GEOTHERMAL CAPACITY BUILDING PROGRAM – INDONESIA-NETHERLANDS (GEOCAP): a contribution to the National Geothermal Capacity Building Program of Indonesia

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- **Established**: 1950 - Appeal by UN in framework of official development assistance - ODA
- **Aim**: Build capacity for economic development in developing world
- **Main instrument**: Postgraduate education and training, research, project services
- **Main field of science**: earth observation, geoinformation science applied to problem-solving in earth sciences, natural and water resources and urban studies
- **Achievements**
  Education and training:
  20 000 mid-career professionals

Dean/Rector
Prof. Veldkamp

Founding father
Prof. Schermerhorn
- Indonesia has an economic growth of 6-8%
- >80% energy based on fossil fuels

Source: Bertani, 2012, geothermics, 41, p 1-29
GEOTHERMAL POTENTIAL IN INDONESIA

POLICY DRIVERS

- 10,000 MW Fast-Track Program late 2008
- INISIATIF ENERGI BERSIH (More Energy, less Carbon)

Source: MEMR 2010
02/12/2013
NATIONAL GEOTHERMAL CAPACITY BUILDING PROGRAM

BACKGROUND

- Ambitious plans to upscale activities in Geothermal Energy
- Substantial increase in Geothermal Energy
- Assessment of the need for trained personnel
  - Scientific staff in Universities
  - National and local Government staff
  - Management and technical staff in Companies
- 1.7 FTE per additional MW of GE installed
- Request from BAPPENAS to Netherlands Embassy for support in Capacity Building

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Objective of NGCBP:

increase the capacity of Indonesian Ministries, Local Government, Agencies, Public and Private Companies, and Knowledge Institutions in developing, exploring and utilization of geothermal energy resources and to assess and monitor its impact on the economy and the environment

- Required Training Capacity
- Required Research Capacity
Netherlands Geothermal Consortium

- Knowledge Institutions
  - TNO
- Universities
  - Technical University of Delft, Utrecht University, University of Twente (ITC)
- Private Companies
  - KEMA, IF Technology,
    Well Engineering Partners, Fugro
Indonesian Geothermal Consortium
- Pertamina (Geothermal Energy)
- Ministry of Energy and Mineral Resources
- Universities with a (Inter)national focus and lead in GE
  - ITB, UGM, UI
- Regional Universities
  - University of Lampung, Sam Ratulangi univ., Hasanuddin Univ.
- Assosiasi Panas Bumi Indonesia (API) – INAGA (Coord.)
- Open to other institutions, companies, universities
  - BAPPENAS
  - WWF Indonesia
The program must support capacity development at different academic and organizational levels;

- It must meet the defined needs of the geothermal sector
- The design should be modular to allow for a large degree of flexibility
- The program must meet the requirements as set by the Government and the private sector in the geothermal field (standardization, recognition)
- It must be developed in such a way that it offers an attractive and motivating program for the career of participants
- Long-term commitment

CAPACITY BUILDING FOR GEOTHERMAL ENERGY IN INDONESIA
Indonesian-Dutch Consortium invited to implement the NGCBP:

- 12 Work Packages
  - Development of training materials and Training of Trainers Program
  - Research and Development
  - Operational Planning and Management
- 95 training modules identified at various levels
  - Exploration, exploitation, operation
  - Geothermal practice for non-experts
- Research and Development
  - Techno-economic Risk Assessment,
    Reservoir Modeling
    Exploration concepts, Drilling methodology
    Power plant efficiency
  - 6 PhD positions identified
- Geothermal Data Base design
- Direct use of low/medium enthalpy resources

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GEOCAP UNIQUE ASPECTS

- Capacity building program NOT A fellowship provider
- Drilling success rate in Netherlands = 100%
- Direct use of low/medium enthalpy systems
- Technical assistance AND attention for governance
  - Awareness creation local governments and communities
  - Competing claims forest protection and energy production
- Aim at sustainability beyond the program
  - Longterm joint education programs
  - Business to business cases
- Pivotal role for trilateral collaboration through south-south coorperation
"International Higher Education is not Capacity Development but it is the most important instrument for Capacity Development; focus is on both Individuals and organizations" M. Molenaar, Former Rector ITC
NEW ROLES FOR NORTHERN INSTITUTES

- providing regular impulses for academic and professional upgrading and innovations of the educational services.
- stimulating mutual exchange and support between the parties in the network.
- creating opportunities for the colleagues from weaker economies to participate in the research networks and programmes of strong partners.
FUTURE PROSPECTS: SUSTAINABLE NETWORK
NATIONAL GEOTHERMAL CAPACITY BUILDING PROGRAM
CURRENT STATUS

- First fact finding mission and NL-IND engagement (end 2009)
- Official request by BAPPENAS made to the Netherlands Government (Oct. 2011)
- Project Idea Document prepared by Consortium (Nov. 2011)
- Partners committed
- Decision by Ministry of Foreign Affairs (NL) to start inception (March 2013)
- Inception report (25 September 2013)
- GEOCAP program document (25 September 2013)
- Expected starting date: 1 Jan. 2014
- Expected running time: 3.5 years
Thank you!
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