

12. Climate Change Threats in the Mekong Delta: Case studies and knowledge gaps toward climate-resilience development



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Climate Change Threats in the Mekong Delta:

Case studies and knowledge gaps toward
climate-resilience development

Anond Snidvongs
Global Change System for Analysis, Research and Training
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Some recent climate change impact studies in the Mekong Delta

- **SEA START RC (2002-2005)**
Assessment on Impact and Adaptation to Climate Change in Multiple Sectors and Multiple Regions (AIACC) – Regional Study AS07
- **TKK & SEA START RC (2008)**
Water and Climate Change in the Lower Mekong Basin: Diagnosis and Recommendations for Adaptation (Year: 2008)
- **MRCS-CSIRO (2008-2009)**
Climate Change Vulnerability in the Mekong Basin
- **WWF – Greater Mekong (2008)**
Study on Climate Change Scenarios Assessment in Cau Mao Province

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Climate Change Threats in the Mekong Delta

Outline:

- Introduction: Some climate change impact studies in the Mekong Delta
- Case study: Helsinki University of Technology (TKK – Finland) and SEA START RC study in 2008
 - Method and information used in assessment process
 - Main findings
 - Limitations and gaps
- Past and near-future trends of major tropical storms in south Vietnam
- Summary: Key messages on strategy for adaptation to future climate in the Mekong Delta

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TKK and SEA START RC (2008)

Water and Climate Change in the Lower Mekong Basin: Diagnosis and Recommendations for Adaptation

Scope of study:
Assess impact of climate change on basin-wide hydrological regime with focus on impact of changing flood regime in the Mekong River delta floodplain system on livelihood of the rural people.

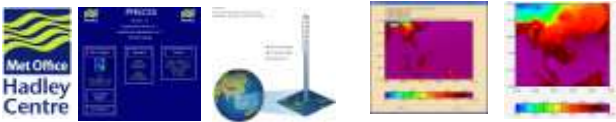
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Method and tools used

~25km resolution climate scenarios – ECHAM4 A2 GCM downscaled using PRECIS regional dynamic model




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Method and tools used

- Risk, vulnerability and adaptation assessment – GIS analysis and local stakeholders discussion

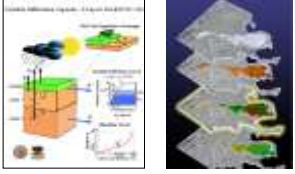


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Method and tools used *continued*

- Basin-wide hydrological regime – VIC precipitation-runoff model
- Flood in the delta floodplain system – EIA3D hydrodynamic model

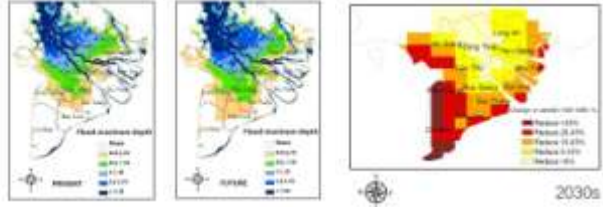


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Main findings: Climate change impacts on physical systems

- Extended flood area – affecting community / shrimp ponds
- Shift and change in flood season – affecting harvesting period
- Warmer and longer summertime – affecting crop yields
- Increased drought risk in the early summer-autumn rice crop



Change in future flood boundary Change in precipitation in early crop season

2030s

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Main findings: Implication on adaptation planning

- **Climate is not the only change:** need for integrated assessment of other environmental changes impacting water resources
- **Importance of timescales:** need improved understanding of the changes and their causes/drivers at different time scales
- **Adaptation capacity:** builds not only on environmental resilience, but also – and predominantly – on people and institutions.
- **Build on Existing institutional frameworks:** Build on both existing and planned strategies to enhance adaptation capacity
- **Climate change adaptation is a dynamic process:** need multiple solutions that are both flexible and adaptive
- Response of specific sector or region to climate change will influence the magnitude of climate change impacts – needs integrated and strategic assessment in wider scale with context/area-specific response

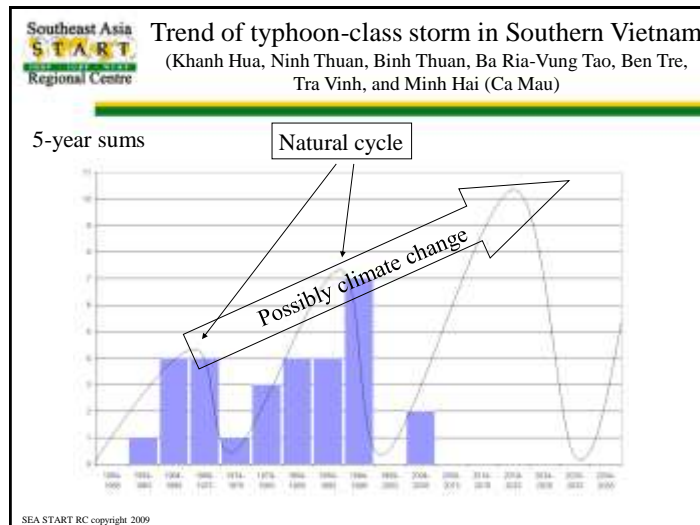
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Limitations and gaps:

- Limited resource and time
- Broad assessment – awareness raising, local research capacity building
- Only single scenarios
- Cannot cover multiple sectors risk assessment
- Assess risk based on physical change only – not include socio-economic change

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Key messages for future climate change adaptation strategy in the Mekong Delta –

What still needs to be done

Better knowledge on:


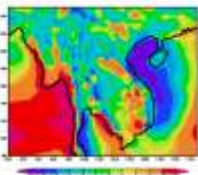
- Diverse range of future change scenarios – physical systems e.g. climate / flood / salinity intrusion / sea level change and coastal morphology, etc.
- Impact of climate change in local context - e.g. impact of sea level rise and ocean circulation on coastal morphology
- Holistic view of impacts – propagate effect of multiple events
- Change in future socio-economic condition – risk & vulnerability on system & sectors under different local contexts
- Holistic view of risk and vulnerability – multiple sectors & area-based integrated assessment

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Thank You



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