CENTRE FOR DEVELOPMENT OF SUSTAINABLE REGION
About SHERA & CDSR

USAID Sustainable Higher Education Research Alliances (SHERA) Program

- A 4-year university research partnership program between Indonesia and the U.S.
- Aims to increase the research capacity of the Indonesian higher education sector and improve the enabling environment for quality research within Indonesian higher education institutions.
- SHERA support to establish of up to five sustainable Centers for Collaborative Research (CCRs) in science, technology, and innovation (ST&I) research focus areas that are critical to Indonesia’s development.
Centre for Development of Sustainable Region (CDSR)

Leading Institution: Universitas Gadjah Mada
Affiliate Universities:
1. Universitas Indonesia
2. Institut Teknologi Bandung
3. Institut Pertanian Bogor
4. Universitas Bangka Belitung
5. Universitas Negeri Gorontalo
6. Universitas Muhammadiyah Gorontalo

Partner in USA: University of Colorado at Boulder
Goals of CDSR

“Implementing hybrid energy system and energy efficiency and the supporting network to develop sustainable tropical archipelago.”
Outcome & Output

SHERA Goal: Sustainable Improvement in Quality and Quantity of Science and Technology Research in Indonesian Higher Education Institutions

Outcome 1
Improved capacity of faculty, postgraduate students, and postdoctoral researchers in target Indonesian universities.

Outcome 1.1
Increased trainings in research methods, writing, and presentations skills.

Outcome 1.2
Increased professional exchanges and collaborations.

Outcome 2
Strengthened inclusive institutional environment for research and management in target Indonesian universities.

Outcome 2.1
Institutional policies in support for research and management developed in FCRi monuments.

Outcome 2.2
CCR best practices documented and disseminated to Indonesian higher education institutions.

Outcome 3
Enhanced collaboration in U.S.-Indonesia consortium for collaborative research.

Outcome 3.1
Toll relationship established among U.S. and Indonesian institutions.
# Our Target

<table>
<thead>
<tr>
<th>Targets</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of peer-reviewed scientific publications</td>
<td>100</td>
</tr>
<tr>
<td>Number of academic research initiatives whose findings have been replicated, applied, or taken to market</td>
<td>3</td>
</tr>
<tr>
<td>Scholars who present at conference</td>
<td>60†</td>
</tr>
<tr>
<td>Number of short-term training courses held</td>
<td>9</td>
</tr>
<tr>
<td>Number of U.S. scholars visiting Indonesian institutions to lead short-term training courses for Indonesian partners' institutions</td>
<td>6</td>
</tr>
<tr>
<td>Number of Indonesian scholars who participate in in-person faculty exchanges held in the U.S</td>
<td>32</td>
</tr>
<tr>
<td>Number of Indonesian scholars who receive ongoing mentoring from U.S. university partners</td>
<td>16</td>
</tr>
<tr>
<td>Number of CCR websites that are developed, operational and used regularly</td>
<td>1</td>
</tr>
<tr>
<td>Number of CCR knowledge products created</td>
<td>34</td>
</tr>
<tr>
<td>Number of CCR knowledge sharing events held on best practices &amp; lessons learned</td>
<td>10</td>
</tr>
<tr>
<td>Number of selected affiliate institutions included in research consortium</td>
<td>7</td>
</tr>
</tbody>
</table>

*Conference held not in Indonesia
# Lead Management

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Rachmawan Budiarto</td>
<td>Director and Partnership Manager</td>
</tr>
<tr>
<td>Sarjiya, Ph.D.</td>
<td>Monitoring, Evaluation and Learning Specialist</td>
</tr>
<tr>
<td>Suhono, S.T., M.Eng.</td>
<td>Monitoring, Evaluation and Learning Coordinator</td>
</tr>
<tr>
<td>Dwi Novitasari, S.T., M.T.</td>
<td>Monitoring, Evaluation and Learning Coordinator</td>
</tr>
<tr>
<td>Fitrotun Aliyah, S.T., M.Eng.</td>
<td>Grant and Finance Manager</td>
</tr>
<tr>
<td>Caecilia Sri Agustina, S.E.</td>
<td>Finance Officer</td>
</tr>
<tr>
<td>Dwiasni Nuraini, A.Md.</td>
<td>Finance Officer</td>
</tr>
<tr>
<td>Ina Marga Mutia, A.Md.</td>
<td>Administration and Document Control</td>
</tr>
</tbody>
</table>
# Management in Affiliate

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Z. Za, Ph.D.</td>
<td>Partnership Manager (University of Colorado)</td>
</tr>
<tr>
<td>Prof. Dr. Ing. Ir. Man Iskandar, M. Sc.</td>
<td>Partnership Manager (Universitas Indonesia)</td>
</tr>
<tr>
<td>Dr. Ciptaningsih</td>
<td>MEL Manager (Universitas Indonesia)</td>
</tr>
<tr>
<td>Suyit Mubin, S.T.</td>
<td>Grant &amp; Finance Manager (Universitas Indonesia)</td>
</tr>
<tr>
<td>Dr. Eryc Moen, Denny Kurniawan</td>
<td>Partnership Manager (Institut Teknologi)</td>
</tr>
<tr>
<td>Bahlul Husianto, Ph.D.</td>
<td>MEL Manager (Institut Teknologi)</td>
</tr>
<tr>
<td>Nani Kurniati, A.Md.</td>
<td>Grant &amp; Finance Manager (Institut Teknologi)</td>
</tr>
<tr>
<td>Dr. Ulfah S. Siti</td>
<td>Partnership Manager (Universitas Bogor)</td>
</tr>
<tr>
<td>Prof. Dr. Ir. Iskandar Z. Sitor, M.Par.Sc</td>
<td>MEL Manager (Universitas Bogor)</td>
</tr>
<tr>
<td>Aprilia Darmayanti, S. Puti</td>
<td>Grant &amp; Finance Manager (Universitas Bogor)</td>
</tr>
<tr>
<td>Dr. Yudha K. S. Pelima</td>
<td>Partnership Manager (Universitas Negeri)</td>
</tr>
<tr>
<td>Dr. E. Surya Indri Budi</td>
<td>MEL Manager (Universitas Negeri)</td>
</tr>
<tr>
<td>Trawangin Undar, S.Pd.</td>
<td>Grant &amp; Finance Manager (Universitas Negeri)</td>
</tr>
<tr>
<td>Bika Rosbina Supri, S.T., M.T.</td>
<td>Partnership Manager (Universitas Bangka Belitung)</td>
</tr>
<tr>
<td>Wahy Suranti, S.T., M.Eng.</td>
<td>MEL Manager (Universitas Bangka Belitung)</td>
</tr>
<tr>
<td>Iwan Dhina, S.T., M.T.</td>
<td>Grant &amp; Finance Manager (Universitas Bangka Belitung)</td>
</tr>
<tr>
<td>Dr. Teza Bangku, M. Si.</td>
<td>Partnership Manager (Universitas Muhammadiyah Gorontalo)</td>
</tr>
<tr>
<td>Tri Pratwi Handayani, S.Kom., M.Eng., M. Ph.D.</td>
<td>MEL Manager (Universitas Muhammadiyah Gorontalo)</td>
</tr>
<tr>
<td>Tiono, S.Pd., M. Si.</td>
<td>Grant &amp; Finance Manager (Universitas Muhammadiyah Gorontalo)</td>
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C D S R
CENTER FOR DEVELOPMENT OF SUSTAINABLE REGION
IN NUMBERS

7 Indonesia Universities
1 U.S. Universities

44 Months Program
6 Main Partnership Research Topics

183 Researchers
87 Female
96 Male

72 Researchers $2
66 Researchers $3

* Data until January 2018
** Education Background
Main Partnership Research Topics

1. Development of decentralized photovoltaics-and-bioenergy-based hybrid system for tropical rural and urban area.

2. Development of online integrated energy monitoring system for tropical coastal rural area and urban area.


4. Capacity development of local industry and other elements of the supporting network.

5. Increasing role of women in developing the sustainable energy system.

6. Development of method for determining sustainability level of the hybrid energy system.
ACTIVITIES

Steps to develop decentralized photovoltaics-and-bioenergy-based hybrid system for tropical rural and urban area

1st Year
• Formulating comprehensive lesson learned from several past projects conducted by parties involved (focuses on solar powerplant in Karimunjawa of PSE UGM-ITB-IPB, microalgae based biofuel of PSE UGM)
• Mapping of existing energy system, existing energy supply-demand pattern, and renewable energy resources in Semujur Island (Bangka Belitung Province)

2nd Year
• Increasing aspect of quality control of existing microalgae-based biofuel production facility
• Feasibility study (FS) and Detail Engineering Design (DED) for PV and bioenergy system in Bangka Belitung (Semujur Island)

3rd Year
• Installing PV system in Semujur Island and pilot bioenergy facility
• Increasing efficiency of microalgae-based facility in Yogyakarta
• Designing standard platform of urban and rural microalgae-based biofuel facilities

4th Year
• Increasing performance of hybrid energy system in Semujur Island
• Providing drafts of local regulations to accelerate development of hybrid energy system in Yogyakarta, Bogor, Bandung, and Bangka
ACTIVITIES
Steps to build online integrated energy monitoring system for tropical coastal rural area and urban area

1st Year
• Increasing capability and performance of existing online energy monitoring system in Karimunjawa, installing online energy monitoring system in existing microalgae-based biofuel production facility and to integrate it to system in four involved parties

2nd Year
• Increasing capacity of energy control room in five parties

3rd Year
• Installing online energy monitoring in Semujur Island, Bangka Belitung
ACTIVITIES

Steps To develop the prototype of Building Integrated Photovoltaics (BIPV) for Nearly Zero-Energy Building (NZEB) in tropical urban area

1\textsuperscript{st} Year
- Formulating comprehensive lesson learned from several past projects conducted by parties involved Building Integrated Photovoltaics (BIPV) for Nearly Zero-Energy Building (NZEB) of Colorado Boulder
- Developing BIPV (including expected performance of thin film PV) and NZEB model on two existing buildings in Yogyakarta and Bandung

2\textsuperscript{nd} Year
- Installing thin film PV (and comparison with conventional PV type) and its online energy monitoring system in two existing buildings in Yogyakarta and Bandung in BIPV-NZEB scheme
- Increasing energy performance (in term of energy consumption and production as well as predicted CO2 emission reduction) of the selected two buildings
- Increasing capability of laboratories (by installing new instruments) in UGM and ITB conducting high level research of thin film PV and BIPV-NZEB

3\textsuperscript{rd} Year
- Increasing energy performance by BIPV-NZEB of the selected building in Universitas Bangka Belitung

4\textsuperscript{th} Year
- Developing standard designs of BIPV-NZEB of the selected building in Universitas Bangka Belitung
- Providing drafts of local regulations to accelerate development of NZEB in Yogyakarta, Bogor, Bandung, and Bangka Belitung
ACTIVITIES

Steps to develop capacity of local industry and other elements of the supporting network

1st Year
- Mapping of local parties in Yogyakarta, Central Java, West Java, Jakarta, and Bangka having capability to be included in supply chain network of PV and bioenergy system and BIPV-NZEB

2nd Year
- Developing design of supply chain and its supporting network of PV and bioenergy system and BIPV-NZEB
- Installing new facilities, instruments and systems in two vocational schools (Jepara and Bangka) to maintain/repair/produce inverter and controller of PV systems (as local PV center)

3rd Year
- Connecting partners in supply chain and supporting network

4th Year
- Increasing quality control aspect in local PV center (Jepara and Bangka), establishing small business unit of PV components and integrated to control system in UGM, ITB, and UBB
- Establishing proposed Centre for Development of Sustainable Region (CDSR) as a developing hub for the region (expected strategic partners: Ministry of Energy and Mineral Resources, ASEAN and Non-Aligned Movement Centre for South-South Technical Cooperation - NAM CSSTC)
ACTIVITIES
Steps to increase role of women in developing the sustainable energy system

1st Year
- Developing matrix of women role in sustainability design

2nd Year
- Capacity building woman local organizations in Jepara (nearest city from Karimunjawa Island) and Bangka

ACTIVITIES
Steps to develop of method for determining sustainability level of the hybrid energy system

1st Year
- Developing sustainability matrix for proposed hybrid energy system and energy efficiency

2nd Year
- Capacity building for vocational schools in Jepara (nearest city from Karimunjawa Island) and Bangka

3rd Year
- Increasing capacity of PV system for fisheries industry and green tourism in Karimunjawa Island

4th Year
- Proposing scheme for increasing sustainability of developed hybrid energy system and NZEB
Sustainability Plan
Beyond the Period of SHERA Grant

1. Formalized the proposed CDSR as an important hub in ASEAN higher education development with strong partnership to USA Higher Education Institutions
2. Integration of relevant content of e-learning in UGM, UI, ITB, IPB, UBB, UNG and UMG developed by faculty members involved in the proposed CDSR
3. Developing CDSR as a significant locomotive for research development in HEIs, mainly in eastern part of Indonesia
4. Optimization of role of the CDSR to accelerate capacity development of Indonesia industry in renewable energy and green city
5. Optimization of role of the CDSR to strengthen the functional network to several relevant ministries to develop sustainable archipelago
Contact Us

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