First Conference of the Great Green Wall for the Sahara and the Sahel Initiative

Technical session:
Confronting Drought in Africa’s Drylands: Opportunities for Enhancing Resilience

Dakar, Senegal
May 4, 2016
Key question:

What is the scope for integrated landscape management approaches to reduce vulnerability and enhance resilience of people living in Africa’s drylands?
Integrated landscape management

1. Promote multiple goals and objectives
2. Manage ecological, social, and economic interactions to reduce negative trade-offs and optimize synergies
3. Acknowledge roles of local communities
4. Plan and manage interventions adaptively
5. Encourage and institutionalize collaborative action and comprehensive stakeholder engagement
Integrated landscape management: Good practice principles
Challenges

• Conventional sectoral approaches do not account for upstream-downstream linkages
• Conventional sectoral approaches have not taken full account of the roles of trees on farms and within agricultural landscapes
• Conventional sectoral approaches do not fully address trade-offs associated with competing land uses and actors
• Conventional sectoral approaches are likely to:
  – Disrupt traditional management systems for common pool resources
  – Fall short in incorporating the perspectives of all stakeholders
  – Fail to generate and sustain both farm-level and landscape-level benefits
Ethiopia case study: Tigray

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>OBJECTIVES</th>
<th>EXAMPLE OUTCOMES</th>
</tr>
</thead>
</table>
| Managing Environmental Resources to Enable Transition (MERET) | • Food security  
• Resilience  
• Watershed revitalization | • Improved water quantity, soil depth, soil fertility, and reduced erosion  
• Increased crop and livestock productivity  
• ERR of 13.5% and 14.7% over 25 and 50 years |
| Sustainable Land Management Program (SLM)         | • Food security  
• Reduce land degradation                      | • Over 190,000 hectares of degraded communal and individual lands treated and managed  
• Reduction of disputes/conflict  
• Increased soil moisture content, reduced soil erosion and crop losses, and reduce flooding and siltation |
Economic and ecological evidence: Ethiopia - Watershed restoration
Economic and ecological evidence:
Niger - Regeneration of gao trees
Economic and ecological evidence: Farmer-managed natural regeneration - Niger
<table>
<thead>
<tr>
<th>Landscape goal(s) and multiple objectives</th>
<th>Ethiopia</th>
<th>Niger</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common concern entry point</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Food security &amp; safety net</td>
<td></td>
<td>• General concern about soil fertility and yields</td>
</tr>
<tr>
<td>• Livelihood development &amp; rural infrastructure building</td>
<td></td>
<td>• No specific landscape goal and objective for FMNR</td>
</tr>
<tr>
<td>• Watershed restoration</td>
<td></td>
<td>• Village/landscape goals later to safeguard investment</td>
</tr>
<tr>
<td><strong>Multiple scales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Implemented at farm level, planned at watershed</td>
<td></td>
<td>• Benefits at farm-level and within farming system</td>
</tr>
<tr>
<td>• Improve farm productivity &amp; income diversification</td>
<td></td>
<td>• Collaboration at village and inter-village scales</td>
</tr>
<tr>
<td>• Watershed benefits (exclosures)</td>
<td></td>
<td>• Support organizations worked through networks</td>
</tr>
<tr>
<td><strong>Multi-functionality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Crop producers &amp; pastoralists</td>
<td></td>
<td>• Higher yields, increased fodder &amp; firewood on farm</td>
</tr>
<tr>
<td>• Multiple types of land use in watershed</td>
<td></td>
<td>• Decentralized resource management across landscape</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Forest service “hands-off” approach related to trees on farms</td>
</tr>
</tbody>
</table>

Collaborative action and comprehensive stakeholder engagement

Adaptive planning and management
### Ethiopia

#### Landscape goal(s) and multiple objectives

- Collaborative action and comprehensive stakeholder engagement

#### Multiple stakeholders
- Community resource users groups
- Administered by MoA, implemented bottom-up with Woreda, Kebele, & watershed development institutions

#### Negotiated and transparent change logic
- Agree to restore productivity of degraded land with specific actions on ‘private’ & ‘public’ land
- Exclosures for steep hills

#### Clarification of rights and responsibilities
- Responsibilities for various restoration efforts
- Registration (certificates) within project site
- Experiment for restored comm. land to landless

#### Strengthened stakeholder capacity
- Capacity building part of MERET
- Create new institutions (watershed committees)

### Niger

#### Landscape goal(s) and multiple objectives

- Collaborative action and comprehensive stakeholder engagement

#### Multiple stakeholders
- Small-holder farmers are key stakeholders
- Village-based organizations play key role in peer-to-peer learning and adopting and enforcing local rules

#### Negotiated and transparent change logic
- A majority of farmers agreed to restore productivity of degraded land
- Once trees regenerated, community established rules

#### Clarification of rights and responsibilities
- Rights on priv. farm land and rules within community
- Gov. policies were supportive of the ownership of trees on farms and management rights to farmers

#### Strengthened stakeholder capacity
- Assistance with farmer-to-farmer visits, short-term training, and peer-to-peer learning

### Adaptive planning and management
Summing up: Ethiopia

- Transition towards integrated landscape management
- Wide scale restoration and improvements in food security and livelihoods.
- Local stakeholder participation = key to success
- Positive economic rate of return of MERET: 13.5% and 14.7% over 25 and 50 years
- Potential time lag for ecological benefits – need for financing support
- Programs are generating multitude of co-benefits and downstream benefits
Summing up: Niger

• No specific landscape objectives established in advance
• Local investment in improved land management entry point for achieving household benefits at scale
• FMNR increasing grain production despite variable rainfall – and providing other benefits
• Scaling up of FMNR is driven by farmer-to-farmer visits and economic benefits from improved practices
• Key role for community organizations in peer-to-peer learning and local governance
• Support for decentralization and land tenure security also enabled scaling up of FMNR
Advantages of integrated landscape management

• Increased action and investment from stakeholders
• Reduced conflict over resources and land uses
• Capitalize on economies of scale
• Vehicle for capacity building
• Explicit focus on enhancing resilience at the farm and landscape level
Benefits of integrated landscape management

On-site productivity benefits
• Promote soil fertility (including more carbon in soil)
• Provide shade
• Provide fodder
• Provide additional products (timber, fruit, etc.)

Biodiversity benefits
• Host larger number and wider variety of species
• Help connect remaining natural habitats

Carbon benefits
• Sequester more carbon in biomass

Water benefits
• Higher infiltration (but higher evapotranspiration)
• Improved water filtration

Increased resilience
MARKET BENEFITS

- Increased productivity of crops, livestock, fodder, etc.
- Avoided travel costs for water, fuel, fodder, etc.
- Avoided transaction costs
- Avoided property damages
- Growth in employment opportunities

NON-MARKET BENEFITS

- Biodiversity/habitat
- Carbon sequestration
- Improved water quality
- Improved nutrition/health
- Female empowerment
- Enrollment in education

Source: OECD and others
Picture source: Chris Reij and ILRI
Challenges

- Minimal knowledge within national and local governments, private sector, and civil society
- Institutional barriers impede addressing complexities at the landscape level
- Poor access to location-specific data
- Limited local planning capacity
- Fragmented financing and planning for drylands restoration
- How to provide incentives for needed behavior changes and sustainability
Cross-cutting policy recommendations

1. Support local innovation in improved land and water management and sustainable intensification
2. Accelerate tenure reforms to secure land and resource rights
3. Strengthen knowledge-sharing and learning
4. Motivate ILM champions and support stakeholder involvement
5. Create conditions for adaptive planning and management
6. Establish sustainable financing
7. Initiate new ILM programs in dryland farming systems
Recommendations: Mixed production systems

• **Reduce conflicts and avoid negative externalities of intensification**
  • Set up institutions for integrated land use planning (document existing rights; safeguard common pool resources, riparian areas) and mechanisms for conflict resolution

• **Support sustainable intensification**
  • Explore opportunities to take advantage of landscape mosaic/structure to enhance biological control, pest management and pollination services
  • Safeguard upstream water supplies and reduce downstream externalities (highland systems)
Recommendations: Agro-pastoral systems

- **Reduce risks related to water shortages and land degradation**
  - Support regeneration of dry forests and increase density of trees on farms through farmer-managed natural regeneration
  - Safeguard dry season grazing reserves and encourage planned grazing management
  - Develop water infrastructure that is aligned with sustainable forage management

- **Diversify income sources and increase coping capacity**
  - Establish payments for biodiversity conservation, wildlife corridors, and in steep areas, watershed protection

- **Reduce conflicts and avoid decoupling of other resource users**
  - Establish corridors for livestock movement to protect crops and trees, designate grazing and water access areas, and set up dispute resolution mechanisms
  - Establish corridors for wildlife to access water and biomass during droughts
Recommendations: Pastoral systems

- **Reduce risks related to water shortages and land degradation**
  - Support regeneration of pastoral landscapes through assisted natural regeneration with the help of exclosures and CBNRM institutions
  - Safeguard dry season grazing reserves (including wetlands)
  - Develop water infrastructure that is aligned with forage availability and grazing patterns to avoid risk of degradation
  - Encourage grazing management that improves soil cover, increases water infiltration and retention, and improves plant diversity and biomass

- **Diversify income sources and increase coping capacity**
  - Establish rewards/payments for biodiversity conservation
First Conference of the Great Green Wall for the Sahara and the Sahel Initiative

Technical session: Confronting Drought in Africa’s Drylands: Opportunities for Enhancing Resilience

Dakar, Senegal
May 4, 2016