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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Profile of Ankobra Estuary Resource Users and Use Patterns



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Cover photo: Photo collage showing the Ankobra river, focus group discussion, fishing trap made of raffia and some fish species harvested from the Ankobra (Credit: Hen Mpoano).

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ACRONYMS

CRC	Coastal Resources Center
FGD	Focus Group Discussions
SFMP	Sustainable Fisheries Management Project
URI	University of Rhode Island
USAID	United States Agency for International Development

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BACKGROUND

Hen Mpoano, under the Sustainable Fisheries Management Project (SFMP) funded by the United States Agency for International Development (USAID) and led by the University of Rhode Island's Coastal Resources Centre (URI-CRC) is working to build resilience of estuarine communities and ecosystems associated with the Ankobra River. The USAID-Ghana SFMP is a five-year effort aimed at rebuilding Ghana's marine fish stocks and catches through the adoption of responsible fishing practices. The project contributes to the Government of Ghana's fisheries development objectives and USAID's Feed the Future Initiative goals of improved food security, economic growth and poverty alleviation.

The Profile of Ankobra Estuary resource users and use patterns characterizes the users of the Ankobra estuary and their resource utilization patterns including their traditional management practices and perceptions. The process also investigated the fishery of the estuary to unearth key species and their subsistence and or commercial value. As a follow up activity to the Ankobra Climate and Livelihood Vulnerability assessment, this profile aims at developing further understanding about community and ecosystem resilience and laying the groundwork for the development of community-based estuarine fishery planning and management approaches.

The Ankobra River Estuarine Basin located in the South-western part of Ghana flows about 190 km south to the Gulf of Guinea (Atlantic) just west of Axim through the tropical, evergreen wet forest. Its chief tributaries are the Mansi and the Bonsa rivers. The Ankobra River Basin is located between latitude 4° 50' N and 6° 30' N and longitude 1° 50' W and 2° 30' W. The basin is bounded to the east by the Pra Basin, to the north and west by the Tano Basin and in the south-east by the small coastal Butre Basin.

The resources of the Ankobra estuary contribute significantly to the livelihood of the river communities and provide critical ecosystem services to majority of the people living in the basin. However, human activities such as mining, logging, farming etc. are threatening the estuary and resulting in the depletion of fishery resources, forests, water and mangrove ecosystems associated with the estuary. The recent climate vulnerability assessment completed by Hen Mpoano and Spatial solutions for the 5 estuarine communities also point to impacts of flooding and coastal erosion on critical livelihood assets.

METHOD OF ASSESSMENT

The profiling was undertaken using a rapid assessment approach from March to April 2016, covering five communities namely Sanwoma, Eziom, Ajomoro Eshiem, Adelekezo and Kukuavile that fringe the banks of the Ankobra River Estuary in the Western Region of Ghana (See Figure 1). The estimated population sizes of inhabitants of the communities are: Sanwoma - 3500, Eziom 120, Ajomoro Eshiem - 500, Adelekezo - 711 and Kukuavile – 1200.

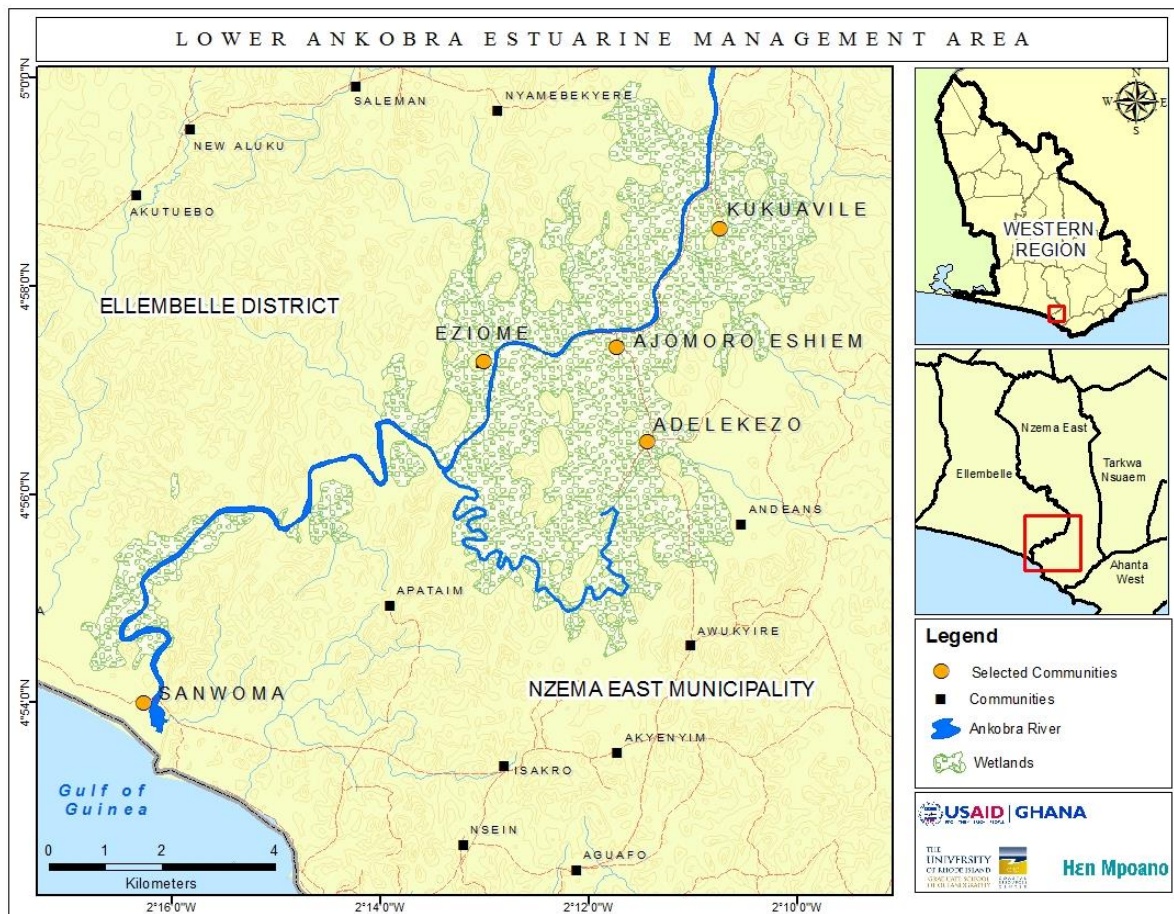


Figure 1: Map showing the communities assessed along the Ankobra estuary

The Focus Group Discussion (FGD) approach was adopted in soliciting information from the Ankobra resource users due to observed homogeneity in the pattern of utilization of the estuary’s resources among the communities. The FGD targeted community members comprising young and old men and women who utilized resources of the Ankobra Estuary for livelihood related activities with much focus on the fishery, and other purposes.

Key issues covered were the variety of Ankobra estuary resources comprising flora and fauna and their uses including the specific utilization by fishers and farmers; the extent of dependence, order of importance and seasonality; common fish species harvested, quantities and cost; scale of the estuarine fishery (subsistence or commercial); fishing effort, gear and seasonality; existing resource management practices from traditional to district levels as well as the role of gender; characteristics of resource users, conflicts and conflict resolution mechanisms, among others (see sample questions in Appendix 1). In addition, fish species harvested from the estuary were observed and identified with fish taxonomy manuals.



Figure 2: Sections of a focus group discussion at the communities visited

RESOURCES, USERS AND USE PATTERNS

The Ankobra's natural resources and their utilization

The Ankobra River not only serves as a means of transportation to ferry goods and service from the five communities abutting the river system but also supply the riverine communities with resources for their daily existence. Among the resources harvested in the Ankobra River and along the river includes fish, bamboo, raffia, crocodile, sand and gold. The uses to which the resources are put vary from community to community. Table 1 shows the common use and the specific use to which these resources are put by the communities.

Table 1: Ankobra estuary resources and uses

Resource	Common use	Specific use by fishers	Specific use by farmers
Ankobra River	Transportation	Fishing	Herbicide application
Fish	Consumption	Income	
Mangrove	Firewood for fish smoking, Building		
Bamboo	Fencing, Building construction, firewood, roofing		Fencing
Rafia	Making of brooms, brewing of local gin, making of mats, for building	Making fishing traps	
Sand	Building fireplace		
Crocodile	For meat		
Gold	Income generation		

Characteristics of resource users

The inhabitants of Eziom, Ajomoro Eshiem, Adelekezo and Kukuavile are predominantly farmers who fish as a second occupation. At Sanwoma, the men are mainly fishers while the women are fish mongers, with each engaging additionally in farming and mangrove harvesting.

There are no existing associations or user groups that have organized themselves under one umbrella in relation to the resources of any kind. At Ajomoro Eshiem and Kukuavile, the only existing association is a Cocoa Farmers’ Association, which meets only when chemicals are supplied by government to be distributed. Once these chemicals are supplied the association becomes inactive.

The people of Eziom, Eshiem, Kukuavile and Adelekezo ranked their income levels between low to medium while those at Sanwoma ranked their income between medium and high.

The Ankobra estuary fishery

Scale, effort and seasonality

The Ankobra estuary fishery is more of a subsistence nature during most part of the year but becomes commercial to the communities during the rainy season (April –September). To a few people in each community however, the fishery is commercial through out the year, as it constitutes the mainstay of their livelihood. Estimates of inhabitants who depended mainly on the fishery for their livelihood varied from 5% (Kukuavile) to 40% (Adelekezo) but this could rise to more than 80 % including women and children during the bumper period in the rainy season. The circumstance of massive extent of dependence on the estuarine fishery during the rainy season is somehow different for the Sanwoma community, as their additional advantage of location at the sea front makes them resort more to the marine fishery than the

estuary; nevertheless, a considerable number of non-marine fishers still resort to the estuarine fishery.

Fishing gear

The main fishing gears used are gill nets and pots of various sizes constructed with raffia (see Figure 3). Cast nets, pole seine nets, hook and line, and bamboo traps are also considerably used for fishing



Figure 3: Raffia pots used for fishing in the Ankobra Estuary

Fisheries resources harvested from the estuary

The fish species caught vary in time, comprising finfish and shellfish resources from freshwater, brackishwater and marine sources. Figure 4 shows some common species harvested in the estuary. The fish included some coastal pelagic carangid species such as *Caranx hippos* and *Chloroscombrus chrysurus*, coastal demersal fish such as the cassava croaker *Pseudolithus* spp. and snapper *Lutjanus* sp., brackishwater tilapia, freshwater catfishes and shellfishes such as the brackishwater periwinkles *Tympanotonus fuscatus* and shrimps.



Common name: Snakehead
Local name (Nzema): Ekwafi
Scientific name: *Parachanna obscura*
Family: Channidae
Source: Freshwater



Common name: Catfish
Local name (Nzema): Ekpotile
Scientific name: *Clarias sp.*
Family: Clariidae
Source: Freshwater



Common name: Blackchin tilapia
Local name (Nzema): Kpoke
Scientific name: *Sarotherodon melanotheron*
Family: Cichlidae
Source: Brackishwater



Common name: Cassava croaker
Local name (Nzema): Ekanye
Scientific name: *Pseudolithus sp.*
Family: Sciaenidae
Source: Marine



Common name: Atlantic bumper
Local name (Nzema): Awomakpoke
Scientific name: *Chloroscombrus chrysurus*
Family: Carangidae
Source: Marine



Common name: Crevalle jack
Local name (Nzema): Kotolo
Scientific name: *Caranx hippos*
Family: Carangidae
Source: Marine

Figure 4: Some fishery resources harvested from the Ankobra Estuary



Common name: Grey mullet
 Local name (Nzema): Efie
 Scientific name: *Liza sp.*
 Family: Mugilidae
 Source: Marine



Common name: Snapper
 Local name (Nzema): Esoe
 Scientific name: *Lutjanus sp.*
 Family: Lutjanidae
 Source: Marine



Common name: West African mud creeper
 Local name (Nzema): Kosorobo
 Scientific name: *Tympanotonos fuscatus*
 Family: Potamididae
 Source: Marine/Brackishwater???

Figure 5: Additional fishery resources harvested from the Ankobra Estuary

Quantities harvested and cost

A fishing operation generally lasts for 3 to 5 hours depending on the kind of gear deployed. Periwinkles and shrimps harvested are measured and sold using smaller plastic container named “bashing rubber” (see picture in Appendix 2) while fish are measured with a bigger plastic container called “sea bag”. A “bashing rubber” full of periwinkles or shrimps weigh roughly 5 kg whereas a sea bag full of fish weighs about 9 kg. Table 2 below shows the estimated quantity of fish harvested per fisherman per day and the corresponding price per kilogram. Periwinkles are the cheapest fishery resources while shrimps are the most expensive.

Table 2: Quantities and costs of some fisheries resources from the Ankobra Estuary

Fisheries resources	Quantity harvested per fisherman per day	Price (GHS) per kg
Periwinkle	15 – 30 kg	2.2
Shrimps	15- 30 kg	12.5
Fish	30 - 60 kg	6.4

MANAGEMENT PRACTICES

The five communities along the Ankobra River system have over the years managed the exploitation of the resources bestowed on them by the river. Until recently, these management practices have to a large extent contributed to the conservation of the Ankobra and its resources.

The traditional authorities presiding over these communities are the custodian of culture and management practices that have protected the River from time long before. They are able to enact common informal laws that bind all the communities. Restriction on the cutting of mangrove along the river bank is one such management practices put in place by traditional authorities that binds on all the communities and their inhabitants harvesting resources from the Ankobra River. However, there are community specific rules and regulations that are in place to manage the resources harvested by community members.

Sanwoma

Mangroves along the river banks are not to be harvested. This is because community believes that the mangroves provide shelter for the fish and by cutting they would reduce the fish harvest in the community. Mangroves are also not harvested on Thursdays. Any one caught breaking the law is fined. The chief Fisherman and his elders enforce the law and community members self-police each other to ensure that the laws are adhered to.

Adelekezo

The community is supplied by the Ahama River a tributary of the Ankobra River. Use of chemicals to fish in the Ahama River is prohibited and no fishing on Saturday is allowed in the river. Harvesting of juvenile crabs and fish is also prohibited by community law. Harvesting of the raffia can only be done with permission from community leaders.

To ensure the effectiveness of the law and adherence, fines such as bottles of schnapps and money are imposed on offenders. The communities self-police the resource also to ensure that all obey the laws.

Eshiem

In Eshiem, resources such as mangrove and raffia are managed by traditional authority and family elders. Cutting or harvesting of these resources can only be done with permission and payment of some monies to the elders of the community.

To harvest about a 100 bamboos, a sum of GHc20 cedis is paid and for the tapping of wine for the production of local gin, a tapper has to pay a one time '*abusuatri Nsa*' (this is drink presented to the family on whose land the raffia pals resides) along with 5 gallons of the distilled local gin every month.

Compliance with these rules is ensured through community policing and self monitoring.

Eziom

Eziom, like the rest of the communities have their set of rules for harvesting of the resources. These include payment of 5 gallons of locally distilled gin to traditional authorities in the community every month. Every Friday of the third week, harvesting of bamboos and raffias are prohibited.

Through self-policing the community ensures that rules and regulations are not flouted by anyone harvesting the resources.

Kukuavile

The community, named after the founders of the community discovered abundance of cocoyam in the location whilst scouting for food, has rules and regulations that governs resource use.

The use of chemical in fishing and defaecation in the river is prohibited. Visitors seeking to harvest resource such as mangrove and raffia need to be permitted by the chief of the community before they can harvest.

Through community policing the rules are made effective. Offenders are fined through the traditional court system headed by the community chief.

Perception of the effect of depletion of the estuary

Inhabitants of the five communities along the Ankobra agree that continued degradation of the river would bring untold hardship and a possible death of the communities. This is because their survival depends on the health of the Ankobra River system.

To ensure that the river system remains sustainable community members agree that the following measures should be in place and practiced by all:

- Riparian vegetation should be left intact to prevent the river from drying.
- Gold mining in the river must stop.
- Small mesh size should not be used to fish in the river so that juvenile fishes are not harvested.
- No chemical should be used or discharged into the river.
- Farms should not be close to the river to prevent runoffs of agricultural chemicals into the river.
- Replanting of mangrove as they are harvested.
- Existing community laws should be followed as it is being done.

Conflicts

The communities stated that there is no conflict between resource users in the harvesting of the resources. There is high level of compliance with the traditional laws governing the harvesting of the resources.

CONCLUSIONS

The fringing communities of the Ankobra estuary depend on the resources for their daily subsistence. The estuary is diverse in terms of both estuarine and marine fish species. Though the traditional authorities and leaders of these communities have over the years managed their resources with the buffer zone restrictions and sanctions, recent illegal mining activities upstream is putting the future of this ecosystem in jeopardy. Inhabitants of these communities admit that continued degradation of the river would bring severe hardship to their communities, since they depend so much on the river and its associated resources for their livelihood.

Weak governance structures and the inadequate government interventions in these communities are exacerbating the problem in recent times. Efforts that seek to ensure that this unique ecosystem is enhanced to benefit the local communities are urgently needed. The SFMP Community Based Fisheries Management for the Ankobra estuarine area is a critical first step intended to bring together stakeholders, particularly resource users and managers to improve estuarine governance and implement sustainable management measures for the estuarine fishery and linked natural resources.

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APPENDIX 1 SAMPLE QUESTIONS USED FOR THE ASSESSMENT

Assessment, Focus group and key informant checklist

Name of Community:

Resources and use patterns

- Observe and identify (by local and scientific names) important flora and fauna associated with the Ankobra estuary and take note of dominant groups/species

List of Resources -

- What are these resources used for?

<i>Resource</i>	<i>Use</i>

- How are they utilized by farmers and fishers?

<i>Resource</i>	<i>Use by farmers</i>	<i>Use by fishers</i>

- How dependent are you on these resources for food and livelihood?
- Rank these resources according to their importance to you? (*The most important first and the least important last*)
- At what periods in the year are these resources harvested?
- Where do people usually fish in the Estuary? (Banks/Upper reaches/ Middle portions/ Mouth)
- Which fish species are usually harvested? (Common/English names and Local Names)
- Roughly what quantity are you able to harvest per day? (In baskets, pans, etc.)
- Should you want to sell, how much money would that quantity cost? (*Or how much would you be willing to accept*)

- Describe the characteristics of the Ankobra estuarine fishery? To what extent is this commercial versus subsistence?- (Enumerator can additionally make his/her own observations on the characteristics of the fishery)
- *The scale (Subsistence vrs. Commercial)*
Number of Fishermen
Type of gear used
Fishing periodicity
Seasonality

Management Practices (Focus Group Discussion)

- How is the Ankobra estuary and associated natural resources managed by surrounding communities?
- Describe any specific roles played by women in managing these resources
- What are the roles of traditional authorities and district assemblies?
- What are the conflicts surrounding management of the estuary by different stakeholders? Identify active sources of conflicts and describe its main elements

Characteristics of resource users (Focus Group Discussion)

- Are there any user groups organized under umbrella associations such as association of mangrove harvesters or timber loggers?
- Provide names of some of the association of resource users if any?
- Are they involved in any marketing networks? Please provide details.
- How will you rank the income levels of the estuarine resource users – low, medium, high?
- What are the major occupations of the resource users

Perceptions (Focus Group Discussion)

- What will be the effect when the Ankobra estuary and associated natural resources are completely depleted?
- How will you protect the resource to ensure sustainability?

APPENDIX 2 A “BASHING RUBBER” (SIDE AND TOP VIEWS)

