Regionales Kleinwasserkraft Kompetenzzentrum HYCOM Bandung, Java / Indonesia

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REPIC
Renewable Energy Promotion in International Co-operation

Actual energy mix in Indonesia

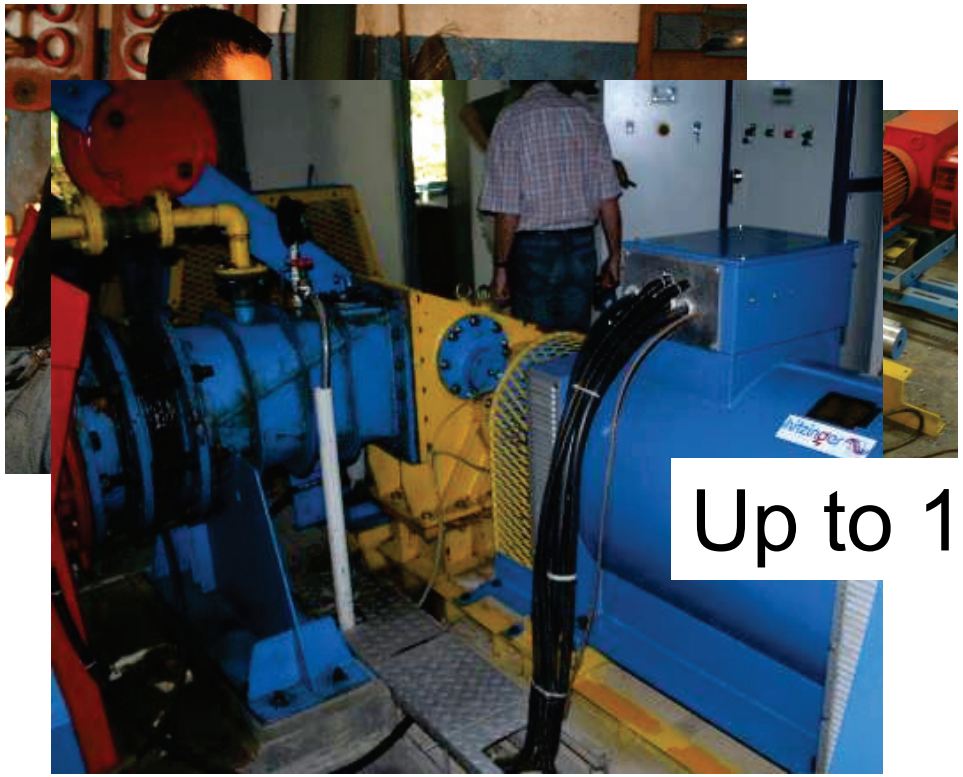
• **Non-renewable installed capacity**	**23.7 GW**	**80.2%**
– Oil	18.2 GW	61.7%
– Coal	4.1 GW	13.9%
– Natural gas	1.4 GW	4.6%
• **Renewables**	**5.8 GW**	**19.8%**
– Hydro	4.2 GW	14.3%
– Geothermal	1.1 GW	3.7%
– Biomass	445 MW	1.5%
– PV	8 MW	0.0%
– Wind	1 MW	0.0%
• **Share of Mini/Micro Hydro**	**84 MW**	**0.3%**

Hydropower Potential

- Indonesia: 3rd highest hydropower potential in Asia!
- Current Production
  Small Hydropower (SHP) 0.055 TWh/a
- **Untapped SHP Potential 75 TWh/a**

Source: Hydro Atlas, Hydropower & Dams

Local Manufacturing travelling on the learning curve



Up to 100 kW

Hydraulic Laboratory University of Applied Sciences, Zurich

- Former training equipment for hundreds of Swiss engineers
- Equipment still in good condition and consisting of
  - Pelton turbine unit
  - Francis turbine unit
  - Different types of pumpes
  - Measurement weirs
  - equipment
  - Gates and actuators

Project Idea – Regional Small Hydropower Competence Centre I

- Installation of the equipment of the hydraulic laboratory in Bandung, Java / Indonesia, making it available for
  - Local producers of SHP equipment can test and improve the quality of their products
  - Local development of equipment for higher capacities (up to 1 MW)
  - Practical trainings for producers and planners
  - Test equipment for Indonesian students

Project Idea – Regional Small Hydropower Competence Center II

- Establish a know-how exchange platform for the different stakeholders
  - Planners & operators of MHPs
  - Different small and medium-sized producers of MHP equipment
  - Jasa & Produksi, responsible for O&M of the power plants of PLN (Indonesian Electricity Utility)
  - ASEAN Center for Energy
  - UGM University Yogyakarta and Institut Teknologi Bandung ITB
  - Engineering companies

Expected results

- “Living” network of different stakeholders enables know-how and experience exchange
- Local producers use the services of the hydro laboratory, improve the quality of their products and get in contact with potential costumers
- New products for the range of up to 1 MW are developed and a better exploitation of the Small Hydropower potential in the range between 100 kW and 1 MW
- Technical trainings take place in the competence center and allow also international exchange with players from other countries

Achievements… (I)

Hydro lab equipment is dismounted and transferred to Indonesia

Achievements… (II)

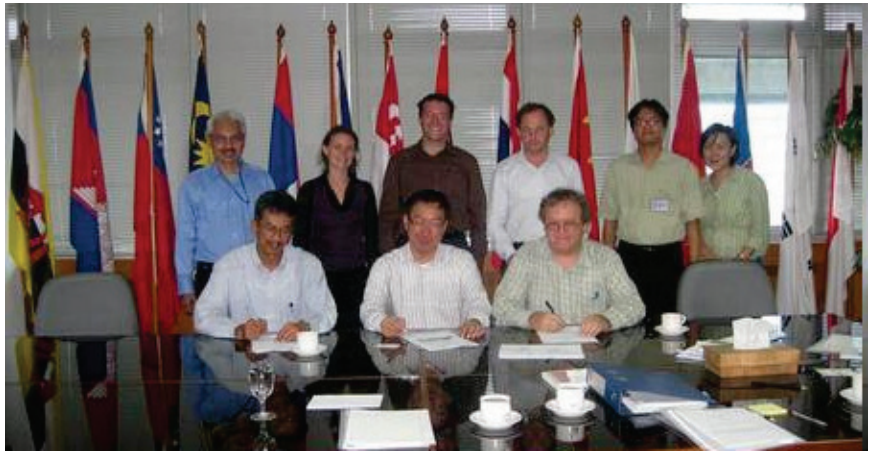
- Several trainings and workshops took place with equipment of the hydro lab
  - Turbine design: workshop for producers from different countries like Ethiopia, Afghanistan, Laos, Philippines, ….
  - Training for Teachers of TEDC

Achievements (III)

- The Indonesian Energy Minister visited the area of the competence centre and fully supports the idea

Achievments (IV)

- New national and international stakeholders got informed about the new project and showed their interest
- Public Private Partnership between TEDC Bandung and pt. Entec Indonesia, supported by Asean Centre for Energy and AGMHP
  - TEDC: Technical Education Development Centre Bandung, State owned engineering educational institution (Politeknik)



PPP

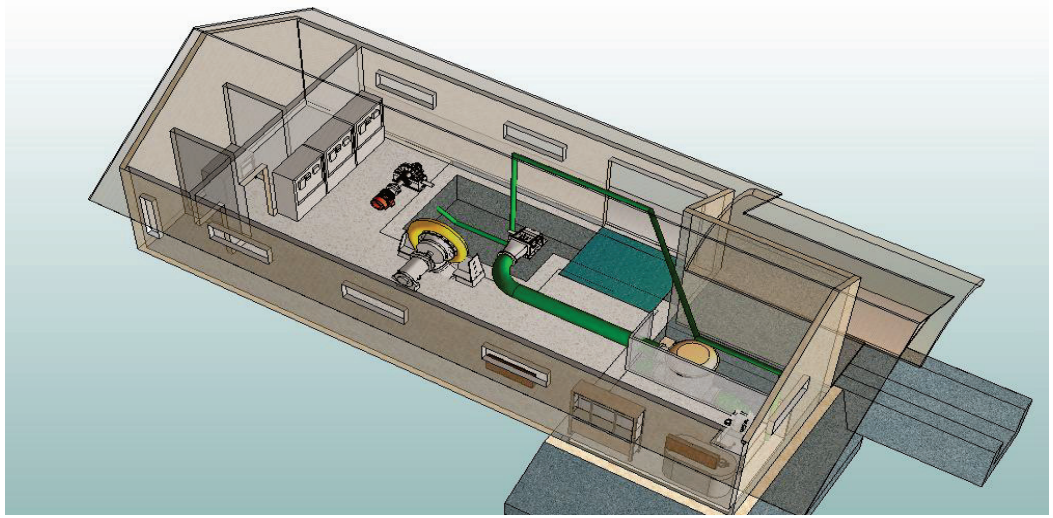
- TEDC
  - Makes available premises for the construction of the centre
  - Development of suitable training curricula, training courses and overall operation, maintenance and management of the facility
- PT. Entec
  - Responsibility for implementation of re-construction
  - Training of the staff
  - Development of the curricula
- ACE
  - Support and backing up the partners activities
  - Financial support
  - Promotional activities in ASEAN partner organisations and networks

Next steps

- Final design and tendering HYCOM building
- Construction of HYCOM
- Installing and commissioning the equipment
- Operating HYCOM sustainable

Conclusion

REPIC's financial contribution allowed the initiation of this project and made the use of all these synergies possible!



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