Building Human and Institutional Capacity by Supporting Higher Education in Africa

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Introduction

The development and strengthening of human capacity in partner countries is a goal of the Feed the Future Innovation Lab for Collaborative Research on Aquaculture & Fisheries (AquaFish). AquaFish has developed a diverse, collaborative network of international researchers and stakeholders dedicated to the sustainable development of aquaculture and fisheries. AquaFish builds human and institutional capacity through educational mentorships, by establishing curricula and partnerships at many universities, and through training aquaculture farmers, researchers, and professionals who can share and apply their knowledge on local levels. Additionally, AquaFish focuses on improving gender equity and supporting women’s empowerment throughout the aquaculture sector, from degree-seeking students to workshops trainees.

Building Institutional Capacity

AquaFish is expanding capacity in Africa by collaborating with faculty and researchers, sharing resources and facilities, supporting degree-seeking students, developing aquaculture-related curriculum, and building partnerships with local aquaculture and fisheries organizations.

In Ghana, AquaFish facilitated the establishment of advanced degree programs in Aquaculture and Water Resource Management at Kwame Nkrumah University of Science and Technology (KNUST). The curriculum was designed to emphasize environmental sustainability and business aspects of aquaculture while ensuring on-the-ground application to farmers.

In December 2015, the fish farm at KNUST received the National Best Pond Fish Farmer Award and a Certificate of Merit for contributing to the development of sustainable aquaculture in Ghana. KNUST received the award based on its use of best management practices including water reuse, record keeping, and fertilizer reduction.

In Kenya, a series of short-term trainings for local fisheries department personnel, farmers, and students helped establish aquaculture ponds at University of Eldoret a decade ago. Participants gained valuable experience in proper pond construction, fish handling, and pond management. The project trained 80 Fisheries Department Staff, 24 Fisheries Officers of Kenya, two outside-funded participants, and fully funded two Master’s of Science students. Five farmer education days were also held, reaching 107 farmers and 40 extension agents. The ponds are still utilized today for training and research activities, resulting in a large network of individuals with knowledge of aquaculture best management practices.

Acknowledgements

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All photos are courtesy of AquaFish Innovation Lab.

Gender Equity

Women have long been underrepresented in science, engineering, and technology careers. Although improved in recent years, collective qualitative data shows that women do not remain in science at the same rate as men. To address this, AquaFish uses benchmarks as one way to actively track and ensure equal involvement of men and women in leadership, training, and long-degree programs. Between 2008 and 2015, 46% of the advanced degrees supported by AquaFish were earned by women and in 2016, 50% were women.

Of the African students earning post-secondary degrees supported by AquaFish, 47% were woman. Several of these graduates are now research partners involved in current projects, highlighting the benefits of early engagement and retention. As aquaculture continues to expand, it is critical to ensure that men and women have equal access to advances in aquaculture development and the potential benefits for new growth.

Long-term Training

AquaFish provides support, mentorship, and academic guidance to students in post-secondary and graduate-degree programs in many disciplines helping early-career researchers build and strengthen their professional networks. In addition to earning a degree, students benefit from hands-on research experience and access to an international network, which can help propel them to future positions in aquaculture, fisheries, and other related disciplines.

Since 2006, 72 AquaFish students from Africa earned post-secondary degrees while 41 African nationals are currently enrolled. AquaFish support for students reaches beyond academia, creating a pipeline of individuals well-equipped to address community needs and find meaningful work in government, academia, and private enterprise upon graduation.

Reflections from Students and Alumni

“AquaFish is my family. I am grateful for the funding and sponsorship of AquaFish which has helped in close collaboration and networking with enormous experiences and opportunities that have increased my knowledge and understanding of aquaculture and other issues associated with it.”
- James Bundi Mugo, Moi University, Kenya, Alumnus

“AquaFish has provided me with various platforms and trainings to continue to develop my knowledge and skill in aquaculture. I have also gotten a lot of support for my master’s research.”
- Akuffo Amankwah, Ghana, Recipient, April 2013, Alumnus, Purdue University

“AquaFish has benefited me a lot. I have attended many events associated with the lab and have also been awarded the World Aquaculture 2017 Student Travel Grant.”
- Yaw Boamah Ansah, Ghana, Recipient, February 2011, Alumnus, Virginia Tech University

Men and women have equal access to postgraduate studies. Since the inception of the AquaFish Innovation Lab, 60% of recipients were female. Women’s representation in PhD and Masters’ programs is growing. There has been a 10% increase in female representation over the last two years.

Gender Breakdown of African Students, 2006-Present (n=113)

<table>
<thead>
<tr>
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<tr>
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African Borlaug Leap Fellows

The Borlaug Leadership Enhancement in Agriculture Program (LEAP) provides support for thesis research conducted by graduate students from developing countries and recognizes students who demonstrate strong scientific and leadership promise.

The students below were AquaFish-supported award recipients.

“AquaFish students who have participated in the Borlaug Leadership Enhancement in Agriculture Program (LEAP) have been able to focus on their research, attend aquaculture conferences, and build their professional networks.”
- Shamim Naigaga, Auburn University, U.S., Current PhD Student

“From the year 2001, when I was an undergraduate student, I got involved with Aquaculture Collaborative Research Support Program activities, like fish pond design and construction (and now) I have been practicing at an individual level where I started my own fish farm.”
- James Bundi Mugo, Moi University, Kenya, Alumnus

“With the support of AquaFish, I have been able to travel to various countries to attend various aquaculture conferences and workshops.”
- Akuffo Amankwah, Ghana, Recipient, April 2013, Alumnus, Purdue University

“Since I was a child, I’ve always been fascinated by freshwater fish. I wanted to work in the field of aquaculture and see how we could improve it. I have received support from AquaFish which allowed me to participate in various workshops and conferences.”
- Yaw Boamah Ansah, Ghana, Recipient, February 2011, Alumnus, Virginia Tech University

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