



**EAS**  
**CONGRESS**  
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**THE EAST ASIAN SEAS CONGRESS**

# **BUILDING CLIMATE RESILIENCE STRATEGY**

**A SAFE COMMUNITY FACING STORM  
SURGE AND FLOOD DISASTERS IN  
DANANG**

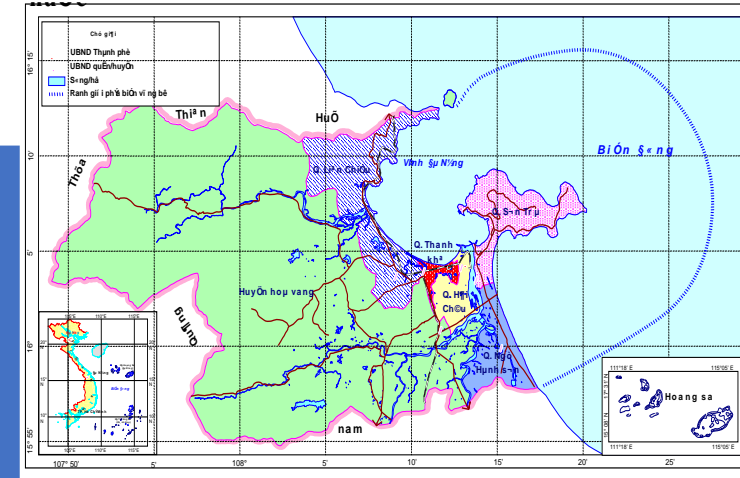
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# ICM in Da Nang



## Key Economic Growth Center of Central Vietnam

- Rapidly growing transportation, services and tourism hub
- Attractive destination for Foreign Direct Investments
- Increasing population



## Major Environmental and Governance Issues

- Multiple use conflicts; Land- and sea-based pollution; Exposure to natural hazards
- Habitat degradation and overexploitation of resources
- Limited capacity for integrated planning and management of the coastal and marine areas



## ICM Implementation since 2000

- Institutional arrangements for ICM: Steering Committee on Seas and Islands and ICM and creation of Da Nang Agency of Seas and Islands
- Model for ICM replication and scaling up in Viet Nam in support of National ICM Strategy to 2020 and Vision to 2030



# 1. ISSUES

- Tropical monsoon climate; 2-3 storms & 2-3 floods (warning level III+)
- The most severe floods were in 1998 and 1999, with total damage of 69 deaths, 98 injuries, 5,737 collapsed houses, 65,362 heavily-flooded houses, and heavy damage to the infrastructure and facilities.
- Tourist infrastructure, tourist facilities, tourism resources, and houses within residential communities
- Erosion at estuaries, beaches; landslides at river banks

# 1. ISSUES

## Statistics on house damage due to storms

Damage	2000	2001	2005	2006	2009	2013	Total
Collapsed houses	15	11	246	14.134	283	353	15.042
Partly damaged houses	136	131	2.230	107.962	8.192	7.049	125.700
Flooded houses			2.218		26.142		28.360

*Source: Disaster prevention and mitigation Centre (DMC)*

## Statistics on house damage due to floods

Damage	1998	1999	2007	2013	Total
Collapsed and drifting houses	158	412	8	1	579
Collapsed and damaged houses	564	3.651			4.215
Flooded houses	19.029	46.333	29.769	32.792	127.923

*Source: Disaster prevention and mitigation Centre (DMC)*



## **2. IMPLEMENTED SOLUTIONS AND RESULTS**

### **a. Institutions in charge of climate change adaptation and disaster prevention**

- Department of Natural Resources and Environment
- Steering Committee for Climate Change Response
- Steering Committee for Natural Disaster Prevention and Search and Rescue
- Volunteer teams and community clubs for sustainable development



## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

- Capacity building for forecasting, warning, proactively preventing, mitigating natural disasters and adapting to climate change
- Organisation of communication activities to enhance the public's awareness
- Planning and zoning
- Implementation of structural and non-structural measures
- Relocation of residents
- Pollution control and oil spill monitoring response
- Supporting people's livelihood



## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

- **Capacity building for forecasting, warning, proactively preventing, mitigating natural disasters and adapting to climate change**
- ☐ Weather and natural disaster forecasts: Mid-central Regional Hydrometeorological Centre
- ☐ City's budget allocated to install automatic rain gauges and water-level measurement stations
- ☐ Simulation maps of flooding risks and sea level rise
- ☐ Evacuation plans



## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

- Organisation of communication activities to enhance the public's awareness
  - ❑ Targeted groups: department managers and the residential communities
  - ❑ Forms of communication: training, forum, study tour, rally ceremony, documents, website, and social media





## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

#### - Planning and zoning

- ☐ Identified dangerous areas
- ☐ Coastal and riverside roads built to mitigate the impacts of natural disasters



## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

#### - Implementation of structural and non-structural measures

- ☐ Develop construction planning and upgrade dyke system
- ☐ Improve the quality of housing in preparation for storms and floods
- ☐ Build multi-purpose storm shelters and support the construction of solid housing for the poor and women
- ☐ Coastal protection afforestation

## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

#### - Relocation of residents

**Total number of relocated households in order to stay safe from natural disasters over the period of 2011-2016**

No	Local area	Total number of households	Year (households)					
			2011	2012	2013	2014	2015	2016
	<b>Total</b>	<b>64</b>	<b>20</b>	<b>29</b>	<b>07</b>	<b>/</b>	<b>08</b>	<b>17</b>
1	Hoà Phước Commune	01				/	01	
2	Hoà Bắc Commune	29		17	07	/	05	
3	Hoà Phong Commune	17		12		/		05
4	Hoà Nhơn Commune	03	02			/	01	
5	Hoà Sơn Commune	01				/	01	
6	Hòa Tiến Commune	06						06
7	Hoà Hiệp Nam Commune	18	18			/		
8	Hòa Hiệp Bắc Commune	06						06

## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

#### - Pollution control and oil spill monitoring response

- ☐ Da Nang Oil Spill Response Plan
- ☐ Oil spill incident response training workshops are designed and organised with different scenarios and scales
- ☐ Regularly directs the dredging procedures and the management of canals of all kinds
- ☐ Investing to complete the wastewater collection infrastructure
- ☐ Separate the rainwater and wastewater drainage



## 2. IMPLEMENTED SOLUTIONS AND RESULTS

### b. Specific solutions

#### - Supporting people's livelihood

- ☐ Statistical work based on FAO method
- ☐ Control the exploitation of marine resources, prevent the destructive and non-seasonal fishing
- ☐ Issued documents on management of exploitation, protection and development of fisheries resources, assistance in career change



### **3. CHALLENGES**

- Increasing frequency and intensity of flood occurrences
- Local residents unwilling to relocate despite their unsafe and unsecured housing conditions
- Limited public awareness
- Limited monetary budget and resources for implementing disaster and climate change awareness programs



## 4. LESSON LEARNED

- Improve the adaptability of vulnerable areas
- Effective coordination and cooperation among departments and agencies
- Construction of early warning systems
- Propose the construction of safe flood control houses, flood containment areas, flood drainage corridors

**THANK YOU !**

