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# SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

## Fisheries and Food Security



**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative



## Fisheries and Food Security

A briefing from the  
USAID/Ghana Sustainable Fisheries Management Project  
January 2018

**JANUARY 2018**

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**For more information** on the Ghana Sustainable Fisheries Management Project, contact:

USAID/Ghana Sustainable Fisheries Management Project

Coastal Resources Center

Graduate School of Oceanography

University of Rhode Island

220 South Ferry Rd.

Narragansett, RI 02882 USA

Tel: 401-874-6224 Fax: 401-874-6920 Email: [info@crc.uri.edu](mailto:info@crc.uri.edu)

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## Detailed Partner Contact Information:

USAID/Ghana Sustainable Fisheries Management Project (SFMP)  
10 Obodai St., Mempeasem, East Legon, Accra, Ghana

Telephone: +233 0302 542497 Fax: +233 0302 542498

Maurice Knight	Chief of Party <a href="mailto:maurice@crc.uri.edu">maurice@crc.uri.edu</a>
Kofi Agbogah	Senior Fisheries Advisor <a href="mailto:kagbogah@henmpoano.org">kagbogah@henmpoano.org</a>
Nii Odenkey Abbey	Communications Officer <a href="mailto:nii.sfmp@crcuri.org">nii.sfmp@crcuri.org</a>
Bakari Nyari	Monitoring and Evaluation Specialist <a href="mailto:hardinyari.sfmp@crcuri.org">hardinyari.sfmp@crcuri.org</a>
Brian Crawford	Project Manager, CRC <a href="mailto:brian@crc.uri.edu">brian@crc.uri.edu</a>
Ellis Ekekpi	USAID AOR (acting) <a href="mailto:eekekpi@usaid.gov">eekekpi@usaid.gov</a>

Kofi.Agbogah  
[kagbogah@henmpoano.org](mailto:kagbogah@henmpoano.org)

Stephen Kankam  
[skankam@henmpoano.org](mailto:skankam@henmpoano.org)  
Hen Mpoano  
38 J. Cross Cole St. Windy Ridge  
Takoradi, Ghana  
233 312 020 701

Andre de Jager  
[adejager@snvworld.org](mailto:adejager@snvworld.org)  
SNV Netherlands Development Organisation  
#161, 10 Maseru Road,  
E. Legon, Accra, Ghana  
233 30 701 2440

Donkris Mevuta  
Kyei Yamoah  
[info@fonghana.org](mailto:info@fonghana.org)  
Friends of the Nation  
Parks and Gardens  
Adiembra-Sekondi, Ghana  
233 312 046 180

Thomas Buck  
[tom@ssg-advisors.com](mailto:tom@ssg-advisors.com)  
SSG Advisors  
182 Main Street  
Burlington, VT 05401  
(802) 735-1162

Victoria C. Koomson  
[cewefia@gmail.com](mailto:cewefia@gmail.com)  
CEWEFIA  
B342 Bronyibima Estate  
Elmina, Ghana  
233 024 427 8377

Lydia Sasu  
[daawomen@daawomen.org](mailto:daawomen@daawomen.org)  
DAA  
Darkuman Junction, Kaneshie Odokor  
Highway  
Accra, Ghana  
233 302 315894

### For additional information on partner activities:

CRC/URI: <http://www.crc.uri.edu>  
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# Fisheries and Food Security In Ghana

## The Situation

**The Fisheries sector plays a significant role in the Ghanaian economy overall. It directly employs 263,000 people and is estimated to contribute to the livelihoods of 2.6 million Ghanaians.<sup>1</sup>**

Women provide approximately 70% of the labor force in the post-harvest sector but also own canoes and finance capture-fishing operations. It is estimated that the fisheries sector contributes 4.5% to GDP and 12% of the agricultural GDP.<sup>1</sup>

**Fish play a crucial role in maintaining good nutrition and health in high-poverty areas throughout the country.**

Fish supplies 60% of the animal protein in the national diet with annual per capita fish consumption in 2014 growing to 28kg, well above the world average of 18.9kg and well above the average for Africa of 10.5kg.<sup>1</sup> Fish, especially the small-pelagic species of anchovies, sardines, mackerel, and sardinella, are high in Omega-3 fatty acids, minerals and micro-nutrients at rates higher than almost all other protein sources.<sup>2</sup> In Ghana, these fish are typically smoked and dried, have a relatively long shelf life, and are easily transported far from the coastal production sites to high poverty areas in northern Ghana. Small pelagics represent the most important locally produced fish supply and are an affordable and accessible protein source for poor households.

**High fish consumption by small children and pregnant and lactating mothers is known to improve child development.<sup>3,4</sup>**

Dried fish consumption in pre-school children in Malawi was demonstrated to markedly improve bioavailability of iron and zinc.<sup>5</sup> Micro-nutrients are critical for pre-natal and post-natal development and early childhood performance.

**Ghana's fish trade deficit is growing. In 2013, it increased to US\$319 million while fish imports grew to US\$373 million.<sup>6</sup>**

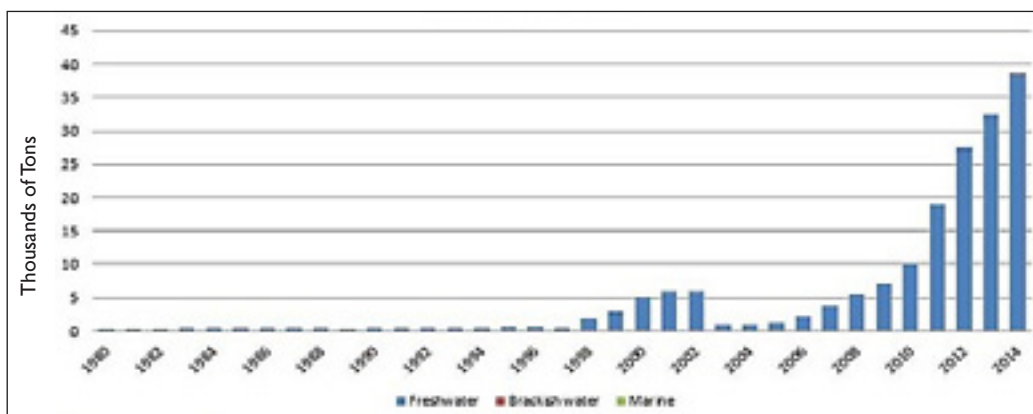
Fish supply comes from marine capture fisheries, freshwater capture fisheries on Lake Volta and other freshwater bodies, and aquaculture to meet Ghana's annual fish consumption requirement of 720,000MT. Local capture fisheries and aquaculture production to date has been unable to close the widening gap of 320,000MT.



The current annual deficit is made up through imports. Increasing per capita consumption and population growth are fueling higher demand.<sup>6</sup>

Increased supply from wild capture fisheries and aquaculture could help close this gap. In 2014, total local fish production in Ghana was 331,500MT.<sup>6</sup> Aquaculture production, mainly from tilapia grown in cages on Lake Volta, grew at a rate of almost 15% per annum between 2009-2014. However, aquaculture constitutes only 11.6% of overall local fish production with an estimated contribution of 10,200MT in 2010,<sup>6</sup> 38,500MT in 2014, and 52,470MT in 2017.<sup>7</sup> Although aquaculture production continues to increase, it may become constrained by carrying capacity limits of Lake Volta, availability of affordable and quality fish feed, and disease issues.

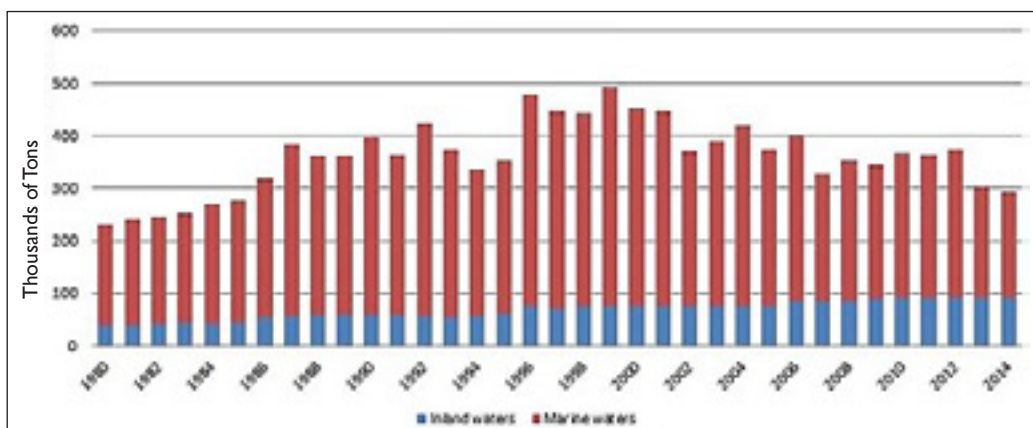
*Trends in Ghana's Aquaculture Production<sup>6</sup>*



### Marine capture fisheries production has fallen from a high of 420,000MT in 1997 to 203,000MT in 2014.<sup>6</sup>

It makes up 61% of total fish production. Total freshwater capture fisheries production was 90,000MT in 2014 representing approximately 27% of total fish catch and has been relatively stable since 2010 with most production coming from Lake Volta.

*Trends in Ghana's Capture Fisheries Production<sup>6</sup>*



### Recent estimates show that improved management of capture fisheries could recoup up to 90 thousand metric tons of fish in a few short years.<sup>8</sup>

This potential is more than double current aquaculture production and roughly equivalent to the 100,000MT target set in the Ghana National Aquaculture Development Plan (GNADP).<sup>9</sup>

# Challenges to Growing and Sustaining Ghana's Supply of Fish

## **There is mounting evidence poverty rates are increasing in fishing communities,**

as poverty rates among farming communities in Ghana's northern region are dropping.<sup>10</sup> A recent study estimated that the poverty head count index for inland fishing communities ranges from 60% to 80%, and in coastal fishing communities, ranges from 50% to 72%.<sup>11</sup>

## **Extreme poverty rates for rural inland and coastal fishing communities were 60% and 56% respectively according to a recent study.<sup>11</sup>**

Studies suggest that fishing communities represent pockets of poverty with rates comparable to or higher than northern regions in Ghana and higher-than-average poverty rates reported for coastal regions. Empirical evidence bolsters the often stated claim that, "fishing households represent the poorest of the poor in Ghana." Using the international poverty line, the poverty head count index for extreme poverty ranges from 55% to 80%.<sup>11</sup> Comparing these findings to a survey of households in the USAID/Ghana northern zone of influence, the prevalence-of-poverty range was 26% for rural and 11% for urban households.<sup>10</sup> Compared to the Ghana National Poverty Map report<sup>12</sup> the average poverty head count in the coastal regions ranges between 6.6% and 33.3%. In northern farming areas of the northern region, Brong Ahafo, Upper East, and Upper West the poverty head count ranged from 28% to 69.4%. In a 2015 study of West African fisheries, the average small-scale fisher's income in Ghana was estimated at 70% of the international poverty line, showing significant declines from the past. Ghana's fishers earn the lowest of all the 24 countries included in the study.<sup>13</sup>

## **There is more evidence of declining economic conditions in Ghana's fishing communities as fish stocks head toward collapse.**

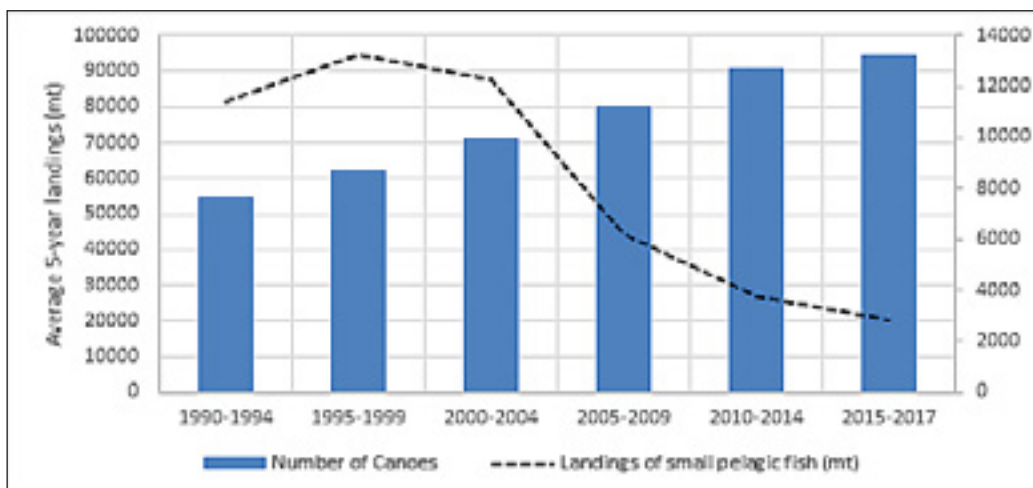
In a SFMP 2015 baseline survey of small-pelagic fishing households, 72% of respondents stated their quality of life was worse off compared to five years ago and 75% said that abundance of fish and catches of small-pelagic fish had also declined with the two primary reasons stated as illegal fishing and an increasing number of canoes.<sup>14</sup> Stock assessments show declining catches and abundance, validating fisherfolk perceptions.<sup>15</sup>

## **Small-pelagic stocks are at the lowest level recorded in 30 years and are in decline as numbers of canoes and vessels increase.<sup>15</sup>**

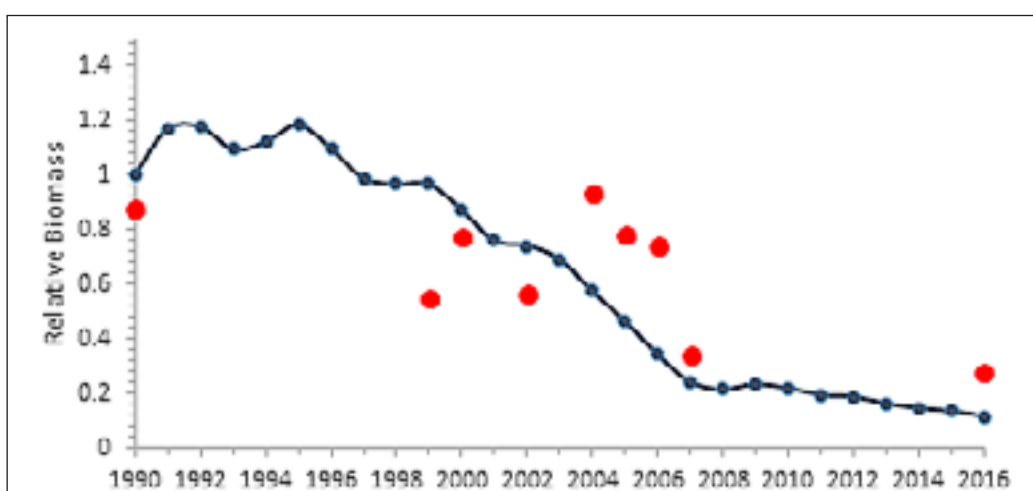
The level of fishing effort is well beyond sustainability and must be reduced by as much as 50% in both industrial fisheries<sup>16</sup> and artisanal fisheries sectors. Demersal (bottom dwelling) fish stocks are declining and experiencing overfishing due to excess fishing capacity and IUU fishing.<sup>16</sup>

A World Bank report indicated that incomes of canoe fishers has dropped by 40% over the last decade, that US\$50,000,000 is lost annually due to poor management and overfishing, and that government expenditures on management are woefully low and are only 0.2% of annual revenues, compared to 17% allocated in OECD countries.<sup>17</sup> More than 29,000 new jobs could be created in the marine-capture sector if the additional value (US\$50,000,000) in lost economic opportunity is recouped.  
*( $\$50,000,000 / \$1,707$  [Ghana's per capita GDP] = 29,290)*

Ghana's Total Landings of Small-Pelagic Fish and Fishing Effort in Number of Canoes<sup>15</sup>



Estimates of Relative Biomass Trends of Small-Pelagic Fish with Acoustic Survey Point Estimates<sup>15</sup>



The Ghana fisheries sector has not produced the expected growth in new jobs compared to other African countries in the region. It currently shows less than one percent annual increase. Ghana's fishers earn below the global average of revenues-per-ton of fish landed.<sup>13</sup> This poor performance is due mainly to post-harvest losses in food quality and down-graded value, overfishing, overcapacity, and IUU fishing.

**Surveys on occupational multiplicity have shown that coastal fishing households have few if any livelihood means other than fishing.**

Few fishers own land to farm and illiteracy rates are high for both men and women, limiting their ability to find alternative livelihoods other than low-wage-labor jobs.<sup>14</sup> Many fishing communities are situated in hazardous zones along the marine coast and rivers that are subject to increasing erosion and flooding due to climate change. These hazardous conditions make fishing communities highly vulnerable to both economic and environmental shocks. Comparing other food security indicators, moderate to severe hunger was greater in the USAID northern baseline survey.

*A Comparison of Food Security Measures in Coastal and Northern Regions<sup>10, 14</sup>*

In the fishing households surveyed, medium to low dietary diversity was higher among women of reproductive age. Fish and *fufu* are common and abundant in the diet of fishing communities, but nutritious foods, such as dark, green leafy vegetables, are severely lacking.

INDICATOR	COASTAL	NORTHERN
No Hunger	78.7%	60.6%
Moderate to Severe Hunger	21.3%	39.4%
High Dietary Diversity	1.6%	17.4%
Medium Dietary Diversity	36.4%	42.1%
Low Dietary Diversity	62.0%	40.5%



There are also links between health of the fisheries resource and wildlife conservation. When fish supply is low, hunting for bush meat increases with significant declines in abundance for scores of wildlife species.<sup>18</sup>

**Evidence suggests a perfect storm is brewing in the fisheries sector, putting food security and goals for economic growth and poverty reduction in fishing communities at risk.**

Declining fish catches, increasing reliance on imports to meet demand, a growing fish-trade gap, declining incomes, increasing poverty, and declining nutritional well-being are all disturbing trends for the future of Ghana and its fishing communities.

## The Opportunity

**The small-scale artisanal (canoe) fishery is an important sector of Ghana's economy and plays significant roles in supporting livelihoods and food security. This fishery produced 70% of the marine fish supply in 2015.**<sup>19,24</sup>

About 80% of artisanal fish production is consumed locally, with 80% of this being made up of small-pelagic species (sardinella, mackerel and anchovies). The downward trend in Ghana's fish production is due mainly to overfishing and overcapacity<sup>15</sup> in the marine capture sector. This is caused by ineffective fisheries management, particularly the inability to control fishing pressure and vessel capacity (number of vessels, gears used, days at sea, size of vessels, etc.) to limits that achieve sustainable exploitation levels. However, the Fisheries Commission has developed a national fisheries management plan for the marine sector<sup>20</sup> which provides a roadmap for improved management with objectives to reduce fishing effort to achieve sustainable yields.

This plan provides for some access and effort controls for the canoe fishery and the industrial and semi-industrial sectors. The canoe sector, which provides most of the fish consumed domestically, remains open access. To date, the plan's weak implementation has been inadequate to reverse the declining trends in the fishery due to low organizational capacity of the Fisheries Commission. Based on this background and the prospect of further increases in demand from a growing population, expanding national fish production is a high but challenging priority for Ghana.

**Reducing the total fishing effort to the targets recommended by a science and technical working group<sup>15</sup> would allow small-pelagic stocks to recover and rebuild. The potential maximum production by 2030 is 90,000MT.**<sup>8</sup>

With current landings at approximately 20,000MT, achieving potential maximum production would lead to a more than fourfold increase in current annual landings of locally consumed fish. This build-up of annually produced wild-caught fish approaches the government's 100,000MT target for increased supply established in the Ghana National Aquaculture Development Plan.

**Improved post-harvest handling and processing can reverse current post-harvest losses in the value chain that range from 4% to 50% of salted, dried and smoked fish products in Africa.**<sup>21</sup>

In Ghana, some quantity is lost from insect infestation of smoked and dried products, but little catch is lost in small-scale pelagic fishing itself as there are no discards at sea. However, product quality can be poor due to unhygienic handling (e.g, lack of icing), resulting in loss of economic and nutritional value. Improved handling can prevent loss and provide safer, more hygienic products for local fish consumers. Anecdotal evidence suggests local consumers will pay more for improved quality fish products.

# Investments to Date and Alignments with Policies and Objectives

**The Fisheries Sector Medium-Term Development Plan seeks to “accelerate the contribution of the fisheries sector to national development through the implementation of target-specific and growth-inducing strategies and interventions.”<sup>19</sup>**

It sets the foundation for the several major assistance efforts aiding the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission (The World Bank’s Western Africa Regional Fisheries Project, two EU-funded Fisheries Governance Projects, and USAID/Ghana’s Sustainable Fisheries Management Project). Among the specific interventions pursued through the plan are the following:

- establish co-management mechanisms with fishing communities to **promote sustainable fisheries resources management**;
- establish monitoring, control and surveillance systems for **effective enforcement**, of fisheries laws and regulations;
- **upgrade and expand** existing fish landing sites and related infrastructure;
- transform the fisheries industry **from net importer to net exporter** of fish and fishery products by the year 2025; and
- promote aquatic animal health and introduce new technologies to **reduce post-harvest losses**.

The Ministry of Fisheries Aquaculture and Development (MOFAD) is implementing the National Aquaculture Development Plan<sup>19</sup> and the National Fisheries Management Plan<sup>20</sup> for the Marine Sector. These all work to achieve the goals of the fisheries sector plan<sup>19</sup> and guide external international donor support to the sector.

**The National Nutrition Policy<sup>22</sup> for Ghana includes improving fisheries production to reach its food-security objective and meet dietary-diversity requirements.**

The Policy also seeks to increase investment in food security and safety in fisheries.

These targets contribute to the policy objectives of the Food and Agriculture Sector Development Policy,<sup>23</sup> including income growth, sustainable management, enhanced competitiveness, and food security.

The international development community has recognized the importance of fisheries and aquaculture to food security, poverty reduction, and economic growth in Ghana and have supported the country with increasing assistance initiatives (described below).

**The World Bank’s West Africa Regional Fisheries Program<sup>24</sup> has provided \$53.8 million in support of the Fisheries Sector Development Plan,**

focusing on increased governance capacity, reducing illegal fishing, increasing the value and profitability of fish and aquatic resource use, and developing aquaculture. It aims to help Ghana freeze the capacity of the artisanal sector at current levels and sequentially reduce vessel capacity in the industrial and semi-industrial sectors. Among its contributions are improving the legal framework and administrative capacity to manage fisheries. The National Fisheries Management Plan was prepared and adopted with this support. Closed seasons for the trawler fleet and vessel monitoring systems have been introduced and tested successfully. Although action on the part of the Fisheries Commission and MOFAD has been hindered by weak capacity for follow through.

The overall objective of the EU Fisheries Governance Project<sup>25</sup> is to contribute to sustainable fisheries management, improve food security and nutrition, and improve livelihoods of smallholder fishers and other users of fisheries resources. The project includes components focused on improved fisheries governance related to IUU prevention, sustainable fishing practices, equity for vulnerable and marginalized groups, alternative livelihood options, and CSO engagement.

### **USAID/Ghana’s Feed the Future investments combine three projects to address policy, science, human resource capacity, and practical actions related to the fisheries sector and**

threats to coastal ecosystems and landscapes. Building on USAID/Ghana’s Integrated Coastal and Fisheries Governance project (2009 to 2014),<sup>26</sup> the Ghana Sustainable Fisheries Management Project,<sup>27</sup> the Coastal Sustainable Landscapes Project<sup>28</sup> and the University of Cape Coast Institutional Strengthening Project<sup>29</sup> began their work in 2014.

**The USAID/Ghana Sustainable Fisheries Management Project** is working with the Ministry of Fisheries and Aquaculture Development and its Fisheries Commission to rebuild fish stocks and, among other objectives:

- Improve policy enabling conditions including a co-management policy framework and national fisheries legal reform,
- Demonstrate a new generation of community-based fisheries plans that provide use rights and empower men and women fisherfolk,
- Enable a quantum leap forward in the design and scale-up of a safer, more fuel- and cost-efficient fish smoking technology, the Ahorot oven, that produces healthier and better quality products,
- Strengthen capacity of fisheries producer and processing associations and technical capabilities of the Fisheries Commission, and
- Improve local capabilities to assess fish stocks and provide science based advice to decision makers.

**The Coastal Sustainable Landscapes Project** is advancing coastal habitat protection including mangrove areas needed as nursery grounds for nearshore demersal lagoon and coastal fisheries and addressing the issues related to wood consumption and forest depletion for fish smoking.

**The University of Cape Coast (UCC)** has improved its laboratory and physical space for fisheries science and coastal management as well as invested in new faculty and staff training at Master’s and PhD levels, as well as technical services needed for fisheries related research. The program is delivering applied science to improve management decision-making, and training a new generation of highly skilled and competent fisheries scientists and managers. UCC is also working with the SFMP to engage political stakeholders to support innovations in policy and government of the fisheries sector.

### **The MOFAD and the Fisheries Commission are in the lead by taking action**

to document and register the canoe fishing fleet, support national producer groups, increase the capacity of enforcement units, and adopt plans for national fisheries management for the marine sector and aquaculture development. These accomplishments are addressing the challenges of meeting Ghana’s need for abundant and sustainable fish supplies through improved local production.

The current USAID/Ghana Country Development Cooperation Strategy<sup>30</sup> incorporates fisheries within Development Objective 2, Sustainable and Broadly Shared Economic Growth. It recognizes the major role marine fish protein plays in the Ghanaian diet, and sees the need to protect habitats as well as recognize the vulnerability of the sector to climate change. Improving the fisheries value chain is viewed as a strategic area of investment toward increasing the competitiveness of major food value chains. Marine fisheries governance was also identified as a key area of investment.

## Three Recommendations for a Way Forward

### **USAID's significant investments are achieving results and contributing to its country strategy and Ghana's fisheries and food security development agenda.**

USAID's development support mission is still unfinished and additional investments will be needed to consolidate and sustain past investments by USAID and other donors. Though the sector's challenges are great, the following recommendations should be considered for incorporation into the new USAID/Ghana Country Development Cooperation Strategy.

#### **I. Consolidate progress and press for full engagement in small-scale marine fisheries, especially small-pelagic species**

utilized by small-scale fishers and processors within the artisanal canoe sector. These fish stocks will collapse within five years if nothing is done. If realized, this collapse will have severe adverse economic, social and nutrition consequences for coastal fishing communities and fish protein availability nationwide. Progress is being made but more attention is needed to implement effort and capacity control measures as contained in the National Marine Fisheries Plan and others not explicitly included but are recognized by MOFAD and Fisheries Commission as needed. More specifically, USAID can support MOFAD and the Fisheries Commission to:

##### **a) Address overcapacity and overfishing of the canoe fishing fleet.**

To build on WARFP (which is now scheduled to end by July 2018) and SFMP investments, and reverse the trend of declining marine fish catches in Ghanaian waters, especially small pelagics and near-shore demersal species, there must be a continuing focus on reducing overfishing caused by overcapacity of the fleets. The Fisheries Commission has laid some of the ground work for this through vessel registration, improving data collection and monitoring capabilities to demonstrate the positive effects of management measures such as increased enforcement, fishing holidays (non-fishing days), seasonal closure periods, and capping the number of boats allowed. However, organizational, institutional, and political, issues still present significant challenges for progress on eliminating overcapacity and overfishing in Ghana.

##### **b) Deter and reduce illegal, unregulated, and unreported fishing (IUU).**

This remains a national (and international) issue for Ghana. While, ending or dramatically limiting illegal, unregulated, and unreported fishing by itself will not end Ghana's fisheries crisis, it will make a significant contribution to mitigating the problem. In particular, the unquantified and rapidly growing saiko "fishery," which transports illegal fish to shore from trawlers, is done in plain sight and is a symbol of ineffective fisheries management and lack of progress on IUU in Ghana.

**c) Improve post-harvest quality and distribution of smoked and dried fish products.**

The management of the important sardinella fishery is not limited to needs for harvest control measures alone. The processing sector and recent “Healthy Fish” campaigns and Ahotor stove development provide much promise but need additional scaling-up to reach a potential beneficiary base of tens of thousands of fish mongers and processors. The campaigns are hindered in part by poor fish-landing-site sanitation and the use of chemicals in fishing. Fishing communities would also benefit in several ways from co-location of water and sanitation projects or their integration along with fisheries management and coastal community resilience improvements. Newly emerging issues related to the artisanal value chain present a clear but complex opportunity. Frozen fish is growing in acceptance but also currently has strong links to illegal fishing. Improved understanding of the small fisheries value chain will be important to managing fishing pressure as population and local economies grow, and demand for small-fish food increases.

**d) Strengthen fisheries governance across all actors and levels.**

Strengthened governance includes stakeholder involvement in decision-making in each fishery (industrial, semi-industrial, canoe, inland and community based) to improve voluntary compliance. In the foreseeable future, the government is not going to have the human and budget resources to mount a solely enforcement-based deterrence effort. Organizational assessments indicate that national fisher groups continue to improve capacity, but mid-term assessments by the SFMP indicate that they will not attain performance thresholds to become fully capable advocates without additional support.

The Fisheries Commission itself is in the midst of improving its personnel systems but Ghana fails to invest enough—as a proportion of the value of the fishery—in managing its fisheries relative to most of its peer nations. The Government of Ghana should be encouraged (and supported) to increase financial and human resources commitment of the Fisheries Commission, the primary agency responsible for fisheries management. Improvements in transparent decision-making and law enforcement remain necessary for building and sustaining trust among artisanal and industrial fisheries, fish processors and marketers and government fisheries agencies. USAID can assist the Ministry of Fisheries and Aquaculture Development to transition away from bad input subsidies that encourage overfishing toward beneficial assistance and support through subsidies that build more sustainable fisheries management in the future.

Lastly USAID should support the Fisheries Commission in creating and scale-up of co-management institutions and related fisheries management initiatives, and bolstering progress in policy and legal initiatives already underway. Most importantly, support is needed for the Fisheries Commission to continue implementation of the National Fisheries Management Plan, its updating at the end of the current planning period in 2019, and continue to expand the use of applied science to advance more informed decision-making.



**While continuing investments in the marine sector should be top priorities for USAID, other opportunities to be considered include:**

## **2. Improve freshwater fisheries management on Lake Volta.**

Concerns about governance, management and value-chain improvements on the lake have been largely left aside. Recommendations for the marine capture sector can apply to freshwater ecosystems as well, especially Lake Volta given its large contribution to freshwater fish production. Drawing on the experiences of the WARFP and SFMP, a freshwater initiative should start small. The focus could be on a few of the larger landing sites close to high-poverty areas or on sections where overfishing is a great threat, or some combination of both.

## **3. Make small, targeted investments in fresh-water aquaculture in concert with the private sector.**

Growth in production is substantial at present, and it is unclear if USAID investments can accelerate growth. Strong growth is driven by private-sector investment with the government role being that of creating the right enabling and policy incentives to make growth self-sustaining.

Even if the Ghana National Aquaculture Development Plan target for an additional 100,000MT of yield is met, these levels will not make up for a growing deficit in fish protein supply if marine and freshwater wild caught fisheries collapse. Potential constraints to future aquaculture growth pose opportunities for small, targeted USAID interventions in the aquaculture sub-sector and compliment capture fisheries management, such as:

- **Action research** on improved quality and costs of fish feeds in potential cooperation with the USAID Soybean Innovation Lab,
- **Assistance to the Fisheries Commission** on developing carrying capacity guidelines and policies,
- **Carrying capacity assessments** on lakes, and
- **Strengthened bio-security controls** for disease management and prevention.

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## USAID/Ghana Sustainable Fisheries Management Project

10 Obodai St., Mempeasem, East Legon, Accra, Ghana

Telephone: +233 0302 542497