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HO CHI MINH CITY

# MEKONG DELTA

## The current and future states

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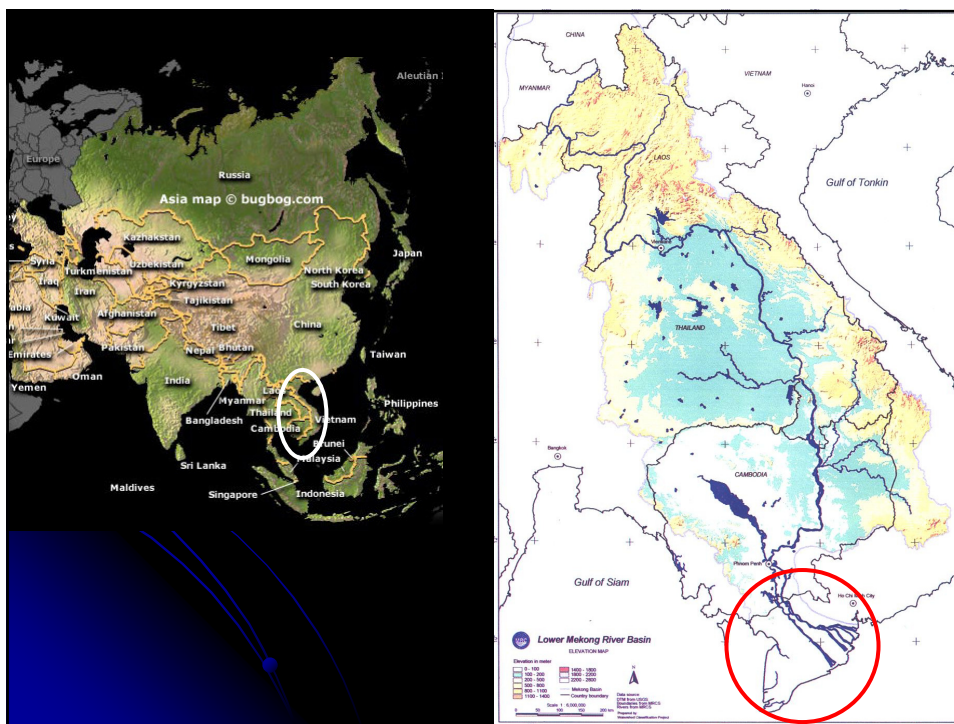


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## CONTENT

1. Introduction
2. Drivers of changes
3. Pressures
4. Governance
5. Lessons learned
6. Research gaps and knowledge exchange

# MEKONG DELTA IN BRIEF





## Mekong Delta Profile

Population **18.2** millions (22%)

Area **40.000** km<sup>2</sup>

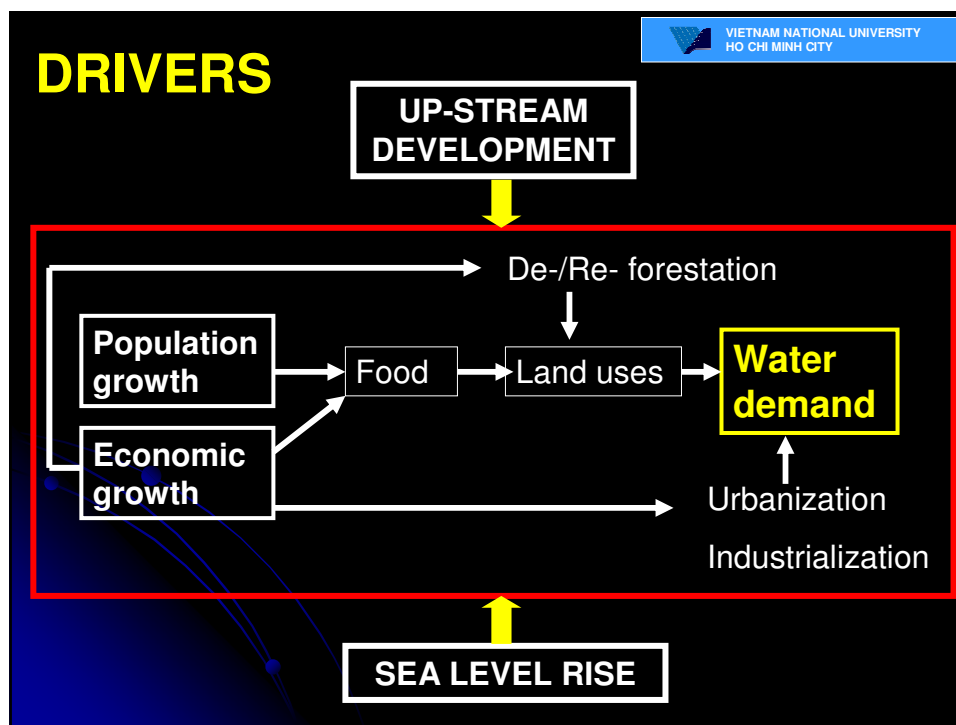
Rice production 50%

Fruit production 70%

Aquaculture and marine production 70%



## DRIVERS OF CHANGES

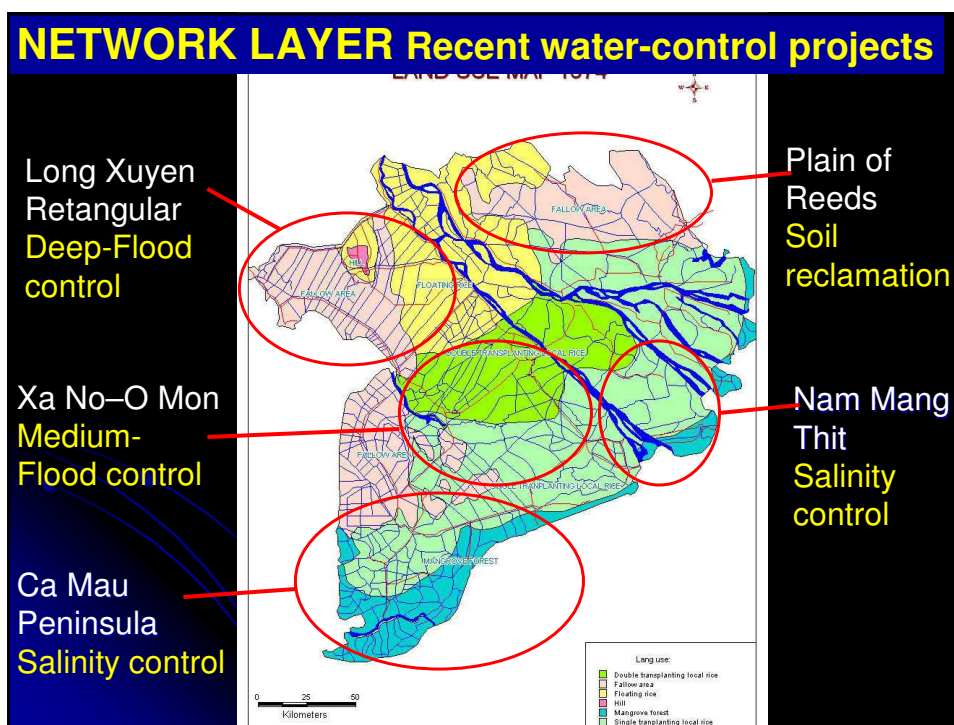
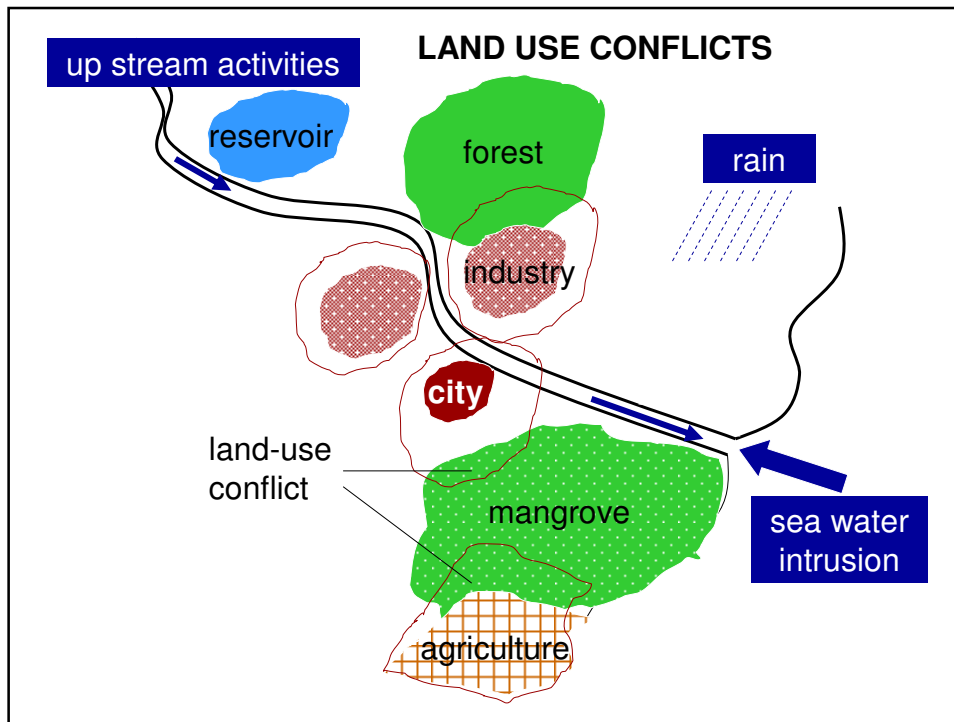


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## Agriculture

Economic structure (%)	MD	country
Agriculture	41.6	21.8
Industry	34.9	39.9
Service	23.5	38.3

*Source* N. H. Dang and V. T. Danh (2006)



## LAYER MODEL SUMMARY

<b>Base</b>	<ul style="list-style-type: none"><li>● flood</li><li>● saline water intrusion</li><li>● extreme events</li></ul>
<b>Network</b>	<ul style="list-style-type: none"><li>● water-control projects</li><li>● rapid changes in land-uses</li><li>● rapid industrialization and urbanization</li></ul>
<b>Occupation</b>	<ul style="list-style-type: none"><li>● fast growth of rice, aquaculture production</li><li>● de-forestation, mangrove loss</li></ul>

## PRESSURES

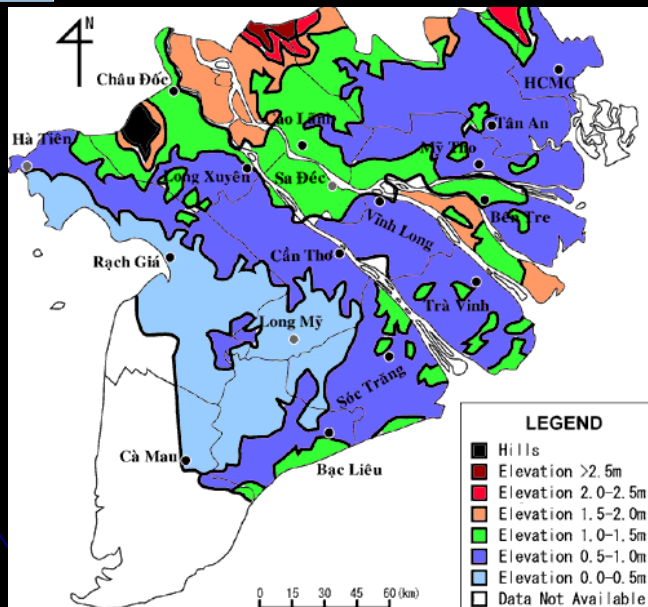
# FLOOD

Farmers' views

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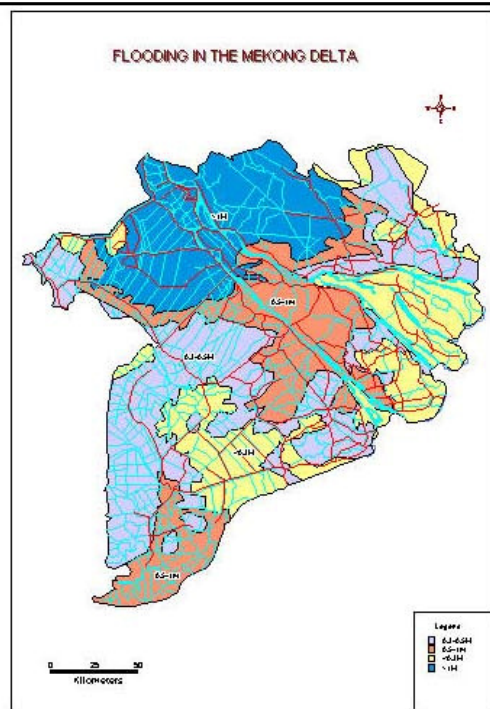
## Topography

More than 1/2  
of MD is  $\leq 1\text{m}$   
MSL



Source Yamashita Akira (2005)

**Flood area =  
1.2-1.9 Mha  $\approx$  1/2  
of MD**





## REMARKS

### Damages

- Live loss
- Infrastructure damage
- Crop loss

### Benefits

- Soil fertility
- Fish
- Flushing toxicity
- Reduction of pest



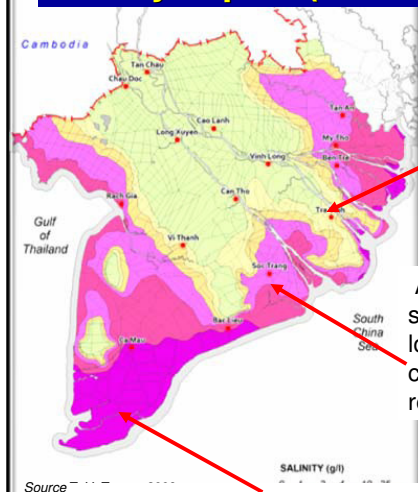
## SEA WATER INTRUSION

Rice vs. shrimp/Shrimp vs. forest

## Shrimp cultivation



## Shrimp, 77% from farming, accounted for 43.6% fishery export (total 3.6 B USD in 2007)



In Tra Vinh province "over the 36 years (1965–2001), the total coverage of mangrove forests have decreased by 50% since 1965. Shrimp farming has significantly contributed rate of mangrove destruction." (Source Phan Minh Thu and Jacques Populus 2007)

Agricultural land in Mekong Delta provinces is severely affected by saltwater intrusion, resulting in losses to local farmers. Shrimp farms are one of culprits responsible for saltwater intrusion in the region. VietNamNet Bridge 28/05/2009

The forest area declined by 75% between 1968 and 2003. About 40% of this loss could be attributed to shrimp farming, while the remaining 60% was attributed to needs for agricultural land. (Source Land Cover Changes Between 1968 and 2003 In Cai Nuoc, Ca Mau Peninsula, Vietnam. Authors: Binh, T. et al 2005)



# PRESSURES

- Water resources: shortage in dry season, flood in wet season
- Pollution of surface water (and ground water in future)
- Pesticide over-dosage
- Soil acidification
- Vulnerable wetland and deforestation



# PRESSURES

- Up-stream development
- Up-stream deforestation



# GOVERNANCE

## GOVERNANCE ISSUES IN MD

- **lack of MD regional collaboration**
  - to develop common strategies and master plans
  - to optimize water resources utilization
- **lack of mechanism from central government to avoid conflicts in policy**
- **capacity of provincial mid-level officials**
- **weak Public-Private Partnership**

## Lack of mechanism to avoid conflicts in policy implementation

### Land-use conflict

Rice and shrimp

### Resource

Water (rice: fresh; shrimp: saline)

### Policy

- . Food security
- . Exporting
- . Land use policy

Shrimp and mangrove

Land

- . Exporting
- . Environment
- . Land right policy

## LESSONS LEARNED



1. Living with floods in MD
2. Long tradition of green adaptations
3. Poverty reduction and environment protection
4. Conflicts between different policies



**Thank you**