

EXECUTIVE SUMMARY

I. INTRODUCTION

A. Definition and Extent of Land Degradation in SSA

Land degradation is one of the biggest problems in Sub-Saharan Africa, threatening the lives of millions of people. The problem occurs in all the three zones of the region, the humid, sub-humid and dry lands, albeit at different levels. Key factors of degradation in the humid lands are:

- clearing trees for agricultural expansion,
- logging,
- firewood gathering and charcoal production,
- mining,
- human settlements, and
- infrastructural and industrial developments.

The same factors are also important in the sub-humid zones though overgrazing and uncontrolled fires become more important here.

Within the drylands overgrazing combined with unsustainable agriculture and over-exploitation of natural resources are driving factors. Additionally, there are various underlying causes among which population growth, rural poverty and poor policies are key ones.

Very large areas of Sub-Saharan Africa are already or becoming degraded as a result of these factors, the result of which is desertification in the dry sub-humid and dryland zones. The process of land degradation usually starts with deforestation and there is evidence to show that over 90% of the original moist forests have been lost or have become degraded remnants, whilst about 600,000 ha of indigenous forests in the sub-humid zones are cleared annually for other land uses. The annual rate of degradation (or desertification) in the drylands varies from 10% (in arid lands), 1% (in semi-arid lands) and 0.1% (in the dry sub-humid lands). However, these figures should be treated with caution since data are not always reliable and climates are highly variable, especially in the dry areas. There is clearly an urgent need for improved and harmonised methods for gathering data and monitoring changes.

B. Impacts of Land Degradation

The main consequences of land degradation which impact negatively on human livelihoods and on the environment are generally well-known. They include:

- shortages of firewood and other wood;
- shortages of non-timber forest products;
- increased sediment deposits, floods and land slides;
- drying up of springs and water bodies; siltation of dams;
- increased incidence of water-borne diseases;
- loss of biodiversity;
- climate change;
- desertification.

All these reduce land productivity and affect food security.

II. APPRAISAL OF LAND REHABILITATION TECHNIQUES

In order to reverse or mitigate the effects of land degradation a number of techniques are available, depending on:

- the priorities and objectives of stakeholders,
- the costs and benefits associated with available rehabilitation techniques, and
- the economic, social, and environmental values of the land resources in their current and desired future states.

The major techniques that have been used in Sub-Saharan Africa include;

- Natural Regeneration,
- Assisted Natural Regeneration (ANR),
- Enrichment Planting,
- Plantations,
- Agroforestry, and
- Soil and Water Conservation.

Natural Regeneration involves deliberately managing the land to enhance and accelerate the natural processes of ecological succession in order to re-establish a healthy and resilient forest ecosystem.

Assisted Natural Regeneration is used to accelerate regeneration by assisting the natural processes and it involves cutting or pressing down the weeds around existing naturally-

occurring seedlings, protecting the site from fire and inter-planting with desired species if necessary.

Enrichment Planting is defined as the planting of valuable species in degraded forests without the elimination of valuable individuals already present. The technique is suitable for the restoration of over-exploited primary and secondary forests as it can increase total tree volume and the economic value of forests.

Fire is a major ecological factor responsible for maintaining many African ecosystems, for example Miombo woodland. The technique for controlling fires usually involves carrying out *early burning*, that is, burning patches of grass and undergrowth early in the dry season before the vegetation becomes so dry that more intense and damaging fires occur, as is common later in the season.

The Use of Plantations involves planting trees and/or shrubs as single or mixed species on degraded lands. Plantations are often used to catalyse forest succession in the understory, particularly where silvicultural management has been neglected or on sites where persistent ecological barriers to succession would otherwise preclude recolonisation by native forest species.

The Use of Agroforestry involves two stages. In the first stage, tree and shrub species together with any necessary mycorrhizas or rhizobia are introduced to the site with the objective of checking further erosion and restoring soil organic matter and fertility status. In the second stage, the cover may be selectively removed and agricultural production introduced.

Soil and Water Conservation Techniques entail creating structures to improve the conservation of water for plant growth.

III. REVIEW OF SELECTED CASE STUDIES

The urgency for rehabilitation has been widely recognized for many years and sub-Saharan Africa has been the focus of many initiatives in this area. There have been many successes as well as some failures but published details are mostly in the "grey" literature and are thus not easily accessible. A total of 14 such cases are included as annexes to the report, detailing the objectives and results and the reasons for success or failure. These case studies cover the three main ecological zones of Sub-Saharan Africa, the bulk of them being concerned with the dry land ecosystem (7 cases), and come from field work in the woodlands of Burkina Faso, Ethiopia, Kenya, and Northern Cameroon. The remaining 7 cases are distributed almost equally between the sub-humid ecosystem (4 cases, from the Manyara, Shinyanga and Dodoma Regions of Tanzania, and the Upper East Region of Ghana) and the humid ecosystem (3 cases, from the Western and Brong Ahafo Regions of Ghana). This distribution is revealing, as it reflects the high priority given to the rehabilitation of degraded dry lands in view of the greater threat of desertification in that ecological zone. Eleven of the cases studied are regarded as generally successful, whilst the remaining 3 are more of a failure. Nevertheless, they all represent excellent learning points for charting the way forward for future rehabilitation of degraded lands.

IV. LESSONS LEARNT

From this review a number of important lessons have been drawn that provide the basis for the recommendations made. Projects considered to be successful were found to have at least one of the following characteristics:

- The project is perceived by local communities to have a direct bearing on their livelihoods, i.e., to have a clear potential to deliver tangible and short term benefits such as wood and non-wood forest products for human and livestock direct use and for income generation.
- There is a favourable political and policy environment that provides a clear legal framework for land ownership and/or usufruct rights.
- Rehabilitation methods are simple and inexpensive, and relate as much as possible to local knowledge and practice.

The following were found to be particularly important features of the design and implementation of successful projects:

- Rehabilitation activities are preceded by stakeholder consultation to enhance awareness of the causes and consequences of land degradation and of the available techniques for rehabilitation and their benefits.
- Baseline studies are fundamental tools for measuring success or failure (for monitoring flora and fauna changes over time and the impact of rehabilitation on the livelihoods of people).
- Participation is given highest priority at all levels and involving all stakeholders in planning, implementation and benefit-sharing of rehabilitation.
- Land tenure problems are resolved for greater adoption and sustainability of rehabilitation efforts.
- Local communities are empowered through
 - Functional institutional frameworks at village level to oversee planning, implementation and monitoring;
 - Capacity building to enable communities to implement the projects; and
 - Equitable sharing of both costs and benefits within the communities and between them and the government.

V. THE WAY FORWARD

Based mainly on the lessons learned from the case studies presented here, the following suggestions have been formulated and are strongly recommended as a guide to the way forward for land rehabilitation in Sub-Saharan Africa.

Policy Aspects

Adopt appropriate policies that, among others, allow a paradigm shift in forest governance from centralised to decentralised management involving local communities (community based forest management or joint forest management) and other stakeholders.

Pay particular attention to the role of range management for livestock in the dry zones especially, adopting a multi-sectoral approach as needed.

Review and if necessary change land policies to ensure secure and clear tenure rights for different communities. The review should be based on national land use priorities taking into account biophysical as well as socio-economic conditions.

Management Aspects

In addition to ensuring the collection of baseline data, management also needs to take account of the following:

- Development of integrated and holistic approaches, including industrial and other off-farm livelihood opportunities to reduce pressure on forest and range resources. Sustainable agroforestry production systems must be affordable by the resource-poor.
- The value to be gained from sharing information and experiences, both within and between countries. Linked with this is ensuring that relevant institutions have the capacity for disseminating appropriate knowledge.
- The value of traditional and local knowledge especially that held by the stakeholders.
- The importance of developing the skills of individuals and communities in planning, organisation, management and accounting.
- The need for diversification of income generating activities and adding value through developing markets and marketing;
- Finally the necessity for planning to ensure sustainability of the benefits of rehabilitation when project activity comes to an end.

Research and Training Aspects

- Research is needed on:
 - The impacts of sectoral and macroeconomic policy and legislation on deforestation and land degradation;
 - The socio-economic evaluation of successfully rehabilitated areas;
 - Nursery and field trials of single and mixed tree/shrub species for degraded land planting;
- The harmonisation of demands on land resources, notably agriculture, animal husbandry and woodland production, especially where these are in conflict

- Training and dissemination of technologies in close partnership with existing governmental and non-governmental agricultural extension services of improved technologies are needed for rehabilitation of degraded lands. Training needs include awareness enhancement, dissemination of improved technologies and small enterprise management.