Directorate General of Higher Education
Republic of Indonesia

Data Collection Survey on Higher Education Development in Indonesia

Final Report (Summary)

June 2011

JAPAN INTERNATIONAL COOPERATION AGENCY

PADECO Co., Ltd.

SAP
JR
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PADECO

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Background (1)

1. **Transformation into newly industrialized economy of Indonesia**
   - ✓ On-going efforts toward producing high value-added commodities
   - ✓ Limited availability of natural resources
2. **Increase the access to higher education**
   - ✓ Relatively low enrollment compared to neighboring countries
3. **Expected Roles of the higher education sector**
   - ✓ Developing capacities in value creation
   - ✓ Generating high-quality human resources

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Background (2)

- Objective of study (1)
  - Collecting information in order to formulate effective approaches for JICA's cooperation for the higher education sector, including collaboration between target universities (IPB and ITS) in Indonesia and Japanese universities, institutes, and/or companies

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Background (3)

- Objective of study (2)
  - Collecting information from target universities (IPB and ITS) to confirm the relevance, priorities, and the impact of the proposed development plans of IPB and ITS

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Background (4)

- Objective of study (3)
  - Proposing development scenarios for IPB and ITS by reviewing the proposed development plans of IPB and ITS, and by collecting comments from companies and local governments for nurturing high- quality human resources capable of research in high-tech industry, as well as in the promotion of local industries.

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Study Period and Activities (1)

- Study period (March–May 2011)

1st visit (8–29 March 2011)

Study at IPB, ITS, DIKTI, World Bank, KADIN, local government, industry, NGO

2nd visit (10–28 April 2011)

Study at IPB, ITS, DIKTI, BAPPENAS, RISTEK, Ministry of Agriculture, BKPM, ADB, USAID, IDB, local government, industries including Japanese companies

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Study Period and Activities (2)

- Study period (March–May 2011)

3rd visit (22-28 May 2011)

Reporting session about the study and JICA team's suggestion of Development Scenarios

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Study Period and Activities (3)

- Activities (March–April 2011)
- **Methodologies:**
  - ✓ Interview with the staff at IPB, ITS
  - ✓ Visit faculties and laboratories and interview students and faculty members there
  - ✓ Discuss the required facilities and equipment, and research topics
  - ✓ Collect and select data, statistics, and documents and analyze them
  - ✓ Interview with the ministries, local government, industries, KADIN, NGO working with IPB, ITS

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Study Period and Activities (4)

- Activities (March –April 2011)
- **Methodologies:**
  - ✓ Interview with Japanese companies, chamber of commerce
  - ✓ Collect information and confirm the current condition at IPB, ITS, DIKTI, BAPPENAS, RISTEK, Ministry of Agriculture, International donors, KADIN, Chamber of commerce of Japan , and NGOs

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Study Period and Activities (5)

- Activities (May 2011)
- **Methodologies:**
  - ✓ Report to IPB and ITS faculty members, and other stakeholders about the JICA study results
  - ✓ Suggest development scenarios of IPB and ITS, and discussion
  - ✓ Revise the report

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Results (1)

- Current conditions and analysis

- **Current conditions of Indonesia**
- ✓ Policies
- ✓ Donor activities

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Results (2)

- Current conditions and analysis
- **IPB and ITS**
  - ✓ Summary of proposed project
  - ✓ Policy of university
  - ✓ University profile
  - ✓ Research activities and research-oriented education
  - ✓ Graduates' job search
  - ✓ Collaboration activities with communities, local government and industries
  - ✓ Needs and expectation of communities, local government, companies
  - ✓ Other donors' activities

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Current Conditions and Analysis: Policy (1)

- DIKTI
  - Focus on engineering, science, agriculture and medical fields
  - 27 prioritized universities: allocated around US$ 10 million annually for 2-3 years. IPB and ITS are included.

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Current Conditions and Analysis: Policy (2)

- DIKTI
  - Scholarship for masters and doctoral degree: around 5,000 for domestic universities, 1,200 for oversea annually: now they lack applicants.
  - Budget for this year is US$2.8 billion. Research fund for US$40 million, out of that amount US$8.5 million for collaboration between companies and universities

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Current Conditions and Analysis: Policy (3)

- BAPPENAS
- **Expectation to project to contribute following points:**
  - ✓ Engineering field: increase the number of engineers, create relevant fields of engineers matching to the national or regional needs, since engineering is one of the prioritized fields of DIKTI
  - ✓ Increase access to university education
  - ✓ Create world class university recognized in international level: Presidential decree states that 6 is the target number of university recognized internationally

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Current Conditions and Analysis: Policy (4)

- Ministry of Agriculture
  - Policy is for food security for Indonesian population
  - Around 15% of GDP are contribution from agricultural sector
  - Average individual land property area is smaller than that of Japan.
  - Average annual income of a farmer: Rp.4,690,000.

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Current Conditions and Analysis: Policy (5)

- Ministry of Agriculture
- **Policy target 2010-2014**
  - ✓ Achieve sustainable food supply (increase domestic supply)
  - ✓ Change to diversity of diet style
  - ✓ Improve the additional value, competitiveness, export products, such as horticulture, fruits
  - ✓ Improve economic conditions of farmers

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Current Conditions and Analysis: Policy (6)

- RISTEK
  - 7 focused areas of research:
    1) Food security, 2) Energy, 3) ICT,
    4) Transportation technology and management, 5) Defense and security technology, 6) Health and medicine,
    7) Nano-tech and advanced material
  - The competitive research fund: Incentive Program budget is US$10 million/ year, 40% for basic research, 60% for applied research

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Current Conditions and Analysis: Policy (7)

- RISTEK
  - The Incentive Program Research Fund does not have portion of each topic: all proposal-based decision
  - The most applications are from universities, the most receivers are from non-government research institutes.
  - Approved proposal 288: 141 for research institutes, and 129 for universities (18 for IPB, 16 ITS)

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Current Conditions and Analysis: Policy (8)

- BKPM
  - Receiving foreign investment for increasing employment and poverty alleviation
  - The minister states that 1% (in current economic growth of 6%) should be contributed by industry sector: introduce foreign investment to Indonesia.

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Current Conditions and Analysis: Policy (9)

- BKPM
  - Japanese companies set up companies in Indonesia targeting Indonesian domestic market
  - Increase the number of small and medium-sized Japanese companies rather than large scale ones: the number of companies increases, but the amount of total investment does not increase due to the smaller scale of investors

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Current Condition and Analysis: Donors

- International donors
- **Common issues recognized by donors**
  - Governance transition period for BHP
  - Community service of university utilizing research results
  - Sustainability of the project
  - Impact on EPI, non-Java area
- **IPB and ITS receive funds from IMHERE, WB**
- **Main donors for higher education sector: WB, ADB, IDB, USAID, AUSAID**

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Current Conditions and Analysis: IPB, ITS

- IPB
  - Only one agricultural university in Indonesia
  - Focus of University activities is consistent with National Policy of Biodiversity and Food security
- ITS
  - Resource university in EPI
  - Located in potential area to explore for further development

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Current Conditions and Analysis: IPB (1)

- IPB Proposed project plans
  - **The Development and Upgrading of IPB: Toward Research Based University**
    - Goal: Enhanced human resources, technologies and international networking in the target area
    - Target areas: Biodiversity, health, and securities of food and energy
  - **Development of Forest Resource Conservation and Ecotourism Department, Forest Faculty, IPB**
    - Goal: Enhanced human resources and sustainable utilization of biodiversity resources
    - Target areas: Tropical biodiversity conservation

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Current Conditions and Analysis: IPB (2)

- Relevance of prioritized fields of IPB
  - The activities of food security and biodiversity planned at Biopharmaca Center, Seed Center match the UN policy.
  - The activities match the focused research fields of RISTEK, and do not overlap with those of the research institutes of Ministry of Agriculture or under LIPI

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Current Conditions and Analysis: IPB (3)

- University policy
  - Act as research university since establishment
  - Aim to be a World Class Research University
  - Nurture entrepreneurship for lecturers and students, anticipating the next stage of entrepreneurship university
- University overview
  - Annual budget: around Rp.1,000 billion
  - Number of students: around 24,162
    (PhD. 6%, Ms.10%, Bs.59%, Diploma 24%)
  - Number of teaching staff: 1,246
    (PhD. 56%, Ms.33%, Bs. 11%)

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Current Conditions and Analysis: IPB (4)

- Research activities and research-oriented education
  - Annual research budget: around Rp.100 billion
  - Biopharmaca center has already started in cooperation with companies
  - Collaboration with local government and companies started after 2000

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Current Conditions and Analysis: IPB (5)

- Research activities and research-oriented education
  - Research activities are still not enough in quality and quantity
  - Necessity to involve master course students into research–oriented education
    - Lack of time for research activities
    - Course-based doctoral degree
  - Low number of master course students from IPB undergraduates
    - Difficulty in research continuity

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Current Conditions and Analysis: IPB (6)

- Graduates' job search
  - Get a job within 3 months: around 30%,
    4-6 months: around 30%,
    more than 1 year: less than 10%.
    2% of graduates start their own business.
  - 70% of companies who received IPB graduates consider that level of education of IPB is relevant.
  - 30%-40% of graduates work for other than their major fields, such as financial sector

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Current Conditions and Analysis: IPB (7)

- Collaborative activities with communities, local governments, and industries
  - Joint research with industries
  - Creation of university production and selling the products in market
  - Subsidized research from governmental institutes
  - Disseminating technology to governmental agencies and community people

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Current Conditions and Analysis: IPB (8)

- Needs and expectation from communities, local governments, and industries

Research activities

- ✓ Joint research
- ✓ Contract research
- ✓ Consultation
- ✓ Testing and examining products and technology

Dissemination

- ✓ Technology development and its dissemination
- ✓ Providing information about technology

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Current Conditions and Analysis: IPB (9)

- Other donors
  - World Bank：IMHERE (**Indonesia** Managing Higher Education for Relevance and Efficiency :2009-2012)
    Project budget： US$3 million
    Activity：financial assistance for capacity development of university
  - Double degree program with Individual universities
    Ibaraki University, Tsukuba university, and others including universities in France

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Current Conditions and Analysis: ITS (1)

- ITS proposed project plans
- **Development of ITS Surabaya: A Strategic Empowerment of Being a Research University**
  - Strong competence in the target areas to be used for national development especially in EPI
  - Target areas: 1) marine, 2) energy, 3) ICT, and 4) housing, human settlement, environment and disaster management
    - Variety of research topics in each field
    - Necessity of consolidating topics in some fields for implementation

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Current Conditions and Analysis: ITS (2)

- Relevance of prioritized fields of ITS
  - 4 fields:1) marine, 2) energy, 3) ICT, and 4) housing, human settlement, environment and disaster management, are the selected, based on the needs of survey, conducted by ITS
  - Some activities are planned to be conducted with the collaboration of 2 fields among the 4 fields
  - The 3 fields:1) marine, 2) energy, 3) ICT, match the focused research fields of RISTEK, and 4) housing, human settlement and disaster management filed is under the national policy of low-cost housing construction and disaster management

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Current Conditions and Analysis: ITS (3)

- University policy
  - Become a Research University by 2017
  - Contribute to the natural resource development and quality increase at universities in EPI
  - Nurture human resources with soft skills as well as hard skills in engineering fields
- University overview
  - University budget: around Rp. 450 billion annually
  - Number of students: around 16,531 (PhD. 2%, MS. 10%, BS. 75%, Diploma 13%)
  - Number of teaching staff: 929 (PhD. 23%, MS. 53%, BS and others 24%)

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Current Conditions and Analysis: ITS (4)

- Research activities and research-oriented education
  - Annual research budget: around Rp.30-40 billion
  - Research activities are still not enough in quality and quantity
  - Necessity to involve masters course students into research–oriented education
    - Lack of the time for research activities
  - Low number of masters course students from ITS undergraduates
    - Sustainability of research

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Current Conditions and Analysis: ITS (5)

- Graduates' job search
  - Get a job within 3 months after graduation: 60%, 4-6 months: 20%, more than 1 year: less than 10%
  - First salary after graduation is around 3 times as much as minimum wage

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Current Conditions and Analysis: ITS (6)

- Collaborative activities with communities, local governments, industries
  - Joint research with companies
  - Contract research for government and governmental institutes
  - Technology dissemination to governmental institutes and community

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Current Conditions and Analysis: ITS (7)

- Collaborative activities with communities, local governments, industries
  - Contract research and joint research from local government and industries
  - Research activities and its dissemination for local government and community people
  - Industries also support governmental activities: Influence of owners graduated from ITS

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Current Conditions and Analysis: ITS (8)

- Needs and expectation from community, local government, and industries
- **Research activities**
  - ✓ Contract research
  - ✓ Consultation
  - ✓ Function as R&D section of company
  - ✓ Testing and examining products and technology with expensive or high-tech equipment
- **Dissemination**
  - ✓ Technology development and its dissemination
  - ✓ Providing information about technology

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Current Conditions and Analysis: ITS (9)

- Other donors
  - Used to have support from Germany and Netherlands in 1980s
  - World Bank：IMHERE (Indonesia Managing Higher Education for Relevance and Efficiency :2007–2011)

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Major Findings about Target Universities (1)

- Proposed projects match GOI's policies, and expectation from communities

  IPB as the only agricultural university, ITS as resource university in EPI, the expectation is high from communities around IPB and ITS, in research, human resource development and dissemination of technology.
- Aim at improving university quality as well as access to university

  For increase GER, the government provides scholarship to students with economic handicapped. The challenge is that the quality should be maintained, when the access is increased.
- High demand for facility and equipment

  It is difficult to purchase equipment with the research fund from GOI.

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Major Findings about Target Universities (2)

- Increase the number of the graduate school students, and faculty members with doctor degree holders

  Good human resource is necessary to be a world class research university
- Already enough grants for scholarship for higher degree in Indonesia

  DIKTI and other institutes can provide scholarship for higher education degrees; scholarship under loan is not necessary in current condition in Indonesia. The proposed projects target human resources development of faculty members.
- Low recognition of human resource development with research activities

  Equipment are prioritized, training and expert dispatch are considered relatively easy to obtain, compared to equipment procurement . Low recognition of human resource development with research activities

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Major Findings about Target Universities (3)

- After graduation, around 90% students get a job within one year

  Graduates from IPB and ITS are popular, and their recruitment conditions are good. Some differences are seen among departments, but generally around 70-80% of graduates get a job within 6 months after graduation.

- The majority of masters course students already belong to private/government institutions.

  After undergraduate degree, the majority of students go to work. Then, those graduates go back to university for a higher degree with the status of an institution staff. Scholarships for masters degree for fresh graduates are not enough quantity, and the institutions also prefer hire fresh graduates rather than masters course graduates.

- Majority work for their majored fields, but some work for other fields, such as finance and business

  Salary standards and living conditions are better in financial or business sectors than those in agriculture and industry sectors.

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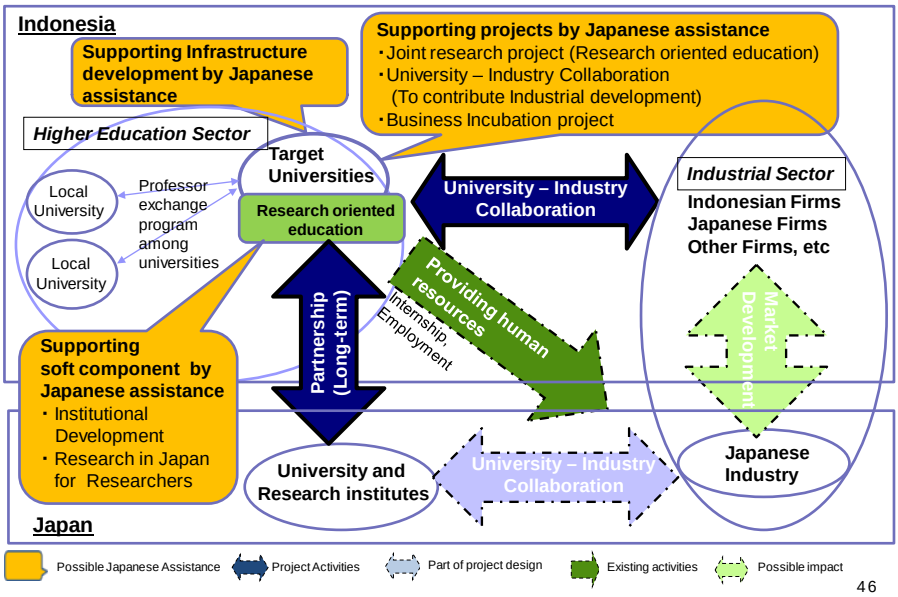
Concept of Approaches



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Development Scenarios (1)

- Proposed projects from both IPB and ITS are relevant to be implemented in Indonesia; the activities are considered in those relevant fields
- Each of IPB and ITS will propose one proposal. The original 2 proposals of IPB were combined into “The Development and Upgrading of IPB program.”
- IPB, ITS are resource universities, and show their impact nationwide

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Development Scenarios (2)

- Introduce human resource development as well as facility development and domestic university network into the scenarios
- Fellowship is introduced under the Ministries’ fellowship programs as a part of research activities, and establish partnerships with Japanese universities and industries
- Show the internal impact within university of the project
- Introduce activities with industry and community

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Development Scenarios (3)

- Basic Concept
  - Resource universities and networking
  - Research-oriented education at graduate levels of resource universities
  - Sharing facilities and equipment based on joint research activities
  - Intellectual property (IP) management and income generation by utilizing IPs
  - Needs and supply matching between universities and industries based on mutual reliance nurtured by universities and industries

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Development Scenarios (4)

- A Model Scenario for Resource Universities

  - Research project as a set of research, education, R&D, and procurement of facilities and equipment-
  - Research and development with Japanese partners, Indonesian partners and industries for publications and patent applications
  - Participation of master students in the research projects for research oriented education
  - Fellowships complementing the Ministries' fellowship programs under the research project within the scope of the sustainable university-industry linkage
  - Procurement of related facilities and equipment

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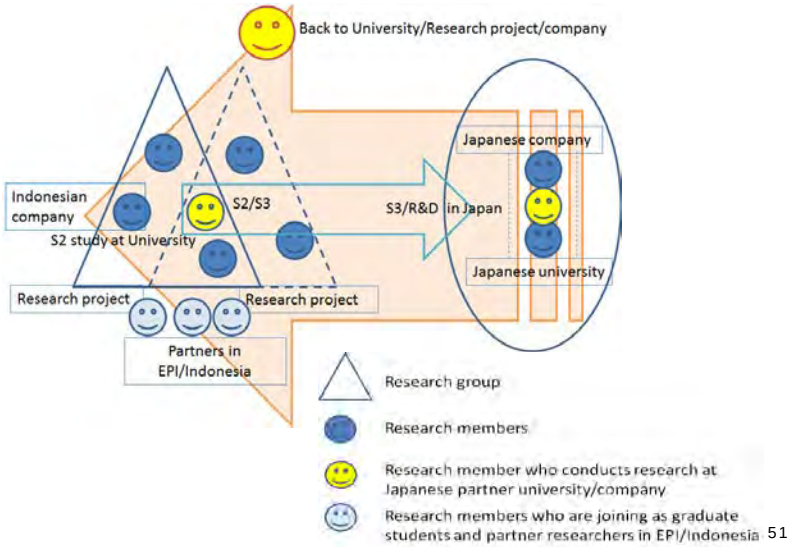
Development Scenarios (5)

Key Roles of Human Resources for R&D in Indonesia: A Model Case



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Suggested Scenario for IPB

- **Goal:** Sustainable biodiversity and poverty reduction in Indonesia through improved seed varieties and enhanced utilization of herbal medicine
- **Purpose:** (1) To improve varieties of important crops and produce high quality seeds of the improved varieties
- (2) To obtain and improve valuable biopharmaca materials from safe indigenous resources while conserving biodiversity

Research projects: R&D, facilities and equipment

- (1) Seed center
  - (Outputs: Collected germplasms etc.)
- (2) BRC
  - (Outputs: Conservation of selected indigenous biopharmaca resources etc.)

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(Facilities)

Leuwikopo Area
- Main Research Center Building
- Researcher Guesthouse
- Biopharmaca Industrial Pilot Plant
- Animal Laboratory
- Seed Workshop building
- Seed Drying Floor
- Field Facilities (Green House and Experimental Firm facilities, etc)

Cikabayan Area (Darmaga Campus)
- Collection and Cultivation Field Laboratory
- Stock room and Green House

Fahutan Area (Darmaga Campus)
- Biodiversity Conservation and Domestication of Medicinal Plant Laboratory
- Arboretum and Field Laboratory

Sindang Barang Area
- Lecture room, Warehouse and Management office
- Field Facilities (Green House and Experimental Firm facilities, etc)

Pasir Sarongge Area
- Lecture room, Warehouse and Management office
- Dormitory / Guest House
- Field Facilities (Green House and Experimental Firm facilities, etc)

Sawah Baru Area
- Lecture room, Warehouse and Management office
- Field Facilities (Breeding House and Experimental Firm facilities, etc)

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Suggested Scenario for ITS

- **Goal:** Sustainable development in EPI supported by enhanced ITS as a research university
- **Purpose:** ITS to obtain a set of technologies, facilities and capacity to become a research university that leads sustainable development of EPI
- **Research projects: R&D, facilities and equipment**
- Marine: Research and development for efficient and safe maritime transport and sustainable exploration of marine resources and environment
- Energy: Research and development of suitable renewable energy in EPI
- Human settlement: Research and development of technologies for safe living environment from the viewpoint of disaster management
- ICT: Research and development for communications and e-services in EPI

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(Facilities)

Marine Technology
Laboratories for Deep Water, Coastal and Small Island, Marine Ecology, Marine Microbiology, Marine Design, and CNC

Energy
Workshop type laboratory
Rooms for operation, storage, meeting, lectures, researchers and post graduate students
Library

ICT (Information and Communication Technology)
Laboratories for Requirement Engineering, Integrated Information System , Integrated Photonics, Security & Reliability, Digital Studio, E-Learning, Medical Appliance, Embedded & Intelligent system, Radio communications & satellite, Antenna, WSN
Others

Housing, Human Settlement, Environment and Disaster Management
Laboratories for Regional Development, Geospatial, Transportation, Sanitation, Building Studies, Housing Studies, Disaster Mitigation & Project Management
Rooms for Seminar, Training, Lecture and Meeting
Library
Design Gallery and exhibition

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Next Stage (1)

- Order and timeframe of each component of the projects

Year / Component		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Tender								
Facility Construction								
Equipment Procurement								
Collaborative fellowship program	Batch1							
	Batch2							
Research fund provision	Batch1							
	Batch2							
Academic and Industry Coordination with Japanese partners								

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Next Stage (2)

- IPB and ITS projects both have high relevance and potential impacts on university development in Indonesia and thus both are recommended to be implemented.
  - As more variety of academic fields are to be covered for ITS, considering the level of current readiness, ITS needs approximately 2-3 times more man-months and time than those of IPB for the proposal preparation to reach the appraisal stage.

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Terima Kasih!

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