

Governing Coastal Disaster Risk in  
Indonesia and India:  
Comparative perspectives of  
engineered infrastructure and  
nature-based solutions

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## 1. Research Question

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- ▶ How do different pathways for infrastructural intervention lead to different governance processes for coastal disaster risk reduction?



## 2. Methods

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- ▶ **Content Analysis**
  - ▶ Laws and policies related to coastal disaster risk management
  - ▶ Literature review on governance and decentralization in natural resources management and coastal management
- ▶ **comparative case studies approach :**
  - ▶ Fieldwork in **Demak, Indonesia; Jakarta, Indonesia** and **Pichavaram, Tamil Nadu, India**



### 3. Coastal Disaster Risk and Governance

- ▶ High exposure of coastal areas, the highest risk is in Asia
- ▶ Various ecological conditions and types of coastal disasters: hazard, exposure, and vulnerability  
Flooding, **Erosion**, Tsunami- Sudden; Creeping; Sudden-Creeping
- ▶ Different measures and innovations for coastal protection, including nature-based (soft or green and hybrid) and (hard or grey) engineered infrastructure approach
- ▶ The importance of governance for effective implementation of different measures in coastal protection strategies

### Decentralization and property rights in NRM (Agrawal and Ostrom, 2001)

Aspect	Explanation
<b>Macrolevel politics</b>	Pressure and interest of govt. actors
<b>Local level -macrolevel</b>	Condition of local level collective level
<b>Property rights</b>	To what extents local groups have control over:
-Rights to withdrawal	The right of access
-Rights to management	The right to regulate use
-Rights to exclude	The right to determine who has access
- Rights to transfer	The right to sell etc.
<b>Outcomes</b>	
-Participation / decentralization	The degree of participation and decentralization
-Resource use patterns	The pattern of resource use related to the degree of participation and decentralization

## 4. India

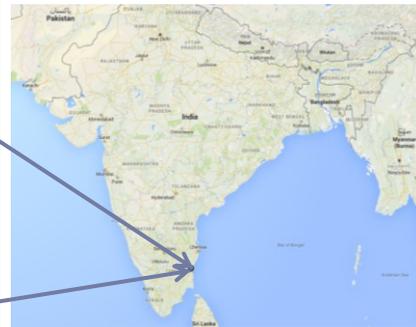
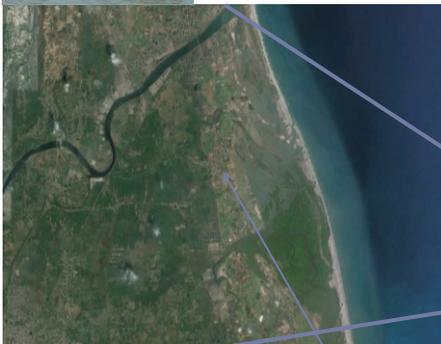
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- 73rd Amendment in 1993 -gave the state governments considerable autonomy to interpret and implement the constitutional reforms; Amendment to the Constitution formally recognized a third tier of government at the sub-State level, or *Panchayati Raj* with their local self-rules
  - Coastal Regulation Zone Notification (CRZ Notification) 2011
  - Forest Right Act, 2006 (FRA, 2006)
  - Disaster management act, 2005
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## Soft (Green) approach

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## The projects

- ▶ Restoration of a pristine mangrove started Joint Mangrove Management (JMM) in 1990 for the purpose of conservation and disaster risk reduction (gaining attention after tsunami 2004)
  - Decentralize by means of active mobilization of local people and self-help groups through the program initiated by research-based NGO, MS Swaminathan Research Foundation (MSSRF)
  - Strong support from the state and local governments
- ▶ **Challenges on decentralization**
  - ▶ -representation mechanism of local people and strong dependency on local focal points selected for the projects



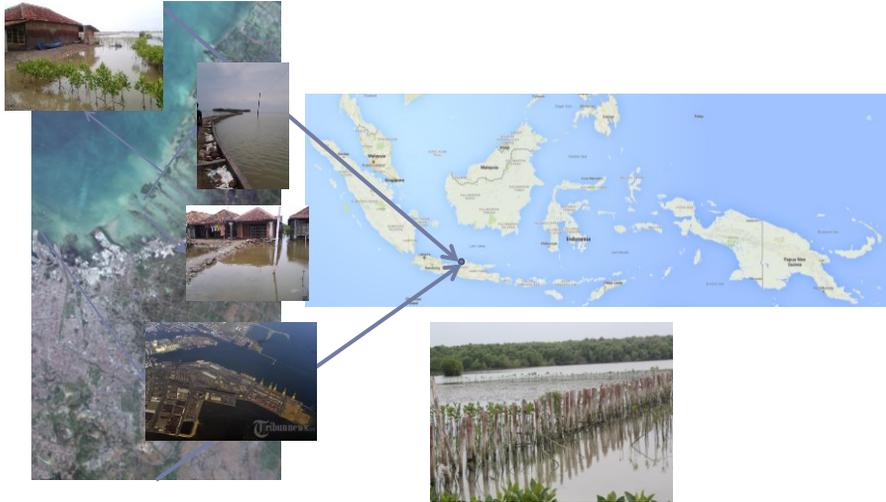
## 5. Indonesia



- ▶ Reformation Era- Fiscal policy and enactment of decentralized power;
- ▶ Regulation on coastal management and small islands UU 27/2007;
- ▶ Recent legal developments conflict
- ▶ 27/2007 on coastal management and small islands act
- ▶ 24/2007 on disaster management act



## Soft (Green) hybrid approaches



## Projects

1. Government-based projects (office of marine and fisheries)
2. OISCA- mangrove restoration, livelihood, welfare improvement
3. Mangrove capital-Wetlands International Eco-Shape consortium-Building with Nature

Decentralize by including regional and local government, local people and mangrove groups in:

Mangrove restoration programme; livelihood improvement; introduction to a building with nature- based hybrid engineering structure for trapping sediment for mangrove planting purpose and embedded aquaculture

### Challenges on decentralization

1. Build integrated coordination between different government based agencies; NGOs; local community groups
2. Build an integrated protection strategy along the coast of Java

## Hard Infrastructure approach



NCICD Project- Jakarta Bay

## Projects

- ▶ The NCICD- Giant Sea Wall Jakarta
- ▶ More towards centralized power and decision making (political and fiscal)
- ▶ Decentralization in terms of involvement of private sectors through investment
- ▶ **Challenges on decentralization**
  1. Wide array of conflicts and resistance (political, social, economic)
  2. Less participation from local community in planning phase

## 6. Comparative Analysis

Axes of comparison	Indonesia		India
	Mangrove rehabilitation project Demak, Central Java Green and Grey approach	Sea wall and embankment project Jakarta Hard engineered structure approach	Joint mangrove management project Pichavaram, Tamil Nadu Green approach
<b>Nature of macrolevel politics around decentralization</b>	Moderate donor pressure	High donor pressure (financial investment)	Low donor pressure
<b>Nature of local level collective action and its relationship with macrolevel politics</b>	High levels of local mobilization	No local mobilization	High levels of local mobilization
<b>Property rights</b>			
<b>-Rights to withdrawal</b>	Granted to local groups with limits	Not available to local groups	Granted to local groups with limits
<b>-Rights to management</b>	Granted to local groups with limits	Not available to local groups	Granted to local groups with limits
<b>-Rights to exclude</b>	Granted to local groups with limits	Not available to local groups	Granted to local groups with limits
<b>- Rights to transfer</b>	Granted to local groups with limits	Not available to local groups	Granted to local groups with limits
<b>Outcomes</b>			
<b>-Participation and decentralization</b>	High levels of decentralization and participation	Almost no decentralization; limited participation	High levels of decentralization and participation
<b>-Resource use patterns</b>	Decentralization limits resource use and improves resource condition in some cases	Institutionalization is limited and local use patterns remain same	Decentralization limits resource use and improves resource condition in most of the cases

## 7. Result

### ▶ **Soft approach**

- The higher degree of participation, the inclusion of civil society
- The more horizontal power relation
- The more dynamic and advanced knowledge transfer and learning capacity

### ▶ **Hybrid approach**

- Innovation and technology transfer

### ▶ **Hard approach**

- The need of definite power
- Less local mobilization
- More involvement of private sectors



## 8. Conclusion

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1. Decentralization depends on context: geographical size; the type of governance; regulation and the enforcement; leadership and commitment
2. Decentralization allows locally-tailored solutions
3. However, ensure the inclusiveness, meaningful participation of local people through mobilization in all three approaches based on appropriate degree to achieve successful and sustainable coastal protection
4. Funding mechanism to avoid the risk of decentralization, blocking the implementation of integrated coastal protection that is not parochial to one specific coastal patch

