Shrimp Aquaculture in Ca Mau, Vietnam
Dynamic drivers and public & private sector interventions

CONTEXT

While shrimp aquaculture has been practiced in Vietnam for decades, commercial production surged during the 2000s, especially in Ca Mau and neighboring provinces in the Mekong Delta. Between 2000 and 2013, production and exports increased five-fold, the latter from $662 million to more than $3 billion. Although it was traditionally a very poor and isolated province, the agro-ecological conditions in Ca Mau, together with an engineered network of rivers and canals, have proven to be ideal for extensive shrimp production. A landscape which was once dominated by mangrove forests first saw many years of organized in-migration, land conversion for rice (or rice/shrimp) cultivation and overexploitation of timber for construction and charcoal. A boom in dedicated shrimp aquaculture production followed, with the area covered increasing from 90,000 hectares in 1999 to 240,000 hectares in 2008. Shrimp related activities now account for some 26% of the GDP of the province.

ENVIRONMENTAL RISKS AND IMPACTS

There are two central environmental risks with respect to shrimp aquaculture in Ca Mau. First, the rapid expansion of farming areas, initially for rice fields and later for shrimp ponds, led to massive destruction of the dense mangrove forests that historically characterized the landscape. Between the 1970s and 2010, the estimated area under mangroves fell from 200,000 hectares to 64,500 hectares. Second, the rapid area expansion of shrimp production has contributed to water pollution. Silt deposits together with shrimp waste are often released into the rivers and canal systems without proper treatment, contaminating soil, water, and coastal habitats.

INCENTIVES FOR MITIGATION

Vietnam’s shrimp aquaculture has faced challenges in controlling diseases affecting productivity and morbidity. Chemicals and antibiotics have been widely applied. Although water pollution from chemical contamination is currently less problematic in Ca Mau due to its extensive production systems, poor management of human and agricultural waste and water from ponds where there have been disease outbreaks, continue to pose risks to the environment and to human health. Additionally, as it has become increasingly difficult to expand production areas, farmers and the government have needed to consider alternative means of maintaining Ca Mau’s comparative advantage in shrimp production. Local policy is required to effectively create the enabling environment for voluntary action in Ca Mau. International and civil society pressure, specifically around health and food safety and reforestation has helped in pushing mitigation measures further. A mix of incentives and a range of policy interventions in this landscape from actors across the value chain are critical.

POLICY ACTION

National and local governments, after largely promoting expansion of shrimp aquaculture have recently begun to recognize the environmental impacts and challenges of quality demands from the global market. Ca Mau, due to its unique ecological position, has continued to try and exploit the niche of extensive shrimp/
mangrove aquaculture. One approach taken has been the application of zoning regulations, dividing areas among those where mangroves need to be fully protected, areas featuring mixed mangroves/farming and those where shrimp aquaculture and other agricultural activities can predominate. However, regulatory solutions have been challenging where production involves hundreds of thousands of producers. Ca Mau, therefore, has also leaned on technical assistance and collaboration with NGOs and the private sector.

The Ca Mau Department of Agriculture and Rural Development has focused on promoting the adoption of a set of Good Aquaculture Practices through pilot projects, such as the adoption of Natureland standards as part of the Mangroves and Markets project with SNV, IUCN and the private sector. This public private partnership has allowed the government to support the development of systems to manage traceability, ensure product quality and protect the environment through collaboration between farmers, collectors, processors and forestry companies. The Coastal Resources for Sustainable Development project with the World Bank also includes measures to promote sustainable practices, yet also includes components on integrated spatial planning within and between shrimp growing provinces. The local government has outlined plans to promote an ‘organic coast’ for Ca Mau, applying an integrated landscape management approach.

**LESSONS LEARNED**

Spatially dispersed small-scale production is a difficult terrain in which to apply agro-environmental regulations. In such circumstances a mix of incentives and various collaborations with the private sector and civil society are often needed to ensure farmer compliance with environmental safeguards. Where environmental concerns are paired with concerns about productivity (i.e. the incidence of disease) and product quality, there are better prospects for inducing changes in farmer practices.

*Figure 2. Shrimp farm, Vietnam. Photo credit: Samiksha Nair*

This note is based upon the case study “Shrimp Aquaculture in Ca Mau, Vietnam” prepared by Samiksha Nair, which can be found in Steps Toward Green: Policy responses to the environmental footprint of commodity agriculture in East and Southeast Asia. This work was done as part of the Greening of Export Agriculture in East and Southeast Asia research program, coordinated by the World Bank. For inquiries, contact Steven Jaffee, sjaffee@worldbank.org. The findings, interpretations and conclusions expressed in this document do not necessarily reflect the views of the Executive Directors of the World Bank Group or the governments they represent. The World Bank Group does not guarantee the accuracy of the data included in this work.