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**Solving the Fisheries Crisis in Ghana: A Proposal
for a Fresh Approach to Collaborative Fisheries Management
Integrated Coastal and Fisheries Governance (ICFG) Initiative**

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Cover Photo: A fish landing site in the Western Region, Ghana.

Cover Photo Credit: Brian Crawford

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The majority of Ghana's fishing fleet consists of traditional canoes.

The Current Status of Ghana's Marine Fisheries

Ghana's marine fisheries capture sector consists of three main types of fishing fleets: the artisanal canoes (mainly but not all motorized), semi-industrial boats (wooden-planked vessels including the "china-china" boats) and industrial vessels (large-scale trawlers and tuna boats). Of these fleets, the canoes employ the most people (92 percent of direct employment) and accounted for the majority of the total annual catch in 2007 (73 percent of total landings) but down to 28 percent in 2012 due to the decline of the small pelagics landings explained later in this paper.

The Importance of Ghana's Marine Fisheries

The fisheries sector is important because it generates over US\$1 billion in revenue each year and **accounts for at least 4.5 percent of Ghana's Gross Domestic Product (GDP)** (World Bank, 2009). An estimated 210,000 people work directly in Ghana's fisheries sector, and the sector employs, directly or indirectly, 2.2 million people or **20 percent of the population** (Atta-Mills et al 2004; World Bank 2009). *Sardinella* and other small fish harvested near the surface (pelagic fish) are of critical concern because these are the staples of the canoe fleet, which employs the largest number of people. The small pelagics make up approximately 85 percent of the canoe catch and are the dominant target of the semi-industrial fleet.

Fish is also important as an inexpensive, high-quality protein source. ***More than 60 percent of the animal protein in the Ghanaian diet comes from fish***, and purchasing fish accounts for over one-quarter of expenditures among poor households (FAO). As a net importer of 40 percent of the fish needed to feed its people (FAO), Ghana's difficulties in sourcing high-quality, low-cost food protein will be exacerbated by population growth. Clearly, if local supplies continue to decline due to ineffective fisheries governance, the cost to the nation of sourcing quality animal protein will increase dramatically.

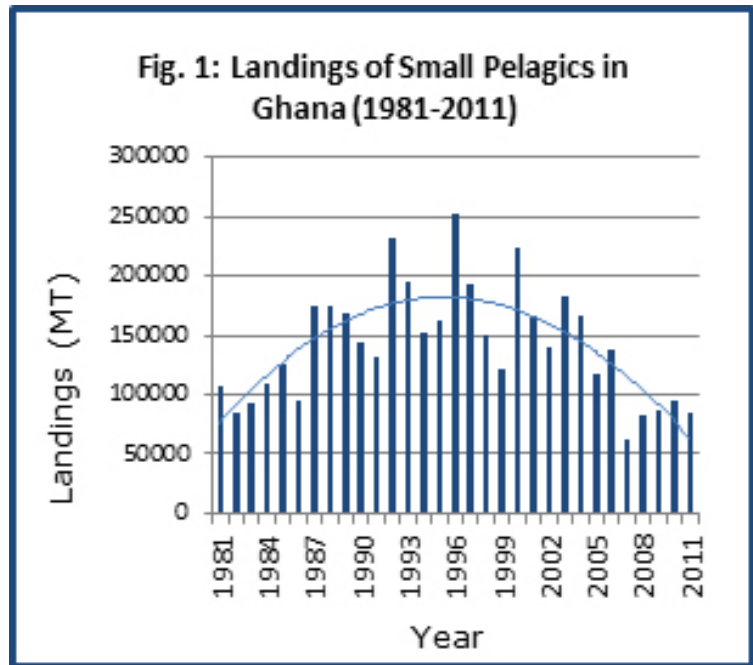
Aquaculture, while showing promise in proving significant increases in fish supply, produced only 19,092 metric tons in 2011 (FAO) — approximately 5 percent of the national supply. It is clearly unrealistic to propose that increases from aquaculture will equal or replace the potential of a well-managed capture fishery anytime soon. Looking beyond food security, the poor governance that leads to overfishing also leads to a significant loss of wealth. The World Bank estimates ***that with better management an additional US\$50 million annual net economic gain could be generated*** from Ghana's fisheries (World Bank, 2009).



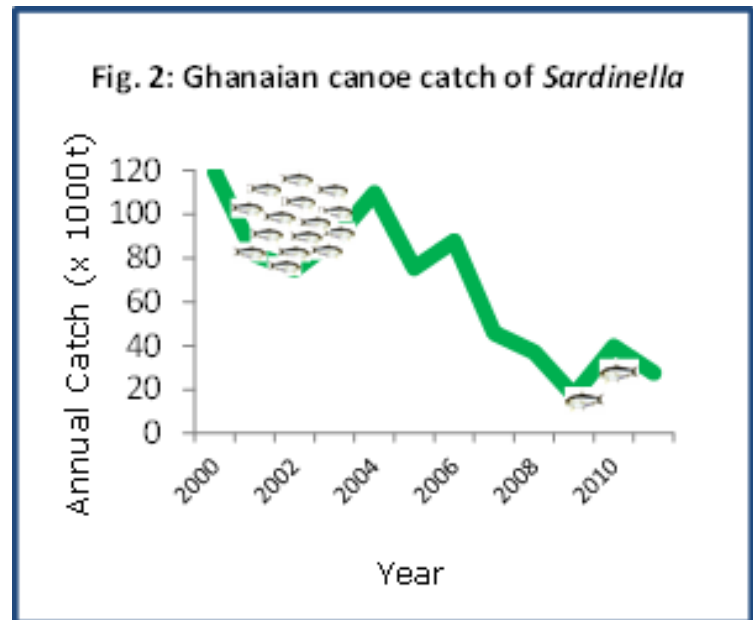
The Decline in Ghana's Fish Landings

Ghana's marine fisheries are in crisis; landings (fish caught and retained) of all stocks declined dramatically over the last decade. While official national statistics indicate a 30 percent decline from a high of 492,776 metric tons in 1999 to 333,524 metric tons in 2011 (FAO), the reality in coastal fishing communities is much worse than these figures indicate. The shrinking harvest is particularly dramatic for the pelagic, small, sardine-like *Sardinella* species, by far the most critical for coastal livelihoods and food security. Catches have declined some 66 percent from a high of 252,112 metric tons in 1996 to 84,980 metric tons in 2011 (Fig. 1). This has occurred at a time of dramatic increase in fishing effort by all fleets. Worse still, the *Sardinella* catch for the all-important canoe fleet (Fig. 2), is now around 20,000 metric tons, down from a peak of approximately 140,000 metric tons in 1992. The 2009 catch was only 13 percent of the historical maximum — very close to stock collapse, technically defined as landings that are at 10 percent of historic highs.

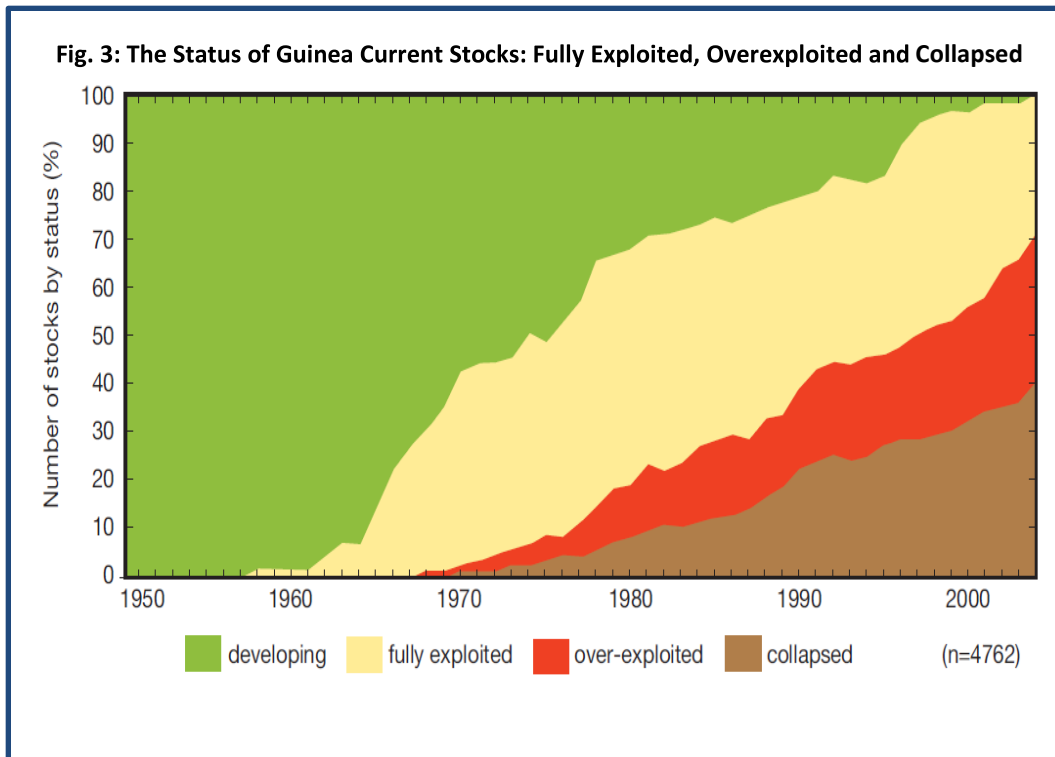
Small pelagic fisheries typically show large swings in annual landings because reproductive cycles are strongly linked to environmental factors associated with highly variable upwelling marine ecosystems, such as in the Gulf of Guinea. This can be seen over many years of fluctuations in the landings data for Ghana. However, the precipitous decline now seen is well beyond this normal variability and is undoubtedly due to overfishing.



SOURCE: FAO Fisheries Statistics



SOURCE: Proceedings of the 3rd National Fisheries Dialogue: WorldFish USAID-URI ICFG. 2013



Source: <http://www.lme.noaa.gov/>

When recruitment is poor and the size of the stock (biomass) is low, excessive fishing pressure can result in collapse of the stock, from which recovery is unlikely without drastic changes in management, such as a total moratorium on the fishery.

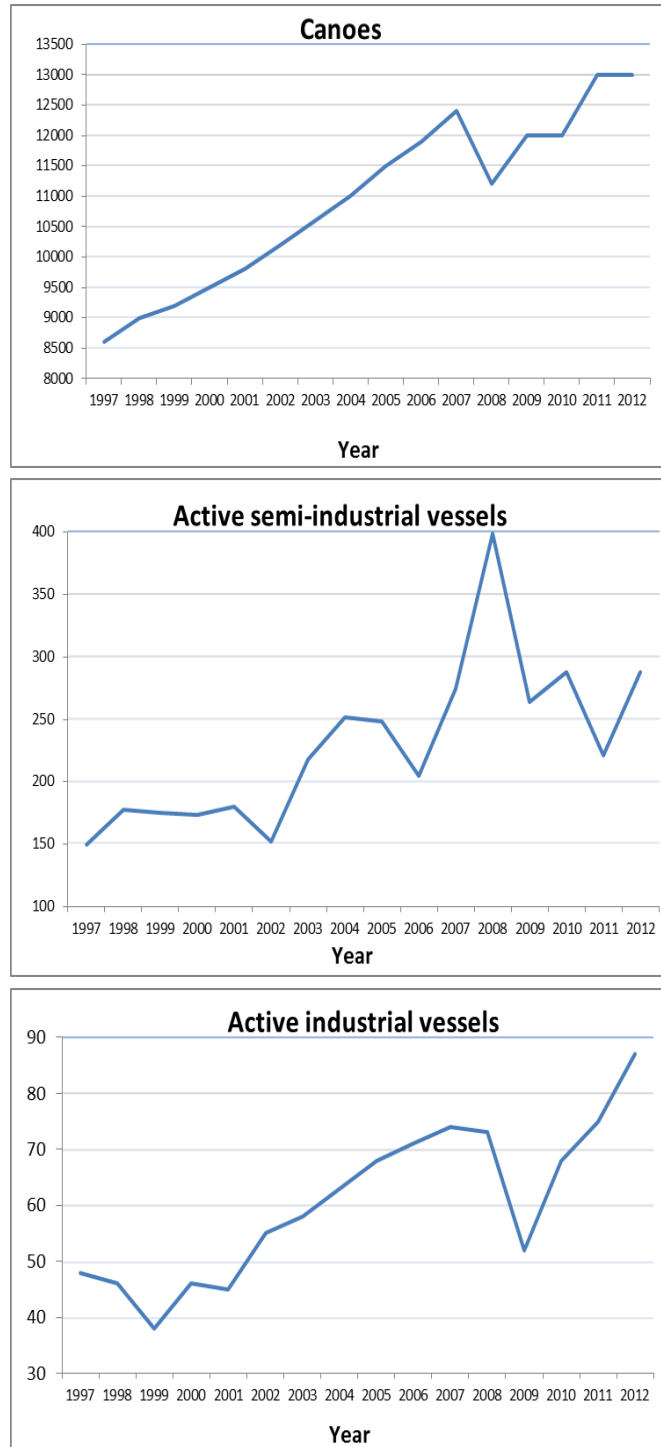
Such crises from over-exploitation are not limited to Ghana or to the small pelagic species that are a major feature of the Guinea Current Large Marine Ecosystem. Indeed all the major stocks in the region have been fully or overexploited since 2000, with an increasing proportion in collapse (Fig. 3).

The Cause of the Decline in Marine Fisheries

There are many reasons for the decline in marine fisheries in Ghana. Any strategy to reverse this decline must be integrated to address this multifaceted and complex situation.

Poor governance and the open-access nature of Ghana's fisheries are the main reasons for the declines in fish abundance. These factors have led to a large increase in the number of fishing vessels (Fig. 4) including the semi-industrials and canoe fleets that primarily target the all-important pelagic species. Without any controls on total fishing effort or the number of vessels allowed to fish, overfishing occurs as more and more vessels enter the fishery until all profitability is dissipated. For the canoe fleet, this situation is exacerbated by the pre-mix fuel subsidy. While fishing subsidies create an immediate benefit to fishers by lowering operating costs and thereby increasing profits, this benefit is quickly lost under open-access conditions, leaving all operators worse off in the long run. The subsidies encourage more people to turn to fishing and increase effort, allowing fishers to keep harvesting dwindling stocks well beyond a point where, in the absence of subsidies, fishing would become unprofitable. This policy aggravates the overfishing problem. The dramatic rise in the number of canoes (Fig. 4) clearly indicates this increased effort.

Fig. 4: Changes in Number of Fishing Vessels for Ghana Fishing Fleets (showing major increases, 1997-2007)



SOURCE: Marine Scientific Survey Division, Ministry of Fisheries and Aquaculture Development, 2013.

*

When fishing effort is so high and overfishing is constant, landings decline. The number of vessels is only one measure of fishing effort. Other indicators are longer fishing trips and use of more gear as fishers try to compensate for declining catches.

In addition to the dramatic increase in the number of canoes from 8,641 vessels in 1997 to an estimated 11,219 in 2007 and 13,000 in 2012, other fleets have also expanded. Active semi-industrial vessels increased from 149 in 1997 to 288 in 2012, while industrial trawlers increased from 99 in 1997, to 131 vessels in 2007. Despite the increase in all fleet numbers, total landings (excluding tuna vessels) decreased by 15 percent in 2012 from 2008 the level. This clearly shows that the minor decrease in landings in spite of a substantial increase in the overall fishing capacity is a clear signal that overfishing is occurring throughout the industry.

Illegal fishing also contributes to the decline. Fishing with lights is another source of increasing effort among the canoe and semi-industrial fleets. Prior to the use of lights, *Sardinella* were harvested with surface nets during periods of oceanic upwelling, when nutrients that have circulated up from the deep ocean attract fish to feed at the surface. These conditions typically occur for five to six months of the year in Ghana. Powerful lights are being used to attract *Sardinella* to the surface during their deep-water resting period. They are now fished year-round, and this has massively increased the pressure on this crucially important stock. Recently, fishers have also starting using fine mesh monofilament nets to catch juvenile herring. Some fishers are also using highly destructive carbide and poisons, often in combination with lights.

Light fishing, fine mesh mono-filament, carbide and other poisons are all banned under current fisheries regulations. However, ineffective law enforcement has meant that ***illegal fishing has become rampant*** and further harms the status of the stocks. Many of these bans were promulgated as regulations established in 2010. Many fishers do not understand the rationale for regulations' creation, and many do not understand the rationale for the prohibitions. ***The lack of genuine participation in rule-making has led to low levels of voluntary compliance, exacerbated by weak enforcement as fishers know that any sanctions in terms of gear confiscation or jail time is a highly unlikely consequence of rule violations.***

While basic information is available on the overall number of vessels and landings, there are also ***concerns about limitations to the current data gathering systems and subsequent analysis and use for management.*** For instance, the industrial fleet voluntarily reports catch, and the average daily reported catch of less than 100kgs per day is not credible. Significant under-reporting by this rapidly expanding fleet may be occurring. While the data system is well structured to provide information on catch, measures of effort are rudimentary, and robust effort data is essential when using fisheries data to aide in designing management strategies and rules.

While there are many issues that need to be addressed to achieve ecologically sustainable and profitable fisheries in Ghana, ample evidence from around the world teaches that if the right policies and management measures are put in place, and fishers comply with such management

measures, collapsed fish stocks can recover. Small pelagics in particular are usually resilient and can respond quickly to changes in fishing pressure and rebound within a few years (See box below with the case of the Biscay Bay sardine.)

Collapse and Recovery of the Anchovy Fishery in Bay of Biscay

The Collapse. The Bay of Biscay anchovy fishery, shared by Spain and Portugal, was managed by an annual total allowable catch set each year by Fisheries Ministers. However, successive recruitment failures beginning in 2002, coupled with unsustainably high catches, led to the collapse of the anchovy fishery in 2005. Recruitment is highly dependent on the spawning stock biomass left in the ocean in the previous years. One major factor in the collapse was that the Fisheries Ministers set high annual allowable catch limits even when the fish stock biomass was low. This caused the recruitment failure in 2005.

Stakeholder Involvement. Stakeholders concerned about the collapse and its impact on their livelihoods worked together with national governments and The European Commission to create the rules by which annual total catch limits and national quotas are defined. Advisory councils from each nation and a Regional Advisory Council are consulted on how to rebuild the fishery. These multi-stakeholder bodies include representatives of the fishing industry, NGOs and government.

The Path to Recovery. The European Commission closed the fishery in 2005 to allow stocks to rebuild. During this closure, they worked to establish a long-term management plan with better harvest-control rules designed to prevent collapse once the stocks had recovered. By 2009 the anchovy stocks showed strong signs of recovery, and the fishery was reopened. Using new harvest-control rules to determine catch limits, a fishery closure is triggered whenever the spawning biomass (the stock's population of sexually mature fish) drops below a threshold level. Above this level, the rule sets an allowable annual catch at 30 percent of the spawning stock biomass.

Lessons

- Collapsed small pelagic fisheries can rebound if appropriate management measures are followed.
- Engaging stakeholders in decisions of how to rebuild the fishery and prevent collapse is a key to recovery.
- The annual proportion of the anchovy stock available for harvest is highly variable.

For More Information

[Oceana Magazine Fall 2012: Anchovy's Return](#)

[European Parliament legislative resolution of 2010 for regulation of anchovy stock in the Bay of Biscay](#)

ICES. Report of the Working Group on Southern Horse Mackerel, Anchovy & Sardine ICES CM, 2012/ACOM: 16,552 p17-32.

The Evolution of Fisheries Management in Ghana

Traditionally, chief fishers and chief fishmongers in each shorefront community have been responsible for defining and enforcing the rules by which fish in their immediate area are caught and sold. With varying degrees of success they regulated the number of fishing days, the amount of fish landed and the types of fishing gear used.

In 1946 the colonial government established a Department of Fisheries with the seemingly simple and beneficial goal of maximizing catches as an element of a national economic development program. After independence, the Fisheries Law of 1964 continued to promote Ghana's fisheries by introducing new methods of fishing and providing technical support and subsidies. As overfishing became increasingly apparent, national fisheries managers attempted to regulate fishing to sustain this important source of food, employment and income. Some chief fishers tried to institute rules restricting some types of fishing gear, but those rules were not supported by the courts and were sidelined. Today, these traditional authorities remain respected members of fishing communities and often assume leadership roles, however, authority to manage the nation's fisheries lies with the national Fisheries Commission.

In the late 1980s, the movement to decentralize government gave District Assemblies explicit responsibility for many devolved functions, including agriculture. However, decentralization efforts excluded fisheries management, with the assemblies' role limited to assisting the Fisheries Commission with licensing and enforcement and establishing cooperatives. Authority to establish district bye-laws that set harvest-control rules are not mentioned in the Decentralization Act or other legislation concerning either decentralization or fisheries.

In the mid-90s, externally funded projects worked with government agencies in forestry, freshwater and fishery systems to establish co-management institutions. The largest of these projects was the World Bank-funded "fisheries sub-sector capacity building project" initiated in 1997. This project created 133 Community-Based Fishery Management Committees (CBFMCs) along Ghana's coast. These institutions were not effective and little evidence of this effort remains today. There were many reasons for their failure, including a lack of funding to support the committees, a lack



Traditional leaders are well respected and must be incorporated into co-management arrangements.

Co-management requires that key fisheries stakeholders, most notably the resource users themselves, have significant roles and responsibilities in fisheries management.

of technical support, unclear maritime jurisdiction of the committees and no legal recognition of the role and authority of chief fishers and committees in enforcing fisheries rules (Bramah, 2009). Also, the inability of district level bylaws to serve as an effective basis for managing the all-important, small pelagic fisheries was not recognized. These fisheries require a single, coherent management system extending over the large areas in which these fish migrate as well as the involvement of all fishing fleets targeting these stocks, including the semi-industrial fleet.

With the failure of the first attempt at fisheries co-management in Ghana, the system has reverted to a centralized command-and-control decision making process. This process was illustrated most recently with the enactment in 2010 of new fisheries regulations that included a ban on light fishing. While there were several meetings called by the Fisheries Commission to give stakeholders an opportunity to comment on the regulations, the meetings were held well after draft regulations had been formulated rather than at the beginning of the drafting stage. The comments made at these meetings had little impact on the final version of the rules. After the regulations were enacted, little effort was made to educate fishers on the content of the rules or how and when enforcement would begin. After the new regulations were adopted, the police started to confiscate fine mesh fishing nets that were illegal but had been in use for many years. These actions were made without warning, resulting in violent reactions in several communities.

Co-Management as a Fresh Approach to the Fisheries Problem

Ghana's experience since the colonial era underscores what is being learned from the management of fisheries in other regions of the world. In cases where fishers, dispersed landing areas, species and multiple modes of fishing are numerous, top-down management rarely works. Relying on community-based management may work for small-scale stocks and relatively sedentary species (for example, octopus and lobster), but will not work for stocks that range over long distances and need to be managed at a larger ecosystem scale. Regardless of the nature of the fish stock being managed, those who are most affected by fisheries management rules must participate in shaping and adjusting the rules if there is to be effective governance and a recovery of the fisheries.

Ostrom's design principles for common pool resource management

1. Clearly defined boundaries (effective exclusion of external un-entitled parties)
2. Rules regarding the appropriation and provision of common resources are adapted to local conditions
3. Collective-choice arrangements allow resource users to participate in decision-making
4. Effective monitoring by those who are part of or accountable to the resource users
5. A scale of graduated sanctions for resource appropriators who violate community rules
6. Mechanisms of conflict resolution that are cheap and of easy access
7. Self-determination of the community is recognized by higher-level authorities
8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprise with small local CPRs at the base level.

SOURCE: Ostrom, Elinor. 1990.

Responsibility and authority must be distributed. International experience confirms that solutions built around principals of adaptive co-management, while often difficult to design and implement, are most likely to be effective and sustainable.

Co-management, or collaborative management, requires that key stakeholders, most notably the resource users themselves, have significant roles and responsibilities in the management process. In such systems, fisheries management units are directly connected with fishing, marketing and processing operations and are intimately aware of social conditions in fishing communities. Such management units are “nested” in an institutional design appropriate to the spatial scale of the fish stock distribution. Co-management arrangements may provide exclusive use rights to private sector or other user groups and delegate the decisions regarding sustainable harvesting rules to these groups.



Co-management plans need to involve all fishing stakeholders at all points along the harvesting and supply chains.

Adaptive co-management systems are designed to encourage “learning-by-doing” and feedback loops that promote experimentation and adaptation. In adaptive systems the rules governing a fishery can be modified to quickly respond to new information or changing operating environments. Regular re-assessments based on specified indicators serve to assess performance and progress towards objectives.

Learning from Experience: The initial failure in fisheries co-management in Ghana must not be repeated, but rather be seen as the source of a number of valuable lessons. The first, and most significant, is that co-management requires a legally binding mandate that specifies the roles and the authorities that can be assumed by local co-management authorities. Currently, Ghana’s fisheries or decentralization legislation has no such mandate. Another lesson, confirmed by experience worldwide, is that fisheries management at the community level can be effective only in small and readily definable areas over which the community can regulate how fish and shellfish are harvested and who does the harvesting. Another crucial lesson is that co-management requires sustained financing as well as the active support and engagement of the national fisheries authority.

“The existing legal framework in Ghana is not capable of supporting a co-management framework without amendment or supplementation.”

SOURCE: Tsamenyi, M. 2013.

The Current Policy Framework and Legal Basis for Co-Management

Ghana has produced national policies outlining the goals of fisheries management and related statements supporting a co-management approach. Most notable are the Ghana National Fisheries and Aquaculture Policy of 2008 and the Draft Fisheries and Aquaculture Sector Development Plan for 2010-2015. An analysis of these policies was recently conducted by Tsamenyi (2013). He concluded that the national policy outlines several key objectives supportive of co-management. It supports:

...“The development and implementation of national fisheries management plans, consistent with the FAO Code of Conduct for Responsible Fisheries.... a zonal approach to the allocation of user rights on behalf of communities ... and a strong commitment to co-management ...”

The policy also acknowledges a desire for decentralization of fisheries management, allowing for the co-management of fisheries through increased and active participation of fishers. This constitutes a departure from the strictly top-down approach to fisheries management of the past. It states that *“decentralized and community-based institutions play a key role in co-management and development.”* Additionally, it aims to:

- Pursue efforts to establish decentralized and community-based fisheries management through the establishment of CBFMCs and District Fisheries Management Committees (DFMCs).
- Seek ways of achieving increased fishers’ involvement in fisheries management.
- Promote the involvement of NGOs in supporting the process of fisheries co-management.
- Promote fishing arrangements for co-management.
- Establish measures to sustain and support the CBFMCs and DFMCs.
- Educate fishing communities and sensitize them on property rights and co-management.

The draft plan notes that licensing the canoe fleet is a key step towards the establishment of responsible management practices.

While there is sufficient policy recognition for fisheries co-management in Ghana, evidenced by the National Fisheries and Aquaculture Policy of 2008 and the Draft Fisheries and Aquaculture Sector Development Plan for 2010-2015, Tsamenyi points out that *“The existing legal framework in Ghana (Fisheries Act 2002 and relevant local government legislation) is not capable of supporting a co-management framework without amendment or supplementation.”* He concludes that legislative change through amendment to the Fisheries Act 2002, accompanied by an appropriate legislation on co-management, will be necessary to implement an effective fisheries co-management framework for Ghana. Tsamenyi also suggests that many actions can be taken immediately to improve fisheries management while the process of legislative amendment is underway. These are discussed next.

A Framework for Structuring Co-management Institutions

A recommended framework for co-management in Ghana was discussed at the Third National Fisheries Dialogue held at Elmina on Feb. 26-27, 2013. This framework calls for fisheries co-management at three spatial scales — national, regional and local.

National Scale Co-management

A National Pelagics Fisheries Management Advisory Committee (which retains the possibility of creating sub-committees for small pelagics and large pelagics) would be responsible for the co-management of these critically important resources. A national management plan for the various pelagic stocks and associated rules should be developed by the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission in collaboration with the national advisory committee(s). Prior to plan approval by the Fisheries Commission, there should be an adequate period for public review and comment. Enforcement of the rules would also be administered at the national level through the marine police assisted by the navy and Fisheries Commission enforcement unit as appropriate.

Consistent with provisions in the National Fisheries Policy, either the commission itself or the National Pelagics Committee would be provided authority to allocate use rights to legally constituted user groups. For instance, this could include setting a total annual catch quota, granting exclusive rights to certain fishing areas for certain groups and/or granting a limited number of licenses to groups or individuals. The migratory nature of pelagic fish stocks requires multilateral agreements among nations for their management. However, such regional agreements require that national governments implement sound management practices to prevent overfishing. Without effective national scale management, regional (multilateral) arrangements cannot be effective.

The institutional arrangement at the national scale for managing pelagic fisheries can provide for a relatively simple and cost-effective approach. It requires broad-based representation of all stakeholders from the different fishing fleets and regions of the coast and from all segments of the value chain that get the fish to a variety of consumers. Regarding small pelagics, for example, a national co-management committee needs to include representatives of the canoe fleet as well as the semi-industrial fleet, both of whom fish these stocks. Since the traditional chieftain system has influence in fishing communities, chief fishers and chief fishmongers should also be represented.

Fish processors and marketers, many of whom are women, should also play a role, as they have an important stake in the fishery. In Ghana, many women are vessel owners and make decisions concerning where and when their vessels fish and with what gear. A pelagics co-management committee should have women representatives who are vessel owners as well as women who make up a majority of the actors in the processing and marketing sector.



Women in Ghana have an important stake in fisheries management. Many women work as fish processors or marketers, while others own vessels.

The technical staff of the Fisheries Commission and members of the research and academic community should play a supporting role by providing scientific and technical advisory services. The commission itself should support scientific and technical advisory extension services as well as audit functions for setting sustainability criteria and standards for fisheries management plans. This approach will ensure that national policy objectives for fisheries are met. While improved scientific information on status of the stocks and sustainable harvesting limits will need to be developed, much can be done now to improve stock status based on the existing knowledge base.

Regional Scale Co-management

In the four coastal regions co-management committees could be established for demersal fisheries. The Fisheries Commission would create such committees and approve the fisheries management plans that the committees develop. A period for public review and comment would precede plan approval. Each regional plan would have its own set of rules and could include the granting of exclusive use rights to legally constituted user groups as one route to managed access and a regulated demersal fishing effort. Some variation in the rules may be anticipated but no regional rules could contravene national laws or regulations. Enforcement would be through the Fisheries Commission and marine police within each region.

While this approach to demersal fisheries represents an intermediate tier of co-management between local and national frameworks, it could be integrated into the local-scale approach described below. For example, localized fisheries user groups could request that the Fisheries Commission Regional Office establish regional fisheries co-management committees to cover specific coastal demersal fish stocks at scales that include one or more districts in their regions.



Local Scale Co-management

The local scale co-management framework should cover lake, riverine, lagoon and estuarine fisheries.

The key features of the local-scale management framework would include:

- Local Fisheries Management Areas and corresponding co-management units with associated management plans could be defined and established by the Regional Directors of the Fisheries Commission at the request of user groups. For instance, the Anlo estuary and lagoon in Shama District of the Western region could be proposed as a local fisheries co-management area by resources users in the several villages along its perimeter. Such a group, if legally constituted, could form co-management committees and develop management plans for the fishery in which they would be granted exclusive rights over a specified area or fishery resource. The Fisheries Commission would provide scientific and technical extension support and define the criteria and performance standards for their management plans. An amendment to the Fisheries Act should include provisions to detail such standards in subsequent legislation drafted by the Fisheries Commission.
- Local management committees should comprise broad-based representation of all key stakeholders involved in the value chain of the fishery concerned, including some degree of gender balance and traditional authorities.
- Local fisheries co-management plans could be established by district assemblies as a feature of their spatial plan. However, responsibility and jurisdiction over all fishery management would remain with the Fisheries Commission.

Some stakeholders feel that a segment of authority for co-management should be decentralized and delegated to districts, such as is done in the Philippines, Indonesia and the United States. There are good reasons not to take this approach. First, districts have little capacity and no technical expertise in this area and would need to build individual and institutional capability. Such technical capacity already exists in the form of the regional offices of the Fisheries Commission, and, therefore, delegating authority to the commission's regional offices makes better sense. Second, delegating fisheries management authority to the districts would also

require granting them jurisdiction over maritime areas and activities. This would needlessly increase the complexity of management arrangements.

Funding Needs and Mechanisms

Establishment of co-management institutions requires financing. Community-based units have costs associated with planning, management, implementation and enforcement functions that include, for example, costs of meetings, public notices of new rules and enforcement.

There are several ways such funds could be generated:

- **Registration and Licensing Fees:** A share of the vessel registration fee and any fishing license fee could be provided to these groups. While such fees often go to the general treasury, a better approach would be to allow such groups to collect fees, retain a share (prescribed percent) and forward the balance to the general treasury.
- **Landing Fees or Membership Fees:** Co-management groups should have the right to charge membership fees or to assess fees associated with the amount of fish landed.
- **Direct Budgetary Support from the Fisheries Commission or District Assemblies:** Coastal Districts and the Fisheries Commission should be mandated in an amendment to the Fisheries Act to make line items available in their budgets to support such groups.
- **Fines and Penalties:** Co-management groups should have the ability to sanction their members for violations of the rules they adopt.

The Critical Path to Making a Co-Management System Operational

Immediate Actions that can be taken by the Fisheries Commission

In the short term, the Fisheries Act 2002 can support initial expressions of co-management through the establishment of fisheries advisory committees. Once legislation is put in place for co-management, these advisory groups could be transformed into co-management groups with defined responsibilities and authority. Such initial advisory groups should be provided mandates for proposing management plans for specific stocks of fish and for specific fisheries areas.

A range of advisory committees commensurate with the three-tiered system described above should encourage pilot-scaled initiatives at a range of scales. Under existing law, all fisheries management plans, even for small-scale community-based initiatives, such as for a small lagoon, would need endorsement by the Fisheries Commission and minister, approval by the Ghana Cabinet and be officially gazetted before they could take effect. While additional planning and legislative amendments are needed to fully address the crisis in Ghana's fisheries, this should not

be at the expense of other actions that can be taken while these legal and planning processes are underway. This should include:

- Graduated enforcement of the regulations adopted in 2010, which build on the policing strategies piloted in the Western region.
- Better coordination of institutions involved in the enforcement and prosecutorial chain to increase successful prosecution as a greater deterrence to illegal actions.
- Adjustments to data gathering on effort and landings so that better estimates on the status of stocks could more accurately inform decision-makers and managers.
- Consideration of closed seasons, especially for small pelagics, as a means to quickly reduce effort in response to the increase in boats and fishing days at sea.
- Complete and fully implement a comprehensive national registration system for all canoe fishing vessels.

Consideration of user rights in Ghana's fisheries requires that a robust and comprehensive vessel registration program is put in place. Then, licensing (of vessels and fishers) could provide a cap on the number of vessels (particularly canoes, most of which remain unregistered). While movement towards use rights is mentioned in the national fisheries policy, current legislation calls for the canoe fishery to remain free and open. Therefore, legislation may also need to be amended for use rights and managed-access regimes for the canoe fleet. Use rights could be granted via a limited number of vessel licenses in each of the fleets (trawlers, semi-industrial and canoe) with associated provisions on input controls (e.g. vessel length, engine power, net types and length) and/or for specified fishing areas. Moving to the establishment of an annual Total Allowable Catch (TAC) that potentially includes group or individual transferable quotas, as in the case of the Bay of Biscay Anchovy Fishery, is not practical in the short term but should be considered as part of a long-term vision for the fishery. TACs and quotas are not possible until licensing is in place and more robust and timely information to define safe and sustainable annual catch levels is available. However, by establishing a strong legal basis for managed access and use rights as well as a fresh approach to co-management, Ghana would have new and powerful tools available.



A fisheries landing site in Ghana: Currently, Ghana's artisanal fishery is open access. Co-management arrangements that include canoe registration and licensing would provide a foundation for managing access.



Legislative Action Required

In the medium term, legislative change is needed in the form of an amendment to the Fisheries Act of 2002 that adds a co-management section as well as fisheries co-management legislation that sets standards and procedures to implement such a plan in Ghana.

Such legislation should include explicit language to support the creation of adaptive co-management frameworks at different scales as previously outlined. This needs to include clear roles and responsibilities of the Fisheries Commission regarding the co-management committees. Jurisdictional boundaries (maritime and/or geographical) need to be made explicit to coincide with the authorities granted to co-management committees and user groups.

Lastly, the legislation needs to provide explicit authority of the Fisheries Commission to allocate use rights, where necessary, but with a caveat that such rights come with responsibilities for conservation, environmental protection (e.g. protection of endangered species and critical habitats) and contributions to Ghana's societal goals as spelled out in national fisheries policy. The Fisheries Commission must also be mandated to establish by legislation criteria concerning these responsibilities and conditions under which use rights can be granted or suspended.

The Costs of No Action

The costs of no action and maintaining the status quo for management are quite clear:

- The fishery will remain overfished, and the danger of a stock collapse will increase.
- The country will be deprived of an important, locally available, low-cost, high nutritional-value source of food protein.
- Fishers will remain poor, and the fishery will continue to be unprofitable.
- National costs of administration and subsidies will provide no value-added returns that benefit society as a whole.

Clearly decisive and bold action is needed and it is needed now.

References

- Atta-Mills, J., Alder, J., Sumaila, U. R. 2004. The decline of a regional fishing nation: The case of Ghana and West Africa. *Natural Resources Forum* 28:13-21.
- Braimah, P. 2009. Lessons from previous experience of co-management initiatives in fisheries in Ghana. Accra: World Bank.
- FAO Fisheries Statistics <http://www.fao.org/countryprofiles/index/en/?iso3=GHA> (accessed June 2013)
- Finegold, C., Gordon, A., Mills, D., Curtis, L., Pulis, A. 2010. Western Region Fisheries Sector Review. USAID –URI Integrated Coastal and Fisheries Governance Initiative for the Western Region, Ghana. WorldFish Center. 84p.
- Hen Mpoano, Our Coast, Our Future, Western Region of Ghana, Building Capacity for Adapting to a Rapidly Changing Coastal Zone. 2010. USAID-URI Integrated Coastal and Fisheries Governance Initiative. Coastal Resources Center, University of Rhode Island. 76p.
- LME Briefs Guinea Current LME. http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=74:lme28&catid=41:briefs&Itemid=72 (accessed June 2013)
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.
- Mutumukuru-Maravanyika, T., Asare, C., Ameyaw, G., Mills, D., and Agbogah K. 2013. Ghana Coastal Fisheries Governance Dialogue: Developing Options for a Legal Framework for Fisheries Co-management in Ghana. USAID-URI Integrated Coastal and Fisheries Governance Initiative for the Western Region, Ghana. Coastal Resources Center, University of Rhode Island and WorldFish. 59p.
- Tsamenyi, M. 2013. Analysis of the adequacy of legislative framework in Ghana to support fisheries co-management and suggestions for a way forward, USAID-URI Integrated Coastal and Fisheries Governance Initiative for the Western Region, Ghana. WorldFish Center. 29p.
- The World Bank. 2009. *Revitalizing the Ghanaian Fisheries Sector for Wealth and Sustainability, Scoping Study*.