



KABARAK UNIVERSITY

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An assessment of impacts of extractive industries on Landscape: a case study of gypsum mining in Kajiado, Kenya

OMOTI, K. M; KITETU, J. J; KERIKO. J. M.

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Introduction / Background

Increased mining activities in Kenya, targeting titanium, gypsum gold to name a few

. Mining Spurred by a progressive Constitution and an aggressive long term development blueprint

i. Mining activities are potentially important contributors to landscape changes and loss of biodiversity.

Introduction / Background

- . Ornamentation of buildings and sculpture
- . Plaster Works
- i. In cement manufacture, ground gypsum is added to the cement to slow the setting time
- v. in agriculture, it is used as a soil conditioner and animal food additive.

Statement of the problem

- . Potential for landscape changes and loss of biodiversity.
- . Kajiado County residents have in the past violently protested against land degradation
- i. If nothing is done, environmental management would continue to be a challenge.

Study objectives

The study sought to Investigate the Impacts of gypsum mining operations on Landscape in Kajiado County

Brief literature review

extractive industries are those activities that lead to the extraction of raw materials from the earth (Sigam and Garcia, 2012; Tengler, 2014).

Brief literature review

extraction is achieved through various types of mining:

open cast mining -harvesting of mineral materials from the surface mines, open pits, quarries or other diggings open to the sky;

Brief literature review

underground mining - mines accessed through shafts and tunnels; under water mining (Klop, 2009).

Effects on landscape:

Brief literature review

changes to the topography and landforms, vegetation cover, disturbance of the dominant biodiversity forms and Environmental Health

response by the local communities in terms of local resource needs and livelihoods (USDI , 2011 a).

Brief literature review

Gyang and Ashano (2010) -mining, particularly open cast mining takes place on the earth's crust and destroys organisms

Dami and Okafor (2009) insist that mining actually improves abundance of organisms especially birds

Methodology

Primary data obtained using interviews, questionnaires and field observation.

Secondary data collected by reference to Satellite Imagery and departmental records

Satellite imagery analysis is a valuable tool for determining temporally and long term changes (Setiawan and Yoshino, 2012)

Findings / Results

Land Cover	Area 1984 (Acres)	Area 1995 (Acres)	Area 2014 (Acres)	Change 1984 - 1995	Change 1984 - 2014
Mine Ponds	74	230	449	156	375
Bare Ground	35976	42314	67764	6338	31789
Mine/quarry Pit	324	203	895	-121	572
Woody Plants	19540	4822	6658	-14718	-12882
Shrubs/grasses	125608	133951	105755	8344	-19853
Total	181521	181521	181521	-	-

Findings / Results

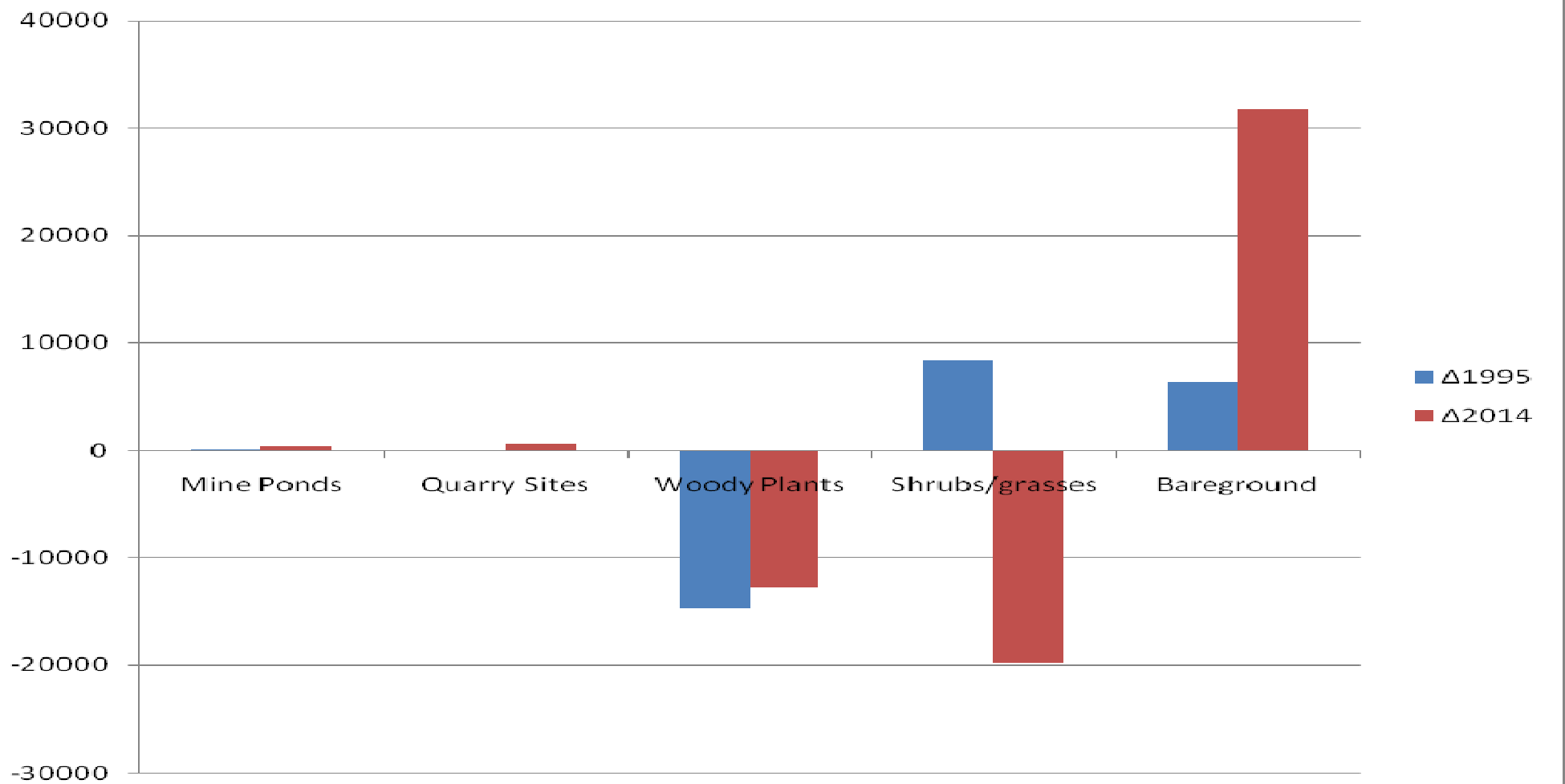
Area occupied by both mine ponds and quarry pits had increased from 398 acres in 1984 to 1344 acres in 2014

Area under bare ground increased by 1788 Acres over the same period

increase in bare ground was attributable to the primary beneficiation process

area under bush and grasses decreased by 19,853 acres (16%).

Findings / Results



Findings / Results

Loss of woody plants and herbaceous plants as a consequence of open cast gypsum mining.

Woody plants - *Pennisetum mezianum*, *Cynodon dactylon*, *Digitaria melanjiana*, *Digitaria scalanun*, *Aristida adoensi*, *Becium ovatum*, *Chroris roxburgiana*, *Acaia* species and *Balanitis* species are affected at Enkirigirri (DRSRS, 1987).

Conclusions

- . Mining activities contributed to increased livestock deaths as a result of falling into abandoned quarry pits
- . Contributed to accidents and injuries to Kajiado residents

Conclusions

The destruction of pasture is likely to affect livestock development while woodland and shrubs reduction compromises wildlife habitat
Interferes with wildlife dispersal
increases possibilities of human-wildlife conflicts.
Landscape sidelined for commercial benefits accruing from mining related activities.

Recommendations

The study recommends land rehabilitation and re-vegetation after a period of gypsum mining.

. The study also recommends the setting up of a floating fund to facilitate the rehabilitation of dynamically changed mining sites.

i. Mining companies should be encouraged to fence off mining sites to minimize accidents

Areas for further study

The influence of extractive industry on
Tourism and Human wildlife conflicts
around the Nairobi National Park

References

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