



Food and Agriculture  
Organization of the  
United Nations



The International Treaty  
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



EUROPEAN UNION  
EUROPEAN REGIONAL  
DEVELOPMENT FUND

## **Technical Report**

# **The International Conference on Boosting Big Data for Plant with Digital Identifier**

**Bali, Indonesia**

**12-13 June, 2019**

**Indonesian Center for Agricultural Biotechnology and  
Genetic Resources Research and Development  
(ICABIOGRAD)**

**Indonesia Agency for Agricultural Research and  
Development  
(IAARD)**

**Ministry of Agriculture  
2019**

## **INTRODUCTION**

The International Conference on Boosting the Big Data for Plant with digital Identifier has been conducted in Inna Kuta Inn Hotel, Kuta, Bali, Indonesia from 12-13 June, 2019. The conference program was part of the project W3B-PR-29-Indonesia: Multi-country Construction of a Test Platform for the Development and Allocation of Unique Identifiers to Rice Germplasm. The training was organized by Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD) as project leader. The objectives of the conference were to present, share and further discuss the implementation of a multi-country platform for the allocation of Digital Unique Identifier for rice germplasm, and the way it is boosting big data services. The expected output was to get a Wider knowledge on the advantages of the Digital Object Identifiers applied to rice germplasm to support its management and exchanges.

The conference was participated by 45 participants from 11 countries. Among the international participants are representatives from participating countries that were participated in the DOI implementation. Those participants, i.e. representatives from Malaysia, Philippines, Zambia (former training participants of the first International training batch) and Burundi, Bangladesh, Lao, and Myanmar (former training participants of the second batch) were invited to present and share their experience on the DOI implementation. Other international participants were from Tanzania and Vietnam whose invited to present paper on the related topic. National participants were also invited to presenting either experience of the DOI implementation and / or another topic related to the germplasm and data management and distribution.

## **THE CONFERENCE PRESENTATION**

The agenda of the conference including plenary speech, paper presentations of the participants, and discussion. The conference was opened by Director of ICABIOGRAD, Dr. Mastur. The plenary session presenting the main theme on the latest technology related to the fourth industrial revolution and the linking and discovering plant breeding materials and associated information with digital identifier.



Fig.1. Group picture of the participants of the conference

The whole presentation during the workshop was documented in the institutional repository. There were 35 papers presented during the workshop. The manuscripts were expected to be published as proceedings, and the review is ongoing. The draft is attached separately in the technical report.

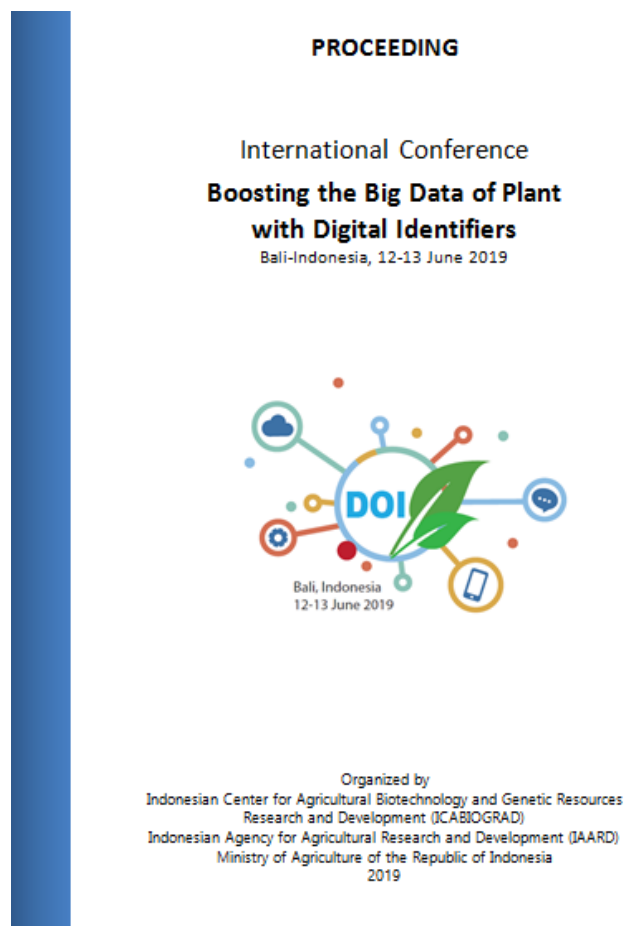


Fig. 2. Cover of the draft of proceedings

## **DISCUSSION**

There was growing discussion during the conference. The main topic of the discussion was related to the future plan of the DOI implementation. The concept of the DOI were broadly accepted and the implementation were appreciated. Parties were strongly support the continuation of the related project for expanding the scope of the DOI implementation. Further benefit will be achieved if this concern could be accommodated by the ITPGRFA secretariat.

## Annex-1: Agenda of the conference.

<b>Day-1: Wednesday, June 12, 2019</b>		
07.30 – 08.15	Registration	Organizer
08.15 – 08.45	<b>Opening of the conference</b> Indonesia National Anthem Report from the organizer Opening remark Pray	Ir. Mastur, M.Si., Ph.D. Dr. Ir. Fadjri Djufri, M.Si Ir. Achmad Rafieq, M.Si
08.45 – 09.00	Group Picture	
09.00 – 10.30	<b>Morning session-Plenary 1</b>	Moderator: Dr. M.Sabran Rapporteur: Dr. Dani Satyawan
	1. The Fourth Industrial Revolution and Embracing the Latest Technologies to Support Crop Production Systems and Sustainable Agriculture	Dr. Haryono, BINUS Indonesia
	2. Linking and Discovering Plant Breeding Materials and Associated Information with Digital Object Identifier	Mr. Marco Marsella; ITPGRFA
	3. DOIs and IPR metadata for Genomic and Phenomic Data	Dr. Puji Lestari; ICABIOGRAD Indonesia
	Discussions	
10.30 – 11.00	Coffee break	
11.00 – 12.00	<b>Afternoon session-Plenary 2</b>	Moderator: Dr. Haryono Rapporteur: Mr. Hakim Kurniawan
	1. Dynamic and Implication of Rights on Plant Genetic Resources	Ir. Mastur, M.Si., Ph.D.; ICABIOGRAD Indonesia
	2. Multi-country Construction on a Test Platform for Assignment of Digital Object Identifiers on Rice Germplasm	Dr. Muhamad Sabran; ICABIOGRAD, IAARD, Ministry of Agriculture, Indonesia
	Discussions	
12.00 – 13.30	Lunch break	
13.30 – 14.45	<b>Afternoon session -1</b>	Moderator: Mr. Hakim Kurniawan Rapporteur: Ms. Rerenstradika TT
	1. Diversity of DOI Registered Rice Landraces from Southeast Asia for Genetic Improvement	Dr. Dwinita Wikan Utami; ICABIOGRAD Indonesia
	2. PhilRice GEMS Database: Its Upgrade and Impact	Mr. Malvin Duldulao; Philippines
	3. Characterization of Butterfly Pea as a Model of Underutilized Crop Management in Indonesia	Dr. Agung Karuniawan; UNPAD Indonesia
	4. MARDI Agrobiodiversity Information System (AgroBIS) to Support Plant Genetic Resources for Food and Agriculture (PGRFA) Conservation in Malaysia	Mr. Azuan bin Amron; Malaysia
	5. Digital Object Identifier for Local Rice Genetic Resources of Central Kalimantan	Dr. Susilawati; AIAT Central Kalimantan Indonesia
	Discussions	
14.45 – 16.00	<b>Afternoon session -2</b>	Moderator: Dr. Puji Lestari Rapporteur: Ms. Andari Risliawati
	1. NGS-based Genomic Characterization of Agriculturally Important PGR to Support National Breeding Program	Dr. I Made Tasma; ICABIOGRAD Indonesia
	2. Current and Future of DOI Implementation in the Lao National Genebank	Dr. Koukham Vilayheuang; Lao PDR
	3. The Four Yogyakarta Local Rice Superiority Registered by Digital Object Identifier	Ms. Setyorini Widayanti; AIAT Yogyakarta Indonesia

<b>Day-2: June 13, 2019</b>		
08.00 – 09.15	<b>Morning session-1</b>	Moderator: Dr. Dani Satyawan Rapporteur: Ms. Rerenstradika TT
	1. Status of Plant Genetic Resources Conservation and Digital Object Identifiers Registration for Rice Germplasm in Zambia	Dr. Munkombwe Graybill
	2. The Possible Efficient and Effective Management and Use of Genetic Resource in Indonesia	Dr. Taryono; UGM Indonesia
	3. Erosion of Genetic Variation of Upland Rice on Meratus Mountainous in South Kalimantan	Mr. Achmad Rafieq; AIAT South Kalimantan Indonesia
	4. Accelerating DOI Registration of PGRFAs of Asian and African Countries through Toolkit Dissemination	Mr. Hakim Kurniawan; ICABIOGRAD Indonesia
	5. Significance of Digital Object Identifiers for Plant Genetic Resources Management and Utilization (Video message)	Dr. Asif Javaid; Pakistan
	Discussions	
09.15 – 09.30	<b>Coffee break</b>	
09.30 – 10.45	<b>Morning session-2</b>	Moderator: Dr. Dwinita W. Utami Rapporteur: Ms. Rerenstradika TT
	1. DOI Implementation for the Rice Germplasm of BRRRI Genebank: Present and Future Aspects	Dr. Armin Bhuiya; Bangladesh
	2. Genetic Diversity of Shallot ( <i>Allium cepa</i> var <i>aggregatum</i> ) in Indonesia Based on Morphology, Molecular, and Metabolomic Markers	Dr. Awang Maharijaya; IPB Indonesia
	3. Present and Future Aspect of In Vitro Conservation Research in IAARD	Dr. Ika Roostika; ICABIOGRAD Indonesia
	4. Rice Genetic Resource Management for Supporting Indonesia Agriculture in Industrial 4.0: Case Study in Indonesian Center for Rice Research (ICRR)	Dr. Indria Wahyu Mulsanti; ICRR Indonesia
	5. Digital Object Identifiers for Easy Assessing Information and Exchange of Germplasm (Video message)	Dr. Min San Thein; Myanmar
	Discussions	
10.45 – 11.30	<b>Morning session-3</b>	Moderator: Dr. Nurul Hidayatun Rapporteur: Ms. Andari Risliawati
	1. The Implementation of Digital Object Identifiers on Germplasms at the Genebank of CARDI	Dr. Phanna Phat; Cambodia
	2. Improvement of Rice Resistant to Important Rice Virus Disease with Beneficial of Indonesian Local Variation	Dr. Tri Puji Priyatno; ICABIOGRAD Indonesia
	3. DOI Registration of Lombok Local Rice in West Nusa Tenggara Towards the Farmers Welfare	Ms. Fitrahtunnisa; AIAT NTB
	Discussions	
11.30 – 12.00	<b>Closing</b>	
12.00	<b>Lunch</b>	

## Annex-2. List of participants contributing in the conference

No	Name	Affiliation
1	Dr. Ir. Fadjri Djufri, M.Si	Indonesian Agency of Agricultural Research and Development (IAARD)
2	Dr. Mastur	Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD)
3	Dr. I Made Rai Yasa, M.Si	Bali Assessment Institute of Agricultural Technology
4	Dr. Haryono	Universitas Bina Nusantara
5	Mr. Marco Marsella	Secretariat ITPGRFA
6	Dr. Munkombwe Graybill	National Plant Genetic Resources Zambia
7	Mr. Malvin Duldulao	Philippine Rice Research Institute (PhilRice)
8	Dr. Koukham vilayheuang	Rice Research Center, NAFRI
9	Dr. Armin Bhuiya	Bangladesh Rice Research Institute
10	Dr. Phanna Phat	Cambodian Agricultural Research and Development Institute
11	Dr. Gladness Elibariki Temu	Department of Molecular Biology and Biotechnology, University of Dar es Salaam, Tanzania
12	Mr. Jean Claude Bigirimana	Institut des Sciences Agronomiques du Burundi (ISABU)
13	Dr. Vu Dang Toan	Research Planning and International Cooperation Department, Plant Resources Center, VAAS, MARD
14	Mr. Azuan bin Amron	Malaysian Agricultural Research and Development Institute (MARDI) Genebank
15	Dr. Asif Javaid	Plant Genetic Resources Program, Bio-resources Conservation Institute, National Agricultural Research Center, Islamabad, Pakistan
16	Dr. Min San Thein	Myanmar Seed Bank Department of Agricultural Research
17	Dr. Taryono	Agricultural Faculty of Gadjah Mada University
18	Dr. Agung Karuniawan	Agricultural Faculty of Padjajaran University
19	Dr. Awang Maharijaya	Agricultural Faculty of IPB University
20	Dr. Susilawati	Central Kalimantan Assessment Institute of Agricultural Technology
21	Ms. Setyorini Widayanti	Yogyakarta Assessment Institute of Agricultural Technology
22	Ms. Fitrahtunnisa	West Nusa Tenggara Assessment Institute of Agricultural Technology
23	Mr. Achmad Rafieq	South Kalimantan Assessment Institute of Agricultural Technology
24	Dr. Indria Wahyu Mulsanti	Indonesian Center for Rice Research (ICRR)
25	Dr. M. Sabran	Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD)
26	Dr. Puji Lestari	ICABIOGRAD
27	Mr. Hakim Kurniawan	ICABIOGRAD
28	Dr. Nurul Hidayatun	ICABIOGRAD
29	Dr. I Made Tasma	ICABIOGRAD
30	Dr. Dwinita Wikan Utami	ICABIOGRAD
31	Dr. Dani Satyawan	ICABIOGRAD
32	Dr. Ika Roostika	ICABIOGRAD
33	Dr. Tri Puji Priyatno	ICABIOGRAD
34	Dr. Dodin Koswanudin	ICABIOGRAD

### Annex-3: List of materials presented during the conference

**Haryono Soeparno**

The Fourth Industrial Revolution and Embracing the Latest Technologies to Support Crop Production Systems and Sustainable Agriculture

**Marco Marsella**

Linking and Discovering Plant Breeding Materials and Associated Information with Digital Object Identifier

**Puji Lestari, Shakeel Bhatti, Muhamad Sabran**

DOIs and IPR metadata for Genomic and Phenomic Data

**Mastur, Ika Roostika, Dwinita Wikan Utami, and Puji Lestari**

Dynamic and Implication of Rights on Plant Genetic Resources

**Muhamad Sabran, Hakim Kurniawan, and Nurul Hidayatun**

Multi-country Construction on a Test Platform for Assignment of Digital Object Identifiers on Rice Germplasm

**Dwinita Wikan Utami, Puji Lestari, Rerenstradika Tizar Terryana, Karden Mulya**

Diversity of DOI Registered Rice Landraces from Southeast Asia for Genetic Improvement

**Malvin Duldulao, Marilyn Ferrer, Maria Cristina V. Newingham, Jonathan Niones, Xavier Greg Caguia, Loida Perez, and Gabriel Romero**

PhilRice GEMS Database: Its Upgrade and Impact

**Agung Karuniawan, Trixie Almira Ulimaz, Debby Ustari, Tarkus Suganda, Vergel Concibido**

Characterization of Butterfly Pea as a Model of Underutilized Crop Management in Indonesia

**Azuan Bin Amron, Site Noorzuraini Binti Abd Rahman, Muhammad Izzat Farid Bin Musaddin, Muhammad Luqman**

**Hakim Bin Muhammad Fuad, Mohamad Zulkifly Bin Zakaria, Mohd Shukri Bin Mat Ali@Ibrahim, Rosliza Binti Jajuli, Mohamad Zabawi Bin Abdul Ghani**

MARDI Agrobiodiversity Information System (AgrobIS) to Support Plant Genetic Resources for Food and Agriculture

(PGRFA) Conservation in Malaysia

**Susilawati and Muhamad Sabran**

Digital Object Identifier for Local Rice Genetic Resources of Central Kalimantan

**I Made Tasma**

NGS-based Genomic Characterization of Agriculturally Important PGR to Support National Breeding Program

**Koukham Vilayheuang, Chanthakhone Boualaphanh, Chay Bounphanousay**

Current and Future of DOI Implementation in the Lao National Genebank

**Setyorini Widayanti, Kristamtini and Nurul Hidayatun**

The Four Yogyakarta Local Rice Superiority Registered by Digital Object Identifier

**Dang Toan Vu and The Duc Ngo**

Conservation and Exploration of Plant Genetic Resources in Vietnam

**Dani Satyawan**

Genomic Information as Potential Descriptor of Genetic Resources

**Jean Claude Bigirimana**

Enormous Data Enhancement with Digital Identifiers (DOI)

**Nurul Hidayatun, Hakim Kurniawan, Andari Risliawati, Nurwita Dewi, Try Zulchy Prasetyo, Muhamad Sabran**

Documentation System to Support Conservation and Utilization of PGRFA Collection in ICABIOGRAD Genebank

**Gladness Temu**

Sustainable Use of Genetic Resources in Cassava through Knowledge Exchange Platforms Supported by DOI System

**Puji Lestari, Muhamad Sabran, Mastur**

Dematerialization of Genetic Resources: Agricultural Biotechnology Trends

**Dodin Koswanudin, Yusi Nurmalita Andarini, Andari Risliawati, and Nurul Hidayatun**

Potential Benefit of DOI Assignment for Seed Production Labelling

**Graybill Munkombwe**

Status of Plant Genetic Resources Conservation and Digital Object Identifiers Registration for Rice Germplasm in Zambia

**Taryono, Supriyanta, Siwi Indarti, R.R. Rahmi Sri Sayekti, and Puput Noviyani**

The Possible Efficient and Effective Management and Use of Genetic Resource in Indonesia

**Achmad Rafieq, Muhammad Yasin, and Aidi Noor**

Erosion of Genetic Variation of Upland Rice on Meratus Mountainous in South Kalimantan

**Hakim Kurniawan, Nurul Hidayatun and Muhamad Sabran**

Accelerating DOI Registration of PGRFAs of Asian and African Countries through Toolkit Dissemination

**Asif Javaid**

Significance of Digital Object Identifiers for Plant Genetic Resources Management and Utilization