ASSESSMENT OF SAND HARVESTING AND ITS ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS IN MWALA DISTRICT

BY
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This dissertation is submitted in partial fulfillment of the requirements for the award of a Master
in Development Studies (MDS) from St. Paul's University

SUPERVISOR: DR. PAUL MAINA GUTHIGA

SEPTEMBER, 2012

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DECLARATION

This Dissertation is a product of my own work and is not the result of anything done in collaboration. It has not been previously presented to any other institution. I agree that this dissertation may be available for reference and photocopying, at the discretion of the University.

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DEDICATION

This work is dedicated to my mother Mrs. Beatrice K. Nguli, without whose caring support it would not have been possible, and to the memory of my late father Mr. Nguli, who passed on a love of reading and respect for education.

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LIST OF ABBREVIATION

ASAL	Arid and Semi-Arid Land
CBO	Community Based Organization
ECDP	Eastern Community Development Programme
EIA	Environmental Impact Assessment
EMCA	Environmental Management Coordinating Act
HIV/AIDs	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IGA	Income Generating Activity
LATF	Local Authority Trust Fund
MCFP	Mwala Integrated Child and Family Programme
MOE &NR	Ministry of Environment and Natural Resources
NEMA	National Environmental Management Authority
OECD	Organization for Economic Cooperation and Development
PEN	Poverty Eradication Network
RRMAs	Riparian Resource Management Associations
TB	Tuberculosis
TSHCs	Technical Sand Harvesting Committees
UNEP	United Nations Environment Programme
UN	United Nations
WEDO	Women's Environment and Development Organization

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Abstract

Rapidly growing populations in urban areas have contributed to an unprecedented demand for sand to meet the ever-rising needs of the building and construction industry. To meet this demand, sand harvesting business has been established in both seasonal and permanent rivers in Kenya, particularly those neighboring the big cities. The result has been unsustainable harvesting of sand beyond replenishment levels. The main objective of this study was to investigate effects of excessive sand harvesting on environment and livelihoods of communities living in Mwala district. The research design of study was a case study carried out within two locations of Mwala Division. One characterized by unsustainable sand mining and the other sustainable sand mining whose findings and analysis facilitated in answering following questions: What are the effects of excessive river sand harvesting on socio-economics and environment in Mwala district? What are the underlying forces promoting unsustainable river sand mining in Mwala district? Which sand mining institutions are in place within Mwala district? How effective are they? What are the alternative sand harvesting practices that can bring forth sustainable sand mining in Mwala district? Various methods were used in this study to elicit primary data which included structured in-depth interviews, controlled participant observation with the targeted respondents and photo taking. Review of documentary was used to obtain the secondary data source. Targeted sample size was 132 respondents and turn out was 137. The study revealed that negative externalities of excessive sand harvesting outweighs the positive externalities. The communities are aware of the underlying factors promoting the excessive sand mining. The study revealed that institutions and organization responsible for management of river and its resource utilization exists but not effective in achieving their mission. A deduction from the study revealed that the long term and persistent scenario of unsustainable sand harvesting can be addressed basing intervention on underlying forces promoting the adverse practice. Community that has embraced on informal institutions has enjoyed their environment and their livelihoods have scaled up compared to those who have opted for formal institutions. Development is only sustainable when environmental and socio-economic situations are favorable. The study therefore, recommends alternative practice that needs to be embraced in promoting sustainable sand harvesting and reduce the social cost imposed on the community. First, the research recommends full community ownership of rivers and management of the resource within. The research also advocates for empowerment process that promotes indigenous practice of the local people that brings fourth sustainable development. Finally, although it is obvious that sand harvesting can not be completely stopped, the community in partnership with government should develop new laws and policies which should aim at promoting sustainable harvesting by striking a balance between environmental conservation and business proceeds.

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APPENDIX 1

QUESTIONNAIRES-SAND HARVESTERS

1. A) When did sand harvesting start in Mwala area?

   ……

   How has been the trend?

   ……

   ……

   b) How is the structure of organization involved in the business?

   ……

   ……

   c). what is the role of each organ in the structure/organization?

……

……

……

2) .a) what are the benefit occurred of sand harvesting at:

- Individual level
- Household level
- To children
- Youth
- Farmers
- Community in general

b) What effects does it have on:-

- Livelihood.

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- Economic status
- Water source/rivers.

c).What challenges do you encounter in business of sand harvesting?

- Stock
- Market
- Labor.

d). per day on average, how many trucks you approximately load on dry and rain season? Dry ----------. Rain ----------

e).On averages how many people load a truck? .....

f).What is standardized labour change for loading a truck of 14tonnes? Ksh ……

g).Who determines the rate?

.....

H).How comfortable are you will the rate? Give a reason.

……

……

I).Is the stock of sand on rivers and stock enough to meet their business demand?

Yes ☐ No ☐

If **No** how do you meet the demand?

……

j).What percentage of your business earning goes to back to community the owner of resource? ……...

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k).Which projects have been implemented by the sand harvesting in community to cover social cost imposed to them? ……

3. a).Discuss guidelines governing sand harvesting in Kenya you are aware of.

……

……

b).How do you partner with them and their roles?

- NEMA.
- MOE &natural resources
- Local authority(councilors, county council)
- Administration(chief, Ass. chief, D.O)
- Community.

4a) what is it you like or don't like about sand mining business/process?

……

……

b).Do you see the project of sand harvesting continuing with declining rainfall and stocks of sand? ……

c) What mechanisms would you like to see in place to guarantee sustainability of the project?

……

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QUESTIONNAIRE - KEY INFORMANTS

Name of the opinion leader…….position…….

1. a). In this area of Mwala which year did sand harvesting start? And how has been the trend?.....

b). Before the sand mining project how, where the rivers in terms of:

- Water quality &availability
- Small irrigation/horticulture
- Quantities of sand.
- Riparian zone/vegetation cover.

c.) What benefits accrue from sand harvesting to?

- Youths.
- Women.
- Men.
- Children
- Others

D.)What are the effects of sand harvesting process on:-

- Livelihoods.
- Health.
- Water.
- Security.
- Children participation in school.
- Physical facilities(bridges, drifts)

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- Economics
- Cultures etc

2. In your own view what are the factors promoting excessive sand mining? (Property right, market failure, government policy etc)Give reason to your answer.

……

……

3. Are there government institutions responsible for management to river resource and use of sand? YES ☐ NO ☐

Who are they? (e.g. MOE& Natural Resources , NEMA,)

……

How effective are they? Give reasons

……

……

b).What role does community play in management of sand harvesting in this area?

……

……

How successful are they? Give reasons.

……

……

4. What alternative practice would you like to be in place to guarantee sustainable sand harvesting? .....

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QUESTIONNAIRES (MEN, WOMEN 30-60YEARS)- River Resource User

1a). What benefits do you derive from rivers?

……

……

b).Who owns the rivers? (Community, government ministries, local government) Give your reason.

……

……

c). How does sand harvesting process affect:

- Water quality access
- Economic of the community
- Livelihood (irrigation, livestock keeping, fish farming, tree nurseries)
- Culture
- Health
- Transportation
- River environment

2. a).What are the forces behind unstable sand harvesting?

……

……

b).Who is involved in sand harvesting?

- Men
- Women
- Men and women.

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3. a). What do you know about rules and regulation or guidelines governing sand harvesting?

……

……

b) Who is responsible for managing sand harvesting (Government, NEMA, local county council, provincial administration, community, NGOS?)

……

……

What role do each mentioned above play?

……

……..

c).How effective are they in managing sand harvesting? Give reason for your opinion.

……

……

4. On your own opinion which mechanism can be employed to ensure sand is harvested in a sustainably? ……

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QUESTIONNAIRE- PUBLIC TRANSPORTERS (BODA BODA RIDERS)

1b) .What are the effects of sand harvesting on;

- Roads
- Bridges/drifts
- Rivers

b). On your own opinion how do effects imposed on roads/bridges/drifts affect transportation process? ……

……

b) How are commuters affected?

……

……

2). What mechanism can be employed to have sustainable sand harvesting that does not affect transport?

……

……

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QUESTIONNAIRE-CHILDREN 10-15YEARS

1. a).What is your understanding of sand harvesting?

.....

- Where is it harvested?

  ……

- Who are involved in harvesting sand?

(E.g. Men, Women, Women and men, or youth)

……..

……

b).How does sand harvesting affect

i. Children learning and participation in school.

ii. Health.

iii. Livelihoods.

iv. Transport.

v. Household income.

vi. Water quality and access

vii. Which else is affected by sand harvesting?

2. How does the following contribute to sand harvesting?

- Market
- Government policy
- Property rights
- Other contributing factors(discuss)

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3. a)What is the role of the following in managing sand harvesting?

- Local authority (county council, councilors)
- Community
- Provincial administration
- Government ministries

b).How effective is each of the above?

……

……

4. Which alternative mechanism do you think if employed will bring fourth sustainable sand harvesting. ……

……

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