

3. An alternative management strategy for Lake Victoria (Kenya)

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3.1. Introduction

In Kenya, fisheries resource management has been based on the top-down centralized approach since the colonial days. Stakeholders have never been consulted concerning management decisions. Biological recommendations were major inputs and formed the basis for policy formulation, legislation and resource management guidelines. Fisheries resources have been regarded as state owned, ensuring that considerable resources are needed to manage it.

The 4-beaches Study was undertaken to investigate the potential for an alternative management system for Lake Victoria. In Kenya, the candidate beach selected was Obenge. The broad objectives of the first PRA at Obenge Beach were: first, to identify and understand Obenge's community-based organizations and institutions which might have a role in the lake's fishery and, secondly, to consider the key issues which to arise from the study for the involvement of communities and community-based organizations and/or institutions in the co-management of Lake Victoria's fishery.

Obenge beach is situated West Uyoma location, Madianyi division of Bondo District. It is about 21 kilometres from Bondo town. The ethnic group residing here is mainly Luo from the Uyoma clan that shares a common ancestor. Obenge beach is situated in an enclosed bay, which is a breeding ground for tilapia. The waters are clean and clear.

3.1.1. Fishing at Obenge

The community uses mainly gill nets to catch fish. Fishing done is done mainly for commercial purposes. The main type of fish caught is Nile perch followed by tilapia. Three boats at the landing target tilapia while the rest catch Nile perch.

Nile Perch is mainly sold to fish factory agents who take it to factories in Kisumu. Once fish has been landed, it is carried to the fish '*banda*' for weighing. The beach has employed a man who carries the fish in a clean wheelbarrow to the *banda*. A woman assigned to each boat weighs the fish, records its weight, and receives payment for the fish on behalf of the boat owner. This woman may be the boat owner's wife or his employee.

Fish prices for Nile perch are decided between the beach marketing chairman and the fish agents. The marketing chairman must first find out what fish prices are at neighbouring beaches. At the beginning of the study, fish prices fluctuated between Ksh. 35 – 37/- per kilogram. During the last monitoring exercise, fish prices had risen to Ksh 90/- per kilogram. This was attributed to the high demand of fish by the fish factories. Fish rejected by the factories was sold to women at the beach at a lower price. These women then smoked the Nile perch and sold it for a higher value at hinterland markets. The average amount of fish landed per month was 1,148 kg, of which an average of 48 kg. Was rejected. The average gross value of fish per month was Kshs. 1,393,544/-

Tilapia fishers determined their own prices, and sold their fish to consumers, hoteliers and women traders from the beach that then sold the fish at hinterland markets. When the beach banned 'ochuadho' fishing, tilapia catches ceased.

Fish prices for both fish species depend on the demand and the supply of fish. Fish prices rose because of high demand from the fish factories.

Remarkable changes have occurred within Obenge's fisheries of Obenge in terms of the number of boats, mesh sizes of nets and fishing methods. At the beginning of the study, there were about 100 fishers,

including children who practiced rod and hook fishing in the bay (Table 1). When the research team started visiting the beach and having discussions concerning their fisheries, the community began to understand the impact of illegal gear fishing methods on their fishery and began to change. The Chief and Assistant Chief, together with the Beach Leader, held meetings and put pressure on the fishers using illegal methods and gear to change and use the recommended types. The Chief and his Assistant extended this campaign to neighbouring beaches within their jurisdiction. The Fisheries Officer in charge of the division also visited the beach and held a meeting with the community where he advised them to discard bad fishing methods.

Attributes	Beginning of monitoring	End of monitoring
Number of boats	38	45
Methods of fishing	Gill netting, beach seining, angling	Gill netting, beach seines
Mesh sizes for nets	Gill nets of 4.5" and above, beach seine of 2-2.5"	Gill net of 6" and above, beach seine of 3"
Species of fish caught	Nile perch, tilapia and <i>dagaa</i>	Nile perch and tilapia
Fish prices	Ksh. 35	Ksh. 90
No. fish trucks	Few	Increased

Table 1: Changes in certain indicators during the monitoring period at Obenge

The fishers experienced seasonal fluctuations in fish catches. Declines were due to drops in temperature, which affected fish movements. Some community members attributed declining fish catches to illegal fishing methods.

Fish is the main source of income at Obenge although a few individuals practice farming. It was estimated that the average amount collectively earned by the fishers on the beach per month was Kshs. 1,393,544/-

At the monitoring period, some nine new boats were constructed. For owners, these were either second or third generation canoes. Only a few were completely new entrants to the fishery. Boat owners indicated that they had saved the money to buy the boats from their fishing activities. During the monitoring period, there was also an increase in the number of shops, and mobile shop dealers, indicating that fishermen had money to spend.

3.2. Organisations and Institutions at Obenge beach

3.2.1. Power structures

The community has both formal and informal organizations, which comprise its power structures. Formal power structures are usually government administrative structures. At the district level, these include the District Commissioner (DC), the District Officer, (DO) the District Fisheries Officer (DFO), Agricultural Officers, Forestry Officers and the judiciary. At the local level, there are the Chiefs, Assistant Chiefs and Councillors. Informal organizations include the Beach Committee, fishers' groups and the council of elders. The Beach Committee comprises the road and patrol department, the marketing department, and the sanitation department (Figure 1). Other informal groups at the landing comprise women's groups, and the fishermen's cooperative society.

The Beach Committee (BC) is an informal organization based within the fisher community. It is headed by a Beach Chairman and comprises representatives of the fishing community who are elected every two years. The Fisheries Department (FD) recognizes the BC and they work together. Despite this, however, the BC is not a legalized institution under Kenyan Law.

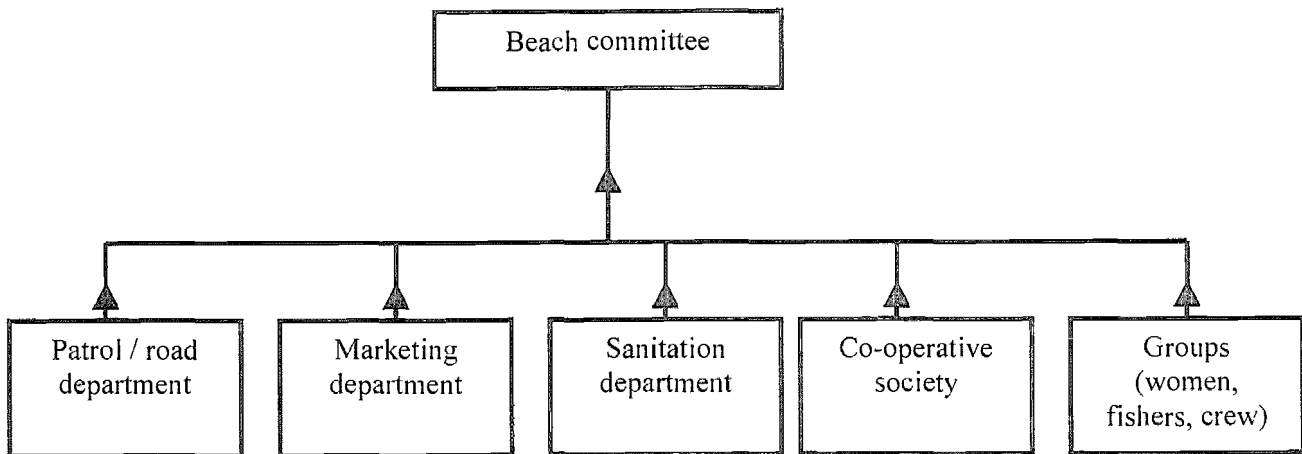


Figure 1: Structure of the Obenge Beach Committee

The BC's task is to manage fishers' activities at beaches. It registers fishers on the beach, solves fisheries-related conflicts, and enforces fishing community byelaws and some fisheries regulations. Other departments that operate under the BC are as follows:

- (a) The patrol and road department, which patrols Obenge's fishing grounds, guarding nets against theft, search and rescue services and maintains the road to the beach.
- (b) The sanitation department is in charge of sanitation and environmental issues at the beach.
- (c) The marketing department is in charge of marketing fish and negotiating fish prices.

3.2.2. Co-operatives

The co-operative society saves fishers' money, provides facilities for fish marketing like a fish shade and weighing scales. A co-operative official interviewed claimed that Obenge performed better than the three other beaches within the co-operative. This they attributed to the good fishing methods and gears of Obenge's fishers.

Obenge's fishers felt that the cooperative was not serving them as well as they had initially expected. During the monitoring period, the fishers felt that they had made substantial contributions to the co-operative, yet no loan had been granted to them over the previous four years. The fisher had therefore decided to form a fisher's group and diverted their savings from the cooperative.

3.2.3. The Fisheries Department

The Fisheries Department (FD) is the government institution charged with enforcing fisheries. The FD Officer in charge of Obenge was also in charge of 12 other beaches. His visits to the beach were not regular. The Officer had neither the transport facilities to bring him to the beach nor to go out on to the lake for surveillance. The community accused the Officers of being corrupt and not serious about enforcing regulations. The Officer had participated in solving some conflicts at the beach and is also present when the Beach Committee is being elected.

3.2.4. Local government

The Chief and Assistant Chief were very involved with the fishing community. They provided security, enforced government laws, solved conflicts that the beach committee could not solve and created awareness of various issues of national importance. During monitoring period, the county council announced to the beach that they would be collecting monthly contributions for the running of the council. When there was a national holiday, the beach would also be required to make contributions towards the cost of celebrations.

3.2.5. Rules and regulations

Obenge has both formal and informal rules governing the way the community exploits its fisheries. These included operational rules, which affected decisions on when, where and how to fish, who should monitor the actions of others, how to act towards others, and punishments for offences and who should punish offences.

During the first PRA at Obenge, the community stated that they had 26 rules which dealt mainly with social conduct towards others at the beach and on the lake, access and entry to the beach, fish landing, settling disputes, fish marketing, security and finance. These regulations were formulated by either the fishing community itself during general meetings, or by relevant committees. One year from the beginning of the study, there were over 30 rules recorded by the community secretary. These rules were resolutions passed at various community meetings.

The formal regulations that affected the community were mainly government fisheries regulations, which were supposed to be enforced by Fisheries personnel. Some of the fisheries regulations concerning gear use, prohibited areas and methods of fishing, were enforced by the Beach Committee (BC) in collaboration with local chiefs.

The most common offences observed at Obenge were those related to social-conduct, such as drunkenness, fighting and failing to pay hotel bills. Theft of fishing gear and selling fish from the boat (as opposed to from the fish *banda*) were also commonly committed offences.

At the beginning of this study, the use of illegal fishing gear and techniques were the most common offences against the fisheries regulations. The fishers used methods like *sekeseke*, *ochuadho* and angling using juvenile fish as bait. This kind of fishing was done mainly in breeding areas. The fishers confessed to the research team that they were using illegal gear and methods because they did not know what the legal and recommended gear and techniques were. Some used illegal gears because these were cheaper, and some because they were less likely to be stolen than legal variants.

3.2.6. Sanctions

The type of sanctions applied to offences depended on the seriousness of the offence. The beach committee or the fishing community tended to punish less serious offences. Frequent offenders are handed over to the Assistant Chief to punish. If the offence was very serious, the Assistant Chief could refer it to the police. Most offences, however, were punished at the beach level. Leaders of various informal organizations, Fisheries Department personnel and the Chief might also get involved in punishing offenders. Amongst the sanctions applied were verbal warnings, physical punishment, manual labour, suspension, expulsion or reference to the police of the Fisheries Department.

All offences were first reported to the beach executive. The beach committee either handled these offences alone or in community meetings. Handling the case at public meeting such as this was sufficiently embarrassing that some offenders pleaded with the beach committee to handle it. Offenders would have to explain their actions to the community as a whole. This was one of the most effective ways of dealing with offences in the community, especially those regarding fisheries regulations. This method of punishment was also used if committee members committed offences.

This system of sanctions was not without its weaknesses, however. Often conflict between beach seine crews and other gear users would go unpunished because committee members feared loss of votes (beach seine crews are sufficiently large that this was a concern). Punishment might also be avoided through nepotism. One outstanding beach committee official had had his nets stolen, which he attributed to his intolerance of offenders.

3.2.7. The process of handling offences

The process of handling serious offences at Obenge is displayed in Figure 2, and was very lengthy and costly. During monitoring, a case of net theft was reported to the beach leader, who handed the thief to the chief who, in turn, passed him to the police for prosecution. The case has continued for the past year, without result. The community claims that the police were bribed to destroy the evidence. The case has also been very costly, as the community has spent over Ksh. 100,000/- trying to pursue it. The community was not able to employ a lawyer and were not familiar with judicial procedures. They regret having spent so much on the case and not being accorded justice. They feel that in future they would not want to deal with the court but administer punishment on their own. This case has led to conflicts between the people pursuing the case on behalf of the community and the community itself. Every time they followed up this case, they spent a lot of money. The community suspected that they might be misusing the money, and gaining no results. They felt that they have instead used the money to buy a patrol boat. Such a case reflects the lengthy process of getting justice, the expenses involved, and the weak and corrupt state institutions involved in the administration of justice.

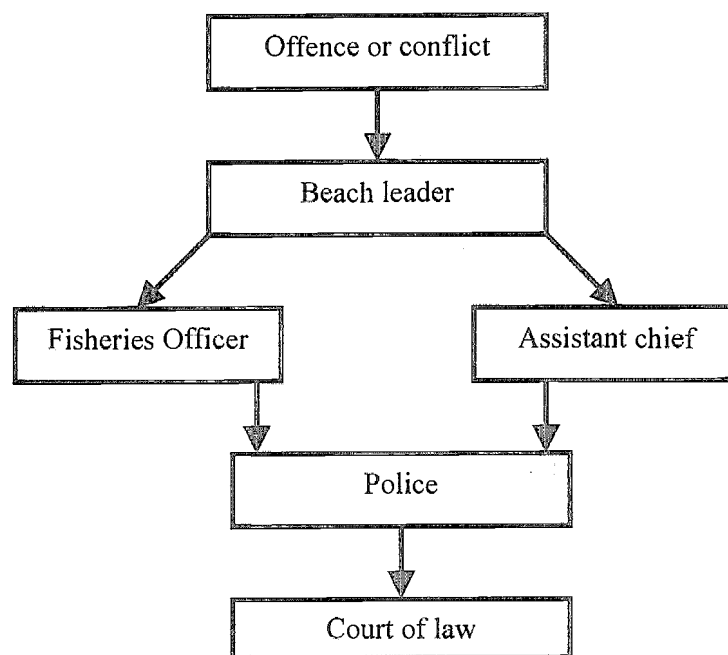


Figure 2: Process of dealing with serious offences at Obenge

3.2.8. Decision-making processes at the community level

Meetings at Obenge were prompted by different reasons, including beach committee meetings, community meetings, administrative meetings, and departmental meetings. Attendance at meetings varied by occupation, numbers involved and gender. Because fishing activities at the beach were dominated by men, they too dominated community meetings. There were two elderly women on the executive committee, whose contributions were respected. Otherwise, female representation on the various committees was minimal.

Most meetings at the beach were organized by beach committee officials, and chaired by the beach chairman. The area Assistant Chief, who also is a member of the fishing community, organized administrative meetings. Other departments of the Beach committee also organized meetings.

Discussions at most of the meetings monitored considered the following topics:

- (a) Marketing (fish pricing, accounting of finances).

- (b) Settling disputes (fisheries- and socially-related).
- (c) Organizations (pulling out of the cooperative, forming fisher groups, financial accounting, elections).
- (d) General (sanitation and health, announcements, visitors).
- (e) Security (rescues, theft cases).
- (f) Fisheries-related (warning against use of illegal nets and methods).
- (g) Educational and awareness (HIV/AIDS awareness campaigns and fishing methods).

Resolutions passed at fisheries-related meetings concerned, amongst others, the use of recommended gears and methods, bans on fishing in fish breeding sites, times between which fishing was permitted.

As a result of these meetings, the following is noted:

- (a) Offenders were mostly punished.
- (b) The Beach Chairman was asked to be strict when punishing offenders.
- (c) Beach regulations were promptly revised for the better compliance.
- (d) Disobedient people were expelled from the beach.
- (e) At every beach meeting held the minutes were read back to the community.

During the monitoring period, the Chief and the Assistant Chief's meetings attracted the highest attendance. This was because of the authority that they had, and because these meetings were always well advertised. Beach Committee meetings were called when the need arose, so only those who were present at the landing at the time attended. The time of the meetings was generally at noon when fishers had landed and most people were at the landing site.

3.2.9. Conflict at Obenge

Conflict at Obenge occurred between:

- (a) Different gear users e.g. active gear users interfering with the passive gears.
- (b) Within organizations: within the different departments of the beach committee or members of the same committee. These conflicts revolved around accountability of money and its misuse.
- (c) Other conflicts occurred between the cooperative and the fishers.

Conflict resolution occurred at either the beach level or was referred to the police or the Fisheries Officer. The beach leader played a large role in conflict resolving, as he was the authority that conflicts were first reported to. Other authorities involved in conflict resolution were the Assistant Chief, the beach executive, cooperative officials, the community, Fisheries personnel and the police. Conflicts handled by the beach leader alone or in conjunction with the beach executive, typically involved those arising from the daily social interactions of community members.

Some conflicts, researchers discovered, were never acted upon, such as those between beach seiners and other gear users reported earlier. Nepotism, political interference and bribery were also some of the causes of lack of action. These aspects could negatively affect the efficiency of co-management. Some conflicts also involved people from other beaches. Should such conflict arise, beach leaders from the beaches involved would meet to resolve the problems. If the cases were complex, such as theft, a member of the Fisheries Department was often asked to assist in their resolution. Such cases might also be referred to the Assistant Chief who would hand the culprit to the police.

3.2.10. Migration

Four boats had immigrated to fish at Obenge from Gudwa and Usenge beaches. When asked why they came they stated that there was more fish at Obenge than at their home landings. They fished for Nile perch fishery using 6.5" gill nets and a 4" beach seine. When they arrived at Obenge, migrants were required to identify themselves, and have registered boats. They were also asked to reveal what type of gear they had and what type of fishing methods they intended to use. They produced letters from their previous beach

leaders and their nets were inspected and then registered. Two fishers from neighbouring beaches that had gear unacceptable at Obenge had been chased away.

Some fishers who had fished at Obenge using gear unacceptable to the community also left to fish from other beaches when they failed to change their fishing gear to the recommended one. *Dagaa* fishermen also moved to the neighbouring beach at Kamariga where there was ready market for their fish.

3.2.11. Security

Theft of gear is the most worrying problem to Obenge's fishers. Initially, when their nets were stolen, they hired an engine boat from the neighbouring beach. This was a clumsy procedure which took a lot of time, and by the time they got the boat, most thieves had already fled. Due to the constant loss of gear, the community decided to take action and acquire an outboard engine and boat for patrol. The community opened a bank account for this purpose, and every month raised some money. They sought assistance from the Fisheries Department, which told them that they did not have funds. They then approached the LVFRP, which agreed to purchase an engine for them. The community raised money to buy a patrol boat.

The community also formed a patrol department to guard its nets, and which is funded with money raised from fish sales. After acquiring the boat and the outboard engine, the community patrol department was made responsible for this equipment. The LVFRP trained two men from the village to run the outboard engine. At first, the engine was too powerful for the boat they had bought, so they approached a fish processing company for a loan to purchase a bigger boat, which would be repaid with fish.

The outboard engine had a great impact on the fishing community. They gained the confidence to use legal fishing gear and techniques, which are expensive and which they now felt would not be stolen. Obenge's women were also happy because during rainy season, when they otherwise had to carry the fish for three kilometres to deliver it to the fish trucks, the boat could now deliver the fish neighbouring beach served by the trucks.

Neighbouring beaches envied the Obenge community and began to inquire how the boat and its engine were obtained. Obenge put out word that their neighbours would have to use legal gear and techniques to be rewarded. Two boats even migrated to Obenge because they liked what they had heard about its organisation. This intervention in itself has been an incentive for the fishers as they now strongly refuse the use of illegal gears.

3.3. A basis for co-management on Lake Victoria

3.3.1. Incentives for co-management

On the basis of our findings at Obenge, we suggest that the following are necessary components for community participation in fisheries management:

- (a) Participation in decision-making: under the current management system, fishers are not represented in decision-making when it comes to the management of the lake.
- (b) Legitimate regulations: if regulations are, in the eyes of fishers, illegitimate, they will violate them. Sometimes they break regulations because they are unaware of them or do not understand them.
- (c) Security for fishing gear: one of the biggest problems fishers face is the theft of their gear, which has caused some fishers to resort to using illegal – but less likely to be stolen - gear.
- (d) Rapid justice: the lengthy, costly and tiring bureaucracies involved in getting offenders punished in the court of laws deters fishers from pursuing formal lines of justice.
- (e) Control of fish prices: this incentive may persuade fishers to co-operate in co-management.
- (f) Participation in conflict resolution process.
- (g) An efficient management system: the current management system is so inefficient at delivering outputs that fishing communities have little faith in it.
- (h) Improvement of fishers' social and economic status.

- (i) Community dependence on fishery as a source of livelihood.
- (j) Creating awareness of the urgent need for fisheries management.

3.3.2. Potentials of existing organisations in co-management

There are various organizations that exist at Obenge that could be used to regulate access to fisheries resources. These can provide security, enforcement of government regulations including fisheries regulations, and linking the beach community with external communities and organizations. These authorities could play a big role in the co-management of the lake in terms of sensitising and ensuring that the fisheries regulations are enforced and obeyed. The Chiefs can also form linkages between beaches within their jurisdiction to form units to collectively manage the fisheries. They can also utilize the Chief's Act to administer punishment to offenders. The District Commissioner (D.C.) made visits to the beach once in a while to discuss developmental issues. His meetings with other district government officers, including District Fisheries Officers, could be used to address fisheries matters at the district level.

The Beach Committee (BC) is the most important informal institution at the beach, and could play a large role in the management of the fisheries. These management units have been in operation at the beach for over 50 years, but have never been legally recognised. The BC has been able to organize the community into making collective decision on matters that affect them. This is essential for co-management, because it demonstrates that communities have the ability to make collective decisions concerning the fisheries and take action.

The BC has also shown the ability to support externally introduced regulations, including fisheries regulations on mesh sizes, access to the lake and capturing only adult fish. This was clearly demonstrated when new fishers came to the beach, and the executive committee interviewed them all with regards to their past conduct, and inspected their gear. This demonstrated their ability to monitor access into the fishery, and their desire to ensure that only recommended gear types be used. The BC could also be given the responsibility of monitoring the number of nets in operation from its landing. The costs of this kind of monitoring are internalised to the community and are therefore not a burden to the government.

Another important organization at Obenge was its women's groups. They handled the fish once it was landed, weighed it and sold it. These women could be trained on better ways to handle the fish and maintain its quality until a fish processing factory truck arrives to collect it. These women could also be trained in monitor the catch sizes and weight and provide this information to stakeholders to utilise in the management of the lake.

Through its patrol department, the community has also shown the ability to monitor activities on the lake. Since currently they are patrolling their fishing ground to secure their nets, they could also monitor the use of illegal fishing on the lake. When offenders are caught, they should be handed over to the beach leader. A conflict resolution body should be created at the beach to handle offenders. The Chief or Assistant Chief should be a part of this, and could draw upon the Chief's Act to punish offenders. In this way, the high costs associated with prosecution through a court of law could be avoided.

Despite the fact that the community has a demonstrated ability to monitor the lake's fisheries, it has no legal right to prosecute offenders, which is why these are passed on to Fisheries Officers. The bureaucracies involved in this process are very tiring and ineffective, as the cases drag on for long periods without any result. Combined with the corruption involved in this process, the bureaucracy surrounding the monitoring and prosecution of offenders in this fishery has left the Obenge community feeling very helpless.

If the co-operative society at Obenge worked properly, it could be used as a buffer for fishers. Ideally, it would represent the primary financial institution under a co-managerial arrangement. It could encourage savings and provide loans, which could enhance fishing, and tide fishers over times of poor catches. Fishers could invest in the recommended gear types because they would now be able to afford them. It could provide the beach with storage and preservation facilities, and obtain good prices for fish landed. The

performance of the co-operative, however, is poor and ineffective. There is a lot of corruption and mismanagement of funds.

3.3.3. Extension

- (a) Through creating awareness at the beaches to all fishers.
- (b) Through workshops.
- (c) Through radio programs.
- (d) Through pamphlets.

3.3.4. Efficiency of community-based institutions

At Obenge, community-based organisations were efficient in the following ways:

- (a) There was general compliance with community byelaws.
- (b) The community participated in decision-making.
- (c) Conflict resolutions processes existed within the community.
- (d) The community had the ability to collectively make decisions either through representatives on committees or at public meetings.
- (e) There was effective communication between the community and its representatives because the latter always had to report back to the community whenever they had attended meetings.
- (f) The community participated in monitoring stocks through record keeping.
- (g) The community was able to raise funds for patrolling and beach management.

Possible negative aspects that could reduce this efficiency are: corruption, nepotism, political interference, lack of transparency, the ignorance of fishers leading to non-commitment, and the dependency of fishers on external support.

3.3.5. Equity

There were several areas in which equity was achieved between genders and groups at the landing site. These may be summarised as follows:

- (a) The community was widely represented on its committee, and members were drawn from amongst groups of boat owners, crewmembers, women, fish traders and general traders. There were, however, only two women on the committee, out of its 18 members. Participation in decision-making legitimises decisions, and ensures that everyone is aware of them. In this way, compliance may be improved.
- (b) Anyone who wanted to fish from the landing could do so, provided they met the beach's requirements. Women were involved in every aspect of fishery within the community.
- (c) Wealth ranking exercises with the community indicated that there were no households that could not access to food or an income. Every adult within the community were encouraged to participate in the fishery to earn an income. Those who did not participate in the fishery did some horticultural farming.
- (d) The costs of complying with regulations were sometimes high, and some could not afford these, and were therefore excluded from the fishery.

3.3.6. Sustainability of community-based institutions

The following points are expected to contribute towards the sustainability of the various, management-related, organisations at Obenge in the long run:

- (a) The beach community is composed of mainly indigenous people who live and interact with the fishery resource. They will be able to pass on to their generations the institutions effectively.
- (b) The institutions are resilient because regulations are changed to adjust to changing conditions.

However, the community was at the mercy of the prices offered by fish processing factories. Because fish is a highly perishable product, fishers were often unable to demand higher prices. This unequal relationship may affect the sustainability of the community's regulatory institutions in the long run.

3.3.7. Lessons learnt

- (a) The fishing communities are able to organize themselves efficiently, and to resolve problems.
- (b) The resolution of offences and conflicts at courts of law involves a lengthy process with high costs involved, corruption, and weak institutions. The lengthy bureaucratic process involved with these institutions undermines their efficacy.
- (c) The beach committee is a vital organization because it handles matters pertaining to both social life and the fisheries. This organization can be incorporated into the management of the fishery.
- (d) Communities are able to resolve their own conflicts.
- (e) Constant interaction of the community with extension officers could improve compliance with fisheries regulations as was observed during monitoring.
- (f) The community was able to organize itself to raise funds for patrolling, prosecution and running the beach. However they needed support from external agencies to achieve their objectives.
- (g) The community participates in making its own byelaws. This increases the effectiveness of compliance as they have a sense of ownership of the regulations.
- (h) The PRA activities at the landing did create a sense of responsible fishing and appreciation.
- (i) Formal institutions appeared to be weak institutions with lengthy procedures and very expensive