PROPOSED INITIATIVES TO UNDERSTAND THE PERFORMANCES AND LIMITATIONS OF ECOSYSTEM SERVICES, AND TO CONSERVE ECOSYSTEM SERVICES TO MINIMIZE DISASTER RISK

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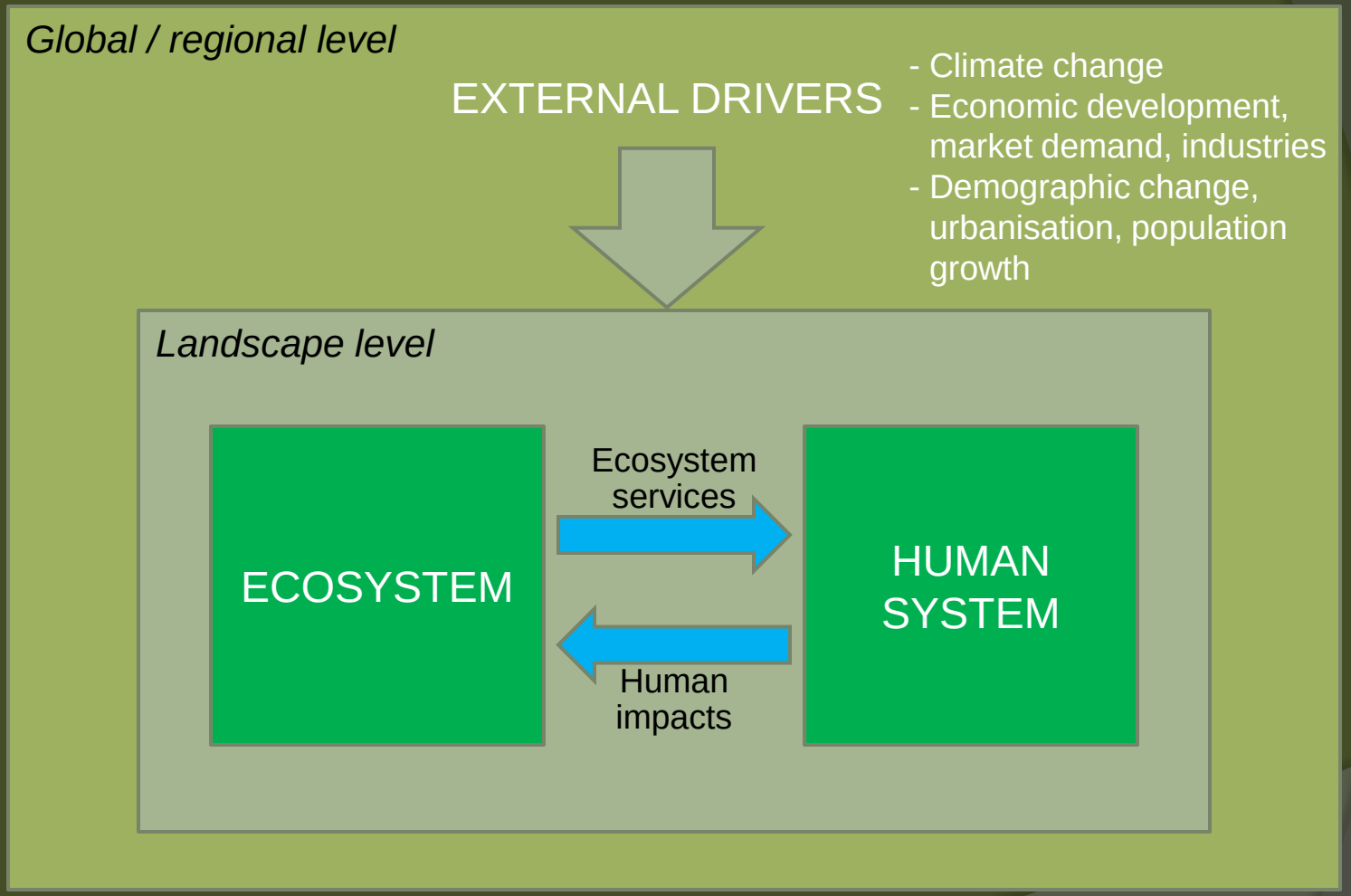
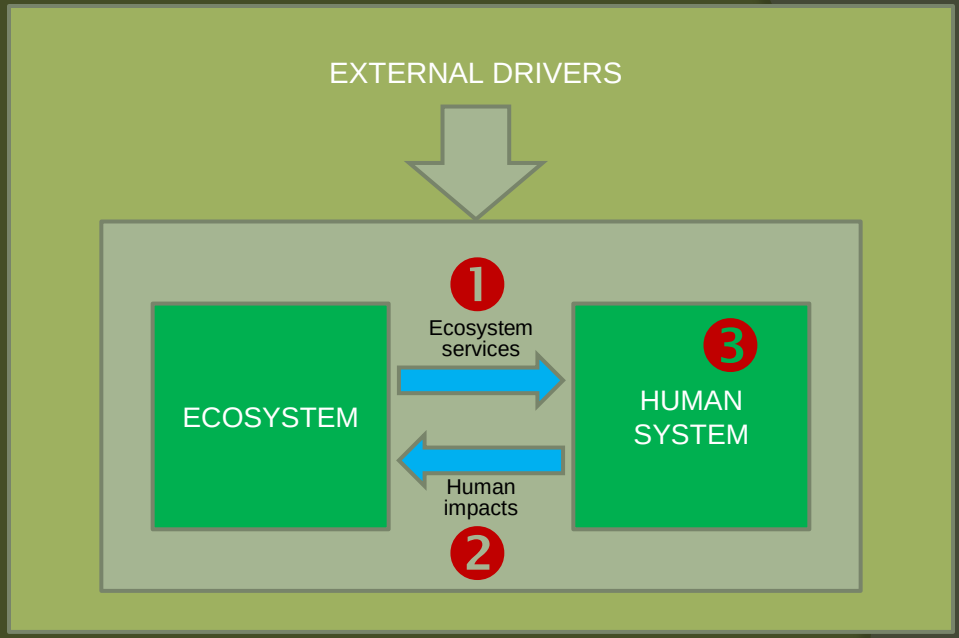
Conceptual Framework



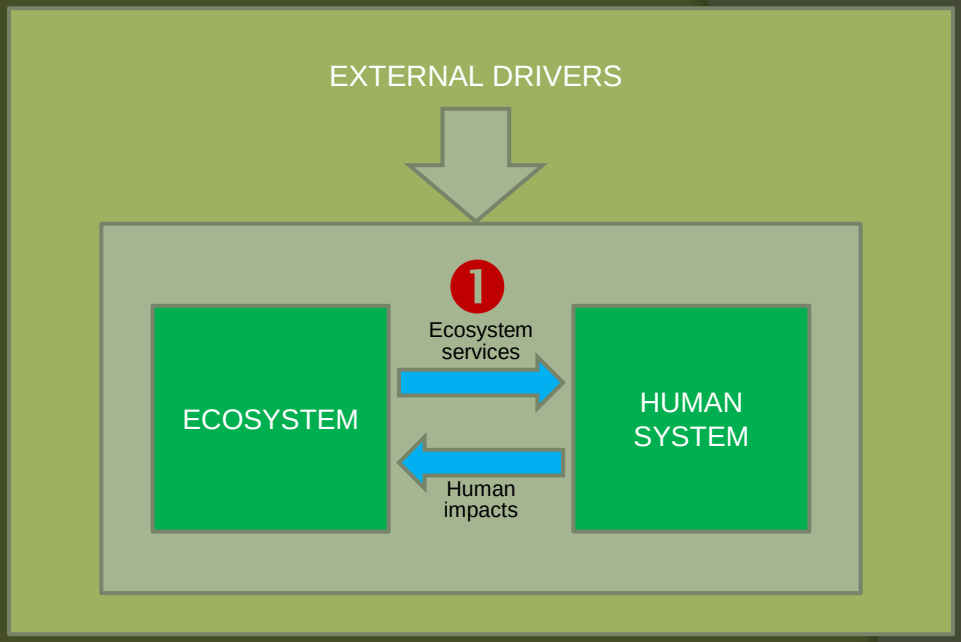
- *Human system and Ecosystem are affected by external changes*
- *Changes in ecosystem cause changes in ecosystem services*
- *Changes in human system (human activities) cause changes in ecosystem*

3 Initiatives Relevant to Eco-DRR

1. Characterization of mangrove service capacity to reduce disaster risk
2. Soil erosion and sedimentation in the Province of Banten
3. Land use/cover change pattern on potentially rapidly developing area of south Sumatra



- Characterization of mangrove service capacity to reduce disaster risk



Objective: *to understand the effectiveness and limitations of mangroves in protecting land from marine hazards*

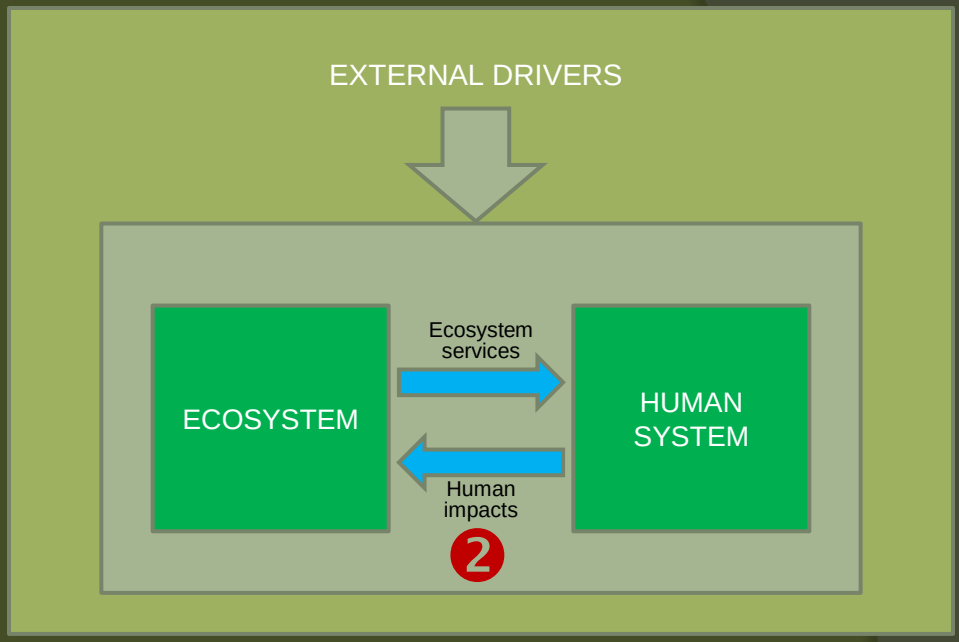
Main methods: *qualitative analyses on various mangroves in response to marine hazards including tsunamis*

Locus: *world wide, in particular tropical region*

Funding: *DAAD (?)*

Special note: *a proposal for PhD Research*

❷ Soil erosion and sedimentation in the Province of Banten



Objective: *to understand the impact of land use/cover change on land soil erosion and siltation patterns at the nearby coastal area*

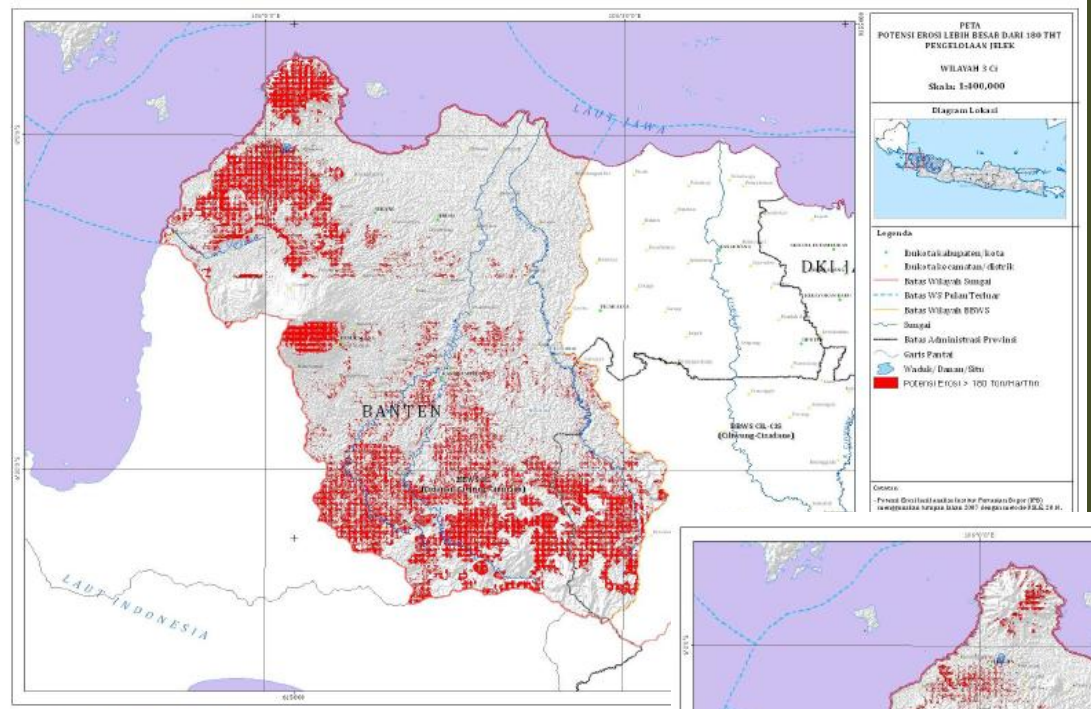
Main methods: *soil loss model; quantitative-qualitative analyses using historical land use/cover patterns and satellite data*

Locus: Banten Province; Cidanau-Ciujung-Cidurian watersheds

Funding: *RC Geotechnology LIPI*

Special note: *Not funded*

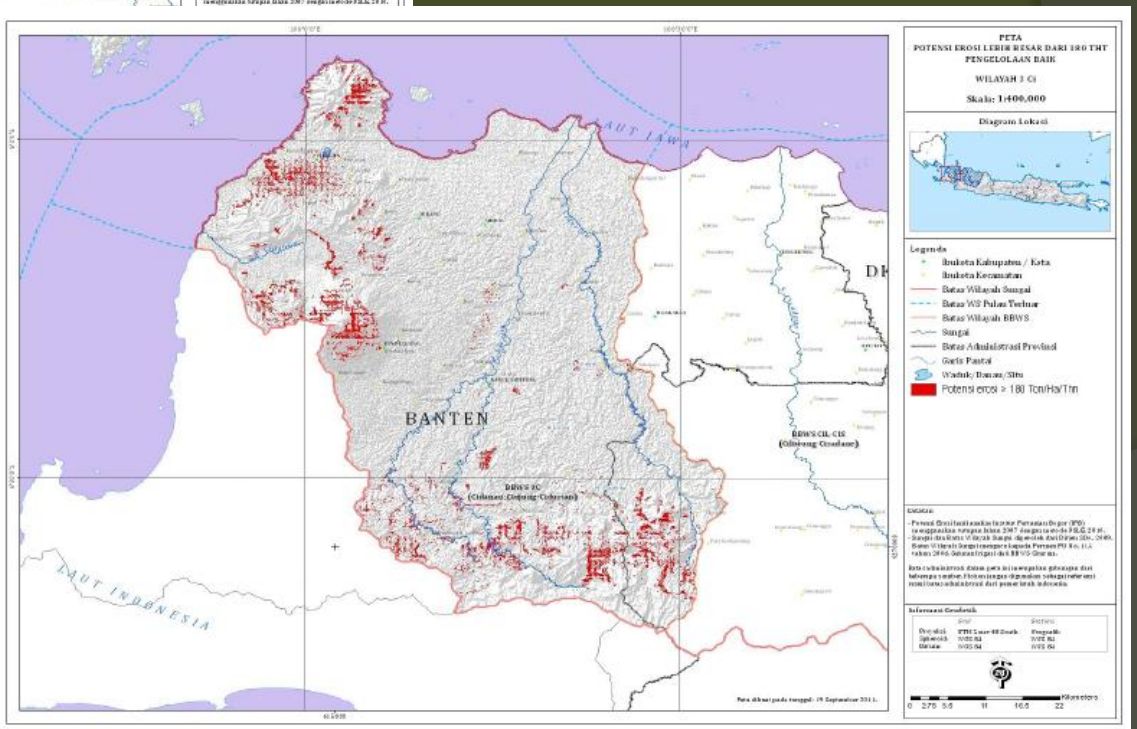
Potential erosion > 180 Ton/Ha/year if POORLY MANAGED



Sumber: Hasil Analisis, Tahun 2010

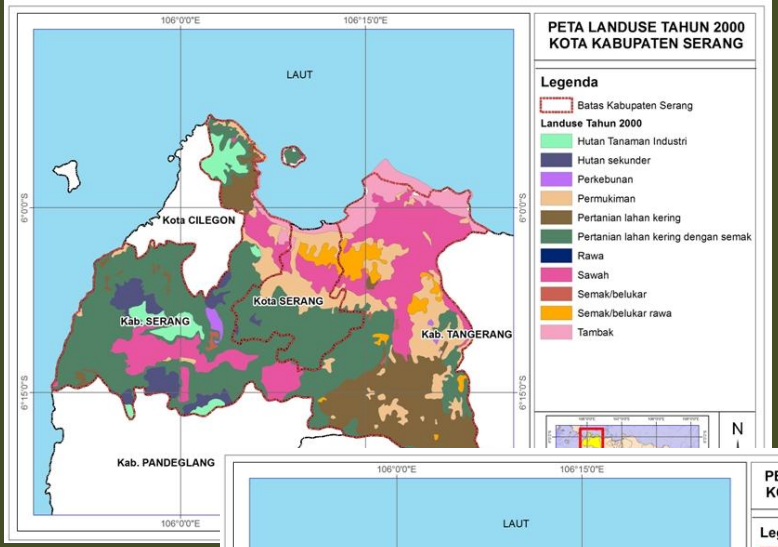
Gambar 3.6. Tingkatan Erosi (ton/ha/thn) pada Kondisi P

Potential erosion > 180 Ton/Ha/year if WELL MANAGED

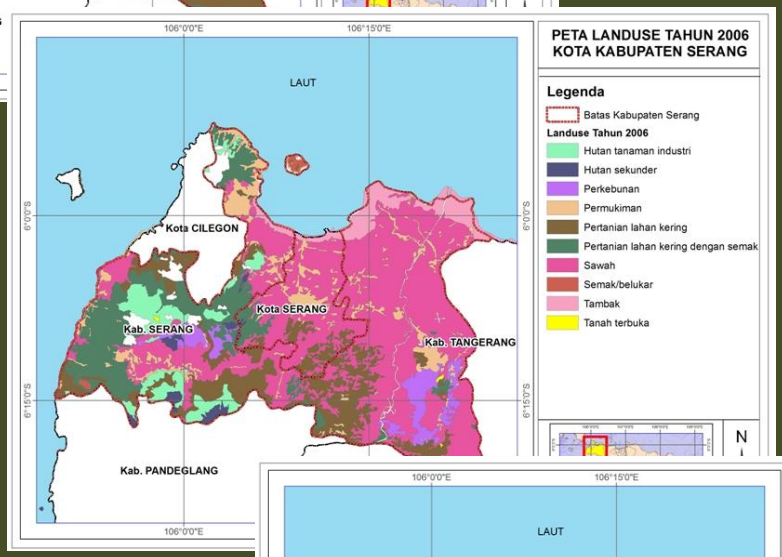


Sumber: Hasil Analisis, Tahun 2010

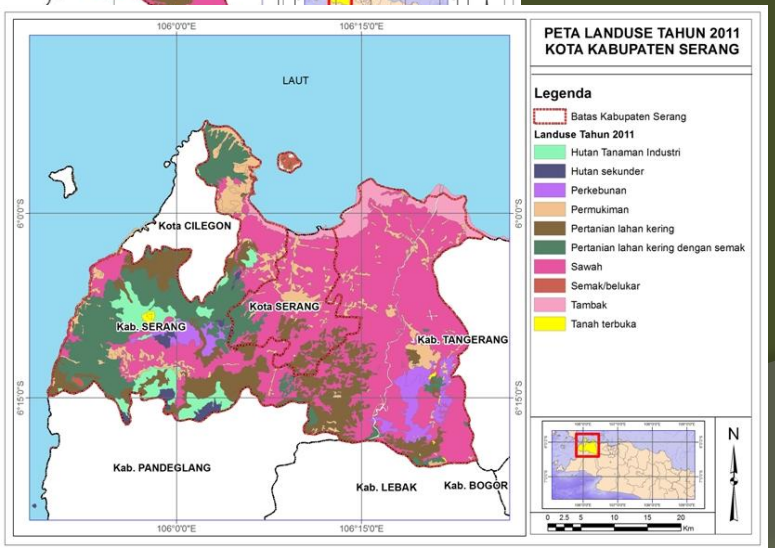
Gambar 3.7. Tingkatan erosi berat (ton/ha/thn) pada kondisi pengelolaan baik di WS 3 Ci



Land use/cover in 2000



Land use/cover in 2006



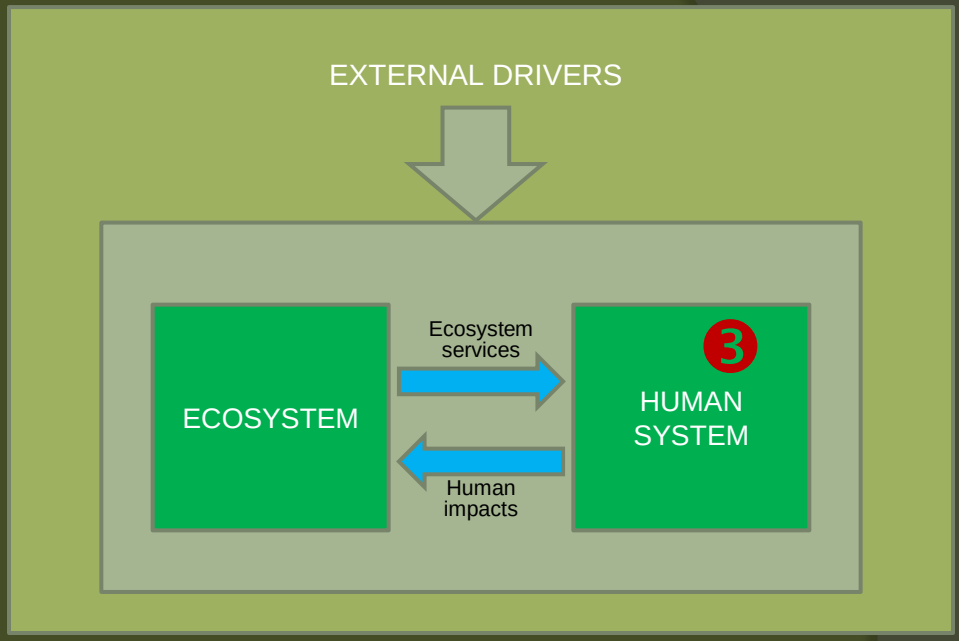
Land use/cover in 2011

What are the effects of land use/cover change on the soil erosion for poorly managed and well managed land?

Where are the highly erodable soil?

What are measures to reduce soil erosion?

❸ Land use/cover change pattern on potentially rapidly developing area of south Sumatra



Objective: *to provide model based guidance on the future shapes of land use/cover patterns in a rapidly growing area of Bandarlampung in order to minimize the ecosystem impact of these land cover/use changes*

Main methods: *land use change model; scenario analysis*

Locus: *Bakauheni to Bandarlampung / Bandarlampung area*

Funding: *RC Geotechnology LIPI*

Note: *funded, some adjustments*

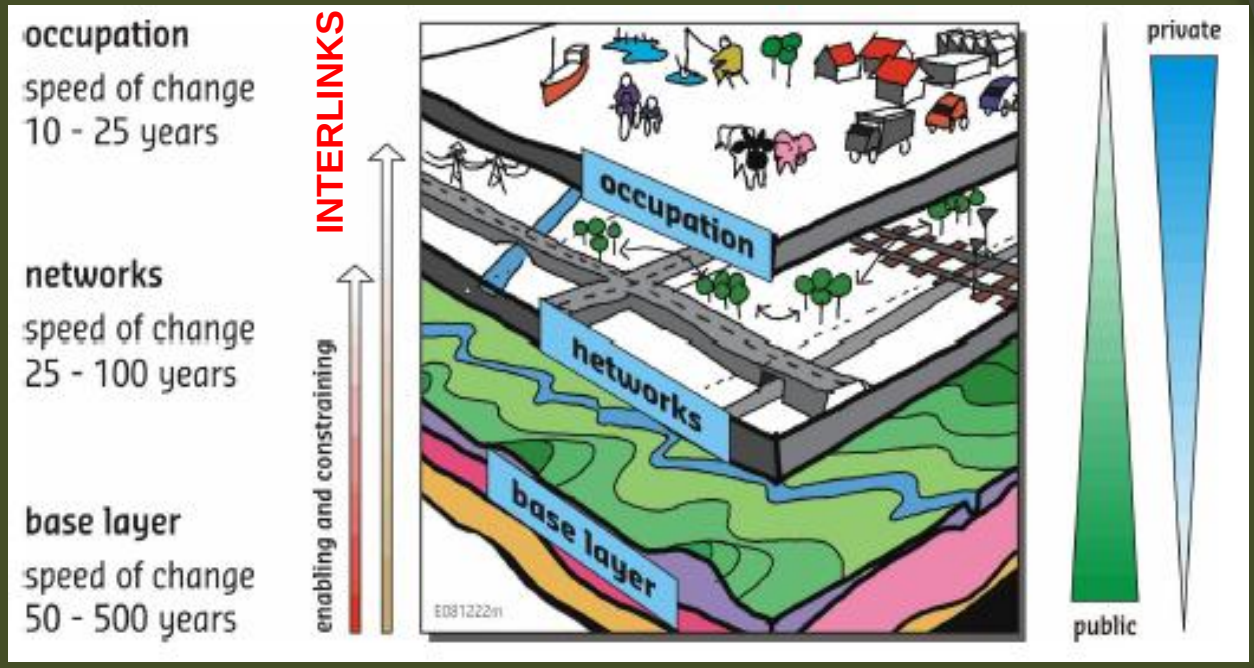
A layer model:
a conceptual approach to understand how some drivers lead the changes in the pressure and state of a landscape system

DYNAMICITY

Socio-economics, user, human activities

Physical, including infrastructure and regulation

Including component of ecosystem, climate, etc.

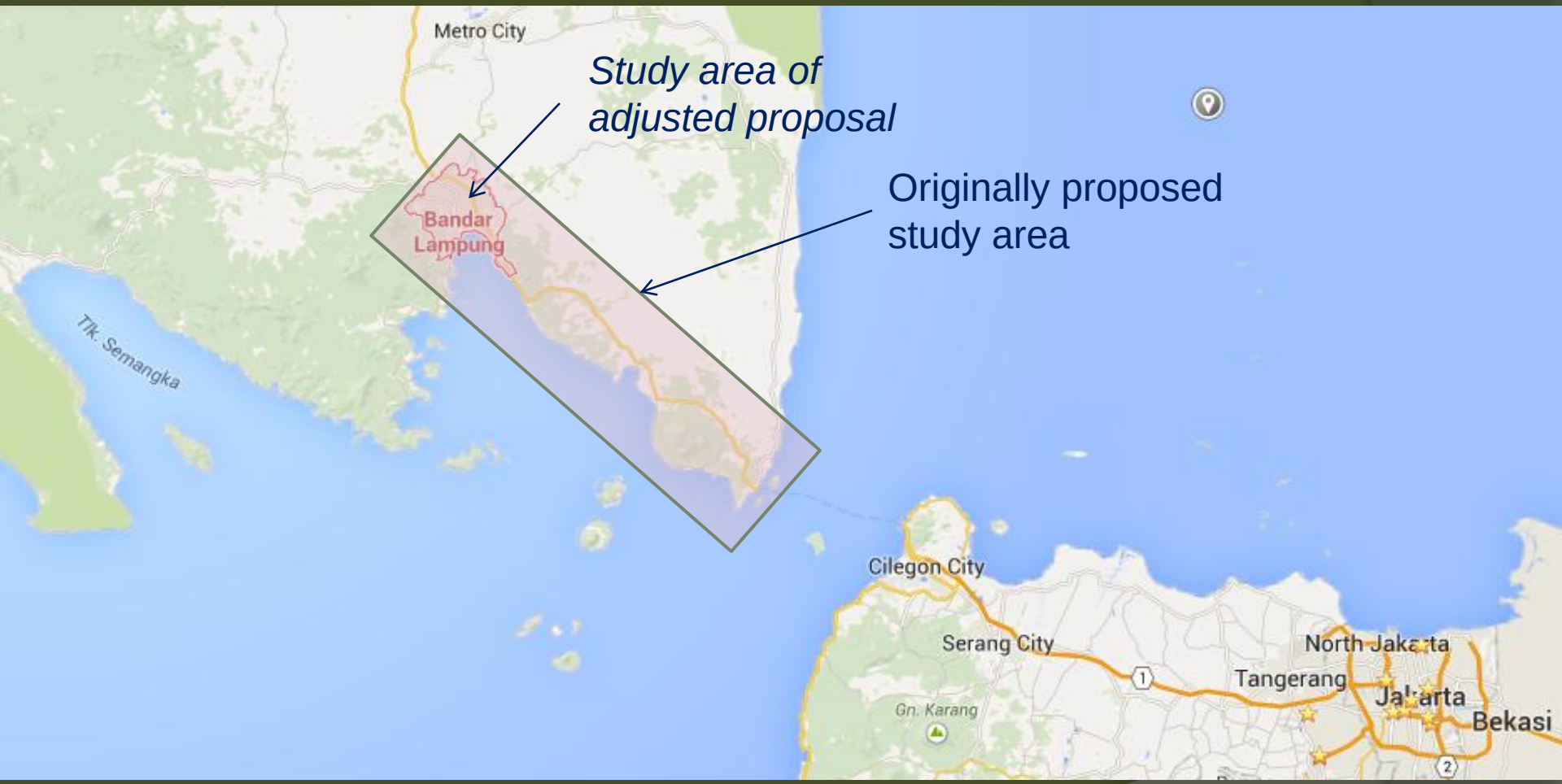


ACTORS

(Source: Bucx et al. 2010)

Questions:

- Where could the least and highest soil erosion (or other ecosystem degradation) take place?
- What are potential socio-economic drivers of land use/cover change? What are the scenarios of change?
- What could be used to control the land use/cover changes?


Metro City
Study area of adjusted proposal
Originally proposed study area
Bandar Lampung
Tlk. Semangka
Cilegon City
Serang City
Tangerang
North Jakarta
Jakarta
Bekasi
Gn. Karang

Remarks

- The 3 initiatives are in line with Working Group 1 of the TWIN-SEA Programmes (Coastal Management, Ecosystem Services and Low-Regret Adaptation Measures)
  - Area 1: to understand the *performances and limitations of ESS in terms of DRR*
  - Area 2: to understand the impact of development (land use/cover change) on ESS in terms of protecting soil from erosion
  - Area 3: to better inform government in the importance to control land use/cover change in order to reduce the risk of soil loss / degradation
- Need of a collaborative / joint research
  - Collaborative effort to obtain research fund
  - Sharing knowledge and expertise through wider networks

THANK YOU

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