



THE EAST ASIAN SEAS CONGRESS 2015

**Global Targets**  
**Local Benefits**

Setting the Sustainable Development Agenda  
for the Seas of East Asia beyond 2015

16-21 November 2015 • Danang, Vietnam

# Sustaining coastal and marine ecosystem services for climate change adaptation and disaster risk reduction

Nisakorn Wiwekwin, Saensuk Municipality;  
Chonburi, Thailand



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## Workshop Title: Managing Risks in Climate Change and Disasters in the Seas of East Asia

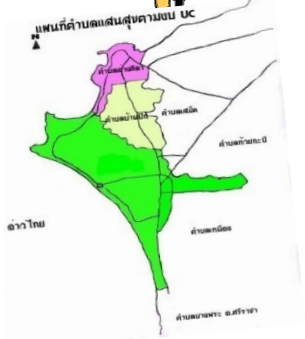


### SAENSUK MUNICIPALITY

Located in Chonburi province, 74 kilometers away from Bangkok, occupies 20,268 square meters.

#### Areas of development

- **Tourism industry**..tourism involve local transportation , accommodation, entertainment, recreation, shopping.
- **Residential economy**.. more than 10,000 households,
- **Education hub**..university with 22 faculty, collage, high school, primary school and kindergarten





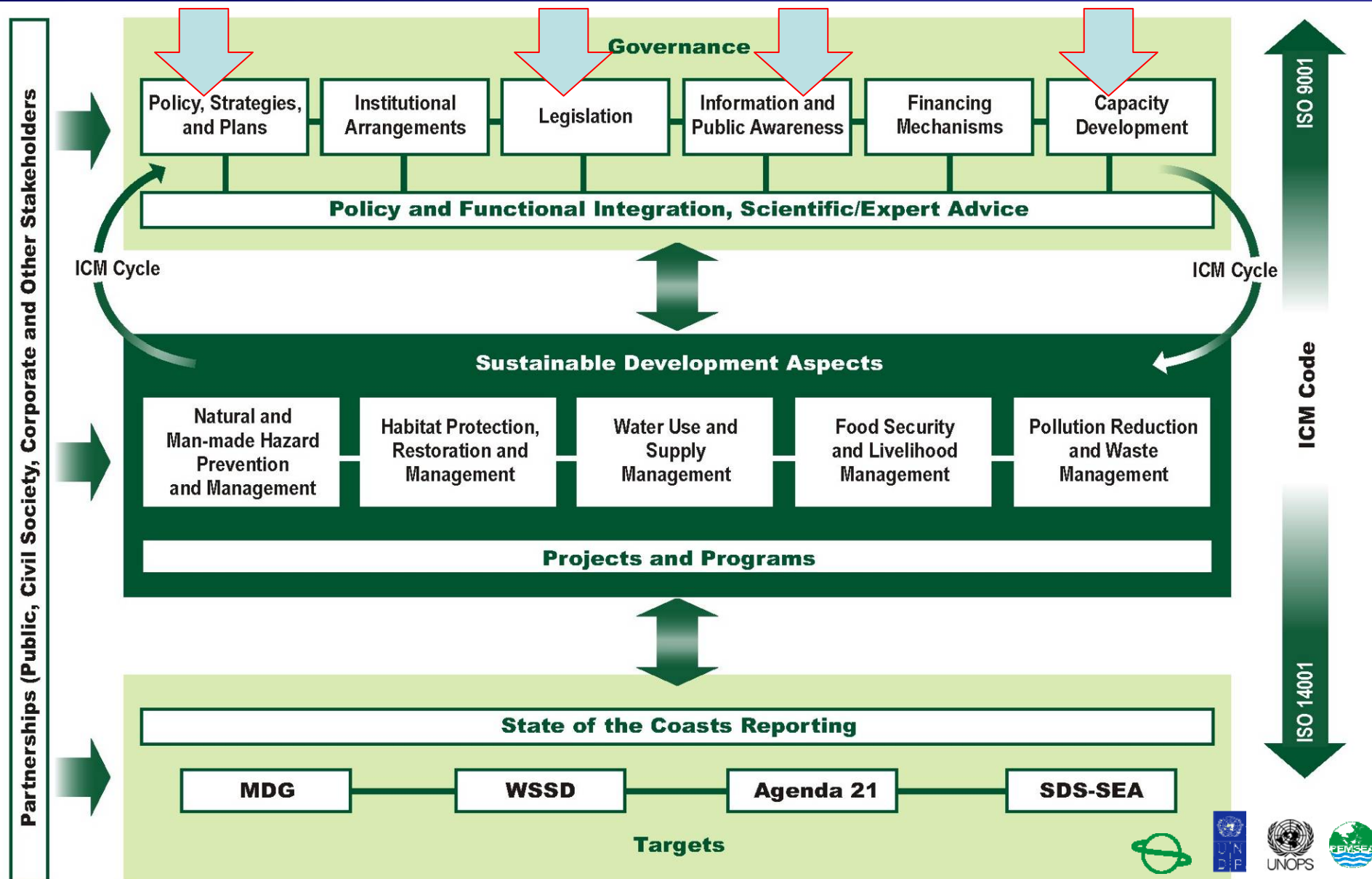
## SAENSUK MUNICIPALITY

The municipality takes responsibility very closely with local Stakeholder for natural resources and environment management as well as local development emphasizing on sustainable development through multi-sectoral encouragement.

### THREATS:

- Deterioration of habitats due to human activities and development, and global climate change. This threats requires a variety of policy and management responses.
- Threats to marine ecosystem services and sustainable development including Coastal erosion, Oil Spill, Waste from the municipality and transboundary source.

# Framework for Sustainable Development of Marine & Coastal Areas through ICM



## **Inform**

Inform the people of their role, rights and responsibilities for the coastal management, thereby enhancing awareness and participation and acquisition of information.

## **Mitgate and Protect**

Minimize environmental, socio-economic and human health risk by human development activity

# **The Integrated Coastal Strategies**

## **Preserve and Conserve**

Aim to sustain natural resource and historical values for benefit of present and future generations

## **Develop**

Enhance the potential of development based on efficiency of resource capacity



# Coastal Strategy Implementation Plan

- ICM Action Plans / local government planning for Saensuk Municipality
  - Prepared every 3 years
  - Strengthening governance mechanisms for coastal and environmental management
  - programs related to:
    - Natural and man-made hazard prevention and management
    - Habitat protection, restoration and management
    - Water use and supply management
    - Food security and livelihood management
    - Pollution reduction and waste management



# Engaging private sector and other partners through ICM

The ICM Program provides a framework for the:

- **Private/corporate sector** to align their CSR programs with the goals and programs being implemented by local governments in support of ICM.
- **Donors and development partners** with a framework for developing strategic collaborations with local governments
- **Local governments** to systematically access resources from the corporate sector, donors and other partners in support of their priority programs

# Coastal Strategy Implementation Plan



Coastal Erosion Management



Local oil spill contingency plan



Waste Management



Crab and Habitat conservation



# Coastal Erosion Impact

Erosion is occurring along the coast line with an average rate of 5 meters/year.

Critical areas are eroding at the rate of 5.51 meters/year.

The Department of Marine and Coastal Resources provided funding and technical support to conduct the feasibility study, Environmental Impact Assessment and detailed design for coastal protection structure

The Marine Department will be providing funding support for construction, after approval of the design by the National Environmental Committee



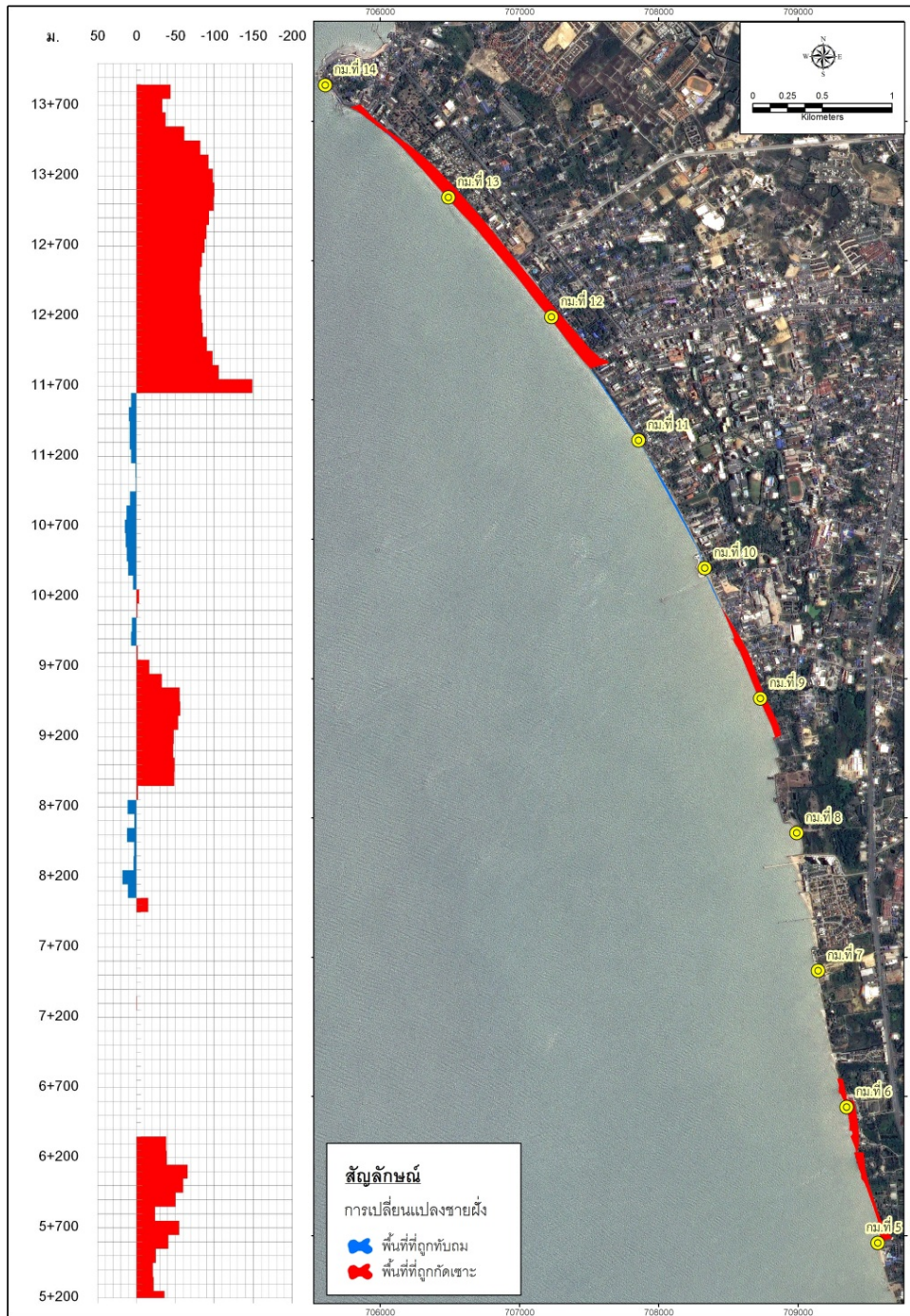
without structure, physical  
shoreline changed  
in year 2038

shoreline changed resulted  
by Mathematical Models,

B.E. 2556 (2013) as the  
baseline year

positive rate is shown for  
nourished zone

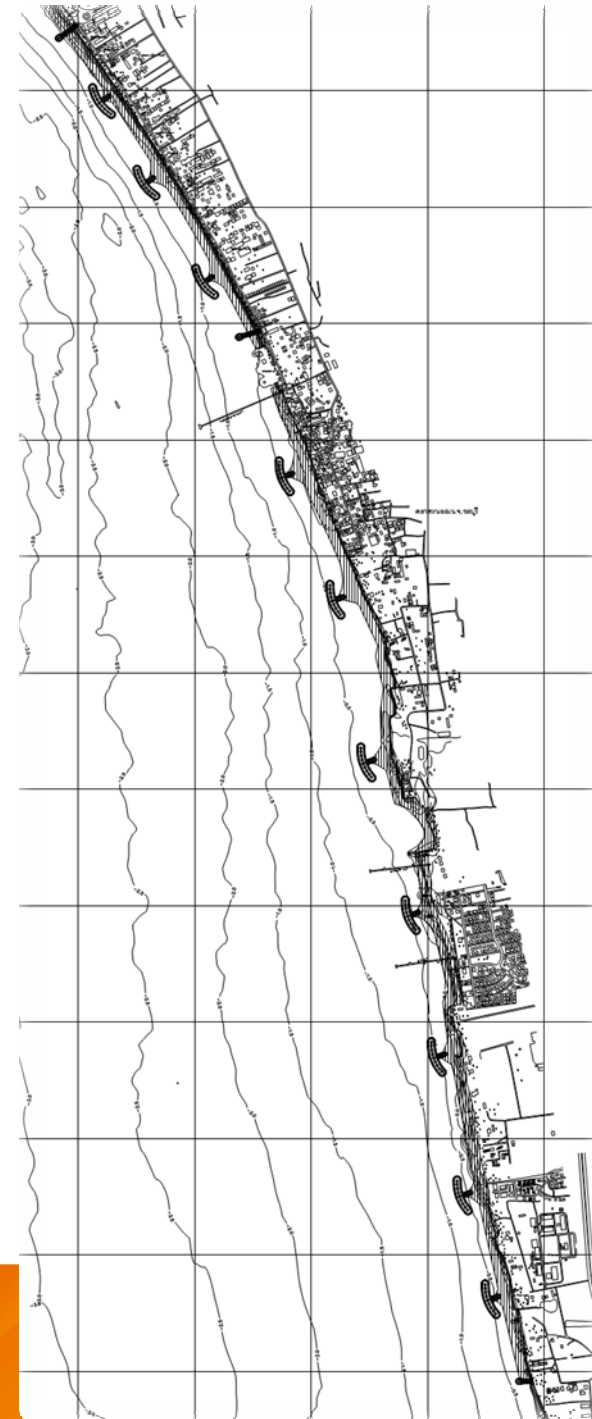
negative rate is shown for  
eroded zone





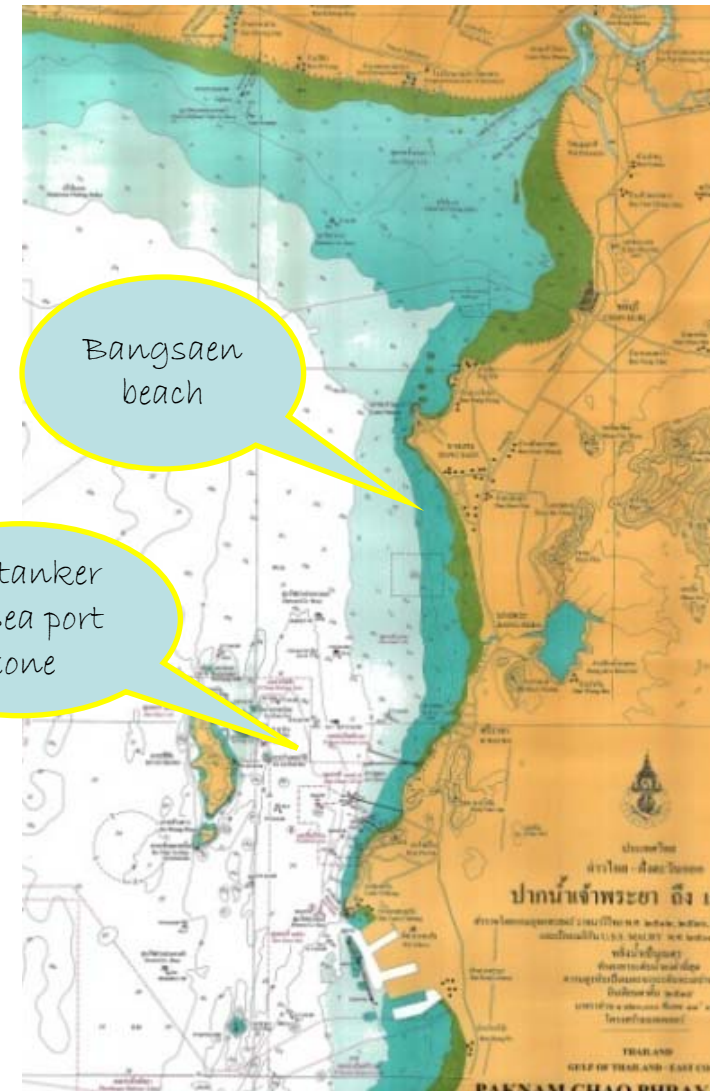
# Local stakeholder participation and accepted design

- investment budget as THB 647.14 million, 3 years construction
- 10 headland and 3 groin
- Environmental Impact Assessment study; physical aspect, ecological aspect, human use value and human life improving



# Local oil spill contingency plan

- Red zone targeted oil spill impact, due to large number of shipping activities and volume of oil passing through Chonburi waters
- Saensuk's beach is very close to oil tanker and international seaports
- Significant objective for strengthening the capacity of local government to support national oil spill response activities





# Local oil spill contingency plan

- Ensure that this contingency plan set out to provide for a coordinated response action on minimizing the detrimental effects of oil spill
- Ensure the availability of appropriate equipment and training of human resource for efficient response



# Local oil spill contingency plan

- Environmental monitoring, including seawater and seafood, in collaboration with research institute
- Occupational health care by collaboration with health related station
- Beach clean up , work with several partners





# Waste management

- Waste generation is 1.9 kg/person/day for Saensuk City, its because of tourist business and transboundary source
- Collected waste from beach zone is approximately 20% of total disposed waste
- Organic and plastic are the major composition of materials brought to disposal site



# Waste management

3Rs

## Garbage Bank

- Material from solid waste, such as glass, paper, plastic, and metals, are potentially able to be recycled commercially in various manufacturing and industrial activities
- School-based activity, members deposit recyclable materials in order to earn points recorded through a 'passbook'
- Rewards can be redeemed in cash or in kind
- 3 schools from 11 play the significant pioneer



# Waste management

## Stop using styrofoam

- regulation enforcement, pilot area at Bangsaen beach and expansion to university campus,
- Biodegradable material replacing non-degradable with some support from private sector
- more than 600,000 pieces per month of styrofoam prevented from being used





# Waste management

Stop using styrofoam



- Private participation; “Gracz” is made from natural plant fiber and completely decomposed back into natural elements by biodegradation process,
- Promotion price seek the Bangsaen beach’s trader being the sustain consumer,
- “Gracz” products are sold at approximately 1.30 Baht per container but without a hidden cost .



gracz

## Biodegradable Results



0 days



8 days



14 days



31 days

# Waste management

3Rs

## Landfilling site recovery

- Solid waste composition is highly biodegradable, an organic fraction with high moisture content (around 55-70% in wet mass basis), its source of Methane emission
- Physical composition varies according to consumer patterns, and economic status
- Landfill is the final disposal site for waste, but the Municipal Landfill site used since 1999 is presently almost filled.
- Approximately 100 tons per day of disposed waste, and the amount of space used up in landfills by all plastics remain



# Waste management



## Landfilling site recovery

- The disposal of plastic solid waste has become a major environmental problem
- **Refuse-derived fuel** (RDF) or solid recovered fuel/ specified recovered fuel (SRF) is a fuel produced by shredding and dehydrating solid waste with a waste converter technology, consists largely of combustible components as such plastic
- It can be used alongside traditional sources of fuel in coal power plants.



# Crab conservation

Blue Swimming Crab conservation aim maintain the tradition crab catch

protection of the gravid female crab with eggs to enhance production

Its increase in public conservation and public awareness and as a tool for public education

Continuiuos supply chain to food manufacturing, especially “roll shell crab” which famous menu



# Habitat conservation/restoration

- Mangrove rehabilitation
- Artificial reefs
- Beach restoration



## ➤ To increase coastal protection



# Conclusion

**The local government of Saensuk Municipality is continuing to implement and develop programs that will protect the local marine and coastal ecosystems in collaboration with concerned stakeholders, communities and partners in order to:**

- Ensure sustainable coastal development and improvement in people's quality of life; and**
- Enhance preparedness for future climate-related and other natural and man-induced risks**

# Thank you!



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