

Participatory Rural Appraisal (PRA) Report:
Cockle Harvesting Activity
Kartong, The Gambia



Gambia-Senegal Sustainable Fisheries Project
(USAID/BaNafaa)

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Cover Photo: TRY Members in Kartong sample cockles at low tide.

Photo Credit: USAID/BaNafaa Project/WWF-WAMPO

Acknowledgements

There is little doubt that involving all stakeholders as partners in developing management plans will assist in the progress towards improved management of the fishery resources. The local communities play a very important role in data collection for fishery management purposes. The participation of the community in collecting basic information on cockle harvesting and processing activities is critical, especially in data deficient situations. We wish to thank Kartong TRY Association for their participation in data collection about the cockle resources, harvesting and processing practices. This information dramatically improved the data poor scenario and allowed very specific questions to be formulated and investigated.

The USAID/BaNafaa staff who worked with the community in Kartong to develop this PRA Report include, Ousman, Drammeh, Project Manager, Gibril Gabis, Fisheries Facilitator, Lina Kelsaite, U.S. Peace Corps Volunteer, WWF The Gambia Office. Ebrima Jabang, Department of Fisheries Field Officer at Kartong.

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Introduction

The study under USAID BaNafaa Project at Kartong, which is located the southern border of the Gambia near southern Senegal, involves the redistribution of cockles from high density areas to lower density areas. It was initiated at the end of 2011. The goal of the study is to determine if the transplanting of the cockles is feasible and can be adopted by the women to increase cockle populations in Allahein River and its tributaries. During the study the growth and mortality rates of the transplanted cockles have been monitored.

As a part of this study the PRA was conducted to collect local knowledge and the information on Kartong cockle harvesting activity. Planning Workshop Guidelines/Participatory Rural Appraisal for Oysters Sustainable Use developed by Ibrahima Mat Dia was used for this PRA. The two-day meeting took place on May 8-9, 2012 and was attended by about 20 women - cockle harvesters and TRY members. On the first day of the meetings women were divided into two groups. Both groups answered the same questions and filled the same tables. The following day the answers were compared and discussed among the large group.

The gathered information will be used to develop the Co-Management Plan for Cockle Fishery for Allahein River, Kartong.

Cockle Collection Sites and Community Map

During the first activity TRY members identified and mapped the resources at Aketikai Bolong (Figure 1). The cockle and oyster collection sites are listed in Table 1 below and are shown in the community map (Figure 2), which was developed during the meeting. The harvesting areas were also mapped using GPS unit (Figure 3).

Women complained that the population of the cockles has decreased significantly in recent years.

Table 1. Cockle harvesting sites.

Site name and location	Density status
Aketikai	Not many
Bosoo Bolong	Not many
Niafrang	Not many, small lots
Stela	Small lots, otherwise not a lot
Bayaya Tenda	Small lots
Sangsang Bolong	Oysters
Bamba Tenda	Oysters
Dumbali Tenda	Oysters
Jalikoto Bolong	Oysters, small cockles
Swiki Bokong	Oysters
Amba Tenda	Lots of small, not many big ones
Kataki Bolong	Small cockles
Bandingto Bolong	Oysters



Figure 1. TRY members/cockle harvesters (left), O.Drammeh and G.Gabis (right) are developing community map together.

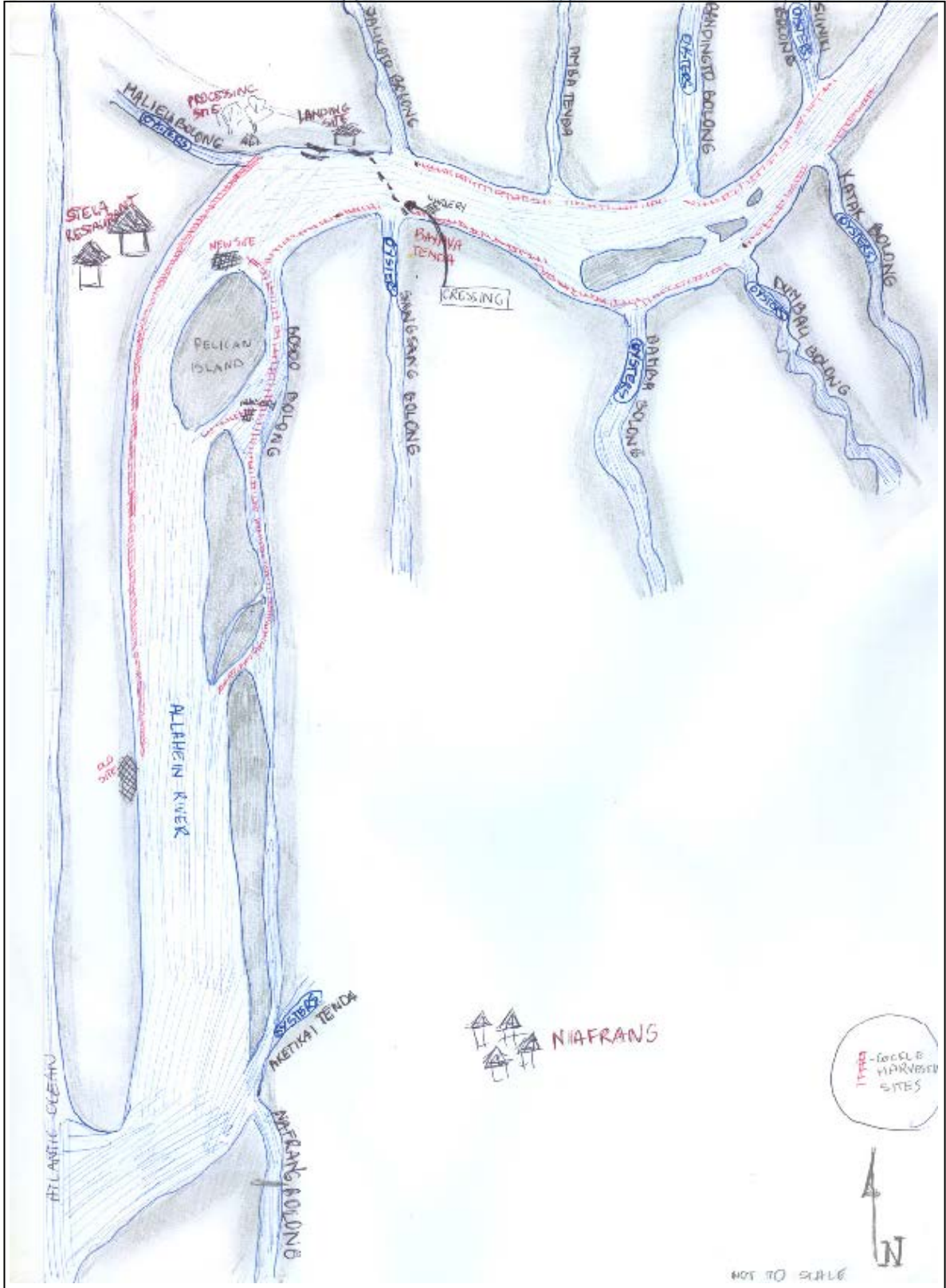


Figure 2. Community Map

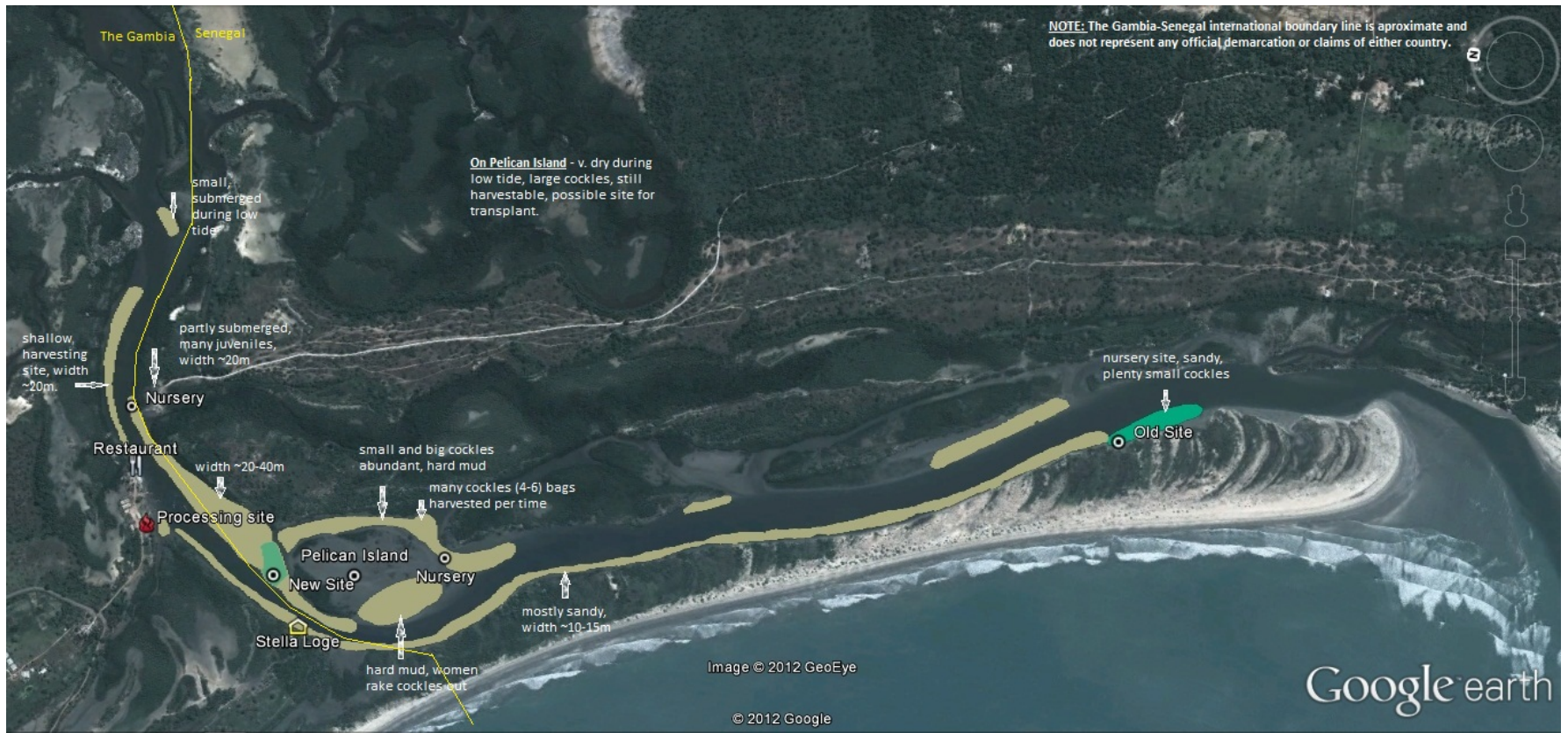


Figure 3. Map of cockle harvesting sites (with GPS).

Chain of Activities of Cockle Collection

TRY Kartong group has 40 registered TRY members who are engaged in both, oyster and cockle, harvesting. The women have been doing this work for most of their lives. They are organized and know each other well. Sometimes they argue among themselves but do not fight and hold anger against each other for long time.

Cockle harvesting and processing to obtain the end product done in two days. On the third day the women travel to the local markets to sell cockle meat.

Women usually follow the routine of activities that are summarized below (Table 5 and Table 6, Annex I).



Figure 4. G. Gabis is leading the Chain Of Activities session.

Day One

- **Walking to the beach side.** Travel usually takes about 30 minutes from Kartong village. Everyone comes.
- **Changing clothes and having breakfast.**
- **Traveling to harvesting site.** The time varies from 5 minutes to 45 minutes, depending on the distance to the harvesting site. The harvesting is done during low tide and sites are usually reachable on foot. Otherwise the boat and paddle are used. Life jackets, water shoes (or boots), baskets and rice bags are brought to harvesting site.
- **Harvesting cockles.** Women usually go together to the site, spread throughout it and collect the cockles into their own rice bags. If there are plenty of cockles it takes about 30 minutes to fill one bag. If there are few cockles to harvest it can take up to 4-6 days to fill one rice bag.

Susu day (when there are not enough cockles): Each woman collects one basket. Usually 3-6 women at a time are harvesting. All collected cockles are given to same woman. The leftover cockles are left for the next person next day. Women use the cockles for selling and cooking.

- **Returning.** Women are brought back by boat one by one. The women indicated that it takes about 1 hour to return to the processing site. Not all the bags can be brought to

processing site the same day. Some bags are brought, some are left for the following days. E.g. Fatou's 3 bags are brought the same day and Binta's 4 bags are brought the following day. If cockles are left in water for long time they die and destroy the ones around.

- **Piling of cockles.** The cockles are piled, covered with cloth and left for the following day.
- **Firewood collection.** This activity usually takes 2-3 hours. Women use the boat, cutlers and axe. Wood is scarce and difficult to find. Women often get wounded.

Day Two

- **Cockle processing.** The process is as follows:
 - Cook cockles with shell
 - Shake cockles in the baskets to separate cockle meat
 - Cook cockles without shell
 - Spread cockles to dry

Since the cockles are boiled in river (salty) water, no salt or seasoning is used during processing. Half rice bag of cockles fits in a pot at a time. Two to six bags can be cooked in one day. Processing can take all day if there are lots of cockles. Usually 2 to 7 women are working together, helping each other to cook and prepare cockles. They use cooking pots, firewood, and baskets. Women use less than one bundle of firewood, which cost 10 Dalasi (if purchased), to cook one pot of cockles.

- **Transporting of processed cockles home.** The cockles are carried home and left/spread at a clean space overnight. The travel back to the village takes about 30 minutes on foot. To transport the cockles with the vehicle costs 10 Dalasi. The cockles then are spread on clean cloth inside the house in room with good ventilation. Cockles in such a way can be stored for only one night.

Day Three

- The following day women travel together to the markets to sell cockle meat. Women pack cockles in the baskets and take public transport to the markets. They spread between markets in Brikama, Latri Kunda and Serrakunda. The cost of traveling to Brikama is 25 Dalasi one way (50 Dalasi both ways) and to Serrakunda, including Latri Kunda, is 40 Dalasi one way (80 Dalasi both ways). Only Serrakunda market has a designated space for the women to sell cockle meat. In other markets women are often being harassed by the police. Selling can take all day, into the evening. Unsold cockles are brought back, dried and/or cooked for the families.

Cockle shells are also sold by the rice bag (60 Dalasi per bag) to community members and businesses (hotels, restaurants).

Selling, Revenue and Expenses

At the moment the set price for the cockle meat is 10 Dalasi per cup.

Two rice bags of cockles fill 1 basket, which generates 600+ Dalasi in gross revenue. Therefore, 1 bag of collected cockles is 30+ cups of prepared cockle meat, and 2 bags – about 60+ cups.

Three types of baskets are used for selling the cockle meat*:

- Small – 60 cups (~600 Dalasi)
- Medium – 80 cups (~800 Dalasi)
- Big – 100 cups (~1000 Dalasi)

**fresh, measured same day after cooking*

Per woman none of them are saving any part of the revenue, which is usually used:

- To pay school fees
- To buy rice
- To pay for farming and gardening help
- To pay for seeds
- To pay for celebrations
- To pay for clothing for children
- To pay for health care
- To pay for sheep/goat for Tobaski

Work related expenses:

- Rent a boat – 1 basket of cockle shells (per woman per trip)
- Transporting the cockles from landing site to Kartong – 10 Dalasi
- Firewood, if purchased, (a bundle) – 10 Dalasi
- Breakfast – 5-10 Dalasi
- Transport to the markets:
 - Pass (both ways):
 - Brikama - 50 Dalasi
 - Latri Kunda - 80 Dalasi
 - Serrakunda - 80 Dalasi
 - Baggage fee:
 - Per basket – 10 Dalasi

Work related Sicknesses

Women indicated the following work related health concerns and injuries:

- Pneumonia
- Wounds
- Eye infections (during cooking)
- Rash from dirty water
- Ear infections
- Jellyfish stings
- Nail cuts/injuries

Assessment of Resources and People

Estimate of people doing the activity and availability of the resources for four periods is indicated in the Table 2 below.

Table 2. Assessment of resources for four periods.

	Now	5 years ago	10 years ago	30 years ago	Observations
# of people	Around 40 (60 including other community members – Senegalese*)	Less than 40	Not many (10-15)	Not many (10-15)	
# of boats	None (rent**)	None	None	~10 boats for cockle harvesting	
Description of practices	Use hoe, shiver, life jackets, hand fork.	Use bare hands, buckets, because there were lots of cockles.	Same as 5 years ago.	Same as 5 years ago, but cockles were dried and used for consumption only.	To harvest cockles now one needs a hoe, shiver or hand fork (less cockles)
Duration	1 day collection, 1 day cooking	1 day collection, 1 day cooking	1 day collection, 1 day cooking	1 day collection, 1 day cooking	Harvesting is always done between low tide and high tide.
Distance	Some far, some close	Some far, some close	Some far, some close	Closer to landing site	Aketikai Tenda (3-4 km), Pelican island ~400m away from landing site

	Now	5 years ago	10 years ago	30 years ago	Observations
# of people	Around 40 (60 including other community members – Senegalese*)	Less than 40	Not many (10-15)	Not many (10-15)	
# of boats	None (rent**)	None	None	~10 boats for cockle harvesting	
Size of individuals	Small	Small	Larger	Largest	
Quantity/Density	Spread, not too many	Less spread	Spread, more abundant than 5 years ago	Spread, more abundant than 10 years ago	Nowadays cockles are less abundant and smaller in size.
Fuel wood	Difficult to find, over exploited	Easier to find than now	Plenty	Plenty	
Income	Good revenue (1 cup – 10 D)	Not much profit (1 cup – 5D)	Not much profit (1 cup – 2.5 D)	Consumption only	

*Senegalese cockle harvesters process the cockles at their landing site in Casamance but sell them in Brikama market.

**each person pays 1 basket of shells for boat rental, 1 basket of shells is put aside to sell – money is put into a fund to replace the cooking pots.

Note. 10-30 years ago the community closed cockle and oyster harvesting sites for 4-5 months. Upon closure community members collected flowers and grasses, and placed them at all landing sites. When people saw them, they knew the river was closed. If they ignored the ban and went into the river, they got wounds that never healed. At the end of this period Cham family harvested first and after declared the season opened. Nowadays this tradition is not practiced. One of the expressed main reasons was that there is no more respect for elders and people do not listen to each other.

According to the women there is certain seaweed that is brought in by monthly high-high tide and wherever it lands, they believe, it kills the cockles underneath it (Figure 5). Mostly happens in dry season.



Figure 5. The seaweed that is brought in by high-high tide.

Calendar of the Activities

Women involved in cockle harvesting and processing are also engaged in oyster harvesting and other activities throughout the year. According to the women, the cockles start breeding at the beginning of rainy season (June) and continue up to September. Cockle harvesting starts after rice harvest. Women harvest only big ones and leave the small ones. When asked if they harvest ~17mm cockle, they said they would. The timetable of the activities in which women are involved throughout the year is listed in the Table 3 below.

Table 3. Women activities' calendar.

Activity	Months											
	J	F	M	A	M	J	J	A	S	O	N	D
Cockle harvest	X*	X*	X*	X*	X*					X	X	X
Oyster harvest			X	X	X	X						
Gardening	X	X	X	X	X	X*	X*	X*	X*	X	X	X
Rice cultivation						X	X	X	X	X		
Firewood	X	X	X	X	X	X	X	X	X	X	X	X
Cockle shell harvest	X	X	X	X	X	X	X	X	X	X	X	X
Selling vegetables	X	X	X	X	X							

*some harvesting/work is done.

Relationships with Other Groups

There are two other groups in the area:

- *Kartong Environment Group*. The group never introduced themselves to TRY women and never explained to TRY that they want to work together. TRY women think that group wants to take over beach and TRY activities. Environmental group has no problems per EJ but TRY women are not happy and think they want to take the lead. During this meeting Ebrima Jabang explained to the women that Kartong Environment group is not working against them that both of the groups have the same goal and should cooperate and work together.
- *Kabajo, Niafrang, Katak communities in Casamance, Senegal*. There is no conflict now. Friendly (cordial), work together in the same areas, eat and drink tea together. They encounter each other often. Share river and goods without problems. Katak people also cook oysters/cockles at Kartong landing site. Previously conflict with Kabajo people: after the argument between TRY women and harvesters from Kabajo, Casamance, people from Kabajo threatened TRY women that they fight them. Pa Alieu and EJ went to see

Kabajo Alkalo and agreed with him that Kabajo people will never go to river to wait for Kartong women to fight them.

Impacts of the Activity

Indicated positive impacts by the women were mainly monetary rewards:

- Money
- Pay for school fees, rice
- Pay groups for farming
- Pay for naming ceremonies, donations
- Pay for health care



Figure 6. Isatou Jarju, TRY Kartong group secretary (left), and guests addressing the group.

Negative impacts:

- Heat (no shade) and smoke disturbs
- Shell wounds (cockles and oysters)
- Wounded by boats – accidents
- Cutting mangroves
- Killing small cockles
- Lack of awareness (shells were dumped back into water before)
- Long time away from family
- Time spent at river (little time left for garden)
- No safety, overloading of boats

Constraints and Solutions

Women listed their needs and possible ways to obtain them, which are listed in Table 4. Outside help was brought up to be a solution to most of the problems. However, different possibilities of how women themselves can generate income for the group were discussed as well. Women agreed that each of them can give to the group a small percentage of their revenue (e.g. from selling bags of oyster shells) to buy cooking equipment and other supplies used in the oyster processing.

Table 4. Constraints and Solutions.

Constraints	Solution
Boat/paddle	NGOs, government departments, other donors
Life jackets	NGOs, government departments, other donors
Shelter/structure (especially during rainy season)	NGOs, government departments, other donors
Storage facilities	NGOs, government departments, other donors
First aid box	Breakfast restaurant owner will provide
Equipment/tools: gloves, boots, glasses, ores, clean cloth, wheelbarrow	NGOs, government departments, other donors
Tarpaulin, dry racks, tables	NGOs, Sandele
Pots for washing	NGOs
Cooking pots	NGOs
Transportation	Donkey carts, community members, NGOs
Marketing (no market)	Discuss with Area Councils and TRY
Credit facilities/microcredit	
Clothes, uniforms, raincoats	
Sanitary facilities	
Rescue	
Law/ regulations/co-management	TRY has rules and community decides on it
Information outreach for others	
Electricity at beach	
Communication/mobile phones	

Conclusion

The meeting was successful and informative. During the PRA assessment it was discovered that women are well organized, work well together and trust each other. They expressed the interest in having better managed cockle harvesting sites. Their livelihood depends on the cockle and oyster harvests. Because of decreased populations of cockles, they are eager to learn how to better manage and protect these resources. They seemed interested in understanding the biology of the cockles, their lifecycle to allow them to mature and produce before collecting them.

Further discussions in regards to management plan are recommended. Due to the way they have been working, communal management of the sites might be a suitable solution.

ANNEX I – Additional Tables

Table 5. Chain of Activities.

Activity	Time Estimated	Resource used	Trend	Observation
Determine low tide				
Walk to site	30 min		Everyone go	
Change clothes, breakfast				
Travel to site	5-45min	Boat, basket, paddle, rice bags, life jackets, water shoes (if available)	Usually they walk on foot when tide is low.	
Harvesting cockles	4-6 days to fill one rice bag (if not many ~30min to fill one rice bag (if plenty)			When collected cockles are left in water for a long time they will die and destroy the ones around.
Returning	~1 hr		One by one women are brought back by boat.	Women do not bring all bags. E.g. 3 Binta's bags are brought today, 4 Fatou's bags – tomorrow.
Piling of cockles		Pieces of cloth	Cover the cockles with cloth and leave them for the following day.	
Firewood finding	~2-3 hrs	Boat, cutlers, axe		Difficult to find, frequent wounding.
Cockle cooking (1.cook cockles with shell, 2. Cook cockles without shell, 3. Season cockles, 4. Spread cockles to dry)	All day (if lots of cockles)	Pot, firewood, baskets	2-7 women are working together.	½ rice bag fits in a pot at a time, ½ bag is 2 baskets. 2-6 bags can be cooked in one day.
Transporting of dried cockles home	30 min	cloth	Bring dry cockles home to store overnight (only 1 night)	Good ventilation needed
Cockle meat selling at Brikama, LatriKunda, Serrakunda	All day	Baskets, public transport	Unsold cockles are brought home, dried and/or used for cooking	Women go together to sell but spread to different markets, no designated market place (except in Serrakunda market), harassed by the police
Cockle shell selling		Rice bags	1 bag – 60 D	Is bought by community members, businesses (hotels, restaurants)

Table 6. Cockle, Oyster, Snail Harvesting and other Associated Activities

Activity	Time estimated	Resource used	Trend	Observation
Cockle harvesting	4 hrs	Buckets, trays for shivering, boat/canoe, hoe, life jackets/boots	Before subsistence, now business	-less rainfall cause decline in stock - strong current from the ocean causing cockles beds to be in deeper waters, not accessible. -high pressure on the resources -before bigger and plentiful, now smaller and scarce.
Oyster harvesting	4hrs (depending on tides)	Buckets, knife/small axe, boat and paddle, life jackets, gloves (improvised), socks from jeans material, boots.	Previously oyster use to grow on substrate in the sea, not from mangrove, also bigger in size. Also smoked and not boiled.	Traditional belief – oysters are boiled and boiled water spilled back which cause oysters to disappear. -overexploited
Snail harvesting	4 hrs	Bucket, boat/paddle, boots	Before sustenance, now economic activity	Scarce due to over exploitation
Firewood	Anytime (low and high tides)	Boat/paddle, boots, axe, cutlass	Availability of firewood is declining	Others are also collecting firewood (lime makers, fish smokers, fuel wood sellers, wood collected by many for household use) Over exploitation
Traditional fishing (trapping)	-	-	-	Not practiced anymore
Cockle shell collecting	4 hrs	Boat, bucket, hoe, boots, gloves, empty bags, shivers to drop small cockles	Shells weren't collected before but now is an economical activity	High demand for lime making and construction.