Depending on Mangroves

Integrated shrimp-mangrove farming systems offer a solution for protecting mangroves and improving livelihoods in Vietnam

Ca Mau Province, located in the Mekong Delta, is the southernmost of Vietnam's Provinces and has the highest remaining area of mangrove forests—it contains almost half of the remaining mangrove forest in Vietnam and 70 per cent of remaining mangrove forest in the Mekong Delta. It is estimated that Ca Mau has around 64,500 ha of mangrove forest, classified as production, protection or special-use forests.

Protection forests are under the management of forest management boards (FMBs) and are maintained to protect streams and soils, prevent soil erosion, and mitigate natural disasters.

The area of mangrove forest has declined significantly primarily due to in-migration...rice cultivation, the overexploitation of timber...and shrimp farming.

However, the mangrove area has been dramatically reduced. It is estimated in the early 1970s, the mangrove forest in Ca Mau province covered approximately 200,000 ha. The area of mangrove forest has since declined significantly, primarily due to in-migration, the expansion of rice cultivation, the overexploitation of timber for construction and charcoal and, more recently, the expansion of shrimp farming.

The Mekong Delta provides ideal natural conditions for aquaculture and is home to most of the aquaculture in Vietnam. The provinces of the Mekong Delta contain about 740,000 ha of aquaculture, equivalent to three-quarters of the total aquaculture area in Vietnam, and produce about 1.7 mn tonnes of fish and 370,000 tonnes of shrimp, equivalent to three-quarters of the total farmed shrimp. Of the 12 provinces that comprise the Mekong Delta, Ca Mau is the leader in terms of area and output of shrimp cultivation, contributing about one-third of the delta's farmed-shrimp production.

Within the coastal zone, shrimp aquaculture is located along the coast and in estuaries and waterways near the coast where there is brackish water.

Shrimp aquaculture was introduced in Ca Mau in the early 1980s due to suitable natural conditions and the abundance of seed. The main aquaculture model in this period was traditional extensive aquaculture in the south of Ca Mau, where brackish and marine water could be easily accessed.

The potential income source that shrimp provided soon became evident, which led to large-scale expansion of shrimp farms. Because of its high economic return, shrimp farming has been promoted to boost the national economy, to provide a potential source of income for local communities and to alleviate poverty.

Mangrove destruction

This period witnessed widespread destruction of mangrove forests in the south of the province. Since the turn of the century, there

*This article is written by **Nguyen Thi Bich Thuy** (TNguyenThiBich@snvworld.org) and **Anna-Selina Kager** (AKager@snvworld.org) of the SNV Mangroves and Markets project, Netherlands Development Organization, Vietnam*

have been growing requirements and efforts to protect the remaining mangrove areas. The government is under pressure to balance wider aspirations of an export-led economy with the need to conserve the remaining mangrove forests. Against these competing agendas, integrated shrimp-mangrove systems have emerged as an opportunity to maintain production while ensuring a minimum forest cover.

Integrated shrimp-mangrove farming can be considered a traditional form of extensive aquaculture that has been practised along the Ca Mau peninsula since the early 1980s.

Although making up only 15 per cent of the total pond area in the province, integrated shrimp-mangrove systems have remained attractive to farmers and policymakers alike, given their protection of mangrove forests.

Farms are characterized by a dependence on mangroves for shrimp reproduction and food, and resulting in a relatively high share of income from crabs and fish. The farms are also inherently stable and resilient and more resistant to shrimp disease.

The shrimp-mangrove integrated farming system is characterized by a highly structured geometrical pattern. These shrimp farms are primarily 'extensive' aquaculture farms where integrated shrimp-mangrove production is practised. Shrimp ponds tend to be around 5 ha in size each, and are surrounded by small dikes that control the water level. Within the ponds, the remaining mangrove forests are typically replanted in a row.

The forest lands are allocated or contracted out to farmers, normally for 50 years, requiring them to adequately protect certain areas of mangroves. If this is not the case, the contract will not be renewed.

The SNV Mangroves and Markets project (MAM) aims to reduce the pressure on the mangrove areas by working with local authorities, companies and farmers to introduce economic incentives for sustainable use and stronger protection. The project will work the Nhung Mien Forest Management Area.

To successfully conduct the project in Vietnam's Mekong Delta, MAM has three main partners and recently signed an agreement to promote organic shrimp production with the Minh Phu Seafood Company.

This private shrimp-processing and exporting company ranks second in Vietnam and fifth on shrimp values and shrimp production worldwide. Minh Phu Seafood Corp has collaborated with MAM to support the certification process at household levels and launch awareness raising for local households in Nhung Mien.

Given the ability to access an ensured market through the collaboration with Minh Phu, MAM project will also be able to give incentives to maintain mangrove forest cover. For the time being, the SNV's beneficiaries in Ca Mau sell their shrimp products to local collectors with considerably lower than committed certified prices from Minh Phu.

Officially, MAM partners with the various government authorities and institutions of Vietnam: the Departments of Agriculture and

SNV / NETHERLANDS DEVELOPMENT ORGANIZATION

Shrimp harvesting in Nhung Mien province of Vietnam.
Integrated shrimp-mangrove systems have emerged as a productive opportunity

SNV / NETHERLANDS DEVELOPMENT ORGANIZATION

Timber from mangroves being transported in the Mekong Delta of Ca Mau in Vietnam. Mangrove forests are habitats for diversified fauna and flora

Rural Development, as the project owner, local FMBs, the Forestry Department, the Department for Aquaculture, and the Quality Control of Agriculture, Forestry and Fishery products.

Another partner is the International Union for Conservation of Nature (IUCN), which has recently listed many mangrove reptiles on their Red List.

The abovementioned mangrove forests and Melaleuca forests have formed diversified fauna and flora with high biodiversity values, which are also home to some endangered animal species. Twenty two mangrove species (*Rhizophora apiculata* and *Avicennia alba)*, which have been discovered in the region, are home for many bird species.

MAM's project manager Thuy Nguyen Thi Bich and her team aim to protect those 74 bird species belonging to 23 families, including some rare species such as white storks, sandpipers, pelicans, Indian storks, herons and black-headed ibis.

In addition, there are 17 species of reptiles belonging to nine families, and five species of amphibians belonging to three families, 14 species of shrimp, 175 species of fish belonging to 116 breeds and 77 families, and 133 species of plankton.

Fortunately, the coastal protection forests of Ca Mau province and the alluvial area of the Mui Ca Mau National Park are areas with suitable conditions for reproduction and development of marine creatures in their larval stage.

Sustainable mangrove restoration and sound shrimp production are meant to enable lasting conditions to access markets and improve the livelihoods of forest-dependent communities. To support the abovementioned 600 households in sustainable shrimp production, the FMB strives to reach the Naturland certification in 2013 and 2014.

The MAM partnership with the Minh Phu Seafood Company also mandates all certified shrimp products to be bought by the company itself, which will improve the incomes of those 600 households by 10 per cent or more by early next year. In terms of protecting mangroves from illegal deforestation for shrimp ponds, the standards set

Box 1

Vietnam's fisheries production

The aquaculture area of Ca Mau accounts for nearly 300,000 ha, with the total output of aquatic products reaching 363,000 tonnes. In 2012 the shrimp farming area was more than 265,000 ha, and production reached 126,000 tonnes, accounting for 38 per cent of the country's total shrimp farming area. Of this, 5,000 ha are for intensive shrimp farming, 22,000 ha for improved extensive shrimp farming, nearly 238,000 ha for extensive farming (including 176,453 ha of extensive shrimp farming), 22,600 ha for mangrove-shrimp farming, and 40,000 ha for shrimp-rice farming in the four coastal districts of Phu Tan, Dam Doi, Nam Can and Ngoc Hien.

The total annual aquaculture production reaches about 255,000 tonnes per year on average, including products like shrimp, crab and different species of fish, which are the province's strength.

Box 2

MAM's focus

The MAM project focuses on four main components:

- The mangrove–shrimp farming model for sustainable supply of mangroves
- Restoration of mangroves in coastal protection zones
- Accessing climate finance (shrimp production standards, rehabilitation, climate change adaptation or CCA services)
- Recommendations for national policy: legal basis for mangrove Payments for Ecosystem Services (PES)

by Naturland, the Netherlands-based organic agriculture /aquaculture/ seafood certifier, require at least 40-50 per cent of mangrove area to be set aside for local shrimp farms every year.

MAM provides a good opportunity to support households at a local level and restore Ca Mau's mangroves in the coastal areas. MAM will also emphasize capacity building for related stakeholders, local authorities, and the forestry and aquaculture sector on resource management.

For more

www.snvworld.org/en/sectors/redd/cases/MAM
Mangroves and markets: Supporting mangrove protection in Ca Mau Province, Vietnam

en.wikipedia.org/wiki/C%C3%A0_Mau_Province
Ca Mau Province, Viet Nam