

UNIVERSITY OF TWENTE.

FACULTY OF GEO-INFORMATION SCIENCE AND EARTH
OBSERVATION (ITC)

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

FREEK VAN DER MEER
TOM LORAN
(& NL-IND CONSORTIUM)



FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION





Faculty ITC – formerly Institute ITC

- **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

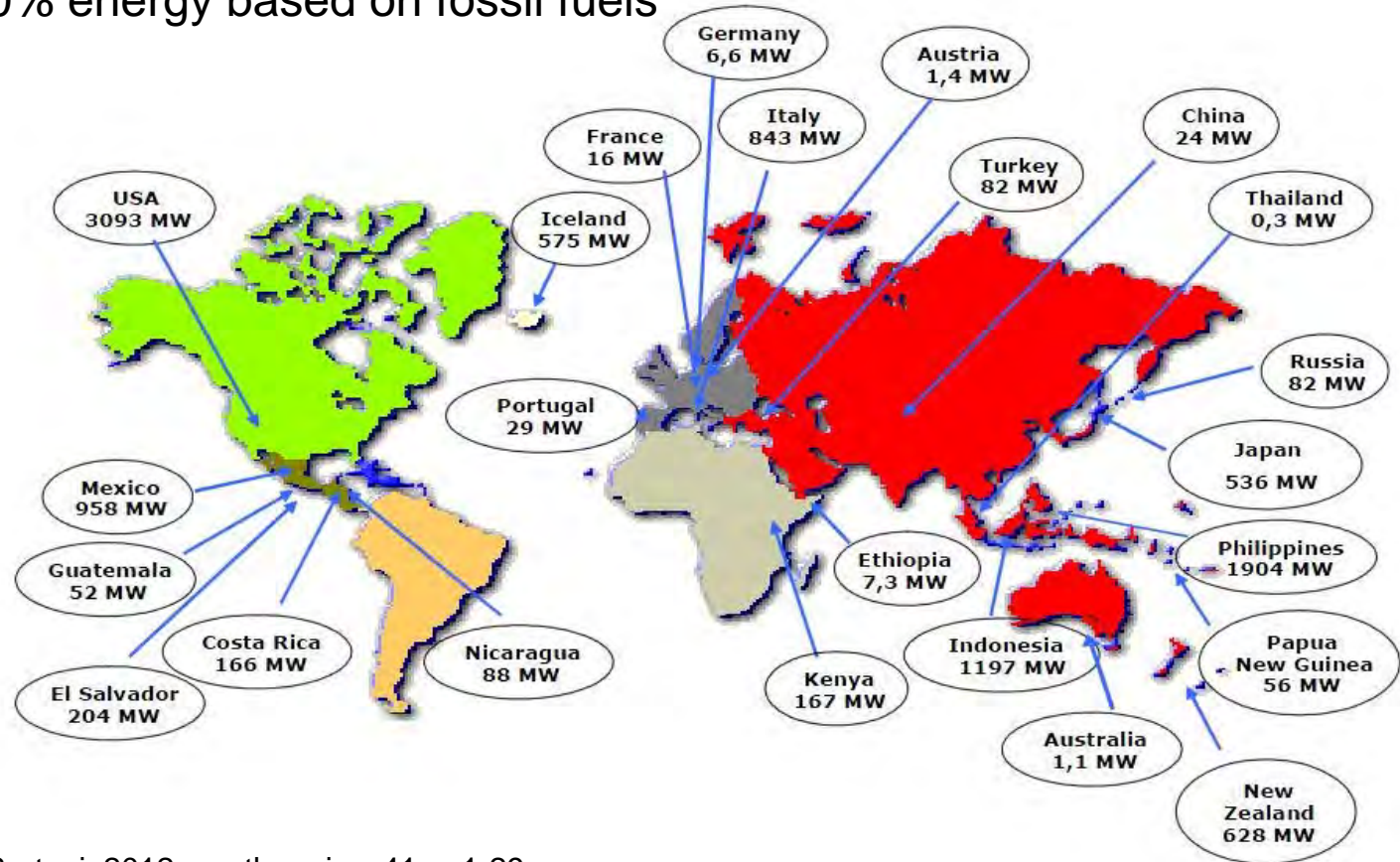


UNIVERSITY OF TWENTE.



INSTALLED GEOTHERMAL CAPACITY

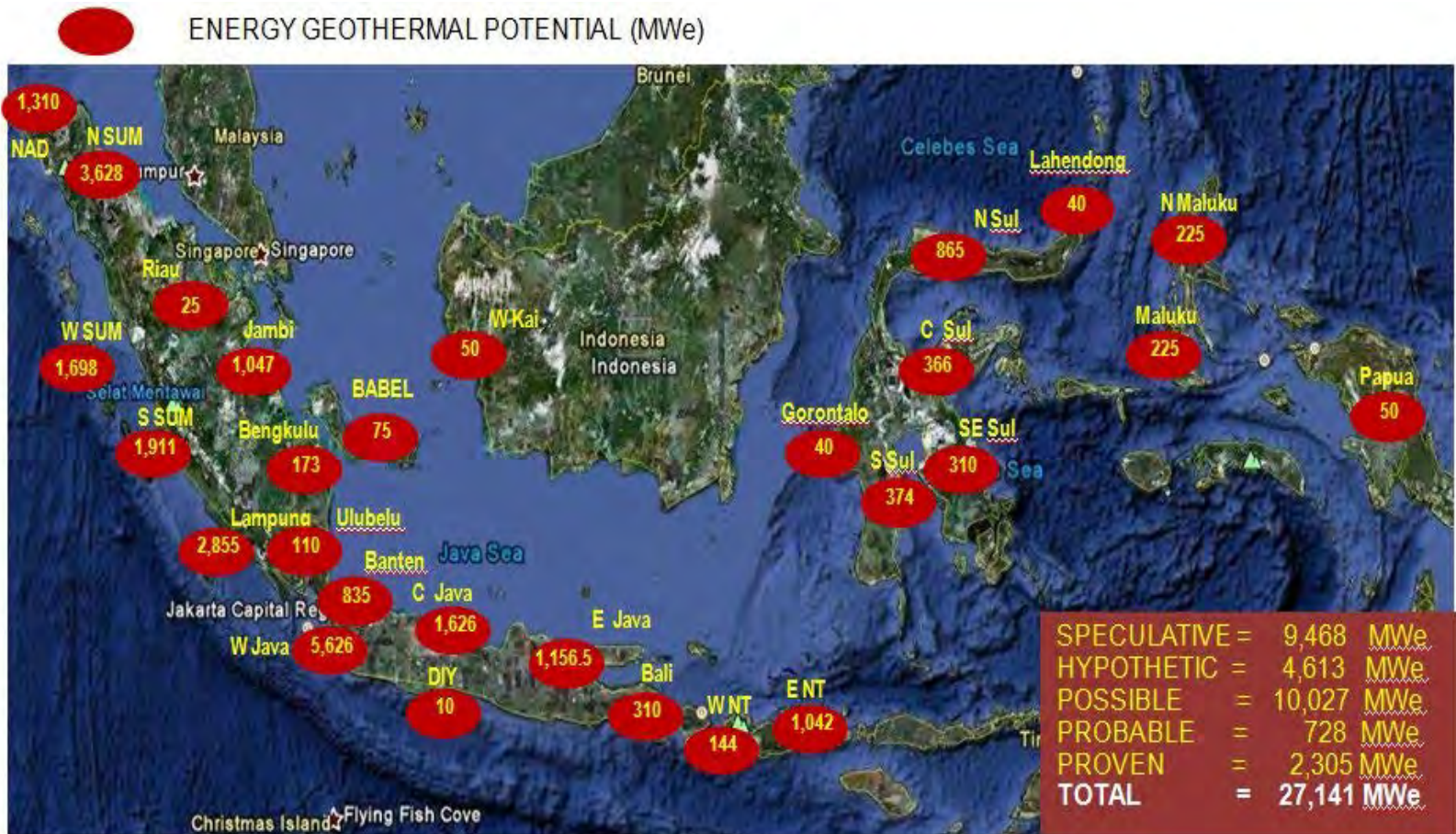
- Indonesia has an economic growth of 6-8%
- >80% energy based on fossil fuels



Source: Bertani, 2012, geothermics, 41, p 1-29



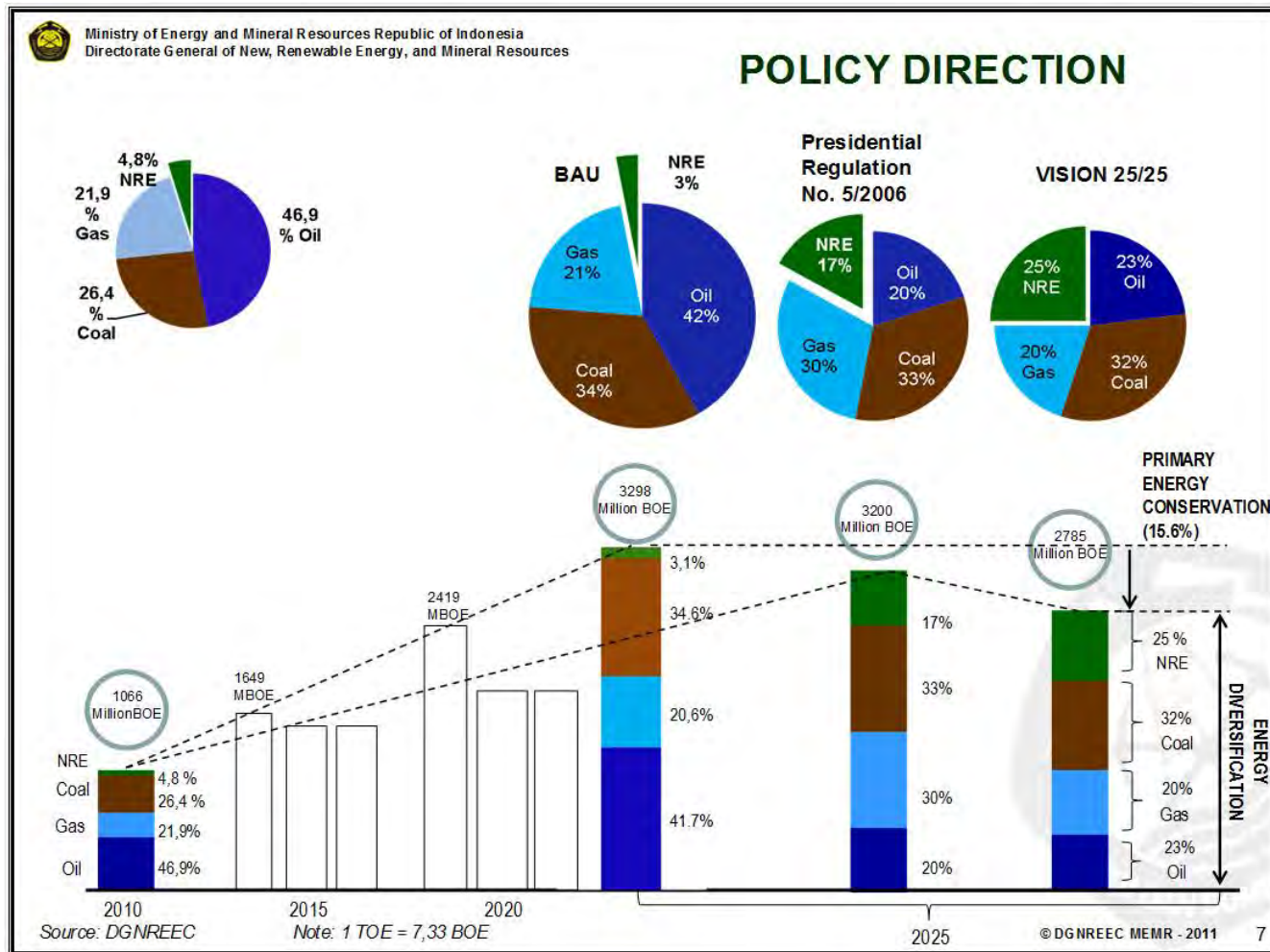
GEOHERMAL POTENTIAL IN INDONESIA



Source: MEMR 2010, updated 2013, pers. Comm. Antonaria

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





GEOHERMAL CAPACITY BUILDING PROGRAM (GEOCAP)

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





GEOHERMAL CAPACITY BUILDING PROGRAM (GEOCAP) (PUBLIC-PRIVATE PARTNERSHIP)

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



UNIVERSITY OF TWENTE.





GEOHERMAL CAPACITY BUILDING PROGRAM (GEOCAP)

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.
- Asosiasi Panas Bumi Indonesia (API) – INAGA (Coord.)
- Open to other institutions, companies, universities
- BAPPENAS
- WWF Indonesia





CAPACITY BUILDING FOR GEOTHERMAL ENERGY IN 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





GEOHERMAL CAPACITY BUILDING PROGRAM (GEOCAP)

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



UNIVERSITY OF TWENTE.

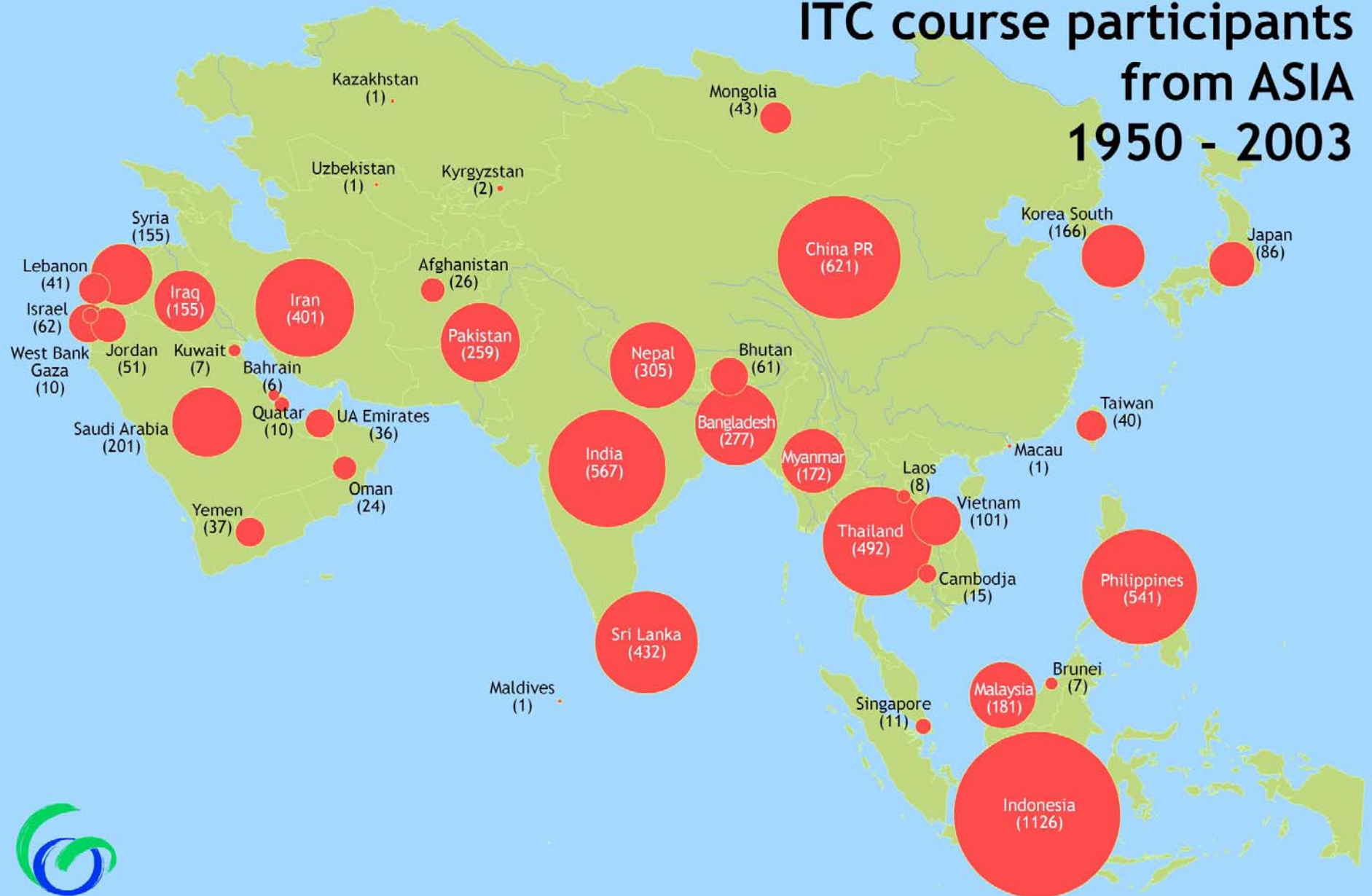




GEOCAP UNIQUE ASPECTS

- 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 cooperation

Number of ITC course participants from ASIA 1950 - 2003





CAPACITY BUILDING FOR GEOINFORMATICS	PURPOSE	FOCUS
	Human resources development	Supply of technical and professional personnel
	Organisational strengthening	Strengthen the management capacity of organisations
	Institutional strengthening	Strengthen the capacity for inter-agency coordination

“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

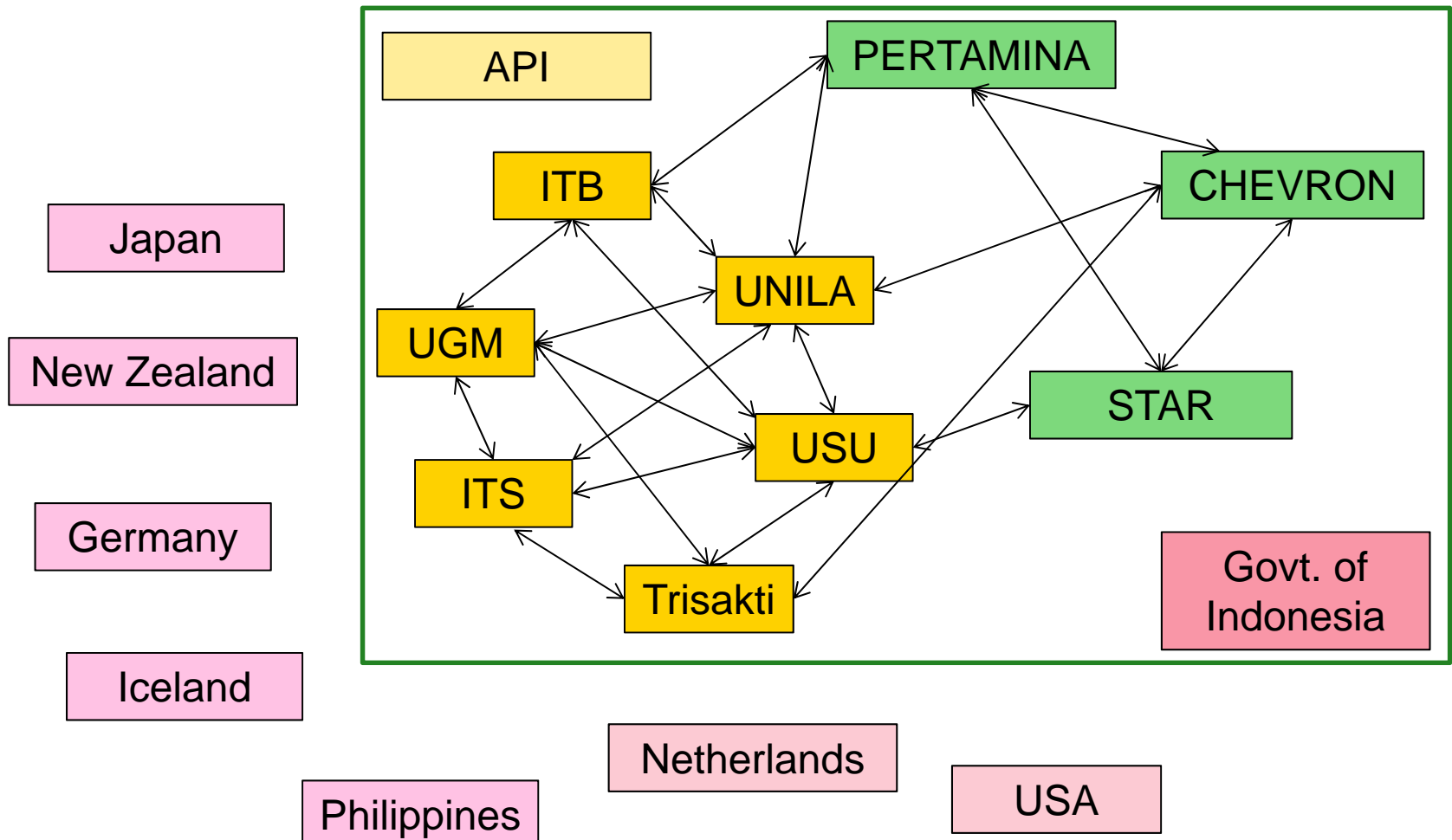


NEW ROLES FOR NORTHERN INSTITUTES

- 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!

Freek van der Meer: f.d.vandermeer@utwente.nl

Tom Loran: t.m.loran@utwente.nl



UNIVERSITY OF TWENTE.