchers about the advance progress in estate crop research. The first ICSP was an immense success and attracting as many as 192 attendants. The participants were from Australia, Croatia, India, Indonesia, Japan, Malaysia, and the Netherlands. One hundred one presentations were presented in the first ICSP, by scientists from Indonesia, Japan, Australia, India and the Netherlands. The major estate crops and plantations presented in the first ICSP include: cocoa, coconut, coffee, nutmeg, oil palm, rubber, pepper, sago palm, sugar cane, sugar palm, tea, and other miscellaneous plantation crops and research areas related to the crops.

Keywords: The First ICSP 2019, Estate Crops, Industrial Crops, Plantation Crops, Research and Development

1. Introduction

The contribution of plantation sectors to the total agricultural commodities in Indonesia [1] are significant in the form of job opportunities and export earnings. The major plantation crops, such as: cacao, coconut, coffee, oil palm, rubber, sago palm and tea will continue their significant contribution to the economy of many tropical countries [2] in the future and most of the tropical countries will still be the world leading producers of the major plantation crops. As in any agricultural sector, plantations are labour intensive [3,4]. Reliable work force supply has become one of the major constrain in plantation crops [5,6], resulting in a huge dependency on capacity development of the worker.
Human capital will become the major factor determining the success and sustainability of the plantation since it’s greatly dependent on the availability and skill of the human resources. Education and training related to the plantation industry are niche programs to ensure the sustainability of the estate sector. Mechanization of plantation operations may be an alternative route to solve many labour shortage problems, improve estate crop yield quantity and quality.

Other innovations and technologies are also needed once the development and improvement of the plantation industry [7,8]. Plantation development must actively engage to the technology innovation which contribute to more socio-economic values, maintain and improve more sustainable agricultural ecosystem.

The first International Conference on Sustainable Plantation (ICSP) is conducted because of those many challenges to estate industry in the near future. The first ICSP is initiated by IPB University (Bogor Agricultural University) in collaboration with the Indonesian Research Institute for Estate Crops (IRIEC), Indonesian Agency for Agricultural Research and Development (IAARD), Ministry of Agriculture, Republic of Indonesia. The first ICSP is also supported by Indonesian Palm Research Institute, Indonesian Industry and Freshener Crops Research Institute (IFCRI), Indonesian Spice and Medicinal Crops Research Institute (ISMCR), and Indonesian Sweetener and Fiber Crops Research Institute (ISFCRI). Active roles of a few international society, such as Indonesian Society for Agronomy (PERAGI), International Southeast Asia Agricultural Scientist (ISAAS), the Japanese Society for Tropical Agriculture (JSTA), and the Society of Sago Palm Studies (SSPS) are also acknowledged.

2. The Aims of the first ICSP

The aims of the first ICSP were:

1. to create medium for scientific forum to discuss the latest technology developments in estate and plantation crops,
2. to advocate join efforts to increase the competitiveness of the major and strategic plantation commodities of Indonesia,
3. to encourage and facilitate networking for Indonesian researchers, especially the IPB academic community and IRIEC researchers with the relevance international scientific communities,
4. to mediate publication of research results conducted by IPB academic community and the IRIEC researchers in the form of SCOPUS Index – international scientific proceeding.

3. The activities of the first ICSP

The first ICSP activities consisted of a keynote address, plenary sessions, parallel sessions and fieldtrip to both an estate crop company and and a research institute near Bogor. Various aspects related to the plantation crops were presented during the first ICSP conference. The presentations covered many estate crops, such as: cocoa, coconut, coffee, nutmeg, oil palm, rubber, pepper, sago palm, sugar cane, sugar palm, tea, and other miscellaneous plantation crops and research areas related to plantation crops.

4. The time and venue of the first ICSP

The first ICSP was conducted in the IPB International Convention Center (IICC), IPB University, Bogor, West Java, Indonesia on 20 – 22 August 2019.
5. The participants of the first ICSP

The total participants attending the first ICSP were approximately 192 attendants, consisted of invited speakers, presenters, and organizing committee members. Excluding the organizing committee members, the participants represented the ABG-C, the Academics (i.e. lecturers, students and researchers), the Business (i.e. estate crops upstream to downstream industry, financial institutions, marketing agency), the Government (i.e. administrator/government officials, legislators), and the Community (i.e. estate crop farmers, environment and economy commentators, non-governmental organizations). Breakdown of the total participants of the First International Conference on Sustainable Plantation (ICSP – 2019) based on their affiliations is presented in Figure 1. Meanwhile, breakdown of the country of origin of the First International Conference on Sustainable Plantation (ICSP – 2019) participants is presented in Figure 2.

The total presentation at the first ICSP were approximately 102 presentations, consisted of one keynote speech from Ministry of Agriculture, Republic of Indonesia, nine invited speakers, and 93 parallel scientific presentations. Breakdown of total total numbers and country of origins of scientific presentations in the first ICSP – 2019 is presented in Figure 3. Meanwhile, breakdown of the affiliated institutions of scientific presentations in the first ICSP – 2019 is presented in Figure 4.

![Pie chart showing the breakdown of total participants of the First International Conference on Sustainable Plantation (ICSP – 2019) participants at IPB International Convention Center (IICC), Bogor Agricultural University, Bogor, Indonesia.]

Figure 1. Total participants of the First International Conference on Sustainable Plantation (ICSP – 2019) participants at IPB International Convention Center (IICC), Bogor Agricultural University, Bogor, Indonesia.
Figure 2. Total numbers and country of origins of the First International Conference on Sustainable Plantation (ICSP – 2019) participants at IPB International Convention Center (IICC), Bogor Agricultural University, Bogor, Indonesia.

Other than keynote speech and invited speakers, there were total of 92 paper presentations in the first ICSP 2019, grouped into eight topics such as: I. Cacao, Coffee and Tea, II. Clove, Cinnamon, and Nutmeg, III. Coconut and Sugar Palm, IV. Oil Palm, V. Pepper, VI. Sugarcane, VII. Miscellaneous Crops, and VIII. Miscellaneous Research. List of the number of paper presentations based on their estate crops and the miscellaneous research topic were presented in Figure 5.
Figure 4. Total numbers and institution associations of the First International Conference on Sustainable Plantation (ICSP – 2019) presenters at IPB International Convention Center (IICC), Bogor Agricultural University, Bogor, Indonesia.

Figure 5. Total numbers, crops and other research aspects of paper presentations in the First International Conference on Sustainable Plantation (ICSP – 2019) at IPB International Convention Center (IICC), Bogor Agricultural University, Bogor, Indonesia. Note: I. Cacao, Coffee and Tea, II. Clove, Cinnamon, and Nutmeg, III. Coconut and Sugar Palm, IV. Oil Palm, V. Pepper, VI. Sugarcane, VII. Miscellaneous Crops, and VIII. Miscellaneous Research Topics.
Table 1. List of invited speakers and their title of presentation in the First International Conference on Sustainable Plantation (ICSP) on 20 August 2019, at IPB International Convention Center, Indonesia

| Nema, institution and country of origin | Title of presentation |
|----------------------------------------|-----------------------|
| **Plenary Session 1:**                |                       |
| Prof. Dr. M. Meine van Noordwijk      | Sustainable palm oil: dissecting a global debate |
| Chief Scientist World Agroforestry Centre (ICRAF) | Country: Netherland |
| Prof. Purwiyatno Hariyadi             | Food and nutrition safety issues: challenges and opportunities for Indonesian palm oil |
| Vice Chairperson Codex Alimentarius Commission, Senior Scientist SEAFAST Center, IPB and Profesor at Department of Food Science and Technology, IPB University | Country: Indonesia |
| Mr. Agam Fatcurrohman                 | Sawit Indonesia: more sustainable |
| Vice Secretary of the Indonesian Palm Oil Association (GAPKI-IPOA) | Country: Indonesia |
| **Plenary Session 2:**                |                       |
| Dr. Robert Magarey                    | Sugar cane: an old plantation crop that offers new environmentally friendly possibilities |
| Sugar Research Australia              | Country: Australia |
| Prof. Hiroshi Ehara                  | Sago: sustainable production and utilization of sago palm resource |
| President The Society of Sago Palm Studies (SSPS) | Country: Japan |
| Deepthi Nair                          | Coconut: global scenario on sustainable coconut development |
| Coconut Development Board, Ministry of Agriculture and Farmers Welfare, Government of India | Country: India |
| **Plenary Session 3:**                |                       |
| Dr. Agus Purwantara                  | Cocoa: Global Industry in Cocoa |
| Senior Scientist, Mars Symbioscience Indonesia | Country: Indonesia |
| Prof. Agus Pakpahan                  | Nutmeg: Indonesian’s nutmeg for the world, synergising consumers need while increasing farmer’s welfare |
| Indonesian Agency for Agricultural Research and Development (IAARD), Ministry of Agriculture. | Country: Indonesia |
| Ms. Namiko Ikeda                      | Tea: Tea production in Japan and in the world |
| National Agriculture and Food Research Organization (NARO) | Country: Japan |

The first ICSP 2019 also invited nine scientists working with estate crops from many different countries. List of invited speakers, their institution affiliation, country of origins and title of their presentations were presented in Table 1. A few of the invited speaker presentations were included in the proceedings.
6. Conclusions

The first International Conference for Sustainable Plantation (The first ICSP) was an immense success and attracts as many as 192 attendants. The participants were from seven countries (Indonesia, Japan, Malaysia, Australia, Croatia, India, and the Netherlands). As many as 101 presentations were presented in the first ICSP, discussing sustainable development of many estate crops by scientists from five countries (Indonesia, Japan, Australia, India and the Netherlands). The major estate crops and plantations presented in the first ICSP include: cocoa, coconut, coffee, nutmeg, oil palm, rubber, pepper, sago palm, sugar cane, sugar palm, tea, and other miscellaneous plantation crops and research areas related to the crops.

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