### **Land Degradation Management in Southern Africa**

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**Abstract.** In all eight out of the ten countries constituting Southern Africa region most people live in rural areas and depend on subsistence agriculture for their livelihoods. In the region land degradation occurs mostly from soil erosion, chemical degradation (loss of nutrients, depletion of organic matter and acidification) and biological depletion. Other factors which contribute to land degradation in the region include compaction from overgrazing of rangelands, uncontrolled burning and improper cultivation of steep slopes, alternating flooding and crusting, salinization and pollution which all combine to cause degeneration of the fragile ecosystems covering large expanses of the region. Landscapes devoid of vegetative cover deeply incised by gullies that are difficult to reclaim, characterize large land expanses in the region classified as drylands. The portions classified as sub-humid or humid (highlands and wetlands) are prone to rapid soil loss from flash floods or periodic flooding. With a cycle of 2-3 and sometimes 5-6 years, droughts that have occurred in the region for over a century, worsen the land degradation problem making land management a formidable task particularly during the critical moisture deficient periods. Differing land tenure systems combined with high poverty and low literacy levels common among the rural population complicate land management process. Low technological capacity, poor governance, poorly conceived management policies and their implementation further complicate land management issues. Technology development, technology transfer and low adoption rates further exacerbate the situation. Pressure on the land and competition for land is of main concern throughout the region. Governments in the region as well as private organizations (including the numerous NGOs operating in the region), some communities and individuals (including researchers and academicians) have all identified the need to conserve land and reverse degradation to restore its productivity and improve the quality of life for those who depend on it for their livelihoods. The chapter examines the nature and causes of land degradation in the region, linking it to population characteristics, land ownership, low technological capacity, poverty, poor governance, low literacy and inappropriate land management practices. The chapter points out that numerous interventions targeted at reducing poverty and improvement in land resource management have not achieved their targets due to lack of coordination, rigidity and imposition which culminated in failure of the interveners to recognize and incorporate indigenous knowledge and peoples' preferences and/or indigenous age-old land management strategies. Linkages to trade and unequal market access that encourages poverty and unwise use of the land resources are discussed. Adopting "people centered" interventions is recommended together with smart partnerships between the participating partners both from the north and those from the south. Solutions will largely depend on willingness to change and sharing information that will guide appropriate regional action. The region faces an enormous challenge part of which is to come up with viable solutions that will reverse the degradation of land and manage it sustainably.

## 27.1 Introduction

In Southern Africa, land tenure determines sustainability in agriculture and rural livelihoods (Bond et al. 2004). With the exception of Mozambique, Lesotho and Swaziland, vast areas of Southern Africa are arid or semi-arid receiving 500 mm of average annual rainfall. Most parts in Namibia, South Africa and Botswana receive less than 250 mm with extremely high evapotranspiration rates of over 2500 mm yr<sup>1</sup>. The soils are generally poor with low organic matter content and have low water retention. They are vulnerable to water and wind erosion, leaching and salinization if put under irrigation. For example, in South Africa over 30% of the soils are sandy with less than 10% clay content; 60% of the soils have a low soil organic matter and hence conducive to low productivity and degradation (Villiers et al. 2005). In Namibia 95% of the soils have clay content of less than 5% and thus have very low water holding capacity (Liebenberg 2005). In Botswana, 70% of the soils are sandy, geologically old and highly leached, poorly structured, infertile and characterized by hard setting upon wetting (Moroke 2005). In Lesotho, more than 70% of the soils are acidic, have low organic matter, low pH and are infertile (Ranthamane 2005). Elsewhere in the region, varying soils with varying fertilities are found depending on physiography, land use and land management techniques.

In Southern Africa, most of the land is used for agriculture (crop production and/or livestock production); most farmers who live in the rural areas are poor and practice small-scale rainfed agriculture and/or agro-pastoralism. In South Africa for example, out of 46 million total population with a density of 88 persons ha<sup>-1</sup>, 3 million small-scale farmers occupy 13% of the total agricultural land from which they meet their subsistence needs while 87% of the arable land is used for commercial farming by about 46,000 commercial farmers who produce about 95% of the market output (Villiers et al. 2005). There is pressure on land and high competition for land by different land users (such as urbanization). In South Africa, land degradation is attributed to land use change, drought severity, frequency, duration and numerous land use changes. Like wise, in Lesotho most of the population is rural; about 82% reside in rural areas and out of these, 55% depend on agriculture for their livelihoods. Decline in agricultural land productivity over the years is attributed to declining soil fertility; poor land management, soil erosion and land degradation (Ranthamane 2005).

All over the Southern Africa region, expansive areas are owned by commercial farmers cultivating crops for export particularly in South Africa, Swaziland and to a lesser extent Zimbabwe (pre-land reforms). Large commercial ranches exist in most of the countries but predominantly in South Africa, Namibia and Botswana where most of the land is not suitable for rainfed agriculture. However, irrigated agriculture and/or dryland farming is practiced by a few commercial farmers in

the three countries. Elsewhere, small-scale producers struggle to use the land to meet their subsistence needs as well as produce for the world market economy including materials needed by a wide range of industries located in the developed countries. This includes tobacco in Malawi; fruits and cut flowers in South Africa and Zimbabwe and to a lesser extent Namibia; beef in Namibia and Botswana; and minerals in South Africa, Namibia, Botswana and Zambia. In so doing, land gets degraded either from over-use/misuse, erosion (steep slopes cultivation, monocropping and overgrazing), pollution (especially from mining) and acidification/leaching (irrigation and flooding).

Land degradation varies from country to country with the type of physical environment and the type of usage. In Lesotho for example, degradation includes severe soil erosion on the steep slopes and chemical degradation (depletion of organic matter, leaching, loss of nutrients and acidification) on the lesser steep slopes and the lowlands. Alluvial erosion has led to the formation of gullies or "dongas" while sheet erosion removes tons and tons of surface soil every year.

In South Africa on the other hand, major forms of degradation are soil acidity and alkalinity, nutrient and biological depletion, erosion, compaction, crusting and pollution. The soils are characterized by high water loss and high runoff rates with high evapotranspiration which make most of land unproductive without irrigation and addition of fertilizers. High stocking rates in the traditional lands have resulted in serious soil erosion and rangeland degradation.

In Namibia, where the mainstays of the economy include agriculture, mining and fishing, agriculture supports 70-75% of the population. About 45% of the land is commercial farmland with freehold tenure, 41% is communal farmland and 15% is state land including conservation areas. Out of the total area, only 1% of the land area is suitable for crop production with or without irrigation. This is found mostly in the north and northeast part of the country. The bulk of the agricultural land is thus suitable for livestock production (Liebenberg 2005).

Similarly, in Zimbabwe, about 70% of the population live in the rural areas and depend on agriculture. They live in communal areas with marginal productivity, infertile soils, medium rainfall (600 mm yr¹) and high population densities that have over the years put unimaginable pressure on land and bio-resources (Mharapara 2005). Land degradation has its roots in the socio-economic and political history of the country as well as climatic anomalies (excessive periodic high rainfall). Dependence on common property resources by the majority (70%) of the population has led to overgrazing, deforestation, soil erosion, over-cultivation, inappropriate agricultural practices and resultant poverty.

In Zambia on the other hand, there is ample agricultural land and 60% of the population depends on small-scale agriculture both for subsistence and for income generation. The smallholder sector (85%) that is dependent on rainfed agriculture employs 67% of the labour force while commercial farming employs 14% (Phiri 2005). The soils are fragile and infertile due to misuse and a long period of weathering of old mineral rich rocks. Degradation is thus attributed to prolonged use of the land without appropriate tillage methods and the age of the parent material.

In Swaziland, only a small area (10% of total land area) is suitable for crop cultivation and the majority of the land (67%) is devoted to cattle grazing. An additional 14.4% used for crop production gets converted to grazing land during summer.

About 77% of the total population lives in the rural areas and is dependent on 54% of the land that is held in trust by the King for the Swazi people. The rest of the land is privately owned and is used for the production of sugarcane and fruits (Manyatsi 2005). Land degradation is severe in the hilly and undulating middle grasslands which constitute the most important agricultural lands and are heavily populated. Here intensive farming and livestock grazing have caused soil erosion, particularly in the communal lands held in trust by the King for the people. Elsewhere the rangelands are said to be in good condition.

In Malawi, about 86% of the population lives in the rural areas and depend on agriculture for their livelihoods while in Mozambique agriculture absorbs about 84% of the population (both subsistence small-scale and commercial farmers). In Malawi, ever declining land productivity is a problem attributed to recurring droughts, excessive soil erosion, depletion of soil nutrients, reduced soil water retention capacity and soil low organic matter content (Mulenga 2005). In Mozambique the small-scale farmers depending on rainfed agriculture cultivate 95% of the total land devoted to agriculture. Although important to the national economy, irrigated agriculture occupies only 1% of the total cultivated land. Due to the vagaries of war, not much literature exists on land degradation in Mozambique (Brito et al. 2005).

### 27.2 Land Degradation Management

Land ownership and land tenure partly determines the success rate of technology adoption as well as willingness to invest in land management initiatives (Fisher et al. 2005). In Southern Africa, a range of technologies have been developed over time in order to cope with land degradation in general and these include resource conservation, better water harvesting methodologies, development of the most suitable crop varieties and development of most suitable tillage and cropping systems. Governments, Non-Governmental Organizations (NGOs) and in some instances, the private sector have made efforts to address the issue of land degradation with the sole aim of finding solutions. SADC as a regional organization has also put in place specific units to address the land degradation and land management issues in the region.

Throughout Southern Africa, with the exception of Swaziland where it is reported that there is a lack of focus on land management, relevant and interesting technology development has been addressed over time focusing mainly on the small-scale farmers. Despite the availability of these technologies, the rate of adoption by the majority of the small-scale farmers has been low. The reasons advanced include poverty, inability to afford the required inputs such as fertilizers and necessary machinery, and low-level education inhibiting an understanding and appreciation of these technologies (Msangi 2004). Other reasons include non-involvement of indigenous people during project formulation and ignoring their land management practices. Some of the introduced technologies are so general that they do not address the problems facing a specific area and hence lack in relevance and applicability to different micro-environments (Molapong 2005).

Individually, most countries have made notable efforts in promoting land management in their countries. Botswana for example, has introduced and implemented a number of programs to promote management of dry land farming and irrigated agriculture. These include Arable Lands Development Program (ALDEP), Accelerated Rainfed Arable Program (ARAP), Irrigation and Water Development Project, Development of Extension Services and Pandamatenga Development Project (Moroke 2005). However, success has been minimal due to low technology adoption, water shortage, infertile soils and poor infrastructure that discourage private sector investment in the agricultural sector.

Meanwhile, the Botswana Government has introduced The National Master Plan for Arable Agriculture and Dairy Development (NAMPAADD), a new program to improve land productivity by reforming the small-scale farming sector. It is geared towards transforming traditional/subsistence farming and its operations to a commercial level and also to enable commercial farmers to upgrade their management and technological application. Incentives including subsidies are made available to those who adopt practices that would lead to increased production such as mechanization. Countless research projects to improve tillage practices (such as Dry Land Farming Research Scheme (DLFRS)) and pasture and land resources management are being undertaken.

It is obvious that over the years, Botswana has heavily invested in land management for improved land productivity; technologies aimed at improving both crop and livestock outputs are in place but the adoption has been poor/slow partly due to inadequate private investment and partly due to inadequate human capacity (HIV/AIDS has hugely affected the man-power availability).

In Lesotho, the budgetary allocation for land management programs is not equivalent to the serious soil erosion and soil declining fertility problems being experienced in the country. Budgetary allocations have been declining in the last 10 years and there has been a huge loss of experienced and qualified staff in the land management sectors as the senior members leave the sector for higher positions in other sectors (Ranthamane 2005).

However legislation for land conservation (rangelands and wetlands mostly) exists and plays a vital role in the management efforts being made by both the Government and other players including NGOs and training institutions. There also exists a National Environmental Action Plan that addresses, in very general terms, the overall management and conservation of biodiversity and natural resources. Government Ministries have put in place various programs and projects aimed at the management of soil and water and the promotion of agroforestry projects. Also in place are training programs for farmers and the youth on conservation farming systems. Included in this training are activities on grass seeding for marginal and degraded lands.

Soil erosion is controlled on the marginal lands by the construction of grade stabilization structures and stone lines on the rangelands. Check dams have been built and progressive soil survey and mapping is carried out to determine land suitability for different land use purposes. Courses on soil and water management are taught at the National University in an effort to build capacity for land management in Lesotho. The University also provides extension services to farmers and herders during which the farmers and herders are trained on land and water con-

servation methods, conservation farming systems and how to combat soil erosion. Field trips to conservation sites are also conducted for both groups.

Lesotho has numerous other programs managed by different organizations such as SERUMULA, an NGO concentrating on natural resources management and Katleho-Moho Association, another NGO concentrating on among other things rehabilitation of degraded lands and soil fertility management techniques for small-scale farmers. Despite the presence of a legal framework which guides the activities on land and water management in Lesotho, there is a lack of proper coordination and communication among the various players. There is thus need to improve on communication and sharing of information.

In Malawi, there are various policy documents to guide management of land and other natural resources that are held by different Government Ministries and departments. For instance, the National Environmental Action Plan (NEAP) identified soil erosion as the biggest threat to agricultural production and called for urgent action to arrest land degradation and restore soil resources (Mulenga 2005). Also available is the National Land Resources Management Policy and Strategy aimed at improving land productivity. In an effort to rectify the situation and foster sustainable management of land and other natural resources, earlier policies have been revised and new ones have been formulated. Good examples include the revision of the National Environmental Policy (NEP) to incorporate issues on Community Based Natural Resources Management (CBNRM) and the launching of Malawi's National Strategy for Sustainable Development (MSSD) in compliance with the recommendations of the 2002 World Summit on Sustainable Development (WSSD).

While policies provide a basic foundation for managing land degradation, it is stipulated that their implementation remains the greatest challenge in achieving sustainability in the management of land and other natural resources in Malawi. There is neither coordination in the implementation of these policies nor well articulated regulations for their implementation. Where some regulations exist, there is weak enforcement. Recent increase in the frequency of drought has compounded the problem of ineffective land management and associated decline in land productivity (Mulenga 2005).

Other projects undertaken to promote land degradation management by small-scale farmers in Malawi include the Promotion of Soil Conservation and Rural Production Project (PROSCARP) and a follow up Bridging Project on Sustainable Livelihoods supported by the European Union (EU). Another project in this category is that on rehabilitation of heavily degraded areas supported by NATURE. Regular training and materials to facilitate the implementation of activities is provided. Other efforts made to improve land management include the formulation of Malawi Better Land Husbandry Concept, New Agricultural Extension Policy and Contract Research and Core Function Analysis where the Ministry of Agriculture was reorganized so as to empower and give responsibility to the local communities in the management of their land. Good success has been recorded apparently because introduced technologies were centered on the farmers' desire to increase food supplies.

The challenges which are likely to undermine isolated cases of success in Malawi include inadequate budgetary allocations, fragmentation of implementation

among the Government departments, lack of integrated human expertise and most importantly lack of coordination. Another challenge affecting land management in Malawi is the impact of HIV/AIDS, which has caused loss of experts and created labour constraints at the implementation level. There have not been enough efforts to incorporate indigenous knowledge for scientific investigations and recommendations on land management. Poverty has aggravated the situation as poor farmers tend to respond to their daily or immediate needs rather than long term needs. As such they do not invest their time into long-term land management practices (Mulenga 2005).

While a clear policy on land use and management is lacking in Swaziland and there seems to be little or no research on land management, in Namibia, land management is of great concern to the Governments and private landowners. Rangeland reclamation and management, land carrying capacity and agro-forestry promotion has been accorded high priority through several projects including those on pasture rehabilitation, bush encroachment control, and expansion of irrigated land. Both the Government and NGOs are involved in land management through the promotion and support of appropriate projects. Ongoing projects include Veld Reclamation on Denuded Communal Areas; Evaluation of Saline Tolerant Vegetation as a source of fodder for livestock and the Effect of Bush Control Measures and Grazing on Species Composition and Bush Densities. The Desert Research Foundation of Namibia (DRFN), an NGO that concentrates on sustainable use of land and natural resources in the country, collaborates with the Ministry of Environment and Tourism to administer the NAPCORD program which concentrates on combating land degradation (Liebenberg 2005).

A flagship initiative by the Government to manage land and water resources in Namibia is the Green Scheme Policy, which aims at encouraging investment into land management to stimulate increased productivity and encourage the development of small-scale irrigation farmer settlements. The scheme aims to enhance socio-economic development and promote the uplift of Namibia's rural communities by creating an enabling, commercially viable environment through an effective public-private partnership to stimulate increased private sector investment in the irrigation sector. The scheme aims to stabilize the agricultural sector and overcome drought effects and thus stabilize land output and small-scale farmers' income through the growing of high value crops including horticultural products.

The Green Scheme is one of Namibia Government's initiatives to sustainably manage land in order to increase its productivity. A few projects have been started under the umbrella of the scheme, all guided by the existing legal framework in the country. The Communal Land Reform Act, Act No.5 of 2002, the Traditional Authorities Act No. 25 of 2000 and the Namibian Environmental Assessment Policy support the scheme. The scheme requires that large private landholders work hand in hand with small-scale farmers so as to build capacity, ensure technology and skills transfer to promote proper land management and add value to produce before marketing.

Other initiatives on land management are closely linked with the conservation activities such as the setting up of conservancies that aim to conserve land and other natural resources to empower the rural communities and increase their livelihoods. The aim of the conservancies is to empower the communities so that they

can manage land and the resources therein with little or no assistance from the Government. Currently 14% of Namibia's land constitutes communal conservancies created under the Community-Based Natural Resources Management (CBN-RM) program which give rural people rights to benefit from the natural resources in their areas (Garoes 2006). Given the country's poor soils and limited rainfall, this is a viable method of conserving land and at the same time bring benefits to the rural communities.

Mozambique has extensive wetlands subject to periodic flooding, mountainous lands and low-lying dry areas frequently affected by droughts. Nevertheless, good quality land is plentiful. The land management policy described in the Government 2000-2004 program stipulates that land use rights must be guaranteed to all singular and collective entities to ensure accruing of benefits to all Mozambique people.

Mozambique has different land tenure systems ranging from state-owned to private and communal and open access. Due to this fact, there is competition for and subsequent pressure on the better lands by numerous interested groups who wish to acquire and develop land. At independence in 1975, all land became state land. In 1977 a new Land Bill was passed which recognized the different land tenure systems and 1979 the Government enacted a new Land Law, which governs land ownership under different systems (Brito et al. 2005).

Land management in Mozambique is affected by climatic, technical and institutional factors. These include periodic severe floods and drought, presence of land mines, low level of technological development; absence of credit facilities for would be investors and underdeveloped infrastructure and communication system. The effects of the prolonged war ravaged the rural areas leaving them poor and without necessary investment resources. Therefore the government strategy is to stimulate production of both food and cash crops and conduct research on the different production systems and land management technologies including irrigated agriculture.

In Zambia approximately 90% of the land falls under traditional/customary tenure arrangements and 10% is under lease tenure arrangements. Both tenure systems are recognized through the Lands Act. Thus landowners have land security and can invest in land without fear of loosing their investments. However, land resources management has not been adequately integrated into the overall social and economic policies and strategies for economic development. Coordination is disjointed; the policy on land management is said to date back to the Structural Adjustment Program days (1992) during when the focus was on liberalizing the agricultural land usage to attain food security for the country and produce raw materials for the agro-based industries. During early 2002 the newly elected President emphasized on science and technology agriculture and the need to adopt farming practices that are both economically and environmentally sustainable (Phiri 2005).

During the last decade, several projects were undertaken in Zambia to ensure sustainable land management which include those on conservation farming technologies advocated by the Conservation Farming Unit (CFU) funded by NORAD, SIDA and the Royal Netherlands Government. The objective was to enable small-scale farmers to adopt more productive and environmentally friendly sustainable

conservational farming systems. By 2005, CFU had undertaken 300 farmer-managed trials at the Golden Valley Agricultural Research Trust sites. Training and farmer support was provided by CFU on land management techniques such as terracing, ridging, range management and green manure. Further support in land management was provided through research supported by World Agroforestry Center (ICRAF) project funded by CIDA and IDRC of Canada. Through partnerships, agroforestry technologies (improved fallows, mixed cropping, relay cropping and biomass transfer for fertility improvement) were tested and adopted by farmers.

In Zimbabwe on the other hand, the Government, individual institutions, organizations and some communities have identified the need to conserve natural resources, reverse land degradation, restore productivity and promote wise use of land resources on a sustainable basis. Land degradation in the country is rooted in both its socio-economic and political history as well as climatic vagaries. The Government instituted the Land and Water Management Applied Research Program aimed at enhancing capacities to generate and facilitate the availability of appropriate technologies for use by communities inhabiting the marginal lands where more than 70% of the population lives. Very high population densities characterizing these areas have over the years put enormous pressure on the land and other natural resources. The program attracted a large number of organizations and institutions interested in sustainable land productivity.

Although the Government has developed other policies that influence conservation, management and utilization of land, the implementation of these policies is not well supported with resources, there is inadequate capacity to enforce these policies as well as lack of commitment and political will (Mharapara, 2005). It is also documented that there has not been deliberate and specific policies to support research and development on land management; rather there has been experimentation by numerous organizations on different aspects of land management including conservation farming, gullies ("dambo") management system, soil fertility improvement and mapping, micro-irrigation techniques development, rangeland management strategies and policy development on natural resources management (including land and water). Several challenges including poor knowledge of the environment and necessary linkages in the management of resources in a given ecosystem, poor strategy formulation and implementation without full appreciation of time frame and high investments required to realize benefits have deterred success. Many investors dropped/abandoned projects after a few years because the short term results were not encouraging.

Current changes in land ownership in Zimbabwe have baffled many, both landowners and land management advisors. Resettled farmers (new land owners) suddenly find themselves at a loss given the many challenges present in managing large chunks of land and in meeting expectation (conservation, reclamation, commercialization and intensification vs. subsistence, etc). Service providers are equally as overwhelmed by the sudden change and demands placed upon them by the change of land ownership. Facilities existing on some of the farms where relocation has taken place are old or obsolete; the new owners do not have the resources with which to operate them or replace them neither does the Government have enough credit to advance to these farmers. Land is either being mismanaged and/ or under-utilized because of the sudden change. Brain drain has rendered many Government departments ineffective and many organizations activities have been paralyzed or heavily scaled down. Because of disjointed activities, the many institutions and organizations active in Zimbabwe are said to be ignorant of each other and what each is doing in their respective enclaves. There is thus failure to share vision, increased duplication of efforts, increased inefficiency and failure to create a critical mass of expertise around land management issues. Networking is lacking; lacking also is a national land strategic management master plan forcing individuals, institutions and organizations to come up with their own plans that may have little relevance to the whole picture (Mharapara 2005).

# 27.3 Conclusions and Recommendations

This short chapter has reviewed land usage and land degradation in eight of the ten countries in Southern Africa discussing various land degradation management efforts pinpointing the partial successes that have been recorded by the various actors and players. One of the contributing factors to lack of full success is lack of capacity, both financial and human as well as lack of universal coordination and information sharing. Land degradation and restoration issues take time to yield results; investors have displayed impatience and disappointment when expected results were not forthcoming within the short plan periods. Ambitious programs and projects were either left unfinished or conclusions drawn prematurely. The varying situations existing in the different areas in all the countries were not clearly understood by foreign investors who sometimes came up with much generalized projects lacking in specificity. Governments who followed advice given by foreign institutions including the World Bank and International Monetary Fund created false illusions that disappointed many when results fell short of expectations. Failure was further compounded by weak follow-ups because of limited capacity, lack of political will, non-involvement of local people in setting up the projects and/or the inability of the national governments to continue with the projects or activities in the plans and programs after donor assistance has come to an end (Msangi 2004). Other factors contributing to the partial success in land degradation management strategies include ineffective land tenure policies. For example by fencing off large tracts of land to create commercial farms, parks and game reserves, large numbers of people were either displaced or constrained in smaller areas where old-age land management mechanisms are jeopardized. Civil strife and prolonged wars in Mozambique and Angola plundered resources, introduced land mines, destroyed infrastructure and rendered large areas unusable. Land management in such areas poses insurmountable challenges for the affected areas both in and outside the boundaries of the two countries.

Inappropriate donor and land management policies as well as rigidity on the part of developed countries and investors greatly constrains most of Southern Africa countries and deprives them of room to maneuver, which has in turn led to the accumulation of large debts whose repayment has/is siphoning savings from the national coffers. This is limiting investment into land management and other de-

velopment issues. Unfavorable terms of world trade force these countries to overexploit their land and other natural resources in the quest of meeting set demands or in generating enough incomes, which accelerate the rate of land degradation.

Over the years, it became apparent that the magnitude of land degradation related problems facing the countries in Southern Africa is so high that national governments alone cannot exhaustively manage them. National Governments and other players such as regional bodies (e.g. SADC) and numerous NGOs have made it their responsibility to address the management of land degradation issue with the intention of coming up with viable recommendations to restore productivity and attain sustainability. It is now accepted that the indigenous people particularly those in the rural areas, whose survival is at stake, have to be involved at all levels. Efforts are being made to reduce the vulnerability of the affected populations by securing their environments, increasing food security and creating new opportunities for alternative livelihoods to reduce pressure on land. Earlier copping strategies that were weakened through inappropriate interventions and policies are now being researched into with the view of incorporating them into plans and programs for land degradation management. In some instances, the efforts are geared towards fostering cooperation with the private sector in land degradation management activities.

SADC, which was formed to promote development efforts of its member countries, has been very instrumental in various developmental issues affecting land degradation management and the welfare of the people in the region. It addresses resource related issues including those on soil and environmental degradation and those touching on impacts of climatic vagaries particularly drought. Through cooperation and smart partnerships, the countries offer assistance to each other in mitigating land degradation issues that indiscriminately spill over political boundaries drawn in complete disregard of physical and ecosystem boundaries. SADC has embarked on formulating and working out mechanisms of implementing a Regional Action Program to combat land degradation including the challenge of assisting individual countries in coming up with national action programs. Sadly, implementation of interventions continues to be effected at country level contrained by the financial and human capacity of individual countries. This practice is a great shortcoming in attempts to holistically integrate the management of land degradation in Southern Africa.

The impacts of climatic vagaries (droughts and floods) on people, their domesticated animals, wildlife, rangelands and cropped lands have been enormous. Empowering the people so that they can participate and take the lead in land degradation management means increasing awareness and training. Needed short courses and seminars/workshops could include understanding of the role of climate in land management including overcoming and/or adjustment to climatic hazards, land use planning, land management, soil fertility and soil fertility management, tillage practices, farming systems and their management, cropping systems and their impacts on soil fertility and land degradation and integrated farming systems. Where appropriate, irrigated farming for small-scale farmers and management of wetlands should be emphasized. Other issues to be included in the training programs should include, regeneration of over-grazed areas, reforestation of bare areas and management of lands for growing high value crops and their marketing.

To be able to take control in the management of their land and other resources, the impact, control and management of the HIV/AIDS pandemic should form part of any training program.

One other way of empowering the people and alleviating poverty through better management of land is fair distribution of land and generated incomes. The conservancies' mode of land and resources management is one good example. The concept of Community-Based Natural Resource Management should be strengthened and embraced by all countries when addressing land degradation management. People-centered development should be a priority in Southern Africa taking into account access to land, ownership, development and management.

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