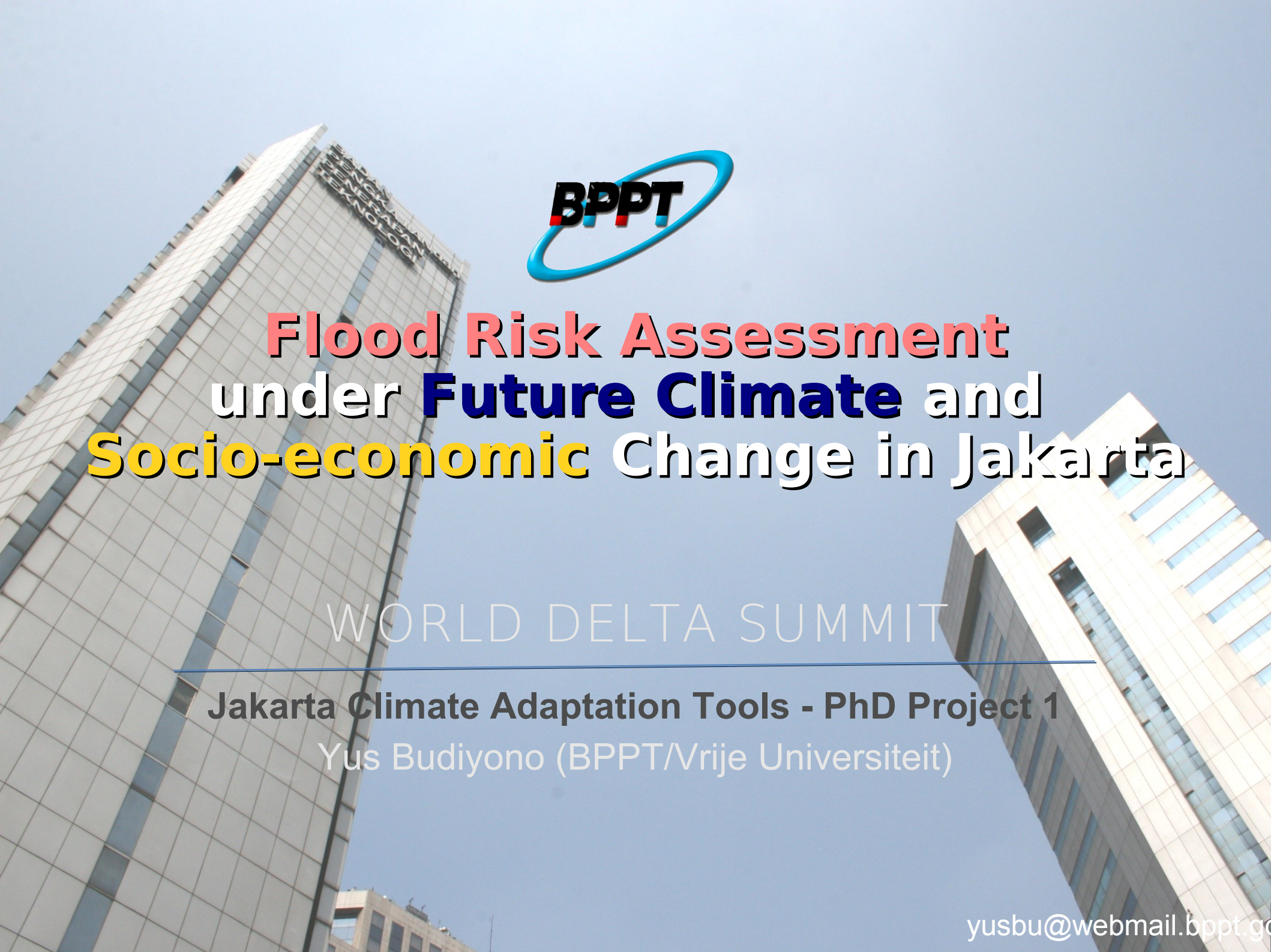

Flood Risk Assessment under Future Climate and Socio-economic Change in Jakarta

WORLD DELTA SUMMIT

Jakarta Climate Adaptation Tools - PhD Project 1

Yus Budiyono (BPPT/Vrije Universiteit)

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Objectives: PhD 1

- To develop methods to assess the impacts of climate change and other changes on flood risk in Jakarta
- To implement the method to assess the impacts of various adaptation measures on flood risk
- To integrate these into a spatially distributed Decision Support System (DSS) for Jakarta

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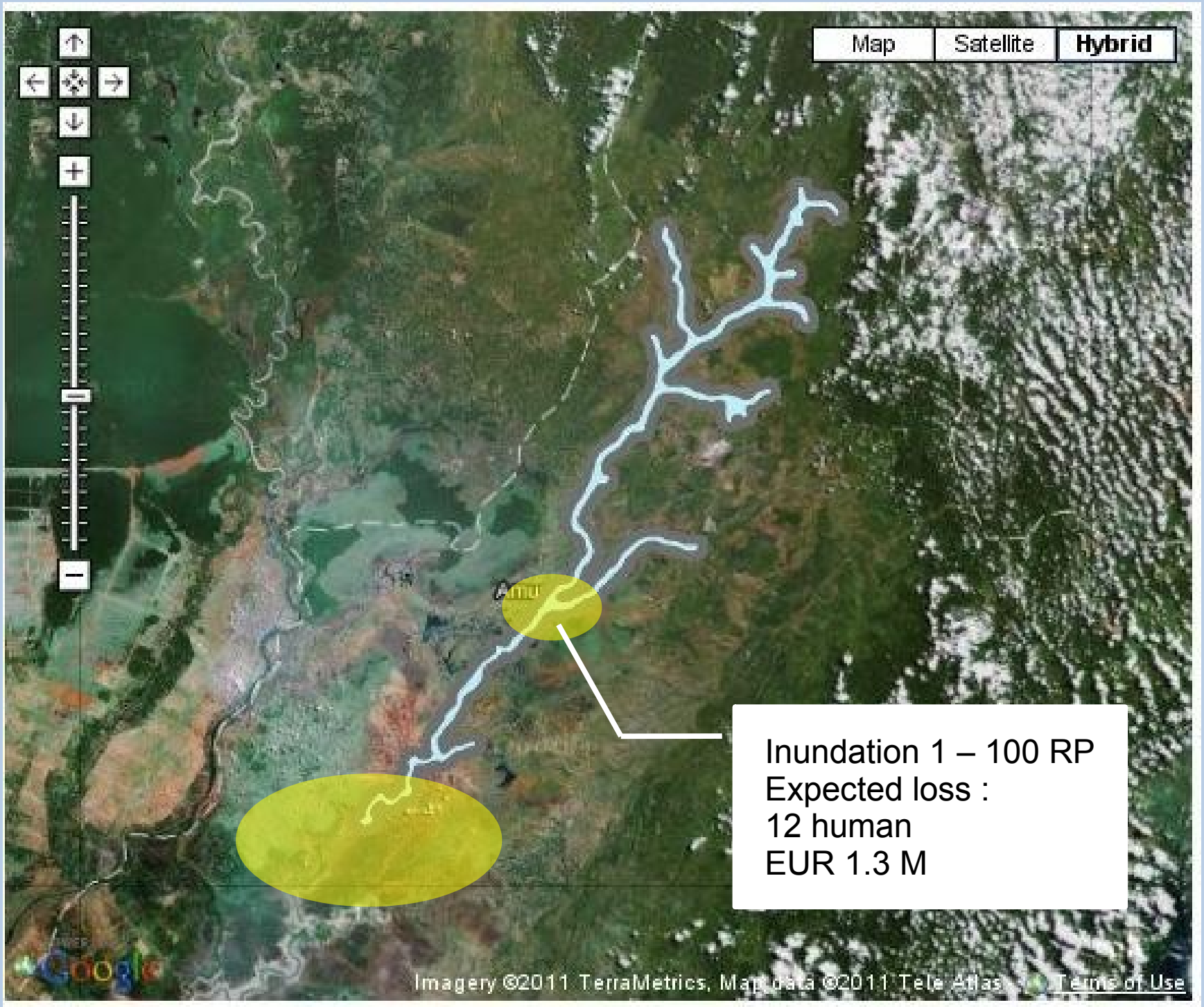

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Benefit of risk assessment for Jakarta

- Toward the government
- Toward business
- Toward individuals
- Toward the social system

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Benefit of risk assessment for Jakarta

- Toward t
- Toward
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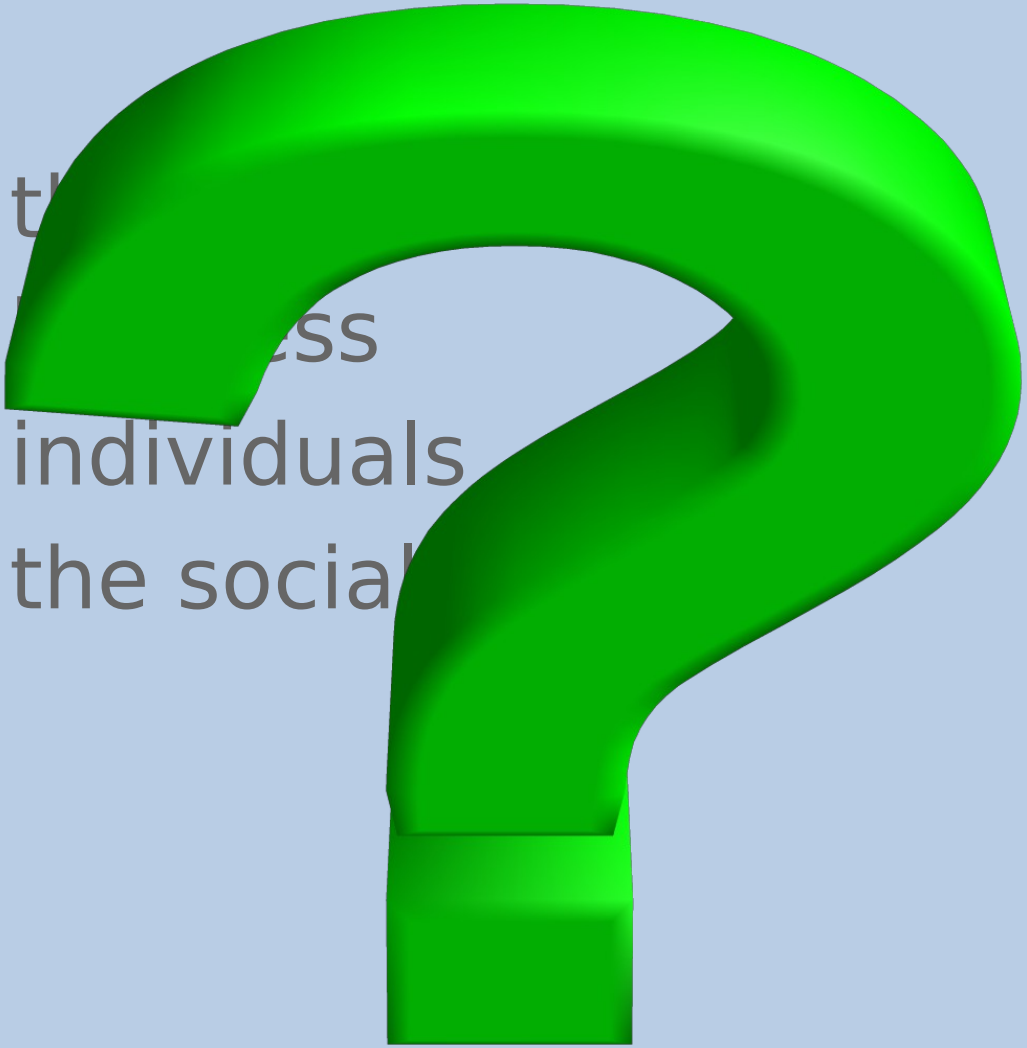

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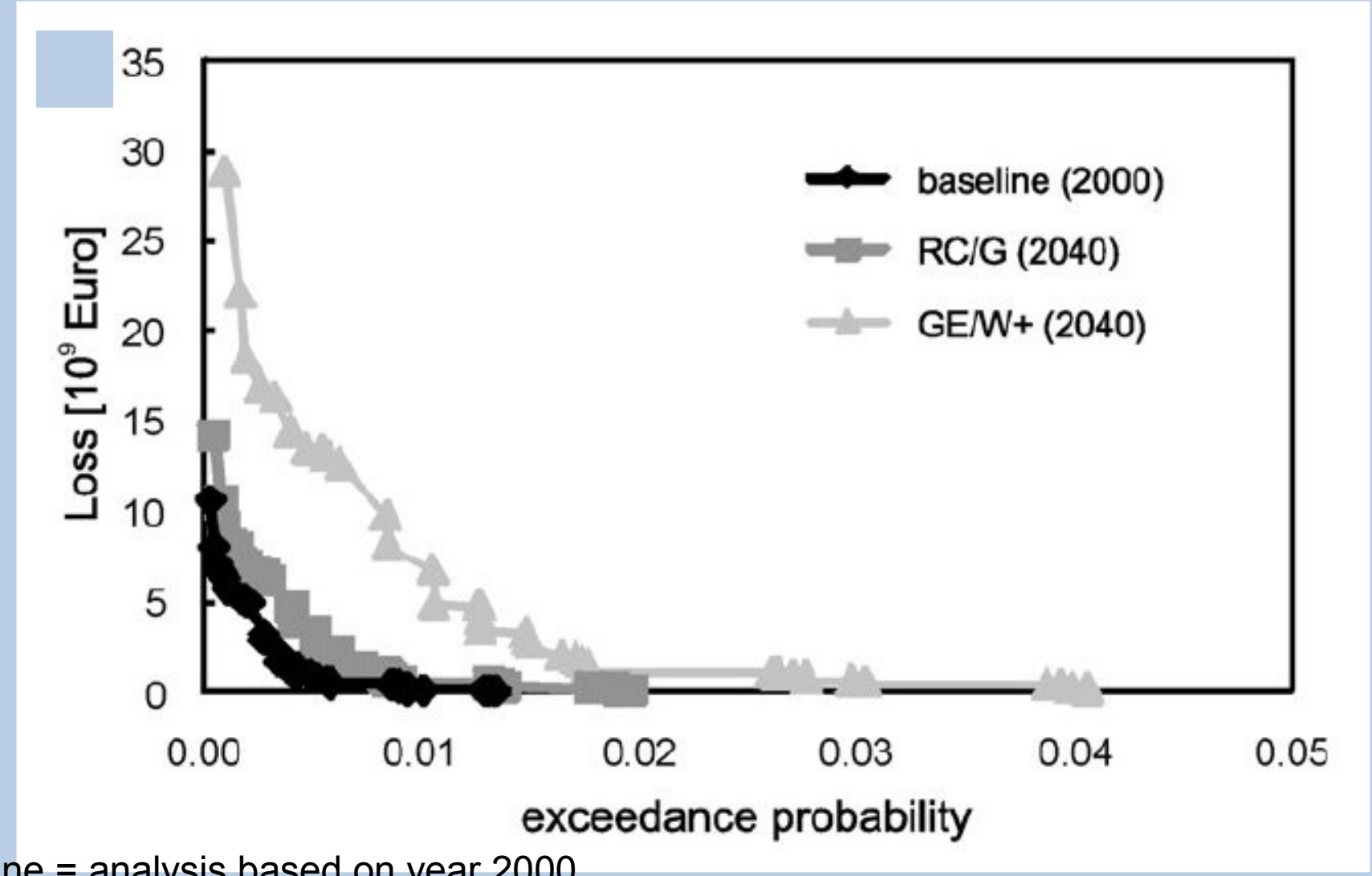
Risk product: the graph



Baseline = analysis based on year 2000
RC = Regional Community, GE = Global Economy
/G, /W are climate scenario
Source: Bouwer et al. (2010)

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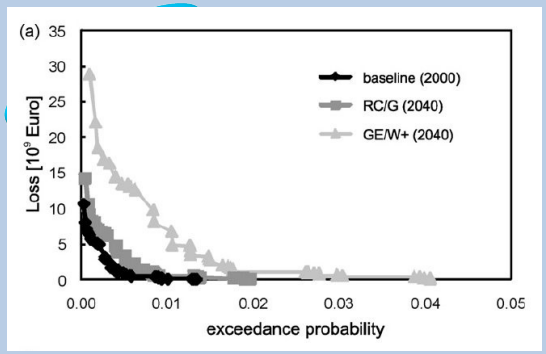

the *simple* **formula**

Flood risk = Hazard x Vulnerability x Exposure

The physical flood

Climate
Precipitation
Hydrology
River system
Land use

The resistance

Early warning system
Building code
Evacuation plan

The asset

Building (tangible)
Car (tangible)
Human (intangible)

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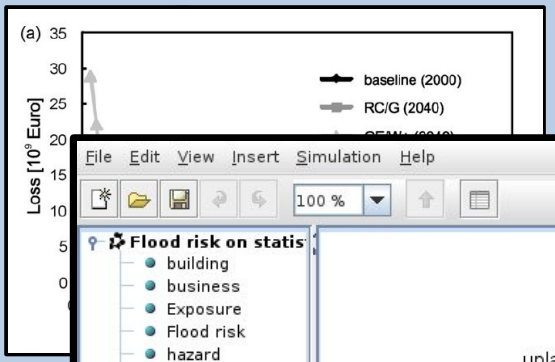


Flood risk = Hazard x Vulnerability x Exposure

File Edit View Insert Simulation Help

CONSIDEO

100 %

Define | Explore | Connect | Quantify | Simulate

Flood risk on statis

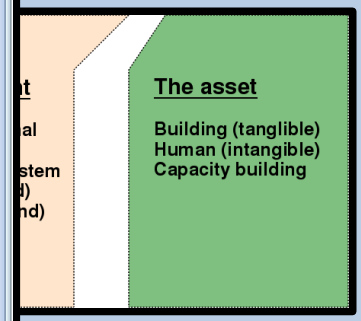
- building
- business
- Exposure
- Flood risk
- hazard
- injuries
- lowland
- midland
- natural assets
- on site (Jakarta)
- precipitation
- pump system (re
- recreation
- residential
- seawall
- upland
- upland_katulamp
- vulnerability (con
- water level

upland
on site (Jakarta)
upland_katula mpa
midland
lowland
precipitation
water level
hazard
seawall
vulnerability (constants?)
pump system (real estates)
Flood risk
Exposure
injuries
building
residential
business
natural assets
recreation

+10.0

Model Explorer

Flood risk on statistical model



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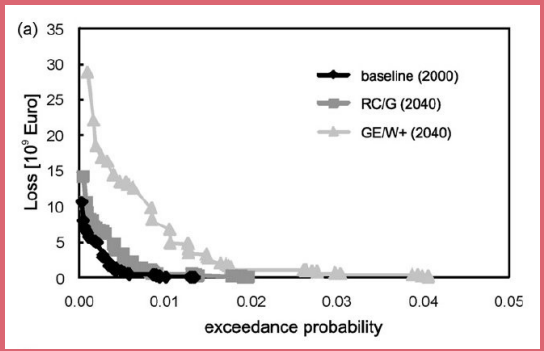
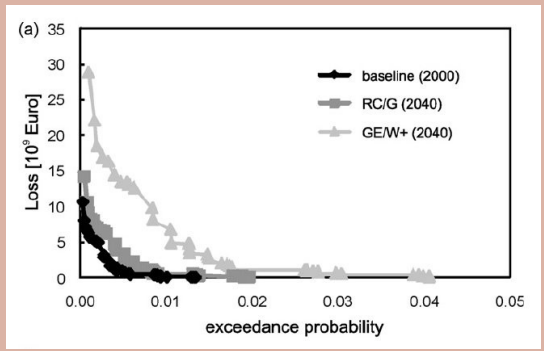
Implementation: cost/benefit of any flood risk abatement



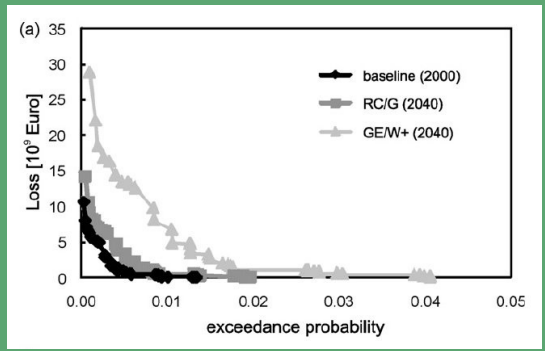
Hazard

The price of building sea wall will safe investments from the government + private at certain size of Northern Jakarta



Vulnerability

The price of investing an early warning system will safe more lives and cars



Exposure

Converting regularly inundated industrial area into an eco lake (retention basin) and design it to attract new investment

other variable in calculation : climate change

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Can we do that now?

Yes we can.

Just need additional work to analyze things within the **islands** of information.

How soon we get there depends on our cooperation, and that's one of the reason

WHY WE ARE HERE NOW

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The islands of information

DKI – crisis center, land use plan, current policy on flood abatement, etc

BBWSCC (PU) – AWLR/ARR data

Public Works – Inundation maps

Deltares/PusAIR – inundation models

BMG/Menhub - Weather data and models

BPDAS/Forestry -

DNPI – Climate model

BPPT/LIPI brains

etc.

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Who will do that work?

<u>us</u>, together as unity:

The common table

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