

Addressing Hunger and Undernutrition Through Sustainable Aquaculture

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Aquaculture America 2015



Introduction

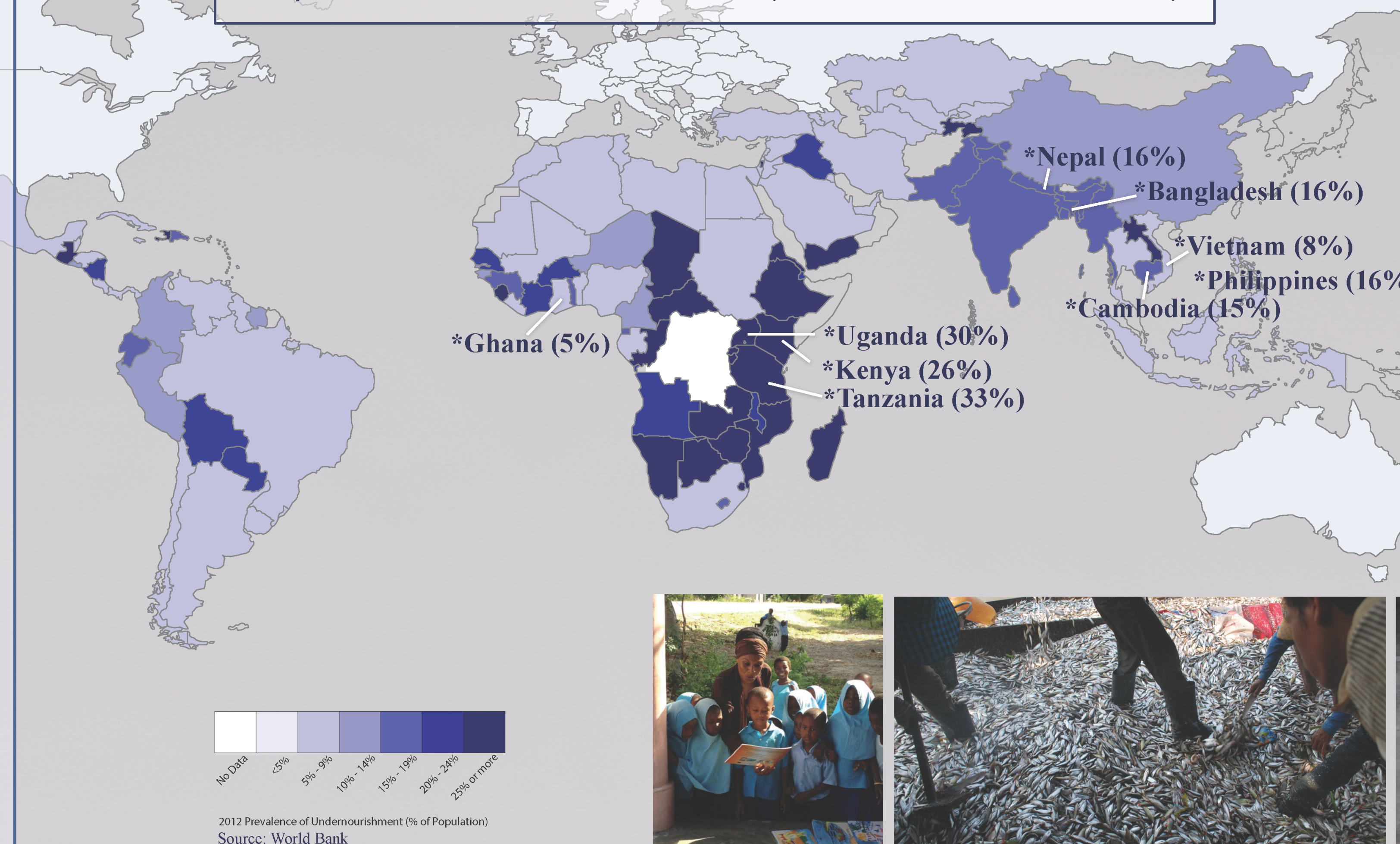
The United Nations Food and Agriculture Organization (FAO) estimates that nearly 805 million people suffered from chronic hunger and undernourishment from 2012-2014.

Hunger is concentrated in developing nations and especially affects women and children in poor, rural environments.

Fish is a significant source of high quality protein in diets globally, and currently makes up over 50% of the animal protein consumed in several developing countries, including Bangladesh, Cambodia, and Vietnam. As demand for animal-source protein continues to grow, **aquaculture stands out as an efficient, sustainable, and affordable method of food production**. According to the FAO, aquaculture is the fastest growing animal food production sector, increasing across the globe by about 7% a year since 1970.

Global Prevalence of Undernourishment

*AquaFish Current Focus Countries (Rates of Undernourishment)



Role of AquaFish

The AquaFish Innovation Lab (AquaFish), funded primarily by the the United States Agency for International Development (USAID), works to enrich livelihoods and promote health through partnerships with institutions in the US and participating host countries. As part of the US Feed the Future Initiative, **AquaFish advances sustainable aquaculture practices to address hunger and undernutrition globally through research and capacity building**. Current projects are focused in Africa and Asia.



Dr. Narriman Jiddawi at the Chaza Cooperative in Zanzibar, Tanzania



Fish harvesting at Dai fisheries in Tonle Sap, Cambodia



Algal stock cultures for oyster feed at University of Dar es Salaam, Tanzania



Conducting food and nutrition consumption survey among women and preschoolers in Stung Treng province, Cambodia

Research Strategies

Developing technologies and Best Management Practices (BMPs) aimed at-

Increasing protein production and reducing costs by optimizing the culture of species that require fewer feed inputs, such as:

- Tilapia (*Oreochromis niloticus*)
- Carp (*Cyprinus carpio*)
- Catfish (*Clarias gariepinus* and *Pangasius*)

Increasing production of nutrient-dense, small-sized fish

When eaten whole, these fish are rich in essential vitamins and minerals critical to human health and development, including:

- Fat-soluble vitamins (A, D and E)
- Water-soluble vitamins (B complex)
- Minerals (calcium, phosphorus, iron, iodine, zinc, selenium)

Understanding and addressing nutritional needs, particularly for women and children

Assess end-user needs through techniques such as:

- Interviews
- Surveys
- Focus groups

Transfer knowledge via training activities, including:

- Workshops
- Women's fish farming groups to train women and communities

Research Highlights

Enhancing food security and household nutrition of Cambodian women and preschool children through evaluation and outreach

Methods

- Collected dietary intake data through interviews with **300 women and 343 preschoolers** in three Cambodian provinces to identify commonly consumed fish using a single 24-hour recall period
- Determined nutritional value (energy, micronutrients, and macronutrients) of intake using the ASEAN Food Composition Table

Results

- Fish play a significant role in food and nutrition among Cambodian women and children, comprising 17% of the total diet intake of women and 11% for preschool children

Fish Contribution to Diet (% of animal source)

	Women	Preschool Children
Protein	80%	78%
Energy	70%	72%
Fat	54%	60%
Iron	74%	57%
Zinc	45%	44%
Calcium	83%	93%
Vitamin A	87%	56%

Next Steps

Train **500 professionals** and educate **over 300 women** on nutritional research findings

This poster is made possible by the generous support of the American people through the United States Agency for International Development (USAID), Grant No. EPP-A-00-06-00012-00; and by contributions from participating institutions. The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.

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