

WHOSE RESPONSIBILITY

IS DRYLAND FOREST MANAGEMENT?

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SOCIO-ECONOMIC AND ECOLOGICAL IMPORTANCE OF DRYLAND FORESTS

INCOME GENERATION: FOREST PLANT RESOURCES
INCOME GENERATION: FOREST ANIMAL RESOURCES

WOOD SECURITY

FOOD SECURITY

SOURCES OF FEED

HUMAN HEALTH CARE

ENVIRONMENTAL CONSERVATION

Table 1. Uses of trees and shrubs in the Sahel

Item for use	Specific Use or Plant Parts	Number of Species*
Timber	Structural uses, tools, arts, crafts, furniture, fences, etc.	60 (32)
Fuelwood & charcoal		64 (39)
Food	Leaves, flowers, fruits, seeds, gum, other exudations	68 (22)
Forage	Leaves, twigs, flowers, fruits, seeds, etc.	100 (28)
Medicine		107 (25)
Raw materials	Gums, tannins, dyes, ash/salts/saponins, fibers	82
Protection & soil improvement	Shade, erosion control, dune fixation, nutrient enrichment, improvement of soil structure, wind protection, improvement of water budget, other positive effects (e.g. fire protection)	39 (20)
Amenity		53 (32)

Source: von Maydell (1986)

CAUSES OF DLF DEGRADATION

Natural factors

- ✓ *Physical environmental factors*
- ✓ *Climatic factors*
- ✓ *Biological factors*

Anthropogenic factors

- ✓ *Deforestation*
- ✓ *Overgrazing/grazing by livestock*
- ✓ *Unsustainable utilization*
- ✓ *Introduction of invasive alien species*

CAUSES OF DLF DEGRADATION ...

Socio-economic and policy-related factors

- ✓ **Poverty, population growth and poor economic performance**
- ✓ **Inadequate or Absence of land-use classification, land use and forest policies and legislation**
- ✓ **Absence of land and tree tenure/ownership right**
- ✓ **Underestimation of contribution of dryland forests**
- ✓ **Lack of pricing and incentive policies**
- ✓ **Inadequate institutional arrangements/set-up for (dryland) forestry**
- ✓ **Inadequate or lack of viable dryland forestry development strategies**
- ✓ **Weak forestry research system**
- ✓ **Insufficient information acquisition, management and dissemination**
- ✓ **Political instability leading to civil wars and unrest**

CONSEQUENCES OF DFD

WOOD FAMINE

ENVIRONMENTAL DEGRADATION

LAND DEGRADATION

DECLINE/LOSS OF BIODIVERSITY

DEGRADATION OF WATER RESOURCES

ENHANCED GLOBAL WARMING

ADDRESSING CAUSES & CONSEQUENCES

- ❖ **Urgent need to address causes and the associated undesirable consequences of DFD if further degradation of dryland forest resources is to be prevented.**
- ❖ **Requires developing and implementing realistic or feasible and appropriate interventions/measures applicable to the objective realities and overall conditions relevant to each of the countries in SSA.**

❖ **Interventions required:**

➤ **Development & conservation/Institutional Arrangements:**

- ✓ **Continue to fight poverty by using a viable and realistic poverty reduction strategy:**
 - ✓ **promoting human resources development and improving access to education and health care;**
 - ✓ **promoting institutional development based on good governance and full participation of all stakeholders involved in the fight against poverty;**
 - ✓ **accelerating economic growth with an enhanced role of the private sector, which shows that the issue of land tenure, improving market channels and pricing policies are important; and**
 - ✓ **developing growth potential and productivity of the poor by promoting sectors from which the poor derive direct benefits, i.e. agriculture and livestock sectors, and focusing on areas where the poor disproportionately live.**

- ✓ **Providing alternatives sources for energy than wood, charcoal, dung and agricultural residues to reduce the pressure from the remaining dryland forests, such as biogas, solar, wind, electricity (water-based), etc.**
- ✓ **Multidisciplinary approach to solve the multi-dimensional and heterogeneous dryland forest problems, i.e. integrated approach combining components focusing on sector development and those targeting on specific areas.**
- ✓ **Initiatives to upgrade statistical gathering, data collection, recording and analyses as well as use of computers to develop data bases and useful models.**
- ✓ **Collect, organize, compile, publish and disseminate the valuable grey literature on dryland forests that has been accumulating over the years and shelved by scientists, experts, development agents, etc. in countries of SSA.**
- ✓ **Joint forest management: there are already encouraging starts both in Tanzania, Kenya and Ethiopia.**
- ✓ **Coordination of efforts at all levels.**

➤ **Policy-related:**

- ✓ **Putting in place the appropriate policies and corresponding legislations that provide for the development, sustainable utilization and conservation of dryland forest resources**
- ✓ **Developing systems for monitoring and evaluating policies and legislations that have been put in place and revise those that have been partially accepted, rejected or completely ignored by communities. A good example in this regard could be cited from Tanzania (Box 1).**

- **Box 1. Cognizant of the contracted capacity of the Government to manage forest resources, resulting in deforestation and land degradation, the revised forest policy issued in 1998 encourages stakeholder involvement in the management of forest resources. For instance, statement Number 03 of the Forest Policy states: "To enable participation of all stakeholders in forest management and conservation, joint management agreements, with appropriate user rights and benefits, will be established. The agreement will be between the central Government, specialized executive agencies, private sector or Local Governments, as appropriate in each case, and organized local communities or other organizations of people living adjacent to the forest". There are already several pilot projects on joint forest management (JFM), and the results are said to be encouraging so far.**

- ✓ **Strategies for conflict management and negotiated joint programs with communities.**

- **Cooperation/collaboration/Networking:**

- ✓ **Better institutional collaboration, mainly at national and regional levels**
- ✓ **Commitment and active support from the international community**
- ✓ **Developing strong international, continental, regional and national mechanisms to either prevent or control invasive alien species**

- **Research:**

- ✓ **Making available technical options for improved natural resource management.**
- ✓ **Proper valuation of products and services from dryland forest resources and trees on farms.**

- ✓ **Research on not only biophysical but also demographic, socio-economic or institutional aspects of changing forest conditions, especially as it relates to land degradation and rehabilitation.**
- ✓ **Address the several unknowns, e.g. (i) What is the appropriate institutional arrangement for conservation and utilization of open access and common property woodland resources? (ii) Nature and requirements of collaborative management models in terms of practical applications - which models can work under what conditions? What are the perceptions of communities on the collaborative models?**
- ✓ **Indicating scientifically how the causes of dryland forest degradation affect the natural resource bases and recommending the need for policy interventions**

- ✓ **Generating solid data showing the effectiveness of the intervention/methodology to be applied with reliable ways to evaluate the intervention/guidelines of management practices: to help policy makers determine when and how they should intervene.**
- ✓ **Generate knowledge about ecological factors, and factors that affect human behaviour in environmental management.**
- ✓ **Information about the political and economic surroundings, sectoral policies, i.e. economic, land tenure and forestry, implication of these policies and the culture (by TALKING TO THE PEOPLE).**
- ✓ **Capacity building of institutions and improving the research environment, especially the career structure of researchers (e.g. not much is expected from a researcher who drives a taxi over the whole night to supplement his salary!).**

➤ **Education/Training/Awareness creation:**

- ✓ **Improvement in the education system and curricula development, especially at the University level.**
- ✓ **Continuous on-the-job training and exchange of visits to learn from each other.**
- ✓ **Education on population control.**
- ✓ **Developing human skills in up-to-date methodologies, program conceptualization and applications of multidisciplinary and holistic approaches.**

CHALLENGES IN FUTURE DLF MGM'T

- **Challenges associated with dryland forest management could be summarized as:**
 - **arresting or retarding further destruction of dryland forest resources**
 - **rehabilitation of degraded dryland forests**
 - **expanding dryland forest resources to meet demand for energy, construction, wood-based industries and NTFP**
 - **keeping sustainable balance between utilisation and conservation of dryland forests to improve the quality of human life**
 - **harnessing dryland forest resources to urgently needed socio-economic development**
 - **designing mechanisms to enhance the production of timber and NTFP for export**
 - **reducing or substituting imports of forest products into countries of SSA**
- **These challenges could be tackled by preparing and implementing appropriate management plans for the natural or artificial dryland forests**

WHOSE RESPONSIBILITY IS DLF MGM'T?

- When the huge potentials of dryland forest resources, which have not been fully and sustainably utilized, are analyzed in the light of their alarming disappearance or degradation, the associated consequences reiterated above and the formidable challenges laying ahead of us, for sure, trigger a series of questions in our minds, such as:
 - Do we really have hopes to save and properly manage the remaining dryland forests and rehabilitate the degraded ones?"
 - Who are the stakeholders responsible for the management of dryland forests? and
 - what roles could these stakeholders play?

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ❑ The answer to the first question is yes, but only if we could address the causes and consequences of DFD already discussed above properly and before it is too late, i.e. *by designing and implementing the appropriate mechanisms or strategies for the development, sustainable utilization and conservation of dryland forest resources, including the rehabilitation of degraded areas, before their degradation proceeds beyond the possibilities of repair.*
- ❑ Since dryland forests are resilient, compared with rain forests, they are relatively easier to rehabilitate.
- ❑ The main reason for the dryland forests to be more resilient is their capacity to store long lived and viable propagule banks in the soil, namely seeds or modified stems (e.g. tubers, bulbs, stolons, rhizomes, etc.), coppice from damaged stems, root suckering or a combination of them.

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ❑ Good examples of the resilience of dryland forests witnessed from the rehabilitation of degraded areas in SSA can be cited from Ethiopia.
- ❑ These involve establishing *enclosures*, areas protected from interference from humans and animals, in northern Ethiopia, i.e. Amhara and Tigray National Regional States as well as *planting tree seedlings and grasses* in Tigray (Box 2).

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ❑ Factors that endanger sustainability of the rehabilitation initiatives**
- ❑ The ever increasing population in the Region in particular and the country in general leads to the increase in the number of landless individuals, especially youth.**
- ❑ Given the absence or scarcity of off-farm job opportunities, if these individuals could not be accommodated by the communities, they may be forced to use the rehabilitated areas illegally for their livelihood, e.g. cutting trees/shrubs for fuelwood or charcoal production for sale.**
- ❑ This would, eventually, lead to degradation of the areas. The other option is re-distribution of land since the average land holding is in the order of 0.2 – 0.5 ha per household that does not allow further division among members of the household when the need arises.**

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ❑ This is a known **disincentive** for investment by households in **good management or conservation/rehabilitation of natural resources**.
- ❑ In addition, since the **divided rehabilitated areas** might take longer time to give meaningful benefit, the youth might decide to convert them into arable land to cultivate crops for their immediate consumption.
- ❑ This would also lead to degradation.
- ❑ The two studies made on **enclosures in both Tigray (Emiru, 2001)** and **Amhara (Tefera, 2001)** revealed the existence of a **considerable percentage of landless youth** with strong desire of re-distribution of the enclosures.
- ❑ Inability of members of the communities to afford other forms of energy and shortage of grazing land are the major disadvantages of establishing the enclosures

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ❑ Socio-economic investigations on the enclosures indicated the lack of management options for the enclosures, and that members of the communities are of the opinion that the objective of establishment of enclosures gives more emphasis to conservation than economic utilization.**
- ❑ This implies that unless management options that ensure more benefit to the communities from the enclosures are developed and put in practice, sustainability of the initiatives is very questionable.**
- ❑ The prevailing insufficient/inadequate institutional arrangements for the development, conservation and sustainable utilization of forest resources, not only in the two Regions but also in the country at large, as well as the absence of forest policy and legislation have left state-owned and communal lands as open-access resources leading to unsustainable utilization, undesirable conflicts and, ultimately, degradation ("tragedy of the commons").**

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- The fate of rehabilitated areas is really uncertain when the FFW scheme is going to be phased out.**
- Past experiences in Ethiopia indicate that the FFW scheme has its own merits and demerits.**
- On the one hand, as pointed out above, the FFW scheme is advantageous in that it served dual purposes, i.e. giving access to food for food deficit households and assists in the effort to reverse environmental degradation.**
- On the other hand, the FFW scheme had been criticized in that it makes people more dependent on the approach than producing food on their own.**
- Moreover, “farmers have come to perceive the food as a wage for work carried out for the Government rather than as an incentive to install beneficial land husbandry measures (including planting seedlings on hillsides) on land under their control” (EFAP, 1994).**

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- The stakeholders responsible for the proper management of dryland forest resources include:**
- government,**
- non-government & community-based organizations/institutions,**
- African Union (AU), United Nations (UN) & European Union (EU),**
- professional and civic societies/associations,**
- local and international communities,**
- development partners or donor communities,**
- CGIARs & RROs/SRROs,**
- researchers/scientists,**
- educators,**
- development and extension agents,**
- journalists and media,**
- domestic and international networks, etc.**

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- Each of these stakeholders could play significant roles through addressing, directly or indirectly, the causes and consequences of DFD as well as challenges in future dryland forest management**
- For instance, the roles of governments of countries of SSA in this connection include:**
 - developing institutions with appropriate physical, financial and human resources as well as policies and regulations, i.e. the Organization(s), that:**
 - ✓ prevent deforestation of dryland forests and the associated environmental degradation**
 - ✓ catalyze the rehabilitation, expansion, management, sustainable utilization and conservation of dryland forests by using the resources at hand in the most effective and rational ways with support from researchers for know how and technologies.**

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WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- ✓ **These policies and institutions should be established not merely on the basis of political interest but for the economic development of countries in SSA.**
- ✓ **At the same time, it could be possible that good policies and legislations may have been issued, but only on paper.**
- ✓ **Therefore, unless there are enabling political and institutional environments coupled with effective and rational implementation of the policies and legislations, it might be fruitless to think of short-cut solutions to address the causes and consequences of DFD as well as challenges in future dryland forest management.**
- **Similarly, NGOs could play crucial roles through actively fostering the efforts of governments and their organizations in addressing the causes and consequences of DFD as well as challenges in future dryland forest management.**

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- They have proved to be very instrumental in changing the perceptions, attitudes and behaviour of people towards their environments, livelihood diversification of rural households, actual rehabilitation of degraded dryland forest areas.
- For instance, in close cooperation with the farming communities, REST has been reported to have planted eight to ten million trees per year (with about 60-70% survival rates) on the degraded steep slopes of mountainous areas of Tigray NRS in northern Ethiopia.
- In seven years, some 50,000 ha have been planted with trees using the "food for work" approach.
- Research organizations and their staff members could play significant roles by improving and promoting indigenous knowledge, generating new knowledge and appropriate technologies that could be used to rehabilitate, expand, manage, sustainably utilize and conserve dryland forest resources.

WHOSE RESPONSIBILITY IS DLF MGM'T? ...

- In general, the overall responsibilities of dryland forest management could be shared among the stakeholders enumerated above in countries of SSA if feasible and appropriate strategies, programs and projects are developed and implemented.**

CONCLUSIONS

- ❖ **Dryland forest resources have great socio-economic and ecological importance in countries of SSA.**
- ❖ **Specifically, they play significant roles in:**
 - **livelihood diversification of both rural and urban households, through income generated from sale of products obtained from plant and animal resources,**
 - **wood and food security,**
 - **providing animal feed,**
 - **human health care &**
 - **environmental conservation.**
- ❖ **Despite their importance, these resources have been subjected to severe degradation, owing to several and complex natural, anthropogenic as well as socio-economic and policy-related factors, leading to their complete disappearance in some places.**

CONCLUSIONS...

- ❖ **As a result, undesirable consequences, for example wood famine, degradation of land and water resources, decline/loss of biodiversity and enhanced global warming, that affect the welfare of humans, plants, animals and micro-organisms have been observed.**
- ❖ **Several challenges could also be anticipated in future efforts to properly manage dryland forest resources.**
- ❖ **To prevent any further degradation of dryland forest resources in SSA, there is an urgent need to address the agents responsible for their degradation with the corresponding undesirable consequences.**
- ❖ **This requires appropriate and timely interventions from all stakeholders before the damage to the remaining dryland forest resources proceeds beyond the possibility of their rehabilitation.**

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