

SAND MINING MANAGEMENT SYSTEMS AND THEIR EFFECTS ON SOCIAL AND ENVIRONMENTAL ASPECTS IN UNGUJA, ZANZIBAR

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Abstract: The increase of demand of sand, the scarcity of sand and unavailability of sand extraction areas have resulted to a change in the management of non-renewable natural resources sector in Zanzibar. This article analyses sand mining management system and their effect on social and environmental aspects with a focus in Unguja Island. Creation of jobs, controlling government revenue, controlling arbitrary extraction, formation of unions, bureaucracy and quality of sand are some of the effects of the current sand mining management system.

Keywords: Sand mining, sand management.

Introduction

The global urbanization boom is consuming enormous amounts of sand causing environmental and social effects worldwide (Beiser, 2017). Sand management is an operating concept in which all production chain is monitored and controlled. With the current insatiable demand for sand, it now poses as one of the major sustainability challenges of the 21st century and meeting it will require improved governance of sand resources.

In any case, sand excavation does not have the same management practices worldwide. The extraction and uses of sand are predominately governed at national and regional levels (UNEP, 2019). Where extraction and management of sand is regulated, environmental protection legislation usually provides basic frameworks. Zanzibar's extraction and management of sand mining is currently governed by the Revolution Government of Zanzibar under Department of Forestry and Non Renewable Natural Resources (DFNR) and has a set of procedures of obtaining permits to be allowed to transport and use sand resources.

Methodology

The study was conducted in Zanzibar Island which is a semi-autonomous region of Tanzania as shown in figure 1. Major sand users, minor sand users, DFNR officers, sand miners and sand committees were involved in this study. The selection of major sand users involved a list of users acquiring more than 1000 tonnes of sand obtained from DFNR offices on 18th September 2020 and all accessible users were selected. Minor sand users include individuals

purchasing and acquiring less than 1000 tonnes of sand and were randomly selected as they approached to DFNR offices for acquiring permits. A group discussion was conducted to sand miners who were present in the mining site. Also, sand related committees were involved in this study and their selection was based on guidance from DFNR officers. The selection of these chairpersons was guidance given from one of DFNR officer because they had key information relevant. Some DFNR officers were as well included in the study. Face to face interviews were administered with the above respondents.

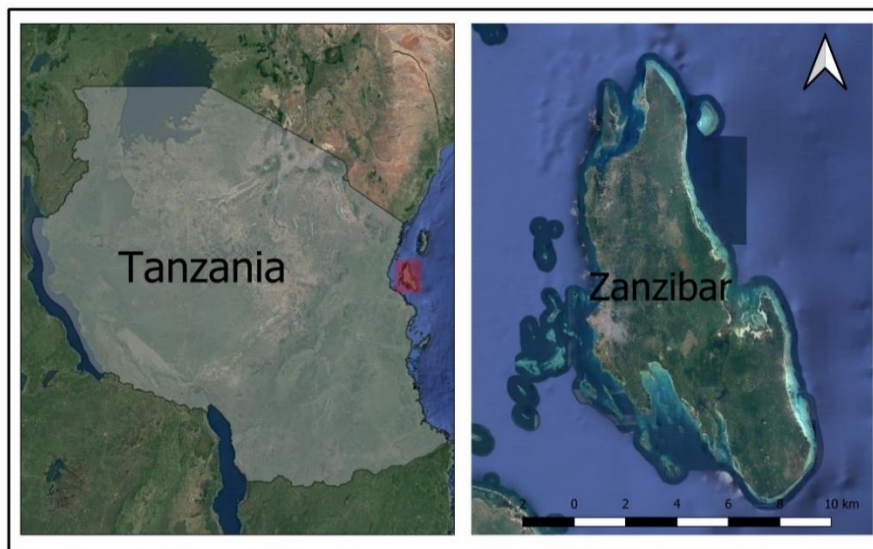


Figure 1: Map of study area

Results and Discussion

Social effects of the current sand mining management system

The study revealed that sand mining management systems has created diverse social benefits at local and national scale. For instance, a discussion with sand miners indicated that employment opportunities at community scale is present in the form of informal workers in the mining areas. Sand miners revealed that there were about 300 workers during the previous years of 2017 but currently there are about 500 informal workers working at the mining site. However the earnings of these sand miners have decreased prior to the introduction of the current system. Initially, average earning of a sand miner per day ranged from 15,000 to 20,000 Tanzanian shillings (pers.comm. with sand miners). Currently, average earning of sand miner ranges from 4,000 to 8,000 Tanzanian shillings per day.

About 25% of sand users indicated creation of opportunities as one of the positive effects but mainly to the major sand users. Interviews with chairperson of committees have proved that statement because they have revealed that opportunities such as tender to construct road for

easy access towards mining area were given. One of major sand users also revealed paid opportunity in terms of helping vehicles that are unable to move out of the sand mining area especially during the raining season since they have heavy construction equipment. About 10% of respondents also revealed self-employment to food vendors around the mining site as an opportunity. Sand mining activities has in fact created social and economic benefits in many parts of the world.

A major finding from this study has revealed that 66% of sand users indicated that the current sand mining management system has not brought any positive effects. It is hard to notice the positive effects especially when there is lack of participation.

About 14% of sand users have revealed that the current system does not include participation of other key stakeholders such as sand miners when it comes to reviewing and decision making of the management systems or any other discussion related to sand mining. For instance, a discussion with sand miners revealed that the amount of earnings per vehicle has been arranged by DFNR without their consent.

Moreover, 57% of sand users have indicated that the number of trips per individual have decreased creating a disadvantage to the informal workers as this reduces their per day earnings. Initially, sand users would be given 4 trips per day but as of 7th September 2020, there is more restriction to sand users, one trip per day. Interviews with DFNR staff however have indicated that the reduction of number of trips was a decision made by the current management committee due to a decrease of the availability of sand. Furthermore, 26% of sand users have stated that they receive less tonnes of sand than indicated in their application which has caused them to delay their construction.

In addition, 2% of sand users felt that the system creates inroads towards corruption due to having one monopoly market of sand resources. However this is no different from the past. According to interview with one of DFNR officer, one of the many reasons for government to govern and manage sand mining was due to corruption. Other countries such as India with more than one market of sand resources, have experienced corruption due to weak governance (Saviour, 2012) as well as a rise of influential mafias (Ghosh, 2012).

Environmental effects of the current sand mining management system

As far as the environment is concerned, 6% of sand users indicated the control of arbitrary extraction has minimized environmental degradation while 2% of sand users indicated the procedure given to sand transporters of limiting vehicles in the mining areas has helped to reduce pollution.

Some sand users however were concerned about the health of the environment especially when the mining pits are left opened and unattended. Majority of sand users (92%) however seem not be aware of environmental consequences led by sand mining.

The researcher identified lack of awareness as one of the biggest concerns is environmental consequences caused by sand mining. The people of Zanzibar are much dependent of these resources but they are less aware of environmental impacts and some are least concerned on the environmental impacts caused by sand mining activities. Mintra and Singh (2014) have revealed similar case in India whereby the people in India are also much dependent upon sand mining activities but it seemed to be the least of their concerns about its environmental impacts. This shows that the environmental awareness of sand activities is limited not only in Zanzibar but other parts of the world.

Conclusion

This study analysed the current sand mining management system and revealed both negative and positive effects towards the people and environment. Majority of respondents were unhappy with the current sand mining management system and demanded the system to be changed. The major findings of this research are the lack of awareness and concerns of local community on the environmental consequences, delaying of time taken for an applicant to receive permit and long procedures led by the current sand mining system.

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