

Improving Management of Natural Resources in the Drylands of Ethiopia: Emphasis on drivers of change, livelihood dynamics, and challenges to be addressed

**Presentation prepared for the National Workshop on Dryland restoration and dry forest management: Sharing knowledge to meet local needs and national commitments,
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1. Characteristics of dryland areas

- Harsh climatic conditions and isolation/remoteness from markets and govt service
- Aid dependency – many experts in GOs and NGOs perceive increased dependency of communities and officials on food aid
- The capacity of govt institutions is kargely underdeveloped
- Role of traditional institutions remains important in governing access to and use of natural resources and managing conflicts
- Increasingly this role is being contested by authorities and youths
- We lack legal clarity as to their roles and responsibilities in NRM in pastoral areas – we often see duality of resource tenure
- Dependence of communities on NRs increased overtime due to
 - population growth – people and livestock, and
 - increased frequency and severity of droughts that substantially increased dependence on NRs – e.g., fuelwood collection & sale
 - Thus, marked with alarming rate of resource degradation

2. Major drivers of changes

- Climate variability and change **increased the incidence and severity of risks** – droughts, floods, conflicts, diseases,
 - **Fragmentation** of rangelands due to forest and woodlands excision, privatization (for investment, for enclosures, and commodification of rangeland resources, reducing mobility.
 - **Sedentarisation**, emergence of small towns, and dependence on dryland farming, and fuelwood and charcoal sales
 - **Improvements in road, transport and communication** services facilitating expansion of small towns and marketing
 - **Population growth** and intra and interethnic conflicts
 - **Market failures** – livestock trade bans, border controls, etc.
 - **Disease and pest incidences** – locust, COVID, etc.
- While some benefit from expanding marketing opportunities, a larger proportion of the population struggles to make a living
- Interventions focus on relief and NRM is not yet in the agenda
- Unless NRM is made integral part of interventions, building resilience of socio-ecological systems would prove difficult

3. Causes and drivers of NRs degradation

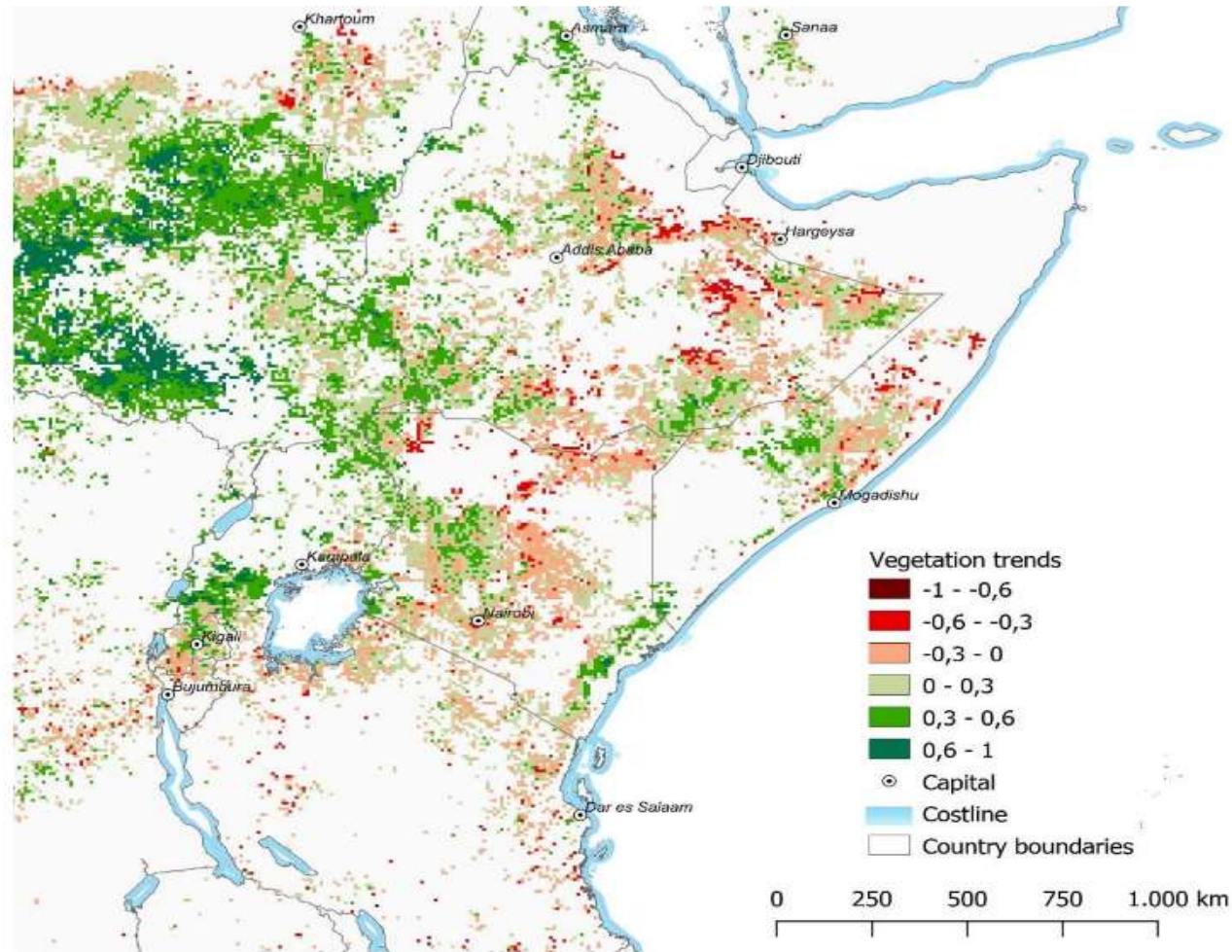
The immediate causes are:

- Erratic rainfall and subsequent droughts
- Expansion of invasive bushes, weeds and toxic plants on rangelands
- Over grazing of poorly governed communally owned and largely unmanaged rangelands
- Excessive extraction of wood/tree cutting for energy
- Farming hillsides and marginal lands

Underlying drivers of natural resources degradation are:

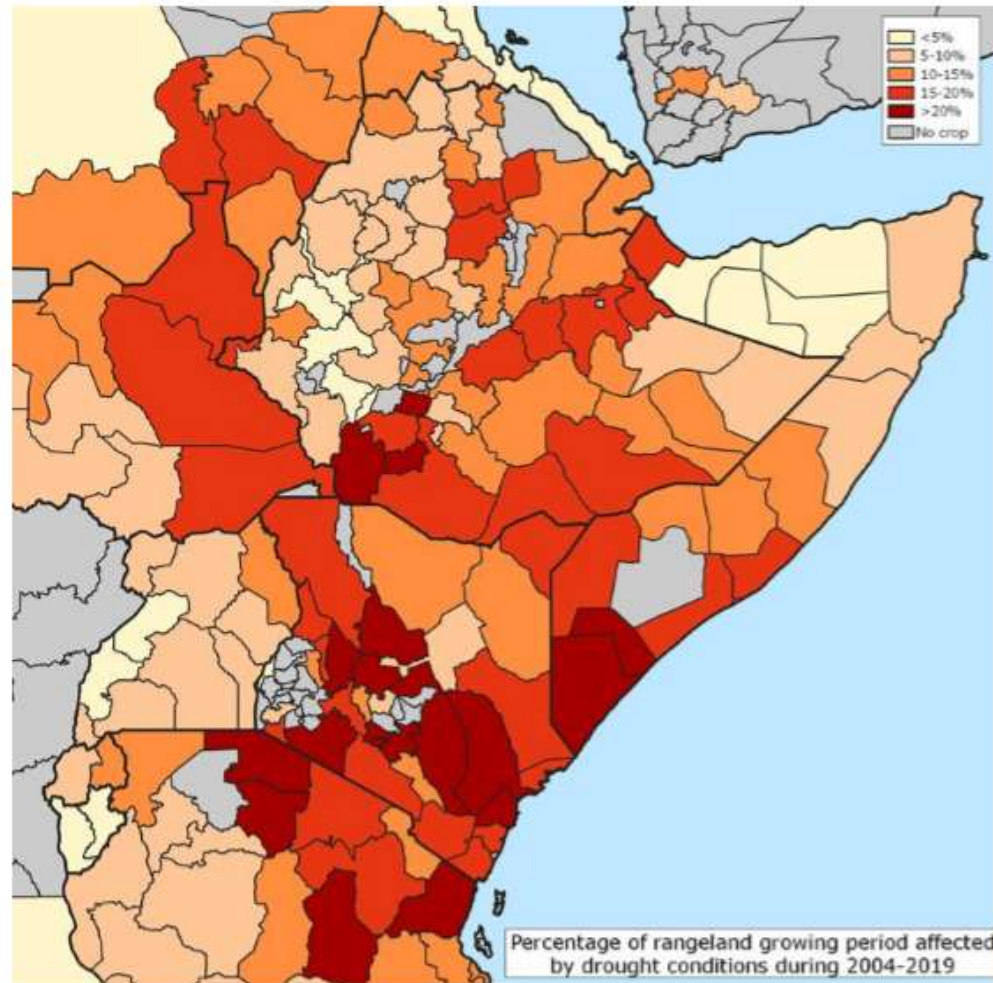
- **population pressure** – increase in number of poor people that largely depend on NRs , and
- **institutional failures** (e.g. lack of national land use plan to govern development & land use changes; lack of clear and effective tenure system for communal resources; failure to enforce existing rules and regulations), weak role (absence or limited presence) of GOs in NR and DRM in the pastoral areas, etc.

Figure 1: Trends in annual plant productivity in drought affected areas (1981-2010).



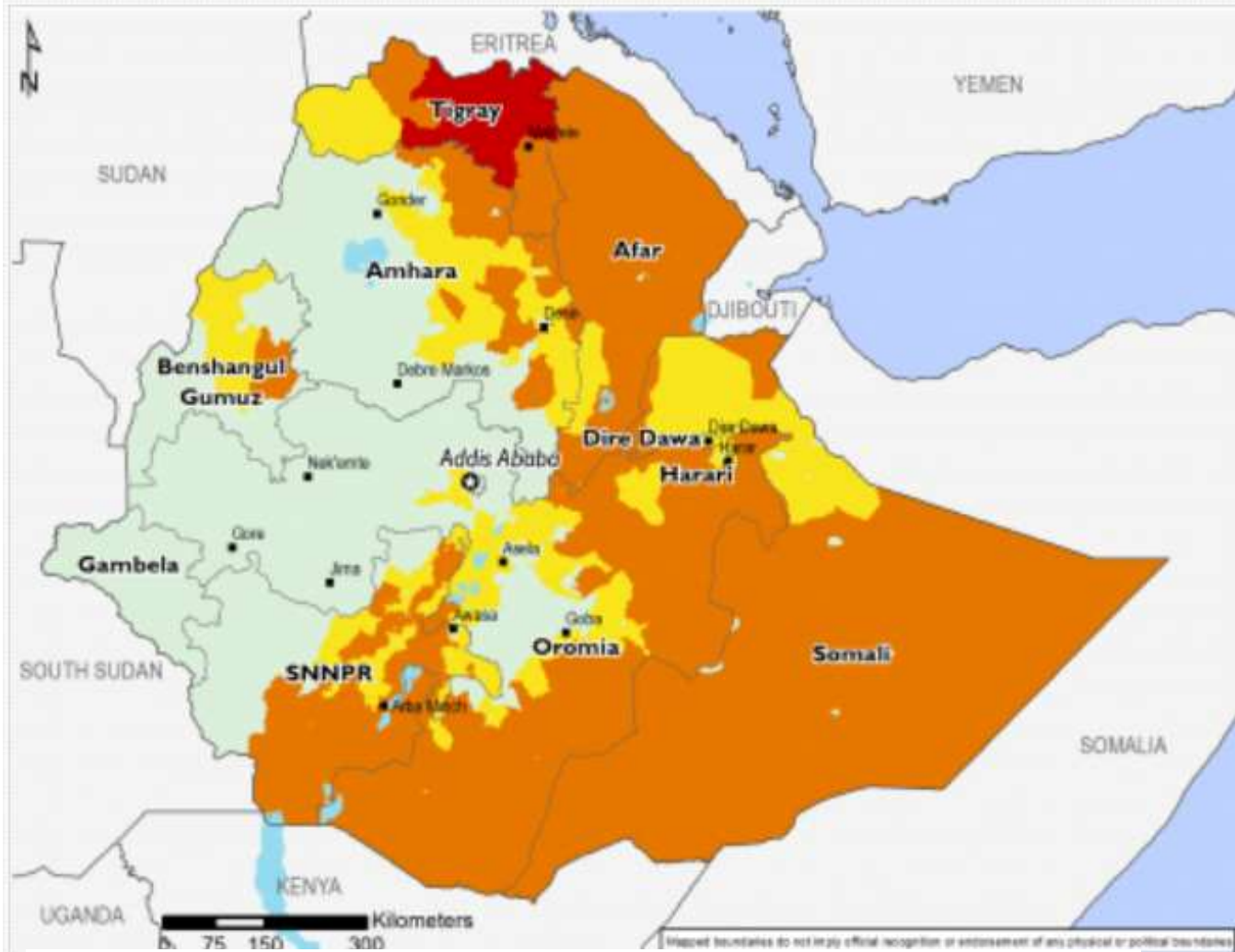
Source: Berkhout et al, 2021, page 36.

Figure 2: Spatial distribution of % of growing period affected by drought conditions in rangelands, 2004-2019.



Source: Berkhout et al, 2021, page 51.

February - May 2021



IPC v3.0 Acute Food Insecurity Phase

1: Minimal 2: Stressed 3: Crisis 4: Emergency 5: Famine

Figure 3.
Ethiopia Food security outlook
Source:
<https://fews.net/east-africa/ethiopia>.
Accessed on April 5, 2021. .

4. Livestock-based production systems prevailing in dryland areas

- **Customary pastoralism** based on long distance movements, key resource use, and maintaining a network of bond friendships through which to exchange livestock and labour
- **agropastoralism** that either
 - combines a bit of crop farming with livestock production, or
 - Is based on smaller-scale livestock-keeping for subsistence and local marketing combined with farming and other rural activities; or
 - Involves the maintenance of very few small-stock in and close to towns alongside the pursuit of various tasks-for-cash;
- **Commercialised** forms of livestock-keeping oriented to large domestic and regional export markets

Pastoral farming system



Basic system data

Total population 2010 (million)	5.01
Agricultural population (million)	4.08
Urban population 2010 (million)	0.06
Time to 20K market (h) (range / average)	n/a-30 / 9
Agroecological zone	Warm/arid
Elevation (m) (range / average)	128-2,097 / 627
LGP (days) (range / average)	31-228 / 68
Annual rainfall (mm) (range / average)	126-820 / 373
Total area (million ha)	35.89
Cultivated area (million ha)	0.697
Cattle (million)	1.095
Goats and sheep (million)	2.289
Number of rural poor (<US\$1.25/day)	1.8 million
Per cent of total rural poor in Ethiopia	7%

LGP = length of growing period.

Figure 4. Pastoral production system in Ethiopia. Source: Amede et al, 2017, page 38

Agropastoral farming system



Basic system data

Total population 2010 (million)	1.96
Agricultural population (million)	1.55
Urban population (million)	0.412
Time to 20K market (h) (range / average)	1–38 / 9
Dominant agroecological zone	Warm/semi-arid
Elevation (m) (range / average)	296–2,094 / 1,102
LGP (days) (range / average)	80–251 / 141
Annual rainfall (mm) (range / average)	265–1,148 / 648
Cultivated area (million ha)	1.046
Cattle (million)	2.04
Goats and sheep (million)	1.74
Number of rural poor (<US\$1.25/day)	596,555
Percent of total rural poor in Ethiopia	2.5%

LGP = length of growing period.

Fig 5. Agropastoral production system in Ethiopia.
Source: Amede et al, 2017, page 15

Livelihood zones in pastoral and agro-pastoral areas

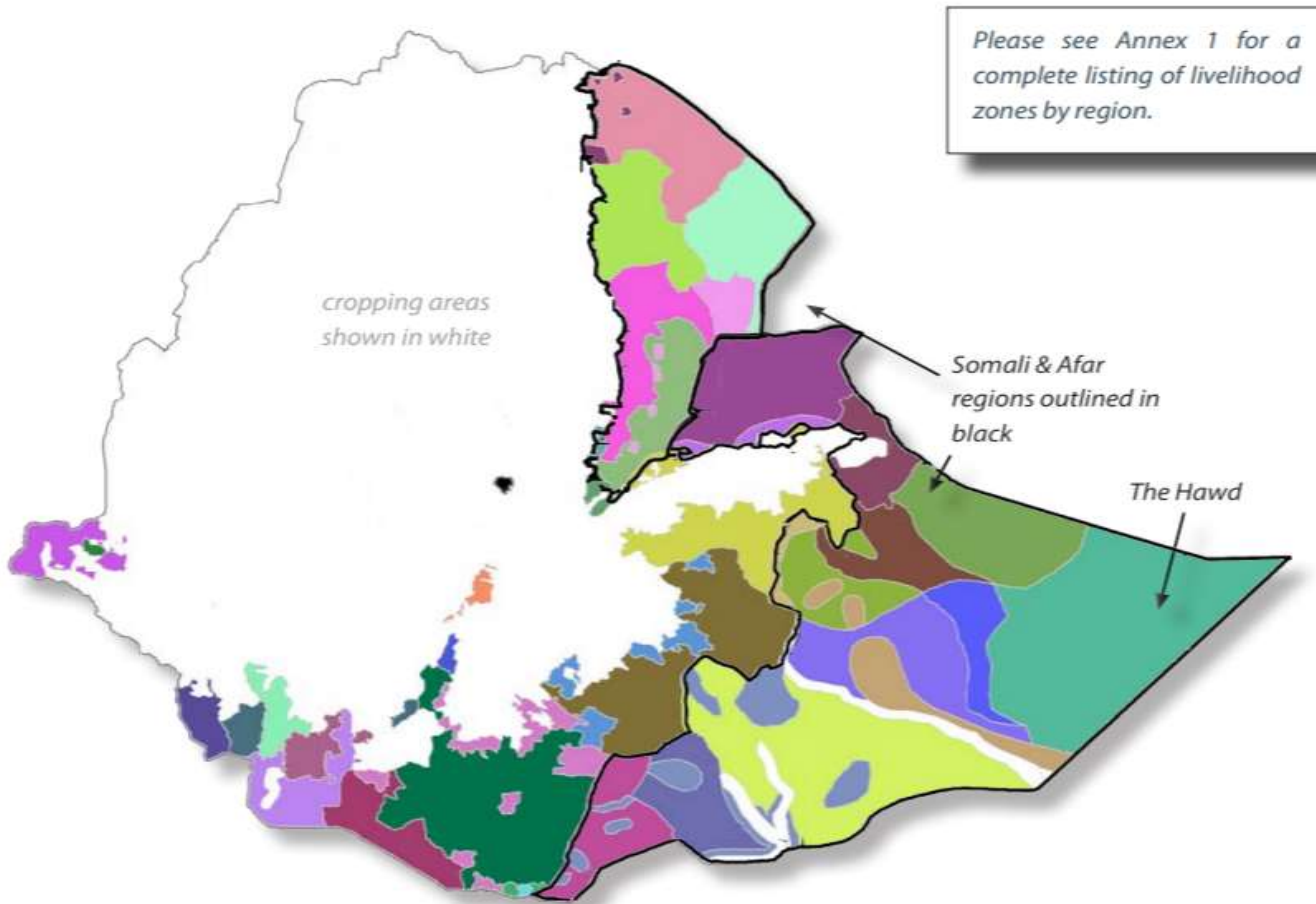


Fig 6. Livelihood Zones in pastoral and agro-pastoral areas

Source: http://foodeconomy.com/wp-content/uploads/2016/02/Atlas-Final-Web-Version-6_14.pdf. Page 64

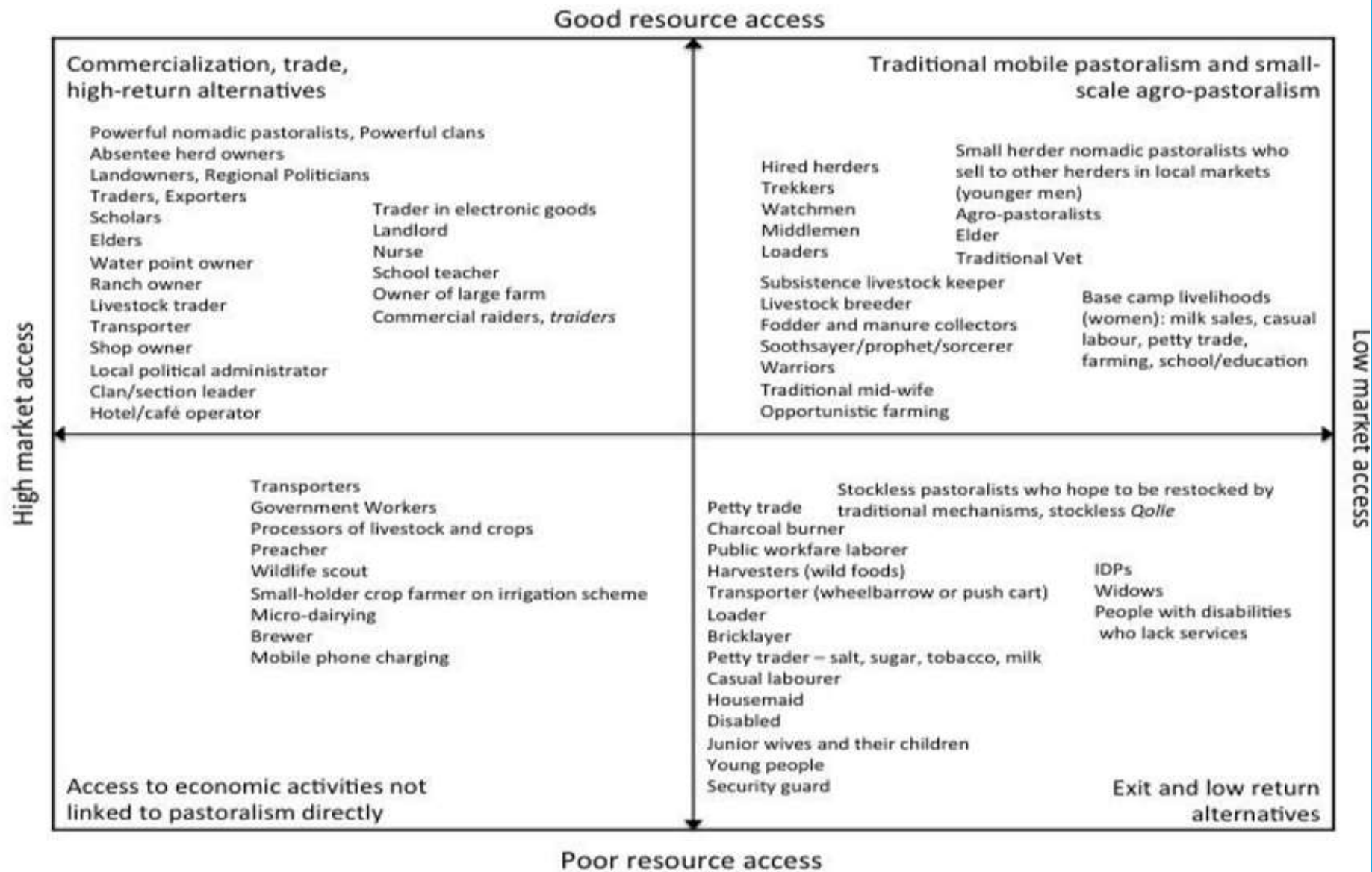


Figure 7: Mapping livelihood and economic activities of different households and individuals. Source: Lind et al. 2017, p 32.

What are the most important cash sources for poor pastoralists?

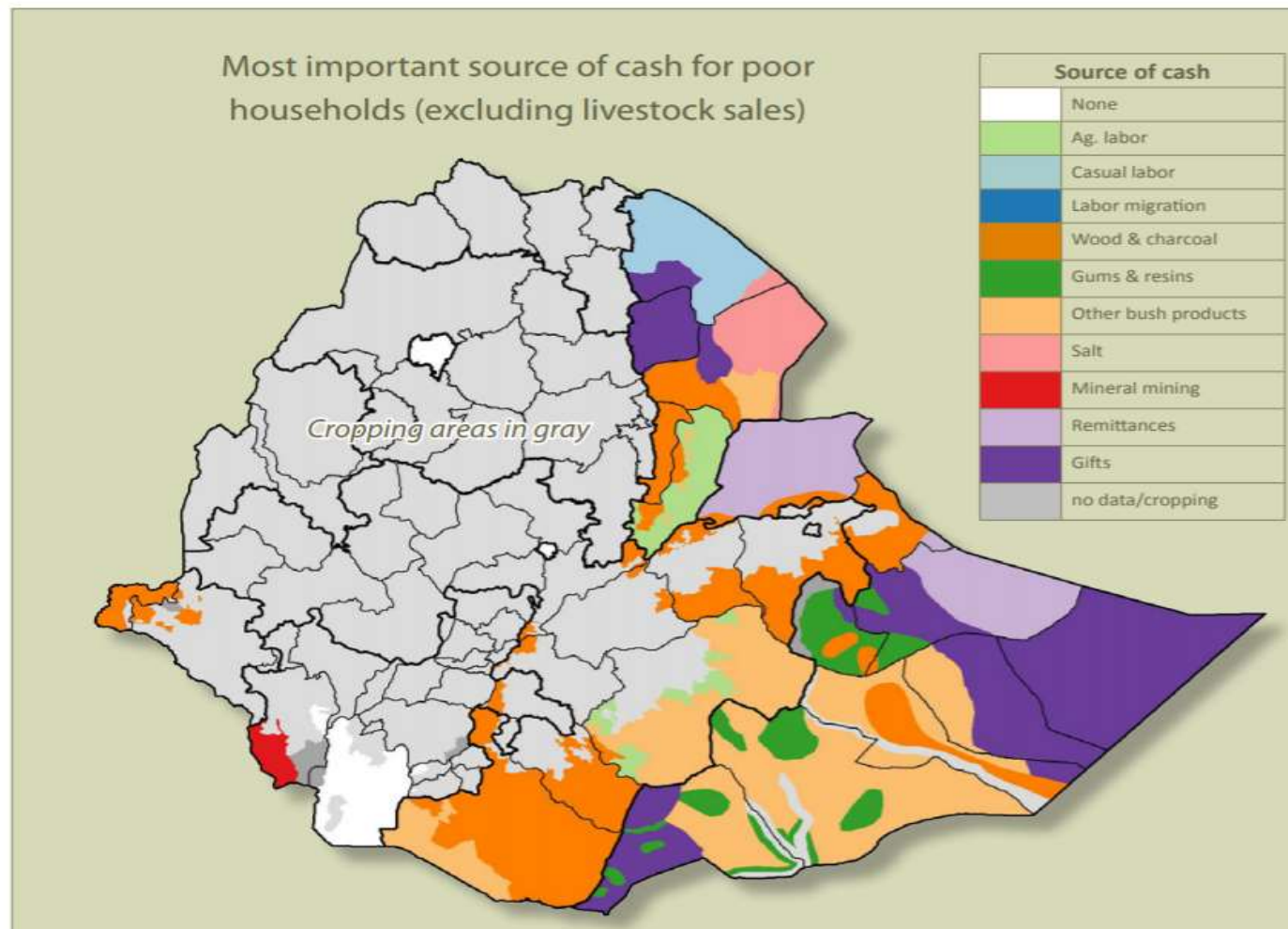


Fig 8. Cash sources of poor pastoralists.

Source: http://foodeconomy.com/wp-content/uploads/2016/02/Atlas-Final-Web-Version-6_14.pdf, Page 69

Annual cash income from petty trade & self employment as a percentage of total income
(food and cash)

Self-employment and petty trade give earnings that do not depend on land or livestock assets, and they are therefore especially important for poorer households.

All households
(weighted average)

Total annual income (food & cash)	
	0 %
	1 - 30 %
	31 - 60 %
	> 60 %
	No data

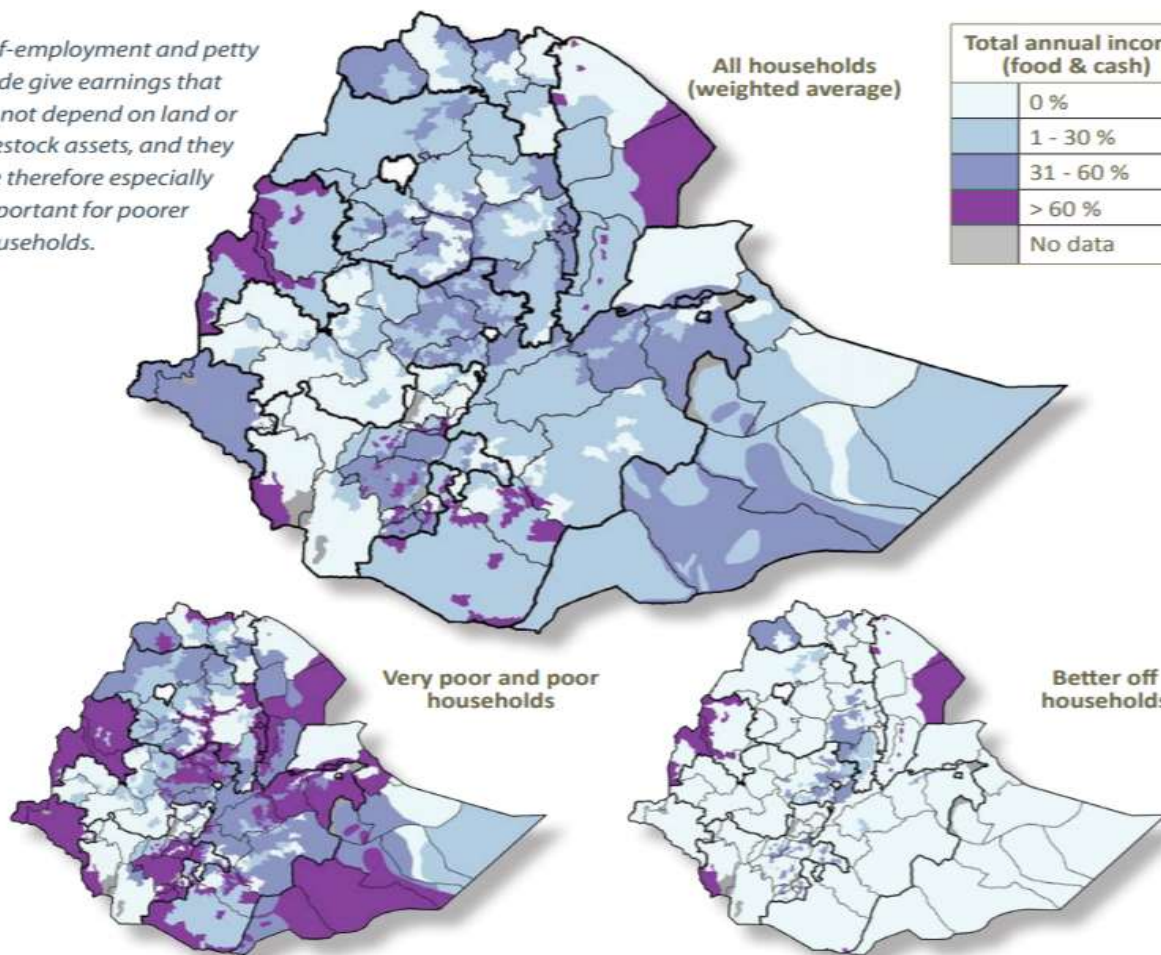


Fig 9. Annual cash income from petty trade and self employment
Source: http://foodeconomy.com/wp-content/uploads/2016/02/Atlas-Final-Web-Version-6_14.pdf,

Cash income from firewood and charcoal sales as a % of total cash income

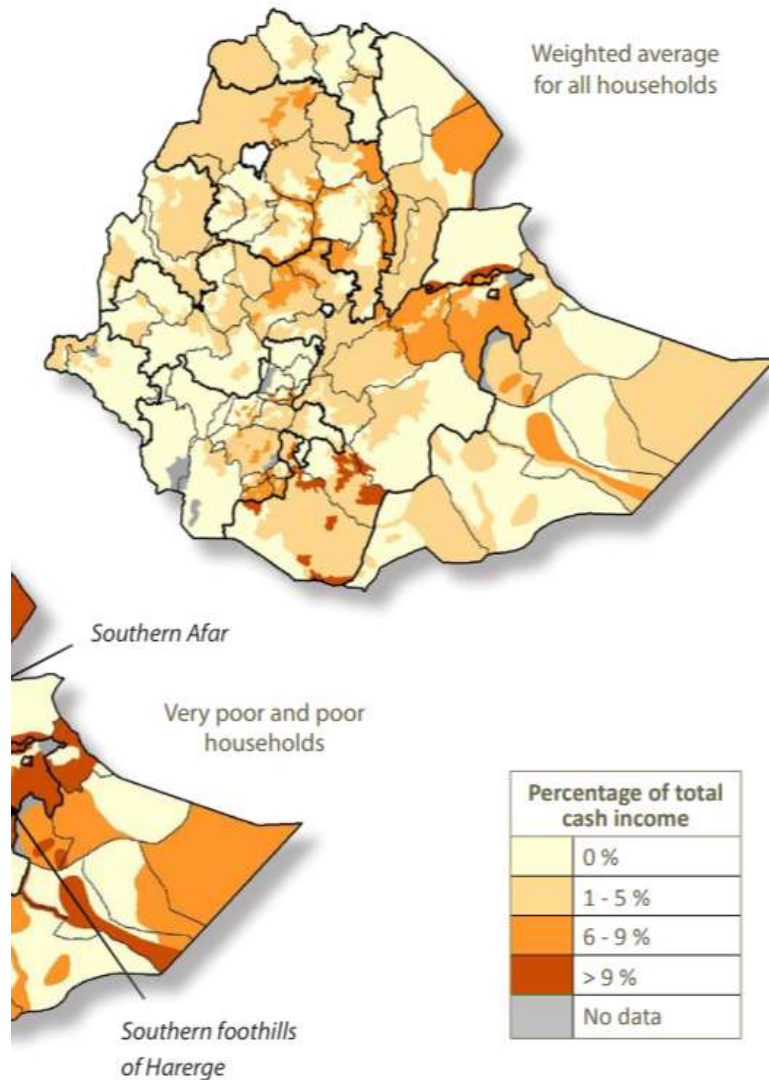


Fig. 10. Cash income from sale of firewood and charcoal

Source:

http://foodeconomy.com/wp-content/uploads/2016/02/Atlas-Final-Web-Version-6_14.pdf

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Total income (food and cash) from gums and resins for very poor and poor households

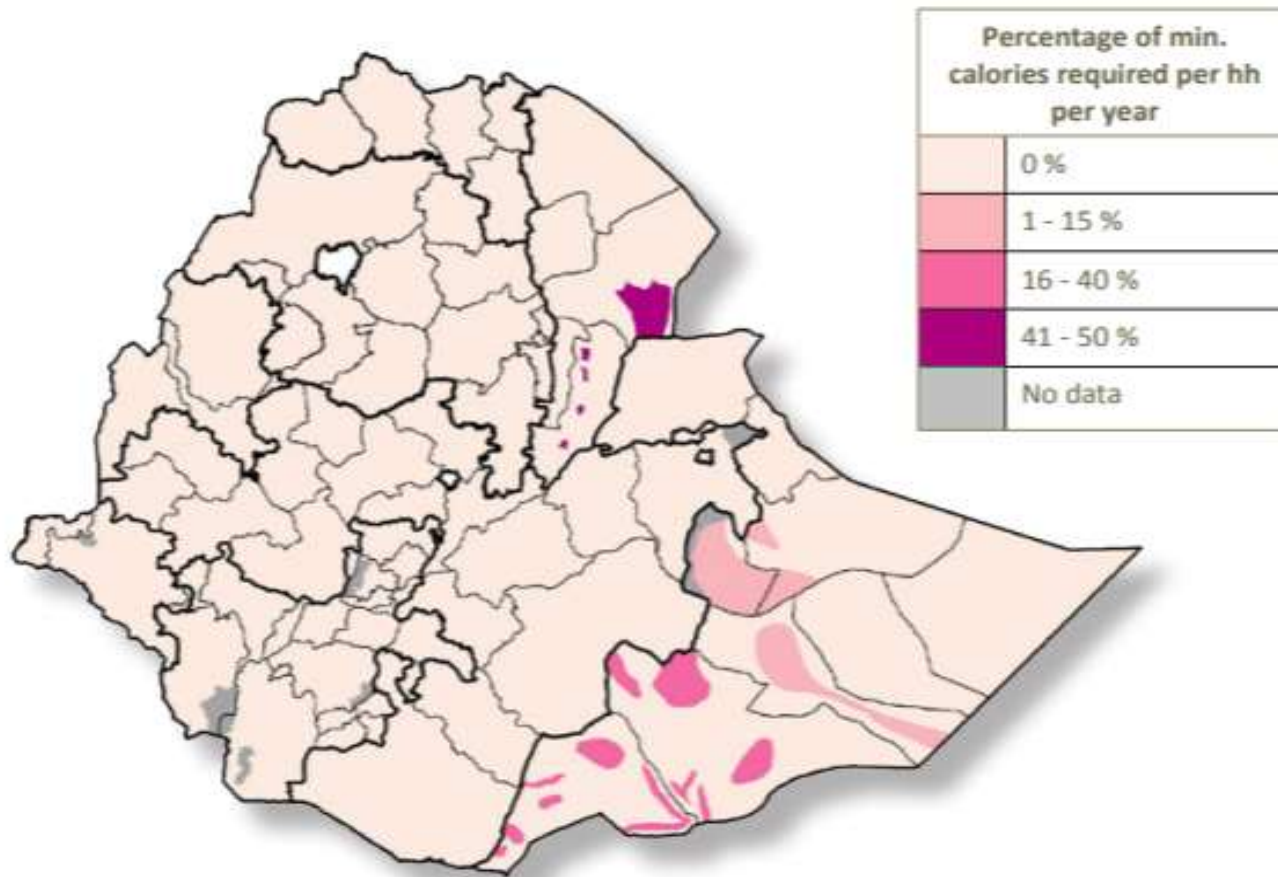


Fig 11. Proportion of income from gums and resins from total income of poor households. Source: http://foodeconomy.com/wp-content/uploads/2016/02/Atlas-Final-Web-Version-6_14.pdf, Page 94

5. Key challenges of NRM in the drylands

- Lack of reliable data & inadequate documentation of experiences to inform planning → (the need for info & communication)
 - Knowledge gaps (e.g. on tenure regime that works best for pastoral and agro pastoral settings, on the role traditional institutions could play, on options to better manage the NR-livestock link, on options to improve food and fodder production, on how to manage the conservation-development trade-offs in the dryland, etc.) → (the need for improved knowledge management)
 - Short-term and top-down planning practices of GOs and NGOs
 - Little or no involvement of key actors, notably communities in identifying options for building livelihoods and sustainably managing landscapes (→ the need for improving participation)
 - Poor coordination of activities of sectors and actors (GOs and NGOs, Federal-and regional offices, communities and CBOs)
- The need for accountability and improved governance

6. What needs to change?

- Reducing socio-ecological vulnerability of drylands requires
 - realizing that the task is not simple but complex
 - moving beyond **single-sector interventions**,
 - implementing INRM by embracing landscape approach
 - Putting in place accountable and effective governance
 - ensuring genuine participation of actors, communities
- NRM at landscape level in the dryland areas should
 - Help reduce trade-offs and maximize synergies, and
 - help reduce duplication of efforts and other negative impacts of uncoordinated & sector-specific interventions
- Interventions in the form of INRM in dryland areas must
 - be based on science and informed by local knowledge
 - support livelihoods, while contributing to ecosystem health
 - Need to be nested at different levels – local to regional

7. What capacity needs to be built?

- Capacity to ensure genuine participation & effective partnerships
 - Actively engage relevant stakeholders, notably communities with emphasis on women and youth
 - Involve relevant sectors and actors to promote cross sectoral collaboration and attain socio-economic and environmental goals
- Capacity to negotiate agreement on modalities of implementation
 - Adopting collaborative implementation modalities and jointly agreed upon execution plans and shared responsibilities
- Capacity for knowledge based planning and joint M&E system
 - Plan interventions that maximise impact on productivity, income, food and nutritional security, women empowerment (livelihood resilience building) while also conserve the resource base
 - Promote co-learning amongst actors, and encourage use of future scenarios and models to select preferred pathways of change



Fig 12. Livestock flows in eastern Africa
Sources: Lind et al, 2016, page 14.

8. Concluding remarks

- Rapid changes are happening in the drylands affecting livelihoods
- Our knowledge of restoration of drylands through tree planting remains limited, hence better to protect and responsibly use existing forest and woodland resources
- Bringing about desirable changes calls for identifying interventions that simultaneously improve livelihoods while also conserving NRs
- This calls for using science, cross sectoral collaboration and working together at landscape level by bringing communities at the center
- Challenges that hamper community participation and coordination and collaboration among actors and sectors should be addressed
- Competing land uses demand that land and forest managers have attractive economic incentives to keep forests and woodlands
- Thus, supporting sustainable harvesting and marketing of forest products is key for creating incentives for restoration and SFM

Thank you!