LEMBAGA ILMU PENGETAHUAN INDONESIA
(INDONESIAN INSTITUTE OF SCIENCES)

Basin Scale Flood Hazard Mapping Using Hydrologic Model in Sumatera, Indonesia

Apip
Research Center for Limnology - Indonesian Institute of Sciences (LIPI)

The 2nd Symposium on JASTIP Disaster Prevention International Cooperation Research
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Outline

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   - Landuse Changes & Possible Future Landuse Demand
   - Trend Analysis of Hydrologic Data
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4. Further Activity

I INTRODUCTION

Water Resources Potential in Indonesia

13.85 million ha: rivers, lakes and reservoirs

5,590 large rivers with 65,017 branch rivers

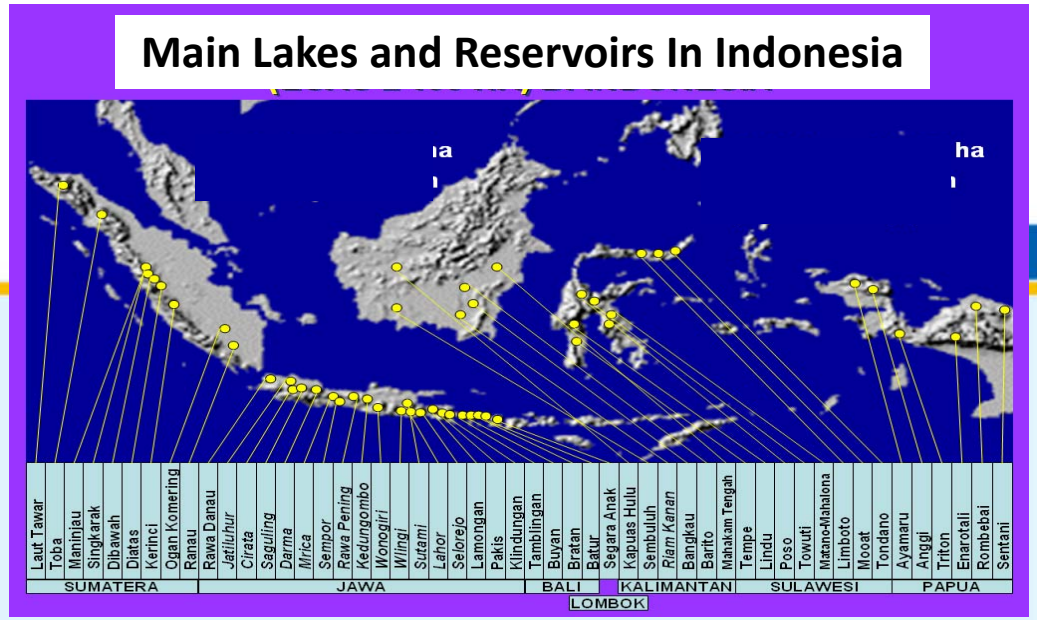
12.0 million ha river and flood plain

1.8 million ha natural lakes

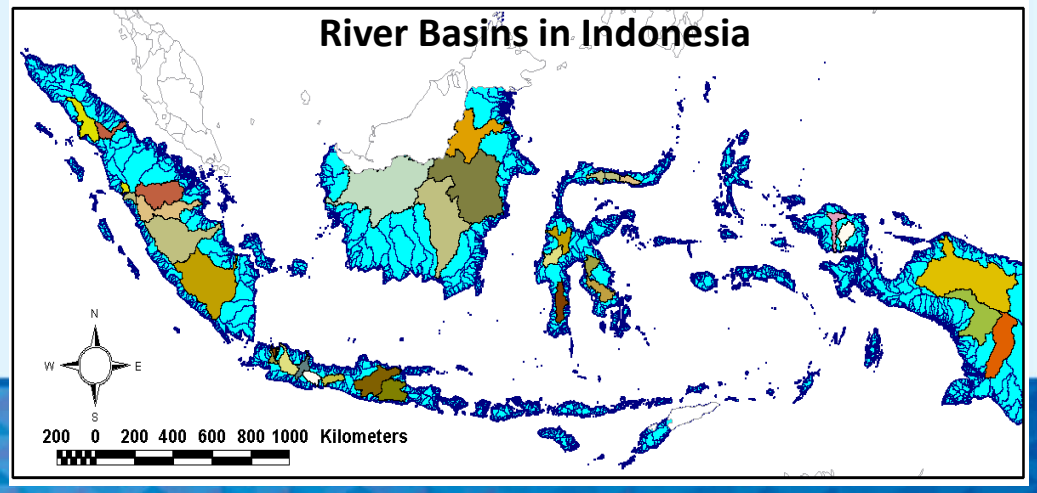
0.05 million ha reservoirs

Total length of river 94,573 Km

Watersed area 1,512,466 Km2



Kartamihardja, 2006



I INTRODUCTION

Problems: **Extremely surplus & deficit, Decreasing inland waters ecosystem services**

Disaster exists if there is a risk/damage

1. ***Rapid Onset Type Disasters (flood, drought)***
2. ***Slow Onset Type Disasters (environmental problems)***

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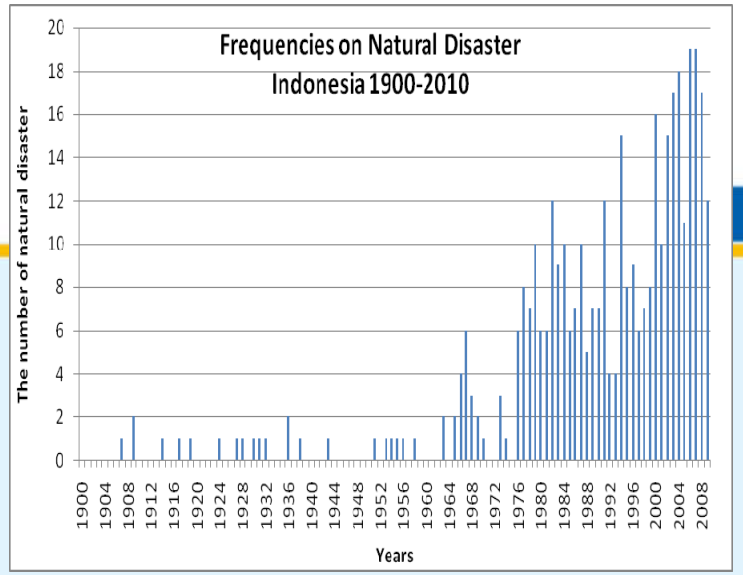
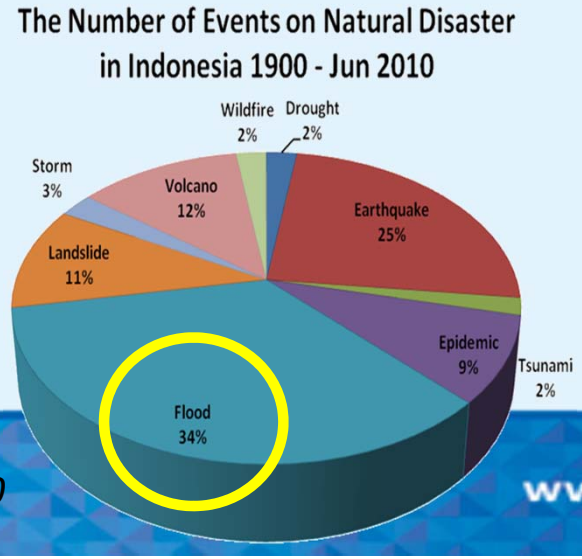
Total Event



Multi Disasters - Multi Hazard - Multi Risk

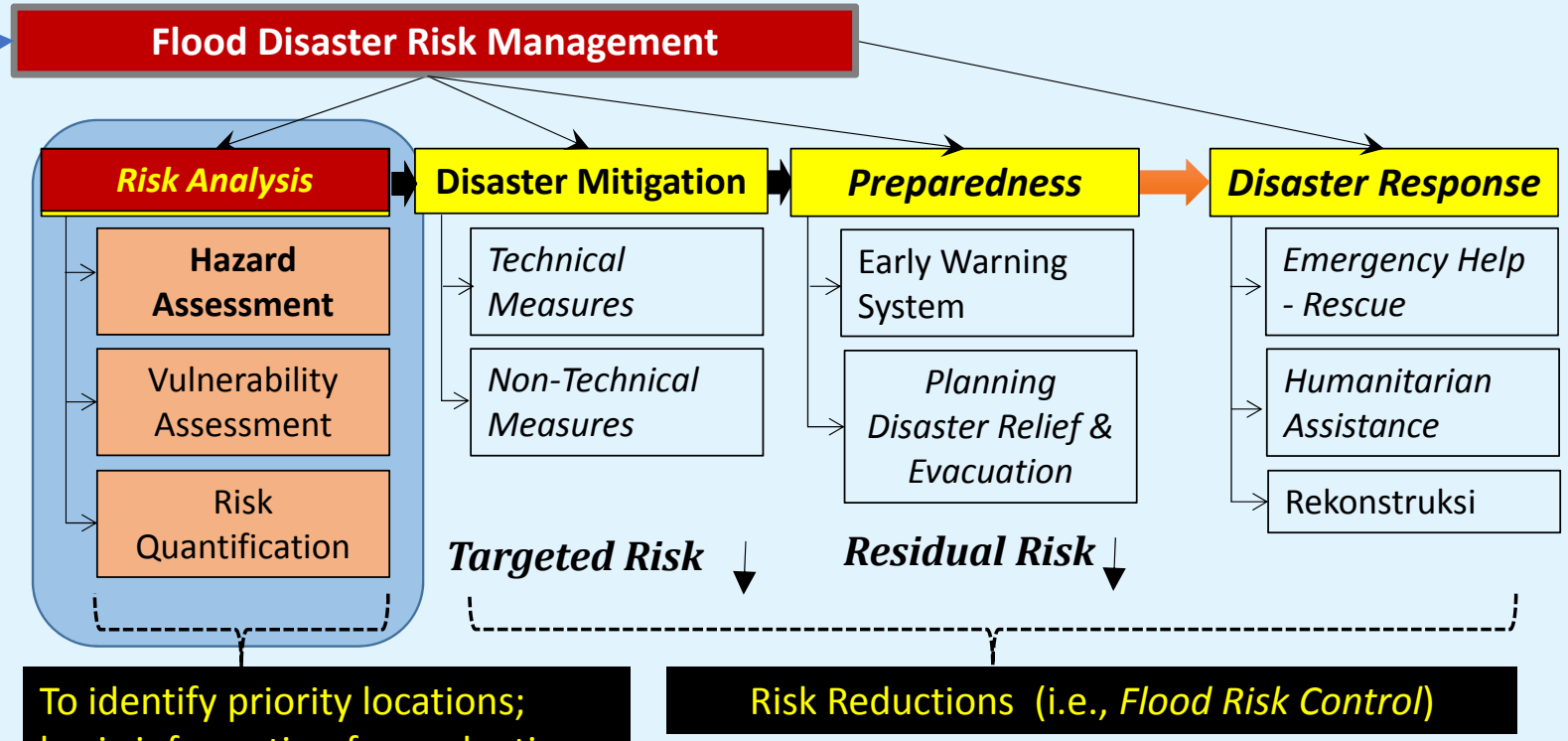
Dominant Type



Source: BNPB (National Agency for Disaster Management), 2010

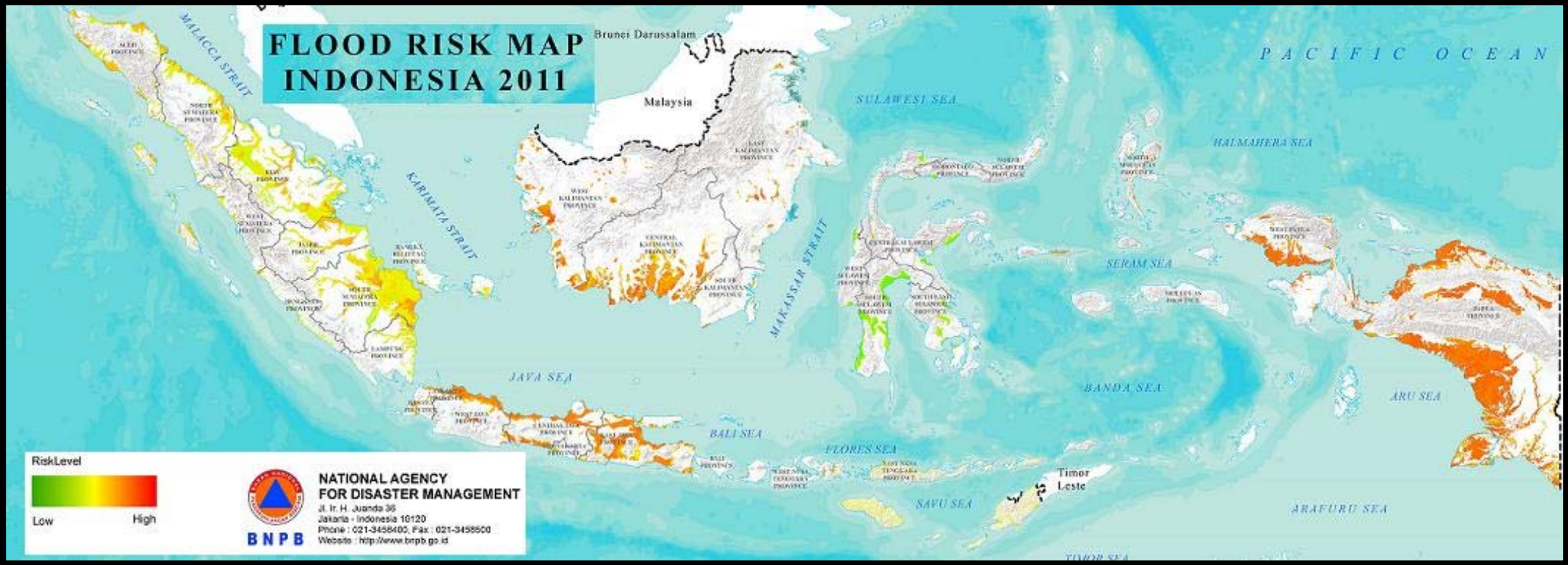
I INTRODUCTION

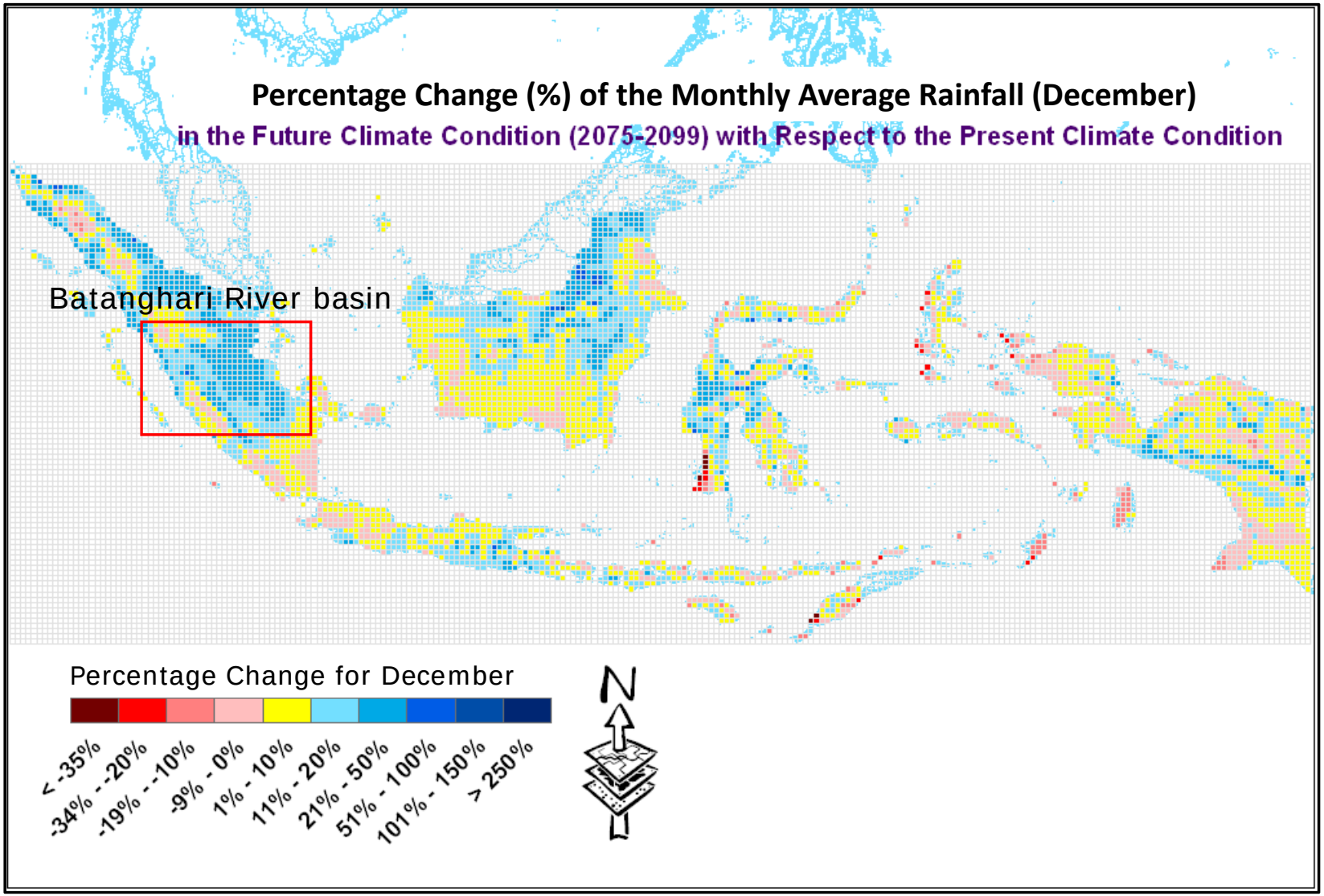
National Agency for Disaster Management



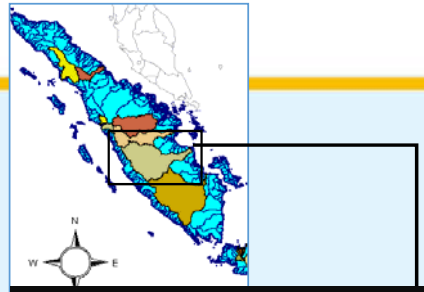
I INTRODUCTION

National Spatial Information on Flood Risk

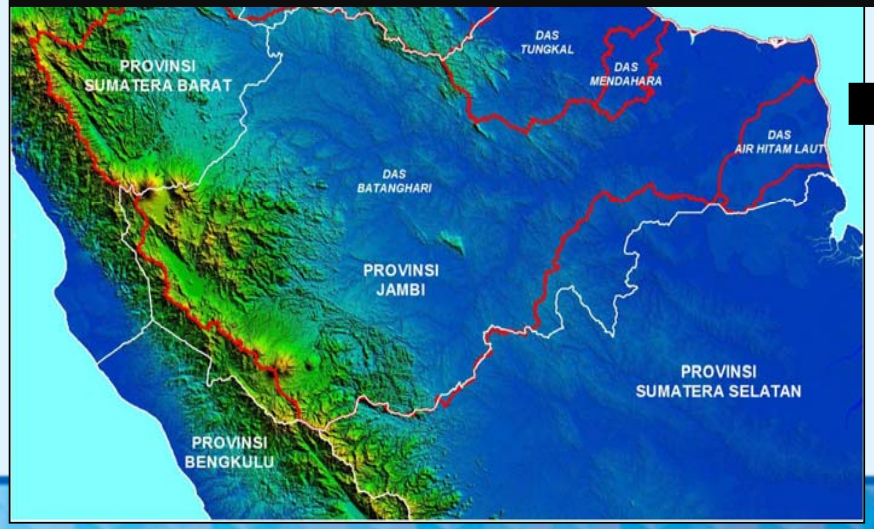



Percentage Change (%) of the Monthly Average Rainfall (December)
in the Future Climate Condition (2075-2099) with Respect to the Present Climate Condition
Batanghari River basin
Percentage Change for December
< -35%
-34% - -20%
-19% - -10%
-9% - 0%
1% - 10%
11% - 20%
21% - 50%
51% - 100%
101% - 150%
> 250%
N

Case Study: Batanghari River basin, Sumatera



Effects: Community livelihood, important economic sector (agriculture), freshwater ecosystem including peat land



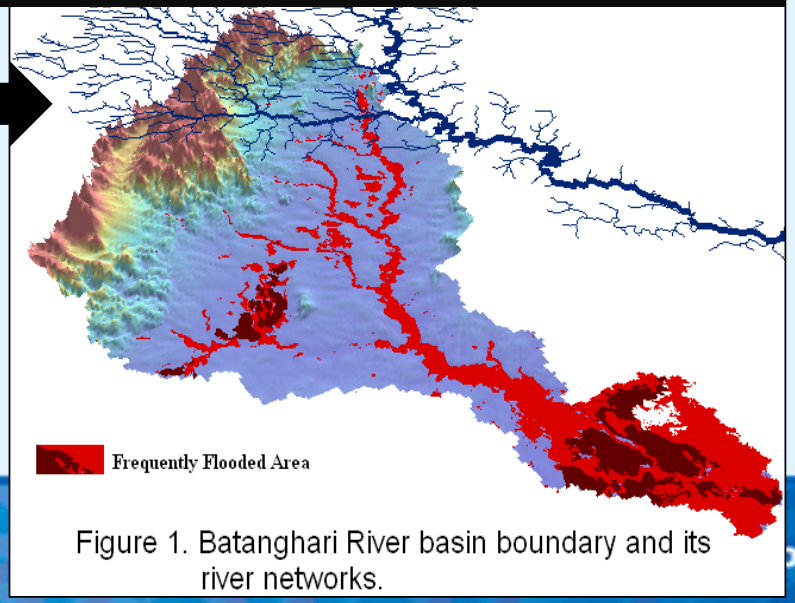
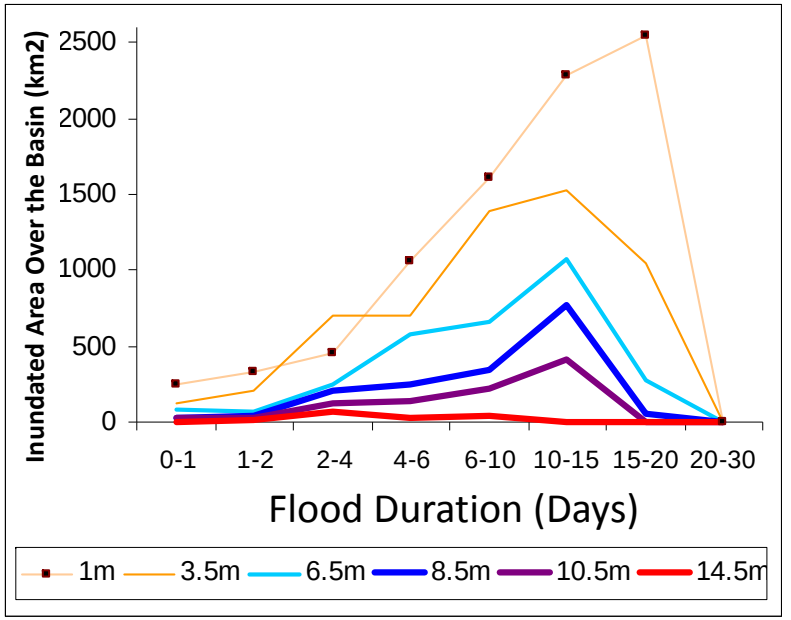


Figure 1. Batanghari River basin boundary and its river networks.

Batanghari River

Batanghari River's Flood

1. Seasonal Flood
2. Flood Inundation
3. Extreme Rainfall enhances the magnitude of Flood



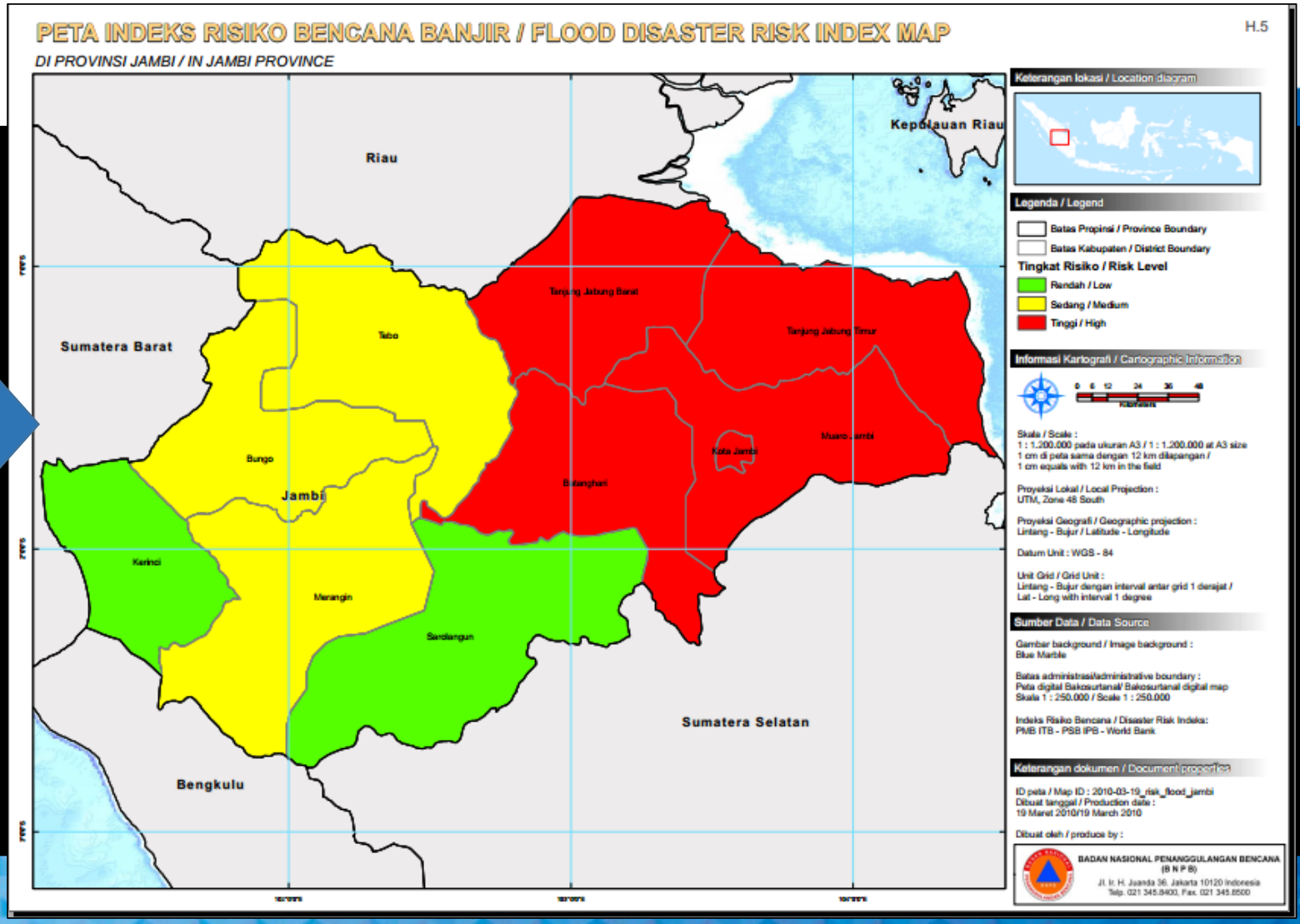
Batanghari River's Flood

Jambi City, March 15, 2017 (end of rainy season)

I INTRODUCTION

Existing Flood Risk Map for District Scale

National Disaster Management Agency (BNPB)



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