

# 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 workshop 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.



Ethel Tettey, AquaFish alumni used the agriculture lab at KNUST for her Master's work investigating the diet of Claroteid catfish (*Chrysichthys nigrodigitatus*).

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 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.



Award-winning fish ponds located at KNUST (left) and "Aboboyaa," the 200-horse power farm tricycle (right) awarded to KNUST as part of the National Best Pond Fish Farmer Award at National Farmers' Day in Ghana.



Trainings and demonstrations during Farmers Field Day event at Eldoret Fish Farm in Kenya.



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.

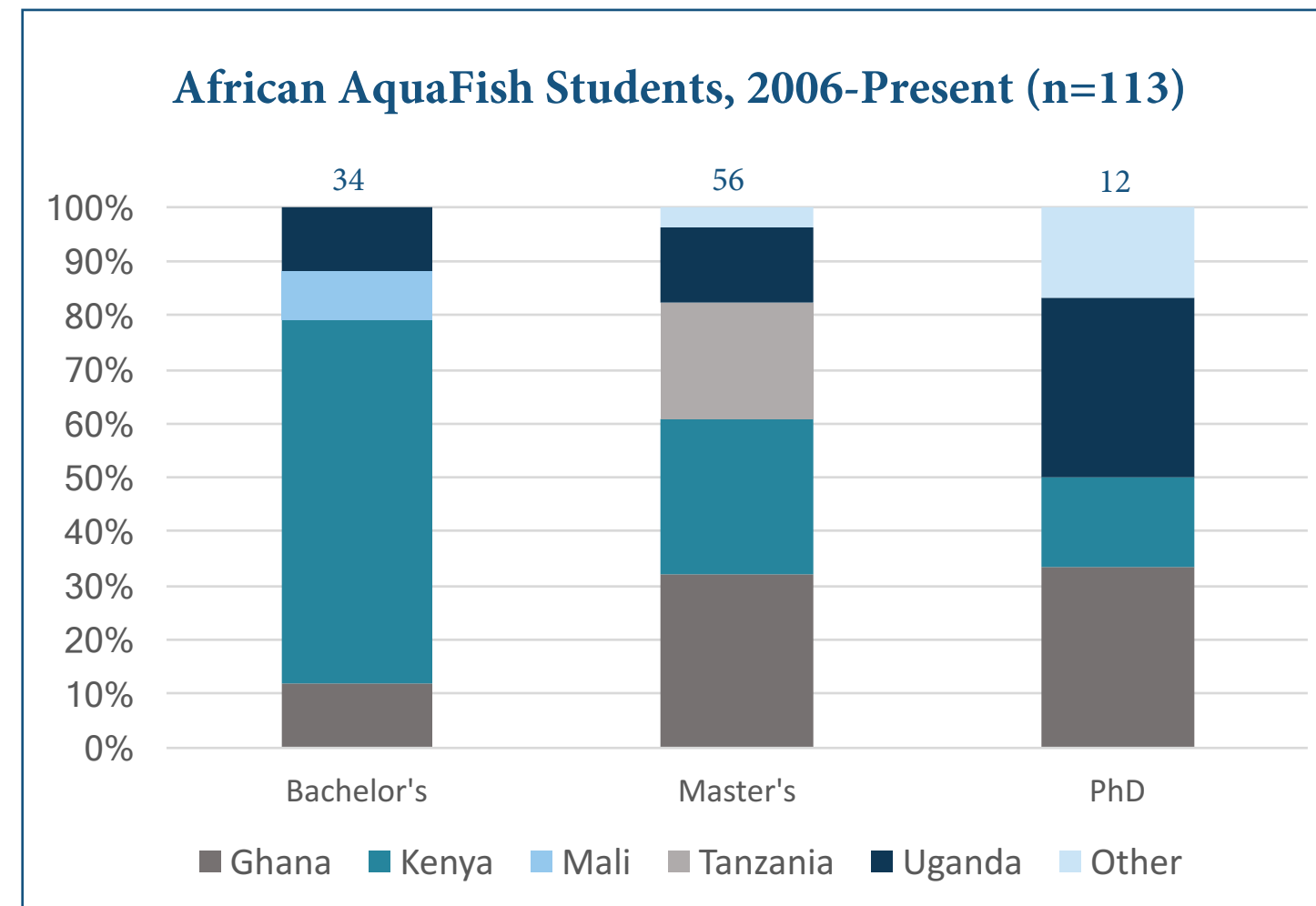
## Acknowledgements

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All photos are courtesy of AquaFish Innovation Lab.



## 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



*"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

*"I am grateful to AquaFish for funding my Master's and giving me this opportunity to build my career. My most enjoyable times have been learning and the hands-on experiences on aquaculture techniques and being able to attend aquaculture conferences."*

- Shamim Naigaga, Auburn University, U.S., Current PhD Student



### 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.



**Akuffo Amankwah**  
Ghana  
Recipient, April 2013  
Alumnus, Purdue University

*"I am very privileged to be associated with AquaFish and grateful for their assistance. I want to invest in the aquaculture business, especially with my growing knowledge in its operation, the wealth creation potential, and contribution to national food security."*



**Yaw Boamah Ansah**  
Ghana  
Recipient, February 2011  
Alumnus, Virginia Tech University

*"The most enjoyable experience for me [was] returning to Ghana [from the US] every summer and travelling through local communities interviewing fish farmers and doing other such field work in or close to earthen ponds."*

## 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.

