Macrothink Institute™

Environmental Management and Sustainable Development
ISSN 2164-7682
2017, Vol. 6, No. 1

Challenges and Gaps in the Existing Laws and Policies in Marine Related Resource Use and Conservation in Watamu Mida Creek, Kenya

Fikir Alemayehu

Department of Land Resource Management and Agricultural Technology

University of Nairobi, Nairobi, Kenya

Tel: 254-716-608-130 E-mail: fikiral2@gmail.com

Received: December 26, 2016 Accepted: January 25, 2017

doi:10.5296/emsd.v6i1.10766 URL: http://dx.doi.org/10.5296/emsd.v6i1.10766

Abstract

Having a comprehensive environmental legislative framework which assists laws and policy guidelines to be formulated and implemented are crucial for the management and conservation of coastal areas. Watamu Mida creek coastal area needs protection and special consideration because it is a very fragile environment which can be negatively affected if a proper management plan has not been put in place. The objective of this research is to assess challenges and gaps in the existing government laws, policies and regulations on land use, mangrove forest and shoreline management. In addition, the study also incorporates the opinion and knowledge of all local stakeholders who work and live in the area in order to triangulate what the problems are, and what needs to be done in future in order to come up with a more sustainable and practical management plan. A review of the available Acts and polices specifically regarding shoreline protection and mangrove conservation was undertaken highlighting the challenges of each mandated institution. For the household questionnaires, a stratified random sampling method was used. The household survey included 60 respondents from different resource users groups and villages. Five Focused Group Discussions (FGDs) were conducted with representatives of the community and eleven key informant interviews were conducted with the key leading government office representative's, non-governmental organizations, hoteliers, and long term residents along the beach. The research found that the policy instrument review of the existing policy and legal framework indicated a number of gaps and opportunities for the protection of the coastal environment in the study area. Institutional mandates between the Kenya Forest Service and Kenya Wildlife Service need to be fully clarified with urgency, in order for the management plans for the area to be both approved and supported by these government agencies. In

addition, policies and regulations which are not currently implemented need to be updated based on the current pressure-state situation, and there should be strong law enforcement and strict regulation and guidelines to protect this coastal environment.

Keywords: Watamu Mida creek, Policies, Regulations, Environment, Coastal areas, Conservation, Management

1. Introduction

Coastal areas receive economic development in the form of tourism, agricultural, and industrial development (Salm et al., 2000). Primarily the seashore provides attractive scenery, distinctive resources and creates good opportunities for tourism development (IGAD, 2007). The impact of tourism related activities on a given shoreline needs careful management and protection. Human activities affecting the oceans require integrated planning to ensure that development goals, strategies, and projects will not negatively affect the marine life and the surrounding inhabitants (Kimball, 2001). In addition, a good legislative environment which enables, law and policy guidelines to be formulated and applied, are essential for sustainable use and management of coastal areas.

There are a number of international treaties to protect the natural resources of the ocean and the coastal environment. Some of these treaties are: The UN Convention on the Law of the Sea which was adopted in 1982. This provides the legal basis for protection and sustainable development of the marine environment and its coastal resources (Salm et al., 2000).The 1995 Convention on Biodiversity (CBD), Jakarta Mandate, on marine and coastal biological diversity which provides for the sustainable use of marine and coastal living resources. The 1972 Convention concerning the protection of the world and natural heritage (World Heritage Convention) (Kimball, 2001). Kenya has signed these and several other international and multilateral environmental agreements in order to protect its coastal areas (GOK, 2009).

There are also national land Acts and land policies which directly or indirectly affect the coastal areas of the country. For example, the Physical Planning Act No.6 of 1996 of the Laws of Kenya which came into force on 28th October 1998 is a legislative framework for systematic national land use planning (Weru et al., 2001). However, according to the new Land Policy document (2009), the land question within the Coast region is potentially explosive owing to its peculiar historical and legal origins. A report by WIOMSA (2010) also emphasized the problem associated with the existing coastal development policies and practices which exacerbate the risks to coastal communities associated with shoreline change, erosion and inundation. There is also a problem of overlapping and uncoordinated jurisdictions which leads to duplication of effort and wasted resources among different sectors (e.g. the Forestry and Wildlife Sectors, GOK, 2009).

In Kenya there are 77 Acts which address the conservation and management of the environment (UNESCO, 1997). Except the Coast Development Authority Act 1990, and Environmental Management and Coordination Act (EMCA) 1999, there are no direct Acts, regulations or policy documents which address the issue of coastline resource use and management. Most of the regulations regarding coastal areas are scattered through a range of

resource and sectorial specific Acts and policy documents. Some of the Acts which directly or indirectly address the issues of coastal area management appear to be duplicated, have overlapping mandates and/or have a system of weak penalties (GOK, 2009). A study in the West Indian Ocean countries namely; Kenya, Tanzania and Seychelles revealed that these countries do not have an inclusive legal framework designed towards general beach management (WIOMSA, 2009). The same document indicated that in the case of Kenya there is only one instrument, EMCA 1999, for regulation of developments along the shoreline. Other issues such as shoreline change and guideline policies towards land use planning along the shoreline were not addressed by EMCA 1999.

Watamu Mida creek is one of the main tourist destinations at the coast and supports many of the local communities who are largely dependent on the income from the tourism sector and the natural resources of the area. This coastal area needs protection and special consideration because it is a very fragile environment which can be negatively affected if a proper management plan has not been put in place. Currently the area is under a lot of pressure arising from; the growing human population and in-migration from other parts of the country, heavy reliance of the local community on the mangrove forest, fishing and agriculture, and also from the expanding tourism industry which requires an attractive natural coastline to sustain investment as well as heightened security issues.

The objective of this research is to assess challenges and gaps in the existing government laws, policies and regulations on land use, mangrove forest and shoreline management. In addition the study also incorporates the opinion and knowledge of all local stakeholders who work and live in the area in order to triangulate what the problems are, and what needs to be done in future, in order to come up with a more sustainable and practical management plan. A review of the available Acts and polices specifically regarding shoreline protection and mangrove conservation was undertaken highlighting the challenges of each mandated institution.

2. Material and Methods

2.1 The Study Area

The study was conducted from 2013 to 2015 in Watamu Mida creek Kilifi County, in the Coast Province, Kenya (Figure 1). The study area covered approximately 60 square kilometers. Mida creek is a biologically important and complex tidal marine multi-habitat ecosystem supporting the adjacent local communities by providing foods, building materials and tourist revenues (Weru et al, 2001). *The Creek expands across an area of 32 square kilometers. According to* the population census of 2009, the population of the study area is 67,215 with estimated growth rate of 3.05% (GOK, 2009). The study area falls under the Agro-ecological zone identified as Coastal Lowlands.

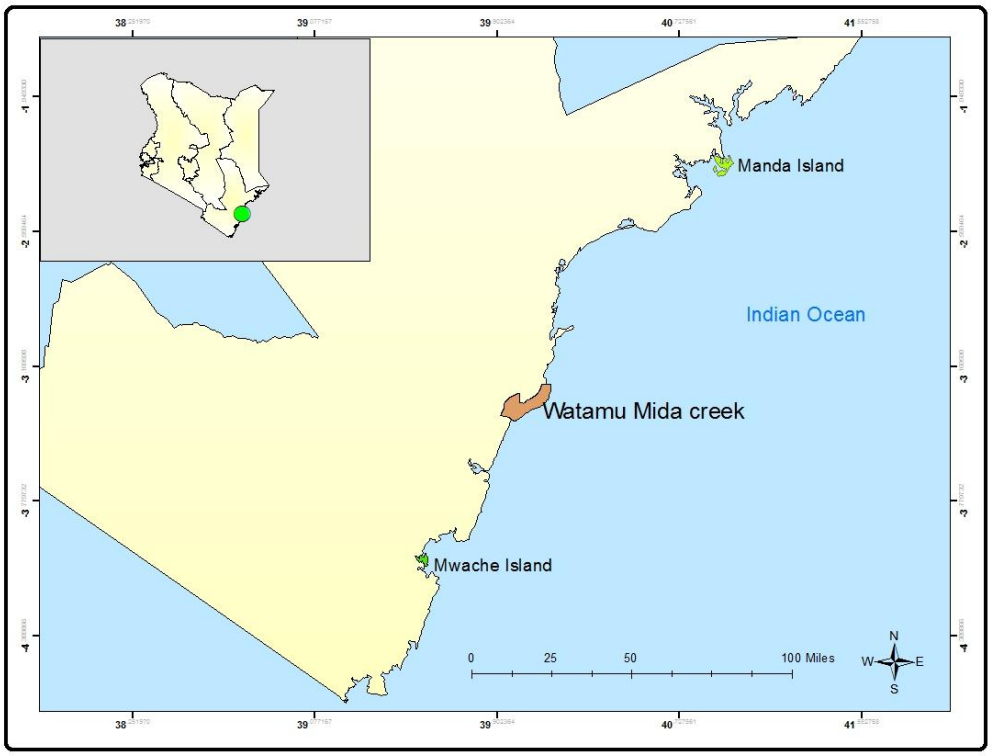

Figure 1. Location map of the study area

National parks and reserves constitute important components of the coastal ecosystems, and are major tourist attractions. The study area includes a National Park and one National Reserve. In most of the villages, except those near the shoreline and urban areas (such as Watamu village), rural settlement with mixed cash crop trees is the main land use type (Gang and Agatsiva, 1992). The main cash crops are; cashew nuts, mangoes, and coconuts. More recently *Cassurina sp.* trees are being grown in most villages to meet the high demand for construction poles. Other land use types are; residential plots, and big hotels as ribbon development along main routes in the hinterland. Business and commercial areas including local markets are becoming a more important land use type.

2.2 Review of Existing Policy Documents

Before conducting the primary data collection using questionnaires, Focus Group Discussions and key informant interviews, all relevant policies, Acts, regulations and legal documents related with coastal resource management were comprehensively reviewed. A policy instrument analysis of the existing policy and legal instruments was necessary to see what challenges, gaps and opportunities existed for the protection of the coastal environment in the study area. Except for the Coast Development Authority Act 1990, and EMCA 1999, there were no direct Acts, regulations or policy documents which address the issue of coastline resource use and management in Kenya. Most of the regulations regarding coastal areas are scattered in a range of resource and sectorial specific Acts and policy documents. For the purpose of this study; Acts, Regulations and Policies directly or indirectly affecting the use of resources such as the mangrove forest, the shoreline, and land adjacent the mangrove forest,

and hinterland were reviewed and included in the discussion part.

Key Acts and legislative documents relating to marine and coastal protection reviewed were: Physical planning Act 1998, Draft Physical Planning Bill 2014, Coast Development Authority Act 1990, The Tourism Act 2011, Forest Act 2005, Wildlife Conservation and Management Act 2013, Environmental Management and Coordination Act 1999 (EMCA), Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation 2009.

2.3 Primary Data Questionnaires

In order to understand what challenges exist for implementation of existing Acts, and assess the level of understanding of these acts by the community and other stakeholders who work in the area household surveys, Focus Group Discussions (FGD) and key informant interviews (KII) were conducted. The main objective of the primary data collection using the household survey, FGD and KII was to understand the knowhow of the community regarding; use and conservation of the coastal resources, to assess the level of their knowledge regarding the existing policies and regulations, to identify key challenges for implementing the existing Acts by the government offices, to gather information on the perception of the communities regarding what has to be done to improve the use and conservation of the resources, to find out the opinions of other stakeholders who run businesses and work with the community regarding the current Acts, regulations (and the challenges they face in the implementation of these polices) and, the way forward to improve the situation in the future.

The household surveys comprised of two main categories: general background information, and, opinion and perception assessment questions directly related with the use and conservation of coastal resources. The key topics discussed included: effectiveness of Government organizations and Non-governmental organizations (NGOs) working to support the management of marine and various land based resources in the locality; efforts made to protect both the resources on the land and in the marine areas; Government rules and regulations that influence land and marine resource management in the locality; high priority issues in the locality that need intervention; use and management of mangrove and associated resources; the main challenges in managing the mangroves and associated resources; Government laws or local by-laws for management of the Mida-Creek mangrove, shoreline and land use; compliance of the local community with the laws and regulations in using the creek for fishing or tourism or any other activity (attitude-rating scales from 1-3); co-management that exists between government and coastal communities for managing the creek and the mangroves (or other resources); measures to be taken to improve management of the creek in terms of strengthening the government's regulatory and institutional framework; rules and regulations of which the community were aware concerning mangroves, marine reserve and park; main threats to the coastal environment and finally; recommendations by the community and other stakeholders.

2.4 Sampling Size and Sampling Methods

For the household questionnaires, a stratified random sampling method was used. The

household survey included 60 respondents from different resource users groups and villages and included: fisherman, boat operators, tour guides, beach operators, community conservation groups and women groups. A sample of 10% of the household were selected from the total population with Margin Error of +/-5% and 95% of confidence interval (Watson, 2001).The list of households from each of the villages were collected and households were randomly selected from each group. The household questionnaires were at first tested on 20 households selected randomly from other villages. Based on the outcome of the test, the questions were corrected and improved. The questionnaires were translated in Kiswahili before the actual household survey. The researcher conducted the survey together with a local person who spoke both the two local languages (Kiswahili and Giriama) and English. The research was conducted in each household compound and/or work location i.e. along the beach.

2.5 Focused Group Discussions and Key Informants

Prior to the household survey and Focused Group Discussions, a community meeting was held in Dabaso village and 20 community representatives attended the meeting. The purpose of the meeting with the community was to discuss the objectives of the research. Based on the information, comments and suggestions of the community, key government offices, community based resource user groups and individuals who could assist in the research were identified. At the same time the questions prepared for the Focused Group Discussions were tested. The target group for the Focused Group Discussions were mainly elderly community representatives. The objective for each FGD discussion was to ascertain local stakeholder perspectives on land use change, shoreline erosion and mangrove dynamics and whether the drivers of these changes are human induced or 'naturally occurring'. Five Focused Group Discussions (FGDs) were conducted with representatives of the community including; fishermen, boat operators, tour guides, safari sellers, beach operators, curio sellers, and community forest conservation groups. Eight to ten participants attended the Focused Group Discussions in each session. Eleven key informants interviews were conducted on a one to one basis with the key leading government office representatives from: Kenya Wildlife Service, Kenya Forest Service, National Environment Management Authority, and non-government offices such as; Watamu Marine Association, Local Ocean Trust, and A Rocha Kenya, and hoteliers (Turtle Bay Beach Club which is a leading hotel for environmental best practices and conservation), Garoda Resort and residents living along the shoreline. The key informant interview questions were pre prepared on areas that needed further clarification and more detailed historic information. Additional relevant unpublished strategic plan documents from KWS and other offices, prepared by Government of Kenya, were reviewed and used in the analysis.

2.6 Data Analysis

The socioeconomic data which was gathered from household questionnaires, Focus Group Discussion and key informant interviews were analysed and computed using IBM SPSS version 19 (Statistical package for social sciences). The variables from the household questionnaires were selected for summarizing and organizing the data and were analyzed

using; frequencies, and descriptive statistics.

The information gathered through Focused Group discussion (FGD) and key informants was summarized and organized into themes to discuss the opinion and knowledge of all local stakeholders. These data were transcribed and coded and then organized in inductive categories using *ATLAS.ti* (version 7) qualitative data analysis software and IBM SPSS statistics (version 19).

3. Result and Discussion

3.1 Challenges Observed in the Implementation of Laws, and Regulations

3.1.1 Existing Acts and Regulations, and Institutional Challenges for Controlling Shoreline Development

Key institutions responsible for the protection and management of mangrove forest and marine life, including the Marine Park and Reserve are; Kenya Wildlife Service, Kenya Forest Service, Coast Development Authority (CDA), Fisheries Department and Kenya Marine and Fishery Research Institution (KMFRI). From these key institutions, Kenya Wildlife Service and Kenya Forest Service take the major responsibility to administer and protect the Marine Park and Reserve which includes the mangrove forest. Kenya Wildlife Service has the mandate to conserve and manage the wildlife in the Marine Park and Reserve. The obligation to enforce laws and regulations related to marine and terrestrial parks and reserves is the responsibility of this institution. However the institution does not have enough manpower to patrol the Marine Park and Reserve, they also have a problem to control the unplanned development along the beachfront and in mangrove adjacent areas where encroachment and illegal cutting of the mangroves can occur. A recent research finding in a similar case indicated that Kenya Wildlife Service face challenges to enforce the regulation of protection within the riparian zone which is designated as an area of 30 meters from the highest water mark (Carter, 2013). The Kenya Wildlife Service alone cannot stop unplanned development near the High Water Mark (HWM) or encroachment in the mangrove forest by private developers. In such instances, it must work with the National Environment Management Authority. According to the Environmental Management Co-ordination Act Wetlands regulation (2009), section (17) indicates the overall principles which are relevant for coastal areas, such as the requirements of an Environmental Impact Assessment (EIA) for any kind of project, sustainable use of shoreline, and the importance of developing an inventory of degraded shorelines and their conservation measures. The National Environment Management Authority have the responsibility to request the developer to bring an EIA report before they actually allow the construction to begin. The developer or investor also has the responsibility to discuss with all stakeholders and get their acceptance. However sometimes the EIA will not be done correctly, with lack of commitment and willpower to stop an unplanned development which can harm the environment. On a parallel note a report by WIOMSA (2010) pointed out that the EMCA (1999) does not have policy guidelines, regulations or proper management plan criteria for coastal land use and shoreline changes. The Physical planning Act (1998) also empowers the Local Authorities under section (29) of the Act, ‘to reserve and maintain all land planned for open spaces, parks, urban forests and

green belts'.

There have been cases where the developer came with permission from the National Environment Management Authority head office without the knowledge of the County office or without any discussion with the local stakeholders or any other relevant institutions such as Kenya Wildlife Service or Kenya Forest Service. In such cases it was difficult for the mandated institution in the area to stop any development which potentially could affect the shoreline and/or the mangrove forest. However there have been cases where such developments have been stopped with the help of all stakeholders (including local government institutions), as in the case of the Watamu Blue Lagoon headland development. In this case a developer put up a fence (Figure 2) and started a development without consulting the community or any other stakeholders. This headland is an important part of the shoreline and needs to be left alone to protect the lagoon from strong winds and waves. This research noted however that the fence put up by the developer has still not been demolished.

Figure 2. Illegal development on Blue lagoon headland

3.1.2 Existing Acts and Regulations and Institutional Challenges for Mangrove Conservation

The mangrove forest reserve had been 'doubly gazetted' at the national level as both a Forest and Marine Reserve. Internationally, it is also recognised as part of a biosphere area under UNESCO. Under Kenya's Forest Act, (2005) section 41 (1) it states that; 'All indigenous forests and woodlands shall be managed on a sustainable basis for purposes of, river line and shoreline protection, habitat for wildlife in terrestrial forests and fisheries in mangrove forests, sustainable production of wood and non-wood products'. The Kenya Forest Service allows the local community who live adjacent to the mangrove forest use of mangroves for harvesting poles for house construction, and subsistence firewood collection. Nevertheless, the same Forest Act under section (32) (3) states, 'No cutting, grazing, removal of forest produce, hunting or fishing, shall be allowed in a nature reserve except with the permission of the Director granted in consultation with other conservation agencies, which permission shall only be given with the object of facilitating research'. This section of the Act clearly contradicts with section 41 (1) which allows sustainable use of mangrove forest within the Reserve. To harvest mangrove poles a license is required from the KFS which costs 3,000 Ksh per annum per license (Mauser and Hirsch, 1992). However, obtaining a license takes a lot of time and as the result people undertake illegal harvesting of mangroves (Dahdouh et al., 2000).

On the other hand, according to the Wildlife Conservation and Management Act, (2013) section 36 sub section (3), it states that; 'a marine conservation area shall adopt a system of zoning that caters for multiple use of marine resources for extraction or no extraction zones in respect of marine resources.' The Kenya Wildlife Service do not allow extraction of mangrove forest within the reserve. The main challenge here is that both the Kenya Wildlife Service and Kenya Forest Service have responsibilities for the conservation and management of the mangrove forest. The Kenya Wildlife Service does not allow any extraction of mangrove forest in the reserve areas, while Kenya Forest Service allows sustainable use of mangrove forest by local communities within the same area.

Such overlapping mandates creates a gap in the conservation approach which local people continue to exploit to the detriment of the mangrove forest. For example, the mangrove tree species such as; *C.tagal*, *B.gymnorrhiza* and *R.mucronata are* targeted for construction of houses and with increasing demand from the hotels and private houses. The magnitude of the destruction of the mangrove forest is increasing over time. This is partly because of the lack of coordination in the management and conservation of the two mandated institutions.

Other challenges faced by the Kenya Forest Service include; insufficient staff establishment, and hence lack of capacity for law enforcement, limited work facilities and tools (e.g. there is no boat for patrolling the marine areas). The other challenge is the continued community dependency on the mangrove forest. The community view mangroves as a community resource and not as an environmental service to protect the area and sustain the marine ecology. They depend on the mangrove forest to get poles to build their houses. In some villages mangrove trees such as *Avicinia marina* are used as a browse by livestock during the dry season. The other emerging threat to the mangrove forest is charcoal making. This was not reported in the past, but now it is becoming a problem. This is mainly because of the high dependence on income from tourism, and the recent reduction of tourist flows in the Watamu area has created high unemployment which in turn has resulted in increased exploitation of mangroves and over fishing in the Mida creek. Global events such as international security issues (e.g. the Somalia insurgency) have affected tourism. There is a common expression by the local people that, 'during a low tourist season, everybody becomes a fisherman.'

3.1.3 Environmental Management and Co-ordination Act (EMCA) (1999) and Institutional Challenges

The National Environment Management Authority (NEMA) is another key institution with a direct mandate for implementing rules and regulations within the coastal area and marine environment under the Environmental Management and Co-ordination Act (EMCA) (1999). The Act under section 42 subsection (1) states the need to submit environmental impact assessment reports and get written authorization of the Director-General before any development can take place along the coast. Section 55 subsection (1) also states that, 'The Minister may, by notice in the Gazette, declare an area to be a protected zone and in consultation with the relevant lead agencies prepare a survey of the coastal zone and an integrated national coastal zone management plan.' The National Environment Management Authority has some challenges in the implementation of these regulations. The first one is

lack of enough trained manpower in order to go out to assess projects and inspect unplanned developments. For example a report by Government of Kenya (2009) stated that no construction is allowed within 30 m from the high water mark in the Marine Protected Area.

However, the field survey revealed that there are several buildings within the high water mark range. As parallel research by Carter (2013) reported, the Kenya Wildlife Service also do not have a clear document which shows the demarcation of the riparian area and as a result it was difficult to stop the developers in the tourism sector from encroaching. This is a very big gap which hinders the implementation of regulations along the shoreline. There is also lack of manpower assigned at County office level to enforce the EMCA regulations.

Under the EMCA 1999 regulations Section 42 subsection (3) states, 'National Environment Management Authority by notice in the Gazette, issues general and specific orders, regulations or standards for the management of river banks, lake shores, wetlands or coastal zones and such orders, regulations or standards may include management, protection, or conservation measures in respect of any area at risk of environmental degradation.' However, the influences of human activities such as clearing of the shoreline vegetation cover, leveling the beach to get a better view of the sea, and uncontrolled construction of sea walls to halt shoreline erosion is observed to be continuing along the shoreline. In addition to this, despite the 60 meters set-back above the High Water Mark (Government of Kenya, 2010) outside of the Marine Park, again several tourist hotels, private houses and residential/holiday homes were observed within the high water mark range along the shoreline. This has resulted in shoreline change and severe erosion which is causing damage both on the shoreline and within these properties.

Another problem is political influence. It was reported by the National Environment Management Authority office as one problem that sometimes a project will get approval without the knowledge of the local County office. The headquarter office in Nairobi may sign and approve a project, and following this action the County officer will have no power to stop the project. A further challenge is a gap within the EMCA (1999) Act itself which states that 'a temporary building can remain with a warning', and this regulation is very difficult to enforce. Sometimes a developer, knowing the Act, will put up temporary structures for example along the shoreline, and then obtain permission from the physical planning unit for permanent construction without National Environment Management Authority approval. The other challenge is lack of awareness of the need for an EIA by the general public. If a building or project commences without any EIA and National Environment Management Authority office is later notified about it, then the office has the power to stop the project, especially if it finds that the project has a potentially negative environmental impact. A good example of the Act working is the aforementioned project on Blue lagoon headland.

3.1.4 Physical Planning Act and Institutional Challenges

The physical planning unit at the County has the mandate to give approval for a development. The Physical Planning Act, 2014, Section (12) (2) states, 'The Commission shall ensure that any public land that has been identified for allocation does not fall within any of the following categories, forest and wild life reserves, mangroves, and wetlands or fall within the

buffer zones of such reserves'. However, the physical planning unit do not have a copy of the land use plan for Watamu Mida Creek area, this is because the area is considered as a Marine Reserve and National Park. The Physical planning unit is also under a different department, and there is also a problem of trained manpower and capacity in the area. As a result plans may be approved without staff ever visiting the development site. An example here is the issue of Dongokundo village (adjacent to the mangrove forest) where land use conversion is currently observed. In this village several previous farmland and small household plots have been converted into big private holiday houses. According to the physical planning unit in Kilifi County, a Master Plan for all areas along the north coast including the Watamu Mida Creek is under preparation.

Another office which is equally responsible in the tourism sector is the tourism office. According to the Tourism Act 2011 the Minister has the responsibilities of, 'providing licenses, classification of tourism activities, regulation, restriction and control of tourism related activities and services, and managing the shoreline'.

3.2 Perceptions of Existing Policies and Regulations among Community Members, Hoteliers, and Non-Governmental Organizations

3.2.1 Community Level

Respondents were asked to list some of the Acts and Regulations related with mangrove protection, fishing, shoreline and the Marine Park and Reserve areas. Among the households 40% of them were aware of some the regulations in the Forest and Fishery Acts, whereas 21% of the respondents identified some of the rules related with the Marine Park and Reserve. Out of the 60 households interviewed only one person knew about the physical planning Act, and none of them were aware of the EMCA regulations or about the need of an EIA before the implementation of any project (Figure 3). At household level none of the survey respondents mentioned about the setback rules of the High Water Mark along the beach and near the mangrove forest. Whereas during Focused Group Discussions the participants indicated they were aware of the 30 m set back rule (in areas adjacent to the Marine Park), and stated the current development trend near or below the High Water Mark along the shoreline as one of the reasons for the shoreline erosion.

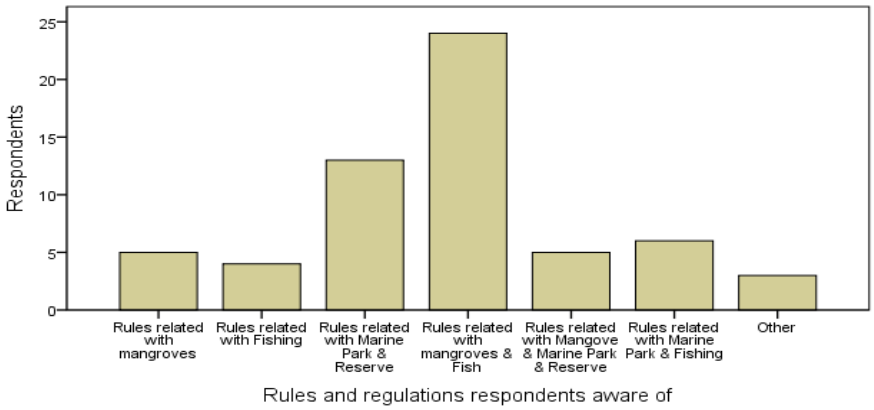

Figure 3. Some of the rules and regulations of which the community were aware concerning mangroves, marine reserve and park

The community in Watamu Mida Creek area are highly dependent on the natural resources and marine life for their livelihood. Although the tourism sector is the main income earner, its existence depends largely on the healthy environment of the shoreline and its natural beauty. Community expectations from the leading government institutions in; enforcing laws and regulations on areas of new developments, illegal cutting of mangroves, controlling overfishing, sharing the income collected from the Marine Park and other touristic activities, is very high. Generally the level of awareness on the regulations and some of the "dos and don'ts" in the use and management of these resources amongst the community was good. According to the household survey results, 96.7 % of the community members were aware of some of the existing rules and regulations of natural resources in the Marine Park and Reserve (e.g. those relating to fishing and mangrove use). The household survey results revealed that although over 40 percent of the respondents knew about some of the Acts and Regulations, the majority of them agreed that the level of compliance was very weak (Figure 4).

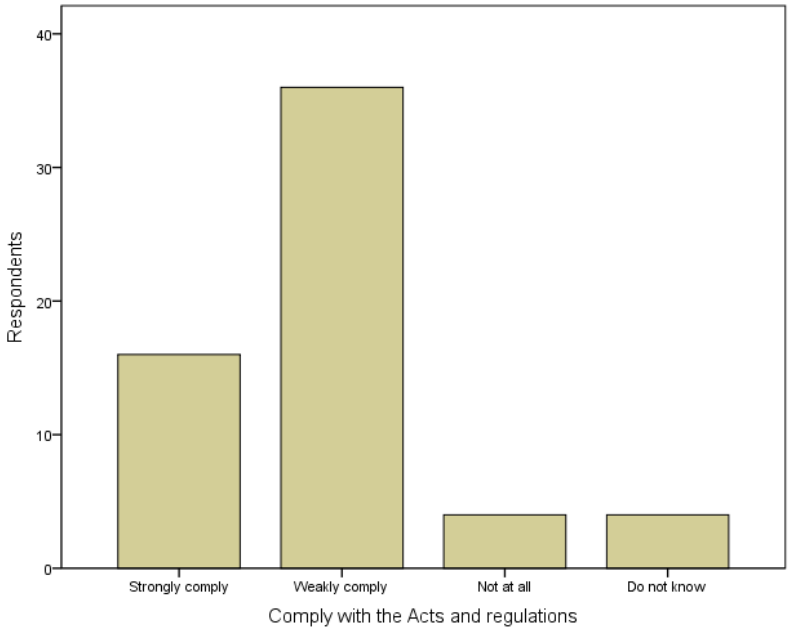

Figure 4. Household pereception on levels of compliance with the existing laws, rules and regulations

The respondents also showed that they were aware of some of the observed degradation and depletion of resources (Table 1). During the Focused Group Discussions they reported some of the threats to; mangrove forest, shoreline, fishing, sea turtles and general marine life. They also suggested possible solutions for the main challenges facing the environment. The following Table summarizes the five Focused Group Discussions with different local resource user groups in the community on what were raised as a threats and suggested community recommendations. The threats on mangroves and shoreline perceived by the community also reported in several other studies. For example, a study by Muthiga (2009), reported the ever increasing tourism industry and the resulting effect on the decline of some of marine habits including mangrove forest. Dahdouh et al., (2000) stated the high demand of mangrove poles

for house construction which exerted a high pressure in the forest. Another research by Alemayehu et al., (2014) described the human induced shoreline erosion mainly from; increasing construction of hotels along the shoreline, construction of sea walls and, clearing of the beach vegetation cover all of which exposed the shoreline to increased erosion.

Table 1. Threats to mangrove and shoreline

Main threats of the coastal environment and recommendations by the community in Watamu Mida Creek			
Threats of mangrove	Recommendations	Threats of shoreline	Recommendations
▪ Illegal cutting ▪ Natural factors (e.g. flooding some years back) ▪ Poor law enforcement ▪ Lack of knowledge ▪ Population increase ▪ High level of poverty and unemployment ▪ High demand of construction poles ▪ Expansion of villages ▪ Fishermen dig the roots of the mangroves to get fish bait	▪ Awareness creation on the conservation and management of mangroves and shoreline ▪ Support community from the fees collected from the Marine Park ▪ Alternative or diversify livelihood activities ▪ Planting more trees to reduce the pressure on mangrove trees ▪ Strong law enforcement from all institutions ▪ Create more community conservation groups ▪ Community participation and involvement in the conservation and management of the mangrove forest	▪ Beach erosion ▪ Climate change ▪ Tourist related activities along the shoreline eg development near the shoreline ▪ Land use change ▪ Lack of management plan ▪ Development close to the shoreline ▪ Clearing vegetation from the beach to get a better view ▪ Levelling the beach to get a better view ▪ Natural factor such as deposition of sand and mud from the adjacent areas	▪ Community involvement in upcoming projects and investments ▪ Better communication and working environment with leading government institutions ▪ Community needs to be vigilant on all illegal activities and report to authorized offices ▪ Education to all resources users and to those that work to protect the environment ▪ Involve those engaged in illegal use of resources in conservation activities

Source: Five Focused Group Discussion with the representatives of local community resource users.

3.2.1 Hoteliers and Non-governmental Organizations

There are notable non-governmental organizations in Watamu such as; the Watamu Marine Association (WMA), A Rocha Kenya, and Local Ocean Trust who are working in the conservation and protection of the mangroves and marine life and also supporting the community in many ways in the sustainable use and conservation of the environment. Out of

a total of 25 hotels there were a few (for example; Turtle Bay Beach Club and Hemingways Watamu) who are working together with community conservation groups to protect the environment. They are involved in: the promotion of ecotourism, recycling and contributing towards supporting the local communities through maintaining; roads, schools, clinics and supporting community conservation groups. Both the hoteliers and non-governmental organizations (NGOs) had expectations from the mandated government institutions for strong law enforcement in order to reverse the destruction of mangrove forests and marine life. The following diagram summarized the main issues raised by key informants interviewed from hoteliers and NGOs concerning the main drivers of change in the mangroves and along the shoreline (Figure 5).

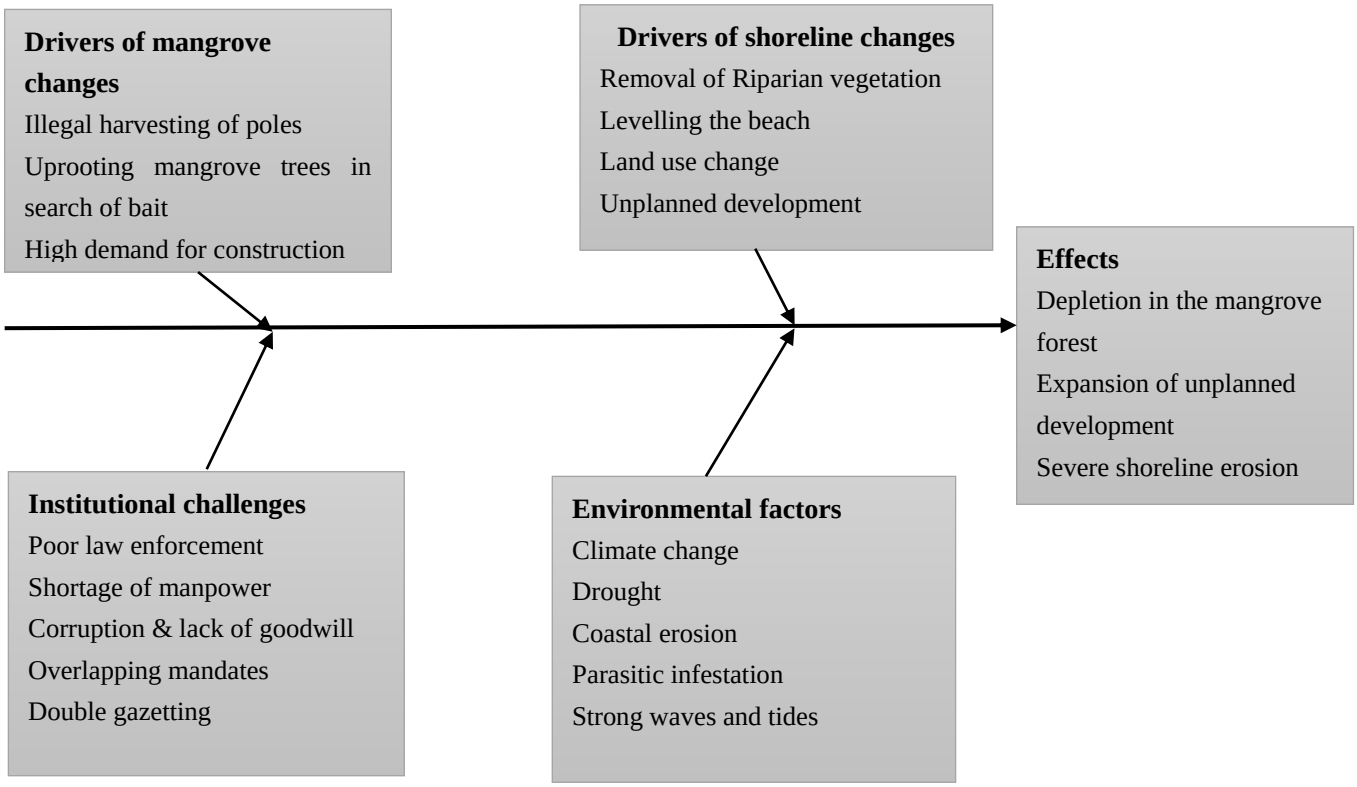

Figure 5. Hoteliers and non governmental organization perceptions on the effects of threats on coastal resources

The hoteliers and NGOs provided some suggestions in order to improve the management and conservation of the shoreline and mangrove forest. Among them were: increasing community involvement to protect the mangrove forest, such as joint patrolling with community representatives and Kenya Forest Service and Kenya Wildlife Service rangers, recruitment of community guards to look after the resources, creating a sense of ownership and trust amongst the community in the use and conservation of the mangrove forest, training and awareness raising programs for the local community to emphasize the importance of sustainable utilization of resources. Other areas mentioned that needed improvement were: law enforcement capacity by the institutions with research mandates, capacity building for the staff in the leading government institutions, increasing the number of rangers, and regular stakeholders meetings on the conservation and management of the mangroves and marine life.

The key informants suggested the need to create a centralized management unit with representatives from; Kenya Wildlife Service, Kenya Forest Service and local communities to improve the overall management. Kenya Wildlife Service also needs to inform tourists or visitors before they go out to visit the Marine Park on what is allowed and not allowed so that damage to the environment will be minimized. There is also a need to create awareness among local community members who work in the Marine Park so that they can become 'watchdogs' for the environment, and report any damage that is caused by visitors or tourists.

4. Conclusion

A Policy instrument review of the existing policy and legal framework indicated a number of gaps and opportunities for the protection of the coastal environment in the study area. Except the Coast Development Authority Act 1990, and Environmental Management Coordination Act 1999 there are no Acts, Regulations or policy documents which directly address the issue of coastline resource use and management in Kenya. Most of the regulations regarding coastal areas are scattered in a range of resource and sectorial specific Acts and policy documents.

When it came to the institutional settings, there is a lack of coordination and overlapping mandates between, or amongst, institutions on the same resource use and management, lack of law enforcement, political influence, lack of manpower, and a lack of a clear management plan for the area. These conditions create confusion between the existing Acts which hampers implementation and results in a lack of practical guidelines for officers on the ground. Several hotels have been built along the shoreline (within the setback measures or the high water mark), and some hotels have built seawalls to reduce the effect of erosion yet there is no regulation to control such construction.

The outcome of the study is that, mandated institutions in the area such as; the Kenya Wildlife Service and Kenya Forest Service, as well as other offices like, the National Environmental Management Authority (NEMA) and the Ministries of Tourism, and Fisheries Department, have responsibilities to make sure that tourism developments are carried out without compromising the environmental, cultural values and social diversity of the area. Policies and regulations which are not currently implemented need to be updated based on the current pressure-state situation, and there should be strong law enforcement and strict regulation to control any unplanned developments along the coast and in the neighboring hinterland. This study recommends firm action needs to be taken to control unplanned and unregulated changes before it is too late.

Acknowledgement

This research is fully supported by the Regional Universities Forum for Capacity Building in Agriculture (RUF-ORUM) and the author is thankful for the support given to conduct the field work. The author also wishes to thank all the; communities, hoteliers, government officials and residents along the Watamu beach for sharing their information and Dr. Hugh Gibbon for his financial support.

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