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Assessment of National Natural Resources Policies Implementation in Kilimanjaro Region, Tanzania

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Abstract
The Kilimanjaro landscape provides a range of ecosystem services such as water, local climate modification, tourism and support of local livelihoods. Land degradation has, however, seriously threatened the landscape ability in providing these services, leading to decreased land productivity This paper is based on a study conducted in Kilimanjaro region to provide an understanding of how effectively natural resources-related policies are implemented by land users, and how they practically guide sustainable land management. Data collection involved interviews with purposively selected progressive farmers using a structured questionnaire, in-depth interviews with key informants, mainly district officials, NGOs and CBOs representatives and focus group discussions, as well as review of relevant literature. Quantitative data were analysed using SPSS, while qualitative data were triangulated using content analysis. Findings indicated that there are several policies related to natural resource management that are both cross-cutting and cross-sectoral in nature. While majority of respondents were aware of the various policies, male respondents were more aware than females, influenced by customary male dominance in natural resource issues. The policies are implemented at various levels, taking different forms and involve various stakeholders, including individuals, groups, NGOs, CBOs and public institutions. Generally, communities are actively participating in SLM activities though influenced by several pull and push factors in policy implementation in the area. The paper argues that for effective implementation of the natural resources policies there is a need to review and harmonise the sectoral policies with changing internal and external conditions such as economic transformation, globalization and climate change.

1. Introduction

The Kilimanjaro landscape is important in providing ecosystem services such as water catchment, local climate modification, tourism and support for local livelihoods. However, land degradation has seriously threatened the ability of the landscape in providing these services (Misana et al., 2012; William, 2003; Kangalawe et al., 2014). This problem is largely manifested in the form of severe soil erosion, silting, deforestation and decrease of land productivity. These environmental problems are mainly due to complex and interrelated factors including rapid population increase, land use change, poor land management practices, climate change, uncontrolled felling of trees for firewood and charcoal, frequent and uncontrolled burning of forests, unsustainable mining activities, overstocking, insecure land tenure and limited community participation in environmental activities (Misana et al., 2012; William, 2003; Kangalawe et al., 2014).

Against this background, the Government of Tanzania and the UNDP/GEF through the Kilimanjaro Regional Administrative Secretary (RAS) designed and is implementing a project in seven administrative councils (Moshi Municipal Council, Moshi, Rombo, Mwanga, Same, Siha and Hai districts) entitled "Reducing Land Degradation on the Highlands of Kilimanjaro Region". The project goal is to ensure "Sustainable Land Management (SLM) provides the basis for economic development, food security, and sustainable livelihoods while restoring the ecological integrity of the Kilimanjaro region's ecosystems". Its purpose is to provide local land users and managers with the enabling environment (policy, financial, institutional, capacity) necessary for the widespread adoption of SLM practices.

Although Tanzania has a comprehensive legal and policy framework for land management, there are a number of constraints to the implementation of activities that would result in the institutionalization of the practice in the long term. This paper presents findings from a study on assessment of national natural resources policies implementation in Kilimanjaro Region to provide an understanding of how effectively natural resources-related policies are implemented by land users, and how they practically guide sustainable land management.

2. Methodology

Both qualitative and quantitative methods were used to collect data in seven pilot districts of Kilimanjaro region. Qualitative data was obtained using in-depth interviews with key government officials including Agricultural

and Livestock Officers, Forest officer, Water Development Officers, and Community Development Officers; the SLM project officials and focus group discussions with representatives of local communities. Quantitative data collection used a structured questionnaire administered to a total of 85 purposively selected sample of progressive farmers, NGOs and CBOs representatives from all the seven districts, including both men and women. The identification of respondents was undertaken with the help of District Focal Persons (DFPs) involved in SLM project in each district. The sample size largely depended on how many progressive farmers and representatives of CBO/NGOs dealing with NRM could be identified.

The in-depth interviews, focus group discussions and surveys of progressive farmers aimed at capturing information related to general understanding of villagers on national policies, laws and legislations implemented on the ground; the status and use of these national policies and laws; information on pull and push factors influencing how the existing policies and laws integrate with SLM (or do not integrate) and other important issues on policies and laws that could facilitate SLM in Kilimanjaro region.

Secondary data involved reviewing literature on natural resources policies including legislations, project documents, and published papers and unpublished materials. The aim of the review was to assess the extent to which national policies and legislation are integrated on the ground and the extent to which they influence sustainable land management and reduction of land degradation in the study area. Of particular concern for this project are policy and legal documents related to agriculture, forestry, livestock, land and environmental management.

Qualitative information from focus group discussions and key informants interviews were analysed by triangulation, that is, we combined and compared data from different sources to study natural resources management (Olson et al., 2004). In each focus group discussion a consensus on a particular aspect was recorded to represent that particular phenomenon. Data from the progressive farmers' questionnaire was computer processed using the Statistical Package for Social Science (SPSS Version 19) programme and analysed to produce descriptive statistics such as frequencies, means, and percentages. Cross-tabulations were made against various variables. The results are presented in various forms, including text, tables and graphs.

3. Results and discussion

3.1 Awareness of policies related to natural resource management in Kilimanjaro region

The analysis of data from different sources has shown that there is a diverse set of natural resource management (NRM) policies related to sustainable land management and natural resource management issues that are both cross-cutting and cross-sectoral in nature. These include the environmental, land, agriculture, water, livestock, forest, wildlife and energy policies. However, it was evident that there are variable levels of awareness and implementation of these policies among land users (Figure 1).

All the respondents in the study area reported to be aware of the NRM policies addressing sustainable land management. Their knowledge was related to the ongoing activities concerning NRM, such as tree planting, conservation of water sources, and soil fertility management, but they were not technically knowledgeable enough about the policies. As it can be seen from Figure 1 the most known policies by the respondents included forest, energy, water, land, agriculture, environment, livestock, wildlife and beekeeping. It was not surprising for the respondents to be aware of these policies, because they are directly linked to their livelihoods in terms of goods and services provided by land, forests, energy and water resources.

A comparison of awareness about the NRM policies showed that respondents in Moshi Rural district were more aware about the NRM policies, followed by Mwanga and Rombo districts. Moshi Municipal Council ranked lowest as indicated in Table 1. One of the reasons for the differences in awareness about the policies was due to the low proportion of progressive farmers interviewed in Moshi Municipal Council as well as the fact that most rural districts are still more dependent on natural resources and face several environmental challenges.

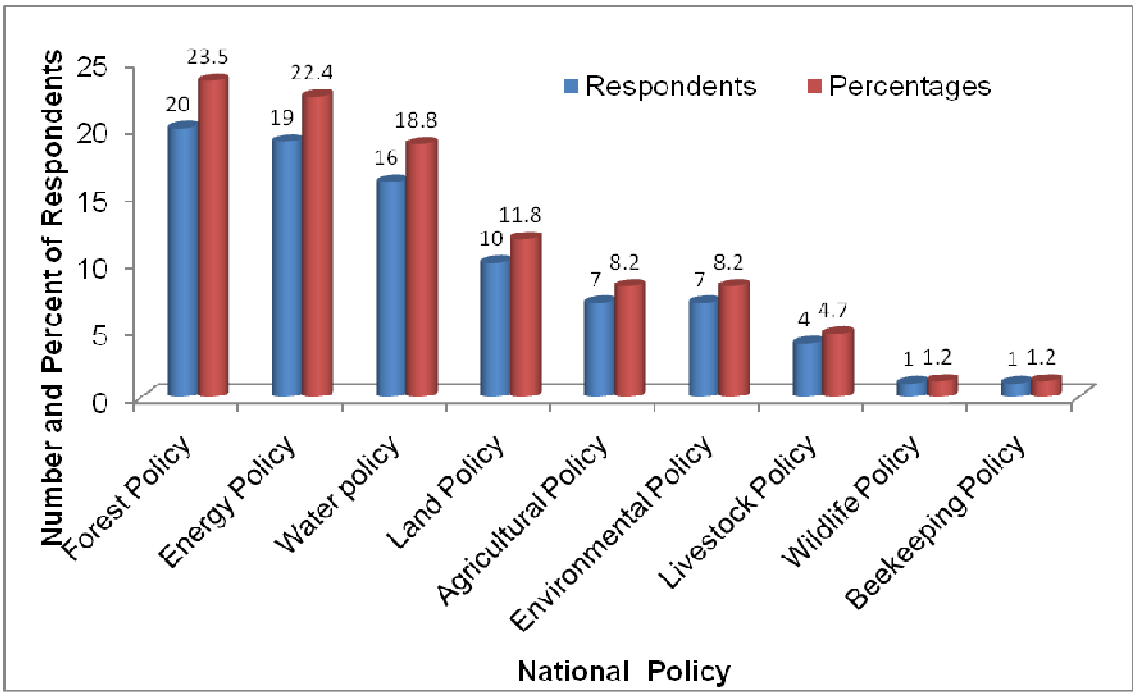

Figure 1: Percentage distribution of respondents by knowledge of the national natural resource Policies

URT (2009) reports, for instance, that in districts like Same, there has been a trend of increasing environmental deterioration and destruction, due to land degradation and ineffective enforcement of relevant laws that has reduced soil fertility. Crop yield per unit area is generally very low, and there is significant run-off during the rainy season, causing erosion in the highlands and floods in the lowlands. URT (2009) reports further that the problems have existed and persisted due to a lack of community land ownership and responsiveness, resulting in an accelerated rate of soil erosion, land degradation, charcoal burning, brick burning using tree logs, and uncontrolled grazing, which are all contributing factors to deforestation. As a result of these environmental challenges communities have been impelled to maintain some of the traditional practices of sustainable land management and adopted other related programmes (Gillingham, 1999; Kangalawe et al., 2014).

Table 1: Awareness of NRM policies in Kilimanjaro Region by district

District/Council	Respondents/ Percents	Aware of NRM policies		
		Yes	No	Total
Moshi Rural	Respondents	15	1	16
	Percents	93.8	6.3	100
Hai	Respondents	12	4	16
	Percents	75.0	25.0	100
Siha	Respondents	10	6	16
	Percents	62.5	37.5	100
Rombo	Respondents	10	0	10
	Percents	100	0	100
Same	Respondents	6	0	6
	Percents	100	0	100
Mwanga	Respondents	13	3	16
	Percents	81.3	18.8	100
Moshi Municipal Council	Respondents	5	0	5
	Percents	100.0	0	100
Total	Respondents	71	14	85
	Percents	83.5	16.5	100

3.2 Awareness of NRM policies by gender, and age groups

Similarly, a comparison of awareness about the NRM policies by gender showed that more male respondents were aware about these policies than females. This may be influenced by customary male dominance in natural resource issues. Thus, most activities such as forestry, water management, beekeeping, cash crop cultivation are mostly done by males and making them more aware of the NRM policies and activities related to resource management in these productive sectors. Age wise, the respondents ranging between 32-59 years were more

aware unlike those within the age categories of above 60 years. The age between 32-59 years was reported to be the most active working group in the region which addresses various activities, including natural resources management. It was also reported to be an active age that can be effectively trained to address various aspects of NRM and associated policies. While no clear explanation was given to low awareness among respondents of above 60 years, it could be due to limited exposure of some respondents to NRM policies.

3.3 Level of implementation of natural resource management related policies

A diverse set of policies related to sustainable land management and natural resource management in the region are implemented at various levels from the village to the regional level, involving individuals groups, NGOs, CBOs and institutions. Community participation in the implementation of NRM policies is active and positive and it takes different forms, ranging from knowledge provision, guidance, awareness creation to actual physical activities such as tree planting, growing of indigenous grass and trees in water sources, construction of contour bunds, establishing tree nurseries and woodlots in their farms, destocking, establishing beekeeping activities, construction and use of drip irrigation and traditional irrigation structures, among others.

Different governance mechanisms are in place in the region to enforce policy implementation. There are formal and structured mechanisms as well as relevant authorities mandated to enforce policy implementation from streets to villages, wards and district levels. Among the examples of such mechanism is the presence of village natural resource and environmental committees, and village land committees. At the district or council level there are various officials dealing with natural resource management issues such as the District Environment Management Officers, District Agriculture and Livestock Development Officers, and Natural Resources Officer. Each governance level has formulated by-laws that successfully enforce policy implementation and compliance by communities. Individual compliance with policies at the local level has taken different forms ranging from voluntary to involuntary compliance. To a large extent communities voluntarily comply with NRM policies due to environmental challenges facing their areas.

3.4 Push and pull factors for the implementation of natural resource management related policies

Policy implementation in the region is nevertheless, influenced by both push and pull factors. The pull factors including the nature of the landscape, policy awareness, environmental education, future perceived economic benefits of environmental management and the ongoing SLM project were reported to have influenced effective implementation and compliance with the NRM policies. Another mentioned pull factor is the existence of local knowledge and institutions that are in congruency with sustainable natural resource management The notable push factors that drag effective implementation and compliance with policies include politics, corruption, inadequate human and financial resources, insufficient of harmonization of sectoral policies, inadequate monitoring of projects and programmes, and communities dependence on natural resources (such as forests as source of energy and income). These push factors hinder effective implementation of the various NRM policies in the region.

Apart from the mentioned push factors, Kilimanjaro region is facing a number of challenges in implementing NRM related policies, some of which are presented in Table 2. The challenges that were mentioned by the respondents included the extent to which these policies reach the communities; the inadequate stakeholder participation in the policy processes; failure to regularly monitor the level of enforcement and implementation of each of the policies; lack of comprehensive land use plans and management regionally and country wide; inadequacy of alternative energy and overdependence on rainfed agriculture. However, the region has put in place different strategies and mechanisms to implement various policies, bylaws and programmes to overcome these challenges.

Table 2: Perceived challenges in NRM policy implementation and possible solutions

No.	Observed challenge	Possible solutions
1	Inadequate monitoring, evaluation and review of policies	review and harmonise NRM policies to help incorporation of new knowledge into decision making and to capture key issues relating to SLM
2	The NRM policies not widely distributed in Kiswahili language, which hinders effective implementation at the local level.	NRM policies should be made available to all levels in Kiswahili so that they can be easily understood and implemented
3	Inadequate environmental education and knowledge of NRM policies among communities.	Strengthen environmental education, awareness and knowledge on relevant NRM policies to enhance sustainable management of natural resources
4	Ineffective implementation of NRM policies is often associated with inadequate budgetary allocations	relevant policies should impel on sufficient resource allocations for their implementation of SLM matters
5	community livelihoods dependent on most on natural resources especially forest resources	promote the development and utilisation of alternative livelihood and energy sources
6	Inadequate integration of local knowledge and traditional institutions in NRM	Local knowledge and traditional institutions that are in congruency with sustainable NRM should be recognised and formalized at both district and national levels

Among these mechanisms is the popular restriction on cutting trees in one's own farm and/or available public forests (the do not cut trees without permission bylaw'). This bylaw has been implemented and enforced very successfully in the region and communities are impelled to comply. Individual compliance with policies however, takes different forms ranging from voluntary to involuntary compliance.

Effective implementation of NRM policies is useful and relevant in the management of resources including reducing land degradation and improving livelihoods and ecosystems' integrity (Kangalawe et al., 2015). In various places they have been and are still useful in preserving water sources, forest resources, land (by reducing soil erosion and runoff), preserving the environment through increased tree cover and rainfall availability in the region. International, national, regional and community based organisations (such as WWF, Kilimanjaro National Park, and Kilimanjaro Environment Development Association) cooperate in the management of resources in the region. Their activities range from knowledge provision, awareness creation, technical support, financial support, and undertaking physical activities such as tree planting.

4. Conclusion

Findings from the study have shown that local communities who are the resource users and policy implementers are generally aware of the various activities related to NRM policies, though the level of awareness varied considerably between policies. The most known policies are forest, energy, land and water policies. These variations could be attributed to the ways in which local communities get access to knowledge about the NRM policies, which to a large extent are informal. The variations are likely to have influenced the way local communities participate and comply with NRM policies in their areas. These NRM policies were found to be implemented at different levels, involving individual, groups, NGOs, CBOs and institutions. Participation of communities in the implementation of NRM policies in the surveyed districts has taken different forms, ranging from knowledge provision, guidance, awareness creation to actual physical activities such as tree planting, growing of indigenous grass and trees to water sources, construction of contour bunds, establishing tree nurseries and woodlots in their farms, destocking, establishing beehives, and use of modern irrigation techniques such as drip irrigation. The mechanisms to enforce policy implementation in the region include, for instance, the popular restriction on cutting trees in one's own farm and/or available public forests (*the do not cut trees without permission bylaw').*

The recorded positive and active community participation in the implementation of various SLM activities has been influenced by both pull and push factors. While the pull factors have promoted their implementation of the policies, push factors hinder effective implementation. Pull factors such as nature of the landscape, awareness and education, future perceived economic benefits of environmental management and the ongoing SLM project were locally perceived to have influenced effective implementation and compliance with the policies. The notable push factors that drag effective implementation and compliance with policies include politics, corruption, inadequate human and financial resources, inadequate team work, inadequate monitoring of projects and programmes and insufficient harmonization of sectoral policies. Additional challenges towards effective policy implementation the NRM policies include the inadequate ways at which these policies reach the communities; the inadequate stakeholders' participation in the policy processes; lack of comprehensive land use plans and management regionally and country wide; inadequacy of alternative energy and overdependence on rainfed agriculture. If not promptly these challenges addressed are likely to hinder realisation of various policy objectives, initiatives and programmes thereof.

To address the above challenges and push factors, it is thus recommended that there is an urgent need to review and update the NRM policies to come to grips with the changing internal and external conditions such as economic transformation, globalization and climate change. This will help the incorporation of new knowledge into decision making needed to capture contemporary issues relating to SLM. It has also been observed that NRM policies have not been widely distributed in the Kiswahili language, which is used by the majority of the local communities who are the implementers. It is recommended that to enhance awareness among communities, and for effective implementation of these NRM policies, they should be made available to all levels in a language that they can easily comprehend and play their part in implementation. Finally, the perceived economic benefits from SLM practices need to be sustained and wide spread in the districts.

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References

Gillingham, M.E. (1999). Gaining access to water: formal and working rules of indigenous irrigation management on Mount Kilimanjaro, Tanzania. *Natural Resources Journal* 39: 419-441

Kangalawe, R.Y.M., Noe, C., Tungaraza, F.S.K., Naimani, G. and Mlele, M. (2014). Assessment, Documentation and Publication on Indigenous Institutions and Knowledge in Natural Resources Management in Project Pilot Districts. Phase I Report of the Project "Policy review, harmonization and traditional institutions for natural resources management in Kilimanjaro Region". Submitted to UNDP and Kilimanjaro Regional Administrative Secretary, Moshi.

Kangalawe, R.Y.M., Tungaraza, F.S.K., Naimani, G., Tilumanywa, V.T., Mlele, M. and Nyagonde, S. (2015). Assessment of the Extent to which Productive Sector Policies Mainstream Sustainable Land Management Principles. Phase III Report of the Project "Policy review, harmonization and traditional institutions for natural resources management in Kilimanjaro Region". Submitted to UNDP and Kilimanjaro Regional Administrative Secretary, Moshi.

Misana, S., Sokoni, C. and Mbonile, M.J. (2012). Land use/cover change and their drivers on the slopes of Mount Kilimanjaro, Tanzania. *Journal of Geography and Regional Planning* 5:151–164.

Olson, J, Misana S., Campbell, D., Mbonile, M.J. and Mugisha, S. (2004). A research framework to identify the root causes of land use change leading to land degradation and changing biodiversity. Working paper 48. Land Use Change Impacts and Dynamics (LUCID): Nairobi International Livestock Research Institute.

Misana, S., Sokoni, C. and Mbonile, M.J. (2012). Land use/cover change and their drivers on the slopes of Mount Kilimanjaro, Tanzania. *Journal of Geography and Regional Planning* 5:151–164.

Olson, J, Misana S., Campbell, D., Mbonile, M.J. and Mugisha, S. (2004). A research framework to identify the root causes of land use change leading to land degradation and changing biodiversity. Working Paper 48. Land Use Change Impacts and Dynamics (LUCID): Nairobi International Livestock Research Institute.

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