



Myanmar Country Environmental Analysis 2019

FISHERIES SECTOR

Background: *The Myanmar Country Environmental Analysis (CEA) was developed in partnership with the Department of Fisheries (DOF) of Ministry of Agriculture, Livestock and Irrigation (MOALI) to provide comprehensive overview and enhance understanding of the fisheries sector. This will enable the World Bank to effectively support government in designing a set of specific actions towards achieving inclusive development in the fisheries sector.*

Methodology: *The analysis was completed through a combination of research, national level consultations and field missions in the coastal regions of Rakhine, Ayeyarwady, and Tanintharyi and focused on marine fisheries, freshwater fisheries, and aquaculture.*

Fisheries and aquaculture make a significant contribution to Myanmar's economy. The fisheries sector contributes roughly 2 percent of Myanmar's gross domestic product (GDP), 50 percent of animal protein consumption, 6 percent of employment—rising to as high as 34 percent in some coastal areas—and up to 56 percent of state/regional government revenue. The over-exploitation of Myanmar's fish stocks has contributed to a decline in its marine and freshwater fish resources. The sector is now underperforming both commercially and as a source of livelihoods for small-scale fishing communities. In response, the government is committed to improving monitoring, control and surveillance and exploring the opportunities for boosting aquaculture and fisheries production.

- **In 2016, 3 million metric tons of fish were produced in Myanmar (FAO 2018)** with production spread evenly between marine/inland fisheries and aquaculture.
- **Over 3.2 million people are employed in the fisheries sector**, 800,000 full-time and 2.4 million part-time (World Fish 2018).
- **Around 1.9 million households are located in the coastal zones of Myanmar** and dependent on marine and coastal resources (BOBLME 2014).
- **Marine and coastal ecosystem services are valued at US\$8.5 billion a year** almost 60 percent of which is contributed by mangroves and coral reefs (BOBLME 2014). Recent modelling estimated that mangroves reduce the impact of natural disasters in coastal areas by an average of US\$165 million per year (Losada et al. 2018).

Economic contribution

It is difficult to accurately measure the overall contribution of fisheries. National gross domestic product (GDP) statistics combine the fisheries sector with livestock. However, in 2015/16 these two sub-sectors together accounted for 8 percent of GDP (Belton 2018).

In 2016/17, exports from the fisheries sector generated over US\$600 million in export value (438,710 metric tons) (DOF 2017). Export markets for higher-value fish and fish product products are also driving significant production, processing and harvesting investments and are an important contribution to export earnings and local livelihoods in Myanmar.

Marine fisheries

It is estimated that marine fisheries produce between 1 million (FAO data) to 3 million metric tons per year (DOF 2018). However, over-exploitation of fish stocks has contributed to a severe decline in marine fish resources, reportedly by as much as 90 percent since 1979/80 (Krakstadt et al. 2015). Sustainable harvest levels and fishing methods must be effectively controlled to increase production from marine fisheries. This will increase revenue for commercial operations and strengthen livelihoods among small-scale fishers.

Freshwater fisheries

The government estimates that freshwater capture fisheries production is 1.6 million tons per year (DOF 2017). Large declines in high value species of freshwater fish were reported by fishers throughout the Ayeyarwady Basin, which covers around 60 percent of Myanmar's land area (Baran et al. 2018).

Aquaculture production

As of 2015, Myanmar was the world's eighth largest aquaculture producer (excluding aquatic plants and non-food products), producing an estimated 1 million metric tons annually, according to FAO. The importance of farmed fish in the domestic market is growing, accounting for around 21 percent of the fish consumed nationally (Belton et al. 2015).

It is estimated that aquaculture's contribution to GDP is 0.6 percent and, combined with fisheries, accounts for around 2 percent of GDP. This is below the contributions of the aquaculture sector alone in neighbouring countries, such as Bangladesh (3.6 percent of GDP) and Vietnam (5–6 percent).



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Aquaculture in Myanmar is comprised of three sub-sectors:

1. **Inland (freshwater):** Accounts for 95 percent of production, with 90 percent of farms in the Ayeyarwady Delta, most within a 25-50 km radius of Yangon.
2. **Coastal aquaculture:** More than two thirds of Myanmar's shrimp ponds are in Rakhine State, with the remainder in the Ayeyarwady Region.
3. **Marine aquaculture development:** Still very limited with some farming of barramundi in cages in Tanintharyi region.

Legal and institutional framework

The fisheries sectors are governed by the following laws: (i) Myanmar Marine Fisheries Law (1990), (ii) Freshwater Fisheries Law (1991) and (iii) Aquaculture Law (1989). The Myanmar Marine Fisheries Law (1990) is currently being revised.

The DOF is the primary agency responsible for fisheries management, comprising 2,469 staff at the Union, State/Region, District, and Township levels. DOF has a research and development division but it not supported with adequate funding and resources. Additional financial and human resources are needed for the DOF to support the sustainable development of the fisheries sector.

There is also limited capacity for the enforcement of monitoring, control and surveillance (MCS) activities in marine fishing areas. Only 0.8 percent of the annual budget of the MOALI is allocated to DOF despite the significant contribution of the fisheries sector to regional government revenue, as high as 56 percent in Ayeyarwady Region.

Issues with land tenure

Aquaculture development is constrained by the Farmland Law (2012) and the Vacant, Fallow and Virgin (VFV) Land Management Law (2012). The Farmland Law (2012) restricts the conversion of land registered for rice cultivation for any other purposes without authorization being given. The VFV Land Management Law has contributed to the weakening of land tenure for small land-holders.

Devolving responsibilities to States/Regions

Devolution and co-management approaches within fisheries and across other ocean sectors can form the basis for reducing conflict, promoting inclusive growth and creating a blue economy along Myanmar's coast.

The Ayeyarwady Region Freshwater Fisheries Law (2018) recognizes the rights of communities to form community fisheries associations. The Rakhine State Freshwater Fisheries Law (2014) provides a legal basis for community fisheries and co-management. The Mon State government enacted a State Fishery Law that covered freshwater and inshore areas, although the legality of that law has not yet been tested.

Fisheries co-management

Community-based fisheries management provides opportunities to promote more equitable distribution of benefits from inland and inshore fisheries. It also contributes towards balancing the competing demands between improving fisheries governance and safeguarding the livelihoods of the poor.

In addition, co-management provides significant opportunities to reduce local conflicts in coastal and floodplain areas. Major sources of conflict in the fisheries sector are:

- competition in marine fisheries between commercial offshore vessels and small-scale inshore fishers.
- between farmers and fishers over the management of water levels on floodplains.
- between large fish farms and former rice farmers/fishers over confiscated land.

Economic opportunities from improved governance

It is estimated that a better-managed fisheries sector in Myanmar could add about US\$1 billion in value to Myanmar's economy (World Bank 2017).

The World Bank *Sunken Billions Revisited* report used 2012 landings data to calculate that ecologically and economically well-managed fisheries could produce an additional US\$54.8 billion in value throughout all of Asia. In 2012, Myanmar accounted for 2.7 percent (or 1,131,500 metric ton (MT)) of the total marine capture fisheries production from Asia (41,205,165 MT). Using fisheries export data to estimate the potential gains from better-managed fisheries also reveals an additional value of US\$1 billion.

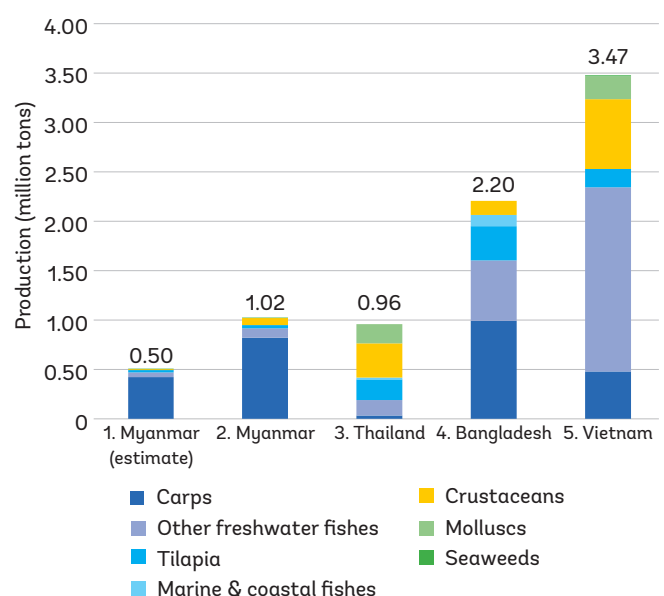
Setting and enforcing species-specific minimum size and harvest limits provides another economic opportunity. In just 10 years, it could increase offshore biomass in Rakhine and Tanintharyi by factors of 5 and 3 and increase annual offshore harvest by 70 and 30 per cent, respectively (EDF-WCS 2019).

The value of aquaculture production could also be substantially increased. This could be done by raising the productivity of existing farms to levels similar to neighbouring countries, by diversifying production to include more valuable species, and by allowing expansion of the area under production.

It is estimated that Myanmar's actual aquaculture production accounts for only a half of Thailand's, one quarter of Bangladesh's, and one-seventh of Vietnam. Figure 1 presents an analysis of the volume and composition of aquaculture production in Myanmar, Bangladesh, Thailand, and Vietnam.

Figure 1

Aquaculture production for Myanmar, Thailand, Bangladesh, and Vietnam, 2016



Note: Column 1 is an alternative estimate of likely levels of production for Myanmar, based on yields of fish and shrimp derived from farm surveys. This alternative estimate suggests that Myanmar's actual aquaculture production is about half of reported production.

FAO 2018; authors' own calculations

However, aquaculture has a relatively high economic productivity. Converting just 1 percent of the land currently under paddy to small fish farms could theoretically generate additional value of US\$193 million. This would take aquaculture's contribution to agricultural GDP to 3.7 percent and its contribution to national GDP to 0.94 percent.

Ongoing policy reforms

Parliament recently mandated the installation of a vessel monitoring system (VMS) to track the location of offshore fleet. DOF is now in the process of issuing a tender notice to solicit proposals from international VMS service providers. According to Danish International Development Agency (DANIDA), which is supporting efforts by DOF to install VMS on offshore vessels, GOM will fund and build the onshore infrastructure and the lease software necessary for the managing VMS.

MOALI has also set targets to improve fisheries and aquaculture in the Agriculture Development Strategy (ADS). The Draft National Aquaculture Development Plan (2018) sets further objectives for sustainable development of the fisheries sector.

Development assistance to Myanmar's fisheries to date has generated promising results. However, the scale of investment and implementation has not been large enough to bring about significant transformation in the sector. Most projects focus primarily on producers or communities. Less attention is paid to supporting value chain issues, including infrastructure and credit supply and many of the governance and policy issues affecting both aquaculture and fisheries (such as land use policy, enforcement in off-shore fishing activities).

Way Forward

The CEA recommends several actions to improve the fisheries sector in Myanmar.

Short term actions include:

- **Carry out a public expenditure and institutional review of the DOF.** This is needed to identify policy reforms and recommendations for improving DOF technical capacity and MCS. Value chain innovations can help to reduce poverty and improve food security in coastal areas.
- **Conduct an analysis of infrastructure needs to promote inclusive and climate-resilient growth in aquaculture.** This would need to include an assessment of the potential for aquaculture in existing reservoirs and the regulatory system needed to support development
- **Explore options for strengthening the valuation, protection and restoration of mangroves and coral reefs.** This is needed to protect coastal communities from climate impacts and secure multiple ecosystem services linked to livelihoods.



photo: ©Rory Hunter

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