

Reconstruction and Future Development

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SSPA Sweden AB

How to cope with pressure on the resources and sensitive ecosystems in the coastal area

Jim Sandkvist, Vice President, Head, Maritime Operations

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SSPA Sweden AB

- Independent Consulting Company
- a non profit organisation
- Owned by the Foundation Chalmers University of Technology
- 100 persons employed
- Annual turnover 110 million SEK
- World wide operations, 50% export
- Hydrodynamic Laboratories, Simulators, CFD
- Close cooperation with universities, partners
- Main clients; Maritime industry, ports, energy companies, donors, authorities, EU
 - **Maritime Operations**
 - **Ship Design**
 - **Research**

How can SSPA's knowledge and experience contribute to the reconstruction and development of Bangkok?

Our experience:

- **Coastal Development**
- **Coastal Hazards**
- **Safety Management**
- **Emergency Planning, Early Warning systems**
- **Coastal planning, infrastructure, ports, urbanization, erosion**
- **Natural resources in coastal areas**

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Typical problems in the coastal zone

- Problems generated by the direct effects of human activities on the local environment
- Problems generated by the effects of natural phenomena on human settlements
- Problems generated by the interaction of the multiple activities developed in the coastal zone

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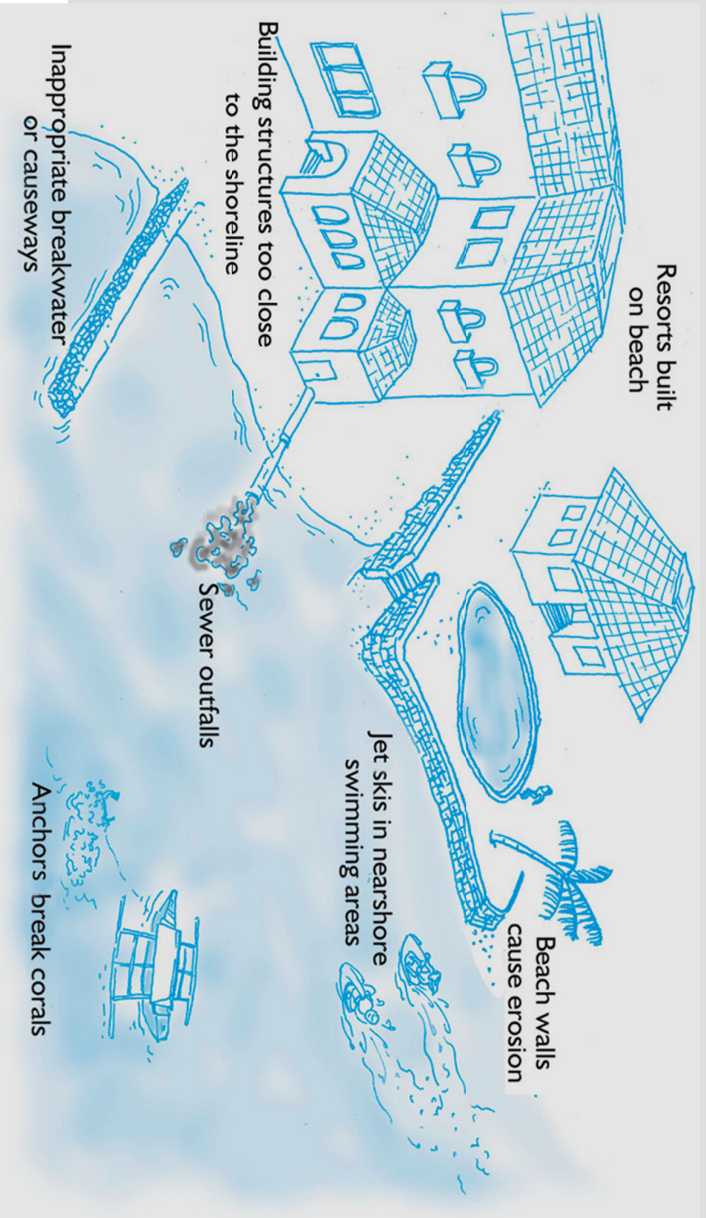
ICZM – The concept from our experience

Key words

- Integrated
- Local participation
- Socioeconomically important
- Community Development
- Natural Resources



Typical Impacts of Tourism Activities on the Coastal Zone

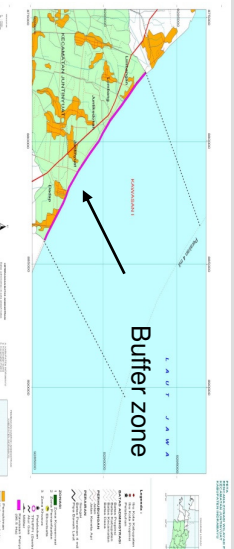


Coastal Planning – Some important considerations

Buffer zone (100 metres)

Important to maintain intact the **Buffer Zone** :

- Reduce the need for expensive **sea walls** and other structures;
- Reduce the **loss** of property and social values;
- Secure **public access** to the near-shore green belts for recreation;
- A **buffer zone** to meet the consequences of **climate change**



Coastal Planning – some important considerations

Public Participation

... not only to include relevant spheres of governments, but of equal importance:

.. the **public at large**:

- the villagers;
- local organisations;
- local leaders;

...to stimulate engagement, to promote sense of ownership and willingness to share responsibilities



... early in the process !!



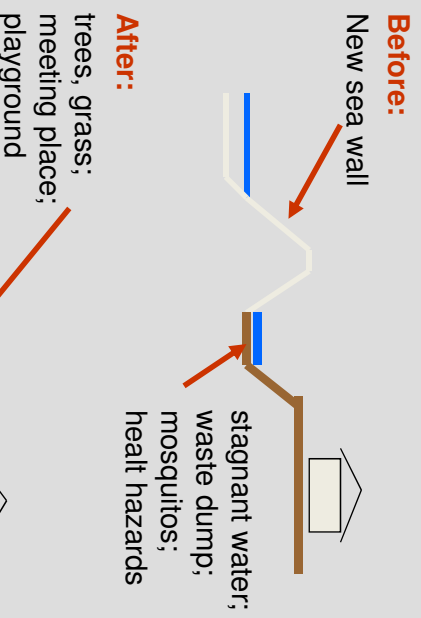
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Coastal Planning - examples

Example on what a Plan could entail

Innovative new uses of areas between old and new coastal structures



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Mangroves are under pressure

- Mangroves protect coasts from storms, erosion and floods, and help purify water.
- Mangroves are important breeding and feeding sites for many commercially important fish species.
- They are important for the biodiversity
- At the same time, they are cut down and used as fuel in many areas of the world



Some general lessons learnt in ICZM

- Expand the boundaries
- Consider the word “Integrated”
- Involve local people in monitoring, management etc.
- Increase cooperation among authorities; involve the Planning Department in the Natural Resource Management
- Preserve the mangroves and a coastal buffer zone
- Educate and inform local people and staff involved
- Socioeconomic factors can be used as an indicators of success
- Consider and plan for exit strategy; long term sustainability

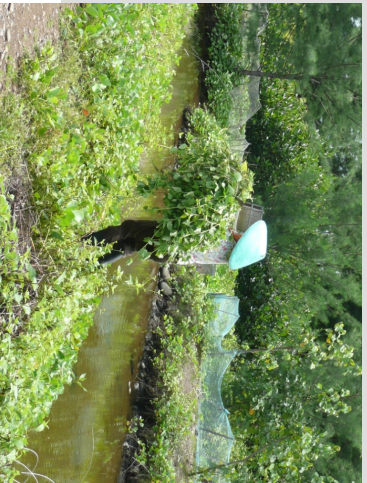


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Coastal areas are socioeconomically important



Businesses, resources, food and nutrients, social development



Coastal Hazards and Threats

MAN - MADE HAZARDS

1. Civil -strife
2. Fire
3. Accidents
4. Famine
5. Pollution

NATURAL HAZARDS AND CLIMATE CHANGE

A. METEOROLOGICAL

1. Thunderstorms
2. Fronts
3. Monsoons
4. ITCZ
5. Tropical Cyclones
6. Floods

B. GEOLOGICAL

1. Earthquakes
2. Volcanic Eruptions
3. Tsunami
4. Landslides

C. CLIMATOLOGICAL

1. Drought
2. Global Warming

Coastal Hazards Management - Objectives

- Improve knowledge of integrated coastal zone planning and management and
- Improve knowledge of sustainable use and protection of natural resources to minimize or eliminate effects of natural and manmade hazards, including climate change
- Strengthen the consciousness
- Transfer knowledge of risk management in coastal regions
- Emphasize the need for an integrated approach to coastal hazards and climate change adaptation
- Focus on “lessons learnt” and “best practice”

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Early warning...

- **Expected and planned for;**
 - Proper reaction – early warning is part of *preparation* plans and will activate *contingency* and *operational plans*
 - authorities and population are prepared and trained
 - Phenomena is monitored – operational plans may be adjusted
- **No reaction...**
- Why?
 - Too often - warning level too close to normal conditions (“Peter and the wolf”)
 - Low precision in forecasting
 - Warning is hidden in information
 - Low credibility
 - Lack of choices and means
 - Too many tourists; *what is a tsunami?*

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Lessons Learned - Climate Change Perspective Necessary!!



Implications?



Any strategies to deal with these Issues?



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Climate Change → Coastal Erosion!



Coastal Flooding & Erosion – Possible Strategies?

Do nothing



Set-back lines/Planned retreat



Accommodation



Stabilization/Nourishment



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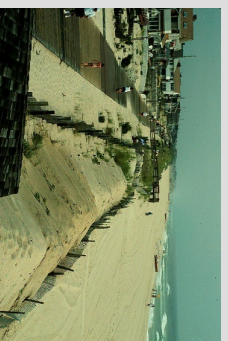
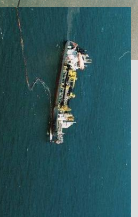
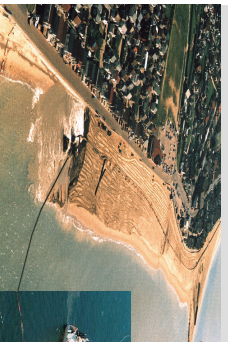
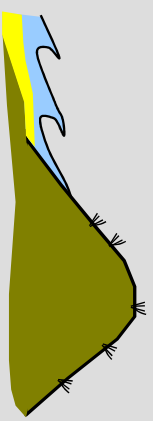
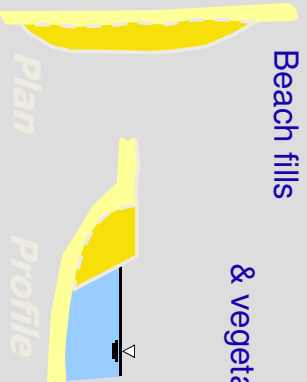
STABILIZING – SOFT MEASURES

Construction,

Beach fills

& vegetation
reinforcement
of dunes

Vegetated
earth dams



STABILIZING – MANGROVE

”Mangrove Conservation Sub-Zones”

”Support of mangrove preservation”

”Mangrove plantation around dykes”

”Mangrove rehabilitation”

”Mangrove forest potential that has ecological and economical function”

Very commendable and promising!!

But need to learn more about

- How?
- When?
- Where?



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Set-Back Lines/Relocation?

**Can we save?
Worth saving?**



- Seawalls:
- Right solution?
 - Technically possible?
 - Economically justifiable?

Set-Back:

- Solves the problem?
- Socially possible?
- Geographically possible?
- Distance/Duration?

Indramayu – set-back line? Recreation!



Indonesian Coastal Flooding



Elevate road for flood protection/set-back line?

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