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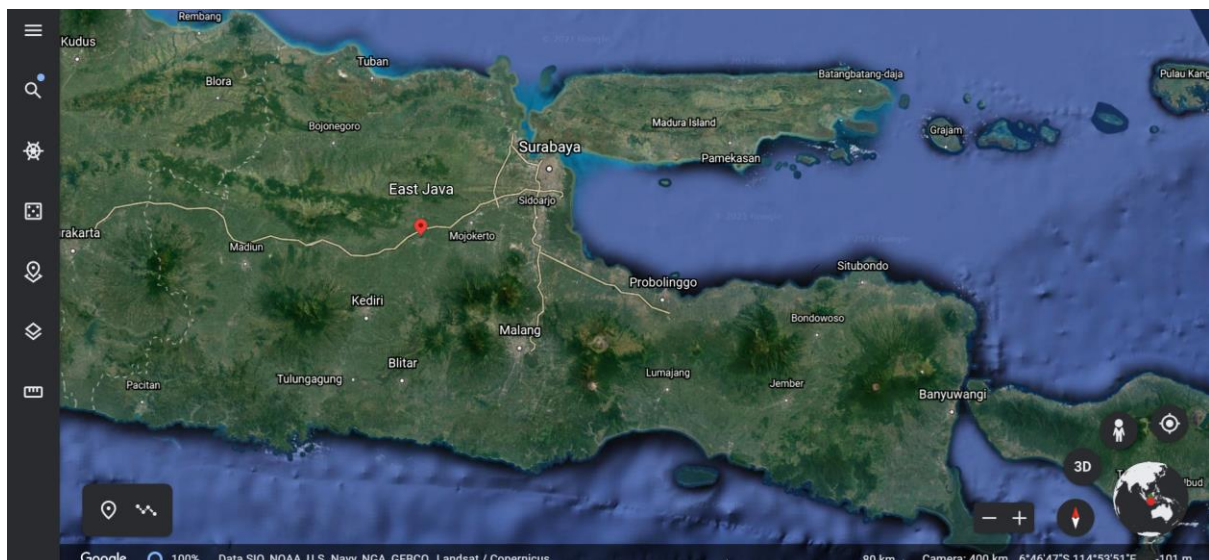
How do we respond to the needs of shrimp farmers?

Key findings from Training Needs and Landscape Assessment of Shrimp Sector in East Java, Indonesia

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The Aquaculture Stewardship Council (ASC), together with Sustainable Fisheries Partnership (SFP) and Monterey Bay Aquarium Seafood Watch Program (SFW), are piloting an improve programme to implement best management practices with the aim of improving farm and zonal management to mitigate critical production risks. An important first step in the approach was to develop a detailed understanding of the needs of farmers in the designated pilot project regions, to target trainings and guidance materials to meaningful areas of improvement.

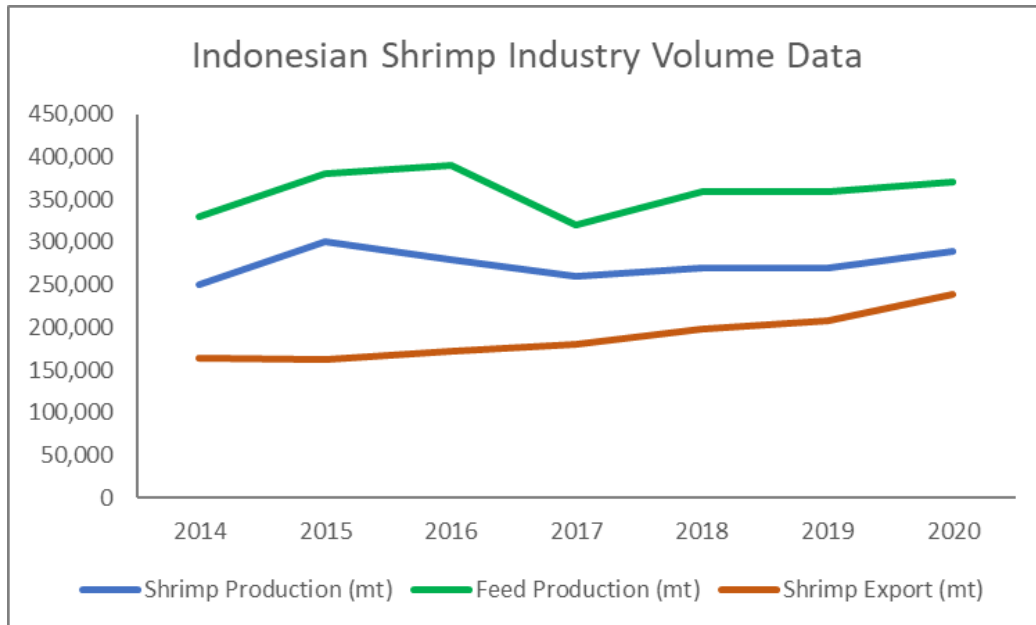
Through the ISEAL Innovations project, [Integration of Seafood Certification and Jurisdictional Assurance Models](#), supported by [Swiss State Secretariat for Economic Affairs \(SECO\)](#), [Yayasan Sustainaqua Indonesia](#) (YSAI) were selected through an open tender process to conduct a needs assessment and survey local farmers. The goal was to provide an overview of the status of shrimp farming, stakeholders engaged in the region, areas of practice for improvements, farmer priorities and training mechanisms most likely to be successful for the given audiences. The assessment focused on two districts within East Java Indonesia: Situbondo and Banyuwangi, both areas are characterized by a large proportion of intensive shrimp farms. Forty farmers in Situbondo and twenty-eight farmers and ten input suppliers in Banyuwangi were consulted.



Situbondo and Banyuwangi, East Java, Indonesia

In Indonesia, East Java has been a center of the farmed shrimp sector since the 1990s, and accounts for around 10-15% of national farmed shrimp production. The highest recent national shrimp production was 300,000 MT 2015, farmers intensified their production capacity whilst also

expanding new farms. However, introduction and wide spread of new diseases continued to cause national shrimp production to decline in the years following. For the East Javan shrimp farming industry to expand and meet government targets for the sector, it will need to tackle ongoing disease outbreaks that are thought to result from poor water quality management and inter-farm contamination.



Shrimp production, feed production and shrimp export have been increasing in recent years, Modified from MMAF (2020).

Shrimp farmers in Indonesia have been suffering chronic loss of production due to disease outbreaks, however, shifts in production to new areas have led to increasing production volumes and exports in recent years. Farms in both areas utilize intensive and extensive farming; extensive farms mainly rely on the natural productivity of the ponds and begin with low density stocking, more intensively managed farms rely on artificial shrimp feeds, either exclusively or as a supplement to the organisms that naturally occur in a pond.

Key Findings

Improvements | There is agreement among farmers in the need to improve farm management practices, specifically seed quality (via PCR testing) and water quality (via laboratory testing), along with a desire to improve knowledge on environmental management (e.g., waste treatment and environmental monitoring). Dedicated trainings in both districts should focus on the following key areas identified, though this would not limit from other important areas related to improving environmental and social practices on shrimp farms:

- Improvements in bio-security,
- Determining the environmental carrying capacity of shrimp farming in these areas,
- Improvements in environmental management and monitoring, and,
- Improvements for soil and water quality management and shrimp nutrition and feeding techniques.

Preferred training delivery
Situbondo | Clear preference for morning trainings off-site.
Banyuwangi | Clear preference for afternoon trainings, and nearly half preferring on-farm.

Trainings | Training methods should avoid being based solely on class tutorials, and instead focus on site visits, laboratory exercises, and/or simulation (games). Training can provide an opportunity to foster important relationships and trust among community members, and therefore should be delivered to a wide range of stakeholders, with continued focus on the producers, including:

- Hatchery workers, other input suppliers, and extension workers,
- Representatives from Shrimp Club Indonesia (Banyuwangi) and ASTINstin Group (Situbondo), local universities and feed companies, and local processing plants who could speak on the role of certification in international marketing, and
- Local government representatives should be invited to co-host training sessions, particularly if training involves a large number of participants.

Certification | The value of certification schemes was generally understood and accepted. Many farms are already certified to the national farm-level Cara Budidaya Ikan yang Baik (CBIB) standard that recognizes good aquaculture practices. These requirements are soon to be incorporated under the new Indonesian Good Aquaculture Practice (IndoGAP) standard that follows Food and Agriculture Organization (FAO) Technical Guidelines, and Association of Southeast Asian Nations of Shrimp Good Aquaculture Practices (ASEAN Shrimp GAqP).

International third-party certification standards (Aquaculture Stewardship Council (ASC) and Global Aquaculture Alliance's Best Aquaculture Practices (GAA-BAP)) have been adopted by some farms in order to gain access to international markets. Although the role of third-party certification is generally understood, the survey concludes that further adoption of international third-party standards depends on improved messaging regarding its role in increasing the sustainability of the industry as well as greater collaboration between shrimp industry stakeholders.

Status of Shrimp Farming - Situbondo | In contrast to national and provincial trends, shrimp production has been increasing in recent years, from 4,600 MT (2014) to 9,700 MT (2019) with more than 750 hectares of intensive farming area. The district is home to a technical implementation unit (UPT) - BPBAP Situbondo, which is focused on brackish water aquaculture development and provide key support for regional aquaculture development. Around 1,300 ha of land have been identified as potential areas for shrimp farm development, specifically Besuki, Mlandingan, Kendit, Suboh, Panarukan, Mangaran, Kapongan, Arjasa and Banyuputih. The local industry is also supported by the ASTIN Group (intensive shrimp farmers association), which currently has around 60 members. While central and local governments are both in full support of continued development of the sector, district regulations on water and energy use limit potential areas for development.

Status of Shrimp Farming – Banyuwangi | Banyuwangi has been a major shrimp producing district since the 1990s, producing 19,974 MT in 2019 according to Indonesian Ministry of Marine Affairs and Fisheries (MMAF). The industry is currently transitioning to one characterized by educated second generation shrimp farmers. The region leads with the most training and improvement projects due to an active shrimp farming association. Around 1,380 ha of land have been identified as potential areas for shrimp farm development, specifically Wongsorejo, Kalipuro, Banyuwangi, Kabat, Rogojampi, Muncar and Tegaldlimo. Intensive farming methods dominate; however, farms in Muncar and Tegaldlimo are generally extensive.

Typical farm – Situbondo | Most farmers operate relatively small intensive ponds – typically, 2,500 m² stocked at a density of 100-250 post larvae /m² producing two crops per year under a partial harvest approach with an 80% survival rate. Typically, this yields 20 MT per ha per crop. Farms employ around 15 people, most workers receive less than the standard minimum pay (Indonesian

Rupiah 1.94 million, approximately 135 USD), most workers accepted the terms since they believed that a bonus would be provided if the farms perform well. Most farms were certified to the Indonesian farm standard known as CBIB. The majority of farmers sell their harvest to middlemen; only one farm sold their product directly to a processing plant.

Typical farm – Banyuwangi | Average farm size is 5.5 ha with ponds measuring 2,900m² producing *L. vannamei* only. Around three quarters use plastic lined or concrete ponds and the vast majority (89%) have introduced wastewater treatment ponds. Typically, ponds are stocked at high density of 100-180 post larvae/m² producing two crops per year with an 83% survival rate. This yields 19.3 MT per ha per crop. Farmers reported a low level of government support and cited problems renewing their business licenses. Farms employ around 20 people. Similarly, most workers receive below the standard minimum pay (IDR 2.3 million) with the expectation of a bonus if the farm performed well. Most farms are certified to the CBIB standard. The large majority (90%) of farmers sell their product directly to middlemen.

Farmer profile and needs – Situbondo | Most farmers are university graduates. All respondents indicated that disease is the main issue impacting shrimp production and believe that certified post larvae is the key to combating disease. Fifty percent of survey respondents requested advanced training on shrimp health management and just above one-third (37%) identified interest in advanced training on water quality management. There are no reported conflicts with local communities. Given the size of the farms, these farmers are not eligible for government support, as that is limited to small-scale farmers.

In relation to environmental impacts, one-quarter of respondents believe the farms were built on mangrove areas. Most farmers seemed unfamiliar with environmental regulations and the need for an Environmental Impact Assessment (EIA), not required for farms <50 ha. Over 60% of respondents maintain proper record of waste disposal and all farms had proper record of water quality in the farms and public waters surrounding the farms. Around 20% of farmers had received previous training on basic/advanced shrimp aquaculture, water quality and shrimp health management, provided by Shrimp Club Banyuwangi as well as local feed companies. Nearly all respondents indicated a lack of support or benefits provided by government but would expect assistance on permit/licensing and provide subsidy to energy costs.

Farmer profile and needs – Banyuwangi | Most farmers are university graduates, around one-third have a “partnership” business scheme (shareholder) in the operation, and 93% are members of local shrimp associations or a forum for technology. All respondents believed that disease remained the main challenge and that sourcing seed from certified hatcheries is strongly related to farming success. Thirty-seven percent of respondents requested advanced training on shrimp health management, eleven percent are interested in advanced training on water quality, and forty-four percent requested additional training on shrimp production technology.

In relation to environmental impacts, nearly all (96%) respondents believe that the farms were not built on mangrove areas. Most farmers believed they have an EIA document; however these are not required and may be confused with generic environmental monitoring document. All respondents maintain proper water quality monitoring, however, only 29% and 46% maintained records on waste disposal into public waters and environmental water quality, respectively. Compared to those in Situbondo, farmers had received considerably more training, though focused on basic/advanced shrimp aquaculture, water quality and shrimp health management, provided by Shrimp Club Banyuwangi as well as local feed companies.

Looking Forward | The local government is promoting integration of shrimp production and eco-tourism to attract tourists. It has established Pokmaswas, groups of local people who monitor any economic activities that could have any social or environmental impacts, along with monitoring the renewal of shrimp farming permits to ensure farms comply with shrimp production and eco-tourism integration. Local policies and the newly elected administration, favor the integration of shrimp farming and programs that focus on social and environmental issues, priorities that align well with the development of [Improver Programme](#) goals, and allow ASC and our partners to further focus training and incentives to the specified needs of farmers in these communities.

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