

# Challenges in Disaster Risk Reduction around Marine Parks in Aceh-Indonesia



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# Background

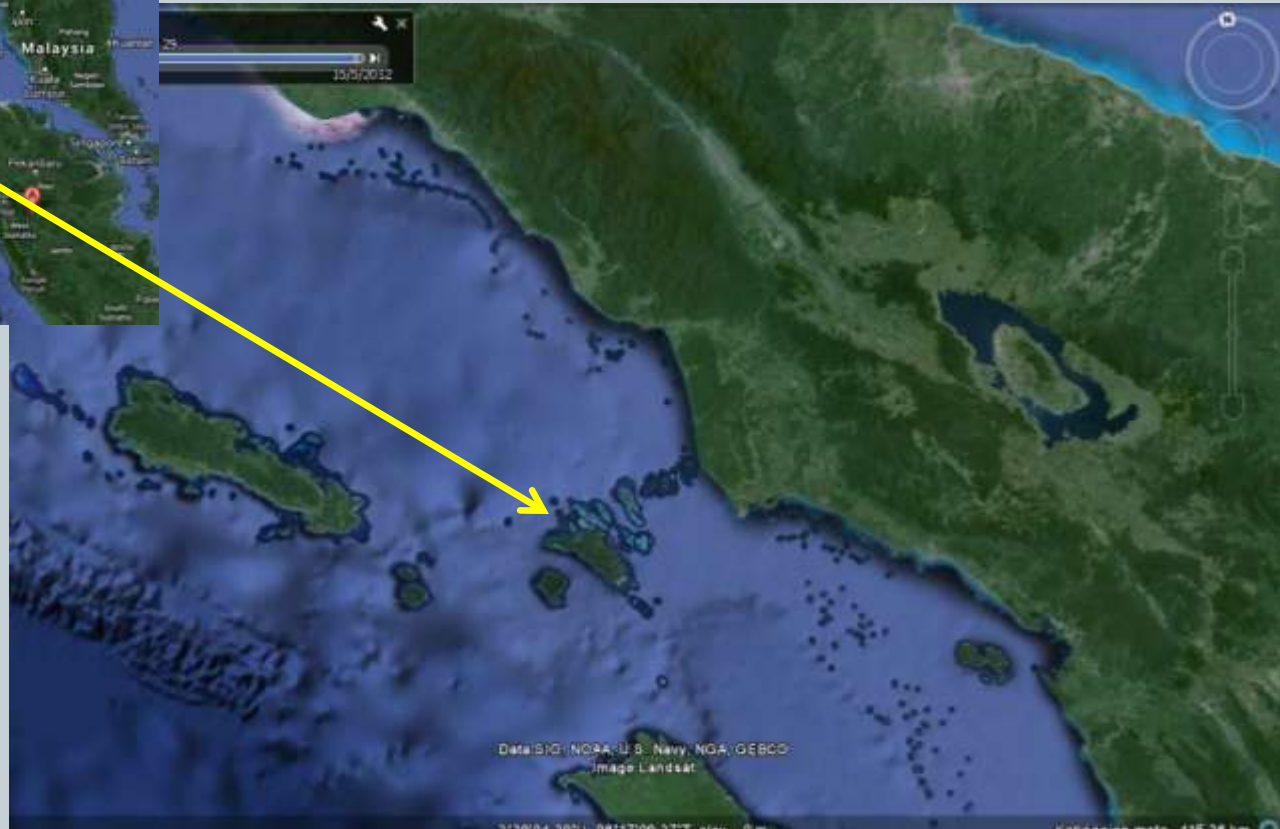
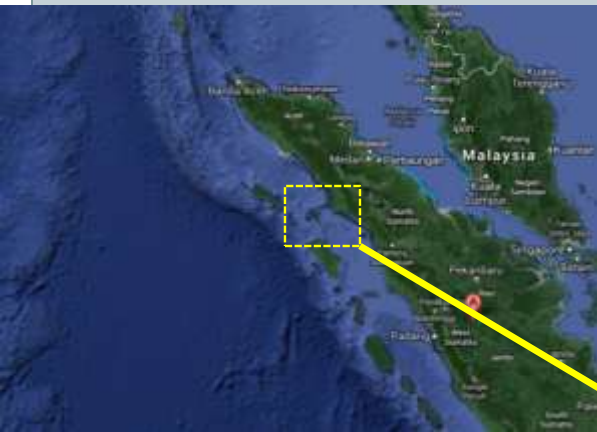


- Natural disasters, such as coastal erosion, earthquake and tsunami, have changed several parts of marine parks in Aceh.
- People who live around the marine parks are ought to cope with livelihood and disaster preparedness.
- Two cases of marine parks will be shown as examples from the constraints problems encountered by the local community and preservation of marine parks.

## Objectives

- To present status of two marine parks in Aceh from natural disasters and recent development challenges point of views

# Site 1: Bengkaru and Banyak Islands



# Profile of Bengkaru Island and Banyak Island



- Banyak islands consists of around 99 small islands with population is about 7,000 people.
- The islands are prone to earthquake, tsunami, sea-storms and impacts of climate change.
- Some parts of the islands have endured land-subsidence and coastal erosion
- One of the marine conservation area is the Bengkaru Island, a place for three species of sea-turtle conservation.
- Ministry of Forestry of Indonesia regulate the small island to be a protected area where only limited number of visitors can visit the area after obtaining legal permit from Natural Resources Conservation Agency (BKSDA).
- Most people in Banyak Islands are fishermen.
- People stay mainly at two small islands, namely Balai Island and Haloban Island.

# Land Subsidence around the area after 2005 Nias Earthquake



Evidences of land subsidence around Singkil after Nias earthquake in March 2005.



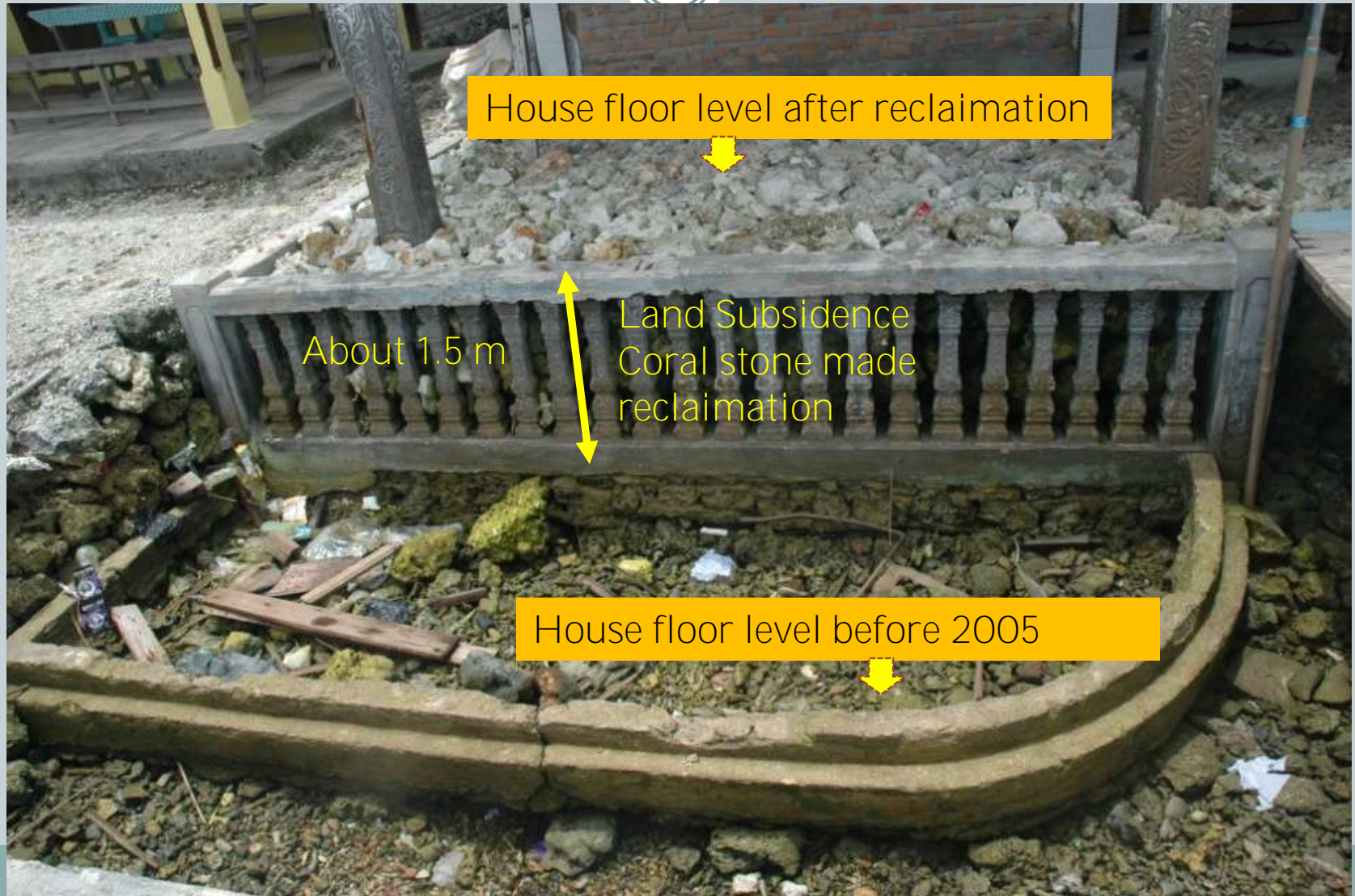
Evidences of land subsidence around Singkil after Nias earthquake in March 2005.

# Livelihood and Natural Conservation Challenges in Banyak Islands



- Due to land subsidence, some part of the islands are submerged by sea-water especially during high tide.
- People use coral stone for reclaiming coast area of the island to enable them to build houses.
- The use of the coral stone is due to the lack of affordable reclamation material.
- Relocation of the local people has been seen not possible to be done in the case of Banyak Island.
- Tourism as one of the local community economy resources is not well managed.

# Coral stone for reclamation



House floor level after reclamation



About 1.5 m

Land Subsidence  
Coral stone made  
reclamation



House floor level before 2005



# Coastal Erosion at Banyak Islands



Coastal erosion at Balai Island of Banyak Islands



Coastal erosion at Haloban Island of Banyak Islands



# Sea-Turtle Conservation, Tourism and Local Community Participation



- Three species of Sea-Turtles (Leather Back, *Chelonia Mydas* sp., and *Eretmochelys imbricata* sp.) use Bengkaru Island as their hatchery area.
- Conservation is actively done by Yayasan Pulau Banyak, which is an international NGO who collaboratively work with the Indonesia Natural Resources Conservation Agency-BKSDA).
- Some arising problems from tourism activity are worrisome.
- Consistent law enforcement due to the problems is needed.

# Tourism and Waste Control Problem



Some tourism shipyards frequently park their ship in front of the Bengkaru Beach



Surfing Activities around the Bengkaru Beach



Commonly found Waste at the Bengkaru Beach (can, bottle, plastic bottle, styrofoam etc)

# Sea Turtle Hatchery Area



The coastal area is also area where the sea-turtles mating.



The hatchery area for sea turtle.



Sea-turtle footprints

# Site 2: Rubiah Marine Park, Weh Island



# Profile of Rubiah Marine Park



- The Rubiah Marine Park is located around the Weh Island. The islands was formed due to Volcanic activity during pleistocene era.
- It has population about 22,000 people.
- Ministry of Agriculture of Indonesia decided to classify this area as marine park in 1982. This area comprises land and sea-water area for about 2,600 Ha.
- The Rubiah Marine Park is among top diving spots in Indonesia.
- Due to Indian Ocean tsunami in 2004, some parts of the marine park were damaged.
- Coral reef conservation efforts have been made for the last 10 years to rehabilitate the coral reefs.

# Coral Reef Rehabilitation After the Indian Ocean 2004



- Coral reefs rehabilitation were actively promoted by several institutions, such as Syiah Kuala University (Fadli et.al, 2012) and Wetland International Indonesia Program (WIIP, 2010).
- WIIP promoted Green Coast Program that also consisted coral rehabilitation around Rubiah Marine Park.
- Together with Local NGO (Yayasan Peduli Sabang), WIIP conduct campaign for coastal rehabilitation that includes not only coral reef rehabilitation but also local institutional capacity building to support the conservation.

# Activities to promote coral conservation



Community participation during coral reef rehabilitation by Aceh Coral Conservation NGO. (ACC, 2012)



Discussion with school community by Aceh Coral Conservation around Rubiah Marine Park (ACC, 2012)

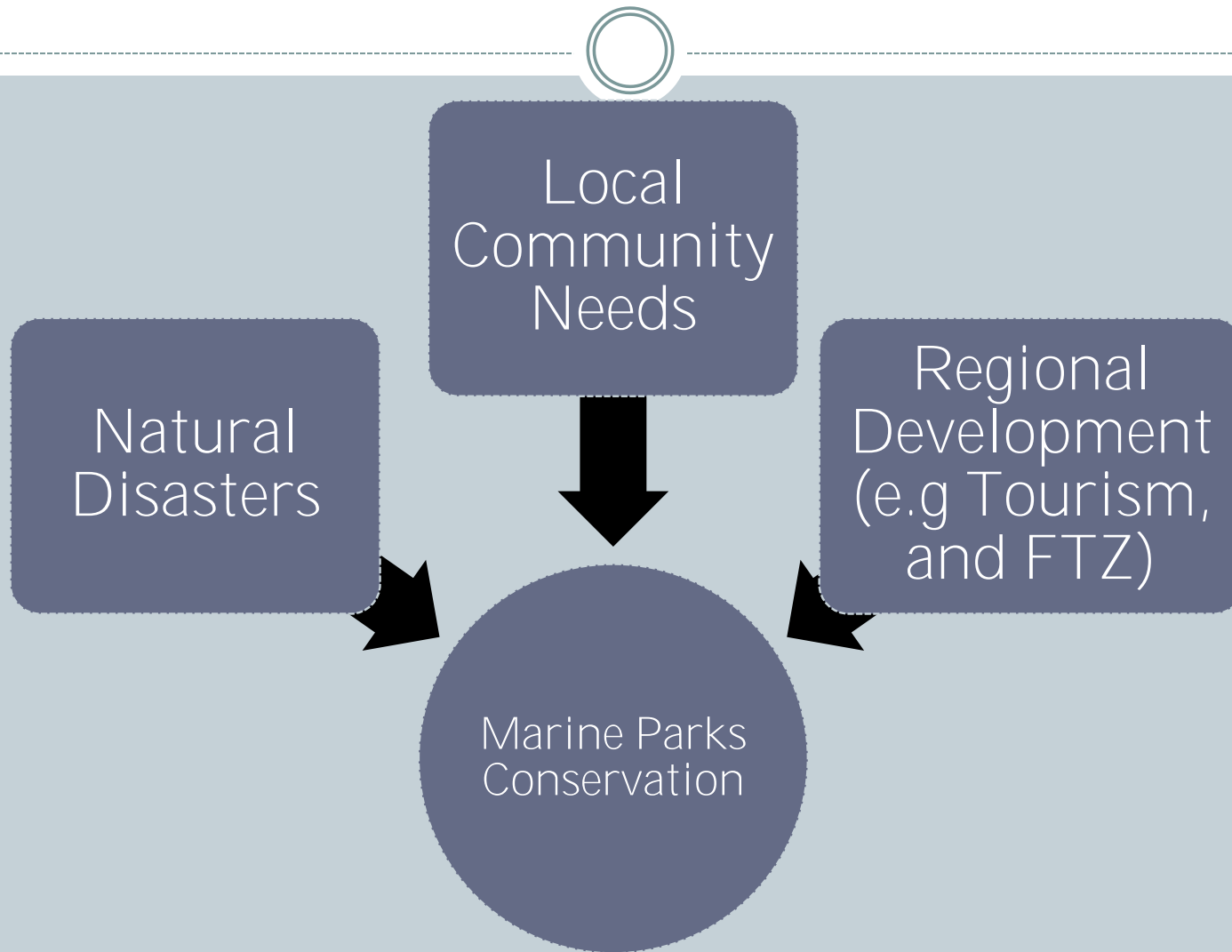
# Local Response to Conservation Efforts



- People in Weh Islands aware that the Natural Conservation is essential to preserve their island as sea-marine tourism spots and to anticipate future tsunami as they believe that the coral reef reduced the Indian tsunami in 2004 leaving small number of victims around this area.
- Local community participation to prevent any illegal activities (such as using explosion material for fishing) is significantly supportive.
- Local and Indigenous Knowledge to understand disaster is also exist around the area, such as traditional fishermen organisation of Panglima Laot.
- The Panglima Laot organisation helps to maintain coastal ecology balances , such as to prevent damages on fishing ground and coastal reefs.
- Another problem is now seeing as a threat to natural conservation effort is the plan to put the Weh Island as the main development point for Aceh Region and as Free Trade Zone for this area.
- Underway massive harbor constructions can be seen around the Island.



# Challenges in Marine Parks Conservation



# Conclusions



- The marine parks in Aceh are prone to several types of natural disasters, such as tsunami, land subsidence, sea-storms and coastal erosion.
- The marine parks that are also located around small islands are encountering some problems due to land subsidence.
- Tourism and local community livelihood pressures are seen to raise some problems to sea-turtle conservation around Bengkaru Island. It needs a comprehensive model to bring the matters together in one system.
- The understanding on advantages of conserving coastal reefs for tsunami mitigation helps to promote the effort significantly as found in Rubiah Marine Park case. The role of local and indigenous knowledge can help to promote the understanding.
- Economy Development around Weh Island should be anticipated for preserving Rubiah Marine Park as it has just been rehabilitated from the Indian Ocean Tsunami in 2004.



**TERIMAKASIH**

**THANK YOU**