# Indonesia: Mangroves for life

According to The World's Mangroves 1980-2005 (FAO 2007), Indonesia has the largest mangrove area in the world in terms of the extent of the region. However, the condition of mangroves has declined both in quality and quantity from year to year. In 1982, Indonesia's mangrove forests covered an area of 4,25 million ha, while in 2009 it was estimated to be less than 1,9 million ha (KIARA, 2010).

For example, according to the “Status of Environment in Indonesia 2009”, issued by the Ministry of Environment, "The mangrove forests in North Sumatra covered 306,154.20 ha, 9.86% of which was in poor condition".

The decline of quality and quantity of mangrove forests has affected the buffer capacity of coastal ecosystems crucial for the survival of coastal species and other marine life, as well as for the survival of coastal communities, because of increased abrasion, reduction in fisheries catches, the intrusion of sea water further inland, the spread of malaria, and so on.

On the East coast of Northern Sumatra, the mangrove area decreased by 59.68% from 103,425 ha in 1977 to 41,700 ha in 2006 (Onrizal 2006). Similarly, data for the Sumatra region (2010) mentions that the mangrove forests in the Langkat district were 35,000 ha. Now only 10,000 ha are left in good condition. The decline in quantity and quality is caused by the expansion of oil palm plantations and shrimp farms in coastal areas which besides damaging coastal ecosystems also have a negative impact on the income of traditional fisherfolk.

**The Sumatra Case**

Mangrove forest is very important for coastal communities, as is the case of the communities of the East Coast of Langkat district, North Sumatra. In Langkat, 35,000 hectares of mangrove forest stretch along 110 kilometers bordered by the Deli Serdang Regency and East Aceh district, Nanggroe Aceh Darussalam. Only the remaining 10,000 acres are in good condition.

Coastal communities are very concerned about the reduction of mangrove forest which not only affects the income of fisherfolk but also makes communities more vulnerable to disasters. In terms of income, for example, fisherfolk have to go further away from the estuary out to the sea to catch fish.

The damage to the mangrove ecosystem has been going on since 1980, shortly after the government implemented the expansion of shrimp farms. Spread of diseases affected the quality of shrimp as well as the quality of the coastal environment.

Conversion of mangrove forests into oil palm plantations has taken place in almost all coastal areas in Langkat, including Secanggang, Tanjung Pura, Gebang, Babalan, Sei Lepan, Brandan West, Pangkalan Susu, Besitang, and Pematang Jaya, with coastal communities rejecting them.

*Table I. The extensive damage of mangrove forests in Langkat*

| No. | Sub-district | Area (Ha) | Area - heavily affected (Ha) |
|---|---|---|---|
| 1 | Secanggang | 9.520 | 1.125 |
| 2 | Tanjung Pura | 2.750 | 2.110 |
| 3 | Gebang | 4.959 | 4.959 |
| 4 | Babalan | 1.700 | 1.200 |
| 5 | Sei Lapan | 1.200 | 885 |
| 6 | Brandan Barat | 4.808 | 4.808 |
| 7 | Besitang | 5.457 | 5.457 |
| 8 | Pangkalan Susu | 4.876 | 4.876 |
| 9 | Pematang Jaya | - | - |
| | **Total** | **35.000** | **25.420** |

*Table 2. Conversion of mangrove forests*

| No | Conversion Results | Wide (Ha) |
|---|---|---|
| 1 | Farms/ oil palm plantations | 19.750 |
| 2 | Cutting mangroves | 980 |
| 3 | Damage | 3.450 |
| 4 | Other uses | 3.040 |
| | **Total** | **25.420** |

The companies which have been denounced for carrying out practices that have converted mangrove forest into plantations are PT Sari Bumi Mangrove (SBB), PT. Pelita Nusantara Sejahtera (PNS), PT. Marihot, PT. Buana, PT CP, as well as individual representatives from the winning party of the 2009 election. The Indonesian Traditional Fishermen's Association (KNTI) evaluates that the forest and land rehabilitation program ongoing since 2006-2008 has failed because the practices of mangrove conversion continues to take place on a large scale.

Mangrove conversion poses new problems for the fisherfolk and coastal communities of Langkat district, North Sumatra. , including: (1) coastal erosion due to conversion of mangrove ecosystems in the sub-district of Pesisit and Small Island, Langkat district, (2) loss of some places to make a living for coastal communities in the villages of Perlis, Kelanta, Lubuk Kasih, and Pangkalan Batu; (3) increasingly high costs to fisherfolk because the fishermen need to go further out to sea in search of fish, (4) potential increase of conflicts; (5) loss of opportunities to use the land for agriculture, (6) loss of underground water as a source of clean water for 180,000 inhabitants of the Haru Bay community, Langkat, due to water intrusion from the sea, and (7) growing risk for communities from high tides due to the loss of mangrove ecosystems.

**Mangrove loss**

In the past two decades, one-third of the mangrove forests have been destroyed in the world. The UK Royal Society, made up of many of the world’s most distinguished scientists, mentioned that the damage has been caused by human activity, particularly the expansion of ponds for shrimp farming.

The People's Coalition for Fisheries Justice (KIARA) estimates that the extent of mangrove forests in Indonesia has drastically shrunk from 4,25 million hectares in 1982 to less than 1,9 million hectares in 2013. Forest degradation has led to loss of flood control and consequently loss of productivity of

fisheries and other coastal habitat while further increasing the vulnerability of coastal communities to storms and high waves. As a result, livelihoods become disconnected and drug-addiction in coastal communities has increased.

The government -especially the Ministry of Marine Affairs and Fisheries- views nature as a mere commodity for the benefit of a small number of people. The damage to mangrove forests reflects the lack of appreciation of the government for the role played by mangroves.

The study of the UK Royal Society found that the damage to mangrove forests caused by the expansion of shrimp farms is not comparable to the losses in well-being of coastal communities and nature. In Thailand, for example, shrimp farms give a profit of US$ 9,632 per ha that only benefit a handful of people. Yet, these farms cause extensive damage, which the Royal Society has put at least at US$ 12,392. While calculations of damage resulting from such activities are to be considered with caution, they indicate that the public bears an enormous cost, not just financially, that outstrips the profit made by a few.

Thailand's experience where gains are privatised and costs borne by the public should guide policies related to the protection against exploitation of important and critical ecosystems like mangroves which, moreover, concern the lives of many people. The three main factors causing damage to mangroves in Indonesia are:

First, conversion for aquaculture industry expansion, as is the case in Lampung province. Second, conversion of mangrove forest for urban expansion, as happened in the Gulf of Jakarta, Padang (West Sumatra), Makassar, and Manado (North Sulawesi). Third, damage caused by environmental pollution. Current expansion of oil palm plantations also exacerbates the damage to mangrove ecosystems in Indonesia.

As a result of monitoring activities carried out by KIARA, in the district of Langkat, North Sumatra, for example, mangrove conversion to oil palm plantations stretched to a distance of less than 5 meters from the coastline which obviously is not in conformity with the legally required protection of coastal ecosystems in Indonesia. If this trend continues, more massive ecological disaster will occur on the Indonesian archipelago.

**Mangroves as living space**

Indonesia, which has one-fifth of the mangroves in the world, is experiencing a process of massive destruction by the aquaculture industry, mainly by shrimp farms, resulting in income loss for local fisherfolk.

One of the main threats to the sustainability of fisheries is the destruction of coastal ecosystems, including mangrove forests, which is exacerbated by climate change. The effect is increasing ocean temperatures and ocean acidification, accelerating the process of changes in the condition of aquatic ecosystems. Climate change will alter the distribution and productivity of fish and other marine and freshwater species. This has an impact on the sustainability of fisheries and aquaculture, especially for coastal communities whose livelihoods depend on fishing.

Ironically, coastal areas and fishing grounds are now treated as mere commodities. In fact, Japanese companies control the pearl industry; Thailand and Taiwan are already planning to expand the fishing and aquaculture industries; several European entrepreneurs control the marine tourism industry, while the United States, Germany, and Australia promote marine conservation through ‘Blue

Carbon', citing climate change in Indonesia as a need to protect marine areas, resulting in the privatization of traditional fishing grounds and/or coastal areas.

Ultimately, the existence of mangrove forests as green belts needs to be protected by strict rules, clearing for shrimp farms must be halted, as well as for industrial plantations, and private tourism in mangrove forests which restrict the rights of traditional fisherfolk and coastal communities. Organizations like the Indonesian Women-fishers' Fraternity (initiated by KIARA and Alliance for Prosperous Village) have shown that instead, community-driven initiatives through which mangroves can provide income and guarantee the well-being of the local communities help protect mangroves and should be strengthened.

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