

Asia–Africa BlueTech Superhighway

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

Kenya



The challenge

In Kenya, 80% of children under the age of two do not eat a sufficiently nourishing diet (UNICEF, 2020). The country needs aquatic food production that will meet the needs of this generation, as well as serve the market demands of an urbanizing population, which should be an engine for livelihoods. While Kenya's fish production has long been led by inland fisheries, its lakes and rivers have reached the limits of sustainable capture, so the time is ripe for coastal producers (KMFRI, 2017). There are widespread areas of coastal and inland aquaculture potential – but in 2017, only 0.01% of this area was found to be in use (Aloo et al. 2017). Ownership is concentrated among men over the age of 50, with few entry points for women and young people (ETC East Africa, 2016). Coastal fisheries, which are primarily small in scale, have also been treated as a low priority. However, since 2016 the country has promoted the creation of locally led Beach Management Units along its 610 km coastline, and this has become a golden opportunity to bring the fish workers and aquaculturists of the coast together for better co-management.



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 Kenya

Asia–Africa BlueTech Superhighway (AABS) will help Kenya 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 Kenya’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 Kenya:

- **Digital Coasts**—co-creating and scaling out contextualized digital information systems for small-scale fisheries.
- **Integrated Multi-Trophic Aquaculture (IMTA)**—adapting and implementing IMTA tailored to local context in Africa and Asia.
- **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.

Digital Coasts

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

AABS will contribute to the conservation and sustainable use of coastal and marine ecosystems, nutrition, food security and livelihood improvement through the development and scaling of IMTA systems. These are a family of climate-smart, nature-based systems that integrate fish farming with complementary marine species that feed on fish waste, such as shellfish and seaweed.

Objectives

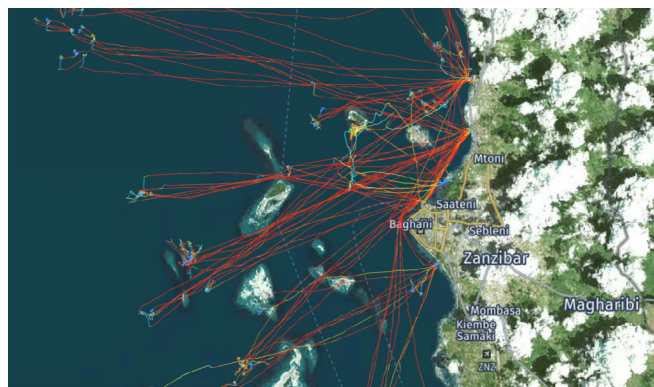
Harmonize and build on existing coastal fisheries data systems.

- 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 designed, evaluated and scaled a monitoring system called Peskas in Timor-Leste. Now Kenya is looking to Timor-Leste’s expertise in developing and implementing digital monitoring of small-scale fisheries to help transform its local systems.

Strategy

- AABS will **convene sharing and collaborative workshops** between stakeholders and government departments to identify fisheries data sources, using Peskas as an opportunity to drive improved collaboration.
- AABS will **create a diagnostic analysis and baseline survey** for Kenya, then **co-design and develop contextualized data workflows** with stakeholders. Existing data systems and capacities will be enhanced through training and counterpart mentorship.
- AABS will **develop novel oceanographic and fisheries models** that, along with existing data sources, will use vessel tracking devices to map fishing patterns.
- Overall, AABS will **improve policy and investment decisions** on the sustainable management of fisheries, as well as investigate the effects of digital information on decisions by fish workers.



Integrated Multi-Trophic Aquaculture

Adapting and implementing IMTA tailored to local contexts in Asia and Africa

AABS will contribute to the conservation and sustainable use of coastal and marine ecosystems, nutrition, food security and livelihood improvement through the development and scaling of IMTA systems. These are a family of climate-smart, nature-based systems that integrate fish farming with complementary marine species that feed on fish waste, such as shellfish and seaweed.

Objectives

- Conduct a comprehensive analysis of the context of IMTA.
- Develop new IMTA systems through research and innovation.
- Validate context-specific IMTA business models.
- Scale IMTA systems within and beyond project countries.

The project will build on the early successes of IMTA in Bangladesh and Vietnam, including through partner knowledge exchange visits.

Strategy

- AABS will begin with a fresh situational analysis of coastal Kenya to update the **comprehensive environmental assessment** for IMTA in the country.
- **Farmer surveys** will assess the current level of

willingness to adopt IMTA systems, including the income thresholds and other factors necessary to incentivize farmers to try them, and key risks and challenges.

- **Market assessments** will gather information on what species can be sold to consumers and what marketing might be needed.
- Once these fundamentals are established, the project will **develop a demonstration site** for different combinations of fish–shellfish–seaweed production, working with local communities and technical experts.



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 catch to consumption, there is a need to ensure that aquatic food remains fresh and safe to eat, and that postharvest loss and waste is minimized. Harnessing climate-smart technologies 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 loss and waste.
- Work with multidisciplinary and cross-sector partners to co-design and accelerate the use of such innovative technologies.
- Create and expand technologies that are either climate-neutral or climate-beneficial.
- Engage with stakeholders to increase awareness of food loss and waste in aquatic food systems while influencing behaviors and investments toward alleviating loss and waste through innovative solutions.

Strategy

- AABS will assess **the scale and drivers of fish loss and waste in Kenya** to determine the scope of the problem, the sectors and stakeholders involved, and potential partners to scale solutions.
- 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.
- AABS will pilot innovations that enhance livelihoods and address local challenges to food safety, food loss and waste to support national programs in Kenya by **scaling successful tools, techniques and innovations**.

“Reducing food loss and waste requires the involvement of all parties in the fish value chain, including boat owners and traders.”

– Dr Peter M. Odour-Odote, KMFRI, at the AABS Theory of Change Workshop, Mombasa

Partnerships

- Coastal and Marine Resource Development (COMRED)
- Kenya Marine and Fisheries Research Institute (KMFRI)
- Norwegian Food Research Institute (Nofima)
- Norwegian University of Science and Technology (NTNU)
- Pwani University
- Simply Solar Technology Consulting
- Wildlife Conservation Society (WCS)
- World Resources Institute (WRI)

Find out more

[Blog: Reducing Fish Loss and Waste with a Systems Thinking Approach](#)

[Blog: Kenya's Aquaculture Stakeholders Ready for Integrated Multitrophic Aquaculture](#)

[Blog: A Day with a Small-Scale Fishing Community at Kanamai Beach, Kenya](#)





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Scan for more information

Why invest in aquatic foods in Kenya?

Aquatic food systems have a large and distinct sphere of impact

Provides **food, nutrition and livelihoods**



500,000+

People direct employment opportunities in the aquatic foods sector (KMFRI, n.d.)

Is an engine for **economic growth**



550,000 metric tons

Needed by 2030 to increase Kenya's per capita fish consumption to the African average (FAO & IFAD, 2019)

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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