

Several solutions to strengthen climate change resilience for Hoi An city - Vietnam



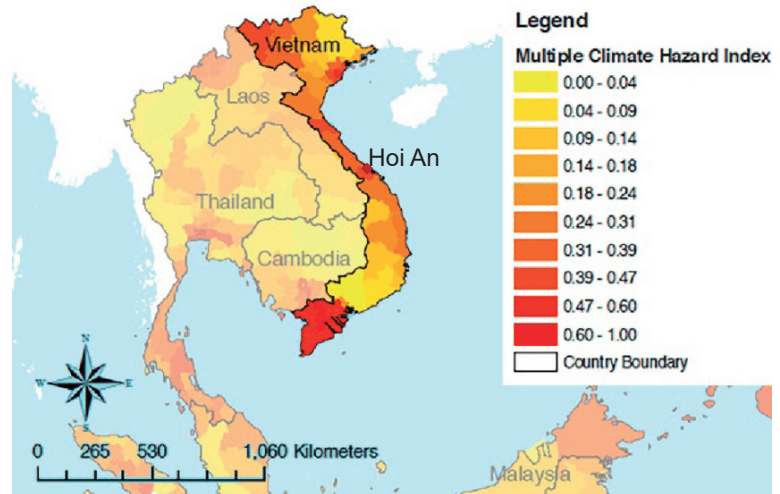
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- I. Effects of climate change on Hoi An City
- II. The results of assessment on resilience to climate change of Hoi An City
- III. The solutions to strengthen climate change resilience
- IV. Conclusion

I. EFFECTS OF CLIMATE CHANGE ON HOI AN CITY

- Vietnam is one of the countries that has been heavily affected by climate change
- In the 21st century, these effects will be more severe
- These effects have caused problems in many cities including the city with world heritage site like Hoi An city



(Vietnam-Climate Hazard Index, Suyeon Lee, 2017)

I. EFFECTS OF CLIMATE CHANGE ON HOI AN CITY

**World's
Heritage**



**Climate
change
effects**



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

- Vietnam has developed the comparative Vietnam city resilience index (VNCRI)
- The VNCRI is based on the conceptual framework of urban resilience developed by Arup International Development
- This framework provides a comprehensive and empirical approach to resilience, identifying four dimensions and 12 goals for resilient cities, with 52 general indicators

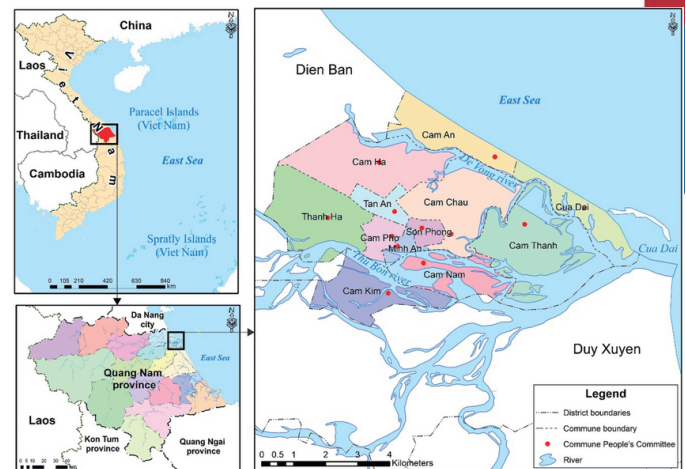
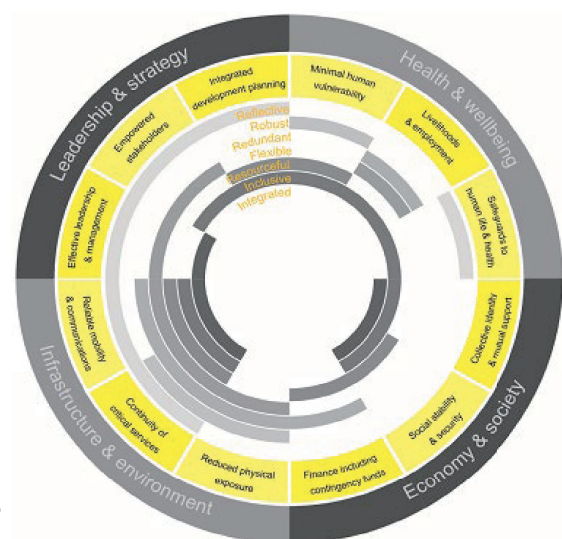


Figure 2. Administrative map of Hoi An City

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

- The climate change resilience of a city is evaluated through 4 sectors:
 - (i) Health and Well-being;
 - (ii) Economy and Society;
 - (iii) Infrastructure and Environment; and
 - (iv) Leadership and Strategy

* The assessment include 12 goals (each sector has 3 goals) and 49 indicators.



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

Table 1: Assessment framework of climate change resilience of urban areas

Sectors	Goals
Health and Well-being	1. Minimal human vulnerability
	2. Diverse livelihood and employment
	3. Adequate safeguards to human life and health
Economy and society	4. Collective identity and mutual support
	5. Social stability and security
	6. Economic security and financial management
Infrastructure and Environment	7. Reduced physical exposure
	8. Continuity of critical services
	9. Reliable communications and transport
Leadership and Strategy	10. Effective leadership and management
	11. Empowered stakeholders
	12. Integrated development planning

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

A. Health & Well-being



1. Minimal human vulnerability



2. Diverse livelihoods and employment



3. Adequate safeguards to human life and health



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



+ Health and Well-being

- Hoi An City has invested much in the well-being of the city → improvement in the quality of services related to healthcare, education, public infrastructure, power supply, water drainage, waste collection and treatment.
- Hoi An has a low rate of permanent and semi-permanent houses → great vulnerability to climate change.

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



The Provincial Competitiveness Index (PCI) which is to cope with changes/shocks is not high (PCI = 4.85), the rate of communes/districts that satisfy health care standards is below 70%. Low diversity of industries and dependence on tourism (68% GRDP) decrease the climate change and shock resilience of Hoi An City.

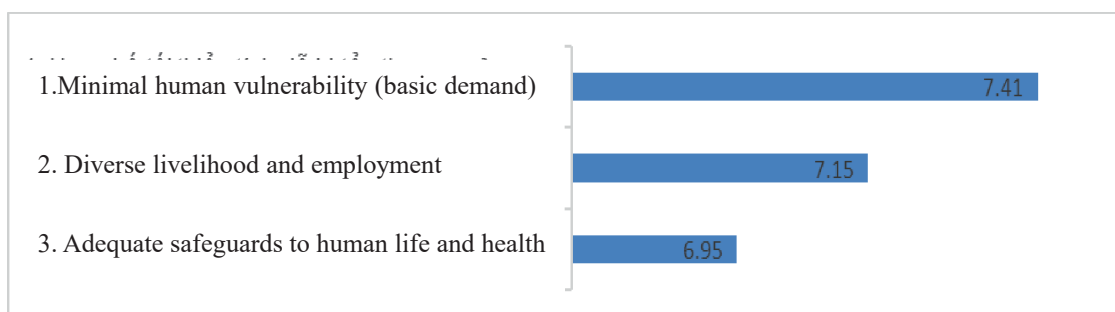


Figure 4: Result of assessment on goals related to Health and Well-being

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

B. Economy & Society



4. Collective identity and mutual support



5. Social stability and security



6. Economic security & fiscal management



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

+ Economy and Society

- ✓ recognized as World Cultural Heritage (1999)
- ✓ The number of tourists increased remarkably
- ✓ The tourism and commercial industries to become key economic
- ✓ develop an ecological – cultural – tourism city
- ✓ Many other attractive tourism destinations

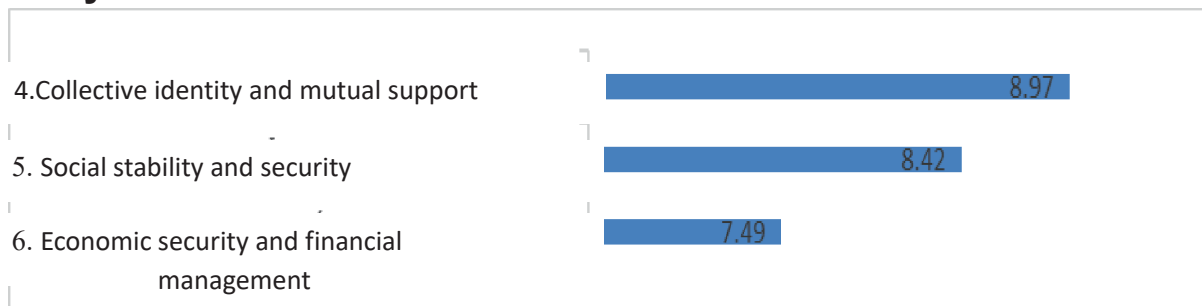
II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



Hoi An City needs to consider the following issues:

- The city’s economy depends much on commercial and service sector (accounting for more than 2/3 of economic structure of the city).
- Hoi An ancient quarter is characterized by wooden houses, which is one of the attractions to tourists; however, there is a high risk of fire.

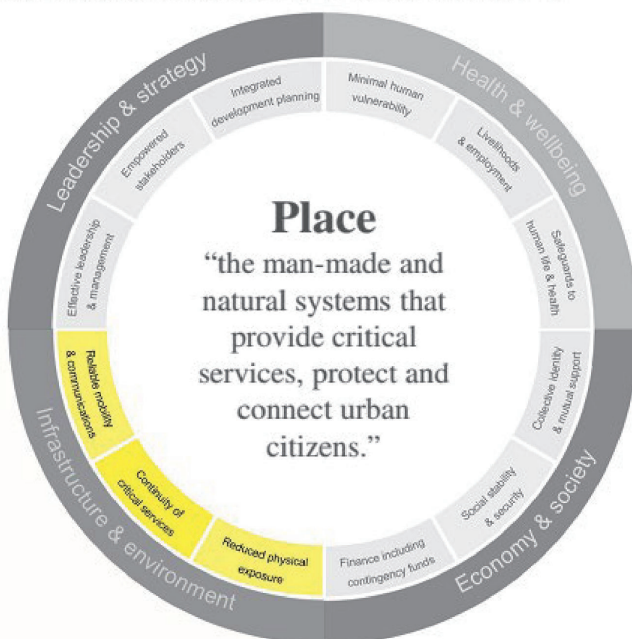
Figure 5: Result of assessment on goals related to Economy and Society



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



Infrastructure & Environment



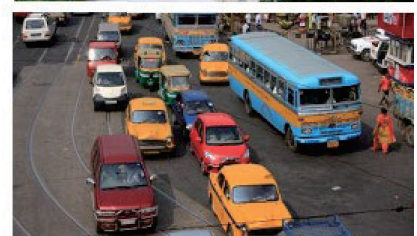
7. Reduced physical exposure



8. Continuity of critical services



9. Reliable communications and transport



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



+ Infrastructure and Environment

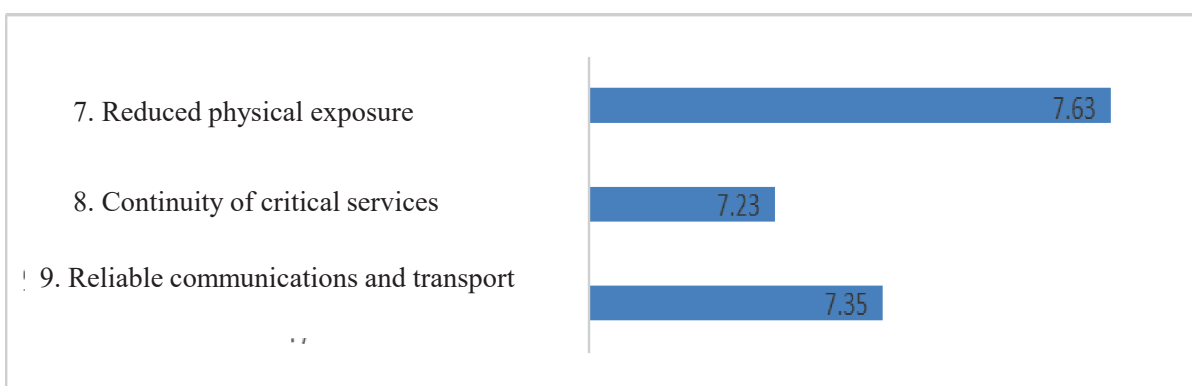
- The increase in solid waste, waste water → make the pollution in the city, areas of Cau Pagoda, Hoai River more and more serious;
- Increasing pressure on the preservation of traditional cultural values.
- The population growth puts pressure on city infrastructure which cannot keep up with the population growth rate

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY



- Hoi An City has been developing annual solutions to respond to natural disaster and rescue
- the city hasn't developed climate change action plan. Limited financial capacity results in small investment in climate change, which does not satisfy actual demand.

Figure 6: Result of assessment on goals related to Infrastructure and Environment



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

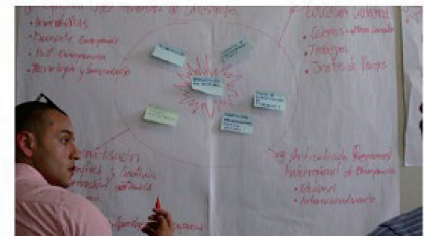
1. Leadership & Strategy



10. Effective leadership and management



11. Empowered stakeholders



12. Integrated development planning



II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

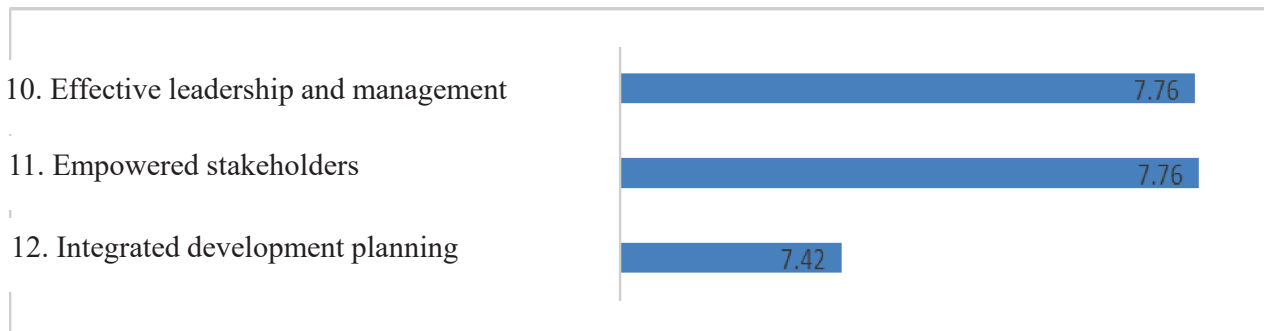
• Leadership and Strategy

- + Not yet an organization for climate change response or any mechanism to monitor the effectiveness of climate change resilience actions
- + City hasn't integrated climate change into local development plan.
- + Requires the collaboration with neighboring localities in the preservation of protection forest, or wildfire prevention.
- + The collaboration effectiveness is not seen remarkably

II. THE RESULTS OF ASSESSMENT ON RESILIENCE TO CLIMATE CHANGE OF HOI AN CITY

- + There is a high rate of houses (30%) located in areas which are vulnerable to climate change and shocks.
- + This also restricts the climate change resilience of the city.

Figure 7: Result of assessment on goals related to Leadership and Strategy



III. THE SOLUTIONS TO STRENGTHEN CLIMATE CHANGE RESILIENCE

Strategy needed to be done

- Awareness and capacity building
- Institutions and Management
- Technology and infrastructure



III. THE SOLUTIONS TO STRENGTHEN CLIMATE CHANGE RESILIENCE



Overall solutions for Hoi An

- Mechanism to encourage and support economic industries which are vulnerable to climate change;
- Protect and maintain ecosystems providing environmental services for the city;
- Integrate adequate overall assessments on risks and hazards, taking the long-term scenarios into consideration

III. THE SOLUTIONS TO STRENGTHEN CLIMATE CHANGE RESILIENCE



Some solutions for Hoi An

- Improve facilities to satisfy the health care demand of people. Mobilize and prioritize financial resources for health care sector
- Upgrade and newly construct urban technical infrastructure system.
- Support the development and enhancement of human resources.
- Protect and promote ecological system value.
- Preserve and develop traditional industries (cottage industry, agriculture, etc.):
- Apply science and technology to agricultural production
- Diversify types of tourism services (entertainment services...)

III. THE SOLUTIONS TO STRENGTHEN CLIMATE CHANGE RESILIENCE



Some solutions for Hoi An

- Properly allocate fund from city budget for responding to climate change impacts.
- Encourage businesses and people to contribute to natural disaster prevention and control fund.
- Develop mechanisms to support the community in case of natural disasters.
- Take advantages of supporting resources from outside and national level

IV. CONCLUSION



- + Hoi An City has been considerably affected by climate change,
- + Some solutions for Hoi An
 - Local government and residents need to have short-term and long-term solutions to ensure health and welfare of residents, social-economic development;
 - Need to have mechanism to encourage and support economic industries which are vulnerable to climate change;
 - Upgrade technical infrastructure;
 - Protect and maintain ecosystems providing environmental services for the city;
 - Integrate adequate overall assessments



THANK YOU