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Climate Change Impacts and Vulnerabilities Assessment for Can Tho City

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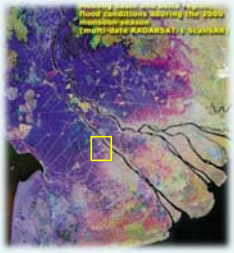
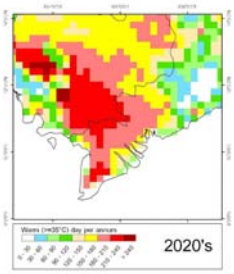
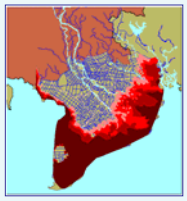
Study objective

Evaluate the impacts of climate change and sea level rise on the biophysical condition of Can Tho city, and from that identify the vulnerabilities of main socio-economic sectors of the City: agriculture, aquaculture, and infrastructure.







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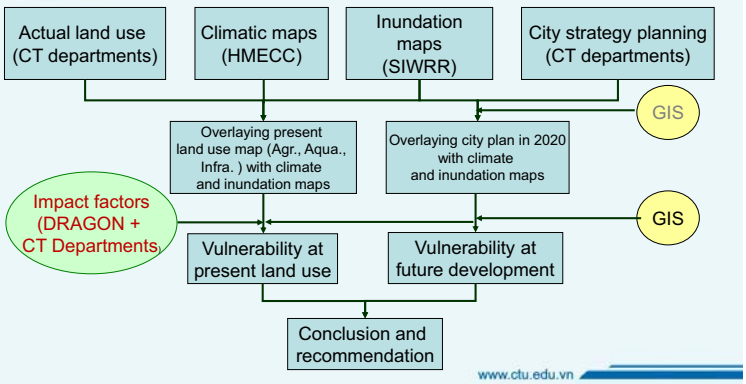
APPROACH AND COORDINATION



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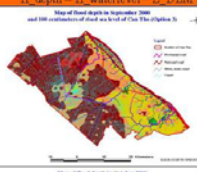
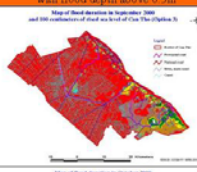
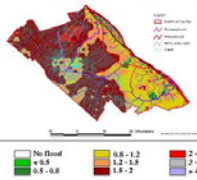
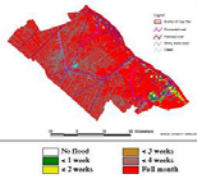
Impact of climate change and sea level rise to future Can Tho city's climate and hydrology condition

- Average increase in temperature (^{O}C) compared to average temperature in the period of 1980 - 1999 in Can Tho city with high and medium emission scenario

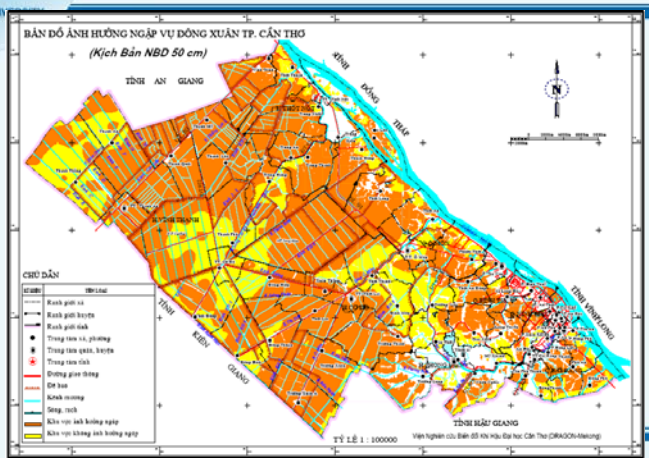
Scenario	Period in a year	Years in 21st century			
		2020	2050	2070	2100
Highest of high emission scenario (A1FI)	XII-II	0.5	1.5	2.5	3.6
	III-V	0.5	1.7	2.7	3.9
	VI-VIII	0.4	1.1	1.7	2.5
	IX-XI	0.5	1.5	2.6	3.7
	Year	0.5	1.4	2.4	3.4
Medium of high emission scenario (A2)	XII-II	0.5	1.2	1.8	2.9
	III-V	0.5	1.3	2.0	3.2
	VI-VIII	0.4	0.9	1.3	2.0
	IX-XI	0.5	1.2	1.9	3.0
	Year	0.5	1.1	1.7	2.8
Medium of medium emission scenario (B2)	XII-II	0.5	1.1	1.5	2.1
	III-V	0.6	1.2	1.7	2.3
	VI-VIII	0.4	0.8	1.1	1.4
	IX-XI	0.5	1.1	1.5	2.2
	Year	0.5	1.1	1.4	2.0

Impact of climate change and sea level rise to future Can Tho city's climate and hydrology condition

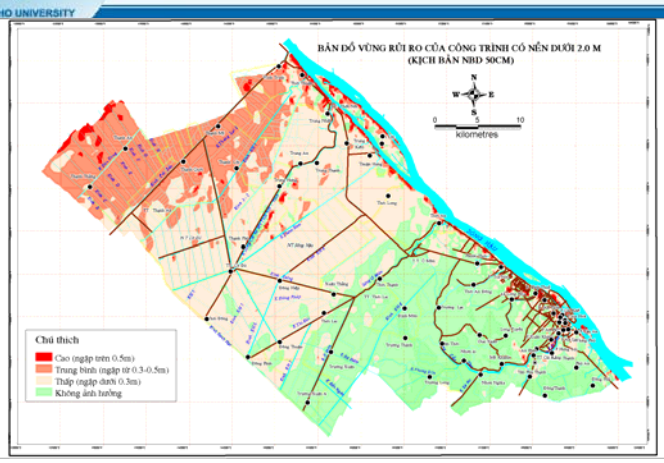
- Scenario: SLRL 30, 50, 100cm + highest flood from upstream (year 2000)

Duration	Flood depth and flood extent map H_depth = H_waterlevel – Z_DEM	Flood duration map (days) with flood depth above 0.5m
Sep		
Oct		
Legend	No flood < 0.5 0.5 - 0.8 0.8 - 1.2 1.2 - 1.5 1.5 - 2 2 - 3 2 - 4 > 4	No flood < 1 week < 2 weeks < 3 weeks < 4 weeks Full month

Flooded areas of Winter-Spring crop at the sea level rice of 50 cm scenario

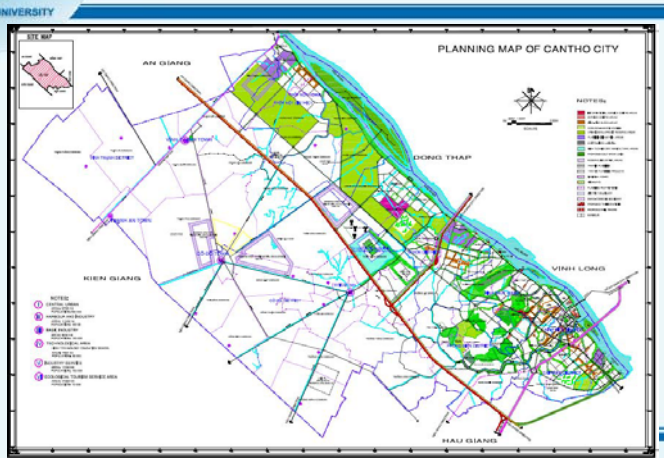


Flood risk map of construction with elevation under 2.0m, scenarios SLR 50 cm



Reference points

Flood risk and urban development



Conclusion and recommendation

- According to the government strategy, within 10 years or even more, Can Tho city still be one of the main food security areas Vietnam, and the study shows that it would be strong impacts from flood caused by sea level rise.
- Most of the city's constructions are already impacted by normal flood and the situation will be even worse in the future → the study shows that the constructions level should be more than 2.5m AMSL or to construct dyke to avoid flood risk.
- Need a CC adaptation planning for the whole Delta not Can Tho city.
- Limitation:
  - Saline intrusion was not yet taken into account due to lake of data and analysis tool.
  - Upstream hydro power development impacts is still unknown
  - Future development strategy of the City is not yet clear
  - Environment impacts of climate changes and hydrology changes need to be take into account

Thank you for your attention