Education Program Partnership between USC and ITB

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Center for Geothermal Studies
Induced Seismicity Consortium
University of Southern California
Center for Geothermal Studies

- Strives to promote excellence in geothermal research
- Collaboration with many different facets of USC and DOE
- Development of more efficient technologies in the industry
- Ex. Geomechanical modeling for Geysers Geothermal Field
- Future: Brawley Geothermal Field
Program Goals

- Partnership: ITB and Star Energy
- Increase number of geothermal graduates to 50 in 5 years
- Equip to operate and produce 5000 MW of energy by 2015
- Platform to collaborate/develop geothermal education

265 identified geothermal areas in Indonesia

<table>
<thead>
<tr>
<th>Island</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Speculative (MWe)</td>
</tr>
<tr>
<td>Sumatra</td>
<td>4975</td>
</tr>
<tr>
<td>Jawa</td>
<td>1960</td>
</tr>
<tr>
<td>Bali</td>
<td>70</td>
</tr>
<tr>
<td>Nusa Tenggara</td>
<td>340</td>
</tr>
<tr>
<td>Kalimantan</td>
<td>45</td>
</tr>
<tr>
<td>Sulawesi</td>
<td>1000</td>
</tr>
<tr>
<td>Maluku</td>
<td>595</td>
</tr>
<tr>
<td>Papua</td>
<td>72</td>
</tr>
<tr>
<td>Total 265 locations</td>
<td>9090</td>
</tr>
</tbody>
</table>

Hadiyanto [2009]
# Program Implementation 2012

<table>
<thead>
<tr>
<th>Task</th>
<th>ACTIVITY</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Advisory Board</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Scholarship for Masters Students</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ITB Geothermal Seminar</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Conferences, Seminars or Workshops</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sabatical Program</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Selecting a test site for Geothermal resources course development</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Environmental impact and risk assessment course development.</td>
<td></td>
</tr>
</tbody>
</table>

*Sabatical Program will be carry over to the 2014’s program*
Collaboration

Human Resources Structure (Task 1)

GRC 2012
Reno, NV
Project Outcomes: Task 2

- Increase competitiveness: ITB’s geothermal masters program
- Large increase in students and participation
- Indonesia: increased understanding of geothermal energy potential
Roadshow to six universities in Java
Discuss knowledge, ITB program, scholarships
Task 3: 1st ITB Geothermal Seminar
November 28, 2013

Collaboration with Universitas Negeri Manado (UNIMA)
November 28, 2013
in Hotel Aryaduta, Manado, North Sulawesi Province
Project Outcomes: Task 3

Build communication among universities, developers/industries, local government, and interested public.

75% participants are students - info passed to family.
Project Outcomes: Task 4

ITB students and lecturers attended:
- ITB Geothermal Workshop – IGW 2013 (March 3-6, 2013)
- Indonesian Geothermal Association Conference and Exhibition – IIGCE 2013 (June 12-14, 2013)
- New Zealand Geothermal Workshop (November 18-22, 2013)
Summary
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• Improvements in understanding of geothermal systems and technology, in particular geothermal exploration, development, and utilization
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• Improvement in methodology: resource assessment, environmental analysis, and impact assessment
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- Improvement in methodology: resource assessment, environmental analysis, and impact assessment
- Increased competitiveness in ITB geothermal master’s program
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- Improvements in understanding of geothermal systems and technology, in particular geothermal exploration, development, and utilization.
- Improvement in methodology: resource assessment, environmental analysis, and impact assessment.
- Increased competitiveness in ITB geothermal master’s program.
- Increased public knowledge of geothermal energy.
Impact

ITB Geothermal

- Softwares:
  - GES
  - MIS
  - SAR
  - IRIS
  - GETools
  - Interface TOUGH2
  - Establish a research consortium (2014)

- Partnership with Geothermal Companies & Universities

- Geothermal Field camp & field trips

- Capacity Building at ITB

- Graduate Program in Geothermal Technology

- Research, Database & Software Development

- Workshop/Seminars/Conference/Trainings

- ITB Advisory Board
- Advisory Board for USAID-SE University Partnership Program
- Schoolschip from BPKLN Ministry of National Education
- Schoolschip from USAID and Star Energy
- Curriculum revision (Curriculum 2013-2018)

- Public Awareness Program (USAID and SE)
- Train the Trainers Program (USAID & SE)
- Attending seminars and Conference (USAID & SE)
- Weekly Geothermal Forum
- Trainings for Industries
- Annual ITB’s Geothermal Workshop

- PERTAMINA/ PGE
- USAID - Star Energy - USC
- GFZ Potsdam, Germany
- UPP Chevron
- Univ of Manado, Indonesia
- Univ of Auckland, NZ
- Univ of Twente, Netherland
- Univ of Kyushu, Japan
- University of Syah Kuala, Aceh (Result of ToT USAID)
Thank You!