

# Fish for Africa Innovation Hub

Science, entrepreneurship and inclusive policies  
for sustainable food systems in Africa



# Introduction

WorldFish is an international, non-for-profit research organization that works to reduce hunger, malnutrition and poverty across Africa, Asia and Pacific. With a 45-year track record of leading science, the organization generates scientific evidence and innovations for the inclusive and sustainable development of aquaculture and fisheries to improve livelihoods and healthier diets for millions of people -- particularly women, children and young people -- who depend on fish for nourishment, incomes and job opportunities.

This document presents the overarching concept by WorldFish for establishing the [Fish for Africa Innovation Hub](#), set up as a public private partnership and operating as an independent non-for-profit organization.

The Fish for Africa Innovation Hub mobilizes regional and global businesses, research institutions and government into an innovative public-private partnership that supports research and development for sustainable aquaculture and fish value chains in Africa, and ensures the hub's sustainability in the long run.

The hub aims to foster cutting edge science, technology, policy and market innovations to transform aquaculture and fish value chains in Africa in order to meet growing consumer demand for affordable, safe and nutritious fish produced sustainably and improve the livelihoods of Africa's citizens.

To this end, WorldFish and its partners are well placed to undertake such an innovative venture in terms of our standing, credibility, skills and experience vis-à-vis target countries and communities in Africa. We also seek to transfer our research and development experience with aquaculture and fish value chains in Asia and the Pacific, and mobilize the support of stakeholders at all levels and across the public, private and development sector for Africa.

# INNOVATE ACROSS BOUNDARIES OF SCIENCE, BUSINESS, POLICY.

The [Fish for Africa Innovation Hub](#) brings together a diverse constellation of stakeholders along the public and private sector continuum to the common goal of transforming Africa's aquaculture and fish value chains.

It leverages the untapped potential of the world's fastest food production sector to meet Africa's growing food demand by a burgeoning 1.2 billion consumer market with affordable, safe and nutritious fish that is produced sustainably.

The hub is the meeting place where industry, community, government, researchers, end users and other stakeholders – across Africa -- interact and come together to generate science and technology innovations linked to policy, practice and market demand in order to build vibrant aquaculture and fish value chains that are economically competitive, socially inclusive, and environmentally sustainable.

It offers the collaborative space, scientific tools, research skills, world class knowledge, learning and co-creation of the best science and technology innovations on aquaculture and fish value chains to turn Africa's current growth trends -- in population, urbanization, technology adoption and entrepreneurship -- into inclusive wealth opportunities and shared prosperity.

# TRANSFORMING AFRICA'S AQUACULTURE AND FISH VALUE CHAINS FOR AN **INCLUSIVE SUSTAINABLE BLUE ECONOMY**

Bold new thinking is required to convert Africa's complex challenges and opportunities into broad-based economic growth and prosperity to produce affordable, accessible, safe and nutritious fish and fish foods for all within environmental limits.

**Fish for Africa Innovation Hub** re-invents the space needed to co-create and deliver cutting edge science and technology innovations to transform Africa's aquaculture sector and fish value chains. Its vision is to position fish firmly at the heart of discourse, policy and practice to transform Africa's food systems for healthier diets, improved livelihoods and shared prosperity.

The hub is conceptualized as a physical and virtual space that connects science, policy and markets.

It engages top-class and emerging scientists, entrepreneurs, fish farmers, producers, processors and consumers, community-based organizations, cooperatives and business associations, investors and policy makers, North and South of the globe.

These actors are aligned to the common goal of sustainably producing, supplying and consuming affordable, safe and nutritious fish for Africa. The hub unlocks untapped opportunities for new jobs, innovative business and entrepreneurship activities, particularly for women and young people. It bolsters national, regional and continental efforts across Africa to build an inclusive and sustainable blue economy, rich in equal opportunities benefiting both the people and the environment.

# EXPERIENCE THE POSSIBILITIES

WITH **FISH FOR AFRICA INNOVATION HUB**



## **A space for unprecedented innovation**

The hub provides the physical and virtual space that brings together key innovators and early adopters to design and create new and improved products, services, projects and innovative enterprises related to sustainable aquaculture and fish value chains for Africa.



## **New jobs and entrepreneurship opportunities**

The hub enables creation of new jobs and entrepreneurship opportunities -- targeting women and young people in particular -- for inclusive wealth and prosperity in Africa. It provides the collaborative space for delivering innovative products and services to African and global markets, giving rise to new innovative companies.



## **Top-class expertise, skills and capacity for science, policy and business**

The hub builds the continent's data, knowledge tools and scientific evidence to prioritize fish in policy and investment decisions. It attracts, nurtures and builds class talent, skills and workforce -- in science, policy and business -- and matches them with the right people -- science peers, entrepreneurs, investors and policy makers -- North and South of the globe.



## **Speed and flexibility in working with industry on demand-driven solutions**

The hub enables the diversity of skills, training, learning, partnerships and networks required to develop, incubate and accelerate the scaling of technologies and innovations in aquaculture and fish value chains that respond to real challenges on the ground and address specific gaps in data, knowledge, tools, skills and capacities.



## Agile learning and innovation across disciplines and sectors

The hub creates the shared space that crosses traditional science and academic boundaries. It enables researchers, policy makers and business entrepreneurs to work together beyond their area of specializations, allowing for new discoveries at the cross-section of disciplines and sectors.



## Vibrant policy and business investments networks

The hub creates networking opportunities with strategic policy and market actors with the critical knowledge, tools and resources to support research, to shape a conducive policy framework and promote an enabling business environment.



# INNOVATE **FASTER, BETTER**

## WITH **FISH** FOR **AFRICA** INNOVATION **HUB**

The [Fish for Africa Innovation Hub](#) is about pushing boundaries and experiencing first-hand cutting-edge innovation that can transform science, people, policies and business across the continent. Its transformational impact will be generated via three pillars of activities:



### THE SCIENCE PILLAR

Science and technology innovations generated at the hub will lead to improved practices, policies and decisions for the sustainable development of aquaculture and fish value chains in Africa.

[Science and technology innovations](#) on:

- Fish breeding and genetics
- Fish health and biosecurity
- Fish feeds and feed ingredients
- Nutrition-sensitive approaches and food systems with fish
- Gender transformative approaches in aquaculture and fish value chains
- Entrepreneurship and business models for aquaculture and fish value chain start-ups

[Policy innovations](#) related to:

- Policy and foresight analysis
- Data and decision-making tools
- Policy enabling frameworks with roadmaps
- Guidelines on industry standards and best practices
- Fish trade trends and consumer markets



### THE PEOPLE PILLAR

Enabling lasting transformational impact for sustainable aquaculture and fish value chains will require a workforce with a variety of skills and competencies in both science and business.

A [new generation of scientists](#) with strong [scientific research capacity](#) will be prepared through the:

- Fish For Africa Academic Research Network
- Regional Network of Fish Breeding Programs
- Fish For Africa Alumni program
- Research PhD/Master's programs
- Fish Science Week and Lecture Series

A [new generation of entrepreneurs and skilled workforce](#) will be prepared through the:

- Fish For Africa Apprenticeship Program
- Fish for Africa Young Innovators Club
- On-the-job [training program](#)
- Massive Online Open Courses (MOOCs)
- Trainer of Trainers (ToTs) [program](#)
- University [curricula development](#)





## THE MARKETPLACE PILLAR

The [Fish for Africa Innovation Hub](#) facilitates the links, contacts, shared resources, networks and public private partnerships between science, policy and market actors across Africa to pilot, fund and scale science, technology and policy innovations for sustainable aquaculture and fish value chains.

[Increased links and access to business networks](#), contacts, markets, resources, investment to develop innovative aquaculture and fish-based products, services and enterprises through the:

- Fish for Africa Entrepreneur Centre
- Fish for Africa Business Centre
- Fish For Africa Innovation Cup
- Fish for Africa Hackathons and Start-up Weekends

[Vibrant market and policy networks](#) through establishment of the:

- Africa Aquapreneurs and Policy Network
- Fish for Africa Network of Women Business Owners and Entrepreneurs
- Regional and global policy conferences



# INSPIRED BY SHARED PUBLIC-PRIVATE SECTOR PRINCIPLES

The [Fish for Africa Innovation Hub](#) will be guided by the following values:

## Science quality

- Guided by principles of scientific inquiry
- Grounded in holistic food systems thinking
- Multi-disciplinary science collaboration
- Intellectual honesty and objectivity
- Innovative research partnerships

## User-centred and equity focused

- Respond to users' needs
- Be context appropriate and design in collaboration with end users
- Develop incrementally, using iterative user testing and modifying as appropriate
- Design for the most difficult to reach first.

## Scalable

- Be replicable and customisable in other countries and contexts.
- Factor partnerships from the beginning and start early negotiations.
- Look towards locally available technologies and use what already exists in the ecosystem.
- Build solutions that can go to regional and global scale

## Built on experience

- Build upon previous experience
- Incorporate best practices into design of products, services and processes
- Prioritise openness as an approach to solving problems.

## Open and inclusive

- Build technology that can be easily accessed and shared with interested parties and adapted by others.
- Facilitate open access to scientific evidence, data, knowledge and information.
- Make content and learning gained around the innovation easily accessible by anyone.

## Sustainable

- Be viable in the long term, factoring in support infrastructure, maintenance, and running costs.
- Involve multi-stakeholder partnerships in the development of sustainable solutions.
- Encourage the involvement and training of local experts, technical and otherwise.

# THE STAKEHOLDERS

The following illustrates how key groups can engage in the open co-learning and collaborative space created by the [Fish for Africa Innovation Hub](#).

## Private sector

- Commissions research on science and technology innovations and/or market assessments
- Works with researchers to develop and launch new products or services
- Hosts trainings and skills workshops at the innovation hub
- Finds skilled and motivated people to hire
- Mobile or technology providers produce digital products for fish value chain actors

## Public sector

- Co-develops public policy programs and investments that are sustainable and socially inclusive
- Shares and generates data, knowledge, learning and innovations
- Reforms or launches new policy initiatives in support of sustainable aquaculture and fish value chains
- builds its own science research capacities through collaboration with other hub actors

## Public and private investors

- Discover, support and fund winning science and technology innovations
- Develop evidence-based policies and programming approaches in support of sustainable aquaculture and fish value chains
- Interact and collaborate with research, policy and industry actors from other sectors, such as agriculture, transportation, ICT, tourism, etc.

## Scientific community

- Africa's ingenuity and emerging science expertise is connected to vast network of public and private sector partners in Africa, Asia, Pacific and the global North.
- Joint agreements are established between universities in Africa and others across the globe
- PhD/research students from Africa or working on Africa gain real world experience by engaging in research and development projects

# THE STAKEHOLDERS

## Women leaders, young scientists and entrepreneurs

- Receive mentorship and support in science and entrepreneurship
- Build their skills, knowledge, capacities and access to critical resources
- Benefit from memberships to prestigious academic, policy and business networks

## Community based organizations

- Receive scientific expertise and research support on specific community development projects
- Extend the hub's services and outreach to vulnerable and disadvantaged communities, particularly women, children and youth
- Enable access to an open source technology community



# A COMMUNITY OF INNOVATION LIKE NO OTHER



## **A collaborative physical and virtual space**

The hub enables various partners and resources to come together under one roof and engage in collective problem identification and solving, thereby increasing the relevance of solutions to varied local African contexts. The rapid growth of technology creates new opportunities to lower the barriers among co-creators.



## **Public-private partnerships for broad-scale impact**

The hub enables government and development actors working on innovative programs and interventions of broad-scale impact to benefit from alternative perspectives offered by the private sector, civil society and local community organizations.



## **An inspired community**

The hub develops a distinctive collection of people, firms, institutions, amenities, relationships and networks that come together as an inspired community to generate innovations for shared and inclusive wealth, wellbeing and prosperity within the limits of Africa's land and aquatic resources.



## **Empowered women and young people**

The hub targets women and young people specifically -- at all levels of science, policy and business -- to empower them in shaping their own solutions through meaningful participation and engagement in the co-creation and delivery of science and innovations. The hub works with all stakeholders to ensure gender and youth considerations are mainstreamed in all aspects of programming and governance so as not to create or exacerbate inequalities.

# A COMMUNITY OF INNOVATION



## **Sustainable local development with users and beneficiaries engaged in every aspect**

The hub facilitates direct interaction among a community of end-users, thus making the effort of identifying needs and testing the impact of projects, products, and services in real-time more sustainable and scalable.



## **An inclusive market systems development approach**

The hub utilizes the market systems development approach to help create widespread and lasting adoption of demand-driven science and technology innovations to transform aquaculture and fish value chains across Africa. It focuses on understanding the role of the key market actors in providing and accessing knowledge, skills and financing to turn market barriers into economic opportunities.



## **Informed by SGD 9 on Industry, Innovation and Infrastructure**

The work of the hub of this specific SDG, which recognizes the importance of nurturing and investing in: scientific research; technological progress and innovation; and entrepreneurship and sustainable businesses as critical to developing and implementing lasting solutions.



# MAKING IT HAPPEN FASTER BY BUILDING ON SOLID FOUNDATIONS, EXPERIENCE, LEARNING.

Real change rarely happens in isolation -- it takes real context and experience to ignite and inform the innovation process. Our vision for the [Fish for Africa Innovation Hub](#) did not start from scratch. We have been doing the legwork for a while now and learned that in order to spark a truly disruptive idea such as this and amplify innovation at speed and scale, we must capitalize on existing assets, understand demand and utilize our vast and diverse network of partners.



## A new vision with deep roots in learning and experience

We are building on the rich experience of [WorldFish](#) and our public and private sector partners since we first established the [Africa Aquaculture Research and Training Centre](#) in Abbassa, Egypt in 1999 -- with the invaluable support of the Government of Egypt. The centre has played an instrumental role in shaping the success of Egypt's aquaculture sector.

It has increased exchange of scientific knowledge and learning, scaled innovations and built the capacity of policy makers, extension agents, aquapreneurs and scientists

from 108 countries across Africa, Asia and Pacific. The centre continues to attract strong international and regional interest from multinational companies that are partnering with us for research and capacity development in aquaculture and fish value chains.

Our rich learning and experience to date has boldened our ambition to consider a new vision for the centre, and re-think its research business model and activities as a [Fish for Africa Innovation Hub](#).

# MAKING IT HAPPEN FASTER



## Public investors interest

Public investors are increasingly recognizing the unique role and value of fish in helping Africa meet its SDGs and shaping an inclusive and sustainable blue economy.

- The [African Development Bank](#) has entrusted WorldFish to lead the implementation of the Aquaculture Compact, one of 15 compacts of the Technologies for African Agricultural Transformation ([TAAT](#)) initiative, which scales proven technologies across 22 countries. Training and capacity building activities are being delivered at our centre in Abbassa to key member countries of the Economic Community of West African States ([ECOWAS](#)).
- The [European Union](#) invested in our research work to examine and understand fish trade in 21 countries across Africa. Our work in this area has led to significant national and regional policy shifts around fish product standards and trade facilitation. These shifts are opening up new avenues for faster, safer cross-border fish trade, and creating new business and entrepreneurship opportunities.



## Private investors interest

WorldFish continues to research, develop and scale a suite of science and technology innovations to support sustainable development of aquaculture and fish value chains across Africa, Asia and Pacific.

- Three research platforms on fish genetics, providing new improved generations of tilapia in Malaysia and Egypt, and improved generations of three carps species in Bangladesh.
- Research on fish disease and biosecurity has led to development of new surveillance and diagnostic techniques and tools for addressing the global challenge of tilapia lake virus (TiLV).
- Partnerships with private sector actors at global and national levels are providing avenues for scaling of innovations. Skretting, a global leader in aquaculture feed continues its long-standing partnership on new and novel feed, and in consumer demand and market dynamics.



# WHY DO WE NEED

## A FISH FOR **AFRICA** INNOVATION HUB?

Fish has frequently been overlooked and underestimated in terms of its role and importance in securing food, nutrition and health outcomes, especially for under- and malnourished women and children in Africa. The sector supports the livelihoods of an estimated 12.3 million people. More than one-fourth of them are women, who are the poorest most marginalized group in the continent.

In the case of Sub-Saharan Africa, where extreme poverty is on the rise and projected to grow to 416 million by 2030, its vast inland waters and coastlines -- home to a small but rapidly growing aquaculture sector -- hold promise to meet the food, nutrition and socio-economic development needs of its people. Meanwhile, high population density in a number of other African countries, leaves little room for expanding agricultural crop activities.

Entrepreneurial energy pulsates throughout the continent with more and more people seeking to prosper through business, entrepreneurship and education. Rapid urbanization and widespread adoption of digital technologies and mobile communications are driving unprecedented growth.

Yet, Africa's jobless cast a shadow over current and projected economic growth with 60 percent of the unemployed being youth. Young women feel the sting of unemployment more sharply than young men. Despite a rising middle class, 46 percent of people in Africa still live in extreme poverty. Growth has not been accompanied by broad-based socio-economic progress and equity.

The [Fish for Africa Innovation Hub](#) is an ambitious and innovative undertaking. We believe it to be the right response to meeting growing demand and interest for data, knowledge, training and capacity development, new jobs, and business and entrepreneurship opportunities in aquaculture and fish value chains in Africa.

A vibrant private sector booming with innovative fish-based enterprises and business associations, new skills, jobs and entrepreneurship opportunities, multi-disciplinary science and cross-sector fish partnerships for holistic food systems solutions, and increased capacity for evidence-based policy and investment decisions, are amongst the expected outcomes of the hub.

# THE UNIQUE CONVENING POWER OF WORLD FISH

As the only international CGIAR research centre focusing on improving the livelihoods of small-scale fishers, fish farmers, processors, traders and consumers and a 45-year track record of leading aquaculture and fisheries science, [WorldFish](#) can help pair Africa's ingenuity and emerging expertise with the world's best science and brightest minds across the globe through its unique network of public and private sector partners.

To achieve the desired impact and its strategic outcomes, the [Fish for Africa Innovation Hub](#) benefits from the key strengths and comparative advantages of WorldFish and its partners:

- Our convening power with diverse stakeholders at local and global levels to positively influence discourse, practice and policy across Africa, Asia and the Pacific.
- Our suite of existing science and technology innovations in aquaculture and fisheries and our pioneering work on gender transformative approaches.
- Our rich niche experience and outstanding science reputation for evidence-based solutions on aquaculture and small-scale fisheries.
- Our institutional values, our scientific objectivity and our science quality.
- Our vital base of partners, students, alumni, supporters, media and citizens engaged through both WorldFish's extensive communications and outreach.



# BE AHEAD OF THE CURVE. GET INVOLVED. LET'S DO THIS. TOGETHER.

We anticipate that the [Fish for Africa Innovation Hub](#) will provide operations and capabilities not typically found in academic settings, consisting of early product and service development expertise and research infrastructure together with project management and business functions required to scale science and technology innovations.

Such capabilities will exist both in tangible form at [Fish for Africa Innovation Hub](#) and in semi-virtual form via the various networks of science and business experts, external consultants and service providers enabled through the hub.

Provisions will be made to ensure these services and activities will provide a near term revenue flow to the hub and over the longer term, product and value realization of science and technology innovations will occur via the hub's portfolio of research assets -- its own and its share of collaboration assets -- with aquaculture companies and investors, or via new products and company creations.

The hub will also establish a membership structure that facilitates the involvement of organizations and individuals across the spectrum of stakeholders in aquaculture and fish value chains, from major benefactors, private sector investors, individual contributions, academic, industry, non-profit and public entities, as well as collaboration parties.

We invite you to get involved in making [Fish for Africa Innovation Hub](#) a success for the region. Please reach out to us to request a copy of the full prospectus and share your thoughts and ideas with us on becoming a founding member, a core partner, or an individual or institutional affiliate interested in participating and co-developing the vision of the [Fish for Africa Innovation Hub](#) and bringing it to fruition.

Thank you in advance for your interest and collaboration.

Sincerely,



Gareth Johnstone  
Director General  
WorldFish

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### **About WorldFish**

WorldFish is an international, not-for-profit research organization that works to reduce hunger and poverty by improving fisheries and aquaculture. It collaborates with numerous international, regional and national partners to deliver transformational impacts to millions of people who depend on fish for food, nutrition and income in the developing world. Headquartered in Penang, Malaysia and with regional offices across Africa, Asia and the Pacific, WorldFish is a member of CGIAR, the world's largest global partnership on agriculture research and innovation for a food secure future.

For more information, please visit [www.worldfishcenter.org](http://www.worldfishcenter.org)