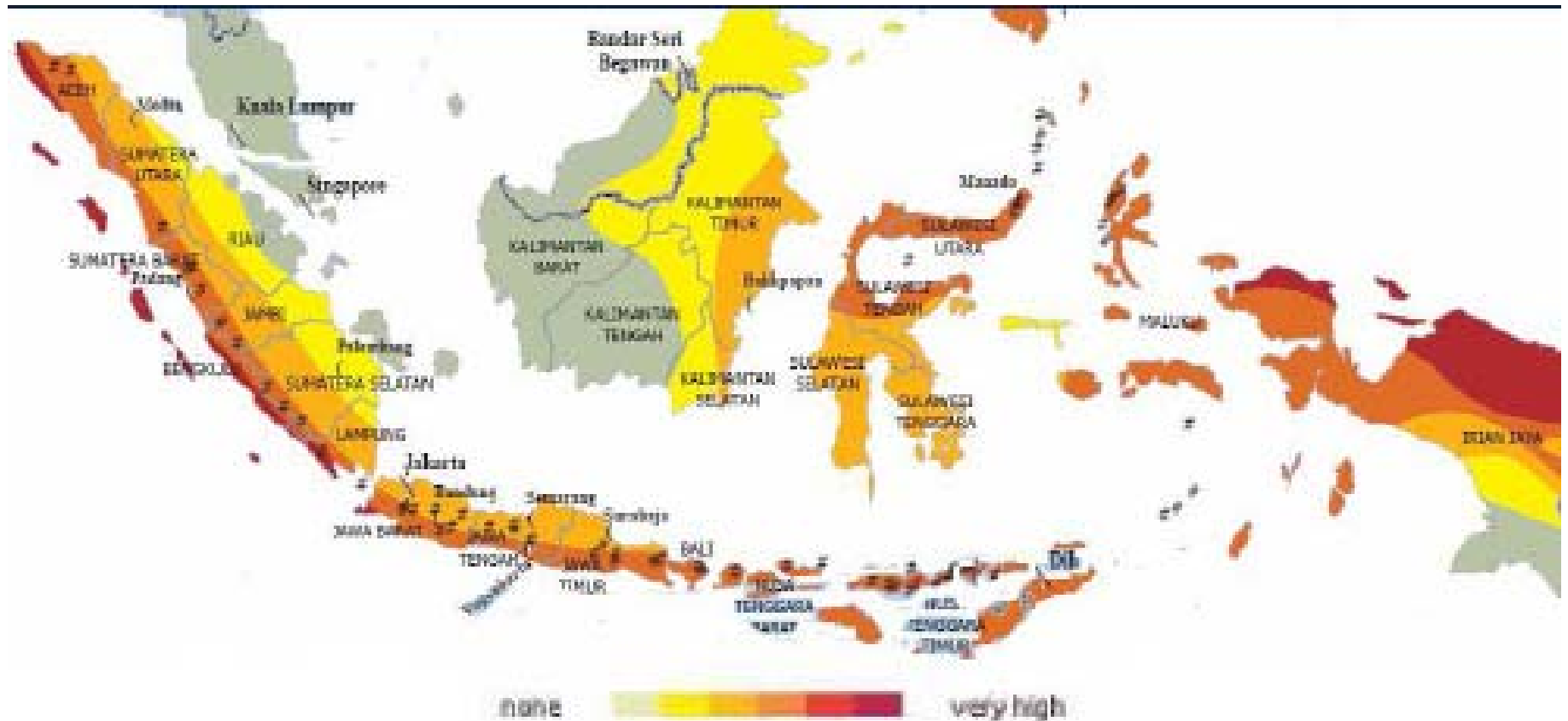


Climate Adaptation Activities and Experience in Indonesia

Dr. Erna Sri Adiningsih
APN SPG Member for Indonesia



Degree of Exposure to Natural Hazards in Indonesia



Source: UNOCHA, 2006 (in MOE, 2007)

Climate Related Disasters in Indonesia

- Floods, droughts, landslides, wild fires and wind storm count for 50.3% of the number of events,
- contributing to total losses from disaster:
 - 68.3% of the total number of affected people,
 - 7.9 % of total death,
 - 25.1% of total property damage.



Major Impacts of Climate Change and Variability in Indonesia

- ❖ Sea level rise :
 - increased coastal flooding along Indonesian coastal line (second longest coastal line in the world).
 - Submerging small islands.
- ❖ Shifting regional climatic averages, shifting of climate zones, higher frequency and amplitude of weather events.
- ❖ Increasing severity and frequency of natural disasters, such as drought, floods and landslides.
- ❖ The livelihood systems of many local and especially poor communities are sensitive to changes in climate, their vulnerability increased
- ❖ Climate variability and change vs increasing social and economic pressures, lead to increased climate risk to the country in achieving the Millennium Development Goals



Impacts of Climate Change and Variability



FLOODS

Impacts of Climate Change and Variability



Droughts & Land/Forest Fires

6

APN Climate Adaptation Seminar • 23 October 2011 • Siem Reap, Cambodia



APN
Asia-Pacific Network for Global Change Research

Impacts of Climate Change and Variability

Landslides



LANDSLIDES

More frequent landslides

Climate Change Adaptation Policy

- Presidential Instruction has been issued since January 2011 concerning Suspension Issuance of New Permits and Improvement Governance of Primary Forest and Peatland. The objective of this moratorium is to reduce emissions of greenhouse gases through REDD (Reduction Emission from Deforestation and forest Degradation) program.
- Indonesia has pledged a national target in reducing GHGs emissions as much as 26% from business-as-usual in 2020 by domestic efforts. The target could be further expanded to as much as 41% from business-as-usual scenario, through international supports.



Climate Change Adaptation Policy

- The Government of Indonesia (GoI) has developed a draft Presidential Regulation concerning National Action Plan to Reduce Greenhouse Gases Emission. This action plan consists of national strategies to reduce GHGs emission from related development sectors to achieve the commitment to reduce emission by 26% at 2020. Energy sector will contribute around 5.13% of this target in 2020 or approximately 30 million tones CO₂ equivalent.
- In order to strengthen our effort on environmental protection and management, since 2009, Indonesia government has issued a new environmental act, “Environmental Protection and Management Act”.

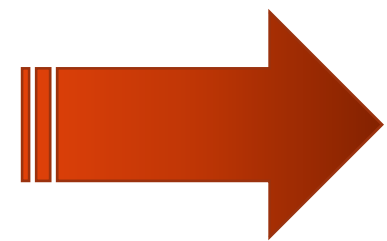


Climate Change Adaptation Activities

- As mandated from Environmental Management Act, Indonesia needs to launch: (a) The Standards for Environmental Degradation due to Climate Change.; (b) The MRV system for Climate Change Mitigation actions.
- The guidance of MRV system for Waste has been developed; while other sectors, energy and forestry are on the process.
- Vulnerability assessment based on climate data has been reviewed at four difference areas (Lombok for meso island, Tarakan for micro island, South Sumatera for macro island, Malang for agricultural impact). These reviews are needed to determine better actions for cities to adapt the climate change.



Climate Adaptation Activities in Indonesia



Climate Adaptation in Various Sectors: Water Management, Agriculture, Urban Planning, and Forestry

ASSESSING THE EFFECTIVENESS OF
ADAPTATION OPTIONS IN MANAGING
CLIMATE VARIABILITY AND CLIMATE
CHANGE IN WATER SECTOR



Prepared by

Rizaldi Boer, Yanuar, Peidiman, Bambang Dwi Sasanto, Dieter
Kirschke, Stefan Noleppa, Tilman, Nana Kunkel

VULNERABILITY ASSESSMENT OF
AGRICULTURE TO CLIMATE CHANGE

Science, Technology & Intellectual Assets



RESEARCH CENTER OF LAND RESOURCES FOR AGRICULTURE
INDONESIAN AGENCY OF AGRICULTURAL RESEARCH AND DEVELOPMENT
MINISTRY OF AGRICULTURE

Vulnerability Assessment
Impact of Climate Change on
Human Settlements in Urban Areas

A Round-table Discussion on Developing a Methodology
and Information Sharing for Vulnerability Assessment
to Climate Change in Indonesia

Jakarta, 10 July 2008

Presented by:
Endra Saleh Almoradjeja, MSc, PhD,
Dejen Purnama Rung - Dep. PU

Vulnerability Assessment to Climate
Change in Forestry Sector

A. Ngaloken Gintings

A member of Climate Change Working Group MoF

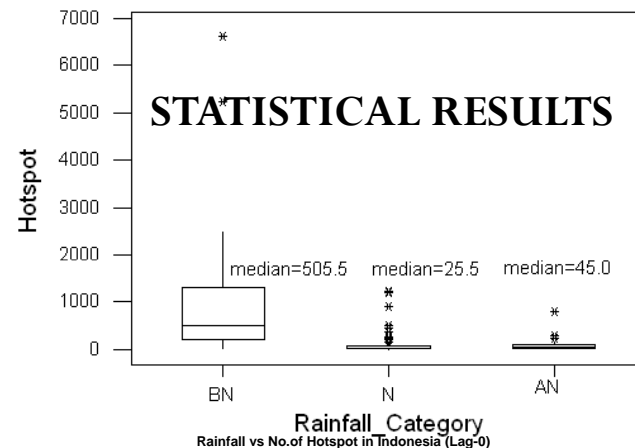
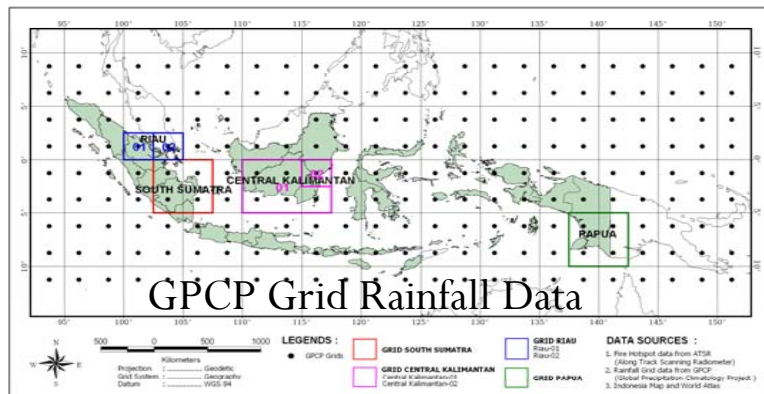
Presented at a Round Table Discussion, on Developing a Methodology
and Information Sharing for Vulnerability Assessment to Climate Change
in Indonesia

Aryaduta Hotel, Jakarta, 10 July 2008



Climate Impact on Fire Risks

Data from NASA



Data from ESA

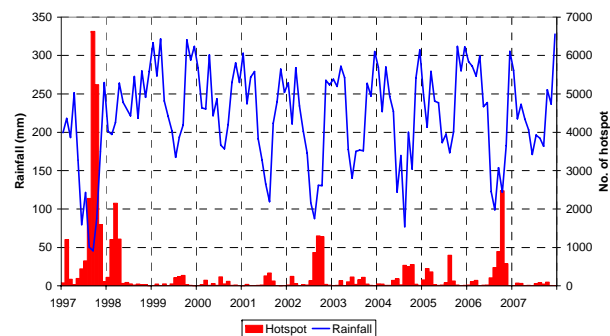
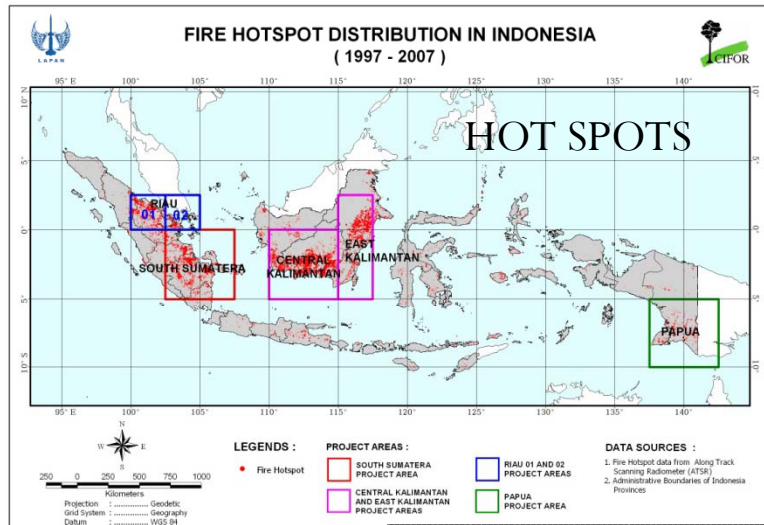
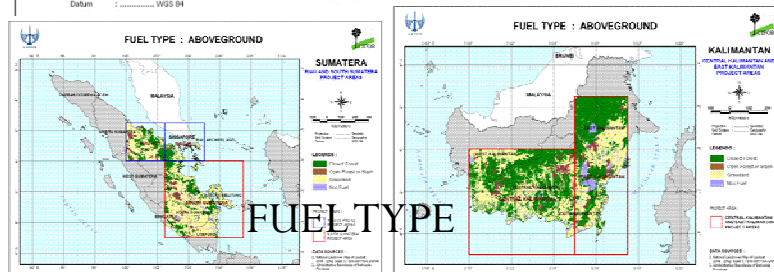


Table of Fire Risks

Rainfall Category	Low (hotspot < 400)	Moderate (400 < hotspots < 800)	High (800 < hotspots < 2000)	Very high (hotspot > 2000)
Below Normal	0.423	0.231	0.154	0.192
Normal	0.935	0.016	0.032	0.016
Above Normal	0.943	0.057	0.000	0.000

Data from LAPAN



Climate Adaptation in Health Sector: Malaria Vector Breeding in West java



Climate Change Adaptation Research Activities

- Conducted by Climatology Laboratory, IPB (Bogor Agricultural Institute):
 1. Rizaldi Boer, and Elsa Surmaini. 2006. Economic Benefits of Using SOI Phase Information for Crop Management Decision in Rice-Base Farming System of West Java, Indonesia , International Conference on Living with Climate Variability and Change: Understanding the Uncertainties and Managing the Risks. Espoo, Finland, 17-21 July 2006.
<http://www.livingwithclimate.fi>
 2. Rizaldi Boer, Upik Rosalina Wasrin, Hendri, Bambang D.Dasanto, Willy Makundi, Julius Hero, Perdinan, M.Ridwan and Nur Masripatin. 2006 assessment of carbon leakage in multi carbon sink projects:case study at jambi province,Indonesia. Accepted for publication at the Mitigation and Adaptation Strategy for Global Change.
 3. Rizaldi Boer, and A.R. Subbiah. 2005. Agricultural droughts in Indonesia. In V.K. Boken, A.P. Cracknell, and R.L. Heathcote. Monitoring and Predicting Agriculture Drought. Oxford University Press, p:330-344.



Climate Change Adaptation Research Activities

- Conducted by ITB (Oceanography Program):
- M.Purbo(1990) Assessment of Java sea level rise
- T.Meliana (2005) Flood vulnerability of North Jakarta due to Sea Level Rise and Land Subsidence.
- R. Widiaratih (2007) Projection of Economic Losses due to Flood as the Impact of Sea Level Rise and Land Subsidence (funded by Osaka Gas Foundation)
- P. Suciati (2007) Prediction of Inundation at North Jakarta due to Sea Level Rise, Land Subsidence and Flood
- Ivonne M.Radjawane and Safwan Hadi (2007) Coastal Vulnerability to Sea Level Rise in Northern Jakarta.
- Safwan Hadi (2007) Impact of Sea Level Rise at Thousand Island, Jakarta Bay: using tidal data of 1925 to 2003 - sea level rise in Jakarta area 5,7 mm/year, Year 2050 : 150 islands from 241 islands of Thousand Island will be submerged
- Kosasih Prijatna (2007) Sea level rise measurement in Indonesia using Satellite data TOPEX/POSEIDON



Concluding Remarks

- Indonesia is vulnerable to climate change and variability impacts.
- National policies and strategies on climate change are directed to mitigation and adaptation as well.
- Research activities on climate change adaptation have been conducted in Indonesia at national and regional levels. International collaborations are still needed to improve technical soundness of the research.
- All those concerns in climate change and sustainable development issues need scientific research as the basis. International collaborations in attempting to establish such standards and the implementations
- Encourage regional collaboration to address those issues and to promote the strengthening of APN science agenda implementation.



THANK YOU

