

INDONESIA NDE EXPERIENCES ON REQUESTS TO CTCN

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Criteria of Technology Transfer Proposal

Criteria of Proposal to CTCN

1. Based on TNA (*Technology Needs Assessment*)
2010 and 2012 priority or other priority
2. Accordance with the National or Sector priority
and policy
3. Contribute to the sustainable and low carbon
development
4. Support Technological Independence of
Indonesia

TNA Results

TNA 2010 Result (Mitigation)

- Indonesia has two TNA, developed in 2010 and 2012.
- TNA 2010 priorities on:
 - Energy Sector
 - Industry Sector
 - Transportation Sector
 - Forestry Sector
 - Agriculture Sector
 - Ocean Sector
 - Waste Sector →
 - 1.Municipal solid waste
 - 2.Wastewater (Biologically treatment)
 - 3.Agro-industrial waste (including palm oil waste)

Indonesia TNA 2012 Priorities

Sector	Technology Mitigation	Sector	Technology Adaptation
Energy	Photovoltaic (PV)	Food Security	Crop (rice) tolerance to drought and flood
	RBCS		Mariculture development
			Beef cattle farming technology
Forestry	Measurement and monitoring of carbon sequestration and emission	Water Resources	Technologies for rain water harvesting (well and infiltration pond),
	Peat re-mapping		Domestic water recycling
	Water management		Modeling for water resource potential projection
Waste	Mechanical biological treatment	Coastal Vulnerability	Coastal Protector Building Technology (Seawall or Revetment)
	In-vessel composting		
	Low-solid anaerobic digestion		Coastal Reclamation Technology

Develop Request Submitted to CTCN

Preparing Technology Transfer under NDE

1. Further identification of TNA Technology Prioritized, carried out since early 2014.
 - Detail discussion with sector/stakeholder
 - Field survey
 - Detail technology option to develop the proposal to CTCN

2. Proposal submitted to CTCN, as follow:
 - Integrated River and Coastal Management toward Sustainable Giant Sea Wall Technology in Jakarta
 - Development of Anaerobic Digester Technology for Palm Oil Empty Fruit Bunch (EFB) in Indonesia
 - Development of the Ciliwung Watershed Management
 - Development of Ocean Current Energy in Seram, Maluku
 - Development of Integrated Carbon Measurements Methodology on Peatlands in Indonesia

Progress Proposal from Indonesia

- CTCN has been accepted 2 proposal from Indonesia, as follows:
 - ✓ **Integrated River and Coastal Management toward Sustainable Giant Sea Wall Technology in Jakarta** → Refining Process
 - Danish Hydraulic Institution (DHI) has been selected to design the response plan for this request, with Climate Technology Manager and support of the UNEP regional offices for Asia Pacific, and collaboration with Indonesia's NDE and their designates
 - ✓ **Development of Anaerobic Digester Technology for Palm Oil Empty Fruit Bunch (EFB) in Indonesia** → Refining Process
 - GIZ as a CTCN consortium partner has been selected to design the response plan for this request, with Climate Technology Manager, and collaboration with Indonesia's NDE and the request applicant, University of Lampung

Development of Anaerobic Digester Technology for Palm Oil Empty Fruit Bunch (EFB) in Indonesia

- **Background**

- ✓ Total area of palm oil plantations in Indonesia 7,873,840 ha.
- ✓ Total palm oil industry in Indonesia is estimated 608 industries.
- ✓ Total EFB waste approximately is 39,369,200 tons/year



- **Existing EFB waste treatment**

- ✓ EFB is utilized as electricity sources through combustion technology in biomass power generator. It is needed a huge energy for reducing its moisture content (over 60%).
- ✓ EFB is also utilized as mulch (land cover) on palm oil plantation that requires high cost for transportation and directly emit GHG

- **Potency**

- ✓ One of the palm oil waste treatment potencies is bio-waste conversion to energy and the opportunity comes from EFB utilization.
- ✓ The utilization is estimated to generate electricity up to 800-1000 MW.
- ✓ With the high moisture content, anaerobic digester technology is more appropriate than burning technology to be applied in biomass power generator.

Development of Anaerobic Digester Technology for Palm Oil Empty Fruit Bunch (EFB) in Indonesia

- **Assistance Requested**

The request is basically a kind of technology transfer for the Development of EFB Waste Treatment using Anaerobic Digester Technology. In more detail, it will cover:

- ✓ The identification of the best technology for EFB waste processing;
 - Mapping out the existing anaerobic digester technologies for EFB waste treatment national and internationally.
 - Determine the best technology for EFB waste treatment in Indonesia
- ✓ The technology transfer for the best anaerobic digester technology for EFB waste treatment;
 - Knowledge exchange through capacity building and expert collaborations
 - International collaboration research and development for EFB waste treatment in Indonesia
 - Developing a demo plant of EFB anaerobic digester including design for the best anaerobic digester for EFB waste treatment in Indonesia.

Integrated River and Coastal Management toward Sustainable Giant Sea Wall Technology in Jakarta

• Background

Following conditions has occurred in Jakarta, including

- ✓ Flood in Jakarta is an annual event due to inadequate 300m³/second water management from 13 rivers in the peak of rainy season.
- ✓ The big amount of dense population, reaching 9.61 million in the night and 12 million in the day time
- ✓ Most of North Jakarta area is lowland which is 1-1.5 meters below sea level pairs, where only about 25% of its area is served by the polder system.
- ✓ There has been a land subsidence as much as 7.5 cm/year due to the load of buildings and excess groundwater. It is estimated that the north coast of Jakarta will 'disappear' 6.9 meters in 2050 (ITB 2008).



• Objective

The development plan of Giant Sea Wall is aimed as a flood mitigation, improved water supply and sanitation, improved connectivity and sustainable community development, which includes three stages:

- ✓ Reclamation on 17 islands which covers overall area as much as 4,000 ha.
- ✓ Construction of the outer dike in 2018-2022
- ✓ Construction of the giant sea dike (well-known as a Giant Sea Wall) in 2030 that shaped like a Garuda Bird (Indonesia nationality symbol). So that, the entire area of its Giant Sea Wall will reach 1,250 Ha.

Integrated River and Coastal Management toward Sustainable Giant Sea Wall Technology in Jakarta

- **Assistance Requested**

The request is basically a kind of technical assistance and capacity building in water resources management for 13 rivers that flow into Jakarta and identifying the best available technology for giant sea wall of Jakarta, Indonesia. In more detail, it will cover:

- ✓ The development of baseline condition of rivers and coastal area that related to GSW project, including the socio-economic aspects.
- ✓ Capacity building and technical assistance for knowledge transfer on giant sea wall technology (best design aligned with local conditions)
- ✓ Capacity building and technical assistance in integrating water resources management (upstream-downstream) and coastal management toward sustainable GSW Jakarta for the decision makers.
- ✓ Capacity building and technical assistance for developing the center of excellences as the expert and information hub for sustainable management of GSW Jakarta.
- ✓ Capacity building and technical assistance for shifting the community paradigm on river as a backyard
- ✓ Provide the supporting policy and regulation
- ✓ More widely expand the international cooperation network through sister city with other countries experienced similar projects.

3. Collaboration with GIZ

- Preparing an exploration into actors, questions and potential request to the CTCN. The results as follow:
 - ✓ Recommendation for two emerging low-carbon energy technology lines
 - ✓ Recommendations on private sector collaboration and engagement
 - ✓ Recommendations for NDE proposals for CTCN
- Detail activities to prepare the Indonesian proposal to CTCN in energy sector
- Next steps will be focus on the:
 - ✓ Palm oil solid waste
 - ✓ Wood pellet

4. Collaboration with IGES

- Conducted workshop on “Low carbon transfer technology and financing scheme”
- Workshop identified technology priority on municipal solid waste sector
 - ✓ Focusing on Thermal Technology Processing and Mechanical-Biological Treatment



Thank You

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