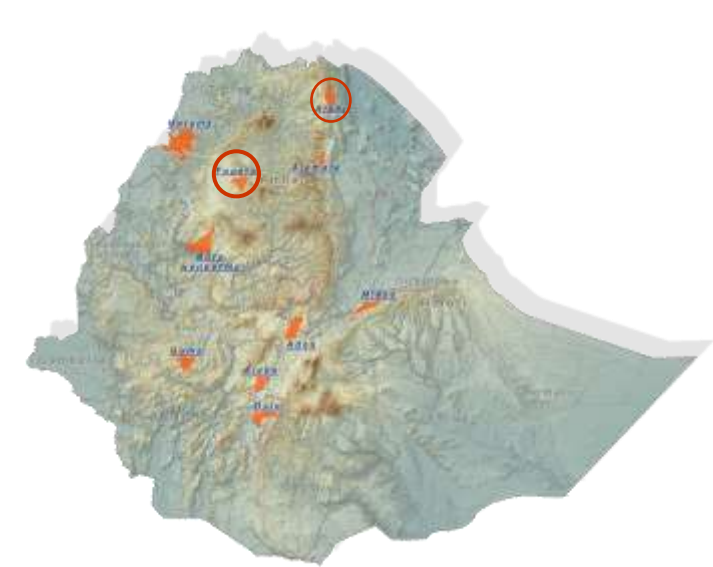


Introduction

- A watershed consists of a steep land as runoff generating and valley bottoms as run-on zones in a continuum fashion.
- With increasing population pressure, over use of the natural resources results in low watershed productivity often unable to feed the growing population.
- In this regard, watershed based market oriented commodities development has been launched in Tigray Region to improve productivity and income of smallholder farmers.
- Fogera district has a plain topography and vast productive grazing land that is usually flooded during the rainy season by overflows from the local rivers of Gumara and Rib, and Lake Tana.
- The natural pasture was used to support large number of livestock during the dry season.
- Free and uncontrolled grazing resulted in severe degradation of the grazing land and disappearance of palatable forage species and emergence of unpalatable noxious weeds like *Hygrophilla auriculata* (Amikela).
- Interventions were undertaken for intensification of crop-livestock farming systems through market-orientation of crop and livestock commodities.
- The methods, achievements and the lessons learned from these interventions are presented.

Materials and Methods



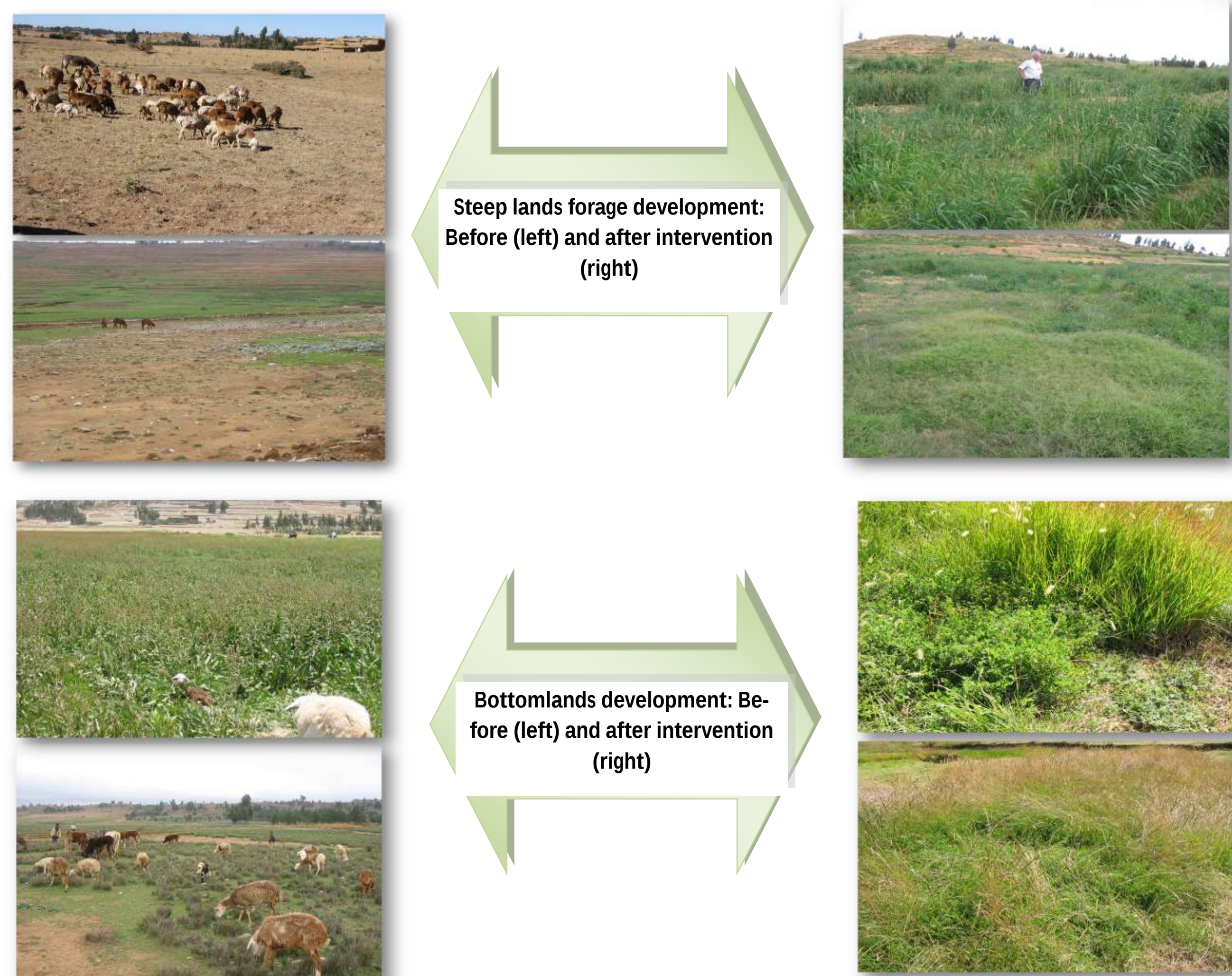
- Various feed development and improved forage species introduced in the conserved watershed continuum.
- Cut and carry system of livestock feeding introduced
- Interventions implemented along the commodity value chain
- Potentials, limitations and interventions of market oriented commodity identified along the value chain framework (VCF)



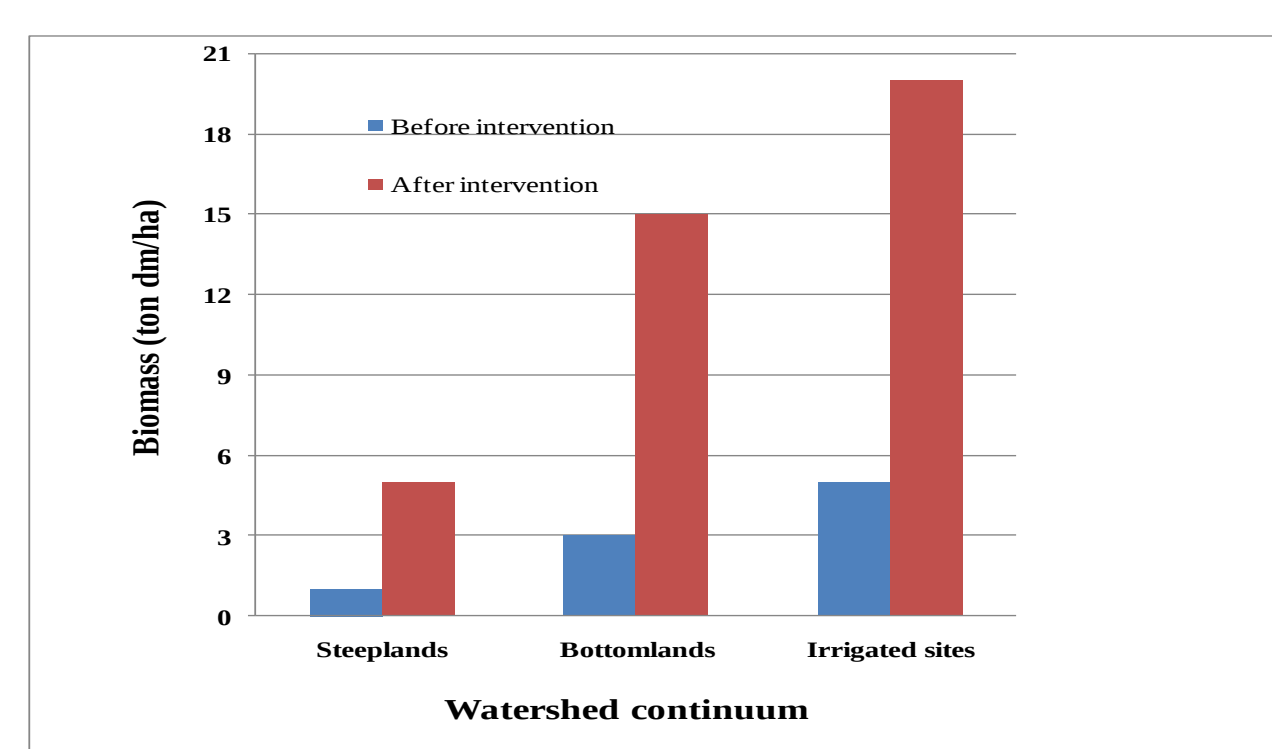
A typical watershed in Atsbi, Tigray

Key achievements

Changes in forage biomass quantity and quality in Atsbi



Irrigated sites: After intervention



Improved forage uptake following demonstration in Atsbi

Watershed continuum	Demonstration area (ha)	Uptake (ha)	Beneficiary households (number/district)
Steep grazing lands and stabilized gullies	26	2,981	6,798
Bottomlands	69	5,739	13,088
Irrigated sites	0.12	850	3,575

Changes in frequency of harvest: Shifted from one to three harvests/year (Sept, Jan, June) in Atsbi



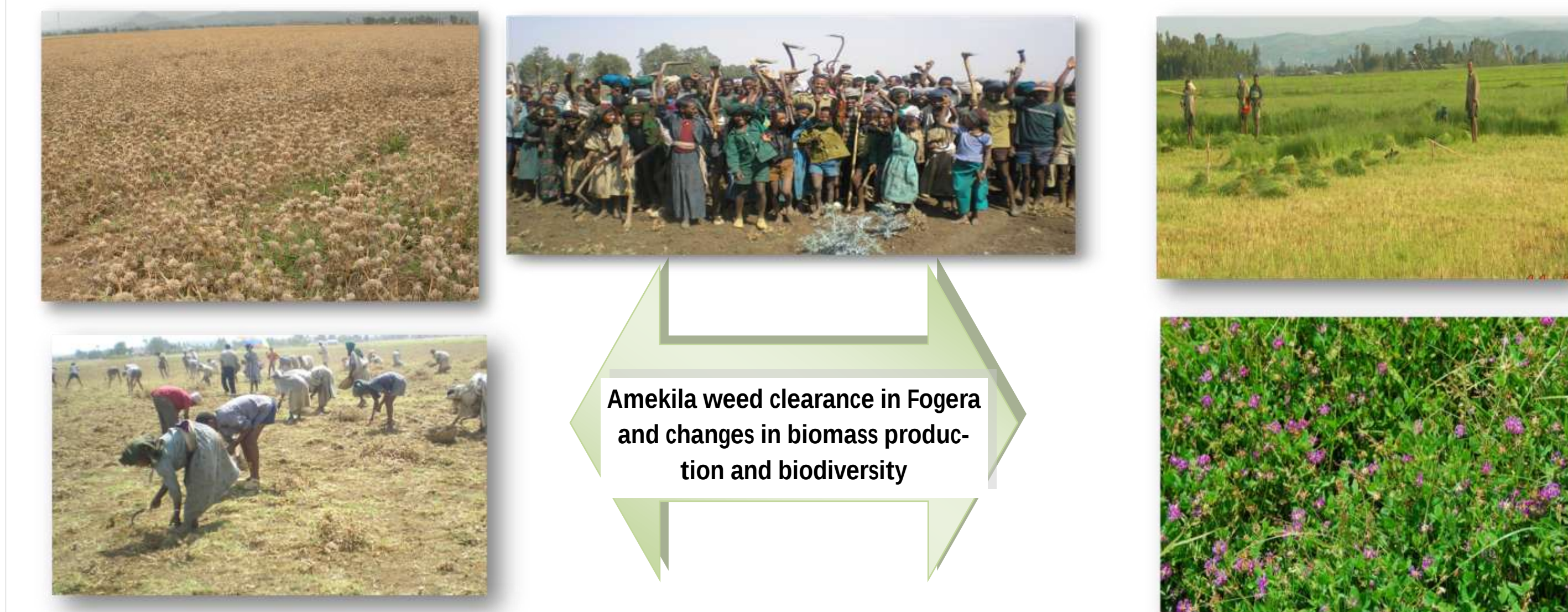
Changes in forage utilization: Sheep fattening and apiculture innovation uptake in Atsbi



Development of shallow wells and irrigated horticulture in the bottomlands in Atsbi



Reclamation of communal grazing area in Fogera



Biomass production in different PAs in Fogera

PAs	Exclusion areas		Forage productivities (t/ha)		Forage dry biomass (t/PA per year)	
	2008	2009	2008	2009	2008	2009
Shina	7.0	7.7	8.5	7.8	59.5	60.0
Kuhar	6.0	11.4	10.7	10.5	64.2	119.47
Abakiros		38.5	7.0			269.1
Guramba		20.0				137.4
Menog-zer		14.0				102.9
Total		91.6			123.7	688.87

Scaling up successful fodder development activities in Fogera

Name of PAs selected	Number of people participated		Area in Ha.
	Men	Women	
Shina	1742	95	23.75
Wagetera	436	98	67.00
Aboakokit	996	683	38.75
Kidist Hanna	923	143	42.75
Nabega	392	240	21.00
Shaga	1200	350	75.00
Total	5689	1609	268.50

Lessons Learned

- Linking improved forage production with market oriented commodities helps smallholder farmers to shift in livestock composition and generate better income following the market signals.
- Innovation uptake has been enhanced through demonstration and participation of actors.
- Participatory market oriented commodity development along the value chain unlocks the use of conserved resources effectively and efficiently through intensification. The approach also helps to thinking beyond rain fed crop production.
- The integration of market-oriented commodity development along the watershed continuum also helps to transform less productive watershed into intensified and diversified household income sources.
- Improving the income of smallholder farmers triggers the community to invest more on resources conservation.
- Actors involvement along the watershed based development continuum and the commodity value chains ensured and the approaches have been institutionalized.