COASTAL RESTORATION THROUGH COMMUNITY PARTICIPATION
In Meuraxa District, Banda Aceh

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ABSTRACT
Tsunami in 2004 has changed urban condition in Banda Aceh especially along north west coast area. This stretch line area has lost its vitality as an attractive urban area, in Banda Aceh those situation happened in Meuraxa district Banda Aceh (2005-2006). This qualitative research attempt to seek a way to restore this area to former condition. The idea is the conversion of waste land into more productive land. The action plan is consisted in two phase: 1. to create mangrove cultivation community and sylvo fishery, 2. To create a community hub for trading, cultural activity, and recreational place. The analysis start from major scale and then focus on selected location as a starting point for a proposed action plan.

Keywords: mangrove plantation, sylvo fishery, urban area, fishermen community

1. BACKGROUND
Meuraksa District is the most devastated area in Banda Aceh aftermath tsunami. This north west area located directly to the coastal area. Previously this area is an urban growing area, after the disaster this site lost its vitality and competitiveness factor compare to other area in the city.

Damages happened in the area is not only to human livelihood but also natural livelihood such as water and land damages. Changes in the water habitat cause decreased numbers of particular species in the water or off shore. Land damages include loss of vegetation that makes this area is more vulnerable to disaster in the future.

Villages in the coastal area now are more open towards the ocean and it could be more vulnerable to natural disasters such as tidal waves or tsunami in the future. The reduced numbers of marine resources also bring impact on coastal communities whose jobs depend on the sea.

Most of Banda Aceh fisheries are in the small scale and traditional. In the year 2005 to 2006 the numbers of boat and trips of fishermen were reduced after tsunami. Therefore the capital income of the fishermen is also reduced.

With these conditions, question arises: whether the need of new infrastructure in this area for a better urban living condition while maintaining the synergy between ecosystem (disaster prone), social (fishermen community) and economy (livelihood improvement for small fishermen).

2. STUDY LITERATURE
2.1 Ecology Infrastructure
Municipalities invest in infrastructure, but often not to address this challenge. Investment is to enable construction linked to economic growth, creating jobs, and eventually increase municipal revenue to address this challenge. Environment often positioned as an obstacle to development. This paradox makes municipality need to shift our development frameworks (Manuel).

2.2 Mangroves Ecosystem and Sylvo fishery
Mangrove is kind of tropical and subtropical trees that live in saline coastal, where land and water meet (tidal area). Mangrove forest growing on a flat muddy shore along a straight coastline characteristically shows zonation.

Mangroves as natural barrier protect coastline and coastal villages. It protects them from waves, wind and storms. It also protect settlements, buildings and agriculture from strong winds and from intrusion by sea water.

The ecological value of mangroves as a nursery ground, feeding ground, spawning ground for fish, molluscs, shrimp, and crab (Bangen, 2000). Mangroves ecological value as a nursery, feeding and spawning ground, creates a habitat for aqua biota. It leaves also act as an organic material feed small fish that lives around his root.

Sylvo fishery is an Agroforestry pattern used in the implementation of the social
forestry program in the mangrove forest. The principle is conservation of Mangrove while gives an impact to fishery sector. This green line, new way of aquaculture sylvofishery will be implemented.

3. SITE LOCATION
Potential sites for coastal restoration with mangroves: Selected sites based on two key parameters:
1. Damaged caused to particular sites, the livelihood impact of that damage such as: damage to the protective waves along the coast (break water), it could result a greater risk to high tide or other disaster (parameter a)
2. Damage in the pond area, it causes degradation in aquaculture that used to be there (parameter b)

4. FRAMEWORK
Framework used to formulate the problem and create a solution

5. PROPOSED ACTION PLAN
The outcome of the action plan is a step by step ‘solution’ into coastal restoration and intent to advocate community participation in it. This ‘step by step solution’ focused on generating ideas and designing response to the site. It cannot guarantee the healing of area for 100% and it is not intending to battle with consequences of development along the coastal area and questioning the definite approach to protect the area against natural disaster in the future, but this act as a tool of ideas generating related program that will emphasize the green area toward a better coastal environment in the future. Those small steps are include:

Phase 1: Mangrove ecosystem restoration combine with sylvofishery.
This is the selected location as a starting point, considering its local community, whom almost of them is fishermen.
Around 2005 – 2006 fishermen need to make a diversity income outer than fishing in the sea. To restore mangrove ecosystem, Fishermen are giving ‘fund’ to run their economic activities (such as sailing, aquaculture or other activities) and they are obligated to plant and nurture mangroves in that area.

Image above show growth phase of mangrove time to time , and after 5 years the ecosystem that could restore aqua biota wealth will be created.

Phase 2 : Fishing Village Community hub
Providing a community hub for villagers. A place for nurturing mangrove seeds, sylvofishery area and also creating a place for fish market and other culture/tradition activity in the area. This appearance of new activities help to live the area, in a way to revitalize this urban neighborhood.

The villagers have a strong bond solidarity with each others and still celebrate tradition. This can be seen in how they prepare a big event or celebration like wedding ceremony, meulaot (an event before the fishermen sailing), religious event, etc. In a day like this, they usually gathering in a worship place, meunasah.

The man will cook ‘Kuah Beulangong’ in a big clay pot around meunasah, and the women are preparing other main dishes at home and later they will bring it to meunasah. All this dishes will be eaten by the elders and other guess after they hear the speech by geuchik.

Providing a community hub and set up new activities gives a chance for trading, labor, gathering, educating, sharing knowledge, which will also contribute to create a better access to the recreational place for city. Here are the production linking space result by providing community hub:
1. Water-Land Link
   Mangroves ecological value combine with biological value creating sylvofishery. For the need of mangroves conservation and plantation local community could try to start mangrove nursery ground.
2. Harvest Link
   Female local community can grow fruit or vegetable in the backyard of shelter and the crops can be raw to sell or reproduces into other food product.
3. Space of Performance
   Create a community hub for trading, labor, gathering, educating, and sharing knowledge.

The designated area is divided into three zone. First is nature ring zone, a waterfront area where sylvofishery and mangroves seeds placed, and also a transition area from nature to activity area (the second zone) which is a human ring zone. It is located around the edge of center, consisted of some pavilions accommodating local community activities, fish market, fishermen shelter and food street vendors.
The third zone is center ring zone, located at the center, it is a place for worship, Meunasah, also act as community center, where people gather here for looking some information among local community or for big event celebration.

Figure 5.5 illustration at the nature ring zone

Figure 5.6 Activity illustration around fish market

Figure 5.7 Sylvofishery implementation

Figure 5.8 Site Section in the designated area

• Phase 3: Mangrove Ecotourism

If those steps applied in three different places which has land and water characteristic. Mangrove plantation in front of break water, in ponds area, and other area could make stretch green coastline which could lead to mangrove ecotourism. One step at a time into a better environment. It may could not heal 100% of the damages area, yet it can help to make community understand how far they can do or cannot do for the better urban living. It also would be a chance to restore the coastal into more green, productive and active area.

Figure 5.9 Projected Future Plan

6. CONCLUSION

Tsunami has changed urban condition in Meuraxa District. This stretch coastline area has lost its vitality and competitiveness as an attractive urban area. The action plan attempts to restore this area by conservation through community participation and also to revitalize by setting up a new cultural, trading, tourism activity. On the large scale, green area offers many benefits in the future. Improving linkages to adjacent green and water structures offers an opportunity to upgrade Banda Aceh waterfront.

Figure 5.10 Before and After Action Plan
7. REFERENCES
UCN, The world Conservation Union, Tsunami Damage to Terrestrial Coastal Ecosystem: Common Guidelines and Methodology for Rapid Field Assessment, 2005