

# **CLIMATE CHANGE AND SUSTAINABLE COASTAL TOURISM DEVELOPMENT: A CASE STUDY OF KUDAT**

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# Introduction

- Aims of this presentation
  1. The impact of climate change on the coastal region of Kudat.
  2. An evaluation of societal drivers on sustainable coastal tourism development in Kudat.
    - The impact on sustainability is not driven solely by climate change but also encompassing locally human-induced development activities.
    - An impaired ecosystem would be more vulnerable to climate change problems.

# Scope

- Climate change
- Local Societal Drivers
  - Related Government stakeholders
  - ENGOs
  - Fishing sector
  - Tourism sector

# Research Methods

- Secondary data
- Primary data: 2 stages
  1. Pilot study (yet to be completed)
    - Key informants from the local communities
    - Participant observation
    - Thus the findings are preliminary in nature
  2. Survey

# The Coastal Region of Kudat

- The Kudat-Banggi (Banggi Island is a sub-district of Kudat district and is also the largest island in Malaysia). Priority Conservation Area is part of the Tun Mustapha Park (TMP).
- The proposed TMP is a multiple-used park measuring approximately 1.028 million hectares.
  - Areas for strict protection
  - Tourism
  - Artisanal fishing
  - Commercial fishing
- Once fully gazetted, TMP will be the largest marine park in Malaysia.
  - High biodiversity
  - Concentration of coral reefs
  - Mangroves
  - Rich in fisheries

(Jumin, R. & Kassem, K. (2002). Ecosystem-based Management is a proposed marine protected area: Tun Mustapha Park. *WWF-Malaysia*.





# The Coastal Region of Kudat

- The majority of the people in the local communities relied in part on the proposed park's marine resources.
- WWF-Malaysia in collaboration with Sabah Parks conducted a Rapid Rural Appraisal survey.
  - The findings indicated that the coastal communities are mainly primary resource users with low income, little education and are mostly engaged in artisanal fishing within the 3 nautical mile zone of coastal areas with aspirations for alternative livelihood to alleviate their socio-economic conditions.

# Climate Change and Coastal Region

- Possible scenarios of climate change on coastal region
  - Heat waves and droughts
  - Rising sea levels on coastal environment
    - Beach erosion
    - Inundation of land
    - Increase flood and storm damage
    - Increase salinity of coastal aquifers
    - Coastal ecosystem loss
  - Rising sea levels threaten islands with partial or virtually total inundation
  - Damage to tourism infrastructure
  - Marine resource and aesthetic degradation in dive and snorkeling destinations
  - Degradation in coastal vegetation, coastal aquifers, land cover, marine and estuarine waters
  - Higher cost to protect and maintain port or waterfront areas
  - Increased coral bleaching

# Societal Drivers on Coastal Tourism Development in Kudat

- Coastal tourism is all about sun, sea and sand (in essence) and culture.
- Many Malaysians including Sabahans are not aware of the local tourist attractions in Kudat (e.g. Tanjung Simpang Mengayau, Tip of Borneo). It is like the road less travelled.
- However, many foreign tourists are attracted to the Tip of Borneo with its beautiful seascapes, nearby golden sandy beaches and recreational water activities.
- Tourism development in Kudat is at the infancy stage.
  - Resort chalets were recently built along the beaches.

# Societal Drivers on Coastal Tourism Development in Kudat

- The relevant government stakeholders involved in managing the district of Kudat are:
  - Kudat Town Board
  - Kudat District Council encompasses sub-districts of Banggi, Sikuati town, Matunggung, Kota Marudu and Tandek.
  - Sabah Wildlife Department is authorized to enforce the Sabah Wildlife Enactment 1996.
  - Sabah Fisheries Department.

The actions taken by the relevant government stakeholders are jurisdictional in nature and lack a synergistic holistic approach.

# Societal Drivers on Coastal Tourism Development in Kudat

- The gazettelement of Tun Mustapha Park
  - On 28 August 2014, the Letter of Intent to gazette Tun Mustapha Park was published in the State Government Gazette.
  - Once fully gazetted, it will come under the jurisdiction and management of Sabah Parks which will be better equipped to protect and conserve the area. The knowledge capital, assets and resources of Sabah Parks in managing the 5 existing marine parks will stand in good stead once the Tun Mustapha Park is fully gazetted.

# Societal Drivers on Coastal Tourism Development in Kudat

- ENGOs like WWF-Malaysia, Tropical Research and Conservation Centre (TRACC), Kudat Turtle Conservation Society (KTCS).
- WWF-Malaysia is involved in capacity building since 2003.
  - Sustainable fisheries resources
  - Biodiversity protection
  - Maintenance of marine ecological integrity
- TRACC is a coral reef conservation organization in Sabah which runs marine conservation expeditions using volunteers and visitors to rebuild coral reefs
- KTCS is a sea turtle conservation organization with a hatchery. It also focuses on waste management and has plans to rehabilitate Kudat's mangroves and beaches.

# Societal Drivers on Coastal Tourism Development in Kudat

- Kudat is a primary commercial fishing hub that supplies to Sabah and also for the overseas markets.
  - As a result of overfishing, fishery resource is in a state of decline
    - Impacted on marine biodiversity eg. the population of many big fishes, turtles, sharks and rays has been reduced by up to 98% (<http://tracc-borneo.org/conservation-projects/tropical-marine-conservation/> 15 June 2014).
    - Impacted on gastro-food tourism with increase in seafood prices. However, it is still relatively cheap as compared to other parts of Sabah.
    - Part of the pilot study on fish-mongers in the Kudat fish market reveal that the variety and volume of fish landing has decline steeply.

# Societal Drivers on Coastal Tourism Development in Kudat

- The prevalence of cyanide fishing and blast fishing in the past decades are curtailed to a limited extent
  - Locals were trained and appointed as Honorary Wildlife Wardens by the Sabah Wildlife Department who are authorized to enforce the Sabah Wildlife Enactment 1996.
  - The Honorary Wildlife Members also act as educators and role models for the local communities.
  - Some enlightened members of the local communities also came to realize that their primary dependence on the marine ecosystems around them require them to adopt sustainable means in assuring their livelihood for the present and the future.

# Societal Drivers on Coastal Tourism Development in Kudat

- When fishers are faced with the sustenance issue and with no other suitable sustainable alternative (equal to or beyond that of sustenance), the immediate alternative would be cyanide and blast fishing to maximize income.
- The local communities must be integrated into the socio-economic sphere in an equitable manner.
- A good example to adopt are the precepts that exist within the tagal (no fishing) system that has proven to be successful in Sabah.
  - The main purpose of tagal is to preserve the ecosystem so as to benefit the current and future generations.

# Societal Drivers on Coastal Tourism Development in Kudat

- Cyanide fishing has adverse impact on the coral reef ecosystem
  - Cyanide causes the corals to release algae into the water. This stress reaction causes the corals to turn white or 'Bleach'.
    - Coral reefs may take decades to recover from the impact of cyanide fishing
    - Recent 2010 surveys by TRACC on Mabul Reef showed that the reef has suffered an ecosystem change compared to other less overfished reefs
      - Fewer fish, fewer corals and more diversity of small species as there is less predator big fish.

# Societal Drivers on Coastal Tourism Development in Kudat

- Likewise, blast/bomb fishing also has adverse impact on the coral reef ecosystem
  - As fish concentrate at the top of the reef slope, the destructive fishers will also concentrate their blast fishing at the top.
  - The blast causes an avalanche of coral and rubble which covers, smothers or destroys the corals further down the slope.
  - The impaired reef structure is more susceptible to wave action and the reef has difficulty maintaining its role as a protector of the coastlines. In addition, climate change would made the impaired reef structure more vulnerable.

# Societal Drivers on Coastal Tourism Development in Kudat

- Ecotourism may be a partial solution
  - Dive operators at Sipadan island, a world renowned scuba diving destination, have effectively banned destructive fishers from the reef.
  - The vigilance and presence of the dive operators has dissuaded encroachment.
  - The dive operators also have 'no touching' policy among divers
  - Currently the once-bombed reefs are recovering and thriving well.
  - Dive operators in Layang Layang Island and Lankayan Island also operate on the same principles.
  - The resort owner in Mantanai has negotiated a 3 km no blast zone with the police, community leaders and blast fishers

# Societal Drivers on Coastal Tourism Development in Kudat

- Coastal Erosion
  - An example to highlight this is the Bak Bak Beach in the Tanjung Agung-Agung area. According to a Climate Witness of WWF\_Malaysia, the Bak Bak beach was 30 feet from the main road. In the last 10 years, the beach has come right up to the side of the road.
  - Local residents told the researcher that Bak Bak beach has lost its popularity to Kalampunian Beach as the sandy stretch was drastically reduced and at many places, only rocky outcrops can be seen. However, the water is crystal clear.

# Societal Drivers on Coastal Tourism Development in Kudat

- Water Requirements
  - Despite the completion of the Milau Dam cum water treatment plant in Kudat in 2011, the water pressure in Kudat is low and some local communities complain about insufficient water supply.
  - If coastal tourism development were to enter the growth and maturity phases, it will exert increased pressure on water requirement.
    - This is compounded by the problem that many of the pipes in the distribution system are old.

# Tip of Borneo



# Tip of Borneo



# Tip of Borneo



# Fishing



# THANK YOU