



# SAND HARVESTING FOR POSITIVE SOCIO-ECONOMIC IMPACTS

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## ABSTRACT

Sand plays a key role in the economic development of both developing and developed nations. Industries require sand for construction purposes: construction is putting up buildings and infrastructure for purpose of development. The demand for sand as a resource has increased because of the rapid development brought about by the county governments which require sand for construction. In the developing world, the focus is mainly on the product sand which is at risk of being depleted as well as destroying the riparian ecosystem. However, sand plays a vital role in social and economic development of a society where it is found. The study therefore assessed the positive socio economic impacts of sand harvesting. The objective of the study was: to assess the socio-economic impacts of sand harvesting. Data was collected by use of self-administered questionnaire, observation, and interviews. The sand mine stretch for about 1km along the river. The communities living 500m away from the river bank were randomly sampled. A sample size study population of 386 was involved, which comprised the NGO staff, county council staff, local area authority, sand harvesters and the local community. The study indicated that sand harvesting indeed offered a source of income to the unemployed youths in this area: The research established that sand harvesting also enhanced unity and significantly reduced crime rate in the area. Based on these findings the study recommended that the stakeholders, such as local area chief, NEMA, and Local area authority to actively monitor the process of sand harvesting to promote sustainable use of sand hence enhancing positive socio- economic gains.

**Key words: sand harvesting, Riparian land, socio-economic.**

## INTRODUCTION

Sand activities have impacted in one way or another on the social, economic and environmental aspects of man in mining areas. The demand for sand is increasing with increase in development rate. Sand is very vital in the construction process. Sand harvesting in rivers and beaches continues to expand in many developing countries. Companies engaged in gravel mining may contribute to the development of key socioeconomic infrastructure

such as roads, hospitals, schools and housing. Mining in an area creates a new source of livelihood but at the same time it also affects the age of old livelihood systems, (Dubey, 2017). Participatory sand harvesting is recommended for sustainable sand harvesting. This is whereby all the stakeholders are involved hence policies are put in place for the conservation of the resource.

The increased demand for river sand has placed sand in a vulnerable situation such as uncontrolled mining. Sand mining has both negative and positive impacts, (Johnbull, 2017). The social impacts of sand mining can be seen from the processes and forms of social interaction, cooperation, competition, conflict and efforts to overcome them. Mining activities have an impact in the form of social and economic impacts for the community, especially miners; *Rais et al* ,(2019) and harvesting is causing environmental degradation thus affecting socio economic development though many agree that it has led to job creation among the youth living in Machakos area, Mutiso, (2015).

### **Research objective.**

1. To assess the positive socio-economic impacts of sand harvesting in the study area.

### **Research Question.**

1. Ho: There is a significant positive effect of sand harvesting along the riparian land.

### **Significance of the study**

The study will make an important contribution to the understanding of the socio economic impacts of sand harvesting to the people and the environment Findings from this study is important as it will create awareness on the positive socio-economic impacts of sand harvesting and provide an input in the conservation measures for sand as resource for the future generation and development. Resources when well used can elicit the positive sides of the activity and improve the living conditions of the users. Findings from this study are

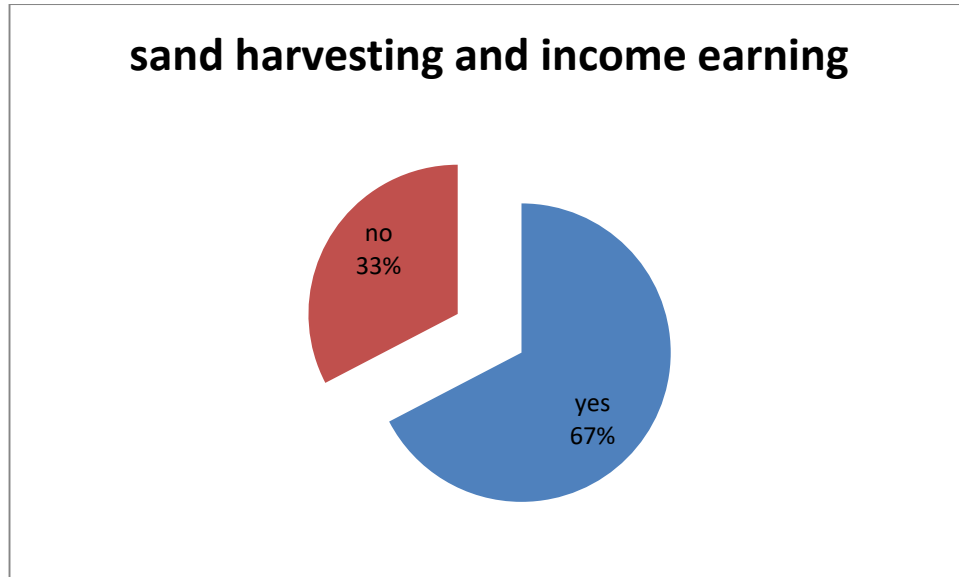
important since it will assess the positive impacts of sand harvesting and provide conservation measures in the riparian land.

### **Research Methodology.**

Observation method was used to identify the impact of sand harvesting on the riparian land. The observations were recorded, in a note book on the number of times the sand is harvested per day. During the field trip observation photographs were taken on the sand harvesting sites on the riparian land. The observation field trips were carried out in the company of key informants who resided in the area. Data was collected by use of self-administered questionnaire, observation, and interviews. Purposive sampling was used as the researcher was interested in the first hand information from the sand harvesters. The sand mine stretch for about 1km along the river. The questionnaires were given to the sand harvesters at the three harvesting points. The community living 500m away from the river bank were randomly sampled and given the questionnaires.

### **Socio-economic impacts of sand harvesting**

The main objective of this study was to assess the socio-economic impact of sand harvesting on the riparian land. To achieve this objective the respondents were requested to respond to various questions under the following sub-themes: if sand harvesting was a source of income for youths, the owners of land used for sand harvesting, the positive and negative effects of riparian lands and the social behaviours enhanced through sand mining along riparian. The study sought to know whether sand harvesting provided a source of income for the youths living along the riparian. It was important to evaluate this since it would help us evaluate the economic impacts of sand harvesting in this society. The respondents were therefore asked whether unemployed youths in this area mainly depended on sand harvesting as a source of income.

**Figure1.Sand harvesting and income earning.**

The Findings show that more than half of the respondents agreed that sand harvesting indeed offered a source of income to the unemployed youths in this area 260 (67.4%) with 126(32.6%) thinking otherwise. Sand harvesting indeed offer employment to the youths as most of them relies on sand harvesting as one their sources of income in the community.

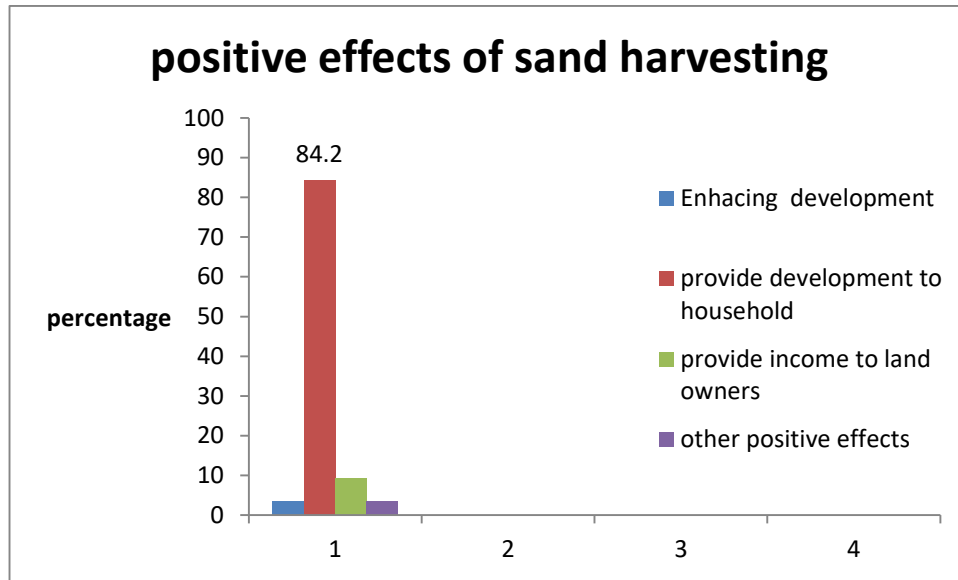
#### **Owners of the land used for sand harvesting**

The study established that most of the lands were owned by individuals, 356 (92.2%) of respondents. This was followed by government land, other owners and registered groups with 13(3.4%), 9(2.3%) and 8(2.1%) of the respondents respectively. Land owners inherit ancestral land and therefore are the major owners of the land used for sand harvesting. Thus owners of the land were able to get an income by either leasing the land to sand harvesters or personally use the land for sand harvesting purposes hence getting income. A study carried in Ghana found out that there exist a conflict between tipper truck drivers and sand miners, land owners and farmers. Sand owners are unable to distinguish between the carriage capacities of the tipper trucks; they always expect the drivers to be paying fee for double axel trucks instead of the fee for single truck Osei, (2016). Despite the challenge the truck drivers come to an agreement on the price per truck after the long argument, this provides income to them.

## Impacts of sand harvesting to the community

The study sought to know the effects of sand mining on the community living along the riparian land.

**Figure4.1.Positive effects of sand harvesting.**



The study established that the most noted positive effect of sand harvesting on first thought was that it provides employment to sand harvesters, 325(84.2%) followed by providing income to land owners .The sand collected is sold to truck owners who buy in large quantities and pay the harvesters. This was also observed in Machakos, that sand harvesting had a number of positive effects on education in terms of enabling parents and pupils to acquire basic needs, pay educational levies and also purchase various educational materials, (Mutiso, 2015). Further research carried out in Kenya discovered that sand mining improved the family earnings thereby enabling he children to go to school from the family earnings, (Muendo, 2015).Through the key informants it was found that sand mining was a source of employment to many of the youth in the study area and an income to many land owners.

Enhancing communication, infrastructural development and other positive effects, 35(9.1%), 13(3.4%) and 13(3.4%), respectively. Capital cities are growing rapidly due to increase in human settlement. Due this construction is a continuous development activity in these areas which requires sand. A study carried in Zanzibar also showed that many people were affording to build their modern durable strong houses at cheap cost since sand was readily available locally and that sand mining activity creates employment opportunity to

the youth, Ali (2020) .This was also confirmed by, (lawal, 2011), who carried out a study in Nigeria and discovered that sand was used in building quality permanent houses. (Madisye, 2013), found out that river sand is used for plastering, mixed with concrete when making foundations and molding bricks. This is generally common during construction as sand is usually mixed with cement in different ratios to make concrete.

A study carried out in Morocco discovered that sand harvesting led to bizarre scenes such as formation of groups known as sand-mafias who take control of the entire beach; Villioth (2014).

Sand harvesting also enhanced unity and significantly reduced crime rate. The youths get their finances from sand harvesting and this provides them with a means of survival and therefore has no time for engaging in vices such as theft. They also form groups where they save and borrow each other money. This enhances unity among the sand harvesters. Further, sand harvesting was a source of raw material for construction within the community. However, sand harvesting contributed to increased school dropout rates, early marriages, teenage pregnancies, alcoholism, drug abuse, prostitution and child labor.

The findings confirm those of Deller and Schreiber (2012) who found out that mining can lead to robust economic growth and development. However, communities that are more heavily dependent on mining for employment tend to experience greater negative impacts after the mines close than positive impacts while the mines are in operation. They argued that in many ways mining can provide well-paying jobs leading to lower levels of poverty.it was also a source of revenue to the local and county government.

The findings also seem to agree with those of Mutisya,(2006) who found out that socio-economically, sand harvesting is a source of livelihood for it provides income and employment opportunities.

### **Conclusion**

Sand as a natural resource play a vital role in the development of both developing and developed nation's infrastructural development. It therefore enhances positive effects on the land used for sand harvesting which is majorly owned by private owners who may get direct income by leasing the land for sand harvesters or they may use the land for themselves. Sand mining has become a source of employment to the residents and income

for the land owners who hire their land for harvesting .The construction industry around is increasingly using the sand as its main source of building material.

First, the sand mining activity needs to be regulated to promote its sustained use. There should be a strong and clear policy in place to ensure that the harvesting is done in a sustainable manner. This will mean the small scale sand harvesters will have their sand mining activities done by registered and licensed miners and the owners of the lands used for harvesting will have to get permits allowing their lands to be mined for sand.



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