



INITIATIVE ON

Aquatic Foods

CGIAR



Engaging with partners to strengthen nutrition, livelihoods and climate adaptation research:

Workshop report from Viqueque Municipality, Timor-Leste

About

WorldFish operates a transdisciplinary research-in-development program in Timor-Leste, hosted by the national government and the Directorate General of Fisheries, Aquaculture and Marine Resources (DG-FAMR). Two new projects started in Viqueque Municipality in 2022, working to support aquatic foods systems with nutrition-sensitive, inclusive and climate adaptation approaches. A workshop provided a platform to engage and consult with national, municipal and local partners, stakeholders and communities, aiming to strengthen partnerships at the municipality level. This brief provides a summary of the workshop and the outcomes of the consultation, and demonstrates the first steps towards adaptive, sustainable and nutrition-sensitive transformation of aquatic food systems.

Background

The long-term vision of the National Health Sector Nutrition Strategic Plan 2022–2026 is to ensure that all Timorese population groups are free from all forms of malnutrition (Ministry of Health 2022). The fisheries sector plays a significant role in this strategic plan as aquatic foods are a source of high-quality protein, essential fatty acids and micronutrients.

However, the average fish consumption in Timor-Leste was estimated at 6.1 kg/person/year in 2011, much lower than among neighboring nations (Farmery et al. 2020). Increasing fish consumption could improve the country's nutritional situation (López-Angarita et al. 2019). While women are more frequently reported as catchers of freshwater foods, men lead hunting and vessel-based sea fishing (Bonis-Profumo et al. 2022). At least 50% of women

in coastal areas are involved in gleaning as a frequent, yet unrecognized, fishing activity (Tilley et al. 2021). Thus, as a basis for fish production and management of marine resources, not only livelihoods but also nutrition and inclusion should be primary considerations.

Climate change is one of the major threats to island nations (Roscher et al. 2020). As such, adaptive approaches, enhanced resilience and biodiversity conservation are essential to develop thriving and sustainable fisheries and aquaculture sectors. Despite the Indigenous approach of *tara bandu* (customary protection mechanisms) being recognized in law as a legitimate means of responsible use of coastal, marine and other resources, the integration of this approach into co-management and participation in management decision-making remain a vital challenge in the fisheries sector.



A localized and resilient “aquatic food systems” future

Global agendas continue to focus on food systems transformation. In Timor-Leste, many foods are produced in villages, so rural people, organizations and practices have a foundational role in defining a nutritious food future. Aquatic foods are often sourced from rural coastal areas of supply to places of demand or need. Localizing what global agendas mean in practice for municipal aquatic food systems in Timor-Leste can help enable practical action for positive change. In Viqueque Municipality, many stakeholders are active in areas of nutrition-sensitive agriculture and food and nutrition security. They have a central role in defining what a positive aquatic food systems future looks like and how aquatic foods can be included in the food and nutrition security agenda.

Consultation workshop objectives and process

On 4 July 2022, WorldFish conducted a workshop in Viqueque Vila to consult with partners and stakeholders and validate action research activities to a multi-level audience. The activities share a focus on strengthening aquatic food systems, including sustainable fish production and farming, equitable and safe fish access, and consumption of nutritious aquatic foods to diversify diets in the context of a changing climate. The workshop aimed to consult with national and district stakeholders from communities, community groups, nongovernmental organizations (NGOs) and government.

In total, 49 participants attended: 14 women to 35 men. They included national and municipal representatives from the DG-FAMR and other directorates of the Ministry of Agriculture and Fisheries (MAF), municipal and local authorities, health officers and community members – ranging from fishers and gleaners to fish traders and sellers – as well as other stakeholders such as the United Nations Development Programme (UNDP), ADRA and Catholic Relief Services (CRS), local NGOs such as *Cruz Vermelha Timor-Leste* (CVTL, Red Cross of Timor-Leste) and *Grupo Horticultura Viqueque*, and members of women’s groups.

The workshop had the following objectives:

- raise awareness about WorldFish activities in Viqueque Municipality and our partnership with the DG-FAMR
- understand the priorities of municipality-level partners and how WorldFish activities align
- strengthen partnerships in Viqueque and explore new ones
- identify stakeholders’ views on fisheries sectors characteristics, such as fish-aggregating devices (FADs) and gleaning.

The day’s proceedings comprised the following structure:

- The workshop was opened by the President of the Viqueque Municipal Authority, Mr Januario Soares, and a representative of the Director General of the DG-FAMR, Mr Joni Freitas.
- WorldFish introduced its work in Timor-Leste and the new projects and planned activities in this municipality (Box 1). These focus on inclusive nutrition security and climate adaptation on the fisheries sector that foster women’s empowerment and reduce gender barriers in food systems.

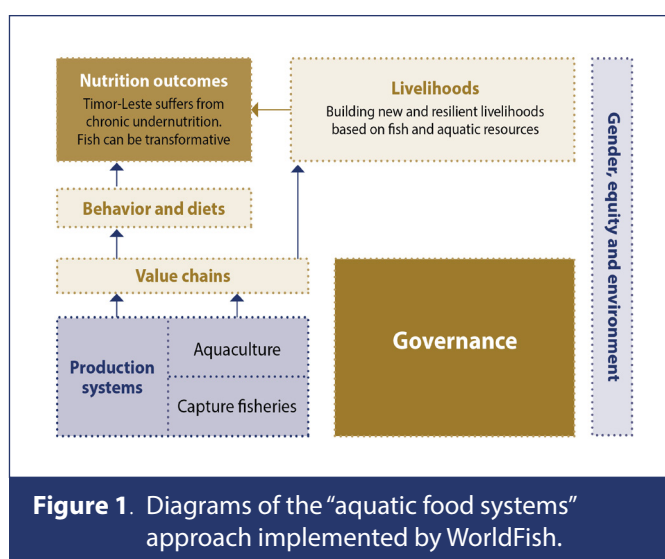


Figure 1. Diagrams of the “aquatic food systems” approach implemented by WorldFish.

- The Commonwealth Scientific and Industrial Research Organisation (CSIRO), a partner on the nutrition-sensitive fisheries management (NSFM) project, gave a presentation on the nutritional value of fish for health and balanced diets, particularly for pregnant and lactating women and young children, followed by discussion and reflections by workshop participants.
- Workshop participants worked in groups to characterize fisheries sectors, boats/FADs and gleaning, and understand recent climatic changes and their impacts.
- Closing remarks were given by Mr Carlos Pinto, the Director of Agriculture in Viqueque.

“Aquatic food systems” approach

The workshop introduced a localized concept of aquatic food systems that WorldFish applies throughout its activities and projects, and which covers the whole system when considered at the country level (Figure 1). For instance, WorldFish work supports fisheries and aquaculture production, promotes community-led governance models, strengthens distribution practices and supports livelihoods based on aquatic resources, while improving nutrition and promoting traditional knowledge on fisheries.

Results of group work on fisheries sectors characterization and climatic changes

Workshop participants were divided into five groups by topic, whose discussions are summarized below. The aim was to gain information from participants on the structure of fisheries sectors, boats/FADs and gleaning, marine and coastal resources, and recent climatic changes in Viqueque. While the NSFM project (Box 1) focuses on Adarai community, learning from the experiences and knowledge from other communities in this municipality is very useful for the Ikan Adapt project.

Tenure systems of marine and coastal resources in the past and present

Tenure systems regulate how individuals and groups gain access to land and other natural resources and determine the rights and duties associated with land use and ownership. Marine and coastal resources have significant potential to support livelihoods and household nutrition in communities and can be managed by applying the principles of sustainable development while ensuring marine conservation efforts. The state of the coastal and marine environments and their capacity to support nutrition outcomes are strongly interwoven in the fisheries sectors. The main output of the group discussion was:

Marine and coastal resources are accessible to everyone, but to exploit such resources like fish, people must be recognized as fishers or community members. Everyone can take sand as a building material, for example, but there are specific bans for species such as turtles, dolphins and whales. In addition, using poison for fishing, cast nets and seines is not allowed.

Three communities – Fatudere, Uma Wain Leten and Maluru– have formed a Fisheries Center in Adarai. The fishers who belong to the center can access the marine resources. Some in the group stated that fishers from other communities cannot fish in those waters, while others thought that marine resources were a public good. In the past, fishers in Adarai established a *tara bandu* regulation to manage the catch of long toms and limit the time of day when fishing was allowed. However, this does not exist anymore. This mechanism, the group mentioned, can be effective in protecting marine species at the local level and ensuring that vital components of ecosystems are protected for biodiversity conservation. Some group members discussed that Adarai used to have FADs but they were cut after several years and never reinstalled, despite helping to increase catches.

Governance and management systems of marine and coastal resources

To ensure the sustainability of marine and coastal resources, the group stated that the national government must have a strong policy. While the government has established some policies and regulations for biodiversity conservation, *tara bandu* can also be a conduit for the protection of resources. In Luca community, local authorities, including the *Xefe Suku* (Village Chief), *Lia-nain* (culture custodian) and youth, agreed to set *tara bandu* for catching fish and shrimp in the Bee Ain lake. Community members catch fish and shrimp once a year after a ceremony of thanksgiving for the harvest. The group discussion concluded that the governance

Box 1. WorldFish-led projects and objectives

Nutrition-sensitive Fisheries Management (NSFM), funded by the Australian Centre for International Agricultural Research (ACIAR)

- To work with fishing communities, government agencies and key stakeholders to develop and pilot inclusive NSFM systems that are adaptable for diverse inshore tropical fisheries.
- Municipalities: Viqueque, Baucau and Lautem.

Ikan Adapt, funded by the Global Environment Facility (GEF)

- To strengthen the adaptive capacity, resilience and biodiversity conservation ability of fisheries and aquaculture-dependent livelihoods, by:
 - enabling national fisheries and aquaculture-related policies and programs, legal frameworks and local management institutions to address climate change, current variability and biodiversity conservation
 - enhancing climate change adaptive and biodiversity conservation capacity and practices in fishing and fish farming communities (coastal and inland)
 - strengthening institutional capacity through the development of climate and biodiversity-related information systems, information management and monitoring operations.
- Municipalities: Viqueque, Aileu, Atauro, Bobonaro, Covalima, Dili, Lautem and Oecusse.

systems for marine resource management are developed in the Constitution of Timor-Leste, decree-laws and ministerial diplomas. MAF in the municipality has conferred with community leaders about joint management plans (such as a ban on killing wild animals, *tara bandu* to access the river or lake, and banning the use of poison to catch fish).

Participation in fisheries and gleaning

Overall, both men and women participate in fishing and gleaning activities, especially those aged 12–60 years. They usually fish using nets and boats, and through gleaning. Most of these activities provide income across the different seasons and primarily deliver fresh fish, dried fish and dried octopus to the market, while some also sell grilled fish and the traditional *ikan saboko* (fish baked in palm leaves). Some process fish and make *bakso ikan* (fish ball soup) and *ikan abon* (shredded fish). Fish and seafood are also used for home consumption. Some species are only available during particular months. For example, people typically look for octopus in the wet season. Fishing activities on the south coast of Timor-Leste, which includes Viqueque, differ from the north coast due to weather patterns such as larger waves and strong winds at certain times of the year. As a result, there is no spearfishing in Viqueque. According to the group, women's participation in fisheries and gleaning is likely lower than for women on the north coast, due to the rough sea.

Barriers to participation in fisheries and gleaning

Gleaning is the most frequent fishing activity among women and children on the south coast. They catch species beyond “fish”, such as crabs, shells, octopus and sea urchins, which are very important for food security and nutrition. The rough

windy season becomes a barrier for those who live in coastal areas to go out to sea to fish. Moreover, people living in the mountains are challenged to fish and glean because of the distance to the coast and lack of transportation. There are also very limited boats for fishing, including a lack of fishing nets. The group summarized that barriers to fishing and gleaning are lack of knowledge, limited funding and equipment, distance to the coast, elderly age, physical health and the impacts of climate change.

Changing weather and climate

The weather is different than in the past. During Indonesian times, the normal rainy season was about four months, while today the rains have increased to six months. All agreed that there has been an increase in temperatures that has reduced access to clean water in the dry season, while the rains are heavier. Some group members believed that the winds are now stronger than before. In addition, some mentioned that current fish and seafood catches are not as large as in the past.

Climate change is thought to have increased the frequency of natural disasters that destroy community assets and wealth, directly impacting the economy of families that depend on agriculture and fishing activities. Such events, such as heavy rain causing flooding and landslides, also affect the mobility of those who live in the mountains, as well as food availability. For example, recent floods have resulted in rivers overflowing and causing substantial damage to rice fields and vegetable gardens. Strong rains cause high waves too, which make fishing more difficult. This can result in coastal communities not consuming fresh fish for a month during the rough season.

Consultation outcomes and participant feedback

Workshop participants were divided into five groups by topic, whose discussions are summarized below. The aim was to gain information from participants on the structure of fisheries sectors, boats/FADs

“While we have access to the sea, it is difficult for people in Timor-Leste to consume fish often and have good nutrition. With WorldFish’s presence we hope to advance these issues. This is a good opportunity for our municipality and to modernize the fisheries sector.”

Januario Soares, President of the Viqueque Municipal Authority

“In Adarai and Beaçu, we consume seashells often but do not know their nutritional value, do they have beneficial vitamins? We would really like to know that.”

Ario Dorario Andrade, MAF data collector, Viqueque

“What will the programs implement? We have been asking for a FAD for a long time as the last one was cut after its installation. We need training to know what foods from the sea are nutritious for pregnant women and children.”

Francisco Amaral, Village Chief, Maluro (Beaçu)

“When we had a FAD, fishermen could find enough fish quickly, but since it was lost, fishing has been more difficult. Also, my observation is that in the coast there is lots of fish but access to fruits and vegetables is low due to difficulties to grow them. To be healthy we need to eat a balanced diet.”

Paulo Soares Filipe, Village Chief, Fatudere (Adarai)

“I am happy that several fisherwomen also participate here, as often only men talk during discussions on fisheries. It is important for communities to manage their marine resources well.”

Jose Nunes, UNDP, and former MAF Fisheries Officer, Viqueque

“As a gleaner, we are using very traditional methods and equipment for gleaning. We need research findings to increase our knowledge as well as training.”

Faustina da Costa, gleaner, Fatudere (Adarai)

“The development of aquaculture in the mountains is very important because I think the nutrition that fish provide should not only be accessible to coastal communities, but also for upland communities.”

Boaventura M Correia, CRS, Viqueque

“I appreciate that we discuss about fish and its nutrition, as in Timor-Leste, often when women are lactating [they] do not consume fish.”

Belinda Quintao, nurse, Health Post Adarai



Next steps

During 2023–24, WorldFish will build on outcomes from this workshop to implement action research and activities that seek to integrate nutrition-sensitive approaches to fisheries management and develop contextualized adaptive solutions to climate change. A key feature of NFSM is working with the selected communities to identify nutrition issues and co-develop solutions, as well as explore governance models on natural resources and characterize boat/FADs and gleaning fisheries sectors. Ikan Adapt activities will focus on the municipality level to develop adaptive, resilient and inclusive aquatic food systems. Partnerships are being strengthened with municipal government officers and other stakeholders to support these activities and research program to work towards food and nutrition security.

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