

Assessment of mangroves species vulnerable to human threats



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RESEARCH PROPOSAL

TITLE: ASSESSMENT OF MANGROVES SPECIES VULNERABLE TO HUMAN THREATS AT MBEGANI AND MLIGOTIN VILLAGE.

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1. 0 INTRODUCTION

1. 1 BACKGROUND INFORMATION

Mangroves are woody plants that grow at the interface between land and sea. occur worldwide in the tropics and subtropics, mainly between latitudes 25° N and 25° S. they are salt tolerant trees, also called halophytes, and are adapted to life in harsh coastal conditions. They contain a complex salt filtration system and complex root system to cope with salt water immersion and wave action. They are adapted to the low oxygen conditions of waterlogged mud. The word “ mangrove” is usually considered a compound of the Portuguese word “ mangue” and the English word “ grove.” The term “ mangrove” often refers to both the plants and the forest community. To avoid confusion, Macnae (1968) proposed that “ mangal” should refer to the forest community while “ mangroves” should refer to the individual plant species. Mangrove forests are sometimes called “ tidal forests”, “ coastal woodlands”, or “ oceanic rain forests.” Mangrove swamps are found in tropical and subtropical tidal areas. Areas where mangal occurs include estuaries and marine shorelines. High tide brings in salt water, and when the tide leave, solar evaporation of the seawater in the soil leads to further increases in salinity. The return of tide can flush out these soils, bringing them back to salinity levels comparable to that of seawater.

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At low tide, organisms are also exposed to increases in temperature and desiccation, and are then cooled and flooded by the tide. Thus, for a plant to survive in this environment, it must tolerate broad ranges of salinity, temperature, and moisture, as well as a number of other key environmental factors thus only a select few species make up the mangrove tree community. About 110 species are considered “ mangroves”, in the sense of being a tree that grows in such a saline swamp.

Mangrove ecosystems are estimated to cover 150 000 km² world-wide (Diop 1992, 1993). Mangroves can be found in over 118 countries and territories in the tropical and subtropical regions of the world the largest percentage of mangroves is found between the 5° N and 5° S latitudes. Approximately 75% of world’s mangroves are found in just 15 countries. Asia has the largest amount (42%) of the world’s mangroves, followed by Africa (21%), North/Central America (15%), Oceania (12%) and South America (11%).

Africa has about 35 000 km² of mangrove ecosystem (Diop 1992, 1993), Nigeria has largest mangrove area about 1mln ha. East Africa consist of mangroves swamps along the Indian Ocean coast of East Africa in southern Mozambique, Tanzania, Kenya and southern Somalia.

Delta of Zambezi in Mozambique and Rufiji River in Tanzania are large area of mangroves which can extend as far as 50 km inland, as well as smaller areas along the coast.

The mangroves of Bagamoyo District form a more-or-less continuous band along the 100-km coastline from Saadani to near Kitame salt works, and then

from Ruvu River to Mpiji River. They cover an area of 5635 ha (Semesi, 1991). The main mangrove stands are found along Wami River, 862 ha, Utondwe creek, 834 ha, Ruvu River, 2123 ha, and south of Bagamoyo to Mpiji River, 809ha. By 1989, clear-cut areas and salt pans covered 1639 ha (Semesi, 1991) and water in the creeks covered 812ha.

1. 2 STATEMENT OF THE PROBLEM

Increase in population leads to destruction of mangroves swamps which in turn has great impact to marine environment since mangroves help in breaking oceanic waves also provide nursery area and habitat to some marine organisms. Understanding which species of mangroves are vulnerable to human threats and why is more important and helpful in establishment of conservation plans of particular species.

1. 3 GENERAL OBJECTIVES

Increase awareness among the people about the importance of mangroves species and how various human activities can threaten mangroves ecosystems.

1. 4 SPECIFIC OBJECTIVES

1. To identify the most threatened mangroves species found in Mbegani and Mlingotini village
2. To assess various human activities that threaten mangroves species

1. 5 HYPOTHESIS

1. 5. 1 Null hypothesis.

1. There is no mangroves species vulnerable to human threats at Mbegani and Mlingotini village.

1. 5. 2 Alternative hypothesis.

1. There are mangroves species vulnerable to human threats at mbegani and mlingotini village.

1. 6 SIGNIFICANCE OF THE STUDY

Findings in this study would enhance awareness among the local community about mangroves species and their important to the local community. Also the findings of this study would create awareness among people about various activities performed by local community which threats mangroves species. This study will encourage natural resource management by local community and enhance formulation of village policy about environment conservation.

2 LITERATURE REVIEW

According to Spalding 1997 mangroves forest disappear everyday all over the world. It was approximated 18. 1 million km² of mangroves forest cover worldwide but according to FAO recent study show that mangroves forest is decline to 15 million km². Developing countries consist 90% of mangroves forest growing worldwide and most of them critically endangered and nearly extinction in 26 countries. According to duke 2007 the experts of world mangroves provide their view that the survival of mangroves in long term is at great risk due to fragmentation of habitat and that the survive offered by the mangroves may likely to be totally lost within 100 years. Many mangroves areas are under pressure of human especially those grow along humid sheltered tropical coastline. A side from man-made pressure the mangroves also degraded due environmental stress. Estimate show that

global loss annually is one million ha and some region in dangers of complete collapse (kathiresan and Bingham 2001). Most people cause destruction of mangroves either by knowingly or not knowingly the value of mangroves. Livelihood, biodiversity loss and fishery resource are reduced to mangroves loss, also decline in population of marine mammals like manatees and dugongs contributed much by loss of mangroves (k. kathiresan 2001). Rates at which mangroves loss is much higher compared to that of tropical forest and coral reef. 7million hectares of mangroves loss worldwide which is equivalent to two years loss of all forest system globally (k. kathiresan and Bingham 2001).

Study show that man-made activities contribute much to the destruction of mangroves species which pose significant threats examples of those activities are;

Urbanization; inhabitation of human to many areas cause coast mangroves to be cleared. Areas which experience this are Singapore, Jakarta, Bangkok, Mumbai, Lagos, and free town.

Agriculture; mangroves destroyed because of agriculture activities example regions of largest delta in the world between India and Bangladesh. According to kathiresan 2001 the mangrove areas are deforested and reclaimed with rainwater to drain the salt content of the soil and these areas are protected from seawater intrusion by constructing embankments. Once the salt is leached to sufficient level, the land is cultivated either with paddy or coconut.

Aquaculture practices; in several countries aquaculture contribute in large scale destruction of mangroves. In 1968 and 1983, 237000 ha of mangroves were loss for pond construction in Philippines which is half of national mangroves (Fernandez1978). According to kathiresan One major issue associated with the farms located in mangrove habitats is acidification of pond waters that kills aquatic organisms.

Cutting for timber, fuel and charcoal; due to its higher calorific value twing of mangroves are used for firewood. Rich in phenol enable mangroves wood to highly resist deterioration as is widely used as timber and their suitable for chipboard and quality paper industry.

Oilpollution; Oil or gas exploration, petroleum production, and accidents by large oil tankers cause significant damage to mangrove ecosystems. To cite an example, Nigeria's richest oil wells are situated close to inshore where rich mangroves once existed. Similarly oil tanker accidents in the Gulf of Mexico and in the Caribbean areas resulted in oil spillage that severely damages the coastal systems. As a result, the entire mangrove ecosystem got affected, causing defoliation of trees, mortality of all sessile and benthic organisms and contamination of many water fowls. Once the mangrove forest is affected by oil pollution, it will take a long time of at least 10 years for recovery of the forest.

3 RESEARCH METHODOLOGY

3.1 STUDY AREA

This work will be conducted in pwani region in Bagamoyo district at mbegani and mlingotini villages. Bagamoyo is one of the 6 districts of thePwani

Region. It is bordered to the North by the Tanga Region, to the West by the Morogoro Region, to the East by the Indian Ocean and to the South by the Kibaha District.

According to the 2012 Tanzania National Census, the population of the Bagamoyo District was 311, 740. Mbegani and mlingotini villages found in zinga ward which its geographical coordinates are 6° 31' 0" South, 38° 59' 0" East.

3. 2 STUDY MATERIAL

Material which will be used in this study are:

1. Note book and pencil which will be used to take record.
2. Rain boots which will be used to protect legs from protruding mangroves root.
3. Gloves which will be used for hands protection.

3. 3 DATA COLLECTION TECHNIQUES

During this work data will be collected by simple prepared questionnaires and through observation.

3. 4 DATA ANALYSIS

Gathered information from this study will be analyzed by Microsoft excel.