EVALUATING THE SUSTAINABILITY OF MANGROVE FOREST: A CASE STUDY OF GAZI BAY, KENYA.

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Introduction

The Kenya coastline extends from 10 4' S to 40 41' S from Kiunga in the North coast to Vanga in the South, which is a distance of ca 575 km. The coastal areas of Kenya are known to be rich and extremely valuable as they concentrate a rich diversity of natural habitats and a large variety of natural resources. Coastal communities have from time immemorial depended on the exploitation of these resources for commerce and industry. Along this coastline, mangroves are common feature in delta, creeks, protected bays, island and river estuaries. The mangroves are mainly found in Lamu district (33,500 ha), Kwale district (8,375 ha) Kilifi district (5,570 ha). Tana River district (3,045 ha) and Mombasa district (2,490 ha). Mangrove forest in Kenya cover some 64,990 ha representing about 1% of the total land area of Kenya and approximately 3.8 % of the total forest cover in Kenya. Given the apparent wide range of significant economic opportunities, emerging threats due to the effects of mangrove deforestation are of great concern.

The project area -Gazi Bay

Gazi Bay is situated 50 km south of Mombasa Island. The community at Gazi depends on fishing as their livelihood. Indiscriminate cutting of the mangrove trees in coastal environment which constitute the breeding grounds of a variety of fishes has resulted in loss of canopy, loss of arboreal organisms and soil erosion in farm plots near the shoreline and creek zones etc. The ecological and economic consequences are disastrous. As a result fishermen and local communities call for strict legislation on harvesting practices of mangrove which appear to accelerate the rate of coastal erosion as well as destruction of breeding grounds e.g. for prawns.

The experimental cultivation of mangrove to rehabilitate degraded areas, restock denuded mudflats and transform disturbed forest into uniform stands of higher productivity was launched in October 1991 (carried out by KMFRI) at Gazi Bay and funded by the Belgium government under the Kenya-Belgium Projects. More than 7,000 propagates saplings and small trees of mangrove species were planted/transplanted at different height along the intertidal complex and monitored.

Deforestation

The Forest Department of Kenya controls exploitation of mangrove through licensing procedures. Over cutting has seriously depleted the availability of export quality poles from most mangrove areas in Kenya. The exploitation of mangrove ecosystem for poles and charcoal caused political concern. In 1975 the government of Kenya imposed a ban on the use of mangrove poles for charcoal production. This was followed by a ban on export of mangrove poles in 1982, a step that seriously affected the economy of coastal communities.

Sustainability

Sustainable development means improving the quality of human life while living within the carrying capacity of supporting ecosystems. It is recognizing that maintenance of biological diversity and resilience of ecosystems, go hand in hand with development activities. Sustainable development is a relationship between dynamic human economic systems and larger but normally slower changing ecological systems in which human life can continue indefinitely. Taking an example of a case study at hand, it was important that the community utilizing the mangroves in Gazi see the threats facing the mangrove forests and therefore feel obligated to care for the forest for the future generations. Within our region, it is realized that sustainable development is fundamental to our livelihood security and that, there is a link between poverty and environmental degradation. It is important that a balance is met between environmental protection and sustainable development and points to be taken into consideration are awareness, public participation, interdisciplinary team work, compromising attitude target definition, equitable distribution of benefits, constant re-assessment of development process, project evaluation and environmental auditing.

Proof and indicators of sustainability

Some important suggestions as a basis for conservation of mangrove forest at Gazi Bay are highlighted below:

- Single use management of the mangrove system is now avoided; a multiple use approach in advocated.
- Anthropogenic pressures and particularly cutting for firewood and construction material is being controlled because these activities [illegible] primary cause of mangrove destruction along the Kenyan coast.
- Mangrove cutting now go hand in hand with replanting. The use of mangrove reafforestation to restore degraded areas has shown success in Gazi bay, Kenya. Some 300,000 mangroves have been restored.
- Creation of mangrove nurseries is now a necessity.

The Integrated Coastal Area Management (ICAM) with its secretariat at the Coast Development Authority has initiated plans to set up national committee to advice on mangrove related problems. A fine (e.g. withdrawing of licenses or being made to plant the cut areas) has been introduced for non-observance of rules. For the adequate enforcement of harvesting rules, supervising guards live in the immediate vicinity of the forest, and it has been necessary to increase the subordinate staff and physical management tools (e.g.) vehicles and boats to enable closer supervision. Since the mangrove project is still young (seven years), the discussion of the evidence of sustainability is premature. However, we are concerned with long-term results, for one reason it would take many years to have a mature forest in the reafforested areas. Some of the good indicators towards sustainability in the project are the increased fish catch and mangrove fauna and reduced erosion which all point to the successfulness of the project. The main stakeholders, the community in Gazi, have accepted to take good care of the forest and are at the same time able to utilize the forest, by having the alternative uses such as bee-keeping, oyster and crab farming. Indeed, some of these successes have encouraged more new similar projects along the mangrove areas of the Kenyan coast, examples being Mida and Tsunza. Under the scenario of a rapid deteriorating coastal environment especially due to mangrove destruction and focusing on those in the littoral zones, a number of alternative economic activities were considered. These are small- scale enterprise, Jua Kali activities, formal employment, agricultural production activities, migration to other economically favorable areas along the coast and investing in tourism activities.

Stakeholders

Stakeholders are the local community of Gazi, Coast Development Authority, Kenya Wildlife Services, Kenya Marine and Fisheries Research Institute, Fisheries Department, Representatives of the Fisheries Association and Forest Department. This multi-institutional planning team has an objective of providing a starting point for addressing urgent coastal issues facing the areas and enriching the dialogue on how to address increasing urgent coastal management problem nationwide. It is an acceptable fact that mangrove are threatened and there is a need to sustain them. The different stakeholders came together with the community at Gazi and all were in agreement that it was a high time such a project is started.

Problems of sustaining the mangrove

There are still no clear government policy guidelines for the management of mangroves in Kenya and although mangrove cutlers have to be licensed, their numbers are not controlled. The Forest Department lacks sufficient resource to undertake large scale forest operations. In this respect, it is necessary to encourage a degree of "self" management amongst the local people in order that reforestation programs can be implemented in degradation areas. Major contrast on sustainability of many resources including the mangroves are mainly political, socio-economic and technological based.

Lessons learned

1. Sustainable coastal management needs to be established and measured in time scales relevant to communities (and conservation).
2. Building strong local capacity is necessary for sustainability. Fostering a community led-process for coastal management is equally critical.
3. Successful programs and specific approaches should be expanded and replicated.
4. Approaches for sustainably financing successful activities after a project ends needs to be identified and tested.
5. A short - term indicator of sustainability maybe communities having not just ownership, but taking control for the project.
6. Start small and build from successful approaches.

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Wadden Advisory Council

The Wadden Advisory Council (WAC) was instituted by the government in 1982. The council's task is to provide the authorities with advice on the most important nature reserve in the Netherlands: the Wadden region. The existence of the Wadden Advisory Council was provided for in the Spatial Planning Act of 1990 and later in the Wadden Advisory Council act of 1997.

The WAC advises on matters of general importance to the Wadden region. The common thread running through all the advice given is the conservation of the Wadden region as a nature reserve as laid down in the Wadden Sea policy document.
The Wadden Advisory Council is an active advisory body. Since its foundation more than 250 recommendations have been published on matters such as gas drilling, governing and administrating the region, hikes across the Wadden mud flats, fishing, (water) recreation, sand extraction, fishing for shellfish, shipping, information and education and many other subjects, major or minor, of general importance to the Wadden region.

Composition and working method

The members of the Wadden Advisory Council are experts with experience in one of the three main areas concerning the Wadden region, i.e. nature and the environment, recreation and tourism and economy and industry. For each policy area there are four members and four deputy members with seats on the WAC. There are also four scientists (and four deputy scientists) who contribute specialised knowledge of public administration, nature conservation and environment, recreation and tourism and economy and industry.
The WAC meets four times a year to lay down recommendations. Committees prepare the recommendations during the interim period. These committees are formed by members and deputy members of the WAC. There are committees for administrative and international affairs, for nature management and energy and for information and education.

Given that the members of the WAC are drawn from various policy areas, it will come as no surprise that views tend to vary somewhat. The WAC usually succeeds in bringing the various positions closer together so that recommendations are backed unanimously. On the (very rare) occasions that it proves impossible to reach agreement on a given issue, the recommendation is issued together with a separate memorandum setting out the minority view.

In order to ensure that support for the recommendations is as broad as possible, the WAC holds regular consultations with the ministers involved, with provincial and municipal administrators, with public officials, etc. The WAC has also built up a network of contacts abroad, typically with organisations in Germany and Denmark that are more or less comparable with the WAC in terms of their composition.

The WAC feels that contact with the inhabitants and users of the region is very important to its advisory activities and their support. For this reason the meetings of the Wadden Advisory Council are public and the WAC is open to 'outside' views. The WAC therefore maintains contact with the various social organisations that are involved in the Wadden region (see the list of social organisations).

The WAC also pays an annual working visit to the Wadden region to make local enquiries about important developments in the region and to speak to the inhabitants and users of the region.

The secretariat of the Wadden Advisory Council

It will be clear from the above that the WAC's doors are always open to inhabitants and users of the Wadden region. The WAC has its own secretariat with offices in Leeuwarden, which is also where the WAC usually holds its meetings.

If you feel that a certain problem in the Wadden region is not being given sufficient attention, please write to or telephone the WAC. You are also welcome to visit the secretariat where you can obtain further information, WAC documents, and so on.

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