

CRC for
Water Sensitive Cities

Improving Flood resilience of Can Tho city: Big Infrastructure and Household adaptation

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Adaptation planning

- Using information about present and future changes to assess and evaluate the suitability of current and planned practices, policies and infrastructure
- Information
 - Climate change
 - Urbanisation
 - Demographic change
 - Socio-economic growth
- Flood risk management systems are Socio-technical systems, comprising people, perceptions, technical artifacts, protocols etc

Challenges for adaptation planning

- Uncertainties
- Triggers for action (i.e. tolerable risk levels)
- Existing and proposed adaptation plans
- Accounting and incorporating adaptation across scales
- Multiple adaptation options
- Evaluation of adaptation options

Resilient Can Tho

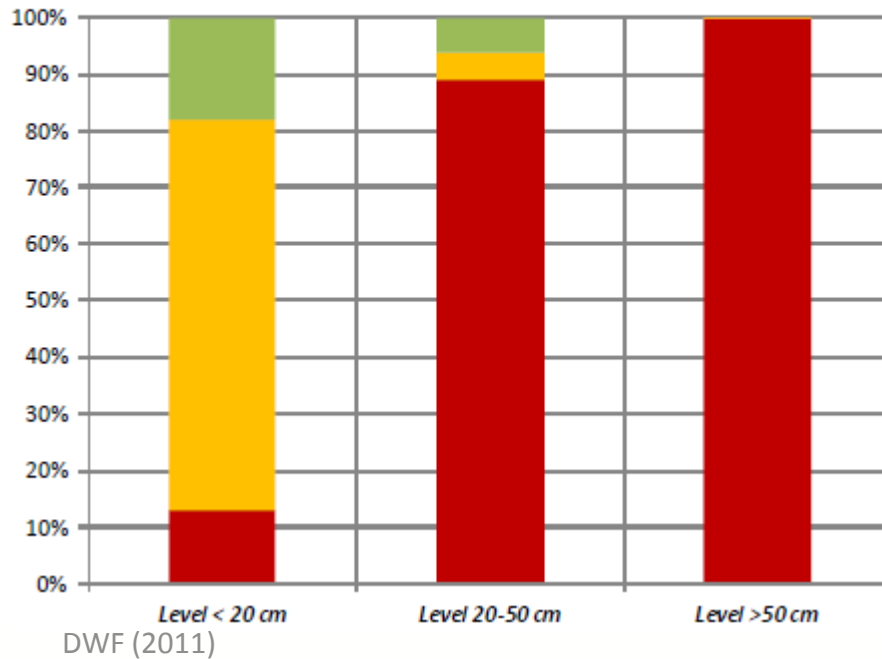
- Resilience is the ability to withstand or recover from disturbance and to anticipate and to adapt to change
- Inundation during high tides is common
- “Living with water”
- Adaptation measures are prevalent in household level
- Measures are in response to local flooding
- Proposed dyke rings



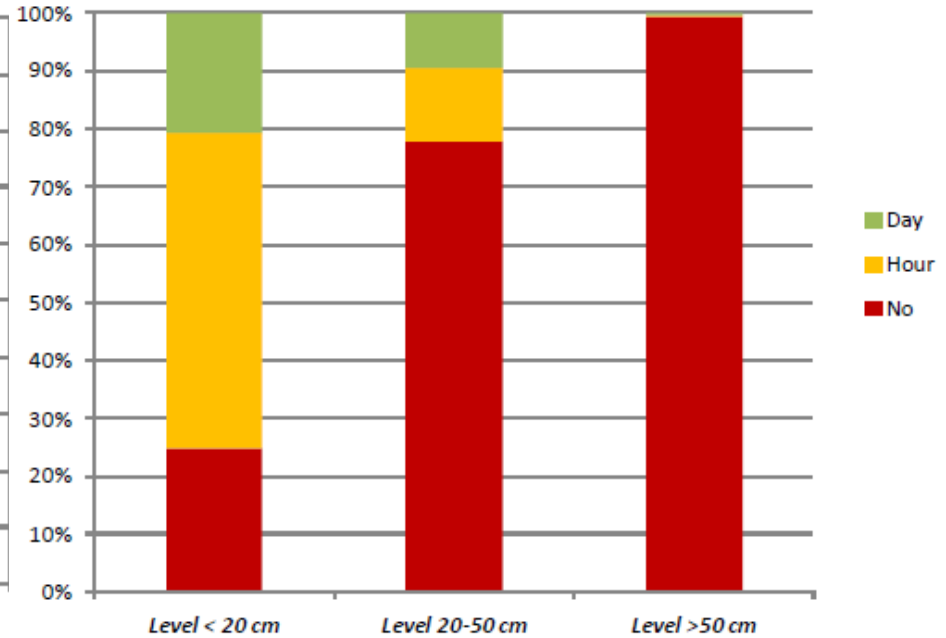
DWF (2011)

Living with Water

Acceptance : Flood in house

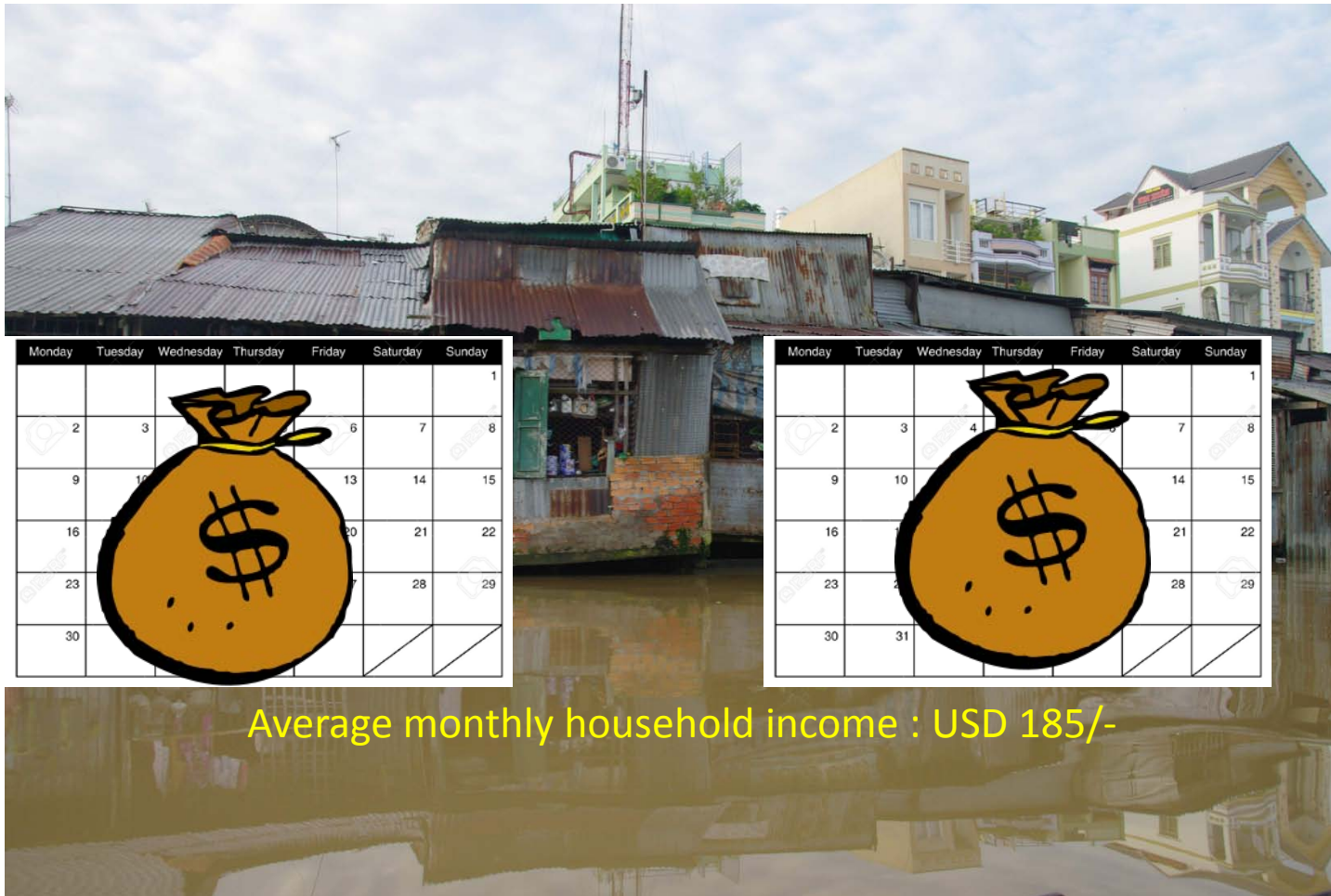


Acceptance : Flood around



2011 Flood Damages

- Direct Damage per household : USD 333 /-



Damage to Business

- Direct Damage to small business: USD 152/-



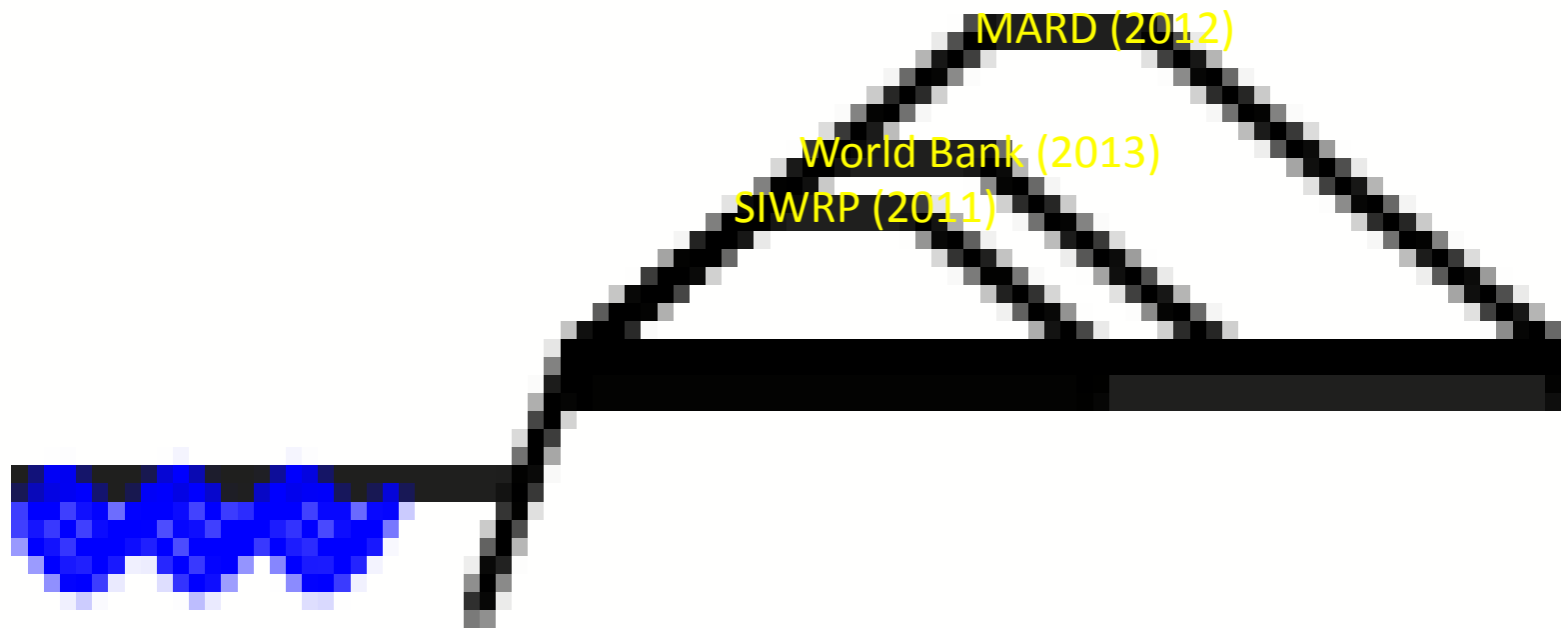
Productivity Loss

- Loss due to business disruption: USD 207/-



Big Infrastructure

- Dike Ring proposals

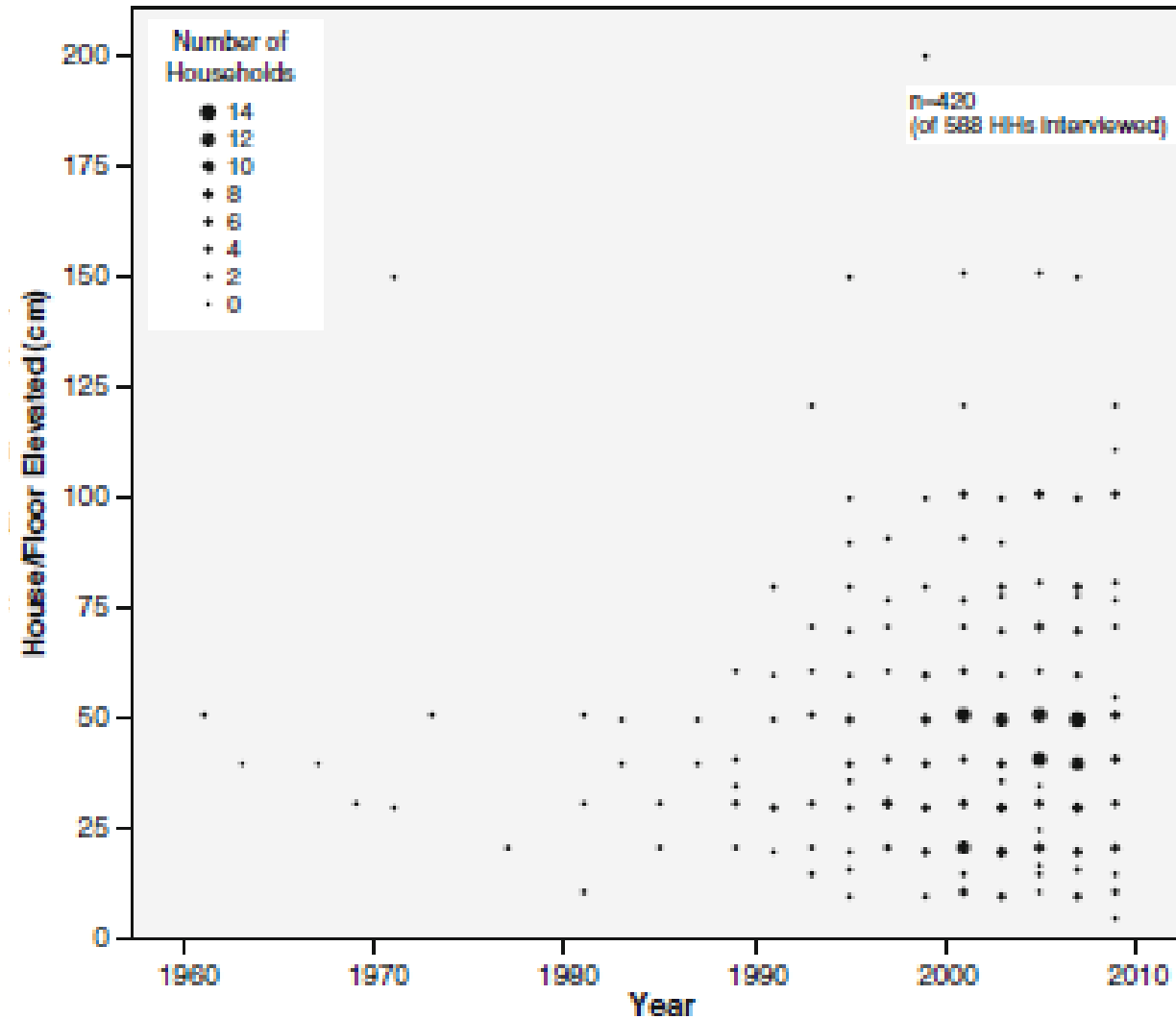


Household Adaptation



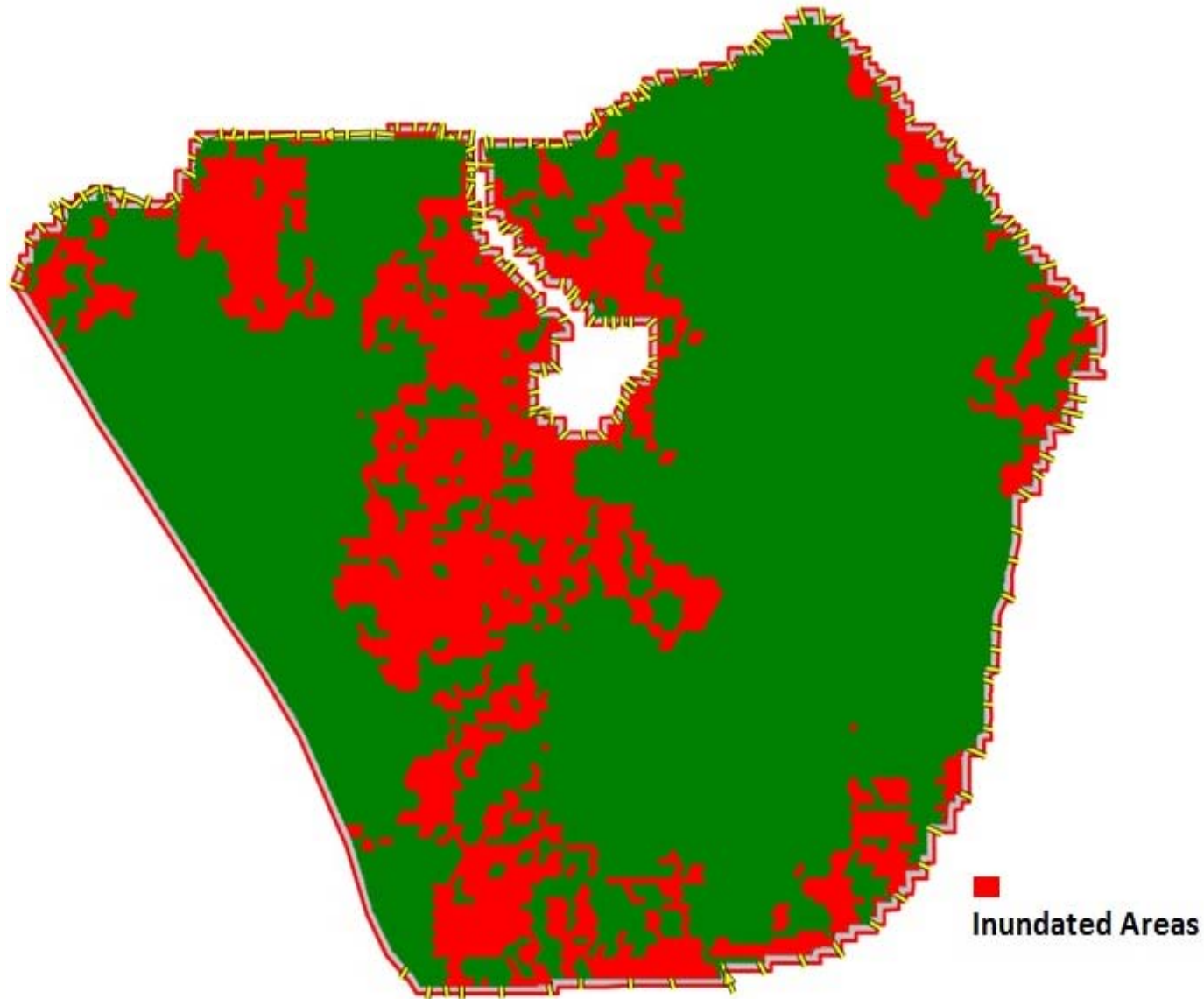
DWF (2011)

Household adaptation



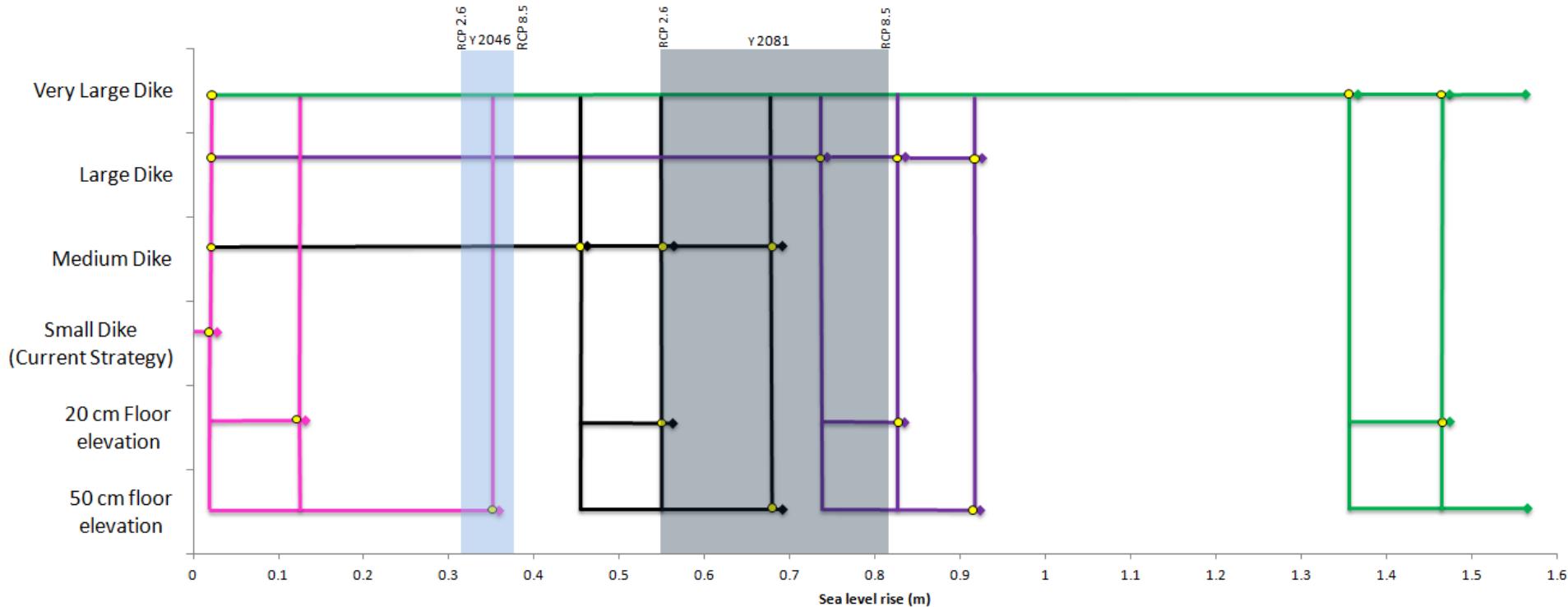
Garschagen (2010)

Case Study– Ninh Kieu District



Adaptation pathways for Can Tho

Application in Can Tho (VNM)



Adaptation pathway

End of Adaptation pathway

Transfer Station

RCP 2.6
RCP 8.5

Climate change Scenarios

The map indicates possible routes to get to a desired point in the future. Similar to a Metro Map, the circles indicate transfer stations to another policy. The blocks indicate a terminal station at which an ATP is reached.

Outcomes

- Consideration of household coping capacities leads to shift in functional life time of Big infrastructure measures
- The evolution of coping range and adaptation in the past and in the future under various scenarios will have to be take into account

Mekong Delta Plan (MDP)

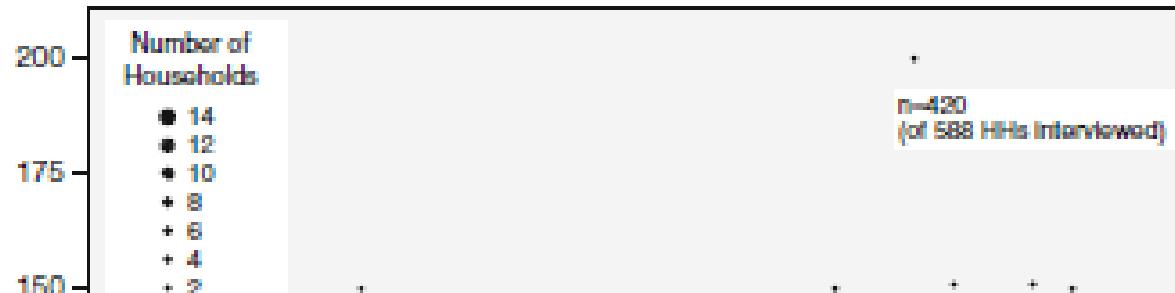


MDP's Socio –Economic Drivers

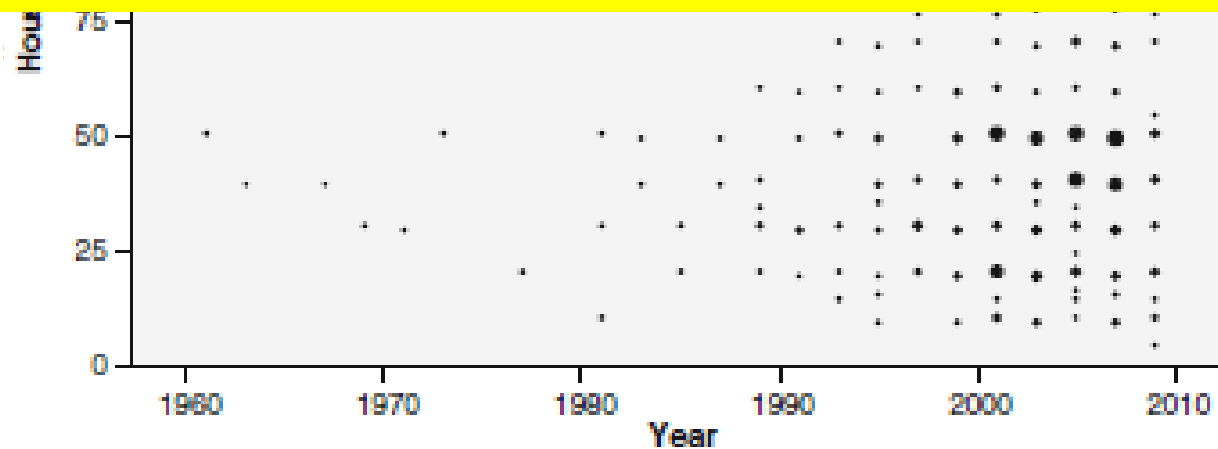
Scenario
Corridor Industrialisation (Population 20 million by 2020 and decrease after 2050)
Food production scenario (Pop – 19 million by 2020 and decrease rapidly after)
Agro –business scenario (Pop 15 million by 2050)
Dual Node Industrialisation scenario (30 million by 2050)



Household adaptation

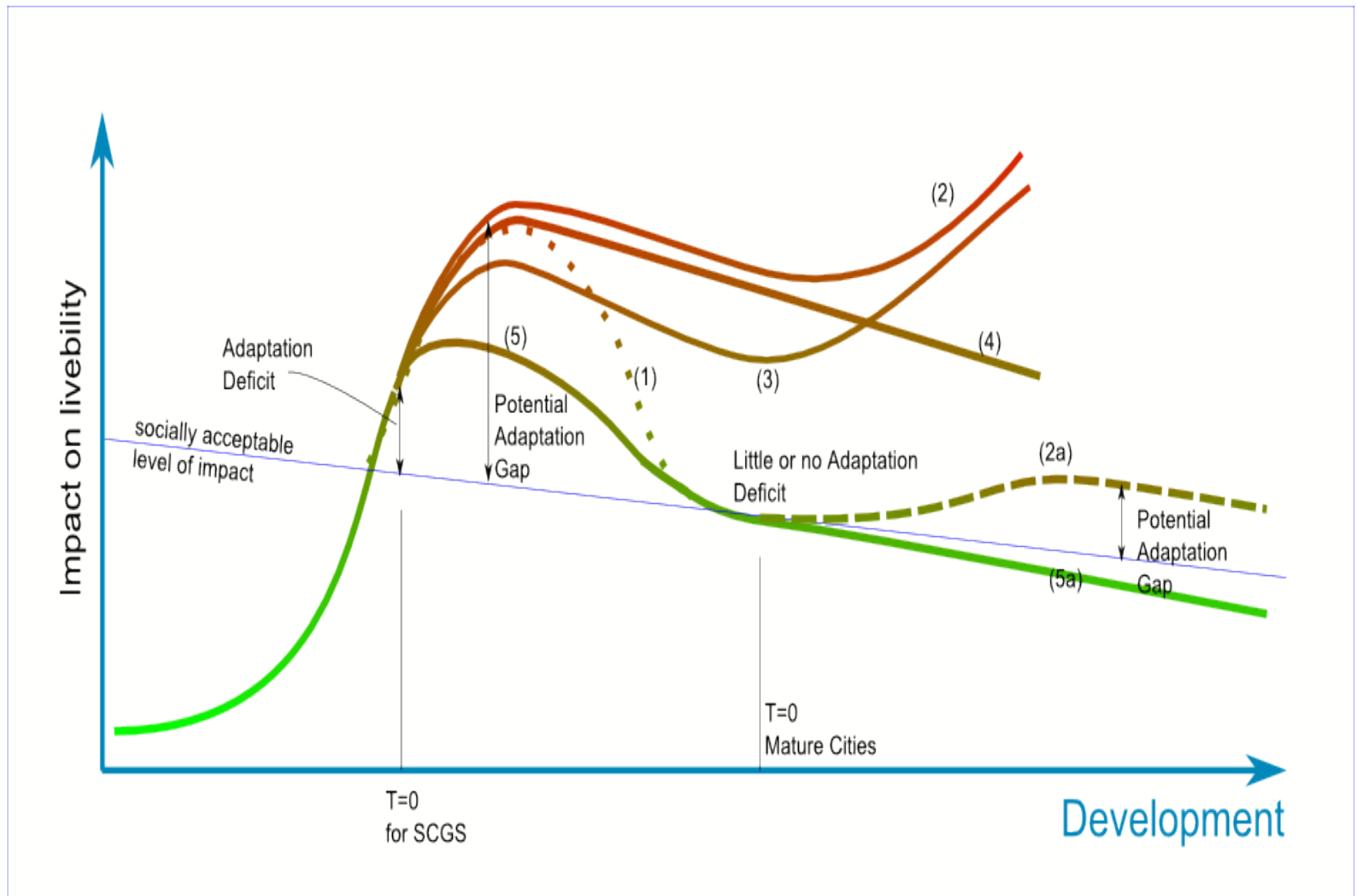


Cost of raising the floor levels beyond 0.5 m is 5 times more expensive than raising it between 0.2m to 0.5 m

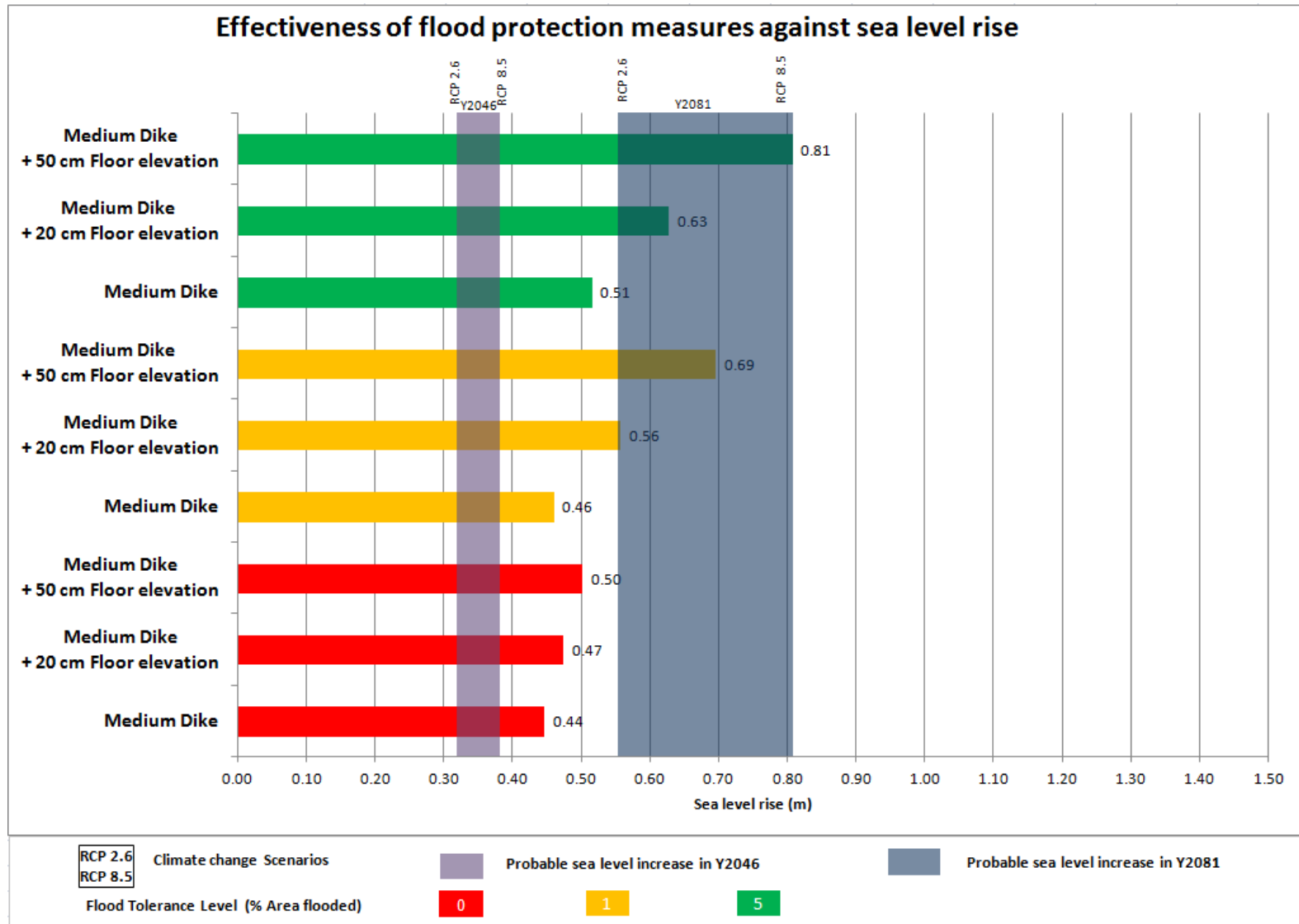


Garschagen (2010)

Acceptable level of impact

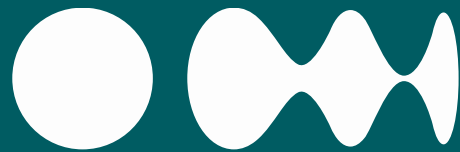


Limited Functional life span



Outcomes

- Uncertainties will have to be taken into account as they play a vital role in the triggering and longevity of adaptation options
- Flood protection measures should not be seen technical where as they are **“socio-technical”**



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2012 - 2021