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WorldFish CGIAR

Asia–Africa BlueTech Superhighway

Leveraging South–South collaboration to deliver a triple win for nature, people and climate

Tanzania

The challenge

With 1,242 km of coastline and vast water bodies, aquatic food systems are essential to providing a growing population with sustainable and climate-resilient sources of food, nutrition and employment in Tanzania. However, the aquatic foods sector is impeded by a lack of data needed for policymaking and limited access to knowledge and technology.

Every day, some 200,000 fish workers set out to find their catch in Tanzania (Chan et al. 2022), working along the coast of the Indian Ocean and in freshwaters of some of the biggest lakes in Africa that Tanzania shares with neighboring countries—Lake Victoria, Lake Tanganyika and Lake Nyasa—as well as smaller water bodies, rivers and dams. A quarter of Tanzania's population depends on these coastal waters and freshwater lakes for their livelihoods (Nairobi Convention, n.d.).

The country has experienced steady economic growth in recent years. However, 26.4% of the population still live below the poverty line and an additional 8% live in extreme poverty (World Bank, 2019). Small-scale fisheries are a crucial source of livelihoods in Tanzania and provide an affordable source of nutrition. Current fish production is around 376,000 metric tons a year, with around 97% of fish sourced from small-scale fisheries (Nairobi Convention, n.d.).

Fish loss and waste is a persistent issue in Tanzania—estimated to be as high as 40% (Chan et al. 2022). This occurs across the whole value chain, from bycatch that is thrown away to inadequate handling, processing and storage facilities, to market forces that compel fish workers to undersell. This widespread loss translates to lost nutrition and income for the communities, weakening a key path for Tanzania to achieve the Sustainable Development Goals.

Asia–Africa BlueTech Superhighway (AABS)

- A seven-year initiative, from 2023 to 2030, to transform aquatic food systems in Asia and Africa by leveraging South–South collaboration
- AABS is implemented by WorldFish in collaboration with a host of partners
- It aims to improve food and nutrition security, create increased employment and income opportunities and sustainably manage marine and coastal resources to mitigate and adapt to climate change

Phase 1: 2023–2027 in Bangladesh, Kenya, Mozambique, Nigeria and Tanzania

Overall project benefits by 2030

- An increase in aquatic food production of up to 500,000 metric tons in target countries, sustainably increasing incomes of 300,000 people by 2030
- At least 150,000 women and youth benefiting from increased income by 2030
- Up to 1.4 million hectares of the coastal zone brought under sustainable management

Donor: UK International Development under the UK's Climate and Ocean Adaptation and Sustainable Transition (COAST) program of The Blue Planet Fund

Asia–Africa BlueTech Superhighway in Tanzania

Asia–Africa BlueTech Superhighway (AABS) will help Tanzania address its fisheries and aquaculture challenges by leveraging South–South collaboration to improve sustainability, resilience and prosperity in coastal communities. Through evidence-based models and partnerships, AABS will enhance the adaptive capacities of small-scale fish workers and farmers, mitigating the effects of climate change and increasing the sustainability of fish production. By focusing on Tanzania's vulnerable coastal regions, the initiative will not only support the government's goals but also ensure that the livelihoods of these communities are more secure and equitable.

AABS will implement three work packages in Tanzania:

- **Digital Coasts**—co-creating and scaling out contextualized digital information systems for small-scale fisheries.
- **Climate-Smart Technologies for Reducing Aquatic Food Loss and Waste**—scaling affordable, accessible climate-smart food preservation, processing and storage technologies to reduce aquatic food loss and waste.
- **Incentives for Coastal Conservation and Fisheries Management**—assessing, strengthening and scaling more effective and equitable incentives for coastal conservation and fisheries management.

Digital Coasts

Co-creating and scaling contextualized digital information systems for small-scale fisheries

Filling data gaps is critical to better understand the various aspects of small-scale fisheries to promote transformative change in the sector. Digital monitoring systems for small-scale fisheries can equip and empower all fisheries stakeholders with real-time data to make informed decisions that are nature-positive and can ensure sustainable management of fisheries.

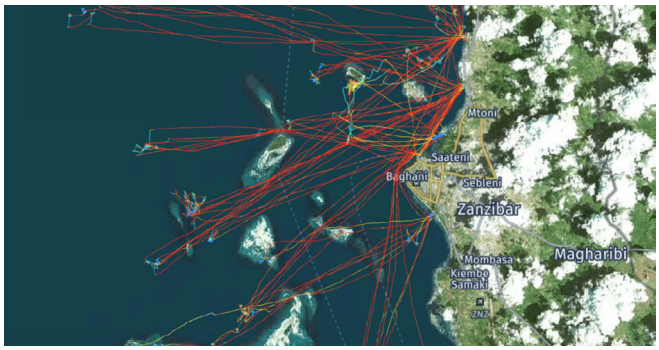
Objectives

- Harmonize and build on existing coastal fisheries data systems.
- Build capacity to implement co-designed, context-specific data technologies.
- Use oceanographic and fisheries models to gauge sustainable yields at the community level.
- Use cybernetics to adapt predictive models in response to outcomes.
- Enable effective and sustainable data-driven management through capacity building and vertical communication systems.

WorldFish first designed, evaluated and scaled Peskas in Timor-Leste. Thanks to its success Tanzania, as well as Kenya and Mozambique, are looking to Timor-Leste's expertise in developing and implementing digital monitoring of small-scale fisheries to help transform their local systems. In Tanzania, this means collecting more data than is currently possible, like the quantity of species and length of fish caught, allowing the country to utilize its marine resources more sustainably.

Strategy

- AABS will **convene sharing and collaborative workshops** between stakeholders and government departments to identify fisheries data sources. Peskas increases timely and adaptive management based on real-time data and is co-designed to ensure local legitimacy, comprehension and ownership. Peskas is an excellent opportunity to drive improved collaboration between sectors of government and fish workers as the key resource users.
- AABS will **co-design and develop contextualized data workflows** with stakeholders to promote ownership and build on existing data architectures in Tanzania. Existing data systems and capacities will be enhanced through training and counterpart mentorship.
- AABS will **develop novel oceanographic and fisheries models** for Tanzania's coastal regions.
- Overall, AABS will **improve policy and investment decisions** on the sustainable management of fisheries based on evidence provided by Peskas.



Climate-Smart Technologies for Reducing Aquatic Food Loss and Waste

Scaling affordable and accessible climate-smart food preservation, processing and storage technologies to reduce aquatic food loss and waste

From catching to consumption, there is a need to ensure that aquatic food remains fresh and safe to eat, and that waste is minimized postharvest. Harnessing climate-smart technologies in Tanzania will increase the availability of nutritious food, improve the economic well-being of coastal communities by maximizing the value of their catch and help mitigate the environmental impact of aquatic food production by reducing the need for overfishing and promoting sustainable resource use.

Objectives

- Increase food safety and quality while minimizing postharvest food waste.
- Work with multidisciplinary and cross-sector partners to co-design and accelerate the use of such innovative postharvest technologies.
- Create and expand technologies that are either climate-neutral or climate-beneficial.
- Engage with stakeholders to increase awareness of loss and waste in aquatic food systems while influencing behaviors and investments toward eliminating loss and waste through innovative solutions.

Strategy

- AABS will assess **the scale and drivers of fish loss and waste in Tanzania** to determine the scope of the problem, the sectors and stakeholders involved, and potential partners needed to scale solutions that reduce fish loss and waste.
- AABS will use the results of these assessments and gather more ideas through networking with stakeholders, in particular women's groups in rural coastal areas, to **identify opportunities for the innovation of new technologies or adapt current technologies** and processes for the local context in Tanzania.
- AABS will pilot innovations that enhance livelihoods and address local challenges to food safety, loss and waste to support national programs in Tanzania by **scaling successful tools, techniques and innovations.**

Incentives for Coastal Conservation and Fisheries Management

Assessing, strengthening and scaling incentives for more effective and equitable coastal conservation and fisheries management

Incentives are increasingly promoted as a means to strengthen individual or collective motivations to engage in behaviors that support marine conservation and resource management objectives, by mitigating short- to medium-term costs for coastal communities. They can be provided through various ways including social protection, subsidies, property rights, and market-based tools. Examples include rewards for compliance with closed fishing seasons, eco-credit schemes offering conditional loans as well as policies and programs that strengthen and diversify coastal livelihoods or develop sustainable markets for marine resources.

However, key challenges for incentive-based approaches include 1) limited evidence linking incentives to behavior change or ecological outcomes, particularly in marine environments; 2) lack of equitable governance that undermines the effectiveness of incentives and 3) limited investment and innovative financing strategies for conservation and fisheries management. In Tanzania, AABS will address these challenges through the following objectives and strategy.

Objectives

- Build knowledge on opportunities and challenges for incentives in coastal and marine conservation and fisheries management, and build capacity for their design, implementation and evaluation.
- Strengthen institutional and policy environments for incentive-based approaches to coastal and marine conservation and fisheries management.
- Strengthen incentives for the conservation and management of selected coastal areas.
- Ensure financial sustainability of incentive-based approaches.

Strategy

- AABS will **map and assess past and current use of incentives** in conservation and fisheries management in Tanzania, building knowledge on opportunities, challenges and best practices.
- AABS will work with government and other partners to **identify needs and support the strengthening of institutional, legal and policy frameworks** on incentives for coastal conservation and fisheries management.
- AABS will also work with the government and other partners to **develop financing strategies** to ensure the sustainability of incentives in conservation and fisheries management
- AABS will **assess and strengthen incentive-based approaches at selected coastal sites**, including through impact evaluation and improvements in governance and equity of conservation and fisheries management.

Partnerships

- International Institute for Environment and Development (IIED)
- Norwegian Food Research Institute (Nofima)
- Norwegian University of Science and Technology (NTNU)
- Simply Solar Technology Consulting
- Tanzania Fisheries Research Institute (TAFIRI)
- University of Dar es Salaam
- Western Indian Ocean Marine Science Association (WIOMSA)
- World Resources Institute (WRI)
- Zanzibar Fisheries Resources Research Institute (ZAFIRI)

Find out more

Blog: Fish Loss and Waste: Tanzania Trailblazes a Multidimensional Approach

Blog: 'We Have Similar Challenges': Reflections from South-South Knowledge Exchange on Small-Scale Fisheries Monitoring

"We have empty marine hatcheries – we need the Asian expertise on cultivating sea cucumbers and crabs in hatcheries. In Tanzania, we have limited know-how, but this is already being done in Bangladesh with affordable technology so it will be easier to adapt to African contexts."

– Tanzanian stakeholders at the AABS kick-off workshop, Penang, Malaysia

References

Chan C, Peart J and Tran N. 2022. *A Review of Fish Supply–Demand in Tanzania*. WorldFish. bit.ly/4eAs736

FAO. n.d.. *Global production quantity*. Food and Agriculture Organization of the United Nations. Retrieved October 1, 2024, from FAO Statistics Query

[FAO] 2021. *The State of World Fisheries and Aquaculture 2020: Sustainability in Action*. Food and Agriculture Organization of the United Nations. Retrieved October 1, 2024, from FAO Open Knowledge Repository.

Nairobi Convention. Not dated. *Tanzania Ocean Economy*. bit.ly/4esASff

Nordhagen A, Rizwan AAM, Aakre I, Reksten AM, Pincus LM. Bøkevoll A, Mamun A, Thilsted SH, Htut T, Somasundaram T, and Kjellevold M. 2020. Nutrient Composition of Demersal, Pelagic, and Mesopelagic Fish Species Sampled Off the Coast of Bangladesh and Their Potential Contribution to Food and Nutrition Security—The EAF-Nansen Programme. *Foods,* 9(6), 730. doi.org/10.3390/foods9060730

Oceana. 2023. Wild seafood has lower carbon footprint than red meat, cheese, and chicken, according to latest data. bit.ly/3Y7LYkf

Tran N, Maskaeva A, Msafiri M, Chan CY, Peart J, Mroso H, Shoko AP and Madalla NA. 2022. Future fish supply and demand in Tanzania. Penang, Malaysia: WorldFish. Program Report: 2022-20.

World Bank. 2019. Tanzania Mainland Poverty Assessment, Executive Summary. *World Bank Group*. bit.ly/3zAJ3qX

Scan for more information

Why invest in aquatic foods in Tanzania?

Aquatic food systems have a large and distinct sphere of impact

Provides **food, nutrition and livelihoods**

8.5 kg
Annual fish consumption per capita (Tran et al. 2022)

4.5 million
Tanzanians dependent on aquatic food systems for their livelihoods (Tran et al. 2022)

1.8%
Share of national GDP from fisheries and aquaculture (Tran et al. 2022)

4 out of 10
Women workers in small-scale fisheries (FAO, 2021)

Is an engine for **economic growth**

50.5%
Increase in Tanzania's aquatic food production since international standards for fisheries were set in 1995 (FAO, n.d.)

21.7%
Projected increase in Tanzania's aquaculture production by 2035 (Tran et al. 2022)

Reduces **carbon footprint** and **environmental stress**

Around the world, aquatic food systems produce nutrient-dense foods with lower emissions than land-produced livestock (Nordhagen, 2020).

Small fish and bivalve aquaculture stresses the environment less than chicken, the most efficient major terrestrial animal-source food (Oceana, 2023).

About WorldFish

WorldFish is a leading international research organization working to transform aquatic food systems to reduce hunger, malnutrition and poverty. Collaborating with global, regional and national partners, WorldFish delivers scientific innovations, evidence to inform policy, and knowledge to enable equitable and sustainable impact for millions who depend on fish for their livelihoods. As a member of CGIAR, WorldFish contributes to building a food- and nutrition-secure future and restoring natural resources. Headquartered in Penang, Malaysia, with country offices across Africa, Asia and the Pacific, WorldFish strives to create resilient and inclusive food systems for shared prosperity.

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