

# SHORT PRESENTATION:

## “CLIMATE CHANGE” AND TECHNOLOGY NEEDS IN INDONESIA

BY:

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### I. Introduction

The Republic of Indonesia is a maritime country with thousands of islands scattered in a tropical region between two large oceans (Pacific and Indian) and two continents (Asia and Australia).



The climate of the Indonesian archipelago is characterized by strong seasonal variations in the upper oceanic circulation influenced by monsoonal winds. Serving as the lung of world climate, 120 million hectares of Indonesia's land area are covered by forest.

More than 80% of the country's population lives from agriculture and fishery, 2 sectors, which are highly susceptible to climate variability. The vulnerable agricultural sector has been subjected to several impacts of climate extremes including flood, drought, occurrence of crops pests and diseases with growing frequency and intensity.

Growing economic rate during the last decades led to a growing demand of energy, especially in the sectors industry and transportation.

The steadily increasing population especially on the most densely populated island of the world requires an industrial growth to satisfy the rising consumer needs.

On the other hand, this growing demand for energy and consumer goods is accompanied by an increase of waste from the industrial, household and agricultural sectors.

To reflect all these factors, The Assessment of Indonesian Technology Needs concentrate to the seven important sectors:

1. **energy,**
2. **industry,**
3. **transportation,**
4. **waste treatment,**
5. **agriculture,**
6. **forestry, and**
7. **ocean.**

(Synthesis Report, 2010, Indonesia's Techn. Assess. On Climate Change Mitigation)

The first six sectors were selected, because they are the main source of GHG emissions in Indonesia.

The seventh sector, ocean, plays an important role, because 60% of Indonesia's total area is ocean and based on several references, the ocean is a large carbon sink.

Indonesia's development planning is reflected by the mid-term National Development Plan prepared every five years.

After hosting the COP-13 in Bali in December 2007, there was a consensus to streamline national development policy into a climate responsive policy.

In this regard, the guideline drafted the implementation of national policy concern of the environmentally sound technology to achieve the target of low-carbon development.

## **II. The "Climate Change " issue and Needs of its Sozialization**

1. Knowledge and understanding of the "**Climate Change** " issues are relatively less - including the intellectual area like the world's campus or acedemic field.
2. There is an impression that the issue of "climate change" is still in the world and national level. (Although the mass media have often preached, but the "shakes" it has not been quite widespread in the general population).
3. It required extensive and continuous socialization, especially to local governments, businesses and educated persons are to subsequently to the general public.

4. Activity in Bali in December 2007 can be used as a momentum in the effort to socialize the substance and issues of "climate change".
5. Socialization emphasis on local government, related to the autonomy/decentralization of government; oprasional various policies and measures that in fact could be an issue "climate change" is defined in the region.

The central government is expected to have formal policies, regulations and action plans are clear and measurable, as well as play a role in the coordination, evaluation and control, both to departement, regions, businesses and society as a whole.

6. It should be handling the more real and well-publicized, on cases related to the factors causing "climate change". So that people feel that "climate change" as a problem, then, needs to be a real condition "climate change" and the impact that has and will happen to the daily life of the community.
7. Map of the problem, to create on the global and national level, should also be made to regional and community level. This is to show that "climate change" is the real issue is the impact (already) felt both by the local government and community.

Conduct activities to save the earth, should be based on the basis of self-awareness and not because there is global pressure or developed countries.

8. In addition to real problems impact "climate change" at this point, it should be also made predictions on the local and national level about the impact of "climate change" in the future.

Especially - if it does not make any effort. This is related to "planning" anticipatory impacts, the preparation of adaptation measures and other actions.

9. Anticipatory approach, the community is prepared to adapt to the changes that will occur.

Required for this data and an accurate base map to make predictions, scenarios, anticipation and action in the event of impact.

10. Human Resources need planning through advanced education abroad (mainly) and research related to the environment.

Technology is included:

the discovery of an effective utilization of natural resources that exist to fit the rules of the environment, adjustment /change /replacement of ongoing technological modes with a more environmentally friendly; environmentally friendly alternative energy, infrastructure, technology adapatif and anticipatory changes in the environment.

11. In addition to the study of food and medicine, research on environmental technology should be a priority. In accordance with its level, issue of "Climate change" is taught from kindergarten to university.

The substance of the teaching, is environmental awareness, adaptation and step-by step action when events occur.

At the university who have adequate human resources, there is expected to in-depth studies on matters related to "climate change", especially the technological nature.

12. Needs and priorities of research on "Climate Change" mapped, designed and coordinated by the Ministry of Environment and Minister of Technology with the involvement of "stakeholders" involved.

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13. The experiment was conducted at various research institutes and universities in specific and specialized expertise possessed by considering the location and specifications.

With due attention to scientific networks, the agency conduct a major research topic thoroughly and completely intact.

14. "Transfer of technology" should be seated in the framework of "transfer of knowledge", so the technology used in the field can diffuse to the whole community, especially the research and higher education institutions.

15. For the licensing of new, environmentally friendly technologies should be a primary requirement. For businesses that are already underway, is expected to gradually change the direction technology is environmentally friendly. Necessary to determine the transition to the use of environmental technologies are really clean.

### III. Selected Technology Needs of Indonesia

(Synthesis Report, 2010, Indonesia's Techn. Assess. On Climate Change Mitigation)

a. Technology Transfer Priority

The Selection using specific criteria suggest that for the supply side technology, high priority for technology transfer shall be given to :

- Advance coal technology/clean coal technology
- Geothermal technology
- Biomass technology, in particular for direct combustion technology and co-firing technology

b. Technology Needs Priority

- Energy efficient technologies for industry :
  - Lightning system
  - Pump and fan
  - Industrial motor
  - Cogeneration
- Energy efficient technology for residential and commercial building :
  - Lightning equipment (CEL and electronic ballast)
  - Cooling system
- Soft technology
  - Energy Audit
  - Energy Rating and labeling
  - Energy Management

#### Examples of Local – Indonesian Patent Application Relating to Environmentally - Friendly Invention

- Palm oil additive to increase diesel fuel setana
- Castor Bean Oil (*Ricinus Communis*) to replace gas fuel stove
- Physie Oil (*Jatropha Ceercas*) to replace gas fuel stove
- Bio-fertilizer:
  - Cellulitie Microbe
  - Proteulitie Microbe
  - Nutrification Microbe
- Methode and appratus to protect beach from sea water – erotion

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and so on.

To promote the implementation of Local – Indonesian Patent Application Relating to Green Environmentally, the proposal of Government Regulation regarding “license by government or compulsory license “ for Patent Applications Relating to Green Environmentally (beside food, medicine, defense, and public ly interest) be drafted , but not promulgated yet.

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Thank You