



Centre for Marinelife Conservation and Community Development (MCD)

Challenge and Opportunity of Climate Change: Case studies in Vietnamese Coastal communities

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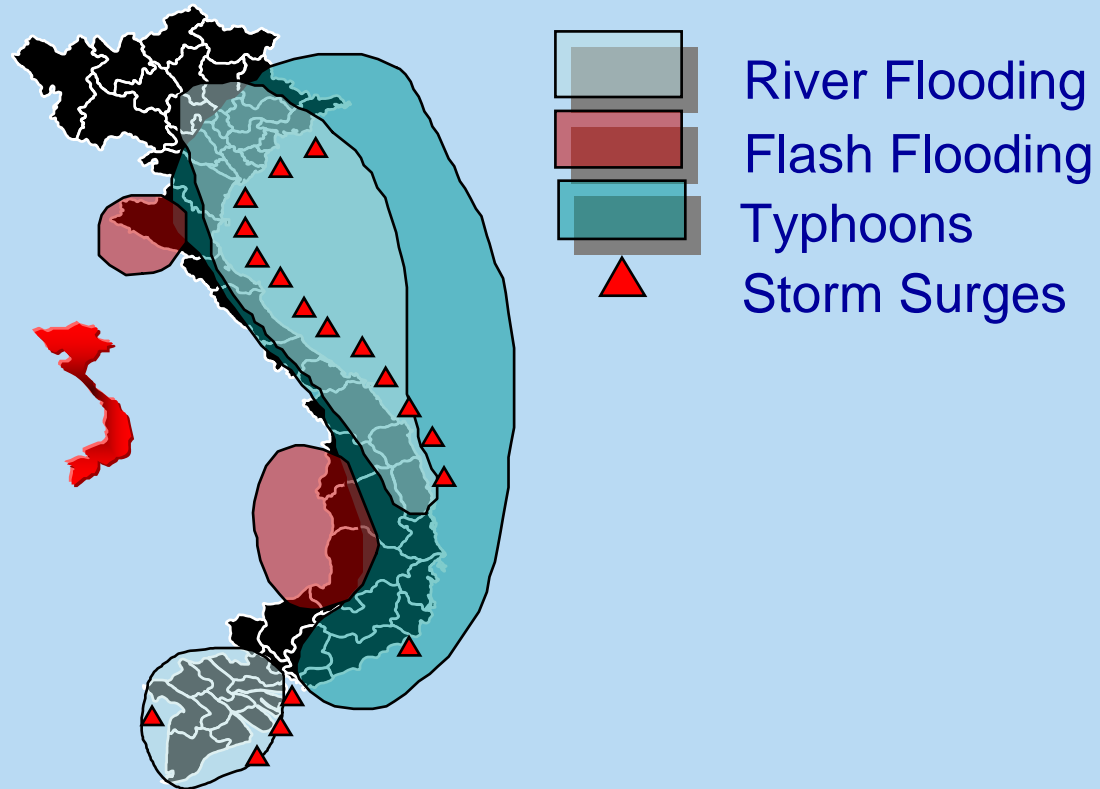


Overview of climate change in Vietnam

Sea level rise: 3 mm/yr during 1993-2008

Average temp: 1991-2000 is of 0.8oC higher than that of 1931-1940

More frequent, intensive and stronger typhoons and extreme flooding



Disaster risks in Vietnam (*UNDP, 2000*)

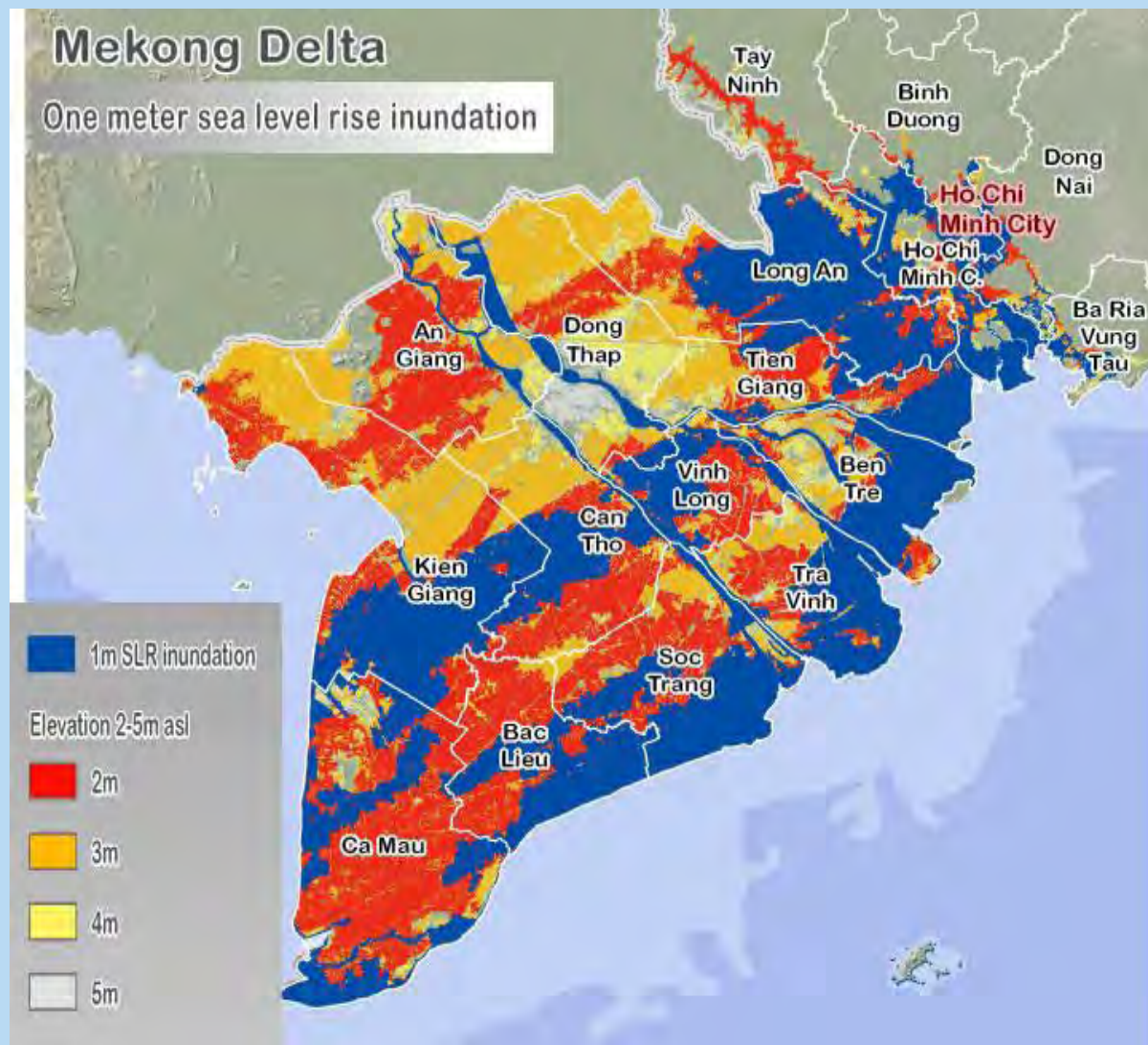
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Sea Level Rise in VN coastal zone

60% (1700 km²) of coastal wetlands threatened by SLR

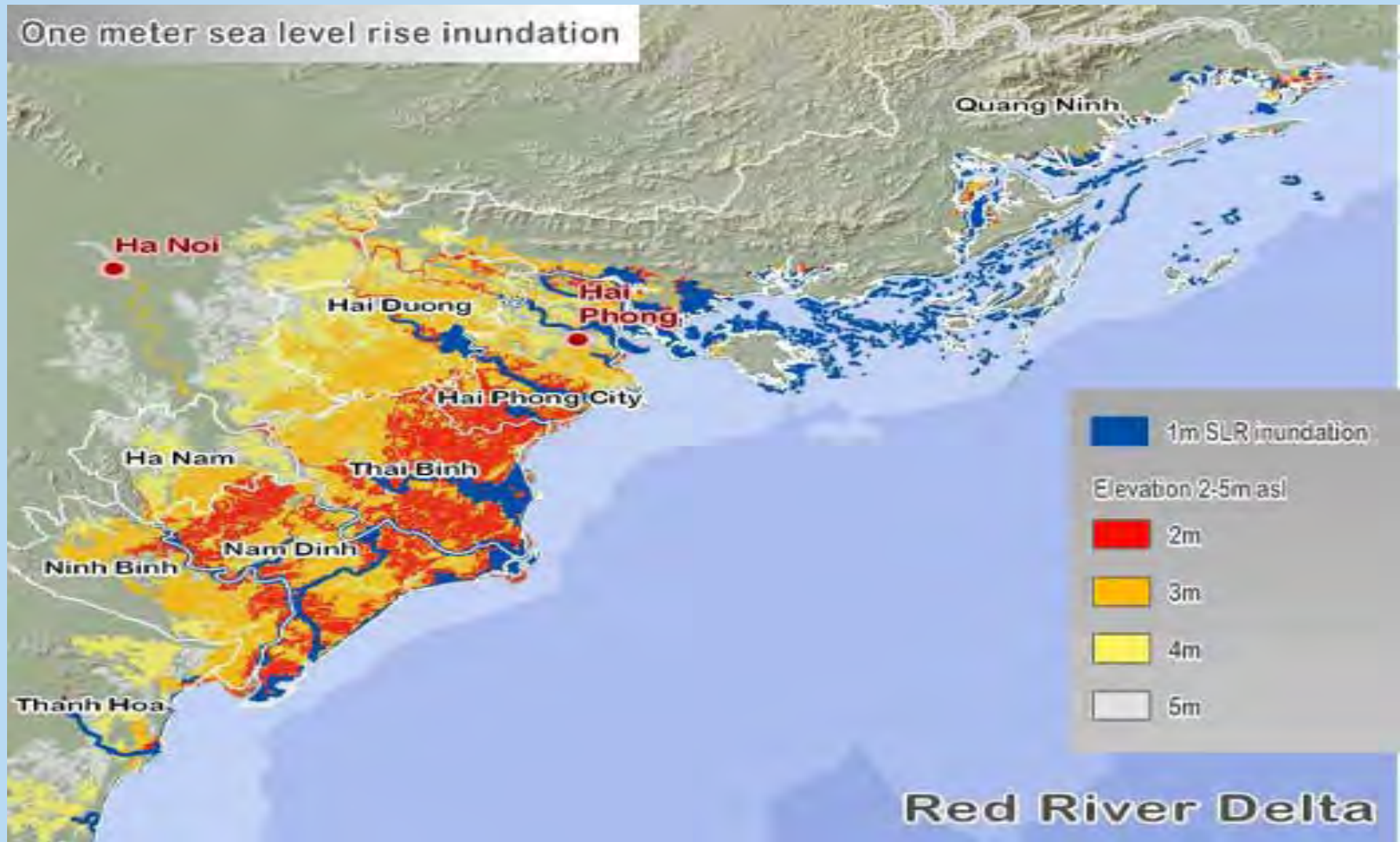
1m SLV could displace 22 million people and lead to a 10 % GDP loss



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Climate change in the Red River Delta (1)



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Climate change in the Red River Delta (2)

Disasters in different geographic areas and economic zones

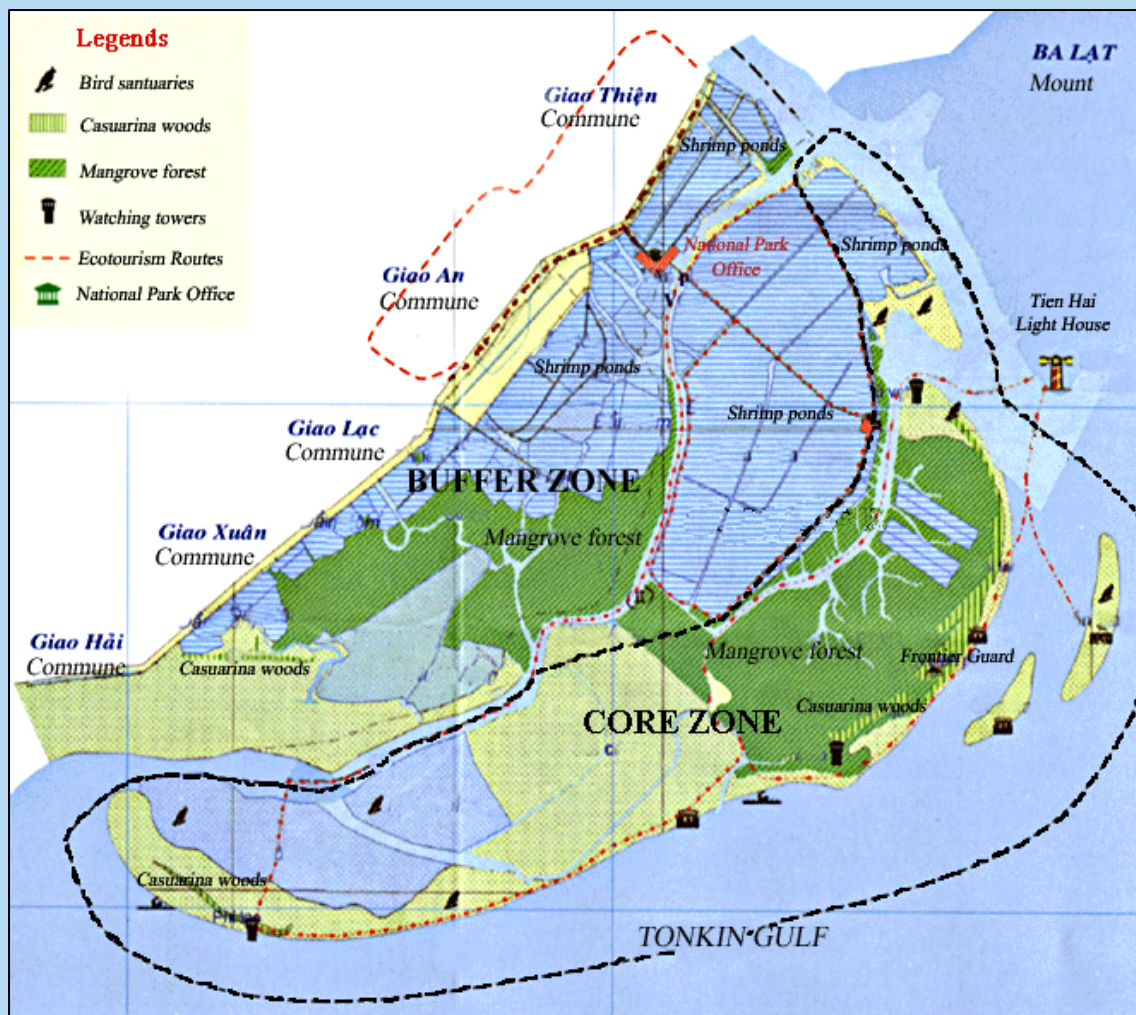
Disaster	Geographic Areas and Economic Zones							
	North East and North West	Red River Delta	North central coast	South central coast	Central highlands	Southern North East	Mekong River Delta	Coastal Economic Zone
Storm	***	****	****	****	**	***	***	****
Flood	-	****	****	***	***	***	*****	****
Flashflood	***	-	***	***	***	***	*	***
Whirlwind	**	**	**	**	*	**	**	**
Drought	***	*	**	***	**	***	*	***
Desertification	-	-	*	**	**	**	*	**
Saline intrusion	-	*	**	**	*	**	***	**
Inundation	-	***	**	**	-	**	***	***
Landslide	**	**	**	**	*	**	***	**
Storm surge	-	**	**	**	**	**	***	**
Fire	**	*	**	***	-	***	***	***
Industrial and environmental hazard	-	**	**	**	***	***	**	***

Key: Very severe (****), Severe (***), Medium (**), Light (*), None (-)
 Source: Ministry of Agriculture and Rural Development and CCFSC (2005).



Xuan Thuy Ramsar – Red River Delta

- High biodiversity, 15,000 ha (part of Biosphere Reserve)
- Mangroves (2000 ha), 220 migratory birds (Black-faced Spoonbill - *Platalea minor*, Spoon-billed Sandpiper (*Eurynorynchus pygmeus*)
- Aquatic species: Shrimp (*Penaeus monodon*), crab (*Scylla serrata*), molluscs (*Meretrix meretrix*)



Map of Xuan Thuy National Park (XTNP, 2007)

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Socio-economic conditions in Xuan Thuy buffer zone communes

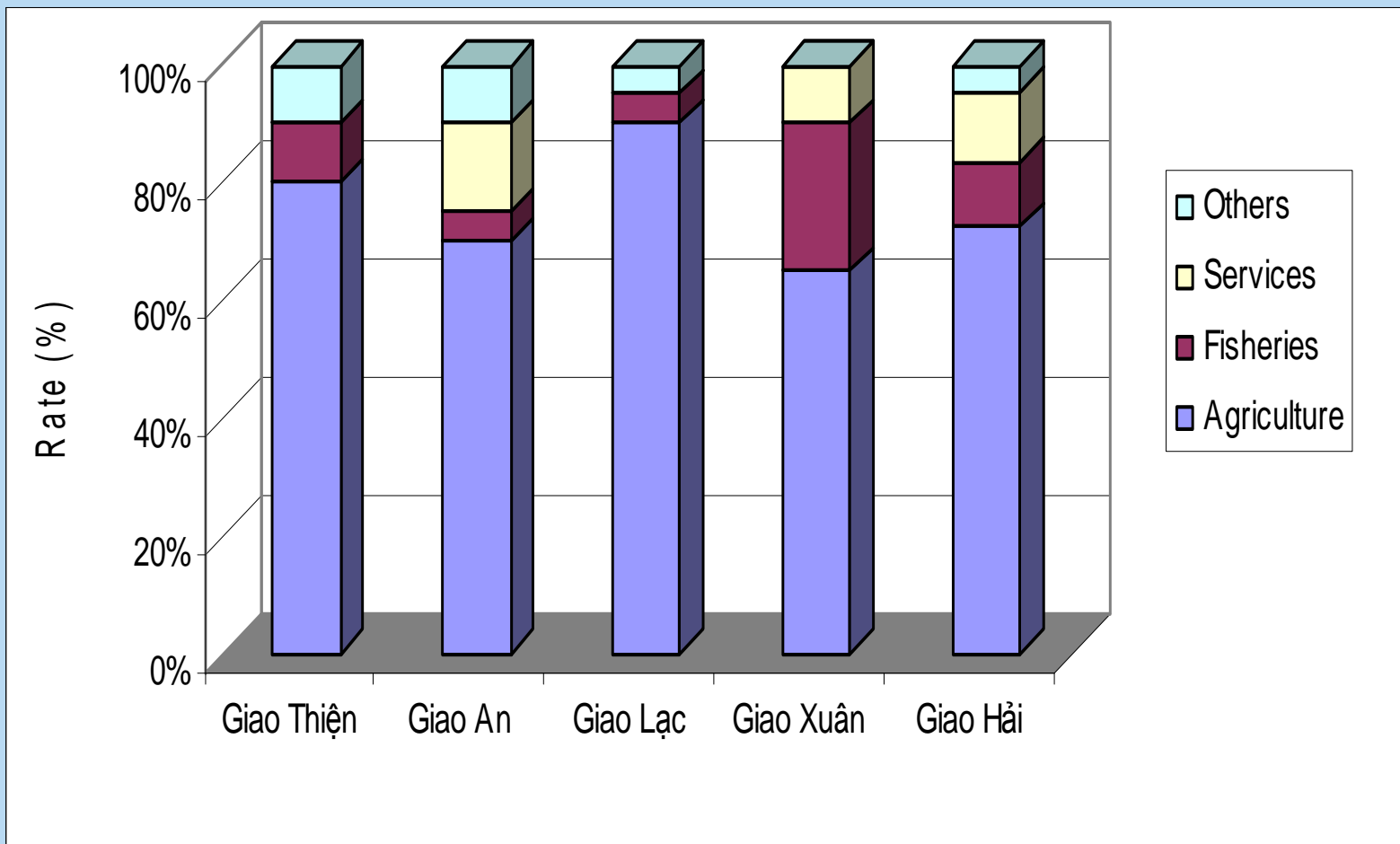
	<i>Giao Thien</i>	<i>Giao An</i>	<i>Giao Lac</i>	<i>Giao Xuan</i>	<i>Giao Hai</i>
Area (hectare)	1.875	1.930	1.389	1.292	744
Population (person)	10.494	10.150	9.876	9.693	6.910
Population density (people/km ²)	1.023	1.180	1.331	1.291	1.207
Total No. of primary, secondary and high schools pupils	1.885	2.500	2.012	2.061	1.179
Rocky and bitumen roads	30	45	29	45	14

Socio-economic profile of Xuan Thuy National Park (MCD, 2007)

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Occupation distribution in XTNP's buffer zone communes



Socio-economic profile of Xuan Thuy National Park (MCD, 2007)

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Observed climate change impacts in Xuan Thuy coastal communities

Physical and biological impacts:

- High risks of hazards (erosion, tropical storms, pollution of water and sediment) – *Nhuan et al, 2009*.
- Increased watersalt intrusion – *Ninh, 2006*.
- Mangroves and fish species reduction

Socio-economic impacts:

- Aquaculture and agriculture (lower productivity)
- Fisheries and aquaculture seasonality
- Social conflicts
- Migrations to city workers
- Gender issues, women and children are more likely vulnerable



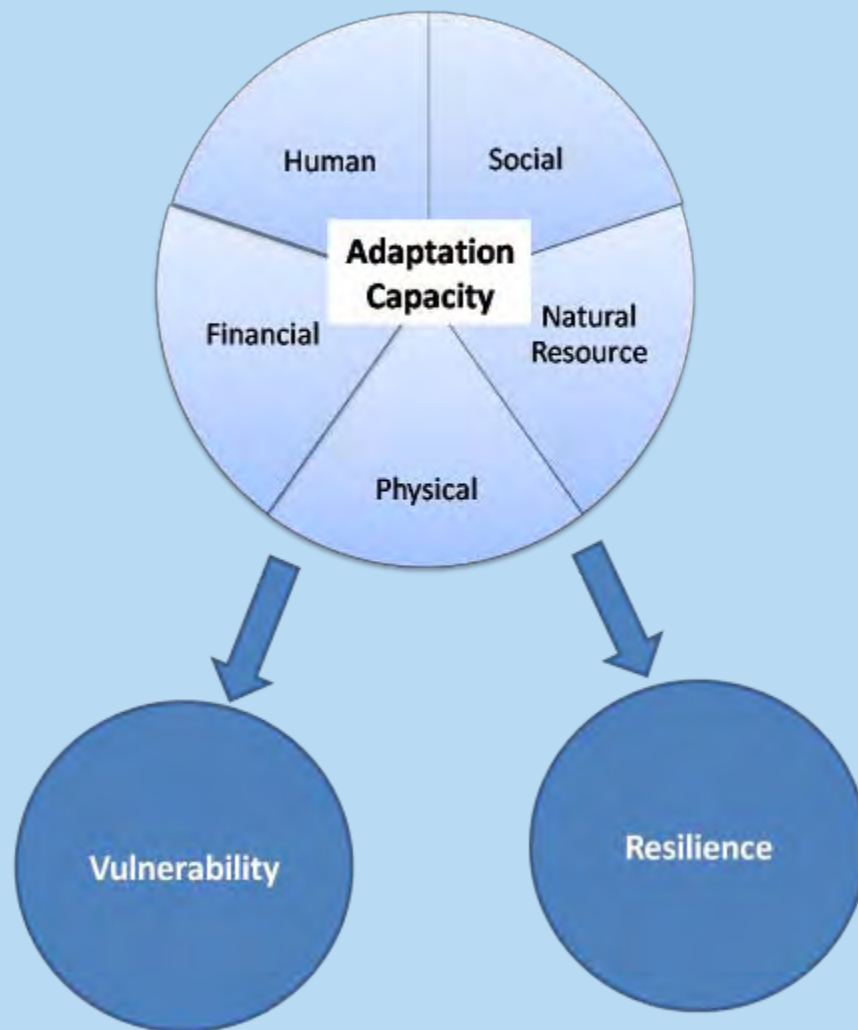
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Community's Adaptive Capacity Assessment (*adopted by CARE, 2009*)

Adaptive capacity is the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Resilience is the ability of a community to resist, absorb, and recover from the effects of hazards in a timely and efficient manner, preserving or restoring its essential basic structures, functions and identity.



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CC adaptive capacity of local community in Giau Xuan clam aquaculture

Natural resources:

- Seedlings (wild clam is overfished)
- zooplanktons,
- Mudflat (1ha min)
- Mangroves
- Waters of Red River

Physical resources:

- Infrastructure and materials (height of net and farm)
- Monitoring tools for salinity degree (few)
- Dyke upgrading and improvements

PRA meeting, Giau Xuan Commune, Nam Dinh (MCD, 2010)



CC adaptive capacity of local community in Giao Xuan clam aquaculture

Financial resources:

- Access to the banks and credit institutions
- Limited funding from the local government
- Capital mobilization (household, collaborators, shareholders)

Social resources:

- Collaborative group for aquaculture
- Community fisheries regulations
- Disaster warning information (radio, mobile phone)

PRA meeting, Giao Xuan Commune, Nam Dinh (MCD, 2010)



CC adaptive capacity of local community in Giao Xuan clam aquaculture

Human resources

- Local knowledge on seasonality, temperature, salinity
- Trained technical aquaculture skills
- Community participation in mangroves replantation and protection



PRA meeting, Giao Xuan Commune, Nam Dinh (MCD, 2010)

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Institutional policies on the CC adaptation and mitigation

- National Target Program (NTP) and action plan on CC response
- National Strategy for Natural Disaster Prevention, Response and Mitigation
- Action Plan Framework for Adaptation to CC in the Agriculture and Rural Development Sector
- Biodiversity law and action plan
- Xuan Thuy National Park Management Plan
- Local disaster mitigation program: Dyke improvement and upgrading (inner mangroves area: 2.5m to 3.5m and outer mangrove area: 4-4.5m to 5m)



Opportunities and challenges: CC resilience in the coastal communities

Opportunities

- Local knowledge was useful for the CC adaptation and mitigation.
- Involvement of coastal communities in the collective actions (e.g. core group, regulations etc)
- Awareness and behaviour change in CC adaptation, environmental impacts and livelihoods.



Challenges

- Uncertainty on the CC impacts adversely and acceleration
- Local centralized CC planning adaptation and mitigation
- Insufficient institutions for livelihood resilience in the long term



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Recommendations and implications (1)

Socio-economic issues

- Need to identify vulnerabilities at household level
- Diversify livelihoods for income generation (e.g. ecotourism) and select environmental friendly livelihoods
- Community capacity building in CC adaptive livelihood development



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Recommendations and implications (2)

Environmental issues

- Increase awareness raising on biodiversity conservation and mangrove protection.
- Protect and Reforest protective forests (mangroves)
- Advocacy and communications on the ecosystems services and livelihoods development



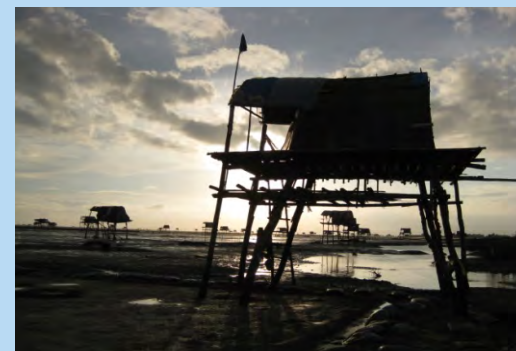
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Recommendations and implications (3)

Governance issues

- Strengthening coastal resources governance (Co-management, land-use planning)
- Development of community based disaster risk management
- Integration of CC issues into the local socio-development planning (incl fisheries and other sectors).



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Thank you very much !



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