Collaboration in Research, Training and Knowledge Management Towards Sustainable Development of the Ocean and Coasts: 

*IPB’s Role in Indonesia’s SDG Goals Achievement*

Dr. Arif Satria (Rector of IPB)

Bogor Agricultural University/IPB
Outline

01 | Short Introduction on IPB
02 | Existing International Network of IPB
03 | Role of higher education in achieving SDG’s goals
04 | Potential future cooperation
05 | Closing remarks
Introduction on IPB
Bogor Agricultural University was grounded on the thought of Indonesia’s founding fathers that agriculture and agricultural universities have a very important role in economic development to build prosperous country.
IPB Vision 2019 - 2045
To become a foremost **techno-socio entrepreneurial university** to strengthen national dignity through globally excellent higher education in tropical agriculture, marine and biosciences

**IPB Mission**
- To implement an excellent **higher education, professional with entrepreneur character student** in tropical agriculture, marine and biosciences.
- To conduct **excellent research for the development of science and technology** in tropical agriculture, marine and biosciences for national benefits.
- To **transform research, science and IPB excellent culture** for sustainable enlightenment, national benefit and life quality.
IPB on Structure

9 Faculties
- Agriculture
- Veterinary Medicine
- Fisheries and Marines
- Animal Science
- Forestry
- Agricultural Engineering
- Mathematics and Natural Sciences
- Economics and Management
- Human Ecology

3 Schools
(Vocational School, Business School, Graduate School)

24 Research Centers
- Surfactant and Bioenergy Research Center (SBRC)
- Center for Area Development Planning and Studies (P4W)
- Center for Coastal and Marine Resources Studies (PKSPL/CCMRS)
- Center for Primate Animal Studies (PSSP)
- Center for Tropical Horticulture Studies (PKHT)
- Center for Tropical Animal Studies (CENTRAS)
- Center for Human Resources Development (P2SDM)
- Center for Tropical Biopharmaceutical Studies (Trop BRC)
- Center for International Studies on Applied Monetary and Economic (inter CAFE)
- Center for Conflict Resolution Studies (Care)
- Center for Business Incubation and Entrepreneurship Development (IncuBie)
- Center for Climate Risk Opportunity and Management – South East Asia and Pacific (CCROM-SEAP)
- Center for Reclamation Studies (Reklatam)
- Center for Disaster Management Studies
- Center for Syariah Business and Economic Studies (CI-BEST)
- Center for Gender and Child Studies (PKGA)
- Center for Agrarian Studies (PSA)
- Center for Halal Science Studies
- Center for Transdisciplinary and Sustainable Science Studies

Searching & Serving the Best
http://ipb.ac.id
Integration of land and marine management that involves complex social, economic and ecological systems, thus requires transdisciplinary, integrated and participative.

- Precision
- Accurate
- Zero waste
- Blue Economy

- High Information Technology
- Innovative education
- Etc.
Smart Aquaculture in Eel Production

Dr. Ir. Sri Wahjuni, MT (KOM-FMIPA), Dr. Ir. Tatag Budiardi, M.Si (FPIK)
Smart Coastal Management

Illustration of examples on the use of sensor, drone, big data and Internet of Things technology in the marine field

Source: Prof. Indrajaya (2018)
Smart Coastal Management

Early Warning System
Fishers Safety

Source: Prof. Indrajaya (2018)
### Applied 4.0 Technology for Smart Fishing and Smart Aquaculture

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<thead>
<tr>
<th>Application Technology 4.0</th>
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C: Drone  F: Blockchain and Traceability  I: Cloud Technology  L: 3D Printing  O: BioTechnology
### Applied 4.0 Technology for Smart Fisheries and Ocean Management, and Smart Small Island

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<th>Application Technology 4.0</th>
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<td>Smart settlement/residential</td>
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Existing International Networks
INTERNATIONAL ACCREDITATION:
- Asean University Network (AUN-QA)
- IFT, USA
- IUFoST
- ABET, USA
- JABEE, Japan
- IFLA
- IMAREST, UK

INTERNATIONAL PROGRAMS
1. Master In Information Technology Of Natural Resources Management.
2. Joint Degree: Master In Sustainable Agribusiness (Maastricht School Of Management, Netherlands) Major — Minor.
3. Double Degree: Master In Agriculture Sciences (French Universities).
4. Joint Degree: Master In Agribusiness And Rural Development (University Of Goettingen, Germany).
5. Double Degree: Master In Sustainable Agriculture (Ibaraki University, Chiba University, And Ryukyu University Japan).
6. Joint Degree: Master In Agriculture And Forestry (Suirii, Ehime, Kagawa, Kochi University Japan).
7. Joint Degree: Master In Economics (Adelaide University Australia).

SUMMER COURSE PROGRAMS
2. An Introduction To Tropical Biodiversity: From The Mountain To The Sea (IPB-Uc/Searca).
4. Rapid Biodiversity Assessment (IPB—University Of Vienna).
5. Rehabilitation Techniques Of Degraded Dipterocarp Forest (IPB — University Of Goettingen).
6. Summer Course On Sustainable Agriculture (IPB—Ibaraki University).
PARTNERS

<table>
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<th>Country</th>
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<td>International University</td>
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<tr>
<td>Domestic University</td>
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<tr>
<td>Others</td>
<td>334</td>
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</table>
The PEMSEA Network of Learning Centers provides technical advice and assistance to national and local governments, ICM project sites, nongovernmental organizations, local communities and the private sector for SIDS-SEA implementation across the region through the following:

- Undertaking studies and projects on coastal and ocean management;
- Monitoring and reporting of changes and trends;
- Mentoring and training of planners, managers and practitioners; and
- Conducting local, national and regional training courses.

To date, PEMSEA has partnered with ICM Learning Centers and Regional Centers of Excellence in six partner countries:

**ICM Learning Centers**
- Royal University of Phnom Penh (RUPP)
- Coastal and Ocean Management Institute (COMI), Xiamen University
- Kim Il Sung University
- Center for Coastal and Marine Resource Studies, Bogor Agricultural University
- Xavier University-Ateneo de Cagayan
- De La Salle Lipa
- University of the Philippines Visayas
- University of Danang

**PEMSEA Regional Centers of Excellence (RCOE)**

- RCOE on marine pollution: Centre for Marine Environmental Research and Innovative Technology (MERIT) of Hong Kong
- RCOE on coral reef research and marine protected areas management: Marine Science Institute (MSI) of the University of the Philippines

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**IPB**
Chair of PNLC
2017-2018

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**PEMSEA NETWORK ON LEARNING CENTERS (PNLC)**
Role of Higher Education in Achieving SDGs Goals
IPB and Higher Education Responsible to SDG’s goals
SDG's goals at IPB

No. 1 (no poverty)
No. 2 (zero hunger)
No. 14 (live below water)
No. 15 (live on land)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 11 (sustainable community)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 13 (climate change)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 8 (economic growth)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 15 (live on land)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 14 (live below water)

No. 1 (no poverty)
No. 2 (zero hunger)
No. 5 (gender equality)
24 RESEARCH CENTERS

- Surfactant and Bioenergy Research Center (SBRC) : Goals No. 7
- Center for Area Development Planning and Studies (P4W) : Goals No. 11
- Center for Coastal and Marine Resources Studies (PKSPL/CCMRS) : Goals No. 1, 2, 14
- Center for Primate Animal Studies (PSSP) : Goals No. 15
- Center for Tropical Horticulture Studies (PKHT) : Goals No. 1, 2, 15
- Center for Tropical Animal Studies (CENTRAS) : Goals No. 1, 2, 15
- Center for Human Resources Development (P2SDM) : Goals No. 1, 2
- Center for Tropical Biopharmaceutical Studies (Trop BRC) : Goals No. 1, 2
- Center for International Studies on Applied Monetary and Economic (inter CAFE) : Goals No. 8
- Center for Conflict Resolution Studies (Care) : Goals No. 16
- Center for Business Incubation and Entrepreneurship Development (IncuBie) : Goals No. 8
- Center for Climate Risk Opportunity and Management – South East Asia and Pacific (CCROM-SEAP) : Goals No. 13
- Center for Reclamation Studies (Reklatam) : Goals No. 14, 15
- Center for Disaster Management Studies : Goals No. 8
- Center for Syariah Business and Economic Studies (CI-BEST) : Goals No. 8
- Center for Gender and Child Studies (PKGA) : Goals No. 5
- Center for Agrarian Studies (PSA) : Goals No. 1, 2
- Center for Halal Science Studies : Goals No. 81, 2
- Center for Transdisciplinary and Sustainable Science Studies : Goals No. 14, 15
For SDG-14 Indonesia
IPB as Hub for National Knowledge Management Systems

CoE SDG-14

- Science and Research Community
- Government
- NGO/CSO
- Business Entities

National Secretary of SDG

Targets SDG-14
Ecosystem Approach to Fisheries Management

EAFM Small Scale (2012-2014)
Site 1. Jor Bay, East Lombok District

EAFM Training for Small Scale Fisheries
The Objectives:
(1) To enhance knowledge and awareness on the concept implementation of EAFM for small scale fisheries;
(2) To develop a framework of EAFM implementation plan for small scale fisheries in Jor Bay and Gili Matra

EAFM Planning for Small Scale Fisheries
Coastal Community Development

CCD

Community empowerment
Social Profiling
Social Community Livelihood

Engaging “GERBANG MAPAN” Coastal Community Development Program Tangerang District, West Java Province (2014-2015)

2014-2015
- Community Empowerment for the most outer island communities
- Coastal Disaster mitigation facilitation (Jakarta, Aceh, Cilacap and Lombok)

2015
- Publication on Lesson learned from PKSPL’s Condev program
- Publication on TFR
- Publication on The Most Outer Island Empowerment Model

2015-2018
- Research and facilitation for coastal community on developing alternative livelihood
- Research and facilitation for coastal community to improving resilience adaptation on climate change and disaster

2016

2017

2018
- Training of Community Based Alternative Livelihood
- Improving Capacity of Community Facilitator
- Improving Capacity and resilience of Coastal community on climate change and disaster
Coastal and Marine Spatial Planning

CMSP
GIS-based Spatial Data Base System Development

ESI Spatial Development
Capacity Buildings on Spatial Data Base System

ESI Field Survey

ESI Madura (2016)
Sea Farming & Sea Ranching

- Mariculture and Restocking
- Sea Ranching
- Community Based Shallow Waters Management

2014-2018

- 2014: P. Vanamale research
- 2015: Book of Sea Farming
- 2016: Continue Sea Farming at Thousand Islands
- 2017: Replication of Sea Farming
- 2018: Further development

Sea Farming

- Fishing Right's Limited Entry
- Hatchery di Masyarakat (Daratun/Pulau)
- Pen Culture
- Restocking 15-16 Cm

Sea Ranching

- Mariculture and Restocking
- Community Based Shallow Waters Management

Other Programs

- 2015-2017
- 2016-2018
Potential Cooperation in The Future
POTENTIAL COOPERATION IN THE FUTURE

1. Postgraduate Curriculum, Innovative Learning Models and Double Degree:
   - Double Degree for ICM Magister Course
   - Sandwiches program for Master
   - E-learning, Credit-sharing scheme

2. Training Workshops Summer Course/School:
   - Approaches/Tools/Methods: Fish Stock Assessment, Environmental Sensitivity Index, EAFM, Marine Protected Area Management, Sea Farming
   - Summer Course at: Coral Reef Ecosystems, Mangrove Ecosystems
   - ICM Training of Trainer Courses

3. Joint Research Development and Networking:
   - Join research in tropical marine research
   - Join Publication
   - Visiting Professor
   - Mobilizing Regional/National Task Force
Closing Remarks
Higher education plays important roles in achieving sustainable development goals, nationally and regionally through human resources development, application of approaches/tools/methods.

In the era of fast and precisely knowledge transfer, role of robust IT is important in development of learning processes, knowledge transfers & management and innovative teaching/seminar/workshop techniques.

Collaboration among PNLC members able to enhance and accelerate achievement of SDG’s goals especially goal number 14 in the East Asian Seas Region.

IPB looks forward to have strong collaboration with all higher education institutions in the East Asian Seas countries.
Thank You

http://ipb.ac.id