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WorldFish Incubator: Sustainable aquaculture made possible



WorldFish Incubator is a new and innovative program designed to support investment into sustainable small and medium-sized aquaculture enterprises in developing countries. It identifies suitable projects and facilitates technical and financial assistance, offering nurturing in sustainable aquaculture through its network of contacts. By leveraging the benefits of scale, **WorldFish Incubator** will help the aquaculture sector deliver on its promise to meet the growing demand for fish whilst ensuring equitable supplies and access for the poor.

The challenge

World population will grow to 9 billion by 2050. People will continue to migrate from rural to urban areas. Wages are rising rapidly in developing countries, especially Asian economies. Larger and more urban populations will demand more and better food. Meeting this increasing demand whilst alleviating poverty and hunger and securing ecosystem health, will be one of the greatest challenges of the 21st century.

Fish and shellfish from all environments (here collectively called fish), will play a vital role in meeting this challenge. Fish are already the primary source of animal protein for 2.6 billion people¹, including 1 billion of the world's poor. Growing the supply of fish to satisfy the appetite of the world's rising middle class without sacrificing the needs of the poor and vulnerable, or the environment, can be done, but not with business as usual. Traditionally, fish have come from capture fisheries but demand has outstripped supply and many waters have been overfished to a threatening degree. Nearly half of our fish now comes from farming, or aquaculture. Increasing at an average rate of nearly 10% per year over the past 40 years, aquaculture is currently the world's fastest growing food production system, delivering 63 million tonnes of food fish in 2011². It has recently overtaken beef production, and shows no signs of slowing³.

Pound for pound, aquaculture contributes less to global emissions of nitrogen and phosphorus than beef and pork production, suggesting a relatively benign ecological footprint. Fish also convert a relatively high percentage of the food they eat into consumable animal protein. Fish are important not only as a supply of protein but more especially for essential fatty acids and micronutrients⁴. These nutritional inputs are desperately needed by the world's poor, especially during the first 1,000 days of life from conception to age two⁵.

Healthy, efficient, affordable: It is no wonder that fish is in increasing demand. However, aquaculture's rapid rise has, in fact, resulted in growing impacts on biodiversity and sensitive ecosystems, with nutrient pollution contributing to environmental degradation. Pressures on the wild fish resources used in feeds have raised questions about current growth trajectories and sustainability. There is now increasing recognition that a major transformation is needed towards more environmentally sustainable production systems if aquaculture is to fulfil its promise of meeting future food requirements.

The transformation of aquaculture needs to combine the adoption of environmentally sound farming technologies with the investment⁶ needed in small and medium-sized aquaculture enterprises (SMEs). These enterprises represent the majority of aquaculture producers in developing countries. Here they provide excellent opportunities for rural and peri-urban employment, contributing much needed income and improved food and nutrition security directly where it is needed. However, these small and medium-sized aquaculture enterprises have not yet been the recipients of sufficient well targeted private or public sector investment to allow them to make the transformational changes required. Investment into this demographic, at the bottom and middle of the "aquaculture pyramid", offers the greatest opportunity for impact, reducing the ecological footprint at scale, whilst generating sustainable food and employment.

WorldFish

WorldFish⁷ is committed to two key development challenges: improving the livelihoods of those who are especially poor and vulnerable in places where fisheries and aquaculture can make a difference, and achieving large scale, environmentally sustainable increases in supply and economic access to fish for poor consumers. Our research has developed pioneering aquaculture technologies including productive strains of farmed tilapia⁸, integrated aquaculture-agriculture systems, and coastal pond technologies with low environmental impact suitable for small-scale aquaculture farmers.

Examples of grant-funded projects in Asia and Africa include work with marginalized ethnic (Adivasi) communities in Bangladesh⁹, post-tsunami aquaculture in Aceh¹⁰, and smallholder subsistence aquaculture in Malawi¹¹. Investments have delivered significant social and economic benefits to small-scale aquaculture farmers in terms of income, productivity enhancing technologies, and organizational development.

WorldFish is focused on impact; we need to take these transformative technologies and lift them up, out, and across the developing world, leveraging the connections between our research and the investment community in ways that amplify the scale of impact. To support this drive for greater impact WorldFish is creating a unique link between research and grant funded development projects, and impact investment and commercial business. Commercial interest in aquaculture investment is at an all-time high, yet much commercial investment presently misses and marginalizes many of the world's smaller aquaculture producers. *WorldFish Incubator* is intended to reverse that course.



WorldFish Incubator

WorldFish Incubator sets out to bridge the gap between research and development, and commercial business investment. The focus is on facilitating the start-up of scalable small and medium-sized aquaculture enterprises through the adoption of sustainable technologies. We particularly target smallholder farming enterprises, cooperatives or producer organizations in rural communities. These have the best potential for returning positive economic, social and environmental impacts. By building credible opportunities for growth, *WorldFish Incubator* connects aquaculture in the developing world with investors seeking scalable, high impact, triple bottom line investments in aquaculture and seafood businesses.

Two broad objectives define the role of *WorldFish Incubator*:

- Identifying and supporting investment opportunities that build small and medium-sized aquaculture enterprises in developing countries, facilitating the adoption of appropriate and environmentally sustainable technologies;
- Creating a learning exchange and enabling environment in developing countries for investment into small and medium-sized aquaculture enterprises. This will involve strengthening learning networks, developing capacity building tools, and building a coalition amongst influential investors, relevant businesses, public and private organizations.



¹ Allison, E.A. (2011) Aquaculture, Fisheries, Poverty and Food security – www.worldfishcenter.org/resource_centre/WF_2971.pdf.

² FAO (2013) <ftp://ftp.fao.org/fi/news/GlobalAquacultureProductionStatistics2011.pdf>.

³ Hall et al. (2011) Blue Frontiers – www.worldfishcenter.org/resource_centre/media/pdfs/blue_frontiers/report.pdf.

⁴ Beveridge et al. (2012) J. Fish Biol. (in press); Nutrition and Health – www.worldfishcenter.org/our-research/research-focal-areas/nutrition-and-health.

⁵ The 1000 days between a woman's pregnancy and her child's second birthday offer a unique window of opportunity to shape healthier and more prosperous futures. The right nutrition during this 1000 day window can have a profound impact on a child's ability to grow, learn, and rise out of poverty. It can also shape a society's long-term health, stability and prosperity; www.thousanddays.org/about.

⁶ Investments can be monetary, technologies or management practices to promote capacity and profitability.

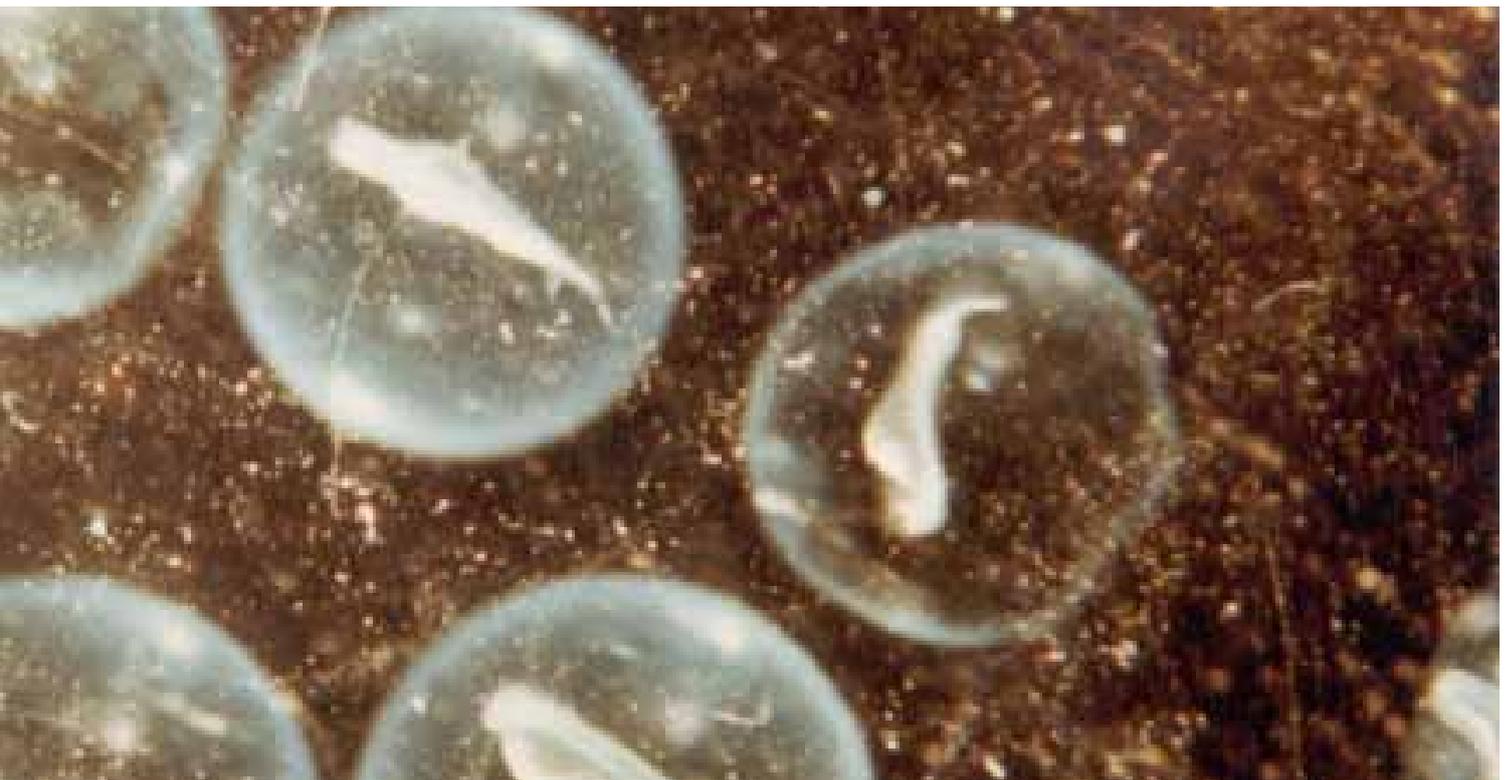
⁷ WorldFish Strategy Document – www.worldfishcenter.org/about-us/our-strategy.

⁸ www.worldfishcenter.org/feature/fast-growing-nile-tilapia-bring-vast-benefits.

⁹ www.thefishsite.com/fishnews/19150/teaching-the-advansi-to-fish-for-a-lifetime-of-benefit.

¹⁰ www.worldfishcenter.org/feature/fish-farms-help-post-tsunami-acehnese-communities.

¹¹ Dey et al. (2010) Agriculture Economics 41, 67-79.



The technology and management innovations will arise largely from the CGIAR Research Programs with their focus on sustainable food production, income, and nutrition for the poor and vulnerable.

The connection to investors comes from the WorldFish partner network, including links with the Aqua-Spark fund and other impact investment funds interested in aquaculture investment. Together, we can achieve impact via sustainable commercial investment and successful businesses.

Theory of Change and Impacts

WorldFish Incubator is building a pipeline of viable investments that will have direct positive impact on communities and the environment. By 2016, the *WorldFish Incubator* intends to have delivered investment opportunities worth more than US\$10 million

to the impact investor community. The projects will be selected to generate, within 5-10 years, direct positive impacts on the well-being of more than 200,000 men, women and children, create positive environmental change, and new learning in impact investment within the aquaculture and investment community.

We will use this learning and our community and investment partnerships to create change in the aquaculture and investment community. From our interactions with investors, fish purchasers, consumers and other private partners, and by sharing the knowledge, skills and business models generated, we will be able to have wider influence. We expect to generate business interest and attract investment into small and medium-sized aquaculture enterprises, cooperatives and value chains across the developing world that contribute to the WorldFish development challenge to lift 10 million people out of poverty by 2020.



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