Water & Land Resource Centre
Addis Ababa University

Learning Watersheds towards SLM

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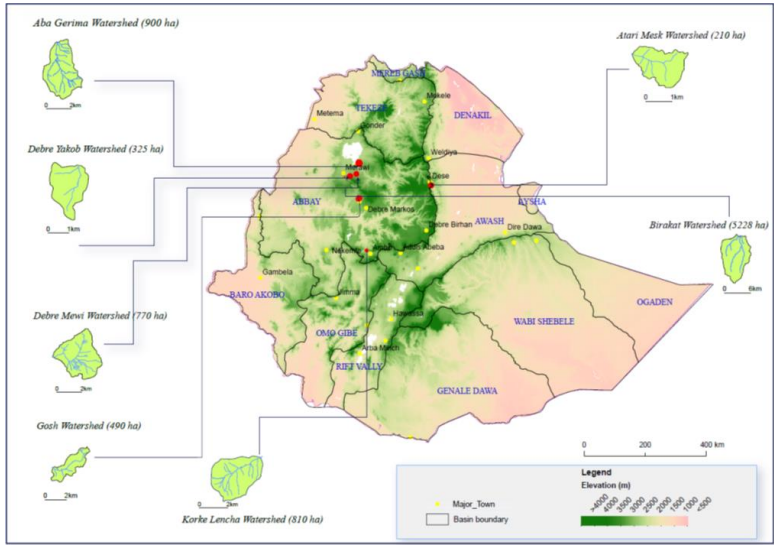
UNIVERSITÄT BERN
CDE CENTRE FOR DEVELOPMENT AND ENVIRONMENT

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Objectives of Learning Watershed Approach

- ✓ Since 2012, WLRC/CDE established six (seven) Learning Watersheds located in Abbay Basin.



Learning Watershed (LW) is an approach initiated to:

- ✓ **advance technical, institutional, and knowledge management capacity of participatory IWM efforts**.
- ✓ **generate evidence** on what it takes to rehabilitate degraded lands and on environmental and socio-economic impacts.

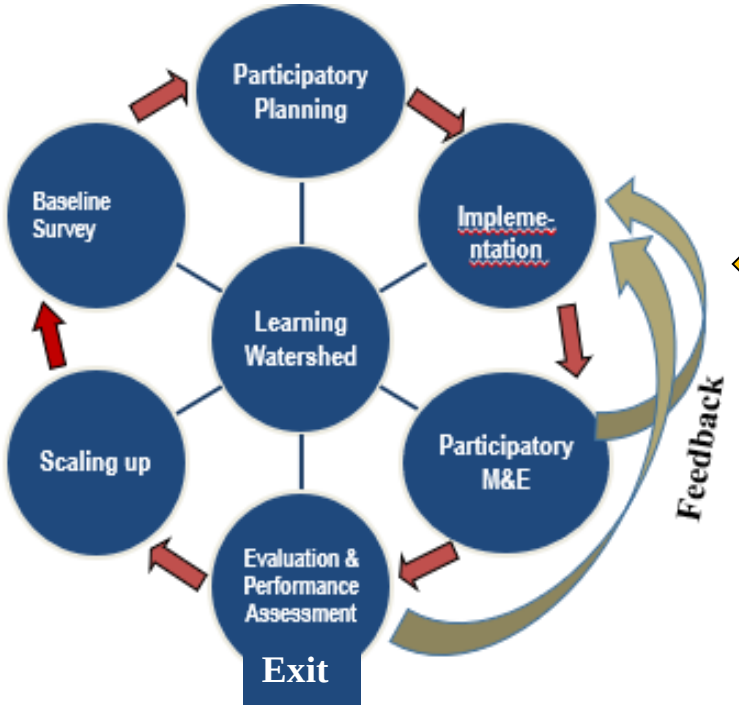
Goal

- ✓ **integrate natural resource management, agricultural production, and livelihood goals**

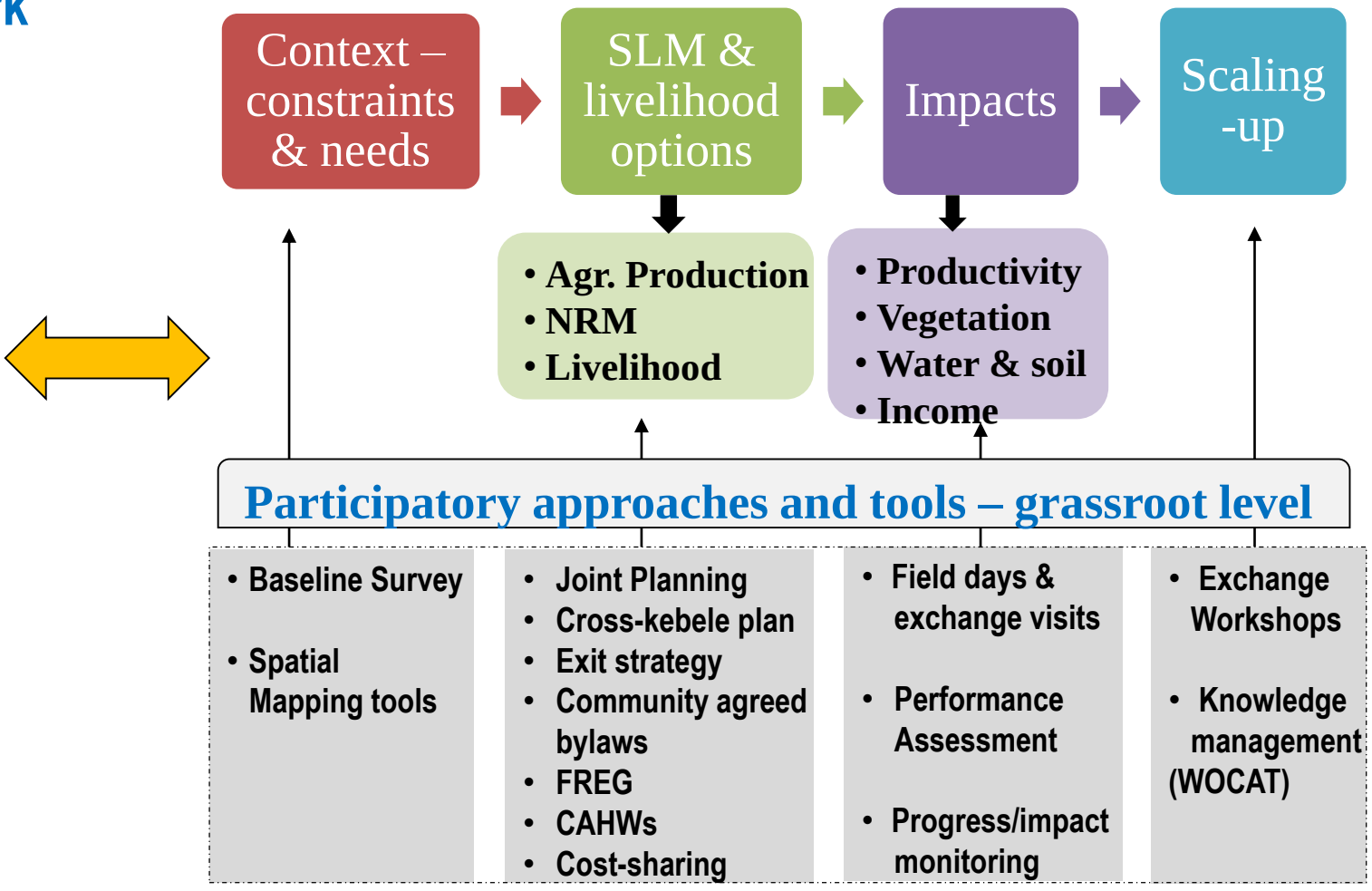
How the LW approach was designed?

- Involves **development/extension-community-research partnership**
- **Six steps** process to *address constraints on technical, institutional, monitoring, financial, & legal in watershed management*

LW operational framework



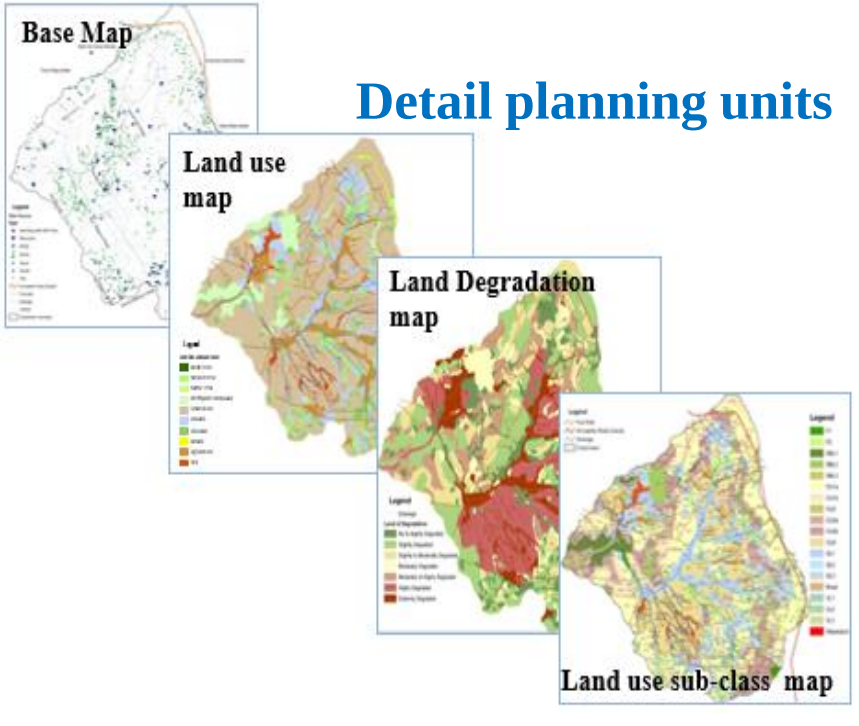
SLM Pathway in LWs



Planning approaches and tools

1. Assessment of the context

- **Baseline survey** –context analysis of resources, constraints and community needs
  - **Use spatial mapping units** (**500-1000m2**) enable to assess the local context in detail



Detail planning units

- **Constraint analysis** has been done using **WOCAT questionnaire**

2.1.3.2 List the main constraints hindering implementation of the Technology and how t
the Approach

2.9 Conditions enabling or hindering implementation of the

Several answers possible. If there are both enabling and hindering facto

			Condition	Specify:
social / cultural / religious	○	constraint	social/ cultural/ religious norms and values	☐ enabling: ☐ hindering:
		treatment:		
financial	○	constraint	availability/ access to financial resources and services	☐ enabling: ☐ hindering:
		treatment:	institutional setting	☐ enabling: ☐ hindering:
institutional	○	constraint	collaboration/ coordination of actors	☐ enabling: ☐ hindering:
		treatment:	legal framework (land tenure, land and water use rights)	☐ enabling: ☐ hindering:
legal / land use and water rights	○	constraint	policies	☐ enabling: ☐ hindering:
		treatment:	land governance (decision-making, implementation and enforcement)	☐ enabling: ☐ hindering:
technical	○	constraint		

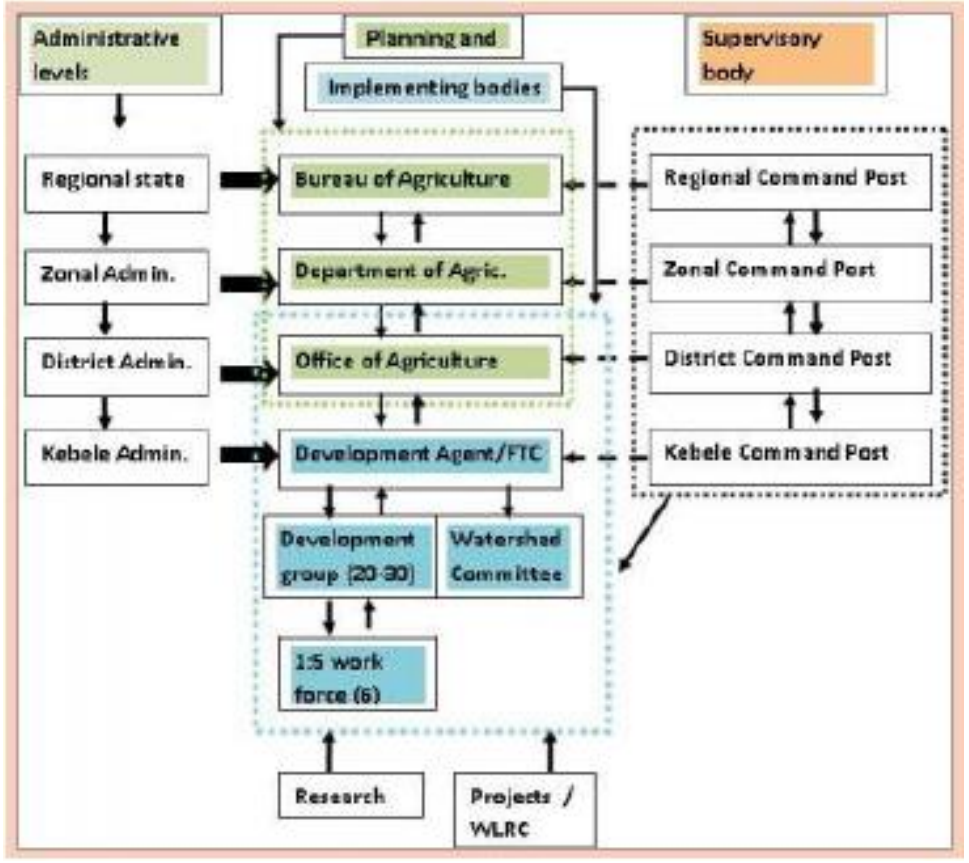
2. Joint planning processes

- Multi-stakeholder planning
- Cross-kebele plan-watershed committee
- Exit strategy

Implementation approaches

1. Community agreed bylaws

a) **Institutional arrangement** to foster collective action at planning, implementing, supervision



b) **Free community labor mobilization and work norm**

- **40-60 days/year**
- **4-6m/day/active labor**

Community Investment

- Total =60-180,000 /watershed (34% women)
- equivalent to **1.78 to 5.35 mill Birr /watershed**
- Labor norm at 42.5% efficiency (74 PD/ha)

Implementation approaches

c) Bylaw for enforcing no free grazing practice

- Identification of communal resources – pasture/grazing, mountains/hillslopes
- organize user groups for benefit sharing

Implementation approaches

2. Farmer-Research-Extension Group (FREG)

- Platform to foster demand driven technology extension - **demonstration, evaluation & dissemination**
- Link extension (demand) and research (supply)

- **FREG for promoting Crop and fodder varieties**
- **FREG for promoting Animal breeds, animal health services**
- **FREG for promoting Agricultural machineries and technologies**

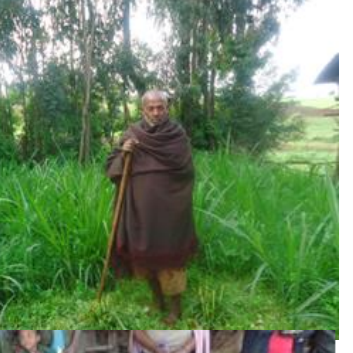
Implementation approaches

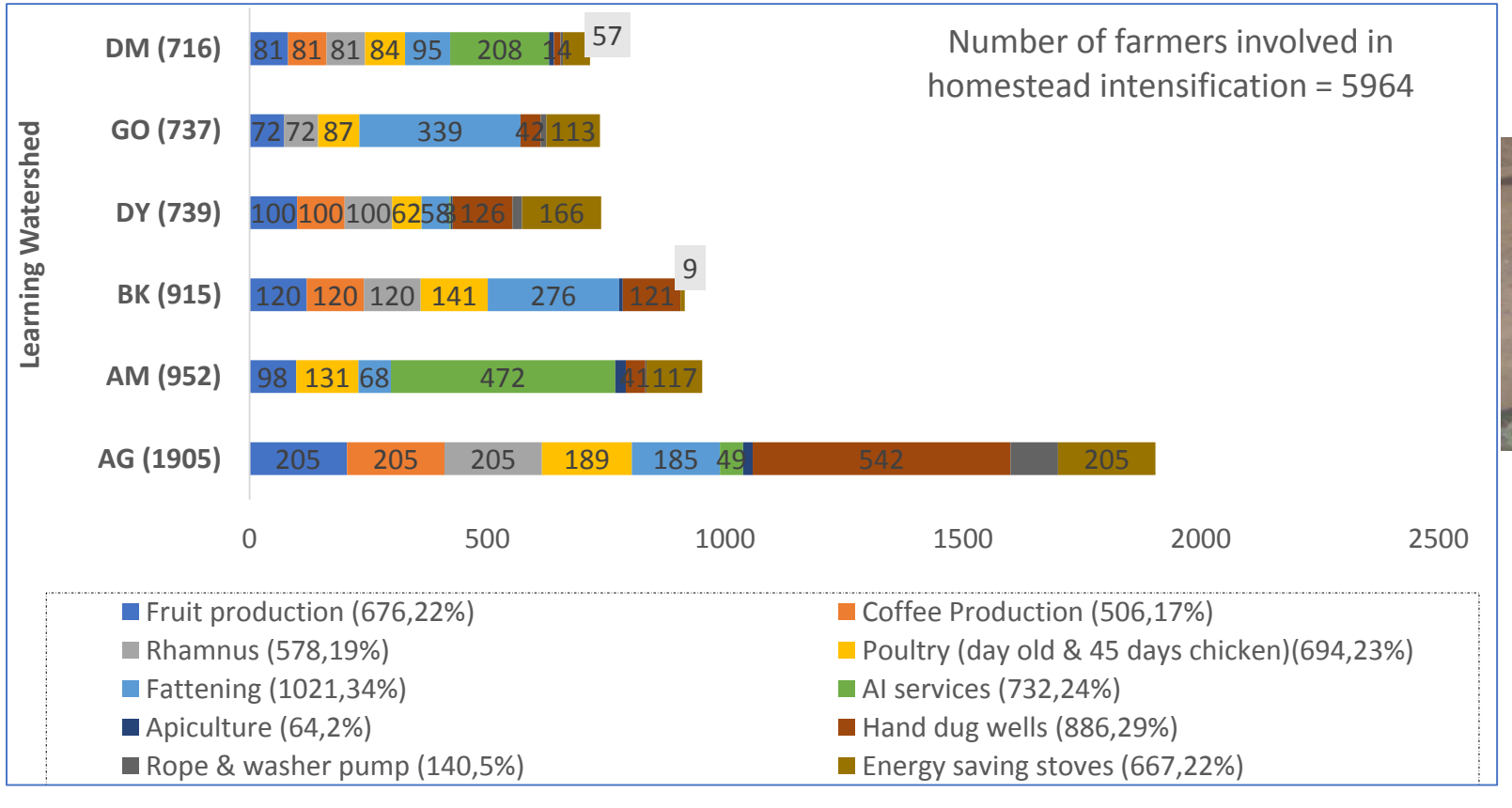
3. Cost-sharing for technology supply

- Homestead based livelihood interventions (horticulture, fodder, dairy, fattening, poultry, stoves, pumps, apiculture)







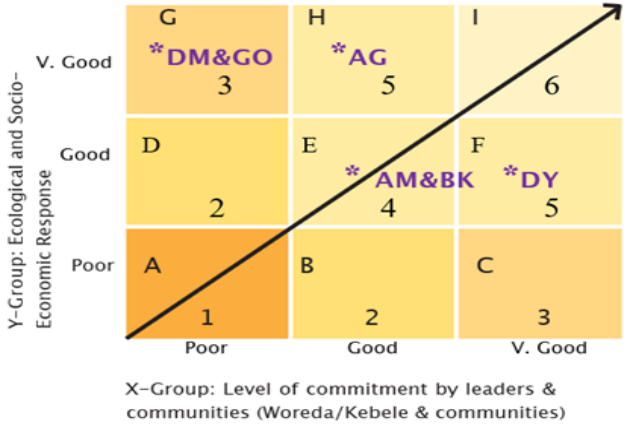



Evidence on SLM Impacts

- **WOCAT impact monitoring tool is applied – an expert based**

Impacts of the Technology	
Production and socio-economic benefits	**Production and socio-economic disadvantages**
+++ increased fodder production	+ increased labour constraints
+ increased animal production	+ Decrease access to local bulls under zero grazing
+ diversification of income sources	
+ increased production area	
Socio-cultural benefits	**Socio-cultural disadvantages**
++ community institution strengthening	
++ improved conservation / erosion knowledge	
+ conflict mitigation	
+ improved situation of disadvantaged groups	
Ecological benefits	**Ecological disadvantages**
+++ reduced surface runoff	+ increased fire risk
+++ improved soil cover	
+++ reduced soil loss	
++ increased biomass above ground C	
++ increased plant diversity	
+ increased soil moisture	
+ recharge of groundwater table / aquifer	
+ increased / maintained habitat diversity	
Off-site benefits	**Off-site disadvantages**
+++ increased stream flow in dry season	
++ reduced downstream siltation	
+ reduced downstream flooding	
Contribution to human well-being / livelihoods	
++ The livestock production is moderately improved due to increase in biomass/ pasture harvest	

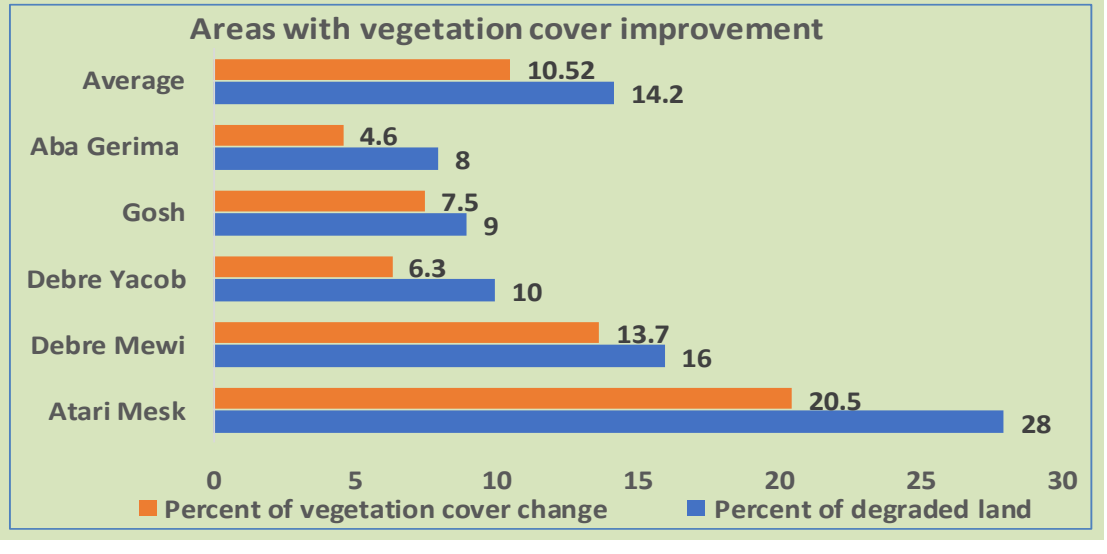
- **Performance Assessment of Sustainability**



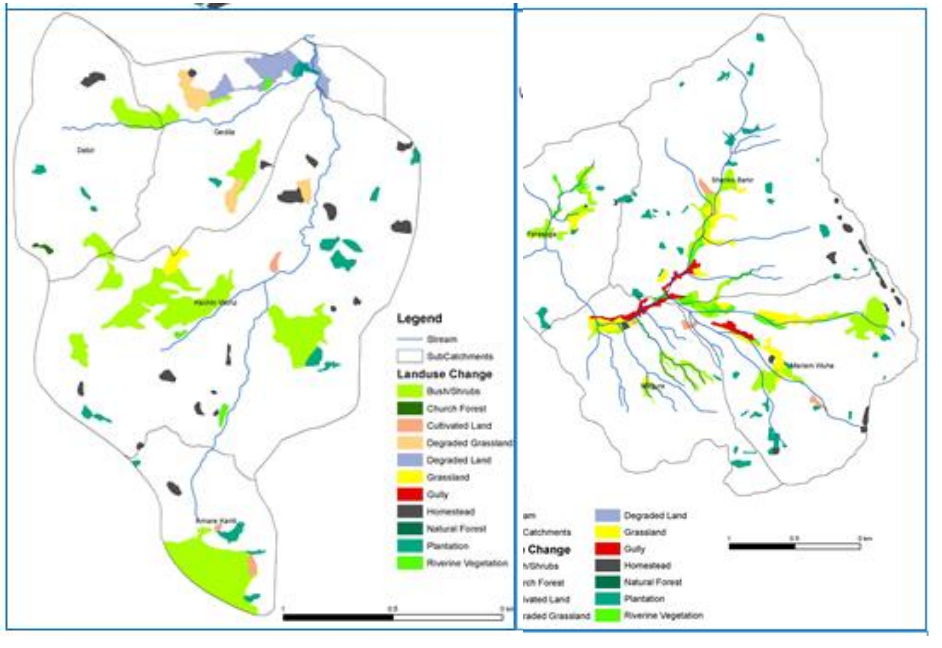
- **Rehabilitation of degraded lands and conservation of arable lands – photo monitoring**

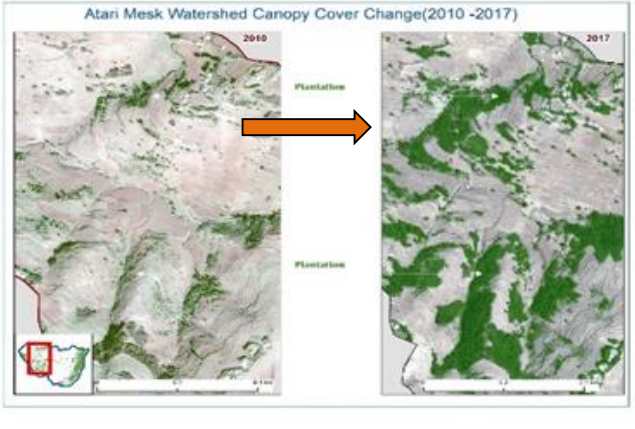
Evidence on SLM impacts

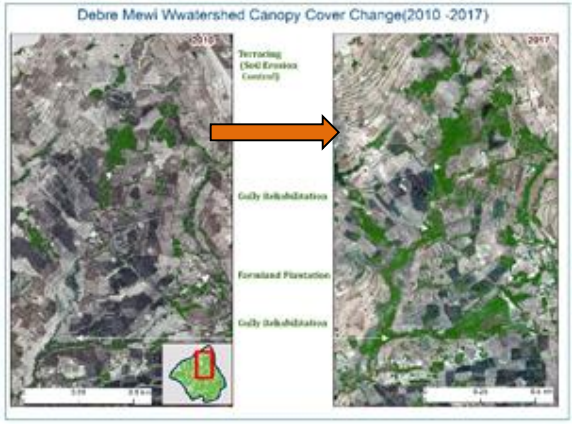
- Improved vegetation cover of degraded lands (10.5 of 14%)



- Change in land use (7%)



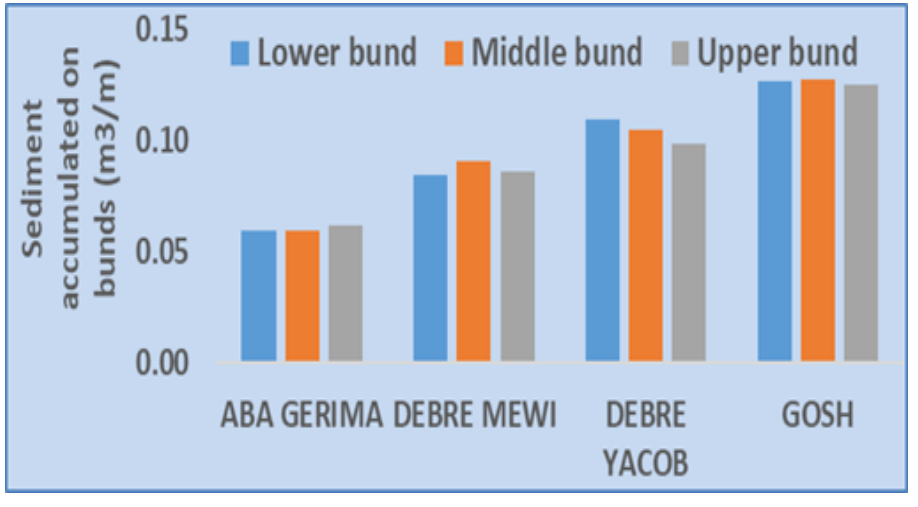


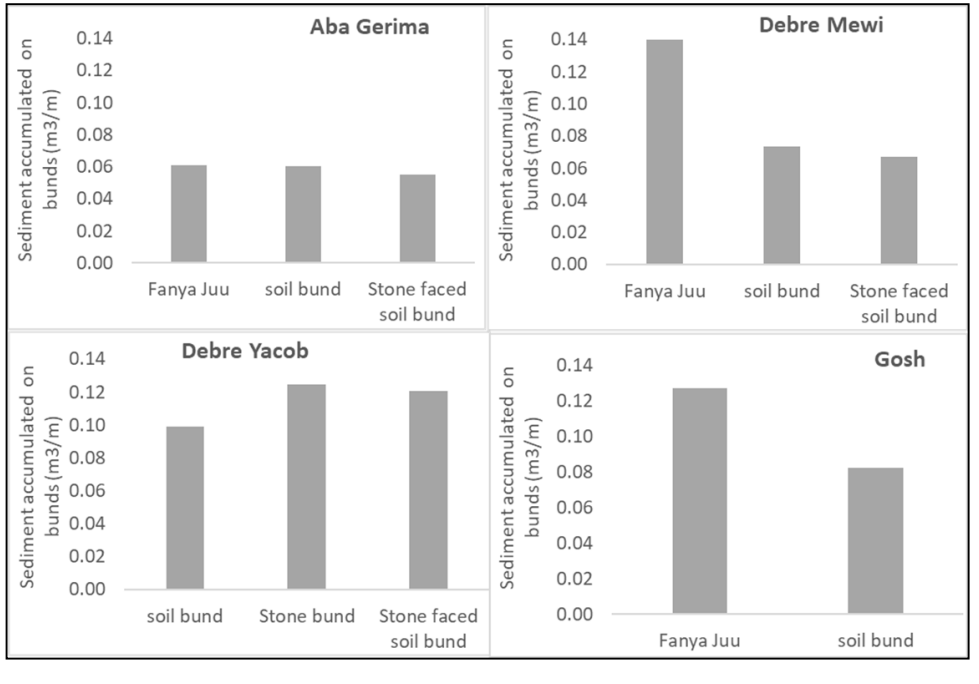


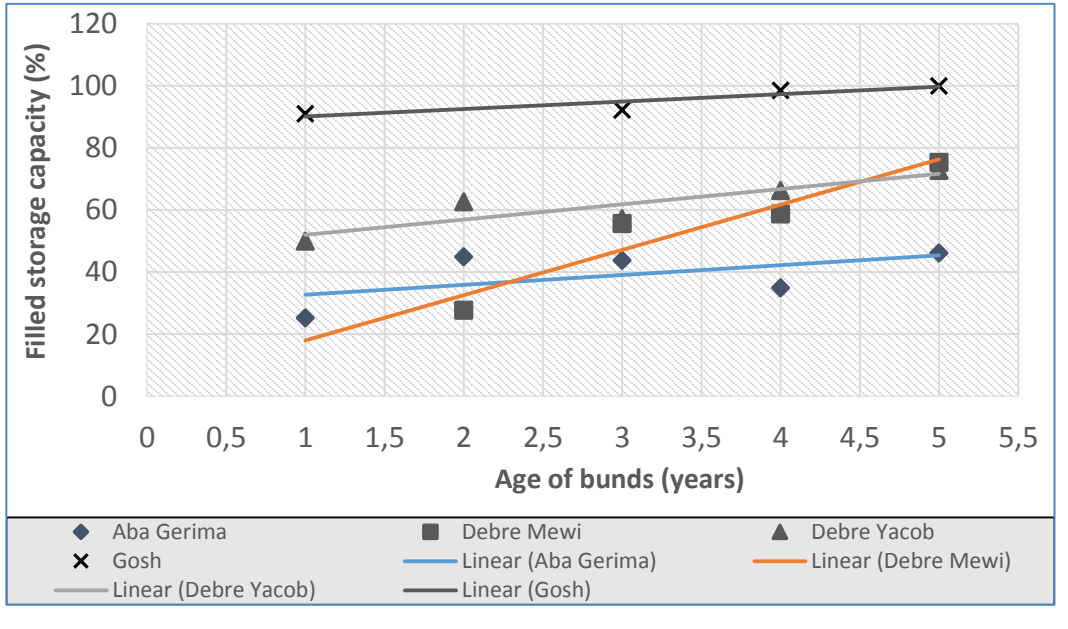
- Increased biomass

Evidence on SLM Impacts

- **Sediment management**
  - Generate information on
    1. ***Which technology works where?***
    2. ***Density of bunds per unit area***
    3. ***Sediment transport over successive bunds***
    4. ***Rate of storage of bunds over years***

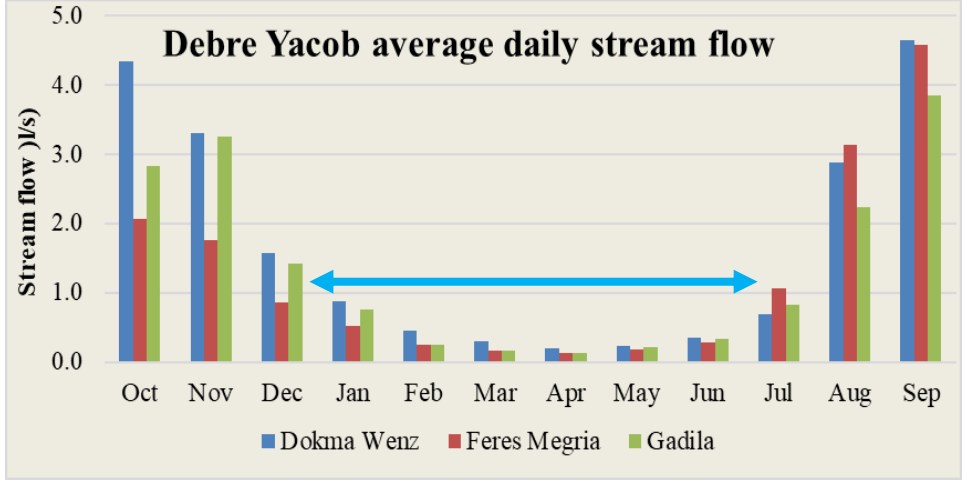


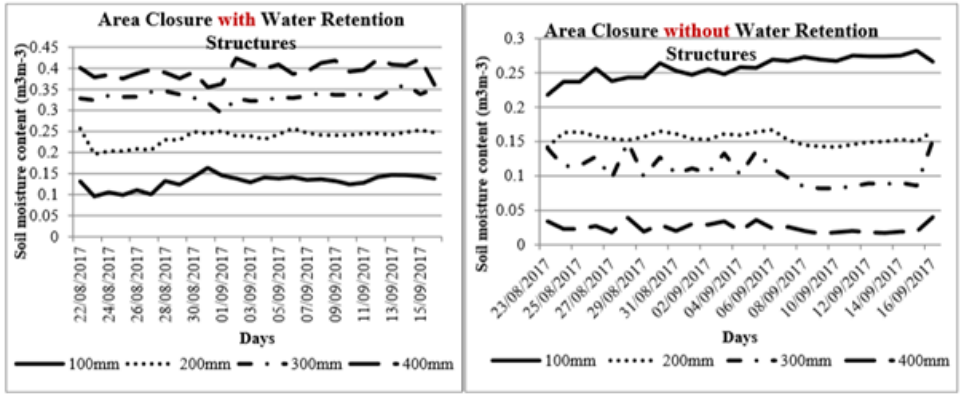




Evidence on SLM impacts

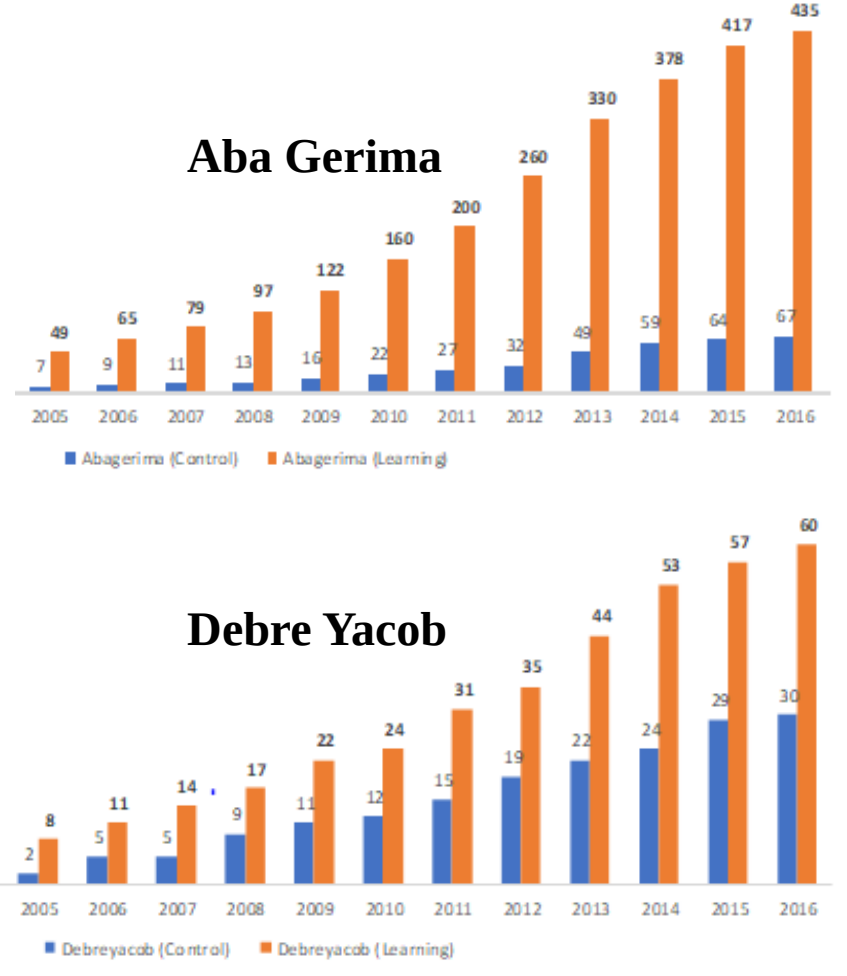
- **Enhanced soil moisture and base flow**
  - Average daily minimum flow- **0.5 l/s (~40m3/day)**
  - **40,000 liter/day** can serve about 1600 TLU





Source: Ongoing study by REACH project

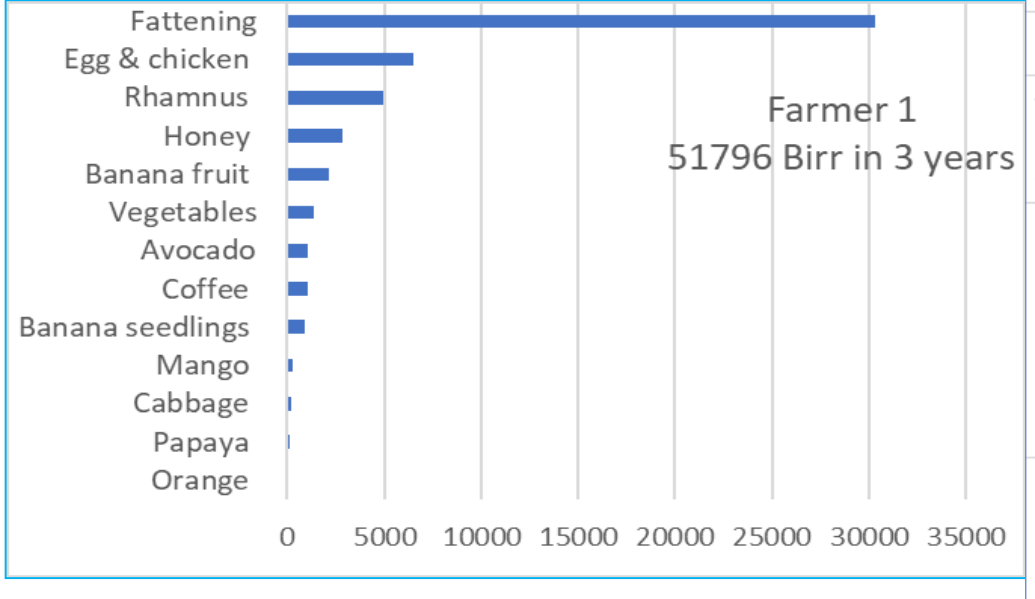
- **Increased number of shallow wells**

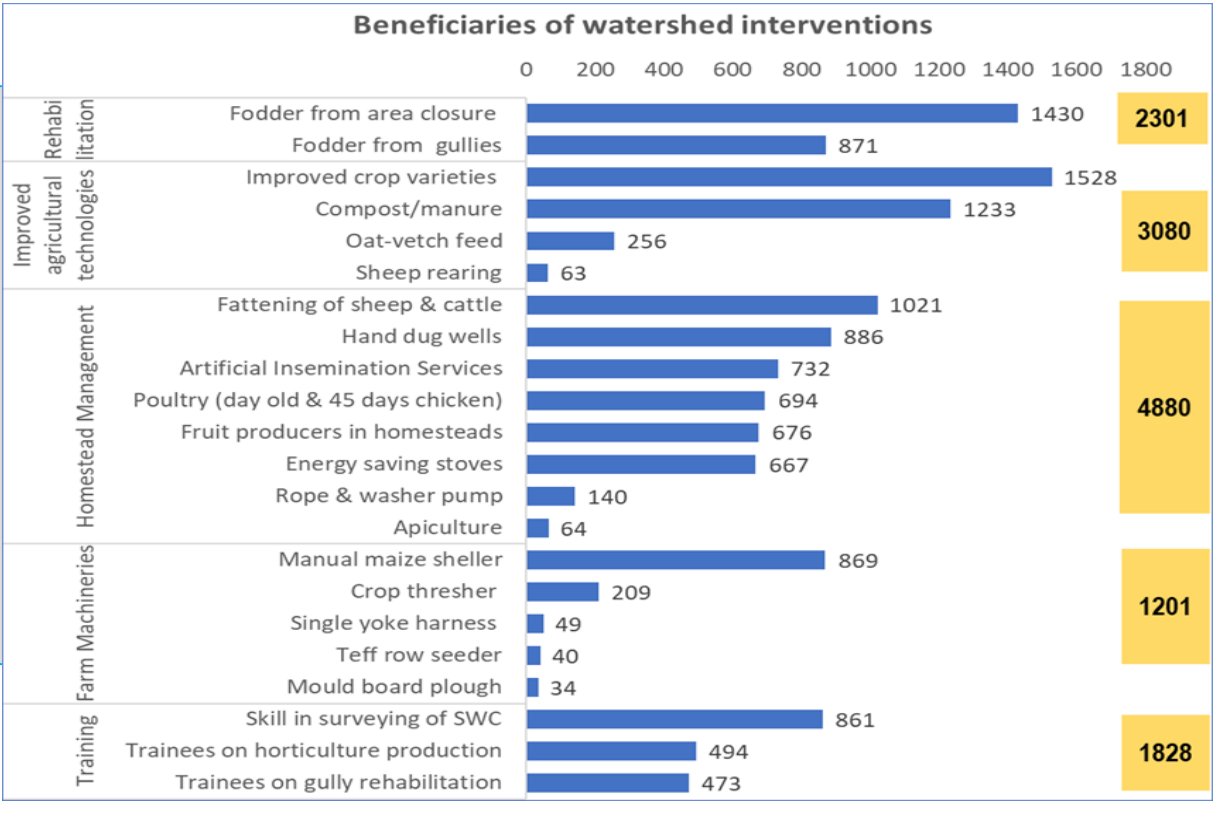


Source: Ongoing study by REACH project

Evidence on SLM impacts

- **Improved Livelihood**
  - **Diversified income sources** from homesteads
  - Multiple benefits from restoration, agricultural technologies and livelihood options





Conclusion

1. Apply participatory approaches and planning & monitoring tools adaptable to the context towards **achieving SLM pathway = Synergy of restoration & conservation, agriculture and livelihood goals**

2. EthioCAT play a role to foster scaling-up of SLM pathway

3. Evidence on SLM **inform LDN target at national level**

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