Challenges and opportunities to the intensification of farming systems in the Highlands of Ethiopia: Results of a participatory community analysis

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The three regional projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads the program's monitoring, evaluation and impact assessment. http://africa-rising.net/

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Acknowledgements

This report documents participatory community analyses undertaken by multi-disciplinary facilitation teams in eight *kebeles* in the Amhara, Tigray, Oromia and SNNPR Regions of Ethiopia. Each involved discussions with kebele members and local leaders. As such we would like to acknowledge the input of the over 250 men, women and young people who provided their valuable time and local knowledge in sharing their experiences and ideas for the future, as well as helping us to distil a way forward for the Africa-RISING project in Ethiopia. The work was facilitated by multidisciplinary teams drawn from Universities, Research Centres and *Woreda* Agricultural offices in each region. Their capable and enthusiastic support ensured that farmers' knowledge, perceptions and views have been captured.

Cover photograph: *Tsibet kebele discussions. Photo by Jim Ellis-Jones*

Acronyms

AI	Artificial Insemination
CAHW	Community Animal Health Worker
CBO	Community Based Organisation
CIP	International Potato Center (Centro Internacional de la Papa*)*
DA	Development Agent
FTC	Farmer Training Centre
Kebele	**T**he smallest administrative unit similar to a ward, a neighbourhood or community
IAR4D	Integrated Agricultural Research for Development
ILRI	International Livestock Research Institute
IP	Innovation Platform
NGO	Non Government Organisation
PCA	Participatory Community Analysis
PREA	Participatory Research and Extension Approach
R4D	Research for Development
SNNPR	Southern Nations, Nationalities and Peoples Region
Woreda	An administrative unit comprising a number of *kebele*s. A number of *woreda* comprise a Zone

Participating regional and local Institutions

Debre Birhan University

Debre Birhan Agricultural Research Centre

Basona Worana Woreda Office of Agriculture

Hadiya Zone Agricultural Office

Lemo Woreda Agricultural Office

Wachamo University

Areka Agricultural Research Centre

Worabe Agricultural Research Centre

Medawolabu University

Sinana Agricultural Research Centre

Sinana Woreda Livestock Agency

Sinana Woreda Office of Agriculture

Mekelle University

Tigray Agricultural Research Institute (TARI)

Alamata Agricultural Research Centre

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SUMMARY AND NEXT STEPS

This report presents the results of participatory community analysis (PCAs) with communities in eight *kebeles,* two from each region - Amhara, Oromia, SNNPR and Tigray. The PCAs were facilitated by multi-disciplinary teams from Research Centres, Universities and regional Bureaus of Agriculture. The PCAs were the first phase in a participatory research and extension process, including kebele engagement and social mobilization providing each kebele opportunity for their own analysis of the challenges facing them and opportunities for overcoming them. Challenges and opportunities were identified separately by men, women and youth so as capture differences in gender and age related perceptions and to tailor subsequent interventions accordingly.

Each *kebele* is dominated by an integrated crop-livestock system providing important sources of food and cash. Major crop production challenges include a lack of improved seed, low and declining soil fertility, problems of pests, disease and weeds, a lack of draft power and equipment and the high cost or non-availability of agri-inputs associated with each. These are compounded by increasingly erratic rainfall, drought, floods and land degradation. At the same time local kebeles raised concerns about lack of crop storage facilities, post-harvest pest and disease problems, lack of knowledge about processing with little or no processing equipment, compounded by low market prices, inadequate access roads and poor transport facilities. With regards livestock, kebele raised problems included lack of feed, pests and diseases, poor access to veterinary services leading to high animal mortality rates, compounded by a lack of improved breeds and inadequate watering points in many areas. Marketing challenges included low prices, having to sell when prices are low and a general lack of market information.

The major trend across the four Regions with regards crops is mixed some increasing in area and productivity, due to both improved market access and consumer demand,. These include wheat, lentil and some vegetable crops. Other crops such as barley, enset and potatoes are decreasing also in area and yield due to low prices or disease problems. With regards to livestock, a severe lack of grazing and fodder resources is leading to a decline in most livestock numbers, although poultry production is increasing in some kebeles.

A limited range of research and development (R&D) agencies and kebele-based organizations (CBOs) were identified dominated by Government (kebele and woreda administrations), kebele cooperatives and unions and recent government development initiatives. There were a few non-governmental organizations (NGOs) but few private organisations. A number of CBOs including men's, women's, mixed gender and youth groups were identified, some operating independently but many requiring on-going support and capacity building. This includes the recent government 1:5 initiative, whereby small groups of farmers have been encouraged to form, with lead farmers adopting five followers to support. This fits with Africa-RISING initial interventions of faba bean, potatoes and wheat with nine farmers testing improved varieties and management practices in each kebele.

Further possible interventions for the way forward were identified. These include the introduction of a number of improved sustainable crop and livestock management practices supported with training not only in production, utilisation and processing skills but also leadership, marketing and communication skills to encourage farmer-to-farmer learning and extension. Shortages of improved varieties of most crops indicate a need for encouraging kebele-based seed production. Shortages of agro-chemicals and veterinary products for crop disease and pest control and animal health require links to be built between farmers, suppliers and existing animal health facilities to ensure this

important part of the value chain is improved. Opportunities for sprayer contractors, kebele-based pest doctors and kebele animal health workers (paravets) were identified. An urgent need to improve animal feed through better use of existing crop residues would complement such initiatives. Government initiatives on improving watershed management provide opportunity to provide additional support and capacity building at both woreda and kebele level. At the same time advocacy to promote improved policies to reduce land degradation, improve market infrastructure and build partnerships will be required.

All these options require further discussion with soon to be established kebele innovation platforms (IPs). These will provide opportunity for kebele and local leadership involvement in: planning appropriate interventions; trying out new ideas through farmer experimentation; and importantly monitoring the process through lesson learning and experience sharing. The establishment of kebele IPs bringing together different stakeholders was identified as complimenting Government-led initiatives for promoting agricultural development and ensuring coordination. Meetings for IP formation were tentatively scheduled for early August, providing opportunity for report backs to the kebele on the PCAs and further discussion on priorities for future intervention. It will be important that kebele IPs are the initial contact point for Africa-RISING interventions.

Farmer testing of faba bean, potatoes and wheat which have just been planted represent opportunity for building local ownership, involving local research centres and Universities in facilitating mid and end of season evaluations and ensure their ongoing involvement as Africa-RISING partners. This requires more than individual commitment but also buy-in from each institution to ensure resources are committed.

A number of follow-up actions are currently in progress. Others are under consideration. These and the approximate timings for each include:

i) Appointment of Africa-RISING Coordinators / Facilitators (ARC) (August 2013)
ii) Negotiating involvement of Regional Universities and Research Centres with the appropriate expertise, capacity and interest as partners, especially those that provided individuals who participated in the PCAs. This will probably require Memos or Letters of Understanding between Africa-RISING and the interested Institutions.
iii) Informal discussions between ARCs, woreda and kebele administrations to agree the way forward for each kebele.
iv) Report backs for each kebele on the findings of the PCAs to be led by PCA facilitators to identify those intervention areas that should be considered (August / September 2013). This could be undertaken at the same time as steps v) and vi).
v) Establishment of Innovation platforms / clusters at woreda and kebele level to be undertaken in conjunction with Woreda and Kebele Administrations and Bureaus of Agriculture. This could be timed to fit with mid season evaluations (September 2013).
vi) Mid season evaluations / field days of faba bean, potato and wheat farmer trials / demonstrations arranged in conjunction with kebele IPs (September 2013)
vii) End of season evaluations of faba bean, potato and wheat farmer demonstrations arranged in conjunction with kebele IPs (December 2013)
viii) Innovation platform meetings to coincide with mid and end of season evaluations and agree on other innovations that should be considered. Four IP meetings per year coincide with the PREA learning cycle key events are considered essential.

It will be important that institutional entry points for interventions should be through the kebele IP.

INTRODUCTION

BACKGROUND

Rural livelihoods in Ethiopia are mainly agro-based dependent largely on crop and livestock production, processing and subsequent marketing. Farmers produce cereals, legumes, vegetables and fruit trees and keep livestock. However, optimal system productivity is limited by socio-economic, biophysical, institutional, financial and sometimes policy constraints. Farmers' dependence on traditional methods of agricultural production without improved interventions has often resulted in environmental degradation, poverty, food insecurity and malnutrition, especially among the most vulnerable. Up until recently, development in rural kebeles has often entailed extension agents advising or teaching farmers about "best practices" developed by researchers, with little kebele participation in their identification or development. Unfortunately this often resulted in low or zero adoption of new technologies. The *Africa RISING* – Ethiopia Project is using a research for development (R4D) strategy for targeting sustainable intensification of hillside farming systems in the highlands of Ethiopia. The Project is funded by the United States Agency for International Development (USAID) through the "Feed the Future" support and is coordinated by ILRI in Ethiopia.

The project goal is to provide pathways out of hunger and poverty for small holder families in the region, particularly women and children.

PARTICIPATORY RESEARCH AND EXTENSION APPROACH

The project has embarked on a participatory research and extension approach[1] (PREA), which encompasses four principle stages. The first involves kebele engagement and social mobilization, requiring a facilitation process for kebeles' own analysis of their existing situation. This is the focus of the Participatory Community Analyses (PCAs) carried out in eight rural kebeles in Ethiopia and documented in this report. The remaining phases include: kebele level action planning based on the opportunities identified; implementation through trying out new ideas involving farmer experimentation; and importantly monitoring the process through sharing experiences and lesson learning. This includes an assessment of the PREA process, allowing modification for repeating in the second and subsequent years.

PREA entails involving farmers in a continuous process from definition of a R&D agenda, conduct of research, evaluation of results and promotion of findings. PREA requires facilitation of local kebeles in an analysis of their farming systems, identification of constraints and the search for solutions and new opportunities. It also importantly requires the building of strong links between stakeholders,

[1] Ellis-Jones, J., S. Schulz, D. Chikoye, N. de Haan, P. Kormawa, and D. Adedzwa (2005). Participatory research and extension approaches. A guide for researchers and extension workers for involving farmers in research and development. IITA Ibadan, Nigeria and Silsoe Research Institute.

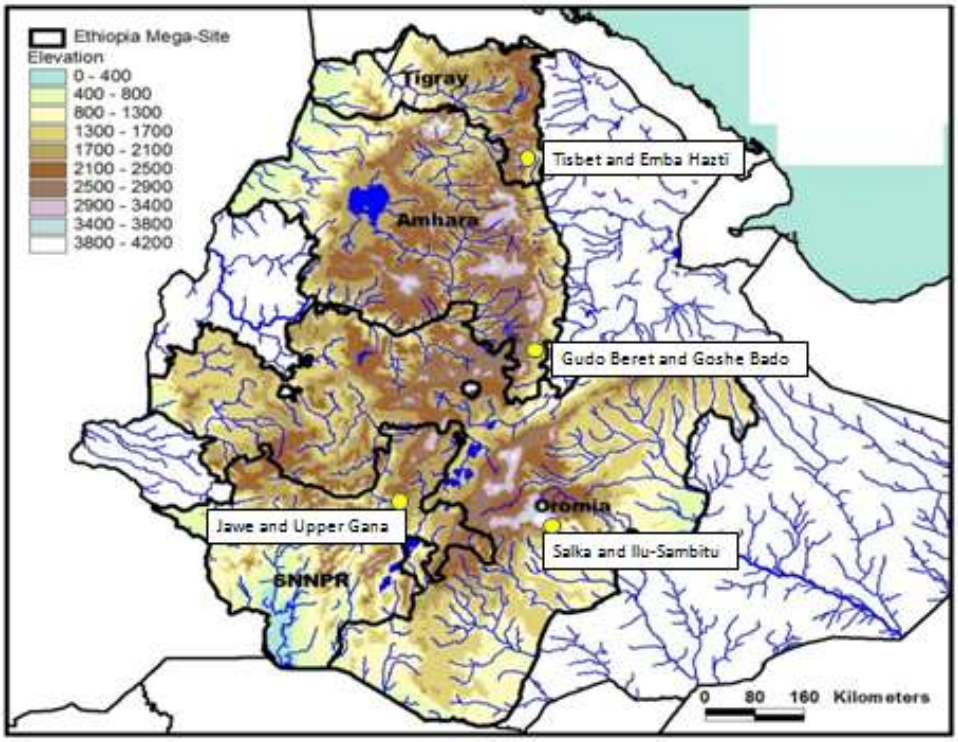
Hagmann J., E. Chuma, K. Murwira and M. Connelly (1999). Putting process into practice; operationalizing participatory extension. In: ODI Agricultural Research and Extension (AGREN) Network Paper 94. Overseas Development Institute, London. http://www.odi.org.uk/agren/papers/agrenpaper_94.pdf

with local kebeles, extension agents, researchers and the private sector working as partners, and encouraging farmer to farmer extension of appropriate technologies and new knowledge. The partnerships established during the PREA process can be regarded as innovation platform (IP), where initially R&D agents provide leadership with active participation of local kebeles and the private sector. In time ownership and leadership should be transferred to local kebeles with the R&D organisations continuing to provide back-up support services. Ongoing participation by the private sector will largely depend on commercial opportunity. Such partnerships or platforms should survive beyond the life of the project and contribute to sustainability of project achievements.

THE AGRO-ENVIRONMENT

The Africa RISING project is testing interventions to enable sustainable intensification of agriculture in three major regions of Africa, one being the highland areas of Ethiopia. This was selected as being representative of extensive densely populated highland areas of SSA. The highlands have large variations in existing levels of intensification with cereal-legume rotations and other crop-combinations, as well as crop-livestock integration. Furthermore, factors driving intensification such as agricultural potential, access to available technologies, demand for livestock products, and integration with markets varies considerably across regions.

The Ethiopian Highlands are extremely diverse topographically, climatically and in respect of population distribution and accessibility of markets (Map 1).



Map 1: Ethiopia megasite[2], showing location of *kebeles*

[2] Legg, C., 2012. Africa RISING- the Ethiopian Highlands Mega-Site. Selection of Project Implementation Sites. Report prepared for IFPRI

In general, wheat is produced in areas with more than 600mm annual rainfall and at elevations of greater than 1700 metres. There is vertical zonation of cereal crops, from maize at lowest elevations, teff at medium elevations, then successively wheat and barley at highest elevations. The variation in elevation and rainfall within single woredas and even kebeles can be extreme. Many woredas are quite large, often more than 1500 square kilometres with elevation ranges of more than 1500 metres. Orographic and "rain shadow" effects can result in great variation in annual rainfall within single woredas, this not being captured in detail in available rainfall maps.

OBJECTIVES AND APPROACH USED

The objectives of the participatory community analyses were to:

i) Share knowledge and gain information about people's livelihoods in local kebeles especially in relation to crop and livestock production systems, processing and marketing.
ii) Identify constraints and opportunities for improving people's livelihoods.
iii) Assess existing technology options, challenges, coping strategies and opportunities for improvement.
iv) Identify entry points to test selected new technology options.
v) Identify kebele based organizations and kebele leaders with whom to work in testing technology options and addressing constraints that might limit adoption.
vi) Establish a basis for kebele-based innovation platforms comprised of representatives of key stakeholders working in the areas, CBOs and kebele leaders.

Participatory Community Analyses were undertaken after a two-day training workshop held in Addis Ababa over the period 17-18 June. During the workshop agreement was reached on the use of appropriate methods and tools. Thereafter PCAs were undertaken over the period 20 June to 6 July 2012, in eight kebeles across four Woredas in the Amhara, Tigray, Oromia and SNNPR Regions (Table 1). This involved discussions over a two or three day period taking 3-4 hours per day.

Table 1: Location of PCAs showing numbers of participants

Region	Zone	Woreda	Kebele	No. of participants in PCAs[1]		
				M	W	Y
Amhara	North Shewa	Basona Worena	Gudo Beret	19	15	13
			Goshe Bado	18	13	12
Oromia	Bali	Sinana	Salka	18	9	12
			Ilu-Sanbitu	12	12	10
Tigray	South Tigray	Endemekoni	Emba Hasti	14	9	10
			Tsibet	11	9	10
SNNPR	Hadiya	Lemo	Jawe	15	11	9
			Upper Gana	12	9	8

[1]M=Men, W=Women, Y=Young men

The number of people participating in each kebele ranged from around 30 to over 40 individuals, usually involving more men than women, with nearly 300 people participating across the eight kebeles. The discussions provided opportunity for engaging with and encouraging kebeles for undertaking an analysis of their own livelihoods, identifying and prioritizing challenges and opportunities for making improvements.

In each kebele, discussions were facilitated in separate groups of men, women and young men before sharing the information in general meetings. This helped to encourage free discussion while allowing information to be shared between kebele members, research and extension staff. At the completion of each meeting, discussions were held on the linking of stakeholders in innovation platforms (Annex 1) with arrangement being made for further discussion after the main planting of crops had been completed in early August 2013.

The data shared and collected in each kebele included:

i) The main means by which kebele members, men, women and youth derived their livelihoods, production trends of crop and livestock-based livelihoods and the reasons for this.
ii) Identifying those institutions within and outside the kebele important for agriculture.
iii) Identifying typical farmer profiles or typologies.
iv) Identifying a monthly calendar of the main crop and livestock activities over a year.
v) Identifying and prioritizing crops grown and livestock kept for food and cash purposes by men, women and youth.
vi) Value chain analyses of priority crop and livestock enterprises identifying the main challenges, coping strategies and opportunities.
vii) Existing water availability and possible opportunities for improvement (Oromia and SNNPR).

Appendices to this overall report include separate reports from each Kebele. Key findings are reported in this synopsis.

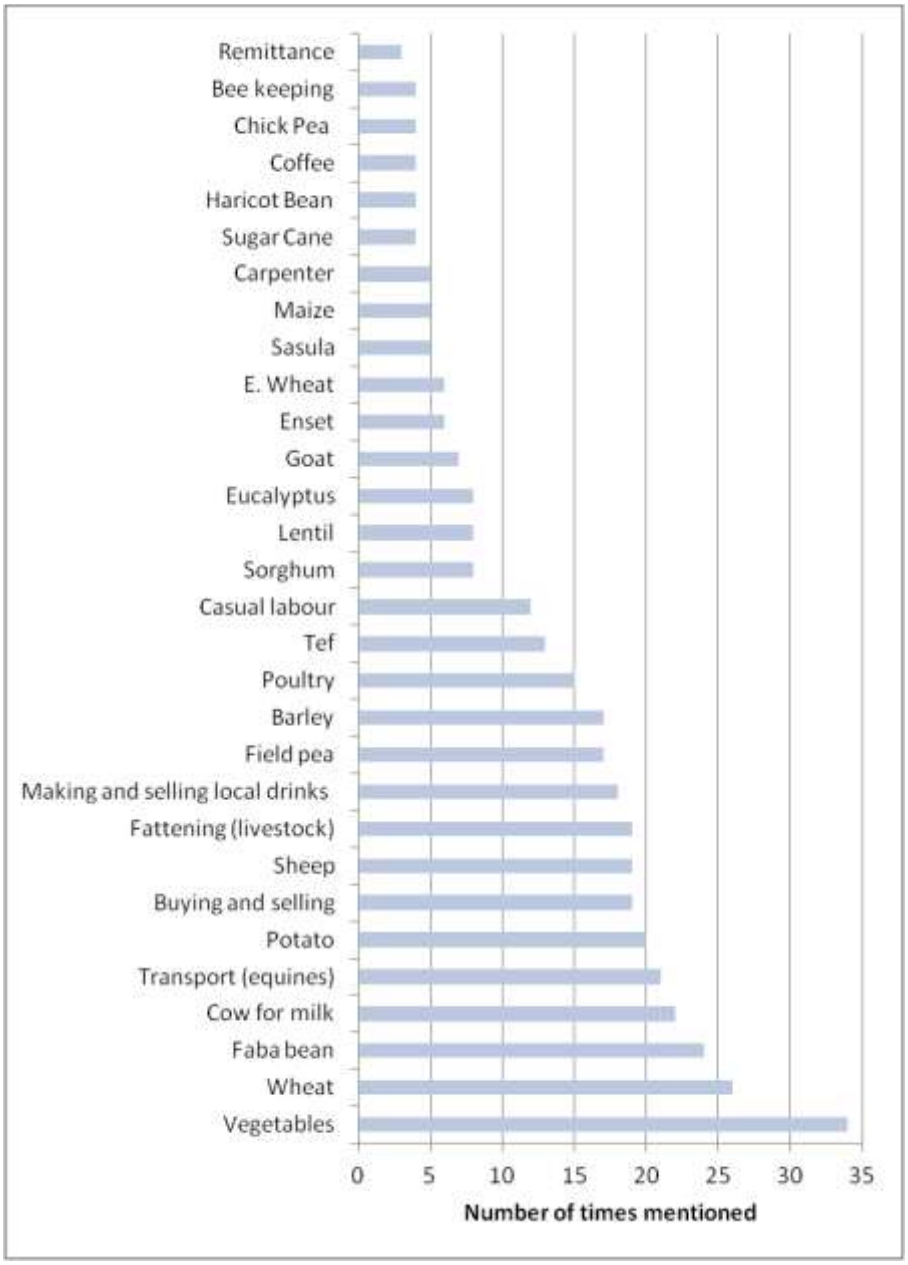
PARTICIPATORY COMMUNITY ANALYSES

LIVELIHOODS

SOURCES

Over 40 different livelihood sources were identified, important ones being growing and selling vegetables (the type of vegetable being highly variable), wheat, faba bean, cows for milk production and butter sale, transport using equines mostly donkeys, potatoes, and buying and selling various items (Figure 1). Important non-agricultural activities included making and selling local drinks, casual labouring, selling eucalyptus wood and leaves and remittances from those working outside the kebele. It should be noted that there were significant variations between kebeles, for instance those mentioned few times such as enset, coffee or remittances may have been a major livelihood source in some kebeles

Figure 1: Main livelihood sources (across kebeles and genders)



Notes: vegetables include cabbage, carrots, fenugreek, garlic, onions, pepper, and tomatoes often only one or two vegetable types being grown and sold. E. Wheat or Emmer Wheat is a traditional awned wheat variety.

The relative importance between men, women varied with the most important for men including cow, ox, sheep, teff, wheat, barley, potato, poultry, faba bean and field pea. Although these were also important for women some sources such as cows for milk, sheep and poultry were more important for women. Non-agricultural activities including trade, eucalyptus growing and selling alcoholic drinks such as Areke (also known as Katikala) and Tela were also important for women. Young men who often had less land regarded eucalyptus transport, trade and casual labour as important.

TRENDS

Many sources of livelihood were reported as increasing either because of opportunity or need, while some were decreasing (Table 2). This did vary between kebeles and genders.

Those livelihood sources considered to being increasing included buying and selling, remittances, eucalyptus, carpenter, lentil, casual labour, Emmer wheat, wheat, transport (equines), making and selling local drinks, sasula, poultry, teff, vegetables, fattening livestock due to both market demand and improved technologies.

Those livelihood sources considered to be decreasing included potato, goat, sheep, faba bean, barley, maize, field pea, cow, sorghum, enset either because of production problems including pest or lack of feed in the case of livestock.

Table 2: Livelihood trends – (across kebeles and genders)

Sources of livelihood	n	% of PCAs reporting trend			Main reason
		Static	Increasing	Decreasing	
Largely increasing					
Buying and selling	19	0%	100%	0%	Need for cash
Remittances	3	0%	100%	0%	Migration
Eucalyptus	8	0%	88%	13%	Opportunity
Carpenter	5	20%	80%	0%	Opportunity
Lentil	8	0%	75%	25%	Increased market
Labour –working for others	12	17%	67%	17%	Need for cash/food
Emmer Wheat	6	17%	67%	17%	Increased market
Wheat	26	12%	65%	23%	Increased market
Transport (equines)	21	14%	62%	24%	Increased demand
Making and selling local drinks	18	0%	61%	39%	Opportunity, need for cash
Sasula	5	0%	60%	40%	Opportunity and market
Poultry	15	7%	60%	33%	Opportunity
Teff	13	0%	54%	46%	Increased market
Vegetables	34	21%	53%	26%	Increased market
Fattening (livestock)	19	16%	47%	37%	Increased market
Largely decreasing					
Potato	20	0%	45%	55%	Disease
Goat	7	14%	43%	43%	Reduced grazing
Sheep	19	0%	42%	58%	Reduced grazing
Faba bean	24	0%	42%	58%	Disease (Chocolate spot)
Barley	17	6%	41%	53%	Disease, reduced market
Maize	5	0%	40%	60%	Low prices
Field pea	17	6%	29%	65%	Disease, low prices
Cow	22	9%	23%	68%	Reduced grazing
Sorghum	8	13%	13%	75%	Poor market
Enset	6	0%	0%	100%	Disease

Note: These livelihood trends vary across kebeles and those shown increasing or decreasing across kebeles may differ individually.

FARMER TYPOLOGIES

Men and women in all kebeles considered three main types of households classified as, poor, average and better off. The main criteria differentiating them were similar across kebeles, with little difference between men and women (Table 3). Actual numbers related to each capital type however varied considerably between kebeles and genders, detail of each being available in individual kebele reports.

Table 3: Capital type and criteria identified by PCA participants

Capital assets	Criteria or indicator
Natural	Land area cropped
Physical	Livestock ownership Perennial crops grown Access to trees (especially eucalyptus) Equipment owned including access to irrigation House type
Economic	Annual grain production and quantity sold Use of credit Labour hiring
Social	Standing in the kebele Food security in terms of meals consumed per day
Human	Not identified by PCA participants

The percentage in the three categories estimated by PCA participants were 36% poor, 44% average and 20% better-off, but with considerable variation between kebeles but less so between groups in the kebele.

Table 4: PCA participant estimates of the percentage of households in each farmer typology

Kebele	Poor	Average	Better-off
Goshe Bado	27%	58%	16%
Gudo Beret	41%	43%	16%
E Hasti	29%	38%	32%
Tsibet	42%	34%	23%
Ilu-Sanbitu	30%	50%	20%
Salka	20%	60%	20%
Jawe	47%	37%	17%
Upper Gana	53%	30%	17%
Mean	36%	44%	20%
Range	*20-53%*	*30-60%*	*16-32%*

Further detail is shown in each *kebele* report.

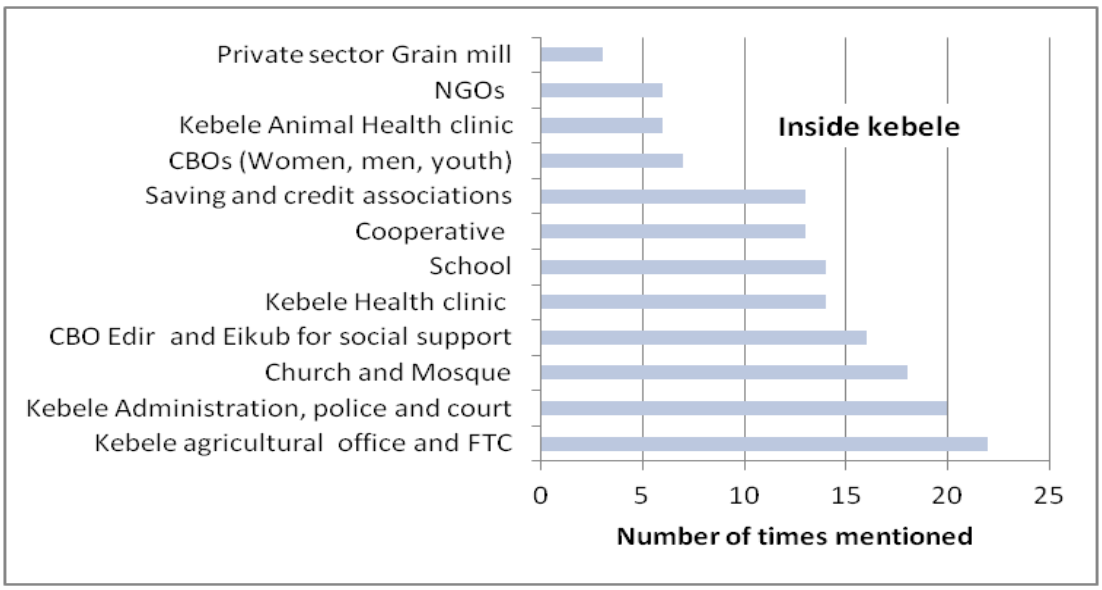
It should be noted that we have not tried to compare these results with the sustainable livelihoods assessment survey SLATE that was recently undertaken.

INSTITUTIONS INSIDE AND OUTSIDE EACH KEBELE IMPORTANT FOR AGRICULTURE

PCA participants indentified over 70 different institutions important for agriculture based either inside or outside the kebele, but working in the kebele. The main institutions of importance within the kebele were the Kebele Agriculture Office and Farmer Training Centre (FTC), the church and / or mosque and local social welfare CBOs, particularly Edir and Eikub, (Figure 2), the latter possibly being important for targeting the poor. Other institutions identified as being of importance for agriculture were the health clinic, school, cooperative, savings and credit associations and men, women and youth CBOs. Also important but only mentioned a few times were NGOs based in the kebele and the kebele animal health clinic.

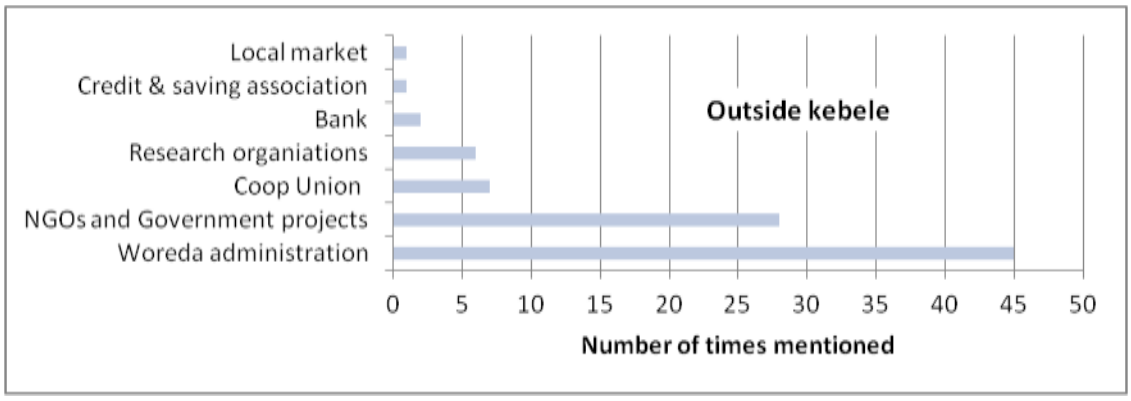
The CBOs included the recent kebele-woreda initiative of forming farmers into groups of +/- 25 individuals and encouraging one lead farmer to look after five follower farmers. This is known as the 1:5 scheme. Each of the five was thereafter expected to look after another five farmers, until all farmers in the kebele are involved. Interestingly many of the nine selected Africa-RISING farmers for on-farm trials / demonstrations are already participating in the 1:5 scheme as leaders.

Figure 2: Main institutions within the kebeles



Important institutions outside the kebele were the Woreda Administration, which included the Woreda Bureau for Agriculture, various NGOs and Government led projects notably the Agriculture Growth Programme (AGP), the Cooperative Union and a number of research organisations (Figure 3).

Figure 3: Main institutions outside the kebeles



Government, NGO and other R&D organizations are present in many kebeles, with both individual households and CBOs benefiting from the livelihood support services provided. Development agencies identified by the kebeles were largely Government, cooperatives, churches or mosques, savings, credit and microfinance organisations and a few local NGOs. Few private sector organisations other than the cooperatives were mentioned either inside or outside the kebeles. However millers and blacksmiths were observed in some kebeles and during discussion participants mentioned traders coming to the kebele to buy produce.

A variety of support services are being provided ranging from kebele Development Agents (DAs), provision of agro-inputs on credit, improved water supplies, education and health. Although support may have been received, in many cases kebeles were often unaware of agency names, referring to them by either the kind of support provided or names of project staff. Opportunity was identified for coordination of projects or programmes linking stakeholders and promoting partnerships between the different organisations. Some 150 institutions were identified in the kebeles and 80 from outside.

CROP PRIORITIES

Reports from kebeles confirmed that cropping systems are dominated by cereals and legumes, the main cereals being, wheat, barley and teff, the main legumes being faba bean, field pea and lentil with potatoes being important in many areas. The relative importance of each varied considerably between cash and food crops (Figure 4 and Figure 5).

Figure 4: Crop priorities – cash (number of times mentioned across kebeles and genders)

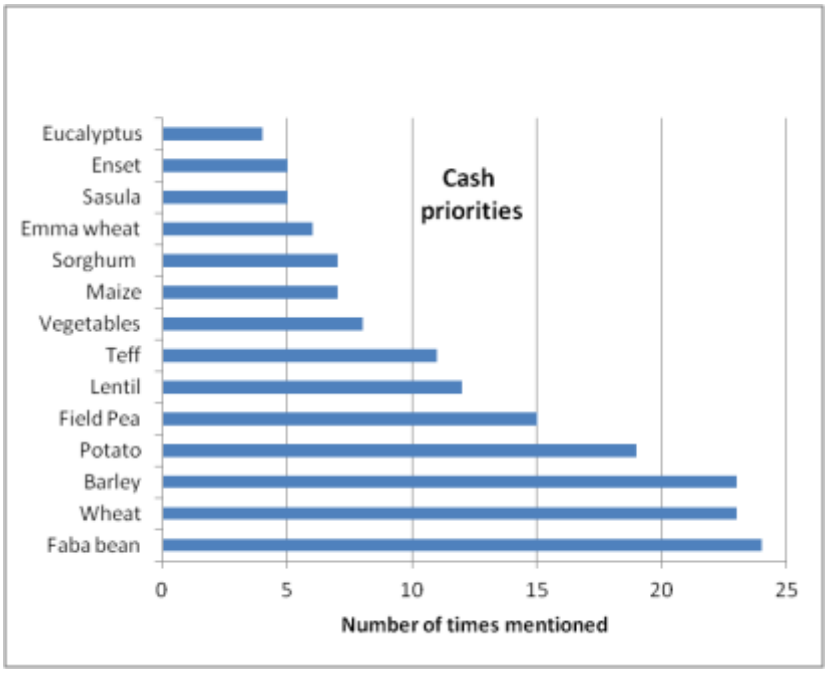
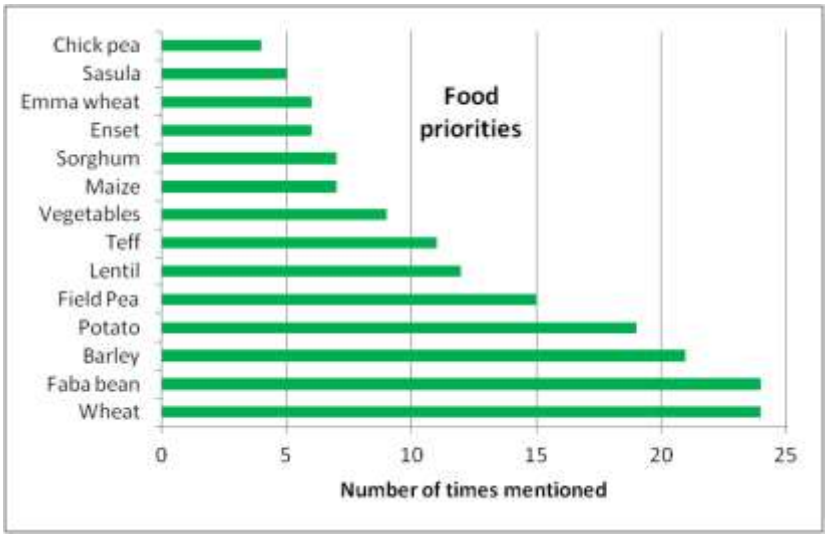


Figure 5: Crop priorities – food (number of times mentioned, all kebeles, men, women and youth)



Crop priorities varied considerably between kebeles and between men and women (Table 5 and Table 6)

Table 5: Crop priorities for food by men, women and youth groups across the eight *kebeles* (1=highest priority, blanks=crop not mentioned)

	Amhara								Tigray								Oromia								SNNPR							
	Gudo Beret				Goshe Bado				Emba Hasti				Tsibet				Salka				Ilu-Sanbitu				Jawe				Upper Ganu			
Crop	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**
Barley	7	7	6	**7**	6	9	4	**6**	7	7	9	**8**	7	5	5	**6**	6	4	5	**5**	8	4	4	**5**	6	5	5	**5**		5	7	**6**
Cabbage						3			4		3	**4**									10			**10**							5	**5**
Carrot									4	3	2	**3**		3		**3**																
Chat																											6	**6**				
Chick pea					2	5	3	**4**																								
Enset																									10	7		**9**	5	4	4	**4**
Eucalyptus																																
E wheat																	2	4	2	**3**	5	3	5	**4**								
Faba bean[1]	4	5	4	**4**	3	7	2	**4**	6	5	7	**6**	3	3	2	**3**	3	2	3	**3**	3	6	6	**5**	4	4	4	**4**	3	3	3	**3**
Field Pea	3	4	3	**3**		5		**5**	4	2		**3**			3	**3**	4	2	3	**3**	3	3	2	**3**	5			**5**			8	**8**
Garlic		2		**2**																												
Haricot bean																									7			**7**		9	10	**10**
Lentil	1	3	2	**2**		2		**2**	3	1	6	**3**	4	1		**3**	5	4		**5**		8		**8**								
Linseed	5			**5**																	4			**4**							12	**12**
Maize																					9	7		**8**	9		6	**8**	4	6	5	**5**
Onion																					4			**4**								
Pepper																					7	2		**5**								
Potato[1]	2	1	1	**1**					2	4	5	**4**	1	5	6	**4**		7		**7**	7	9	1	**6**	3	3	2	**3**	7	7	8	**7**
Rough pea						4		**4**																								
Sasula									1		1	**1**	2	1	1	**1**																
Sorghum					5	8		**7**																	8	8		**8**	6	8	11	**8**
Teff					1	1	1	**1**													2	5		**4**	2	2	2	**2**	1	2	2	**2**
Vegetables						11		**11**																								
Wheat[1]	4	6	5	**5**	4	6	4	**5**	5	6	8	**6**	6	4	4	**5**	1	1	1	**1**	1		3	**2**	1	1	1	**1**	2	1	1	**1**

M=men, W=Women, Y=Youth, All=mean across the three groups in each *kebeles.* Unnumbered boxes indicate that the crop was not mentioned by the group

[1]Faba bean, Potato and Wheat have been highlighted as these are the first interventions introduced as on-farm trials / demonstrations.

Table 6: Crop priorities for cash by men. Women and youth across eight *kebeles* (1=highest priority, blanks=crop not mentioned)

	Amhara								Tigray								Oromia								SNNPR							
	Gudo Beret				Goshe Bado				Emba Hasti				Tsibet				Salka				Ilu-Sanbitu				Jawe				Upper Ganu			
Crop	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	**All**
Barley	1	1	1	**1**	2	2	1	**2**	1	1	1	**1**	1	1	1	**1**	1	1	1	**1**	1	1	2	**1**	9			**9**		4	10	**7**
Cabbage						9		**9**	7		7	**7**									12			**12**							9	**9**
Carrot										7	6	**7**		6		**6**																
Chat																																
Chick pea					5	4	3	**4**	8			**8**																				
Enset																									1	3	1	**2**	1	1	1	**1**
Eucalyptus						1		**1**			3	**3**			7	**7**																
Emma wheat																	3	3	5	**4**	7	3	4	**5**								
Faba bean[1]	3	3	3	**3**	3	2	3	**3**	3	3	3	**3**	5	3	3	**4**	4	4	3	**4**	6	6	2	**5**	6	6	7	**6**	6	6	5	**6**
Field Pea	4	5	4	**4**	-	7	6	**7**	4	4		**4**	3		4	**4**	5	5	2	**4**	5			**5**	6			**6**			11	**11**
Haricot bean																									5			**5**		9	8	**9**
Garlic		7		**7**																												
Lentil	5	4	5	**5**	-	8	-	**8**	5	5	4	**5**	6	4		**5**	6	6		**6**		5		**5**								
Linseed	6			**6**	-		-														11			**11**							12	**12**
Maize																					4			**4**	3	5	3	**4**	2	3	3	**3**
Onion																					9			**9**								
Pepper																					10	8		**9**								
Potato[1]	7	6	6	**6**	-		-		6	6	5	**6**	4	5	5	**5**		7		**7**	8	7	5	**7**	4	4	4	**4**	7	7	7	**7**
Rough pea						11		**11**																								
Sasula									9		8	**9**	7	7	7	**7**																
Sorghum	-				4	6	-	**5**																	10	8		**9**	4	8	6	**6**
Teff	-				6	3	5	**5**													2	2		**2**	2	2	5	**3**	3	5	4	**4**
Vegetables						10		**10**																			2	**2**				
Wheat[1]	2	2	2	**2**	1	1	1	**1**	2	2	2	**2**	2	2	2	**2**	2	1	4	**2**	3	4	1	**3**	2	1	6	**3**	5	2	2	**3**

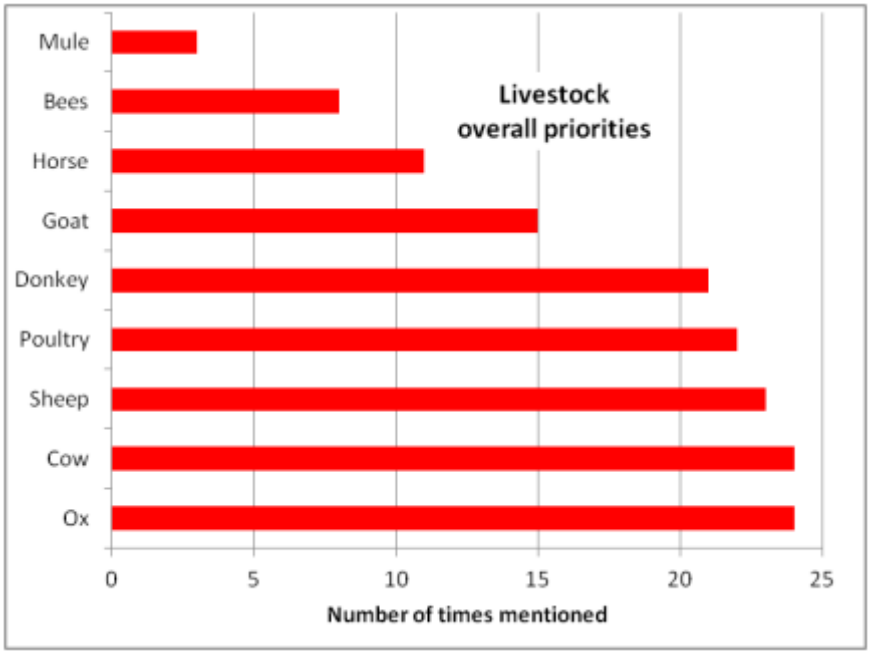
M=men, W=Women, Y=Youth, All=mean across the three groups in each *kebeles.* Unnumbered boxes indicate that the crop was not mentioned by the group

[1]Faba bean, Potato and Wheat have been highlighted as these are the first interventions introduced as on-farm trials / demonstrations.

LIVESTOCK PRIORITIES

Cattle (oxen and cows), sheep, poultry and donkeys were the most widely kept livestock species across kebeles with cows, sheep and poultry being the most important for cash purposes, while the importance of oxen and donkeys was for land preparation and transport (Figure 6).

Figure 6: Livestock priorities – (number of times mentioned, all kebeles, men, women and youth)



The relative importance of each as with crops varied considerably between kebeles and between men and women (Table 6).

Table 7: Livestock priorities by Men, Women and youth across eight *kebeles* (1=highest priority)

	Amhara								Tigray								Oromia								SNNPR							
	Gudo Beret				Goshe Bado				Emba Hasti				Tsibet				Salka				Ilu-Sanbitu				Jewe				Upper Gana			
	M	W	Y	All	M	W	Y	All	M	W	Y	All	M	W	Y	All	M1	W1	Y1	All	M	W1	Y1	All	M1	W1	Y1	All	M1	W1	Y	All
Overall																																
Ox	1	4	3=	**3**	1	6	4	**4**	1=	5	1=	**2**	1	5	3	**3**	1	1	1	**1**	5	1	1	**2**	1	1	1	**1**	1	2	1	**1**
Cow	2	3	3=	**3**	2	2	5	**3**	3=	1=	5	**3**	2	4	4	**3**	2	2	2	**2**	6	2	2	**3**	2	2	2	**2**	2	1	2	**2**
Sheep	3	2	2	**2**	4	3	2	**3**	5	3=	3=	**4**	3	2	1	**2**	5	4	5	**5**	2	4	5	4	4	5	5	**5**	7	-	7	**7**
Donkey	-	5		**5**	3	4	6	**4**	1=	-	3=	**2**	5	6	6	**6**	3	3	3	**3**	3	6	4	4	3	3	3	**3**	3	6	4	**4**
Poultry	4	1	1	**2**	5	1	1	**2**	6	1=	1=	**3**	4	1	5	**3**	7	6	6	**6**	-	5	6	6	6	-	4	**5**	6	3	8	**6**
Goat	-	-	-		-	4	2	**3**	3=	3=	4	**3**	-	3	2	**3**	6	-	-	**6**	-	7	-	7	5	4	6	**5**	5	5	6	**5**
Horse	-	-	-		-	-	-		-	-	-	**-**	-	-	-	**-**	4	5	4	**4**	4	3	3	3	7	9	-	**8**	4	4	5	**4**
Mule	-	-	-		-	-	-		-	-	-	**-**	-	-	-	**-**	-	-	-	**-**	-	-	-	-	8	7	-	**8**	-	-	3	**3**
Bees	-	-	5	**5**	6	7	-	**7**	-	-	-		-	-	-	**-**	-	-	-	**-**	-	-	-	-	9	8	7	**8**	8	-	8	**8**

M=men, W=Women, Y=Youth, All=mean across the three groups in each *kebeles.* Unnumbered boxes indicate that the livestock type was not mentioned by the group
The priority livestock (1, 2 and 3) for men, women and youth have been highlighted in each *kebele*.

Generally men ranked oxen as the highest priority, as they are used for land preparation and sale, often fattened when cash is needed. Women's ranking varied with poultry often being ranked highest, followed by cows for their milk. Young men ranked livestock importance in a similar way to women, but with donkeys also being of importance reflecting the income earning opportunities of donkeys for transport of goods.

TYPICAL FARMING CALENDARS

Four typical farming calendars from one kebele in each region are illustrated. These have been taken from one group in each kebele, and moderated after consideration of other group calendars, taking into account gender and age considerations. They should be regarded as indicative only and may require further moderation as and when detailed planning takes place.

Further detail is shown in individual kebele reports.

Amhara: Gudo Beret

Crops (Meher and Belg seasons[3])	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Gender involvement**
Land preparation													Mostly men
Manure application													Both
Planting/sowing													Both
Weeding													Both
Bird scaring													Mostly women, youth
Harvesting													Men and youth
Gathering the harvests													Both
Threshing													Both
Livestock													
Herding animals													Children, men and women
Fattening													Mostly women
Follow up of the animal health													Men, women
Sale													Men
Feed collection & storage													Men and youth
Feed purchase													Men
Housing maintenance													Women

Tigray- Emba Hasti

Crops (Meher and Belg seasons)	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**gender involvement**
Land preparation													Men
Preparing drainage													Men
Manuring													Both
Planting													Both
Cultivation													Both
Weeding													More women
Harvesting													Both
Threshing													More women
Livestock													
Grass harvesting													Both
Crop residue preparation													Men
Herding													Children
Mating period													-
Vaccination period													Men
Watershed management													
Free labour													Both
Tree planting													Both
PSNP													Both

[3] Short and long rainy seasons

Oromia - Ilu-Sanbitu (men, Meher and Belg seasons**)**

Crops (Meher and Belg seasons)	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Gender involvement**
Land preparation													Men
Planting													Men & women
Weeding													All
Harvesting													Men & youth
Threshing													Men & youth
Marketing													Men
Livestock													
Straw collection													Men & youth
Green feeding													Youth
Shortage of feeds													-
Animal feeding													Men
Castration													Men
Calving													-
Marketing													Men
Open grazing													Children
Stall feeding													All
Road side feeding													Men & youth

SNNPR - Upper Gana

Crops (Meher and Belg seasons)	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Gender involvement**
Land preparation			M	M	W	W							Men
Planting				M			W						Men
Weeding					M			W					Men, women
Fertilizer application						M	M	W					Men , women
Weeding after fertilizer applic								W					Men , women
Harvesting										M	W	W	Men
Threshing										M		W	Men and women
Storage										M		W	Men, women
Livestock													
Purchase for rearing													Men
Purchase for fattening													Men
Collecting crop straws													women, men
Stall feeding													Men and women
Marketing													Men

M=Maize, W=Wheat and barley

VALUE CHAIN ANALYSIS

In each kebele, each group (men, women and young men) undertook at least two value chain analyses, these being selected by the group, while at the same time facilitators ensured that no value chains were repeated in the same kebele.

The value chains selected were the priority crops, either for food or cash, and livestock type. A total of 44 analysis were undertaken across kebeles including, 25 crops (Barley-2, Carrots-1, Enset-2, Faba Bean-6, Maize-1, Pepper=1, Potato-4, Teff-1, Sasula-1, Wheat-6) and 20 livestock (Cow=4, Donkey=4, Ox=4, Sheep=6, Poultry=2) (Table 8).

Table 8: Crop and livestock value chain analysis undertaken in response to gender priorities

Value chain[1]	Group	Amhara		Tigray		Oromia		SNNPR	
		Goshe Bado	Gudo Beret	Emba Harti	Tsibet	Salka	Ali-Sanbitu	Jawe	Upper Ganu
Crops	Men	Faba bean	Barley Faba Bean	Potato	Potato	Wheat	Wheat	Wheat	Wheat
	Women	Teff	Faba Bean	Wheat	Faba Bean	Barley	Pepper	Enset	Enset
	Young men	Wheat	Potato Wheat	Carrots	Sasula	Faba Bean	Faba Bean	Potato	Maize
Livestock	Men	Donkey	Donkey	Cow	Cow	Oxen	Oxen	Oxen	Oxen
	Women	Cows	Sheep	Sheep	Poultry	Cow	Poultry	Cow	Cow
	Young men	Sheep, donkey	-	Ox	Sheep	Sheep	Sheep	Sheep	Donkey

Each value chain analysis identified and prioritised challenges, coping strategies and opportunities across four main areas: input acquisition, crop or livestock production, storage, processing and marketing.

CROP PRODUCTION CHALLENGES

Many interrelated challenges were identified and prioritized across kebeles (Figure 7). Those mentioned most often included.

Input acquisition. Lack of seed of improved varieties was a major concern with most farmers who are presently using own, exchanged or market purchased grain. This included crops grown primarily food crops (Barley, Enset, and Maize); dual purpose food and cash crops (Wheat, Faba bean, Potatoes, Teff, Field pea) and those crops primarily grown for cash (vegetables).

Most farmers reported not being able to access agro-chemicals when required, especially agro-chemicals for weed and pest control. , Problems of adulteration, selling after expiration dates and failure to work effectively were often mentioned. Failure to work effectively could be due to poor application. At present cooperatives are providing fertilisers but often at unaffordable prices.

Production. Many farmers indicate they do not have sufficient draft animals and inadequate equipment with farmers resorting to sharing or borrowing oxen. This often results in late land preparation, late planting and subsequent yield losses.

Other serious problems mentioned across kebele included increasingly erratic rainfall and drought both between and within seasons, flooding in some areas, inadequate land (highlands being the areas with the highest population density) and destruction of crops by livestock.

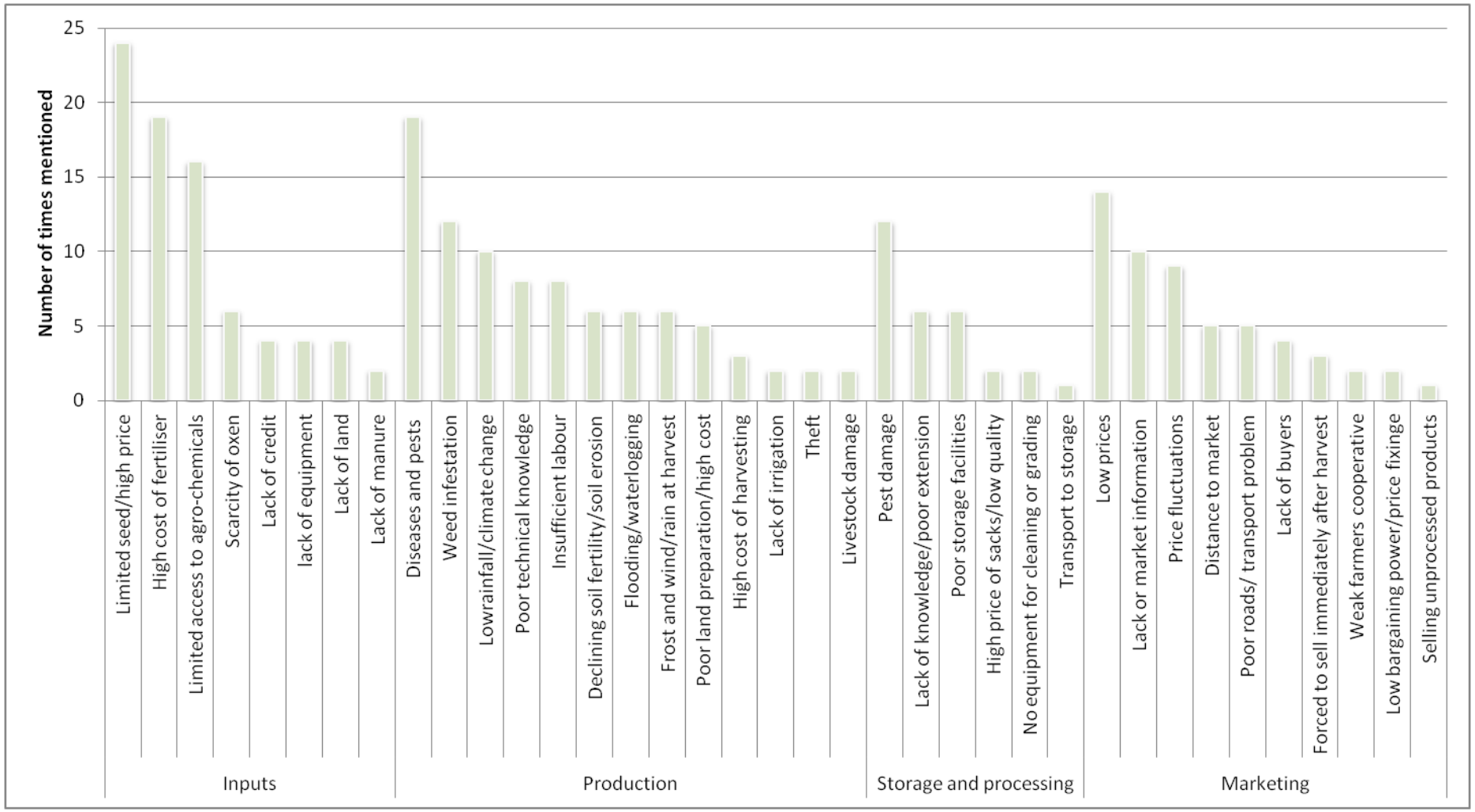
At the same time declining soil fertility and soil erosion is recognised as contributing to declining production. Although fertiliser is presently being supplied through kebele-based cooperatives and woreda-based cooperative unions, farmers indicate costs are high and consequently actual application rates are considerably less than those recommended.

Inadequate access to agro-chemicals has also led to problems of weeds, diseases and pest damage.

Storage, processing and marketing. With regards processing and marketing, serious constraints included: lack of crop storage facilities leading to post harvest pest and disease problems; lack of knowledge about processing and lack of processing equipment for instance harvesting, drying and grinding mills, which limited opportunity for adding value. At the same time concerns were raised about low market prices, inadequate access roads, poor transport facilities and sometimes low demand for farm produce. Farmers often sell their crop soon after harvest to avoid pest damage, but when prices are low. Early selling is also necessary to ensure timely loan repayments with late payments attracting high interest rate penalties. Little value addition was reported, with output prices being largely dictated by traders, who are often suspected by PCA participants of colluding to fix low prices.

Although not identified during the PCAs, household nutrition appears inadequate with diets lacking protein and other vitamins. Vegetables are largely grown for sale with little reported as being consumed locally.

Figure 7: Ranking of crop[1] challenges by different groups (number of times mentioned)



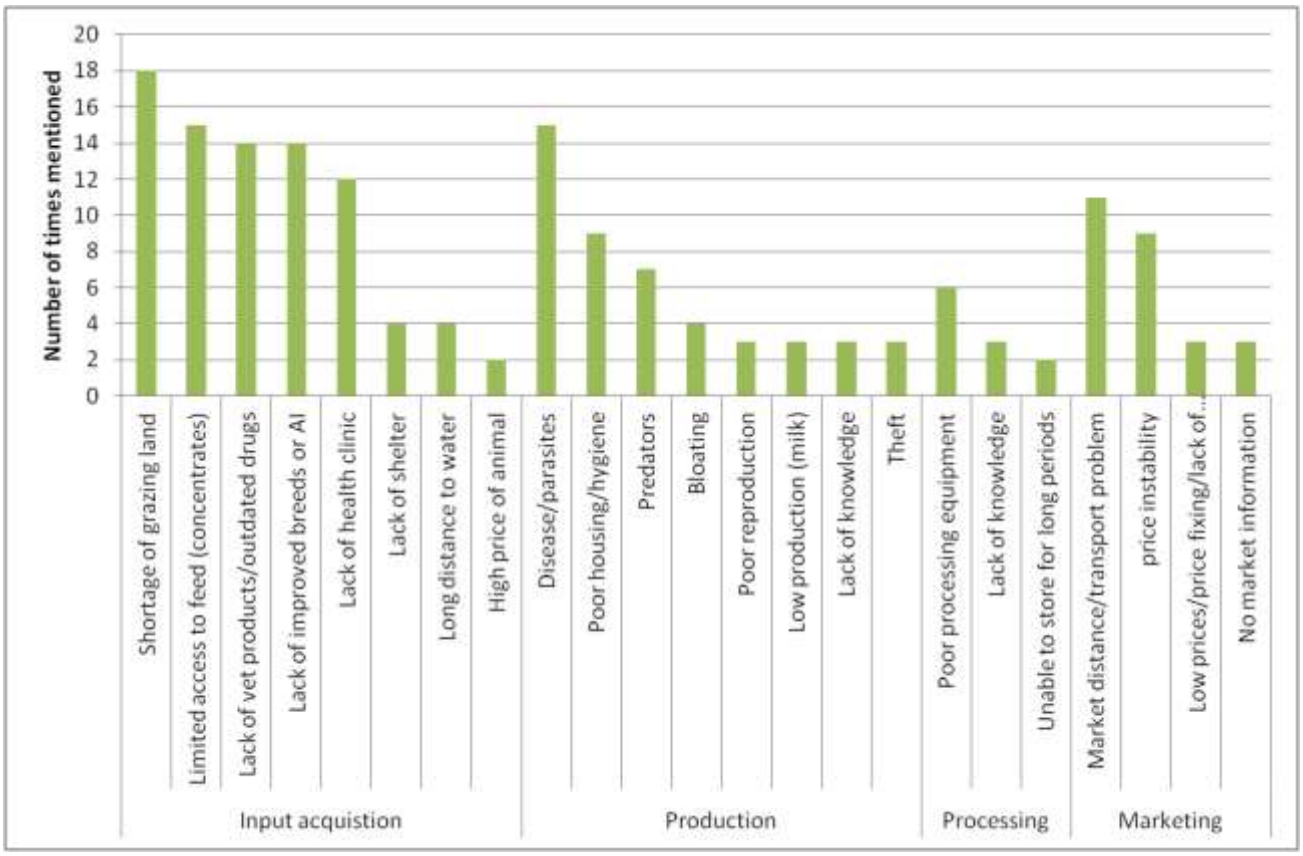
[1]Includes all crop value chains undertaken as shown in Table 8

LIVESTOCK PRODUCTION CHALLENGES

With regards livestock, shortage of grazing land and limited access to feed were major challenges for all livestock types with poor access to veterinary drugs and animal health services resulting in pest and disease problems leading to low production and high mortality rates (Figure 8). These were compounded by a lack of improved breeds, watering points and predators all mentioned as problems limiting production. Little value addition occurs other than for milk from cows used for making butter using traditional labour intensive processing equipment.

Most livestock sales are made to meet cash needs for purchase of agricultural inputs, credit repayments and emergency household expenditure. Low and unstable prices, price fixing and distance to market were the major challenges mentioned.

Figure 8: Ranking of livestock[1] challenges by different groups (number of times mentioned)



[1]Includes all livestock value chains undertaken as shown in Table 8.

OPPORTUNITIES FOR ADDRESSING CHALLENGES

CROPS

IMPROVING INPUT SUPPLIES

Improving availability of improved seed varieties. Opportunities were identified for

i) Kebele based seed production for priority crops.

Interventions would need to consider whether this should be supported through kebele cooperatives, farmer groups or individuals. This would require training in seed production, the availability of foundation or certified seed to be ascertained, inspection during growth and after production, appropriate certification or other quality control mechanisms such as quality declared seed. Marketing of seed would also need to be addressed, whether this can be achieved through sales within the kebele, to kebele cooperative or linked to existing seed companies.

Improving access to agro-chemicals for weed, disease and other pest control. Opportunities were identified for

i) Linking farmers and private agrochemical dealers in towns. This would need to address issues relating to supply at woreda, zone and regional levels and consider supporting farmer agents in kebeles linked to agro-dealers in towns,

ii) Improving the efficiency of use of agro-chemical use through support for sprayer contractors by providing sprayers to individuals on credit, providing training in safety and effective application. Such an initiative could be linked to micro-enterprise development and micro-credit agencies

iii) Supporting Kebele-Based "plant doctors" being individuals trained in the identification of pest and disease identification and their treatment.

IMPROVING PRODUCTION

Improving land preparation and reducing cost. Opportunities identified included

i) Improving efficiency of draft animals and ensuring suitability of equipment

ii) Improving feeding during peak work periods, although conflicting feed demands between cows and oxen may need to be resolved.

iii) Introducing reduced tillage utilising animal row drawn planters and direct planting techniques (conservation agriculture). This would also need to consider where to source equipment? Who owns it? Who repairs it? How to link farmers with fabricators

iv) Ensuring animal health is improved (See livestock interventions)

Improving soil fertility and reducing soil erosion. Opportunities were identified for

i) Increasing use of organic fertilisers (compost, manure, agroforestry etc.), for instance using Inoculants for Faba Bean and other legumes
ii) Improving in-field soil and water management (planting on the contour, ridges, beds, etc)
iii) Improving between-field soil conservation measures (contours, rain water harvesting ditches, tree planting)
iv) Linking with watershed protection programmes initiated by woreda and kebele administrations for the protection and/or rehabilitation of kebele watersheds

v) Initiating dialogue with wood processing factories for safe felling and improved soil and water conservation structures (Tigray). This could consider "payment for watershed services" schemes where users benefiting from watersheds contribute to their protection.

IMPROVING STORAGE, PROCESSING AND MARKETING,

***Reducing post-harvest pest losses due to poor storage*.** Opportunities were identified for

i) Reducing weevil and other pest damage through ensuring grain storage facilities are effective. This included introducing low cost storage such as triple bagging systems

ii) Ensuring access to appropriate chemicals for pest control

iii) Introducing bonded warehouses for holding crops until crop prices increase

Improving processing and adding value. Opportunities were identified for

i) Improving household nutrition through balanced diets, increasing the consumption of vegetables and fruit. This could be achieved by involving Kebele-DA health services in increasing awareness and designing improved nutrition recipes; training kebele selected and based nutritionists to support women groups in nutritional improvements, providing support on vegetable and fruit tree production

Improving marketing. Opportunities were identified for

i) Improving links between farmers and traders in particular building trust between farmers and traders and finding out from traders what their concerns are and what they are looking for.
ii) Selling in groups rather than individually to improve farmer bargaining power -bulking produce rather than individual sale;
iii) Grading before selling and marketing different grades at differential prices Improving market information including use of mobile phones;
iv) Having price information available at Kebele HQ updated weekly
v) Selling crops when prices are high

LIVESTOCK

Improving livestock feeding. Opportunities were identified for:

i) Improving use of existing crop residues, based on existing recommendations and/or researcher knowledge
ii) Improving use of annual fodder crops
iii) Introducing or improving use of existing fodder tree species
iv) Improving availability of purchased feeds
v) Zero grazing / feeding of animals at key times, free grazing being seen as a problem for both animal health and growing fodder trees on field boundaries and contours
vi) Introducing tree fodder species close to homes and along contours in arable areas, where free/communal grazing does not occur.
vii) Linking farmers to animal feed suppliers, through kebele based farmer/agents

Improving livestock health. Opportunities were identified for:

i) Improving availability of vet supplies and vet advisory functions through linking farmers to agro-vet suppliers or stockists and vets. This could be undertaken by providing support for Kebele Animal Health Workers (CAHWs) operating as small businesses after training in basic vet procedures and small business management. Each could be provided with animal health kits to be restocked as products are used. Selection of CAHWs could be undertaken by kebele innovation platforms. CAHWs to be guided by vets in public and private sectors
ii) Improving housing for all livestock types, combined with zero grazing for intensive production, where feasible

Improving animal breeds. Although this was a request by farmers, feed and veterinary concerns should probably be addressed first. Notwithstanding opportunities were identified for

i) Introducing improved sires or Artificial Insemination services.
ii) Introducing hardy local breeds

In the case of improved sires options could be either through provision of the sire to an individual member of a farmer group. He / she would be required to provide opportunity for use by other members of the group but be fully responsible for the sire feed and health or ii) the FTC. Experience has shown that option i) is likely to be more acceptable and effective.

Improving processing and adding value. Little value addition occurs other than for milk, with this being particularly important for women. Opportunities were identified for:

i) Improving butter processing equipment for women.
ii) Improving livestock fattening schemes aimed at peak demand periods for Easter and New Year

***Improving livestock marketing*.** It was noted that many livestock sales are made to meet cash needs for purchase of agricultural inputs or credit repayments and household expenditure. As with opportunities for improving crop marketing opportunities were identified for:

i) Improving links between farmers and traders, in particular building trust between farmers and traders and finding out from traders what their concerns are and what they are looking for.
ii) Selling in groups rather than individually to improve farmer bargaining power
iii) Having price information available at Kebele HQ updated weekly
iv) Selling livestock when prices are high,

WATERSHED PROTECTION, WATER SOURCES AND OPPORTUNITIES

Protection of watersheds is presently receiving priority attention by the Ministry of Agriculture with kebeles being supported to plan and implement watershed management plans. This follows a process (Gudo Beret woreda director, pers com) that includes:

- The Woreda team providing a base maps and options for protection measures
- The kebele General Assembly agreeing on a planning team
- A biophysical and socio-economic survey being undertaken
- Interventions being agreed by the kebele General assembly
- A development map being produced and implementation starting
  - Phase 1- nursery established,
  - Phase 2 - terrace making, rain water harvesting structures,
  - Phase 3 – monitoring and evaluation

- Grouping of farmers for agricultural activities, both cropping and grazing.
- Biological conservation – tree planting, garden development
- The introduction of bye-laws by kebele so if damage is done, compensation can be paid

Most kebeles indicated concerns about declining rainfall, long dry spells and periodic flooding. PCA discussions in the four kebeles in SNNPR and Oromia indicated a number of sources of water, namely

- Piped water to village taps for domestic use, mostly Government provided and maintained through a user charge being levied. (Ilu-Sanbitu, Salka, Jawe and Upper Gana). These were seen as mostly reliable but occasionally not having water.
- Rivers/streams, used for domestic purposes, livestock watering and sometimes irrigation, through individually owned pumps and / or kebele owned Government constructed diversionary weirs to fields through a canal system (Ilu-Sanbitu, Salk)
- Ground water (individually owner shallow wells) with water at 5-10 metres used for livestock watering, sometimes irrigation and occasionally for domestic supplies when other sources are not available. Extraction is usually by rope and bucket. In some areas the use of a hand operated rope-washer pump had been promoted by NGOs but those observed were no longer functioning (Ilu-Sanbitu, Jawe).
- Small ponds sometimes with plastic lining collecting rain water run-off for small scale irrigation, often without water in the dry season (Ilu-Sanbitu, Salka, Upper Gana)
- Small dams / large ponds used primarily for livestock watering and occasionally for domestic purposes when other potable water sources fail. (Ilu-Sanbitu, Salka, Jawe and Upper Gana)
- Springs often protected and maintained by a kebele irrigation committee after initial support from an NGO and used for irrigation, domestic purposes and livestock watering (Upper Gana, Emba Hasti). These often dry up in the dry season.
- Collection of rain-water run-off from house roofs for multiple purposes. Although this was mentioned, little evidence was seen of any such rain-water harvesting in any kebeles. (Upper Gana).

Most schemes had been constructed some time ago and although functioning, rehabilitation and capacity increase was suggested by kebeles.

In some kebeles notably Emba Hasti and Tsibet there were concerns about increased soil erosion from hills due to destruction of existing soil and water conservation measures as a result of cutting of eucalyptus trees by a local chipboard factory.

Clearly the planning and implementation of watershed protection plans provide opportunity for Africa-RISING support, should this be required. At the same time each kebele has its own challenges and opportunities regarding development of its water resources. Some require more efficient use or rehabilitation of existing resources while new opportunities may become evident. More detailed interaction with kebele kebeles and DAs and woreda specialists is required to ensure they meet kebele priorities.

THE WAY FORWARD

REINFORCING PARTICIPATORY RESEARCH AND EXTENSION

PREA processes utilize a four phase approach, the first of which, PCA (or kebele engagement and social mobilization) facilitating kebeles own analysis of their situation has now been undertaken. Early action has also taken place to introduce farmer testing (on-farm research and demonstration) of improved varieties and management practices for faba bean, potatoes and wheat with nine farmers in each kebele now hosting these trials. These will need to be supported by facilitation of mid and end-of-season evaluations as indicated in ANNEX 1.

Notwithstanding, there remains a need for further kebele action planning on other priority crops and livestock to determine what further actions can now to be considered in light of the PCAs. Suggestions based on priority crop ranking by gender and value chain analysis are shown in Table 9. Crops could include barley, field pea, lentil and teff in Amhara, Tigray and Oromia, emmer wheat in Oromia and enset and maize in SNNPR. With regards livestock challenges relating to feed and animal health opportunities occur in all kebeles to target gender and farmer typologies: oxen being most important for men; cows (milk and butter), sheep and poultry for women; sheep and transport (donkeys) for young men with poorer farmers being more likely to benefit from interventions aimed at sheep and poultry.

Table 9: Gender priorities for crop and livestock priorities by kebele

	Amhara		Tigray		Oromia		SNNPR	
	Gudo Beret	**Goshe Bado**	**Emba Hasti**	**Tsibet**	**Salka**	**Ali-Sanbitu**	**Jawe**	**Upper Ganu**
Crops								
Barley	MWY	MWY	MWY	MWY	MWY	MWY	-	-
Carrot	-	-	WY	Y	-	-	-	-
Chick pea	-	MY	-	-	-	-	-	
Emma wheat	-	-	-	-	MW	WY	-	-
Enset	-	-	-	-	-	-	MWY	MWY
Faba bean[1]	MWY	MWY	MWY	MWY	MWY	MWY	MWY	MWY
Field Pea	MY	-	MW	Y	WY	MWY	-	-
Lentil	MWY	Y	MW	W	-	-	-	-
Maize	-	-	-	-	-	-	MY	MWY
Pepper	-	-			-	W	-	-
Potato[1]	MWY	-	M	M	MWY	Y	MWY	-
Sasula	-	-	MY	MWY	-	-	-	-
Teff	-	MWY	-	-		M	MWY	MWY
Wheat[1]	MWY	MWY	MWY	MWY	MWY	MY	MWY	MWY
Livestock								
Ox	MY	M	MY	MY	MWY	WY	MWY	MWY
Cow	MWY	MW	MW	M	MWY	WY	MWY	MWY
Sheep	MWY	WY	WY	MWY	-	M	-	-
Donkey	-	M	M	-	MWY	M	MWY	M
Poultry	WY	WY	W	-	-	-	-	W

[1]On-farm trials/demonstrations already underway M=Men, W=Women, Y-Youth

If R&D activities are to be owned by the kebele, two key pre-conditions need to be in place, real motivation and enthusiasm by the kebele, and effective kebele organisations which can support the development process and take it forward. This requires committed involvement by CBOs in each kebele in selecting their own representatives for participation in R&D activities. At the same time development partners including local kebeles and their leaders, research and development organisations and hopefully the private sector need to ensure a coordinated action plan to which they all agree, implement and monitor. This is where the establishment of operational level innovation platforms (IPs) has an important role to play (ANNEX 2). The way forward needs therefore to consider a series of interrelated activities including local kebele and partner capacity building that includes not only production and marketing interventions but also leadership and communication training and policy advocacy that will support an effective operational IP.

Key to scaling up successful interventions will be farmer to farmer dissemination of proven technologies. Hence the emphasis placed on kebele led CBO selection of lead farmers for crop and livestock interventions and kebele seed producers. Lead farmers need to be supported to conduct on-farm testing to generate solutions to the production constraints and opportunities identified; while kebele seed producers need to be supported to produce quality seed of improved crop varieties. These crop varieties need to be sourced from both national and international research institutes for inclusion in the project programme. A short list of interventions and the institutions that might be involved is shown by kebele (Table 10), which should be looked at in conjunction with Table 9.

Table 10: Possible interventions that could be prioritised in relation to crop and livestock priorities

	Amhara		Tigray		Oromia		SNNPR	
Intervention areas	**Gudo Beret**	**Goshe Bado**	**Emba Hasti**	**Tsibet**	**Salka**	**Ali-Sanbitu**	**Jawe**	**Upper Ganu**
Crops								
Improving input supplies								
Kebele seed production	1	1	1	1	1	1	1	1
Linking farmers to agro dealers	2	2	2	2	2	2	2	2
Improving use of pesticides	3	3	3	3	3	3	3	
Improving production								
Improving land preparation	4	4	4	4	4	4	4	4
Improving soil fertility, reducing erosion	1	1	1	1	1	1	1	1
Improving storage and processing	2	2	2	2	2	2	2	2
Improving household nutrition	1	1	1	1	1	1	1	1
Improving marketing	3	3	3	3	3	3	3	3
Livestock								
Improving livestock feeding	1	1	1	1	1	1	1	1
Improving livestock health								
Linking farmers with agro-vet suppliers	1	1	1	1	1	1	1	1
Supporting CAHWs	2	2	2	2	2	2	2	2
Improving breeds	4	4	4	4	4	4	4	4
Improving processing (milk)	1	1	1	1	1	1	1	1
Improving marketing	3	3	3	3	3	3	3	3
Watershed protection, improving access to water								
Linking with kebele initiatives	1	1	1	1	1	1	1	1

BUILDING PARTNERSHIPS AND CREATING INNOVATION PLATFORMS

At the completion of each PCA, participants met to discuss the way forward. Central to this was the need to build partnerships between kebele kebeles, development agents and researchers. The concept of innovation platforms was discussed and agreement that these would be further considered after the present busy time for farmers with dates being agreed in some kebeles for early August.

Based on the interventions identified for meeting kebele challenges and opportunities, there are roles for a number of partnerships including those who participated in the PCAs (Table 11).

Table 11: Partnerships for development

Partners for Woreda and Kebele innovation platforms			
CG centres	**Universities and Research Centres**	**Extension and Development Agents / Agencies**	**Private sector**
ILRI, CIAT, ICARDA, ICRAF, IMWI, CIP, CIMMYT	**Amhara** Debre Birhan University Debre Birhan Agricultural Research centre **Oromia** Medawolabu University Sinana Agricultural Research Centre **SNNPR** Wachmo University Areka Agricultural Research Centre Worabe Agricultural Research Centre **Tigray** Mekele University Alamata Agricultural Research Centre Mekele Agricultural Research Centre	Woreda and Kebele Depts. of Agriculture NGOs Small business development agencies	Agro-vets and agro-dealers Farmer Cooperatives and Union Micro-finance organisations Equipment fabricators and repairers

ANNEX 1: PROTOCOLS FOR MID AND END-OF-SEASON CROP EVALUATIONS

In each of the participating kebeles, two crop performance evaluations (Field Days) should be carried out during the season, the first at mid-season (flowering) and the second after harvest and should include the preparation of food items of the crop varieties tested.

Objectives of the evaluations

- To gain an understanding of farmer's crop evaluation criteria of the crops, for men, women and youth, separately
- To record farmer perceptions and feedback of the technologies being tested
- To strengthen both the woreda and kebele level "Innovation Platforms"
- To build community understanding and support for the on-going R&D activities. This should include feedback from the PCAs, especially crop/livestock rankings and value chain analysis.
- To identify other interventions in line with the PCAs

Process

Mid- and End-season evaluation

- Involve the "Innovation Platform" in the planning and implementation of the two evaluations (Field Days)
- Ensure that the community and kebele / woreda officials are aware of and if possible become involved in the Field Day
- Select 1 or 2 of the best participating farmers' demonstration plots for both, crop and forage demonstrations
- Host farmer of the test plots should be invited to describe the new technology being tested, his/her experiences and advantages and disadvantages of the crop. For the end-season evaluation, the yield data will be required from the participating farmer.
- Participants should be asked to split into groups (men, women, youth) and to prepare a list of criteria that they can use for assessing the crop
- Each group members should be asked to rank the crop varieties against their criteria (1=worst; 2=moderate; 3=good; 4=best). The total will reflect overall group preference.
- Finally the group spokesperson should presents the result for discussion by all participants

End-season evaluation

- Ensure that representative samples of the grain / tuber and the residues are taken from each plot, including the farmers' own plot. This may need to be done during the actual harvest, prior to the end-season evaluation
- Ask the farmer to prepare food from each of the crop varieties tested
- Undertake a participatory cost-benefit analysis comparing the most promising new crop technology and the Farmer Practice plot, using farm-gate prices of produce less input costs of seed, fertilizer, chemicals and labour. Consider the value of the main produce (grain) and the crop residue for livestock use.

ANNEX 2: INNOVATION PLATFORMS

What is an innovation platform?

An innovation platform is a stakeholder forum established to facilitate interactions and learning among stakeholders often selected from a commodity chain or system to undertake a participatory diagnosis of problems, joint exploration of opportunities and investigation of solutions leading to the promotion of innovation along a targeted value chain.

Innovation platforms can operate at two levels – an operational level and a strategic level.

Importance of innovation platforms

Innovation in agriculture is the process of ensuring that a new product, technology or management practice is put into use. This should lead to economic and social benefits, essential for agricultural development for food security, poverty reduction and income generation.

For many years innovation was seen as the main responsibility of researchers, but produced little benefit as many new technologies were never adopted. With the frustration arising from this non-adoption, researchers often engaged with extension delivery services and farmers. Although this helped it did not go far enough. IPs can provide a useful forum to get all players to interact and play their role in the innovation process.

Types of innovation platform

Although agricultural development often takes place in rural and remote locations, it is governed and managed by policies made both locally and at regional or central locations. In general terms these equate to operational and strategic levels.

IPs at a strategic level are forums established at higher levels of governance and management hierarchies, where strategies are determined for agricultural development. Strategic IPs could be established at national or sub national levels covering regions, districts, or local government as the local situation determines. Strategic IPs might target chief executives of stakeholder organisations and discuss strategies to promote innovation along value chains or systems. They also facilitate the operations of IPs operating at implementation levels.

IPs established at grass roots levels source membership from the same stakeholders targeting front line staff who have the mandate of their different organisations. They participate in the activities of the platform because of the relevance of their expertise to address specific questions. This IPs at local level could be regarded as Innovation Clusters, with a number of clusters responding to the same input and output market

Both strategic and operation IPs lend themselves to promoting “Integrated Agricultural Research for Development”.

A strategic level IP can operate at Woreda level with operational level IP at Kebele level regarded as Innovation Clusters.

How to establish an innovation platform

Innovation Platforms can be promoted in different ways. However to be functional and effective the IP must have cohesion, uniting stakeholders with potential to meet the interests of all the participants.

An operational *kebele* level IP

Responsibilities

- Co-ordination of development activities
- Identify challenges and opportunities for agricultural innovation / development
- Encourage interaction between public, private, NGOs and CBOs
- Entry point of for all agreed interventions
- Arrange /coordinate field days – evaluations – training

Membership and leadership

Membership	Leadership	Accountability

• Representatives from key CBOs
• Kebele chairman and Administrator
• Woreda representative
• Development agent(s) (DA)
• Africa RISING Site Coordinator
• Researchers
• Respected kebele leaders
  - Teacher
  - Priests
• Input suppliers (crops and livestock)
• Traders of main products sold
• Other to be identified
	• Chairperson (local farmer)
	• Secretary DA
	• Facilitator (Africa RISING)
	• Quarterly meetings based on PREA learning cycle
	  - Agree on priorities and action plans
	  - Select groups and farmers for implementation
	  - Organise field and assessment days
	  - Monitor progress
		• Report to and from CBOs in the kebele
		• Represent kebele on a woreda forum / platform

Role of kebele IP and farmer organisations with regard agreed farmer testing and demonstrations

- Adopt the programme of testing / demonstrations into local activities
- Appoint a person (the host farmer) to be responsible for reporting on progress and identifying issues/problems with regards the demonstrations
- Encourage participation by other farmers in trying the new practices
- Arrange field days to assess new practices
- Evaluate at mid and end-of-season
- Plan for the new season

Role of selected farmers

- Undertake the testing / demonstration on behalf of the CBO
- Manage the testing / demonstration based on the agreed design/protocol with support from the Development Agent
- Ensure the demonstration is available for use for training as a Farmer Field School and for field days

Protocols for incorporating these key principals are presently being considered.

ANNEX 3: KEBELE PCA REPORTS

ANNEX 3.1: GUDO BERET

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR GUDO BERET

Gudo Beret is administratively located in Basona Worana woreda, North Shewa zone of Amhara region. It is located 32 km north of the zonal town, Debre Berhan. The rainfall distribution is bimodal. In the kebele, there are 1502 households of which 1045 are male- and 457 female-headed households. According to the PCA findings, about 25 livelihood sources were identified in the kebele (Table 1). These can be categorized as off farm sources (trading, carpenter, making local drinks, remittance, and casual labour), crops (teff, wheat, sorghum, vegetables, etc.), livestock (sheep, goats, poultry) and eucalyptus trees. There is an increasing trend for all off-farm sources and few farm enterprises like teff and wheat.

There is much variation among men, women and youth groups with regard to crop preferences for cash. However, the overall crop preference ranking for cash shows that potato, garlic and lentil were first, second and third, respectively. On the other hand, barley, wheat and faba bean were ranked first, second and third as food priority crops, respectively (Table 2). A similar result for livestock preference is given in Table 3.

PCA participants at Gudo Beret Kebele identified about 20 institutions that they consider important for their agricultural activities which are either based inside or outside the kebele. They were ranked according to their importance in terms of their contribution for agricultural activities in the kebele by the three groups, men women and youth. Please refer the three sub-tables (Tables 4.1, 4.2, and 4.3) under Table 4 for further details.

The three groups (men, women and youth) have formed their annual farming calendar in the kebele and these are given in Tables 5.1, 5.2 and 5.3. These calendars show different activities both for crop and livestock and the participation by gender and age.

To differentiate the farm households in the kebele in three different wealth categories (poor, average and better-off), different criteria (farm size, number of different livestock types, house type and number, land size under eucalyptus trees, use of credit, hiring labor) were set by the three social categories (men, women, youth). The main criteria differentiating them were similar across the three categories but the quantities of the resources considered varied. Based on the criteria set, however, the overall results of the three categories showed that the farm households can be categorized as 41% poor, 43% average and 16% better-off (Table 6).

Each social category undertook at least one crop and livestock value chain analyses, based on the groups preference. The value chains selected were the priority crops, and livestock either for food or cash, and draft power. A total of 7 analyses were undertaken across the three groups including, 4 crops (Barley, Faba Bean - 2, Potato, and Wheat) and 2 livestock (Donkey, Sheep) (Tables 9-15). Each value chain analysis has identified and prioritized challenges, coping strategies and opportunities across four main areas: input acquisition, crop or livestock production, storage, processing and marketing.

Major crops and livestock types that require interventions were also identified and are listed on Table 7. The major intervention types that were identified and prioritized are listed on Table 8 for both crops and livestock.

Table 12: Livelihood dynamics

Livelihoods	Gudo Beret			All	Percentage		
	S	I	D		S	I	D
Bee keeping		1		1	0%	100%	0%
Buying and selling (trading)		3		3	0%	100%	0%
Carpenter		1		1	0%	100%	0%
Casual labour		2		2	0%	100%	0%
Eucalyptus		1		1	0%	100%	0%
Fenugreek		1		1	0%	100%	0%
Making and selling local drinks		2		2	0%	100%	0%
Remittance		1		1	0%	100%	0%
Teff		1		1	0%	100%	0%
Wheat		3		3	0%	100%	0%
Goat	1			1	100%	0%	0%
Sorghum	1			1	100%	0%	0%
Transport (equines)	1			1	100%	0%	0%
Vegetables	3		2	5	60%	0%	40%
Barley		3	1	4	0%	75%	25%
Cow for milk	1	2		3	33%	67%	0%
Fattening (livestock)	1	1		2	50%	50%	0%
Chick Pea			1	1	0%	0%	100%
Faba bean			3	3	0%	0%	100%
Field pea			3	3	0%	0%	100%
Poultry			2	2	0%	0%	100%
Rough pea			1	1	0%	0%	100%
Potato		1	2	3	0%	33%	67%
Sheep		1	2	3	0%	33%	67%
Lentil		1	1	2	0%	50%	50%

Table 13: Crop preferences

	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Barley	7	7	6	7	1	1	1	1
Wheat	4	6	5	5	2	2	2	2
Faba bean	4	5	4	4	3	3	3	3
Field Pea	3	4	3	3	4	5	4	4
Lentil	1	3	2	2	5	4	5	5
Linseed	5			5	6			6
Potato	2	1	1	1	7	6	6	6
Garlic		2		2		7		7

1-highest

Table 14: Livestock preferences

	M	W	Y	All
Overall				
Ox	1	4	3	3
Cow	2	3	3	3
Sheep	3	2	2	2
Donkey		5		5
Poultry	4	1	1	2
Bees			5	5

1-highest

Table 15: Institutions

Table 4.1: Men

In the community	Rank	Comment	Outside the community	Rank	Comment
Kebele administrative office	1	Almost all activities are facilitated by it	Debre Berhan Agricultural Research Center	1	They serve the local community well but they did their experiment only at the roadside.
Cooperatives	2	Effective imputes supply	SUNARMA-	1	
Yemisrach Saving and credit association	3		Basso Agricultural office	1	
Primary School	3		Amhara credit and saving institution	2	
Irrigation cooperative	3		Amhara Forest enterprise	2	
Health post	4		Amhara improved seed enterprise	2	
Eddir	5		Debre Berhan University	2	Give training about mushroom production
Church	8		AMELD	3	
Nursery site	8		SLM	3	
Youth association	8		CARTER- Center	3	
Women association	8		AGP	3	

Table 4.2: Women

Inside the community	Rank	Outside the community	Rank
Hope child development ass	1	Agricultural research center	2
Kebele agri. Office	1	Micro & small scale enterprise	1
School	1	Amhara credit & saving association	1
Edir	3	Wereda bureau of Agriculture	2
Misrach saving & credit association	1		
Church	3		
Health clinic & extension	1		
Community policing	1		
Kebele Administration	1		
Irrigation association	1		

Table 4.3: Youth

Institution inside community	Rank	Institutions outside community	Rank
Tessfa Birhan (NGO)	2	Amhara saving & credit association (ACSI)	2
School	1	Debre Birhan Agricultural Research Centre	1
Health center	1	Woreda administration office	1
Church	1	Woreda agricultural office	2
Keble agricultural office	1	Woreda justice office	1
General cooperative	2	Sunarma (NGO)	3
Yemesirach saving & credit association	1		
Keble administration	1		
Police office	2		
Irrigation association	3		
Water supply office	3		
Ider (self-help social organisation)	2		
Iqeb (self-help social organisation)	2		

Table 16: Annual calendars

Table 5.1: Men

Activity crops	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
-Weeding **(M+F)**								x				
-ploughing (M)												
-Compost preparation **(M+F)**												
-harvesting **(M+F)**												
-collecting hays **(M+F)**												
-harvesting bean, barley**(M+F)**												
- harvesting wheat **(M+F)**												
-Collecting straws **(M+F)**												
-Crashing **(M+F)**												
-sowing seeds **(M+F)**	X											
-Soil and water Conservation works **(M+F)**		X	X									
-compost dispersal **(M+F)**				x	x							
-potato collection and planting**(M+F)**						x		x				
-Earthing up of potato and other seedlings**(M+F)**								x				
-Accessing the presence of insect pest on the farm**(M+F)**												
-Arranging suitable drainage system in the farm**(M+F)**												

Table 5.2: Women

	Activity	Jan	Feb	Mar	Apr	May*	Jun*	Jul	Aug	Sep	Oct*	Nov*	Dec*
Crop	Land preparation												
	Manure application												
	Planting/sowing												
	Weeding												
	Bird keeping												
	Harvesting												
	Gathering the harvests												
	Threshing												
Livestock	Herding animals												
	Fattening												
	Follow up of the animal health												
	Sale												
	Feed collection & storage												
	Feed purchase												
	Housing maintenance												

* The peak months of the year for agricultural activities.

Table 5.3: Youth

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Male or female participating
Crops													
Ploughing	X	X	X	X	X								**Male**
Planting	X				X	X	X						Male
Weeding & hoeing		X	X				X	X					Male & female
Harvesting						X				X	X	X	Male & female
Threshing	X					X						X	Male & female
Livestock													
Fattening	X	X	X							X	X	X	Male & female (Most of the works of fattening is done by females - Fattening is done targeting holydays (Christmas & Easter)
Bee keeping						X			X	X			

NB. The crop calendar is both for irrigation and rainfed

Table 17: Farmer profiles

	Criteria	Poor	Average	Better
Men	Size of farm land	<2 ha	2-3 ha	< 3 ha
	Number of domestic animals			
	Ox	1	2	³ 3
	Cow	1	1	³ 2
	Goat	2	1	³ 10
	Sheep	2	10	³ 15
	Chicken	4	5	³ 8
	Donkey	0	6	³ 2
	Eucalyptus tree farm size	0.125 ha	0.25 ha	0.5 ha
	Number and type of house	1 grass roofed house Or 2 grass roofed house	1 Tin wire shaded & 1 grass roofed & 1.Shelter for animal	2 Tin wire shaded & 2 grass roofed & 1 Shelter for animal
	Food security	Who can feed for 6-8 month	Who can feed for 12 month	Who can feed for 12 month and bring for market also
	Labour force	Who work for himself and for wealthiest with salary	Who work their jobs cooperatively	Who pay to somebody with money, cereals after they have performed their job.
	Cash from crops & livestock	Selling all his/her products without an interest/any need	Selling his/her products without any market assessment	Selling his/her products when there is high market demand
	No in each category (out of 100)	25%	62.50%	12.50%
Women	No of ox	-	1	Greater than 2
	No cow	-	1	Greater than 2
	No of sheep	5-8	Apr-15	>15
	Donkey	0	1	2
	Farm size (ha)	0.5	0.75-1.25	1.5-3.00
	Housing	1 grass thatch roof (common for human and livestock)	1 metal sheet roof 1 grass thatch roof	2 metal sheet roof 1 grass thatch roof
	Health status	Mostly affected by malnutrition related disease and hygiene	Medium	No problem with its hygiene and afford medication
	Eucalyptus ownership	0-10 plants	50-100 plants	Up to 1000 plants

	Criteria	Poor	Average	Better
	Feeding frequency	1-2 times	3 times	4 times
	Respect and Trust / Community acceptance	no	Medium acceptance	Highly accepted
	No/ in each category (out of 100)	53%	31%	15%
Youth	Farm size (ha)	0.5-1	1.25-2	2.25-4
	Number of draft oxen	0	2	>3
	Number of cows	0	1	>1
	Number of sheep	1-5	5-10	>16
	Equines	0	1-2	>2
	Eucalyptus tree (ha)	0-0.0625	>0.0625-0.25	>0.25
	Input usage	Only credit	Credit & direct purchase	Only direct purchase
	House (Type & number)	1 house with grass roof	1 house with corrugated sheet of iron and 1 house with grass roof	>2 house with corrugated sheet of iron
	No in each category (out of 100)	45%	35%	20%
	Parentage in each category	41%	43%	16%

Table 18: Intervention areas (crops and livestock)

Crops	Gender
Barley	MWY
Faba bean[1]	MWY
Field Pea	MY
Lentil	MWY
Potato[1]	MWY
Wheat[1]	MWY
Livestock	
Ox	MY
Cow	MWY
Sheep	MWY
Poultry	WY

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 19: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 20: Barley value chain analysis (men)

Crop type	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Seed Fertilizer Herbicide Sprayer	Limited supply of improved seed	1	Use of local seed and getting low yield Exchange with neighbouring farmers but at high rate (1 to 2)	Availability of cooperatives for seed production (started on potato same cab done for barley) Demonstration sites of research can be used as an entry point for multiplication and awareness creation
	High cost of fertilizer	1	Use of compost Planting without fertilizer and earn low yield	Increasing effort to use compost but some soils not appropriate for compost Eg black soil
	No credit arrangements for inputs	2	Availability of credit association but gives credit to members only	Interest of private companies to intervene on barley inputs
	Quality of herbicide poor/expired	3	Late or no application of herbicide and earn low yield	Controlling of traders on importation of quality herbicides
	Shortage of sprayers	4		
Production				
Land preparation Planting Weeding Harvesting Threshing	Climate change (irregularity of rainfall)	1	Replant another crop (wheat, faba bean,)	Use of early maturing varieties from research
	Aphides and rust	2	Low yield	Crop rotation to reduce weed population Use of tolerant varieties from the research
	Poor technical/cultural knowledge	3		Training by DAS, Experts in FTCs
	Frost, and wind during maturity	4	Use of early maturing varieties but earning low yield	
	Poor land preparation	5	Incur additional expenses for herbicide	
	Weed infestation	6	Early planting	
Storage				
Local store, Sacks	But no excess yield to stored			
Processing				
Injera, roasted grain Local beer (Tela) Kinche, beso	But the kolo making could be increased as is the case for debresina and Tarma Ber No grading and packaging			
Marketing				
	Barley is the main stable food and we sale less		There is some temptations to use barley as cash crop due to price fluctuation of pulses (main cash crops)	Prices are relatively stable for barley

Table 21: Faba bean value chain analysis (men)

Faba bean	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Improved variety	- Lack of suitable improved variety for different soils	1	-using seeds what we have in the locality -seed exchange trend in the locality -using compost for farms which found nearby otherwise fertilizer for the far one	- presence of saving and credit institution - there is high willingness to use fertilizer in many people - Presence of cooperatives -willingness to use faba bean in the community -- Forming groups
	- Scarcity of oxen- - absence of land preparation	2		
Pesticides	Lack of money to purchase herbicides	3	-sowing lately	
Manure	- Problem on accessibility (water + Material) - Transportation	4	- transportation by donkey -working cooperatively - using all resource effectively - collecting weeds for row material	
"HIYAW" Fertilizer	- Scarcity/ access of it	4		
Artificial Fertilizer	- Lack of money to purchase	5	-Sowing without fertilizer	
Production				
	-presence of unfertile soi	1	- using compost	-presence of different soil types
	-hand weeding is time consuming and high labour	2	-sowing early by considering the time of rain coming -	- availability of development agents near by Presence of new products of farm equipments
	-soil erosion and degradation	3	-terracing	- presence of willingness to plant different types of plant species
	- Shortage of rainfall / unusual distribution - Frost	4		
	- Shortage of labour force during harvesting	5		- working in group during harvesting "DEBO"
	- Weed infestation	6		
Storage				
-	-Weevil -Insect pest -Rat -Termites -Fungus	3 4 2 1 5	-pesticide -store in dry or cool place -selling or consume as soon as possible -Cat, barrier,	-presence of development agents -membershipness of cooperatives'
Processing				
-milling	-lack of skill	1	-sharing experience each other	
-Roasting & preparing food	-high labour requirement	2	-take into milling house	
-''ASHUK''	-high water requirement	3		
-Malting	-high fuel requirement	4	-using burners which require low fuel amount	
Marketing				
-selling bean pods before maturity and	--lack of market information	1	-selling with best price and market place	-assessing marketing conditions

Faba bean	Problem	Priority	Coping strategy (existing practice)	Opportunity
matured bean seeds				-forming cooperatives
	-during holly days selling in chip price	2		
	-lack of transportation	3		
	-Far distance of market place	4	transportation by donkey	
	-low bargaining power	5		
	-fixing of prices only by buyers	6		
	-lack of buyers	7		

Table 22: Donkey value chain analysis (men)

Donkey	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
- **Feeds**	- Scarcity of places for feeding and sheltering	1	-	- e
- **Drugs**	- Shortage of grazing land, straw, hay & etc	2	- Purchasing Straw and other feed	
- **Improved Varieties**	- Limited/no availability of feeds to purchase	3	- Feeding on straw within small amount every day	
- **Health Centre / Clinic**	- Limited access of health clinic on time	4	- using cultural/ local medicines	availability of health clinic nearby place
Production	-			
- **Disease**	- illness -Occurrences of diseases, aging	1	- using traditional drugs when donkeys are sick	
- **breed**	- lack of improved breed	2	-	
- Predator	- Eaten by hyenas'	3	- Fencing, preparing shelter	
Loading/transportation	Heavy loads		- Loading small amount	
Storage				
- additional house - feeding place	- money -labour	1		- presence of eucalyptus tree
Processing				
- **compost** - **Labour**	-unwanted smelling -cause for disease -feeding	1 2	- giving by products	- Availability of new technology of processing equipments
Marketing				
- cash - loading of fuel - borrowing - Renting	-decreasing in price			

Table 23: Faba bean value chain analysis (women)

	Problem/challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased input				
	availability of fungicides/insecticides within near distance	1	Purchasing fungicides from a distant market/shop	Increasing supply of fungicides/insecticides in the nearby market
	No use of fertilizer	2	Using farm yard manure and compost	Training on how, when and how much fertilizer to use; compost preparation
	Availability of new improved variety	3	Using of locally available seed by sieving and grading (sorting)	Introduction of new improved variety
Production				
	Rain (some time it ends in August)	1		
	Disease and pest	2	Using fungicides and insecticides by purchasing from where it can be found	Increasing supply of fungicides and insecticides
	Soil fertility	3	Using Farm Yard manure and compost	
	Planting date problem especially for those who do not have labour or ox	4		Training on improved way of farming
	Seed rate	5	Experience sharing from neighbours and relatives	Training and education
	Problem associated with crop rotation	6		Training and education
	Scarcity/shortage of seed	7	Credit from neighbours	
Processing				
	Lack of knowledge & experience in using variety of dishes	1	Using only for limited number of use traditionally	Training and education on how to use for different purposes and dishes
	Problem in grading	2	Sieving	
	Limited knowledge & skill in adding value	3		Training on making variety of dishes and value addition of the crop
Marketing				
	Insufficient price for the product	1		-Establishment of market network and information and establishment of cooperatives -training on how selling the product by organizing it to different use
	Problem in selling at the right time	2		establishment of cooperatives
	Market problem in terms of distance and size	3	Selling locally for irrigation cooperatives, mill house and shop	establishment of cooperatives
	Quality problem	4	sieving	

Table 24: Sheep value chain analysis (women)

	Problem/challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased input				
	Feed shortage, high price for feed	1	Using crop by product (straw) and local beer by product /residues (Atela)	Increase supply of forage species Increase supply of improved feed locally
	Out dated drug sale in shops	2		Increasing supply of drug locally with great inspection from agricultural office
Production				
	Availability of improved varieties	1		Introduction of new improved variety
	Death of cross bred sheep	1		Establishment of animal clinic near by
	Poor housing	2		
	Poor hygiene	3	Cleaning their house daily	
	Shortage of grazing land	4	Using of oil seed cake	Introduction of forage species
	Lack of labour	5		
	Predator-wolf	6		Awareness creation
	Lack of skill & experience in using the wool from the sheep	7		
Processing				
	In experience in use for different dishes	1	Using only for limited number of traditional dishes	Training and education on how to use for purposes and dishes
Marketing				
	Price fluctuation	1	Selling it at the right time (holidays)	Establishment of market network

Table 25: Potato value chain analysis (youth)

Potato	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
	Use of seed for long period of time (5-6 years)	1	-	Replacing with new seed from research
	Fungicides availability	2	-	(The main cause of the disease is due to long use of the varieties)
	Fertilizer shortage (for irrigation)	3	-	
Production				
	Disease	1	-	Improve the supply of disease control chemicals in the area Introducing resistant varieties if there is any
	Irrigation water shortage	2	To irrigate the land before planting	Increase the number of small scale irrigation scheme in the area
	Pests	3	-	Improve the supply of disease control chemicals in the area
	Frost for early planting irrigated potato	4	Adjusting planting time	-
Storage				
	Storage disease and pest	1	-	Improve the supply of chemicals in the area
	Financial problem for storage construction	2	-	Credit service
	Knowledge gap for storage construction	3	-	Training
Processing				
	Knowledge gap on processing	1	-	Training on processing
Marketing				
	Low price of the produce especially (for food)	1	Sale by taking it to another places e.g. D/Birhan	Construction of diffused light storage for food potato
	Price fluctuation	2	-	Sale after storing some time

Table 26: Wheat value chain analysis (youth)

Wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
	Fertilizer purchasing power	1	Use of compost & manure	Credit associations
	Improved seeds	2	Farmer to farmer seed exchange Use of well cleaned local seed	Seed multiplication using cooperative
Production				
	Disease (Rust)	1	Use of fungicides Use of rust resistance varieties	Scaling up of rust resistance varieties
	Natural factors (frost, dry desiccating wind & rainfall distribution)	2	-	-
	Insect pest	3	Proper weeding	Repeated ploughing Use of pesticides
	Improper use of recommended fertilizer	4	-	Improving farmers financial status
Storage				
-		-	-	
Processing				
	Financial problems	1		Credit service
	Knowledge gap on processing	2		Training on processing
Marketing				
	Low yields from each farmer(fragmented for the buyers)	1		»
	Low amount of profit	2		»
	Price fluctuation	3		Collecting the produce & selling in mass using associations

ANNEX 3.2: GOSHE BADO

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR GOSHE BADO

Goshe Bado is administratively located in Basona Worana woreda, North Shewa zone of Amhara region. It is located 17 Km South West of the zonal town, Debre Berhan. The rainfall distribution is bimodal. In the kebele, there are 1872 households of which 1326 are male- and 546 female-headed households. According to the PCA results, about 27 livelihood sources were identified in the kebele (Table 1). These can be categorized as off farm sources (trading, making local drinks, remittance, casual labour), crops (banana, coffee, teff, wheat, sorghum, vegetables), livestock (sheep, goats, poultry, cows) and eucalyptus trees. There is strong increasing trend for about 12 livelihood sources (banana, coffee, eucalyptus, goat, lentil) while it is decreasing for others.

There was variation among men, women and youth groups with regard to crop preferences for cash. Women group came up with a long list of preferred cash crops than men and youth group. However, the overall crop preference ranking for cash shows that teff, lentil and chickpea/cabbage were first, second and third, respectively. On the other hand, wheat, barley and faba bean were ranked first, second and third as food priority crops, respectively (Table 2). There was also variation for livestock preference among the groups as shown in Table 3.

Women and youth groups all together identified about 13 institutions that they consider important for their agricultural activities which are either based inside or outside the kebele. They were ranked according to their importance in terms of their contribution for agricultural activities in the kebele by the two groups, women and youth. Please refer the two sub-tables (Tables 4.1 and 4.2,) under Table 4 for further details.

It was only the youth group that had formed the annual farming calendar in the kebele and this is given in Tables 5. These calendars show different activities both for crop and livestock and the participation by gender and age.

To differentiate the farm households in the kebele in three different wealth categories (poor, average and better-off), different criteria (farm size, number of different livestock types, house type and number, land size under eucalyptus trees, use of credit, hiring labor) were set by the three wealth categories. The main criteria differentiating them were more or less similar across the three groups but the quantities of the resources considered varied. Based on the criteria set, however, the overall results of the three groups showed that the farm households can be categorized as 27% poor, 57% average and 16% better-off (Table 6).

The 3 social categories (men, women and youth), undertook at least one value chain analyses for crop and livestock which were selected by the respective group. The value chains selected were the priority crops, and livestock either for food or cash, and draft power. A total of 6 analyses were undertaken across the three groups including, 3 crops (faba bean, teff, and wheat) and 3 livestock species (donkey, sheep and cows) (Tables 9-14). Each value chain analysis has identified and prioritized challenges, coping strategies and opportunities across four main areas: input acquisition, crop or livestock production, storage, processing and marketing.

Crop and livestock types that require interventions were also identified and are listed on Table 7. The major intervention types that were identified and prioritized are listed on Table 8 for both crops and livestock.

Table 27: Livelihood dynamics

	Goshe Bado				Percentage		
Livelihoods	**S**	**I**	**D**	**All**	**S**	**I**	**D**
Banana		1		1	0%	100%	0%
Buying and selling		3		3	0%	100%	0%
Coffee		1		1	0%	100%	0%
Eucalyptus		1		1	0%	100%	0%
Goat		2		2	0%	100%	0%
Lentil		2		2	0%	100%	0%
Poultry		2		2	0%	100%	0%
Remittance		1		1	0%	100%	0%
Rough pea		1		1	0%	100%	0%
Sheep		3		3	0%	100%	0%
Sugar Cane		1		1	0%	100%	0%
Wheat		3		3	0%	100%	0%
Casual labour	1	1		2	50%	50%	0%
Chick Pea		2	1	3	0%	67%	33%
Cow for milk	1	2		3	33%	67%	0%
Fattening (livestock)	2	1		3	67%	33%	0%
Teff		3	1	4	0%	75%	25%
Transport (equines)	1	2		3	33%	67%	0%
Vegetables	2	5		7	29%	71%	0%
Field pea		2	2	4	0%	50%	50%
Sorghum		1	1	2	0%	50%	50%
Bee keeping	1			1	100%	0%	0%
Fenugreek	1			1	100%	0%	0%
Barley	1		1	2	50%	0%	50%
Faba bean		1	2	3	0%	33%	67%
Potato			1	1	0%	0%	100%
Making and selling local drinks			1	1	0%	0%	100%
Number	8	22	8	27	30%	81%	30%

Table 28: Crop preferences

	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Wheat	4	6	4	**5**	1	1	1	**1**
Barley	6	9	4	**6**	2	2	1	**2**
Faba bean	3	7	2	**4**	3	2	3	**3**
Chick pea	2	5	3	**3**	5	4	3	**4**
Teff	1	1	1	**1**	6	3	5	**5**
Sorghum	5	8		**7**	4	6		**5**
Field Pea		5		**5**		7	6	**7**
Lentil		2		**2**		8		**8**
Cabbage		3		**3**		9		**9**
Vegetables		11		**11**		10		**10**
Rough pea		4		**4**		11		**11**
Eucalyptus		1		**1**				
Potato								

1-highest

Table 29: Livestock preferences

	M	W	Y	All
Poultry	5	1	1	**2**
Cow	2	2	5	**3**
Sheep	4	3	2	**3**
Goat		4	2	**3**
Ox	1	6	4	**4**
Donkey	3	4	6	**4**
Bees	6	7		**7**

1-highest

Table 30: Institutions

Men (not done)

Table 4.1: Women

Inside community Name	Rank	Reason
Kebele administrative office	1	Almost all activities are facilitated by it
Kebele agricultural office	2	Extension services
Cooperatives	3	They supply imputes effectively
Kebele animal health centre	4	
Kebele Land use and management office	5	
ADHINO(NGO)	6	

No institutions identified outside the kebele. There are not any institutions

Table 4.2: Youth

Institutions inside	Rank	Institutions outside	Rank
Cooperatives	1	ADHINO	2
Amhara Credit and Saving Institute	2	Research	2
Edir	1		
Eikub	2		
Traditional gathering	2		
Kebele Administration	1		
Community policing	1		
Agricultural office	1		
Heath clinic	1		
School	1		

1-Best, 2=Less important, 3=Least important (for agriculture)

Table 31: Annual calendars Youth group

	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop wheat	Ploughing		MMY	MMY	MMY	MMY	MMY						
	Input purchase					MMY	MMY						
	Planting						MY	MY	MY				
	Weeding							MMFY	MMFY	MMFY			
	Harvesting										MMFY	MMFY	MMFY
	Harvest transportation										MFY	MFY	MFY
	Threshing	MY	MY										MY
Livestock Sheep	Feed collection/ purchase and harvest/										MMY	MMY	
	Housing construction						M Y						
	House cleaning	FFY	FFY	FFY	FFY	FFY	FFY	FFY	FFY	FFY	FFY	FFY	FFY
	Health care	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY	MMFY
	Fattening	MFY	MFY	MFY						MFY	MFY	MFY	
	Selling				M								M

M=Male, F=Female or Y=Youth participation

Table 32: Goshe Bado Farmer profiles

	Criteria	Poor	Average	Better
Men	Land holding	< 2 ha	2-3 ha	>= 3 ha
	Livestock holding	Ox (1), cow (1)goat (2), sheep (2), chicken (4)	Oxen (2), cow (1), donkey (1), sheep (10), goat (5), chicken (6)	Oxen (3), cow (2), donkeys (2), sheep (15), goats (10), chicken (8)
	Eucalyptus holding	<0.125 ha	0.25 ha	0.5 ha
	Livestock fattening	Fatten one sheep	Fatten two sheep and 1 ox	Fatten more than 4 livestock per year
	Type of residences	1-2 grass houses	1 iron covered house and 1 grass house and have separate house for livestock	2 iron covered houses, 2 grass houses and separate livestock house
	Food security	Cover food for 6-8 months	Cover annual food requirement	Cover annual food requirement and supply for market
	Labour availability	Work for others with payment	Work for his/her self with shared labour	Able to pay money or grain for labour
	Sale of crop and livestock	Enforced to sale his/ her crops or livestock when there is cash requirement	Sale crops and livestock any time	Sale crop and livestock when price gets high
	No in each category (%)	25%	62.50%	12.50%
Women	Size of farm land	1 ha	1.75 ha	3 ha
	Number of domestic animals	5	9	28
	Family size	>12	6	4
	Number and type of house	1	1	2
	Feeding and nutrition per day	2	3	4
	% in each category	30%	50%	20%
Youth	Number of animals			
	Sheep	1-5	10-15	30-50
	Goats	1-5	5-10	20-30
	Oxen	-	1	2-4
	Cow	-	1	2-3
	Type of house - roof	Thatch made	Trough / Iron sheet	Iron sheet
	Input access	On credit base	On credit/purchase	On purchase base
	Food eating frequency per day	2 time	3 times	> 4 times
	No in each category (out of 100)	25%	60%	15%
	Parentage in each category	27%	57%	16%

Table 33: Intervention areas (crops and livestock)

Crops	Gender interest
Barley	MWY
Chick pea	MY
Faba bean[1]	MWY
Lentil	Y
Potato[1]	-
Teff	MWY
Wheat[1]	MWY
Livestock	
Ox	M
Cow	MW
Sheep	WY
Donkey	M
Poultry	WY

[1] M=Men, W=Women, Y=Youth

Interventions already initiated

Table 34: Intervention areas to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 35: Faba Beans value chain analysis (men)

Crop type	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Improved seed	Lack of access, disease and appropriate species for different soil types	1	Use local seeds, seed exchange	▪ Self-determination of farmers to use fertilizer and improved big size faba bean varieties ▪ Faba bean grows well on red soil and this soil is available in the kebele ▪ Proximity of cooperatives to access inputs ▪ Plant species such as tree lucern, croton and others to get more biomass
Chemicals for diseases and pests	Lack of access when need arises, increased price	2	Weeding to the plant get good aeration, which reduces the disease pressure, pressurize local admin to improve availability	
Compost/manure	Poor access, transportation	3	Transport by donkeys, labour sharing, efficiently use what is available, use locally available organic resources	
Fertilizer	High price, shortage of capital, enforcement to get credits for the purchase of fertilizers and other inputs in groups (all farmers are not the same, if one lag behind, the other group members pay the credit)	4	Use inorganic fert for outfields and organic around homesteads, get credit	
Bio-fertilizers/micro-org products	Lack of supply	5	Use conventional planting methods	
Production				
Soil condition	Soil fertility depletion, soil erosion Presence of various soil types	1	Manure, compost and SWC measures (terraces)	▪ Presence of FTC for demo ▪ Improved tillage implements for black and other soil types ▪ Response farming (reliable met prediction to adjust planting time and selection of appropriate varieties) ▪ Government watershed based NRM imitative ▪ Initiation of farmers to plant multipurpose tree and grass species
Rainfall distribution/climate variability	Frost, flower defoliation when RF is not available in September	2	Early planting when there is shortage of rain, draining water when it is excess	
Tillage	Lack of labour, shortage of oxen	3	Labour sharing arrangements, Pay in terms of straw and money to get tillage service	
Weeding	More time requirement through hand weeding	4		
Storage				
Locally made storage from Mud (gotta) Keeping in sacks Construction of houses for storage	Rat, moulding, “miste” Weevil, creating worms, Costing, more spaces	1 2 3	Sale or use immediately Rat trapping, cat, spreading ash Chemicals, Putting them in cool places	▪ Presence of agricultural experts in the close by areas ▪ Presence of cooperatives and being a member of the cooperatives and other associations ▪ Improved crop varieties

Crop type	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Processing				
Locally made sauce with spices (Siljo) Sauce making (shiro and kike) Roasting and socking (Asuke) Soaking and germinating (Bokelt) Using it for loaf/enjera mixing with barley and wheat	Require knowledge More labour demanding More water requirement, more fuel wood demanding	1 2 3 4	Learn each other Take to mills for grinding Soak using water for some time, fuel saving stoves	
Marketing				
Selling as it is – un processed Grind and sale	Low prices, Payment of credits for inputs untimely (during the harvesting season)- poor interest matching on inputs payment between the gov and the farmers. Distance of market, transport problem	1 2 3	Take produce to areas where there is better market Sale the produce at low price to avoid harassments Use donkeys for transportation of produces	▪ Availability of village market ▪ Market information is needed ▪ Payment for credits for the inputs need to align with the farmers situation ▪ Strengthen cooperatives to supply products within and outside the woreda

Table 36: Wheat Value chain analyses (youth)

Wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Fertilizer	High price / low fertility	1/4	Using credit, compost and planting Pulse crops, fertiliser	- Availability of credit institutions like ACSI (Amhara Credit and Saving Institution) - Local organization , cooperatives
Improved seed	Lack of improved seed High price	2	Using credit to purchase and seed exchange	
Awareness	Lack of awareness	3	Training	
Land	Lack of land availability	5	Land rent in, crop sharing arrangement	
Chemicals /herbicide and pesticide/	Less access to chemicals / low quality and inefficiency	6 / 7	Purchasing chemicals from town	
Compost/ green manure	Lack of manure, leaf and water	8	Using available manure and leafs	
Production				
Improved seed	Lack of improved seed	1	Using quality local seed, exchange seed from others	- Research centre, - Agricultural offices supports - NGOs
Disease and pest	Rust and cutworm	2	Using chemicals	
Climate change	Climate change/ rainfall, improper rainfall distribution	3		
	Theft	4	Keeping day and night	
Storage				
Pest	Weevils	1	Using chemicals	
Rodents	Rats	2	Cats, Using chemicals	
Processing				
Bread	Quality of crop for bread making		Using best varieties for bread from markets	
Marketing				
Price	Low price	1		
Market Information	Lack of market information	2	Asking neighbours and others who were participated in the previous market day	Cooperatives,
Market place- where to sell/buy	Long distance market please	3	Using transport, early morning travel start	
Market participants- who are the actors	Lack of wheat traders	4		

Table 37: Teff value chain analysis (women)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
	-Scarcity of oxen	1	- Give farmland to others and gaining half of the yield -sowing late	- presence of saving and credit institution
	-Lack of money to purchase fertilizer	2	- Sowing without fertilizer Using manure -fallowing	
	- Lack of money to purchase Farming equipments	3	-- renting farming equipment (money and labor) borrowing farming equipment	- Forming groups
	- Lack of money to purchase herbicides	4		
Production				
	-Shortage of rainfall / unusual distribution	1	if rainfall is absent sowing other crops like"SHIMBIRA, ABISH, GUAYA"Continue as it is	
	-absence of land preparation	2	-purchase from market for food	
	""GASASH""(shoot fly, army warm)	3	-tillaging repeatedly	- availability of development agents near by
	-Frost	4	-sowing other crops on it	- working in group during harvesting "DEBO"
	-Weeds	5	using herbicides if possible otherwise hand weeding	
	- Shortage of labour force during harvesting	6	-	
Processing				
None				
Marketing				
	-absence of balance to measure			
	-lack of transportation			
	-lack of buyers			- forming cooperatives
	-low bargaining power			- assessing marketing conditions
	-fixing of prices only by buyers			
	-impossible to sell in the market without licence			

Table 38: Cow Value chain analyses (women)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
-	-Shortage of grazing land, straw & etc	1	-Purchasing Straw and other feed Feeding on free grazing areas in the locality	
-	- Limited access of health clinic on time	2	-using traditional drugs when cows are sick	
-	Scarcity of places for feeding and sheltering	3		
-	-Limited/no availability of feeds to purchase	4		
-	-Absence or very limited access of modern artificial insemination -	5		-Presence of post which give artificial insemination
Production				
	-Husbands give more attention to male calf rather than milk during milking	1	--feeding cows separately from other cattle	
	- Husbands give more attention to oxen than cows during feeding	2	- searching feeds	
	-Low amount milk, source of conflict	3	-	
	-Occurrences of diseases	4	using traditional drugs when cows are sick	
Processing				
-butter	-un inefficient processing equipment	1		
-milk	- time consuming due to processing equipment	2	- lefting	-Availability of new technology of processing equipment
-Cheese				
Marketing				
-milk	-market place problem/ it is faraway			
-Calf (young cow or bull)	-Problem of preserving milk for long time without problem			
-butter	-Low production of milk in the community			
-Cheese	-some people which are agents of merchants disturb us on prices			

Table 39: Sheep value chain analysis (youth)

Livestock type-sheep	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Concentrates	Unavailability	1	Prepare own feed, but low quality	- Cooperatives
Vet products	High price and long distance to get	2	Go to town to buy drugs	- Youth and women associations
Barley and wheat bran	High price	3		- Office of agriculture
Water esp lowland	Scarcity of water	4		
Production				
Improved ram	Lack of improved breed	1	Using selected local ram	- Research center
Health	No adequate health centre	2	Using traditional treatments	- Cooperatives
Grazing land	Feed scarcity	3	Tethering and cut and carry	- Youth and women associations
Awareness	Lack of awareness	4	Training	- Office of agriculture
Security	Theft	5	Keeping around home	
Processing				
No processing activities except at house hold level				
Housing				
	Inadequate house space	1	Constructing /expanding house	Office of agriculture
	Poor cleaning	2	Cleaning at list once in 3 days	
	Traditional housing	3		
	Pests	4	Using chemicals	
Marketing				
Price, market information	Low price, lack of market information	1/3	Have to accept, asking neighbours and others who were participated in the previous	- NGOs (ADHINO) - Cooperatives
Market place-	Long distance market	2	Using transport, early morning travel start	- Office of agriculture

Table 40: Donkey Value chain analysis – (men)

Crop type	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Feed/grass, barley mixed with other sources	Shortage	1	Use straws economically	▪ Availability of dry season rain ▪ Availability of vet services ▪ Local knowledge
Water	Distance	2	Use proper storage	
Medicine (traditional and improved)	High price and Lack of capital	3	Use traditional medicine	
Medicine for fattening weakened donkeys	Difficulty to get timely	4	Use locally available fattening options	
Production				
Diseases	Stomach diseases	1	Use traditional medicines	▪ Presence of market in the village and close by areas ▪ Decrease heavy loding
Breeds	Lack of improved breeds	2	Breed with appropriate species	
Predators	Hyena	3	Fencing, constructing shade	
Loading	Short life span	4	Proper loading system	
Storage				
Additional shelter (Gate) Shelter Feeding (Girgim)	Labour Capital	1 2	Use available space appropriately	Availability of Eucalyptus plantations/wood very close
Processing				
Manure	Smell of the manure	1	Collect the manure daily	Use of manure for soil fertility management
Labour	Feeding	2	Feed by-products	
Marketing				
Selling live donkeys Selling manure for fuel Sharing arrangements for transport arrangements	Cheap selling price		Selling when price gets high	

ANNEX 3.3: EMBA HASTI

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR EMBA HASTI

Emba Hasti is administratively located in Enda Mehoni woreda, southern zone of Tigray region. It is located 10 km north of the zonal town, Maichew. The rainfall distribution is bimodal. In the kebele there are 823 households of which 514 are male- and 309 female-headed households. The three social categories (men, women and youth) at Emba Hasti identified in total about 15 livelihood sources (Table 1). These can be categorized as off farm sources (trading, casual labour, transport service with equines), crops (potato, vegetables, teff, wheat, sasula (ornamental crop), faba bean), livestock (sheep, cow, cattle fattening) and eucalyptus trees. There is strong increasing trend for about 5 livelihood sources (trading, casual labor, eucalyptus, potato, and transport service) while it is decreasing for the others.

The groups identified preferred crops for cash earning and there was variation with respect to ranking these cash crops as listed in table 2. Therefore, the overall crop preference ranking for cash shows that sasula, lentil/fieldpeas/carrot/eucalyptus and potato were first, second and third, respectively. On the other hand, barley, wheat and faba bean were ranked first, second and third as food priority crops, respectively (Table 2). There was also variation for livestock preference among the groups as shown in Table 3. The overall results for the three groups showed that oxen, donkey, poultry are listed in consecutive order.

Women, men and youth groups all together identified about 23 institutions that they consider important for their agricultural activities which are either based inside or outside the kebele. They were ranked according to their importance in terms of their contribution for agricultural activities in the kebele. Please refer the three sub-tables (Tables 4.1, 4.2 and 4.3) under Table 4 for further details.

It was only the men group that had formed the annual farming calendar in the kebele and this is given in Tables 5. This calendar shows different activities both for crop and livestock.

To differentiate the farm households in the kebele in three different wealth categories (poor, average and better-off), different criteria (farm size, number of different livestock types, house type and number, land size under eucalyptus trees, use of credit, savings, access to irrigation) were set by the three farmer groups. The main criteria differentiating them were more or less similar across the three farmers group but the quantities of the resources considered varied. Based on the criteria set, however, the overall results of the three groups showed that the farm households can be categorized as 29% poor, 38% average and 33% better-off (Table 6).

Each group (men, women and youth), undertook at least one value chain analysis for crop and livestock which were based on their preference. The value chains selected were the priority crops, and livestock either for food or cash, and draft power. A total of 6 analysis were undertaken across the three groups including, 3 crops (potato, wheat, and carrot) and 3 livestock (cow, sheep and ox) (Tables 9-14). Each value chain analysis has identified and prioritized challenges, coping strategies and opportunities across four main areas: input acquisition, crop or livestock production, storage, processing and marketing.

Major crops and livestock types that require interventions were also identified and are listed on Table 7. The major intervention types that were identified and prioritized are listed on Table 8 for both crops and livestock.

Table 41: Livelihood dynamics[1)]

Livelihoods	Number[1]			All	Percentage		
	S	I	D		S	I	D
Buying and selling		2		2	0%	100%	0%
Casual labour		1		1	0%	100%	0%
Eucalyptus		2		2	0%	100%	0%
Potato		3		3	0%	100%	0%
Transport (equines)		1		1	0%	100%	0%
Vegetables	2	2		4	50%	50%	0%
Fattening (livestock)		1	1	2	0%	50%	50%
Sasula		1	1	2	0%	50%	50%
Wheat	3	1	2	6	50%	17%	33%
Barley			1	1	0%	0%	100%
Cow for milk			3	3	0%	0%	100%
Faba bean			2	2	0%	0%	100%
Field pea			1	1	0%	0%	100%
Sheep			2	2	0%	0%	100%
Teff			1	1	0%	0%	100%

[1] Number of times mentioned by the three groups

S=Static, I=Increasing, D=Decreasing

Table 42: Crop preferences

	Cash priority				Food priority			
Crop	**M**	**W**	**Y**	**All**	**M**	**W**	**Y**	All
Barley	7	7	9	8	1	1	1	1
Wheat	5	6	8	6	2	2	2	2
Faba bean	6	5	7	6	3	3	3	3
Field Pea	4	2		3	4	4		4
Lentil	3	1	6	3	5	5	4	5
Potato	2	4	5	4	6	6	5	6
Carrot	4	3	2	3		7	6	7
Cabbage	4		3	4	7		7	7
Eucalyptus			3	3			8	8
Chick pea 1					8			8
Sasula	1		1	1	9		8	9

1-highest

Highlighted crops=interventions already initiated

Table 43: Livestock preferences

	M	**W**	**Y**	**All**
Ox	1	5	1	**2**
Donkey	1	-	3	**2**
Poultry	6	1	1	**3**
Cow	3	1	5	**3**
Goat	3	3	4	**3**
Sheep	5	3	3	**4**

1-highest

Table 44: Institutions

Table 45.1: Men

List of institutions operating in the community	Weights given to each
Mesrete Birhan saving and credit association	A
Primary cooperative	A
Kebele administration	A
DAs and FTC	A
Religious leaders	A
School including kinder gratin	B
Community elders	B
Social court	B
Health	C (important but not functioning due to under staffing)
Edir	C(focuses on helping people)
Police	C
List of institutions operating outside the community	**Weights given to each**
Research institute (Alamata)	A
Office of agriculture	A
Union	A
DECSI	A
REST-GRAD (Relief Society of Tigray-Graduation for resilience …	B
GIZ (German Technical Support)	C
AR (Africa RISING)	C
AGP (Agricultural Growth Project)	C

Table 46.2: Women

Institutions in the community	**Rank**	**Institutions outside the community**	**Rank**
Development agents	1	Dedebit microfinance	1
PSNP	1	WoARD	1
Health Service	1	GRAD	3
Multipurpose Cooperatives	1		
Saving and credit cooperative	1		
Equb	1		
Edir	1		
GRAD	2		
School service	2		
Mahber	3		

1-Best, 2=Less important, 3=Least important (for agriculture)

Table 47.3: Youth

Inside	**Rank**	**Outside**	**Rank**
Saving and credit association	2	SLM (Sustainable Land Management)	1
Youth Cooperative	1	DECSI (Dedebit Credit and Saving Institution)	2
'Eddir' and 'Equb' (	3		

1-Best, 2=Less important, 3=Least important (for agriculture)

Table 48: Annual calendars

Men

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land preparation			■	■	■				■	■		■
Planting[4]	■			■	■	■						
Weeding			■	■			■	■	■			
Cultivation		■	■	■			■	■	■			
Harvesting					■					■	■	■
Threshing											■	■
Manuring	■											
Preparing drainage							■	■				
Grass harvesting (hay making)									■			
Crop residue preparation	■										■	■
Herding[5]	■	■	■	■	■	■	■	■	■	■	■	■
Mating period									■			
Vaccination period									■			
Soil and water conservation through free labour contribution	■	■										
Tree planting						■	■					
PSNP			■	■	■	■	■	■				

[4] Planting in January is for Belg and irrigable crops, in April and May is for long maturing crops
[5] Herding is the responsibility of children, but during school hours both male and female take care of them turn by turn during school hours

Table 49: Farmer profiles

	Criteria	Poor	Average	Better
Men	Saving	No saving	Save up to 20,000 birr	Save more than 20,000 birr
	Access to irrigation	No	1/8th ha	>1/4th ha
	Number of Ox own	-	1	2
	Number of Cows own	-	1	>2
	Number of sheep own	<5	5-9	>9
	Number of donkey	-	1	>1
	Nutrition	2	3	4
	Cultivable land size	<1/4th ha	1/4th=1 ha	>1 ha
	Household items	Poor quality beds	Wooden beds	Beds plus television
	No in each category (out of 100)	28%	50%	22%
Women	Land	0.25 Tsimad	0.5 Tsimad	>=1.5 Tsimad
	Oxen	0	1	2 and above
	Cows	0	1	2
	Sheep	<5	05-Oct	>=20
	Quality and number of housing	1 grass roofed house	1 Iron roofed house	More than 2 Iron roofed houses
	Production of cereals (Barley as an example)	1 Quintal	5 Quintal	10 Quintal
	No in each category (out of 100)	40%	35%	25%
Youth	Ability to rent land for grain production	0	0.5 ha	1.5 ha
	Annual grain production (0.25 – 0.75 ha)	< 40 Quintal	40 – 50 Quintal	50 – 60 Quintal
	Access to irrigation – production of vegetables and cash crops like Endosin	0	0	All year round water access & production
	Growing of Eucalyptus trees	< 1500 trees	1500 – 3000 trees	> 3000 trees
	Oxen	0	1	≥ 2
	Cow	0	01-Feb	≥ 3
	Shoats (sheep and goat)	≤ 15	16 – 29	≥ 30
	No in each category (out of 100)	20%	30%	50%
	Parentage in each category (all)	29%	38%	33%

Table 50: Intervention areas (crops and livestock)

Crops	Gender
Barley	MWY
Carrot	WY
Faba bean[1]	MWY
Field Pea	MW
Lentil	MW
Potato[1]	M
Sasula	MY
Wheat[1]	MWY
Livestock	
Ox	MY
Cow	MW
Sheep	WY
Donkey	M
Poultry	W

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 51: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 52: Potato value chain analysis (Men)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Seed	No quality seed access	1	Use of seed from market	Training on storage type for seed to maintain own seed
	Own seed degeneration	2	Use of won seed leading to degeneration and low yield	Availability of seed producer cooperatives which will enable to replace seed from seed producing cooperatives
Fertilizer	Less awareness on fertilizer use[6]	3	Low application and low yield	Quality declared planting material introduced
Chemical	Chemical not available in the market	4	Affected by disease	Cooperative/union can supply chemical
	No awareness on the availability of chemicals	4		Training on the application of chemicals
Production				
Landless youth farmers rent or shared-in irrigable land Produced under rain-fed and irrigation by farmers	Water shortage in the critical stage of the crop that is planting and flowering	1	Watering early in the morning when the water is cold to kill the ants	Planting of early maturing varieties
	Disease (blight, red ants, rodent/Fita,	2		Use of appropriate chemicals
	Poor awareness on the cultural practices of spacing, cultivation and earthing-up	2		
	Continuous planting of potato after potato	3	Shift to other crops when the early on-set of rain is late	CIP can provide training Potato on-farm demonstrations
Processing				
Storage	No storage			Demonstration of storage
Grading	No grading			
Marketing				
Sale while it in the field to collectors	Low bargaining power Sale at low price due to fear of spoilage and no storage	1		Group marketing
Sale in maichew market	Unable to sale the whole crop to consumers in Maichew	2		
	No market information	3		

[6] Other farmers commented on the low use of fertilizer as moisture stress forced them to use low level of fertilizer rates

Table 53: Cow value chain analysis (Men)

Crop type	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Concentrate and molaases feed from union	Ever increasing price of feeds	1		
Hay from farmer or schools	Shortage of supply	2		
Crop residue from own and farmers				
Production				
Milk production	Feed shortage	1	Reduce livestock number and Feeding Priority to ox	Better understanding in controlled grazing
Disease / health	Disease such as leech & blackleg and shortage of medicine	2	Try local healers or holly water	Para-vets and easy access to road
Breeding	Synchronization not successful	3	Go for local breeds	Planting of feeds
	Returning to heat without conceiving	4	Focus on local bred leading to low milk production	Introduction of synchronization is an opportunity
Processing				
No much processing except butter making				Good market for butter
Marketing				
	No demand for milk in the area		Farmers go for butter making	Union is soon starting milk processing plant Butter fetch good price

Table 54: Wheat value chain analysis (women)

Crop type		Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs	**Source**				
Improved seed	**WoARD**	High cost of fertilizer Enforcement to take the fertilizer	1/2	Cost sharing with the tenants who shared in the land	-Strengthening multipurpose cooperative specially with vehicles so that the transport cost will be minimized -Constructing factory in our country
Fertilizer	**WoARD**	High cost of improved seed	3	Using locally available seed	
		Some of the improved varieties are not early maturing	4	Using local seed or other improved seed	There are other types of improved seed that can mature early
Production					
		Erratic rainfall	1	Moisture conservation	Use of irrigation water
		Flooding (B/c of Destruction of soil and water conservation structures	2	Protecting their individual farms by using soil and water conservation activities	The destructed SWC structure should maintained by the project(the chopped factory)
		Lack of pesticides (specifically for rats)	3	-Weeding -Using pesticides (sometimes) -Using cats if the farm is near the homestead	Providing pesticides on individual basis
		Too much weed	4	Group weeding	Introduction of row planting
		Water logging	5	Urea application	urea application, BBM
Processing					
		Rats		Using cats	Providing pesticides
Marketing					
		Forced to sell immediately after harvesting (to repay the loan for fertilizer)			

Table 55: Sheep value chain analysis (women)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs Source				
Improved breed Not available	Unavailability of improved breed	1	Use local breeds	Providing improved breed
Feed WoARD				
Production				
	Lack of barn (shelter)	1	Keep them in the houses with them	Government should permit farmers to use Eucalyptus to construct barn for their sheep
	Shortage of free grazing land	2	Cut and carry system	Cut and carry system
	Wild life	3	Cut and carry system, and herding	
	Unavailability of grass because of Eucalyptus	4		
Processing				
Not undertaken				
Marketing				
Undertaken by men				

Table 56: Carrot value chain analysis (youth)

	Source	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs					
Motor	Union	Moisture stress	1	Irrigating by fetching water from other source	Support to dig water
Treadle pump	Union	Low income	2	Rent out /shared out	Training and financial support for the input and irrigation equipment
Irrigation		Shortage of improved seed	3	From private salers	Supply improved clean seed
Seed	BoARD				
Fertilizer	Union				
Production					
		Water logging	1	Drainage	Improved draining implements
		Disease(root rot)	2	Ploughing and change by other crop	Supply pesticide and resistant variety
		Flood damage	3	Trenching to avoid logging	Gabion closing
		Free grazing damage	4	Fencing (keeping by child)	
Processing					
Washing					
Storage		Perishable	1	Partial harvesting	Partially harvesting
Marketing					
		Price fluctuation	1	Selling at existing price	Supplying market information
		Road selling is declining due to less transport access due to low land road construction			Capacity building on cropping calendar in related to high price season

Table 57: Ox value chain analysis (youth)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
	Feed shortage	1	Purchasing straw and feeding cactus	Training, improved forage and improving crop residues improvement tech
	Lack of veterinary service	2	Cut of blood veins, using holy water and using traditional medicines	Capacity creating, para vet establishment and delegating expert
	Lack of concentrated supply	3	Mixing with salt and using local concentrate like 'Hatela'	Supplying concentrated feeds
Production				
	Disease	1	Cutting blood veins and branding by heated iron	
	Toxic plants and Bloating	2	Let the ox to drink soap or oil fluid, running the oxen believing that to minimize its bloating problem during movement	
Processing				
	For weight loss due to draft power		The farmers are given rest time for the animal to recover by applying good management	
Marketing				
	Long distance to May chew and Shinkamajo)	1	If the price is low the animal is bought home	

ANNEX 3.4: TSIBET

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR TSIBET

Tsibet is administratively located in Enda Mehoni woreda, southern zone of Tigray region. It is located 17 km north west of the zonal town, Maichew. In the kebele, there are 1107 households of which 854 are male- and 253 female-headed households. The rainfall distribution is bimodal. According to the PCA results at Tsibet kebele, the three social categories (men, women and youth) identified about 21 livelihood sources. These can be categorized as off farm sources (barber, casual labour, handicraft, transport service with equines making and selling local drinks), crop (tef, wheat, vegetables, sasula (ornamental crop), faba bean, potato), livestock (sheep, goat, cow, cattle fattening) and eucalyptus trees. There was a strong increasing trend for about 5 livelihood sources (barber, making local drinks, poultry, teff, and wheat) while it is decreasing for the others (Table 1).

As indicated in Table 2, about 9 crops were identified as preferred cash and food crops but there was variation among men, women and youth groups with regard to crop preference ranking for cash. However, there seems similarity in the preference ranking of the listed crop as food. Therefore, the overall crop preference ranking for cash shows that sasula, field peas/faba bean/carrot/lentil and potato were first, second and third, respectively. On the other hand, barley, wheat and field pea/faba bean were ranked first, second and third as food priority crops, respectively (Table 2). There was also variation for livestock preference among the groups as shown in Table 3. The overall results for the three groups showed that sheep was ranked first as priority livestock enterprise.

The groups all together identified a number of institutions that they consider important for their agricultural activities which are either based inside or outside the kebele. They were ranked according to their importance in terms of their contribution for agricultural activities in the kebele by the three groups, women, men and youth. Please refer the three sub-tables (Tables 4.1, 4.2 and 4.3) under Table 4 for further details.

All the three groups had formed the annual farming calendar in the kebele and this is given in Tables 5.1, 5.2 and 5.3. These calendars show different activities both for crop and livestock.

To differentiate the farm households in the kebele in three different wealth categories (poor, average and better-off), different criteria (farm size, number of different livestock types, house type and number, land size under eucalyptus trees, use of credit, savings, access to irrigation) were set by the three farmer groups. The main criteria differentiating them were more or less similar across the three farmers group but the quantities of the resources varied. Based on the criteria set, however, the overall results of the three groups showed that the farm households can be categorized as 43% poor, 34% average and 23% better-off (Table 6).

Each group (men, women and youth), undertook at least one value chain analyses for crop and livestock which were selected by the respective group. The value chains selected were the priority crops, and livestock either for food or cash, and draft power. A total of 6 analyses were undertaken across the three groups including, 3 crops (potato, faba bean, and sasula) and 3 livestock (cow, poultry and sheep) (Tables 9-14). Each value chain analysis has identified and prioritized challenges, coping strategies and opportunities across four main areas: input acquisition, crop or livestock production, storage, processing and marketing.

The important crop and livestock types that require interventions were also identified and are listed on Table 7. The major intervention types that were identified and prioritized are also listed on Table 8 for both crops and livestock.

Table 58: Livelihood dynamics[1)]

Livelihoods	S	I	D	All	S	I	D
Barber		1		1	0%	100%	0%
Making and selling local drinks		3		3	0%	100%	0%
Poultry		3		3	0%	100%	0%
Teff		1		1	0%	100%	0%
Wheat		3		3	0%	100%	0%
Eucalyptus		3	1	4	0%	75%	25%
Vegetables		5	2	7	0%	71%	29%
Barley		2	1	3	0%	67%	33%
Sasula		2	1	3	0%	67%	33%
Faba bean		2	2	4	0%	50%	50%
Potato		2	2	4	0%	50%	50%
Lentil		1	1	2	0%	50%	50%
Casual labour		1	2	3	0%	33%	67%
Cow for milk			3	3	0%	0%	100%
Fattening (livestock)			2	2	0%	0%	100%
Field pea			2	2	0%	0%	100%
Goat			1	1	0%	0%	100%
Handicraft			1	1	0%	0%	100%
Sheep			2	2	0%	0%	100%
Stone sale			1	1	0%	0%	100%
Transport (equines)			1	1	0%	0%	100%

[1] Number of times mentioned by the three groups

S=Static, I=Increasing, D=Decreasing

Table 59: Crop preferences

	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Barley	7	5	5	**6**	1	1	1	**1**
Wheat	6	4	4	**5**	2	2	2	**2**
Field Pea			3	**3**	3		4	**4**
Faba bean	3	3	2	**3**	5	3	3	**4**
Potato	1	5	6	**4**	4	5	5	**5**
Lentil	4	1		**3**	6	4		**5**
Carrot		3		**3**		6		**6**
Eucalyptus			7	**7**			6	**6**
Sasula	2	1	1	**1**	7	7	7	**7**

1-highest

Highlighted crops=interventions already initiated

Table 60: Livestock preferences

	M	W	Y	All
Sheep	3	2	1	**2**
Goat		3	2	**3**
Ox	1	5	3	**3**
Cow	2	4	4	**3**
Poultry	4	1	5	**3**
Donkey	5	6	6	**6**

1-highest

Table 61: Institutions

4.1: Men

Institutions within the kebele			Institutions outside the kebele)		
Highly involved	**Moderately involved**	**Less involved**	**Highly involved**	**Moderately involved**	**Less involved**
School	Multipurpose cooperatives	Health post	REST (Relief society of Tigrai)	Woreda youth associations	Water resource
Mill	FTC	Community based Saving and credit	Michew Hospital		GRAD
CBO		Associations (youth, farmers, women)	Schools at Michew		HABP
Nursery		Local court	BoARD		
Tabia Administration			Woreda Court		
Church			Woreda administration		
GRAD			Rural road		
Community police			Woreda police		
			Market at Michew		
			TEVET		
			Bank		

4.2: Women

Institutions with in the PA	Rank	Institutions outside the PA	
Church	1	Rank	
Edir	2	BOARD	1
Equb	3	Market	2
Milling	3	Water supply	3
FTC	3	REST	3
School	3	GRAD	4
Network	4	Health center	5
Saving and credit	4	Women affairs office	5
Women association	5		
Health [1]	6		

[1]The health post is available but the service is not well working)

4.3: Youth

Institution with in the community	Level of importance	Rank	Institution outside the community	Level of importance	Rank
Land Desk	1	1	Woreda Administration	1	1
Administration	1	2	Debit Micro finance	1	2
BoARD (FTC)	1	2	Woreda Land Desk office	1	2
Multipurpose cooperative	1	3	Woreda rural water and energy resource office	1	3
School	1	4	Woreda BoARD Office	1	4
Save and Credit	1	5	Woreda Multipurpose cooperative Office	1	4
Health office	1	6	Woreda Save and Credit	1	4
CBO (Equib, Edir etc.)	2	7	Woreda REST	1	5
Court	2	8	Education office	2	6
Community base police	2	9	Roural Road construction	2	7
Community based Cabine	2	10	Woreda Court office	2	8
Associations (Women, men, youth)	2	11	Woreda Health office	2	9
REST	3	12	Woreda HABP	2	10
Community Affair	3	13	Woreda police office	3	11
GRAD	3	14	Woreda GRAD office	3	12

1-Best, 2=Less important, 3=Least important (for agriculture)

Table 62: Annual calendars

5.1: Men

	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crops	Ploughing (m/y)	**x**[b]	**X**	**X**	**X**					**X**	**X**	**X**	**X**
	Seeding (m)				X	X	X	X				X	
	Weeding (m/f/y)				X			X	X	X			
	Harvesting (m/f/y)	X									x	X	X
	Threshing (m/y)	X										X	X
	Storage		X									X	X
	Fertilization (m/y)				X	X	X	X					
	Marketing (m/f/y)	X	X	X	X	X	X	X	X	X	X	X	X
Livestock	Grass collection									X			
	Deworming									X			
	Acaricide									X			
	Vaccination									X			
	Milk sell									X	X	X	
	Butter sell									X	X	X	
	Herding at field and farm										X	X	X
	Hay feeding	X									X		
	Lentil straw feeding										X		
	Barley (Saesa) straw feeding										X		
	Pea straw feeding											X	
	Barley and wheat straw feeding												X
	Faba bean straw feeding												X
	Animal sell				X								X
	Barn reinforcement		X	X									
	Maize stover feeding					X	X						
	Barn cleaning						X	X	X	X			
	Egg selling							X	X	X	X		
	Weed feeding to animals							X	X				

Note: m/f/y indicates whether male, female or youth participating, b: ploughing for “Belg”

5.2: Women

	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crops	Ploughing of fallowed land									■			
	Cleaning of the bushes grown on the fallow land									■			
	Ploughing	■		■	■	■	■						
	Sewing					■	■	■					
	Planting Sasila			■				■					
	Weeding							■	■				
	Harvesting										■	■	■
	Collection of straw												
Livestock	Collecting of feed (like straw)										■	■	■
	Livestock management	■	■	■	■	■	■	■	■	■	■	■	■

5.3: Youth

Youth	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crops	Clearing of the farm									x	x		
	Land preparation	x	x	x			x			x	x		
	Input Purchasing and preparation				x	x							
	Compost preparing and composting	x	x	x						x	x	x	
	Hole water digging	x	x										
	Planting				x	x	x						
	Weeding							x	x	x			
	Urea dressing							x					
	Harvesting										x	x	
	Threshing											x	x
	Crop sale	x	x	x									
	Vegetable crops planting		x	x				x				x	
	Watering/irrigating									x	x	x	x
	Hoeing					x		x	x	x			
Livestock	Green feed collection and feeding							x	x	x			
	Hay collection									x	x		
	Crop residue collection											x	x
	Hay and Crop residue feeding	x	x	x	x								
	Collection and feeding of horticulture left over												
	Weed collection and feeding	x			x	x							x
	Breeding						x			x	x		
	Castrating									x			
	Salt feeding							x	x	x			
	Health threatening	x								x			
	Butter sale	x									x	x	x
	Live animal selling	x	x										x

Table 63: Farmer profiles

	Criteria	Poor	Average	Better
Men	Land size (	No land	2-4 Tismad/0.5-4 Ha/	2-4 Tismad/0.5-4 Ha/
	Oxen	0	01-Feb	>3
	Sheep	1-19	20-50	>50
	Cow	>1	2	>3
	Donkey	>1	2	>3
	Asset access	Treadle-pump/Manual water lift instrument/	1 generator	>1 generator, Flour milling
	Saved money (Birr)	<10000	10000-49000	>50000
	Annual grain produced amount	Collect grain to be consume less than a year	Collect grain to be consume for at least one year	Collect grain to be consume more than two years
	House roof type	Grass roofed or cover with <30 corrugated sheet roof	Cover with 40-50 corrugated sheet roof	Cover with >60 corrugated sheet roof
	Labour sale/purchase	Employed on others farm	Work his farm by him self	Hired additional labour farm activities
	Eucalyptus tree number	<399	400-999	>1000
	Marketable crop amount	No grain sale	Produce only for house consumption	Sale grain excess from home consumption
	No in each category (out of 100)	55%	32%	13%
Women	Safety net participation	Yes	No	No
	Number of oxen	0	1	>=2
	Number of cows	0	1	>=2
	Donkey	0	1	>=2
	Cultivated land (tsimad)	<2	2-4	>=4
	Sheep and goat	<10	Oct-20	>20
	House (iron sheet)	<20 Iron sheet	20-35	>=35
	No of eucalyptus tree	<100	100-3000	>300
	No in each category (out of 100)	27%	37%	36%
Youth	Grain yields all crops	10-15 Quintals	20-25Q	30-40Q
	Ox number	0	1	>2
	Cow - number	0	1	>2
	Sheep - number	0	05-Oct	>10
	Percentage in each category	45%	34%	21%
	Parentage in each category (all)	43%	34%	23%

Table 64: Intervention areas (crops and livestock)

Crops	Gender
Barley	MWY
Carrot	Y
Faba bean[1]	MWY
Field Pea	Y
Lentil	W
Potato[1]	M
Sasula	MWY
Wheat[1]	MWY
Livestock	
Ox	MY
Cow	M
Sheep	MWY

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 65: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 66: Potato value chain analysis (men)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Fertilizer (BoARD)	High Cost	1	Use of compost, manure, crop rotation	Inland production activities are going on
Seed (BoARD)	Shortage	2	Use other types of crops	CIP, BoARD, started introducing seeds
Production				
Planting	Disease and ants/termites	1	Use of ash and urea	
Ploughing	Moisture deficit	2	Just waiting for the rain,	
Lifting	Damage on tubers	3	Extra care	Provision of improved lifting technology
Furrowing	Wide root network		Do it before networking	
Mehfuaq	Wide root network		Extra care	
Irrigation [a]	Erosion		Trench irrigation	
Processing				
	Worms	1	Selling it early with low price	TARI- pest protection, storage, processing
Leaving the tuber inside the soil [b]	Sprouting in the soil	2	Selling it early with low price	CIP- improvement of storage facility
Selling on the field before harvest	Lower bargaining power	3		CIP- market linkage
Marketing				
	No good storage system	1	Early selling with available price	CIP- introduction of new methods of production and storage
Distance	Long distance to market	2		
Infrastructure	Poor road system	3	Use of donkeys	Improve the road (initiative by rural road authority)
Information	Lack of information, lower bargaining power,	4	Look for information, change of market	Improve information system, Agri.MarketAgency

Note: a= will be reduced once the onset of flowers is finished; b= last (shelf life) for 1-2 months

Farmers do not use pesticides for the following reasons: The pesticides are not effective for the dominant weeds in the area, Farmers prefer hand picking to use the weeds as animal feed and the act of weeding also is a means of cultivating the land, Conflict with beekeepers, since the pesticides are killing bees. Therefore, farmers agree not to use any weed/insect killer

Table 67: Cow value chain analysis (men)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Vet drugs	Diseases and parasites	1	Vet service/ holy water	
Vaccination	Diseases	1	Vet service/ holy water	
Feed (grass, straw, Hatella[a])	Shortage	2	Reducing the number of animals to keep	-CIP and BoARD coming; for feed improvement and supply
Leitch protection drugs	High infestation	3	Sanitation, watering animals at home, hot paper drenching	-Initiative to control pest and disease is there by BoARD - clinics at woreda are becoming more equipped by drugs and accessories
Production				
Feeding (f)	Feed shortage	1		
Milking (m/f)	Feed shortage	1	Reduce number of animals	Same
Health care (m)	Poor service	2	Use of local medicines	
Breeding (m)	Returning /heat/	3	Follow up	Assignment of experts at tabia level (BoARD)
Processing				
Milking (f)	Lower yield	1	Feeding well	Breeding (BoARD, TARI)
Butter extraction (f)	Lesser butter to be extracted	2	Adding hot water, put a root from a plant (Amee/ Samma)	-Introduction of improved agitator .???
Yoghurt making (f)				
Churning (f/youth)				
Cheese making (f)				
Marketing				
Butter (f)	Lower price	1	Bring brokers to home	All weather road construction (rural road authority)
Cow (m)	Long distance	2		Creating new market place (administrative decision)

Note: a= waste from local drink; f= female; m= male

Table 68: Faba bean value chain analysis (women)

	Problem/Challenge	Priority	Coping strategy	Opportunity
Purchased Inputs				
Fertilizer(BoARD)	Expensive, Taking more than their need	1		Make fair price Distribute the fertilizer based on the quality of the soil
Improved seed (BoARD)	Expensive, Taking more than their need	2		Make fair price
Production				
	Disease	1	-	Chemical application
	Shortage of water at flowering stage	2	-	-Providing early mature variety -supplementary irrigation
	Too much weed	3	Frequent weeding	herbicide
	Water logging	4	Urea application	
Processing				
None				
Marketing				
	Selling immediately after harvest (low price) they are doing this to repay the loan for fertilizer and improved seed	1		Negotiate with the loan provider to repay the loan later
	Price fluctuation	2		-Access to information -Improved infrastructure

Table 69: Poultry value chain analysis (women)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Improved poultry (BoARD, GRAD)	Disease	1	Holy water, selling	Introduction of vaccination
Feed (Own, Market)	Feed shortage	2	Give the people own food	Introduction of feed processing institutions
	Unavailability of house	3		Construction of house
Production				
Egg	Breaking of egg due to lack of package	1	Putting the egg in straw	Providing good packaging system
Processing				
None				
Marketing				
Distance	During taking the egg in to the market egg is broken	1	-Putting the egg in straw and taking in to the market - Use for food	Providing good packaging system

Table 70: Sasula value chain analysis (youth)

Crop type (Insasula)	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Irrigation Tridilpump (Union)	Lack of motor and tridlepump maintenance	1	Throughout/store it	Provide skill manpower or give training to educated farmers
Fertilizer (Union)	Less attention by government	2	Continued by our initiation	Give more attention even than potato
Compost	Moisture stress	3	Dig water hole	Big Tanker construction and cement water canal construction
Seed/stem	Chemical/fungicide shortage	4	We try to drain the water to minimize the fungus of the plant	Identify the disease type and supply appropriate fungicide or chemical
Production				
Planting	Moisture stress	1	Stay at ground until moisture/rain comes	Tanker construction and efficient water utilization techniques introduction
Land preparation	Demand high labour cost	2	Cooperate with other farmers or hired labour	Cooperating each other
Processing				
Making sasula juice	It takes long time for good hand colour cosmetics (about 12 hrs)	1	Lemon can be facilitate and shorten the time	Use lemon Juice
Storage				
	Perishable if high/more moisture is absorbed at ground/if flood is available/		Store at ground that could not expose to flood	
Marketing				
	Lack of transportation access	1	Transporting using donkey	
	Long distance	2		All weather Road construction
	Price fluctuation	3	Sale at existing price	Local market establishment Use Insasula for other purpose or processing it to stay long period of time
	Lack of market information in other areas	4	Ask other farmers	Provide current market information on time

Table 71: Sheep value chain analysis (youth)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs				
Feed	Feed shortage	1	- Crop residue feeding - Move the animal to areas with excess feed - Destocking and Herd the most productive ones	- Introduce improved forge varieties - Introduce the crop residue improvement techniques - Move the animal to other area with excess feed - Select the productive ones
Veterinary service	Lack of Vet service	2	- Using Local medicine /leaf juice - Cutting the blood Vesicles	- Train educated farmers and establish para-vet establishment
Breed	Lack of improved breed	3	- Use local breeds/select the best rams and breeding	- Introduce improved sheep breeds and breeding
Supplement feeds	Lack of supplement feed	4	- Salt or local concentrate feeding	- Establish consecrate supply cooperatives - Strengthening the existing cooperative to supply - Different concentrates
Production				
	Different Disease	1	- Use local medicine, sale the animal, take to vet office found at long distance	- Provide medicines that is not expired - Give training to educated farmers on medicating of the animals and establish para-vet at kebelle level
	Predator/fox, hyena	3	- Daily follow up	- Protect from the predators
	Poor management	2	- Keep clean their house daily	- Awareness creation
Processing				
None			-	-
Marketing				
	Weight loss due to long market distance	1	Travel on feet	Establish local market Construct all weather construction
	Price fluctuation	2	Bring back home if the price is becoming low	
	Theft	3	Keeping the animals from theft	

ANNEX 3.5: SALKA

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

TABLES

A SYNTHESIS FOR SALKA KEBELE

Salka is administratively located in Sinana woreda, Bale zone of Oromia region. It is located 33 km south east from Robe town. The kebele is characterized by a crop-livestock system with a small perennial crops component. The kebele has a bimodal rainfall pattern. Total households of the kebele are 1602, of which 1417 are male- and 185 female-headed households. The farm households of the kebele are categorized as poor, average and better off farmers. More than 50% of the households are grouped as average. Number of livestock, farm size, and in some cases quality of residential houses are most important indicators for the wealth grouping. The livelihood of the community is based mainly on crop and livestock production. The status of most of the sources of livelihood enterprises has been changing due to various climatic, edaphic, socio-economic and anthropogenic factors. For instance, bread wheat production has been increasing due to farmers' exposure to improved tillage, crop protection and harvesting and threshing technologies. On the other hand, milk production has declined due to problems related to various livestock production inputs (vet medicine, improved feed), AI services, market and infrastructure.

Bread wheat, emmer wheat and faba bean are the most important cash crops whereas barley, bread wheat and faba bean are main food crops. The priority livestock species for different social categories (women, men and youth) include oxen, cows and donkeys. Oxen provide plowing services and donkeys support transportation of agricultural inputs and outputs. The community in the kebele identified more than 12 institution that existed within and 10 outside the kebele. The most important locally available institutions that have direct and indirect contribution for agriculture productivity are Idir, religious institutions, kebele administration and agricultural offices, health centers and cooperatives.

Various constraints challenge crop and livestock productivity. The most important constraints in relation to wheat, barley and faba bean production are high input and low output prices, weeds, diseases, insects and storage pests, shortage of improved and quality germplasm and farm implements. High value crops such as vegetables and fruit trees are less abundant, and this has resulted in poor human nutrition. Drinking water for human and livestock is insufficient during the dry period though the amount of rainfall that the area receives during the long and short rainy seasons is more than 1000 mm. Livestock related constraints focus on unavailability of feed, poor vet services, the unavailability of a milk processing facility and lack of marketing opportunities. Intensification and productivity of the crop-livestock system can be enhanced through improving access to crop and livestock production inputs, post-harvest handling of products and by-products, processing and marketing systems, soil and water management practices, integrating high value crops (vegetables, fruit and agroforestry trees) and networking value chain actors. Strengthening partnership among farmers, local institutions (Universities, research, extension), international research centers, and establishment of a platform that improve communication and common decision are also important issues for further consideration.

Table 72: Livelihood dynamics

	S	I	D		S	I	D
Barber		1		1	0%	100%	0%
Buying and selling		3		3	0%	100%	0%
E. Wheat		3		3	0%	100%	0%
Faba bean		2		2	0%	100%	0%
Lentil		1		1	0%	100%	0%
Making and selling local drinks		1		1	0%	100%	0%
Poultry		3		3	0%	100%	0%
Sheep		3		3	0%	100%	0%
Transport (equines)	1	4		5	20%	80%	0%
Wheat		2	1	3	0%	67%	33%
Field pea	1	2		3	33%	67%	0%
Barley		1	1	2	0%	50%	50%
Fattening (livestock)		1	2	3	0%	33%	67%
Cow for milk			3	3	0%	0%	100%
Potato			2	2	0%	0%	100%

[1] Number of times mentioned by the groups

S=Static, I=Increasing, D=Decreasing

Table 73: Crop preferences

Crop	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Barley	6	4	5	**5**	1	1	1	**1**
Wheat	1	1	1	**1**	2	1	4	**2**
Emma wheat	2	4	2	**3**	3	3	5	**4**
Faba bean	3	2	3	**3**	4	4	3	**4**
Field Pea	4	2	3	**3**	5	5	2	**4**
Lentil	5	4		**5**	6	6		**6**
Potato		7		**7**		7		**7**

1-highest

Highlighted crops=interventions already initiated

Table 74: Livestock preferences

	M	W	Y	All
Ox	1	1	1	**1**
Cow	2	2	2	**2**
Donkey	3	3	3	**3**
Horse	4	5	4	**4**
Sheep	5	4	5	**5**
Goat	6			**6**
Poultry	7	6	6	**6**

1-highest

Table 75: Institutions

Men - Not done

Women

Inside Organisation	Importance	Outside Organization	Importance
Animal Clinic	1	Sinana Agr. Research centre	1
Church	1	EECMY (Mekena Yesus)	1
Cooperative	1	Woreda Agricultural Office	1
FTC	1	Bale Agricultural Development Enterprise	1
Human health center	2	Woreda Health office	1
Idir	1	M.W.University	1
Ikub	1	AGP	1
Kbele Administration	1	Union	2
Mosque	2	Bank	2
School	1		
Women association	3		

Youth

Name of institution in the community	Rank	Name of institution outside the community	Rank
School	2	Sinana Agricultural State Farm	1
Animal health clinic	1	Sinana Agricultural Research Center	1
Human health clinic	1	District Agriculture office	2
Kebele Administration	1	ICARDA	3
Church	2	AGP	3
Mosque	2	ATA	3
IDIR	1		
IQUB	2		
Farmers Training Center (FTC)	2		
Hunde Farmers Cooperatives	1		
Youth Farmer Association	3		
Women farmer Association	3		

Table 76: Annual calendars

Men

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Indicate if men or women are more involved
Crops													
Land preparation (3-4 times)													M
Sowing/Planting													M
Weeding													Both
Harvesting													M
Threshing													Both
NB:													
Meher season													
Belg season													
Livestock													
Straw collection													

Women and Youth – not done

Table 77: Farmer profiles

	Criteria	Poor	Average	Better
Men	Farm land	0-0.5ha	>0.5ha – 10ha	>10ha
	Number of oxen	0-1	2-5	>4
	Number of cows	0	1-2	3-5
	Hired labour	0	1-2	3-5
	Quality of the house			
	1. Floor	Soil	Bamboo	Cement
	2. Wall	Wood + Mud	Wood + mud +bamboo	Sand covered
	3. Roofing	Grass	Iron sheet	Iron sheet
	% in each category	10%	80%	10%
Women	Land	0-1ha	1-5ha	>5ha
	Labour	Only use own labour	Hire up to 1	Hire 2 or more in addition to his own
	Oxen	0-2	2-4	More than 6
	Cow	0-1	2-4	5-13
	Donkey	1	2	4
	Horse	0	1	1
	Sheep	0-2	5	>20
	Chicken	2-3	4-5	>10
	% in each category	30%	50%	20%
Youth	Land size (ha)	Less than 1ha	4 to 5 ha	> 5 ha
	Ox	Up to 2	3 to 4	> 5
	Cow	Up to 1	2 to 3	> 4
	Sheep	Up to 5	6 to15	> 16
	Donkey	Up to 1	2	> 3
	Housing type	- One room	- two rooms	More than two rooms
		- Soil floor	- Bambu floor	Cement floor
		- Poor facility	- Better facility	Best facility such as sofa seat
	% in each category	20%	50%	30%

Table 78: Intervention areas (crops and livestock)

Crops	
Barley	MWY
Emma wheat	MW
Faba bean[1]	MWY
Field Pea	WY
Potato[1]	MWY
Wheat[1]	MWY
Livestock	
Ox	MWY
Cow	MWY
Donkey	MWY

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 79: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 80: Wheat value chain analysis (men)

Crop type: wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
1. Seed Source of seed: Sinana Agricultural Research Centre and Bale Agricultural Development Enterprise	1. High price of seed 2. Shortage of seed 3. Seed is not supplied timely 4. Lack of access to seed (this specific for those farmers who are far from the main road in case of demonstration, seed multiplication etc.)	1 2 3 4	Using own seed, seed exchange with other farmers, selling crops and livestock to buy seed, saving money for the purchase of seed during planting	Presence of Sinana Agricultural Research Centre and Bale Agricultural Development Enterprise (State Farm) as well as farmers' cooperative in the area
2. Fertilizer	1. High price 2. Shortage of capital/cash 3. Increasing interest rate (10-12bir/month/100kg)	1 2 3	Selling crops and livestock to buy fertilizer, compost and crop rotation, applying fertilizer below the recommended rate.	Availability of improve faba bean and field pea varieties for crop rotation, availability of farmers' cooperative and store at Kebele level.
3. Herbicide **Pallas 45OD** **Topic**	1. Shortage of supply (Pallas) 2. High price (Pallas 1200/0.5lit) 3. They are not supplied timely 4. The herbicides are not supplied by cooperative 5. Mixing with oil when sold in small amount 6. Shortage of capital/cash	1 2 3 4 5 6	Selling crops and livestock to buy herbicide, buying from private suppliers with high price, group buying, hand weeding and crop rotation. **NB:** Hand weeding and crop rotation are not common in the area.	Presence of private suppliers, farmers' cooperatives and union
4. Fungicide	1. Lack of awareness			Presence of DAs, Research
Production				
	1. Grass weed (*avena fatua and Bromus Pectinatus)* 2. Wheat rust (yellow, stem and leaf rusts) 3. Wheat aphid 4. Shoot fly 5. Frost (during main season only)	1 2 3 4 5	1. Application of herbicide, crop rotation and hand weeding (not common) 2. Application of fungicide (not widely used) 3. Use of pesticide 4. Identifying frost prone area and shifting to Belg season	Availability of private suppliers of different herbicides, pesticides and fungicides in the area. Presence of famers' cooperatives Presence of combine harvester
Harvesting using combine harvester	1. High price (45-60birr/100kg based on the distance of the farm from the home)	1	Selling crop at low price, taking credit from trader to whom they are going to	

Crop type: wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
	2. Problems associated with middle men 3. Overlap of rain during Belg season	2 3	sell the wheat after harvesting with low price	
Storage				
	Weevil	1	Application of pesticide	Availability of herbicide
	Rodents	2	Use of cat and pesticide	"
	Poor quality of grain sack	3		
	High price of the sack	4		
Processing				
None				
Marketing				
	Low price during harvesting	1	Selling livestock (sheep) and other crop, selling wheat on small quantity to cover harvesting expenses, paying for land rent, etc.	Possibility of diversifying sources of income/cash
	Problems associated with middle men/traders	2	Negotiation	Cooperative
	Low price of grain as compared to price of seed	3		
	Problems associated with balance	4		

Table 81: Ox value chain analysis (men)

Livestock type (ox)	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
	Water	1	Using pipe water and pond as well as travelling to other kebeles in search for water	Availability of water harvesting technology
	Feed	2	Feeding straw, barley, growing maize and fodder oat,	Availability of improved animal feed varieties (oat, vetch etc.)
	Shortage of Drugs	3	Getting the service from private vet. Services	Availability of public and private veterinary centres in the kebele
	Lack of castration service	4	"	Availability of public and private veterinary centres in the kebele
	Shortage of veterinarians	5	"	
Production				
	Shortage of grazing land	1	Feeding straw, barley, growing maize and fodder oat,	Availability of improved animal feed varieties (oat, vetch etc.)
	Disease	3	Using public and private animal health centers	Availability of public and private veterinary centres in the kebele
	External parasites	4	Use of drugs	Availability of public and private veterinary centres in the kebele
	Blotting (Belg season)	2	Traditional treatment	Availability of public and private veterinary centres in the kebele
Storage				
Processing				
Marketing				
	High price for the buyers. 3500 – 8000 birr/ox.		For the sellers the price is high and this is a positive aspect for them Those farmers who have limited money could not afford to buy an ox	

Table 82: Barely value chain analysis (women)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Inputs				
Fertilizers	High Price	1	• Using compost • Land preparation • Practicing crop rotation	Compost Research center arability Crop rotation
	lack of awareness on full package utilization	2	• Attending public extension services • Following existing Mass media	Availability of different stakeholders Access to media and information's Establishment of FTC at PA level
Improved seeds	Availability of improved seeds on time	1	Using own seeds Local seed exchange system	Availability of agri Research Establishment of farmers cooperatives MOA
	Lack of awareness	2	Using FTC as source of information	Access to mass midia
Herbicides	Not supplied by coops.	1	Buying from private sellers	Establishment of Farmers Coops.
	Poor quality Ineffectiveness of herbicides	2	Consulting development agents Using student to read expired date	Unions and farmers cooperatives Establishment of agro chemicals quality control groups
	High price of herbicides	3	• Using crop rotation • Hand weeding • Buying earlier	Hand weeding \ Crop rotation Improved (Conventional tillage)
Production				
Disease and Pest	Kish Kish	1	Pesticide	Private Suppliers
	Rust	2	Using fungicide Fumigation Use of Fertiliser reduces rust Appropriate site and season selection	Availability Research centre (SARC) to develop rust resistance varieties
	Shoot Fly	3	non	Expect solution from government
Weeds	Grass weeds and Browed leave weeds	1	Crop rotation Using agro chemicals Hand weeding	Hand weeding Crop rotation practices
	Rain at let harvest and snow	1	Using local hipping (kimir)	Timely harvesting

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Inputs				
Harvesting			Collective group action drying	Early maturing variety Using combined harvester
	High Labour requirement	2	Group action Hiring labour	Using combined harvester
Storage				
	Transporting to storage	1	Group work and social help Using cart and Donkey	Access to rural road and Transportation such as cart and car
	Moisture damage	2	Drying on sun Cleaning from weed seeds containing high moisture	Storing in better storage bin and storing hip to drying season
	Weevils	3	Using pesticides Drying on field	Availability of pesticide on the market Taking to market before damage by insect
	Rodents	4	Using pesticides Using cat as guard	Availability of pesticides and Private suppliers
Processing				
Making local alcoholic drinks, food and other processed products	Dehulling is labour intensive	1	Using group work Using local mill and family labour	Access to private mills
	Trashing make contaminate with soil and stones	2	Using hand cleaning	Availability of Combined harvester Trashing on canvas
	Moisture damage affects end use quality	3	Cleaning and sun drying before storage and using for different processed product	Availability of early maturing varieties Research center
Marketing				
	Price	1	Waiting for better market price Cleaning of grain Using quality seed	Producing malt barley for breweries Access to improved varieties
	Lack of Barley processing factories	2	Processing local alcoholic drinks and foods	Good market requirement for such products Establishment of processing industries and breweries

Table 83: Cow value chain analysis (women)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Inputs				
	Lack of animal Feeds	1	• Using crop residues and straw • Using improved varieties of animal feeds • Sowing maize as animal feeds • Using by-products of factories	Different varieties of animal feed Availability of research centre By-product of factories
	Breed	2	• Using local breed • Using artificial insemination • Using improved breeds	IA services at Zone level
	Veterinary services	3	• Using traditional way of treating sick animals • Taking long distance to animal health clinic	Government attention to the sector Public and private animal health clinic Skilled man power
Production				
	Bloating	1	• Using traditional treatment method such as Coca Cola and spices • Using trocal canola	Access to animal health center and skilled man power
	Disease	2	• Using traditional way of treating sick animals • Taking to animal health center	Government attention to the sector Public and private animal health clinic Skilled man power
	Parasites	3	• Using traditional treatments • Using pestsides • Cleaning animal body	Private and public animal medicine suppliers Access to Animal Clinic Improved animal feed availability
	Housing	4	• Constricting shelter • Cleaning of barn	
Storage				
Animal Housing	Quality of building material and handling	1	Using canvas and corrugated iron sheet cover	Access to modern animal barn technology
	Size of Barn	2	Minimizing number of cows	
Processing				
	Skimming/churning takes time and labour	1	Selling milk to local market Using family labour for skimming/churning	Availability of skimming machine Women association to get the skimmer
	Product quantity (butter) based on milk quality	2	We are using Oil in place of butter	Access to improved breeds and feed to improve product quality and quantity
Marketing				
	High price of cow	1	• Buying heifer	Support from government and NGOs

Table 84: Faba bean value chain analysis (youth)

Crop type	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs				
Seed Fertilizer Land Labour Chemicals	Access to improved seed	1st	Use of local seed	Use of improved varieties from Sinana Agri. Research enter
	High cost of improved seed	2nd		
	Shortage and high costs of chemicals	3rd	Clearing the farm from weed and others	
	High cost of fertilizer	4th	Applying below recommended level Use of compost	
	Shortage of land	5th	Allocating small portion of land	
Production				
Land and planting preparation Fertilizing the soil Weeding Chemical application Harvesting	Problem of rust and chocolate spot diseases	1st	Crop diversification and rotation	
	High costs of fertilizer	2nd	Use of compost	
	Ineffective chemicals	3rd		
	Problem of weeds such as wild oats	4th	Hand weeding and crop rotation	
	Deterioration of quality of seed due to high rain during main cropping season	5th	Immediate supply to market after harvesting	Use of small rainy season for quality seed production
	Shortage of oxen for tillage	6th	Use of neighbour ox and share ox	
Storage				
Storage	Problem of pests at storage	1	supply to market and home consumption	
Processing				
None				
Marketing				
Grain marketing	Low market price at the time of harvesting	1	Depend on petty trade for cash generation and preserve for the time of better price	

Table 85: Sheep value chain analysis (youth)

Livestock type Sheep	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Feed House Breed Water Vet service Animal keeper	Feed shortage	1st	Use of homemade food residues Minimizing the flock size Use of improved feed such as fodder oats	Suitable agro-ecology to cultivate improved forage crops
	Lack of improved breeds	2rd	Use locally available breeds	
	Shortage of adequate drinking water	3rd	Use of pipe water and pond found in the kebele	
	High disease incidence	4th	Using drugs from animal health clinic	
	Poor housing	5th	Constructing simple shelter/house at homestead	
Production				
Feeding Breeding Watering	Shortage of grazing land		Supplementing with concentrate feeds	Improving available feed resources such as straws by different treatment techniques
	Low body size and productivity due to inbreeding			Use of better potential animal for breeding
Storage				
Processing				
Marketing				
Live animal	Marketing price fluctuation		Targeting holidays	
	High transport cost to sell at big market place		Selling at local market	

Table 86: Water and Irrigation availability

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
Pipe water		People Livestock	Year round		14 years ago At good condition	Govt, private, community	Govt, private, community	Shortage of water resource due to electric power fluctuation	
Diversion from river	Dam /pond	Livestock People	Aug-Nov	Bucket Jerry can	During Derg Regime	Community	Community	Not available during dry time	Good landscape

ANNEX 3.1: ILU-SANBITU

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR ILU-SANBITU KEBELE

Ilu-Sanbitu is administratively located in Sinana woreda, Bale zone of Oromia region. It is located 13 km north east from Robe town. The kebele is characterized by a crop-livestock system with a little perennial crops component. The kebele has a bimodal rainfall pattern. Total households of the kebele are 1254, of which 1080 are male- and 174 female-headed households. The farm households of the kebele are categorized as poor (30%), average (50%) and better off (20%) farmers. Number of livestock, farm size, quality of residential houses, level of food security and status in the community are the most important wealth indicators. The livelihood of the communities based mainly on crop and livestock production. The status of most of the sources of livelihood enterprises has been changing due to various climatic, edaphic, socio-economic and anthropogenic factors. For instance, bread wheat production has been increasing due to farmers' exposure to improved tillage, crop protection and harvesting and threshing technologies. On the other hand, milk production has declined due to problems related to various livestock production input (vet medicine, improved feed), AI services, market and infrastructure.

Bread wheat, emmer wheat and field pea are the most important cash crops whereas barley, bread wheat and tef are main food crops. The priority livestock species for different social categories (women, men and youth) include oxen, cows and horses. Oxen and horses provide plowing and transport services, respectively. The community in the kebele identified more than 12 institution that existed within and 7 outside the kebele. The most important locally available institutions that have direct and indirect contribution for agriculture productivity are Idir, religious institutions, kebele administration and agri offices, health centers and cooperatives.

Various constraints challenge crop and livestock productivity. The most important constraints in relation to wheat, faba bean and pepper production are high input and low output prices, weeds, diseases, insects and storage pests, shortage of improved and quality germplasm, knowledge gap on agricultural technologies and farm implements. High value crops such as vegetables and fruit trees are less abundant, and this has resulted in poor human nutrition. Drinking water for human and livestock is insufficient during the dry period though the amount of rainfall that the area receives during the long and short rainy seasons is more than 1000 mm. Livestock related constraints focus mainly on feed, poor vet services, milk processing and marketing. Intensification and productivity of the crop-livestock system can be enhanced through improving access to crop and livestock production inputs, post-harvest handling of products and by-products, processing and marketing systems, soil and water management practices, integrating high value crops (vegetables, fruit and agroforestry trees) and networking value chain actors. Strengthening partnership among farmers, local institutions (Universities, research, extension), international research centers, and establishment of a platform that improve communication and common decision are also important issues for further consideration.

Table 87: Livelihood dynamics[1)]

	S	I	D		S	I	D
Barley		1		1	0%	100%	0%
Buying and selling		2		2	0%	100%	0%
Casual labour		1		1	0%	100%	0%
Fattening (livestock)		1		1	0%	100%	0%
Field pea		1		1	0%	100%	0%
Handicraft		1		1	0%	100%	0%
Lentil		1		1	0%	100%	0%
Linseeds		1		1	0%	100%	0%
Maize		1		1	0%	100%	0%
Making and selling local drinks		3		3	0%	100%	0%
Teff		1		1	0%	100%	0%
Transport (equines)		4		4	0%	100%	0%
Wheat		2		2	0%	100%	0%
Vegetables		2	1	3	0%	67%	33%
E. Wheat	1	1		2	50%	50%	0%
Poultry	1			1	100%	0%	0%
Faba bean		1	2	3	0%	33%	67%
Cow for milk			1	1	0%	0%	100%
Potato			2	2	0%	0%	100%
Sheep			1	1	0%	0%	100%

[1] Number of times mentioned by the groups

S=Static, I=Increasing, D=Decreasing

Table 88: Crop preferences

	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Barley	8	4	4	**5**	1	1	2	**1**
Teff	2	5		**4**	2	2		**2**
Wheat	1	1	3	**2**	3	4	1	**3**
Maize	9	7		**8**	4			**4**
Emma wheat	5	3	5	**4**	7	3	4	**5**
Faba bean	3	6	6	**5**	6	6	2	**5**
Field Pea	3	3	2	**3**	5			**5**
Lentil		8		**8**		5		**5**
Potato	7	9	1	**6**	8	7	5	**7**
Onion	4			**4**	9			**9**
Pepper	7	2		**5**	10	8		**9**
Linseed	4			**4**	11			**11**
Cabbage	10			**10**	12			**12**

1-highest

Highlighted crops=interventions already initiated

Table 89: Livestock preferences

	M	W1	Y1	All
Ox	5	1	1	2
Cow	6	2	2	3
Horse	4	3	3	3
Sheep	2	4	5	4
Donkey	3	6	4	4
Poultry		5	6	6
Goat		7		7
Mule				
Bees				

1-highest

Table 90: Institutions

Men

Inside community	Strength of the linkage	Outside community	Strength of the linkage
FTC	1	Zonal agricultural office	3
Animal Health clinic	1	MOA	3
Human health clinic	1	Ethiopian electric power authority	2
Church	1	Sinana agricultural research centre	1
Schools	1	Ethio-Italia Cooperation	2
Mosques	1	Union	2
Saving and credit associations	1	University	3
Women association	2		
PA administration	1		
Edir	1		
Farmers cooperatives	1		
Irrigation association scheme	2		

[1]1-Best, 2=Less important, 3=Least important (for agriculture)

Women – not done

Youth

Institutions in the community	Rank [1]	Institutions outside the community	Rank[1]
Farmers training centre	1	Sinana agriculture centre	1
Animal health clinic	1	District agriculture office	1
Farmers union/cooperatives	1	Bale agricultural Development organization Farmers	3
School	2	Bale farmers union	2
Human clinic	2	Bale zone Rural water development organization	2
Church	2	District Health office	2
Mosque	2	NGOs (AGP, ATA, Ethio-Italy)	1
Kabele administration	1	District Animal health centre	1
Women Associations	2		

[1]1-Best, 2=Less important, 3=Least important (for agriculture)

Table 91: Annual calendars

Men

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Indicate if men or women are more involved
Crops													
Land preparation					x	X	X		X	x	X	x	Men
Planting			mid	x			Late	X					Men & women
Weeding				Mid	x			Late	x				All
Harvesting	x					Mid	X					mid	Men & youth
Threshing	X	X									Late	x	Men & youth
Marketing	X	x	mid	x		Mid	x	x					Men
Livestock													
Straw collection	x	x									late	x	Men & youth
Green feeding				x	x			x	x	x			Youth
Shortage of feeds		x	x	x		x	x						-
Animal feeding									x	x	x		
Castration										x	x		Men
Calving										x	x		-
Marketing				x			late	x				x	Men
Open grazing	x	x	x										
Stall feeding							x	x	x	x			All
Road side feeding							x	x	x	x			Men & youth

Women – not done

Annual calendar - youth

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Crops													
Land preparation				*	*	*			*	*	*	*	Men
Planting			*	*			*	*					
Weeding													Men and women
1st weeding				*					*				
2nd weeding				*						*	*		
Harvesting and trashing	*						*	*				*	Men
Collecting crop residue	*							*					Men and women
Livestock													
Ox	No calendar identified for livestock. Farmers told us they can do livestock fattening as his/her interest. But due to lack of grazing land, using oxen for land ploughing, and availability of crops residue farmers used to fatten livestock at animal feed availability and /or when they will not plough land.												Men and women
Cow													
Horse													
Donkey													
Sheep													
Chickens													

Note
1. Yellow shaded months indicate Belg/Gana season
2. Red shaded months indicate activities in Meher/Bona season
3. Red star activities in Belg/Gana season
4. Black star activities in Meher/Bona season
5. There is black star shaded at the centre to indicate planting activity starts in late July

Table 92: Farmer profiles

	Criteria	Poor	Average	Better
Men	Farm land	0-0.5ha	2-4ha	5-15ha
	Oxen	0-2	4-6	8-10
	Cow	0-1	2-3	4-5
	Sheep	2-5	6-10	10-15
	Types of house	Grass +mud	Iran sheet + mud + bamboo	Iran sheet + cemented + lisho
	Food security	Insecure	Sufficient	Excess
	Saving	Lending	Only for consumption	Save at bank
	Acceptance in the communities	Low	Average	High
	Participation in different associations	Very low	High	Low
	% in each category	30%	50%	20%

Table 93: Intervention areas (crops and livestock)

Crops	
Barley	MWY
Emma wheat	WY
Faba bean[1]	MWY
Field Pea	MWY
Pepper	W
Potato[1]	Y
Teff	M
Wheat[1]	MY
Livestock	
Ox	WY
Cow	WY
Sheep	M
Donkey	M

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 94: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 95: Wheat value chain analysis (men)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Inputs				
Fertilizers	High Price	1	• Using compost • Using half package • Practicing crop rotation	Established farmers cooperatives Availability of UNION Infrastructure (Rural road & communication services)
	Credit services	2	• Increasing production and productivities per hectors • Developing the habit of saving • Diversification sources of income	Availability of Oromia saving and credit services Availability of different Bank service in the nearest town
	Lack of capital	3	• Using composts • Diversifying source of income • Using irrigation system • Animal fattening	Favourable environmental conditions Job opportunities at PA & town level Attractive market price of livestock Access to credit services
	lack of awareness on full package utilization	4	• Attending public extension services • Following existing Mass media	Availability of different stakeholders Access to media and information's Establishment of FTC at PA level
Improved seeds	Not supplied in quantity	1	Using own seeds Local seed exchange Group action	Establishment of farmers cooperatives Availability of Union at zonal level Arrival of different projects like AGP, ATA & Ethio-Italian project
	High price of improved seeds	2	• Selling different livestock small ruminants like sheep • Selling of grain • Using local seeds • Exchanges of seeds with in the communities	Established farmers cooperatives Availability of UNION Infrastructure (Rural road & communication services) Establishment of Oromia saving and credit services (WLQO)
	Only limited varieties of crops are supplied	3	• Using own seeds • Local seeds exchange	Agricultural Research is there Establishment of farmers cooperatives Establishment of quality seed producers farmers Government attention of strengthen farmers cooperatives
	Availability of improved seeds on time	4	Using own seeds Local seed exchange system Group action	Availability of agri Research Establishment of farmers cooperatives Availability of Union at zonal level Arrival of different projects like AGP, ATA & Ethio-Italian project
	Poor qualities of seed	5	Cleaning Rogging on field	Establishment of seed cleaning mashine for quality seed producer farmers by the help of Ethio-Italian Project SARC and Oromia seed enterprise

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Herbicide	High price of herbicides	1	• Using crop rotation • Hand weeding • Land preparation • Selling different livestock or small ruminants like sheep • Selling of grain to buy it • Using small quantity on parts of the filed • Using below recommended rate	Availability of private suppliers Established farmers cooperatives UNION Infrastructure (Rural road & communication services) Improvement in farmers awarnes on mono cropping Group buying
	Not available on time	2		Government concern on farm inputs Establishment of farmers cooperatives Availability of Union at zonal level Infrastructure (rural roads & comm.)
	It is not supplied in quantity	3	Buying from private sectors with high prices Using crop rotation Using hand weeding Using group work on weeding	Establishment of farmers cooperatives Availability of Union at zonal level Arrival of different projects like AGP, ATA & Ethio-Italian project
	Ineffective herbicides	4	Buying through relatives and neighbours Consulting development agents Using student to read expired date	Unions and farmers cooperatives Establishment of agro chemicals quality control groups
Fungicide	High price of fungicide	1	• Selling different livestock or small ruminants like sheep & grain • Selling of grain to buy it • Using below recommended rate	Availability of private suppliers Established farmers cooperatives and UNION Infrastructure (Rural road & communication services)
Production				
Disease	Rust	1	Using fungicide Using disease resistant varieties	Availability of private suppliers Availability Research centre (SARC) to develop rust resistance varieties Establishment of farmers cooperatives
Frost		2	Selection of site Using favourable season	Development of improved varieties Bimodal rainfall condition
Aphid & pests		3	Using pesticide Using different season	Availability of private suppliers Establishment of farmers cooperatives
Weeds	Grass weeds	1	Crop rotation Using pallas and topic Hand weeding	Improved pulse crop varieties Crop rotation practices Private suppliers Stakeholders platform FTC to be used as trial site
	Browed leave weeds	2	Using crop rotation	Crop rotation

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
			Hand weeding Using 2-4D	Availability of improved pulse crop verities
Soil fertility	Decrease of soil fertility	1	Using inorganic fertilizers Using organic fertilizers Crop rotation	Improved varieties of pulse crops Famers awareness on compost preparation
Land	Shortage of farm land	1	Crop sharing in and renting in	Availability technologies
	Small size of farm land	2	Crop sharing in and ranting in	Availability of technologies
Harvesting	Cost of harvesting by combiner	1	Saving and selling grain and animals to cover costs Collective group action Negotiation	Established plat form in controlling private sectors (combine harvesters') Farmers cooperatives & Union
	Availability of combine harvesters	2	Group action Communication through telephone	Farmers cooperatives will participate in such services Private sector participation Group of farmers role in buying it Development of infrastructure like telecom services and rural road
Storage				
	Quality of sacks	1	Using duple sacks at a time Buy first quality of sacks	Quality sacks factory establishment by Oromia farmers Union
	Price of sacks	2	Using on time Buying by selling grain & others	Quality sacks factory establishment by Oromia farmers Union
	Weevils	3	Using pesticides Seed cleaning practices Seed drying Application of hot paper (fumigation)	Availability of pesticide on the market Availability of private suppliers
	Rodents	4	Using pesticides Using cat as guard	Availability of pesticides and Private suppliers
Marketing				
	Low price during harvesting time	1	Selling small quantities of grain during harvesting time Using other source of income Pity trading and hand crafts	Government attention to market Mass media (Oromia TV & radio) Exchange of information locally Diversified sources of income Establishment of flower factories
	Price fluctuation	2	Delay selling when price of crops increase on market Negotiation and group action Information exchange	Mass media Informal farmers to farmers crop market information exchange
	Week farmers coops	3	Group action and negotiation Strengthen cooperatives committee	Government commitment on strengthen farmers cooperatives

Table 96: Ox value chain analysis (men)

Livestock Types ()	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Inputs Problems				
	Lack of animal Feeds	1	• Using crop residues and straw • Using improved varieties of animal feeds • Road side grazing • Stoll grazing • Open grazing • Sowing maize as animal feeds • Using by-products of factories • Using barley grain	Different varieties of animal feed Availability of research centre Availability of FTC
	Veterinary services	2	• Using traditional way of treating sick animals • Taking too long distance to animal health clinic • Using private services	Government attention to the sector Public and private animal health clinic Intervention of NGO Skilled man power
	Breed	3	• Using local breed	IA services at Zeal level
	Lack of castration services	4	• Using traditional way of castration services • Taking to town to get the services from private sector	Private and public service in town Skilled man power Establishment of animal health clinic at PA level

Table 97: Pepper value chain analysis (women)

Crop type Pepper	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Seed/seedlings Fertilizer (UREA and DAP) Pesticide Finance/Cash income	High price of pesticide chemicals	1st	Focusing on other crops	
	Shortage of seed of improved variety	2nd	Use local variety	High potential of the area for pepper production
	High price of seed	3rd		High market demand
	High price of fertilizer	4th	Use of organic fertilizer (animal dung)	
	Shortage of finance/credit service			
Production				
Labour Pesticide Herbicide Know how/knowledge	Pests	1st	Cultivating other crops	
	Lack of knowledge	1	Use indigenous knowledge	
	Shortage of labour	2nd	Mobilizing family labour	Good water source for irrigation
	Weed	3rd	Hand weeding	
Storage				
Storage/preserving facilities	Lack of proper storage to preserve for longer period		Supplying to market immediately after harvest Use available materials like sacks	
Processing				
None				
Marketing				
Fresh pepper	Market price fluctuation	1	Targeting holidays to supply to market	Accessibility to the main Zonal market (Robe)
	Shortage of good road connect farm land to main road	2		

Table 98: Poultry value chain analysis (women)

Livestock type Poultry	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
breeds house Feed water Finance/cash source Health service	Lack of health service	1st	Use tablets from drugstore at Robe	
	High costs of poultry house	2nd	Living the same house with human	
	Shortage of processed poultry feeds	3rd	Use of locally available grains mainly wheat	
	High cost of improved poultry	4th		
	Shortage of improved poultry breeds	5th	Use of the local breeds	
Production				
Health services Feeding watering Housing Training	Shortage of drugs	1st	Use tablets from drugstore at Robe	Using animal health clinic
	Problem of Cats and other predator/wild animals	2nd	Using mesh wire and dogs	
	Poor access to processed feeds	3rd		
	Lack of adequate training		Indigenous knowledge	
Storage				
Nil				
Processing				
Marketing				
Live animal Egg	Fluctuation of the price	1st	Targeting poultry to sell on holidays	Availability good infrastructure such as light, water, road
	Perishability of egg	2nd	Immediately supply to the market Consume at home	Accessibility to the main Zonal market (Robe)

Table 99: Faba bean value chain analysis (youth)

	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Seed, Agri chemical, Knowledge of production and	Lack of production knowledge	1	-using indigenous knowledge	-presence of GOs and NGOs organisations working on Pulse cropping system
	-poor extension service	2	- using indigenous knowledge	-presence of FTC at kebele level
	-Lack of improved seed	3	-using locally available seed	-Availability of improved seeds
	-lack of agri -chemicals (for disease)	4	-planting during ganna season	-presence of double cropping season and resistance varieties
Production				
	-Frost problem	1	-planting during gana season	-Availability of two cropping seasons and resistance varieties
	-Disease problem	2	-using Gana season and hand weeding for weed	-Availability of agri-chemicals on Robe market
	-Labour intensive	3	-Producing low amount	-Using Jigi can be possible during hand weeding
	-low productivity relative to wheat	4	-producing only for home consumption and have relative advantage in controlling weed	-its ability to improve land productivity and weed control make it crop of choice
	-Damage (eaten) by people	5	-using land far from road side	
Storage				
	-Since we only produce small amount for home consumption, we don't face storage, processing and marketing problem.			
Processing				
Marketing				
Indicate product				

NB: Basically, to do this value chain analysis Faba Bean couldn't be crop of choice, because it is not known by most farmers in the kebele. Rather it was better to do for Field pea which cultivation is practiced by most of the farmers.

Table 100: Sheep value chain analysis (youth)

Livestock type……	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
	-Breed	1	-using better but local breed	-Presence of Improved breeds
	-Feed (grazing land)	2	-reducing number and using feed supplement	Availability of improved forage and fodder varieties
	- Supplementary feed	3	-using frishka and Fagullo	-presence of improved fees technologies
	-Lack of medicine	4	-pre-protection by cleaning their housing	-Presence of medicine at Robe
Production				
	-Production Knowledge	1	-sharing knowledge from farmer to farmer	
	-Feed	2	-using crop residue, food and grain	-presences of improved feeds and fodder
	-Housing	3	-they require small space	-minimizing number and using improved Breed
	-Disease	4	-local/cultural medicine	-Access to animal vet clinic
	-Management	5	-indigenous /local management	-Access to improved management options, Development agents working with community
	-Dogs and other predators	6	-discussing with local community leaders to tie their dogs	
Storage				
Feed	Knowledge	1	-	-
	Storage facility (store house)	2	Using local storage system of crop residue on open space	- Availability of plastic canvas used to protect stored feed from rain and other problems
Processing				
Marketing				
Indicate product	-Access to market	1	-using available market 10 km from kebele	-Establishing local market
	-High taxation	2	- selling at village during holydays	-
	- Market fluctuation	3	-selling on religious holydays	-Access of market information from mass media

Table 101: Water and Irrigation availability

Men

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River	River	Irrigation Livestock Human Cloth washing	Throughout the year		1996 E.C	Oromia Regional National state	Government	Interest of conflict on the resource with settlers	High potential of river water
Pipe line	Pipe	Irrigation Livestock Human Cloth washing	Throughout the year		-	Zonal Water and energy office	Water and energy office	It is not sustainable	Using ground water
Ponds	Ponds	Irrigation Livestock Human Cloth washing	Half a year		It based on those farmers establishment	Locally constructed by farmers themselves	Communities		Easily collected and used for irrigation and low water evaporation
Deep hole "Eela"	Ground	Irrigation Livestock Human Cloth washing	Throughout the year		Differ farmers to farmers conditions	Private farmers	Private farmers	Chilled and animal filed in	Found on 1o to 12 meter in the ground
Rain water	equipments	Colth washing Livestock drink Human drink Washing of equipments	In both gana and bona rainy seasons		Using roof collection	-	-		Most of the farmers had Iran sheet roof types

Women

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River		Livestock People Vegetable(by pump)	Year round	Using pump for irrigation				Poor quality for drinking	Availability of river for d/t purpose
Pipe water		People Livestock	Year round		4 years ago	Govt, private, community	Govt, private, community	Fluctuation of the water source	
Ground water /Well		People Livestock	Year round		Varies depend on household(1-10yrs)	Private	Private	Poor quality for drinking	Potential of underground water
Pond		Livestock	Aug-Nov		5 years before	Community	Community	Not available during dry time	Good landscape

Youth

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River	Flowing	- cleaning -livestock -irrigation using pump -Dinking sometimes	-the whole months of the year	-using motor pump and by flooding	-Non for this PA But by pumping	-Community contribution	-community	-complain from lower basin communities during dry season	-Access to enough water the whole year
-Hand dug wall		-cleaning -livestock -Dinking sometimes	-depends on location, but it reduces during January	-by watering using some containers	-stated from earlier times	-Community	-community	-hand digging is difficult duty	- if we get opportunity we may for irrigation

Note: there is hand dug well by Agricultural Growth Project (AGP) last year for irrigation having potential of irrigating more than 5 ha, currently we are using for animal

ANNEX 3.2: JAWE

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR JAWE KEBELE

Jawe is administratively located in Lemo woreda, Hadiya zone of SNNPR. It is located 8-10 km to the south west of Hosahina town. The kebele is characterized by a crop-livestock system with a strong perennial crops component. The kebele has a bimodal rainfall pattern. Total households of the kebele are 914, of which 749 are male- and 165 female-headed households. The farm households of the kebele are categorized as low income, average and better off farmers. Number of livestock, farm size and perennial crops holding are most important wealth indicators. The livelihood of the communities is based mainly on crop and livestock production and off-farm activities. The status of most of the sources of livelihood enterprises has been changing due to various climatic, edaphic, socio-economic and anthropogenic factors. For instance, Enset production has been declining due to disease infestation. On the other hand, off-farm activities such as petty trading and carpentry increased due to prevalence of land shortages. The youth and the disadvantage women groups are landless in most cases.

Wheat, tef, potato and faba bean are the most important cash crops whereas enset, vegetables, teff, wheat and potato are main food crops. The priority livestock species for different social categories (women, men and youth) include oxen, cows and donkeys. Oxen provide plowing services and donkeys support transportation of production inputs and outputs. The community in the kebele identified more than 10 institution that existed within and 5 outside the kebele. The most important locally available institutions that have direct and indirect contribution for agriculture productivity are Idir, religious institutions, kebele administration, agricultural offices, health and education centers.

Various constraints challenge crop and livestock productivity. The most important constraints for crops such as wheat and potato are high input and low output prices. Diseases and pests, lack of improved germplasm and farm implements, soil depletion and erratic rainfall distribution are also limiting the productivity of farmers' priority crops (enset, wheat and potato). Livestock related constraints focus mainly on feed, poor vet services, milk processing and marketing. Intensification and productivity of the crop-livestock system can be enhanced in the kebele through improving access to crop and livestock production inputs, post-harvest handling of products and by-products, processing and marketing systems, soil and water management practices, and networking value chain actors. Strengthening partnership among farmers, local institutions (Universities, research, extension), international research centers, and the establishment of a platform to improve communication and common decision making are important issues for further consideration.

Table 102: Livelihood dynamics[1)]

	S	I	D		S	I	D
Buying and selling		2		2	0%	100%	0%
Goat		1		1	0%	100%	0%
Carpenter	1	2		3	33%	67%	0%
Faba bean		2	1	3	0%	67%	33%
Fattening (livestock)		2	1	3	0%	67%	33%
Sugar Cane		2	1	3	0%	67%	33%
Sheep		1	1	2	0%	50%	50%
Chat		1	1	2	0%	50%	50%
Teff		1	1	2	0%	50%	50%
Haricot Bean	1		1	2	50%	0%	50%
Making and selling local drinks		2	3	5	0%	40%	60%
Vegetables		2	3	5	0%	40%	60%
Coffee		1	2	3	0%	33%	67%
Cow for milk		1	2	3	0%	33%	67%
Potato		1	2	3	0%	33%	67%
Wheat		1	2	3	0%	33%	67%
Transport (equines)		1	3	4	0%	25%	75%
Field pea			3	3	0%	0%	100%
Poultry			3	3	0%	0%	100%
Sorghum			3	3	0%	0%	100%
Enset			3	3	0%	0%	100%
Barley			2	2	0%	0%	100%
Maize			2	2	0%	0%	100%
Fruit			2	2	0%	0%	100%
E. Wheat			1	1	0%	0%	100%
Bee keeping			1	1	0%	0%	100%
Pottery			1	1	0%	0%	100%

[1] Number of times mentioned by the groups

S=Static, I=Increasing, D=Decreasing

Table 103: Crop preferences

Crop	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Enset	10	7		**9**	1	3	1	**1**
Vegetables							2	**2**
Teff	2	2	2	**2**	2	2	5	**3**
Wheat	1	1	1	**1**	2	1	6	**3**
Maize	9		6	**8**	3	5	3	**4**
Potato	3	3	2	**3**	4	4	4	**4**
Haricot bean	7			**7**	5			**5**
Field Pea	5			**5**	6			**6**
Faba bean	4	4	4	**4**	6	6	7	**6**
Barley	6	5	5	**5**	9			**9**
Sorghum	8	8		**8**	10	8		**9**
Chat			6	**6**				

1-highest

Highlighted crops=interventions already initiated

Table 104: Livestock preferences

	M1	W1	Y1	All
Ox	1	1	1	**1**
Cow	2	2	2	**2**
Donkey	3	3	3	**3**
Sheep	4	5	5	**5**
Poultry	6		4	**5**
Goat	5	4	6	**5**
Mule	8	7		**8**
Horse	7	9		**8**
Bees	9	8	7	**8**

1-highest

Table 105: Institutions

Men

Institutions	Rank	Comment
In the community		
Kebele Agricultural office (including FTC)	2	Unable to address all community members due to expertise shortage
Kebele Health clinic	2	Not satisfactory due to shortage of expert
Kebele Veterinary clinic	3	Very limited service though drugs and expert is there
Kebele water committee	3	No proper service is given for the community
School	2	provide technical and ethical advice for children, save time and resource
Kebele Admin office	2	Entangled with many different untimely activities
Credit & saving (Omo micro finance)	3	Weak and cannot address many of the community members
Kebele Cooperative office	2	Limited input provision service
'Edir' (Local community institution)	1	Edir members give free labour service (ploughing, harvesting, threshing)
Church	1	Play great facilitation role for mutual support on agricultural activities
Mosque	1	Play great facilitation role for mutual support on agricultural activities
Kebele police	3	Not much related with agricultural activities
Outside the community		
Woreda administration office	2	Not fully satisfy the needs of the community
Woreda agricultural office	2	Service is not extended for all community members
Woreda health office	3	Very limited service related to agricultural activities
Poverty reduction (NGO)	2	Provide farm tool support but limited to few farmers

Women

List of institutions in the community	Importance	Comments	List of institutions outside the community	
FTC	1		Woreda office of agriculture	1
Cooperative	1		Zone department of agriculture	1
Omo micro-finance	1		Zonal and woreda administration	1
Grain mill	1		Health office	1
Health post (human and vet)	1		Education office	1
School	1	Time saved for assisting family		
Kebele Administration	1			
Churches	2	Behavioural change/Ethical value		

Youth

Institutions	Rank	Comment
In the community		
Kebele Agricultural office (including FTC)	2	Unable to address all community members due to expertise shortage
Kebele Health clinic	2	Not satisfactory due to shortage of expert
Kebele Veterinary clinic	3	Very limited service though drugs and expert is there
Kebele water committee	3	No proper service is given for the community
School	2	provide technical and ethical advice for children, save time and resource
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Kebele police	3	Not much related with agricultural activities
Outside the community		
Woreda administration office	2	Not fully satisfy the needs of the community
Woreda agricultural office	2	Service is not extended for all community members
Woreda health office	3	Very limited service related to agricultural activities
Poverty reduction (NGO)	2	Provide farm tool support but limited to few farmers

[1]1-Best, 2=Less important, 3=Least important (for agriculture)

Table 106: Annual calendars

Men

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Indicate if men or women are more involved
Crops													
Land preparation	■	■	■	■	■	■	■						Both but men more
Planting			■	■		■	■	■					Both, but men more
Weeding				■	■	■		■	■				Both sexes
Harvesting						■					■	■	Both sexes
Threshing	■										■	■	Both sexes
Storage	■											■	Both sexes
Marketing	■	■	■	■	■	■	■						Both sexes
Livestock													
Pasture management			■	■	■	■	■	■	■				Men
Collecting crop residue											■	■	Both sexes
Vaccination			■							■	■		Men
Deworming (giving antihelimenth)				■						■			Men
Hay making 9hay production)									■	■	■		Men
Fattening	■	■	■	■	■	■	■	■	■				Both, but men more
Barn cleaning	■	■	■	■	■	■	■	■	■	■	■	■	Women

Women

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Crops													
Land preparation	X	XX	XX	XX	XX	XX	XX						Men
Obtaining inputs		XX				XX							Men & Women
Planting /sowing	X	XX	X	X		X	X						Men & Women
Fertilizer application		XX	X	X		X	XX	X					Men & Women
Weed and pest control				X	X		X	XX	X				Men & Women
Harvesting						X	X				XX	X	Men& Women
Storage						X	X				XX	X	Men & Women
Selling						X	X				XX	X	Men & Women
Livestock													
Hay preparation	XX	XX									XX	X X	Men & Women
Grass closure					XX	XX	XX	XX	XX	X			Men & Women
Cleaning/ Care taking	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	Women

Youth

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Crops													
Land preparation	■	■	■	■	■	■	■						Both but men more
Planting			■	■		■	■	■					Both, but men more
Weeding				■	■	■		■	■				Both sexes
Harvesting						■					■	■	Both sexes
Threshing	■										■	■	Both sexes
Storage	■											■	Both sexes
Marketing	■	■	■	■	■	■	■						Both sexes
Livestock													
Pasture management			■	■	■	■	■	■	■				Men
Collecting crop residue											■	■	Both sexes
Vaccination			■							■	■		Men
Deworming (giving antihelimenth)				■						■			Men
Hay making 9hay production)									■	■	■		Men
Fattening	■	■	■	■	■	■	■	■	■				Both, but men more
Barn cleaning	■	■	■	■	■	■	■	■	■	■	■	■	Women

Table 107: Farmer profiles

	Criteria	Poor	Average	Better
Men	Land holding	< 1 hectare	1 hectare	> 1 hectare
	Livestock holding			
	- Ox	0	1	>= 2
	- Cow	<= 1	1-3	> 3
	- Sheep	<=1	1-2	> 2
	- Goat	<= 1	1-2	> 2
	- Chicken	<= 1	2-3	> 3
	- Bee colony	0	1	> 1
	Food self sufficiency	2-3 month from own production	4-6 month from own production	6-10 month from own production
	House type	Human and animal live in one house together	Having two separate house for human and animal	Having 3 separate quality house (one for human, one for animal, one for storage)
	Perennial crop holding (coffee, eucalyptus, etc)	On Zero hectare	On 0.125 hectare	On 0.25 hectare
	No in each category	50%	30%	20%
Women	Land holding	Owing Less than or equal to 0.5ha	Owing less than or equal to 1ha	Owing greater than 1ha
	Presence of Oxen	Having no oxen	Having a single oxen	Having a pair or more
	Presence of Cattle	Having no cattle	Having less or equal to two cattle	Having less two or more cattle
	Presence of Goat	Having less or equal to two shoat	Having less than three shoat	Having three or more shoat
	Presence of Chicken	Having less than three chickens	Having five chickens	Having more than five chickens
	Presence of House (grass)	Having “Tukul” house	Having “Tukul” house	Having “Tukul” house and corrugate iron
	Presence of Coffee	Having no coffee	Having no coffee	Having about 30-50 foots of coffee
	Presence of Mule/ Horse	Having no Mule/ Horse	Having no Mule/ Horse	Having one Mule/ Horse
	Presence of Donkey	Having no donkey	Having one donkey	Having one donkey
	Presence of wood lot/trees	Having less than five trees	Having greater than five but less than fifty trees	Having 100 trees or more
	Percentage in each category	60%	30%	10%
Youth	Crop land	<0.5ha	0.5-1ha	>1ha
	Ox	single	1 pair	>1pair
	Cow	<2	2-3	>3
	Sheep	“	“	“

Criteria	Poor	Average	Better
Goat	“	“	“
Donkey	0	1	>1
Chicken	<10	10-20	>20
Perennial crops (Enset, coffee)	<1/8ha	1/8ha-1/4ha	>1/4ha
Wood lot	<1/4ha	1/4ha-1/2ha	>1/2ha
Grazing land	<1/8ha	1/8-1/4ha	>1/4ha
Family size	>12	5-!2	<5
House number	1	2-3	>3
Percentage in each category	30%	50%	20%
Percentage in all	47%	37%	17%

Table 108: Intervention areas (crops and livestock)

Crops	
Enset	MWY
Faba bean[1]	MWY
Maize	MY
Potato[1]	MWY
Teff	MWY
Wheat[1]	MWY
Livestock	
Ox	MWY
Cow	MWY
Donkey	MWY

M=Men, W=Women, Y=Youth

[1]Interventions already initiated

Table 109: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 110: Wheat value chain analysis (men)

Crop type: Wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
- Fertilizer (from kebele cooperative) - Improved seed (from Kebele office of, Cooperatives and Farmers) - Herbicides (market) - Compost (locally prepared)	High cost of inputs	1	Get cash from livestock sale, credit	- Strengthening local cooperative for input provision - Establishing improved seed producer cooperatives
	Untimely availability of inputs	2	Apply as soon as made available	
	Limited of improved	3	Purchase from other farmers and Use locally available quality seed	
	Quality Problem	4	Changing other type of the same Variety for the next planting	
	Side effect on human health during preparation and application process of compost (eye disease and respiratory disease)	5	No copping strategy	Frequent practical training on appropriate compost preparation
Production				
- Land preparation - Planting - Fertilizer application - Herbicide application - Weeding - Harvesting - Threshing	Ox shortage	1	Exchanging human labour with ox (2-3 day labour service with 1 day ox service)	Provision of appropriate credit service
	Farm tool shortage (high cost per unit type)	2	Borrowing from neighbours	Supply of quality farm tool for the farmers at fair price)
	Labour shortage	3	Using local supporting mechanisms (like Geja and debo),	Provision of combiner (for threshing) in group
	Input shortage	4	Selling livestock	Provision of appropriate credit service and strengthening cooperatives
	Erratic rainfall	5		
	Sloppy land and flood problem	6	Terracing, contour ploughing, planting grass strip, flood diversion	
	Crop rotation mismanagement (due to land shortage)	7	Try to apply rotation as available land allows doing so.	
Storage				
Preparation of storage facilities	Weevil attack	1	Properly drying seed, Put away from hotter	
	Termite	2		

Crop type: Wheat	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
	Rodent	3	area (putting in colder area), using cat and trap for rodent.	
Processing				
- Separating debris and grinding	Grain grinding mill distantly situated	1		If grain grinding mill is planted via community cooperatives in the kebele where there is no mill around.
	High cost per unit grain for grinding	2		
	Limited number and takes longer hour to get the service	3		
Marketing				
- *Selling seed and grain*	Low selling price	1		Establishing seed and grain producer and marketing cooperatives
	Transportation problem	2	Use donkey for transport service	
	Larger market place is distantly situated	3		

Table 111: Ox value chain analysis (men)

Livestock type: Ox	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
- Improved forage planting material - Drugs (from public and private sectors)	Lack of improved forage planting material	1		In-kind supply of improved forage seeds
	Unavailability of required drug	2	Try to get it from private sector	
	High cost of drugs	3	Try to use public sectors	Proper supply of credit service
	Poor quality drug	4		
Production				
- Feeding - Vaccination - Deworming	Feed shortage problem	1	Collecting crop residue, supplementing concentrate like bran, Producing grasses around homestead, using Enset and food residues	Pre-scaling up of improved fodder technologies
	Tick and disease problem	2		
Storage				
Housing	Poor sanitation		Cleaning every day	
Processing				
Marketing				
Ox	No predetermined purchasers			Producers and marketing cooperatives

Table 112: Enset value chain analysis (women)

Crop type "Enset"	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Sackers: - research centres Corm "Dubo'o"	Porcupines	1	Local measures	Presence of Manure
	Bacterial wilt "Alooya"	2	Prevention	Resistance variety, Market demand
	Free grazing	3	Fencing	
Production				
Planting Weeding Pruning	Bacterial wilt "Alooya"	1	Prevention	Commitment
	Pest	2		
	Porcupine	3	Local measures	Labour availability
	Free grazing	4	Live fencing	Climate fitness
Storage				
Pit Maceration/Mixing up	Thief	1	Kebele police, Prevention, Local bylaws	Kebele police, Prevention/Thorn fence, Local bylaws and church
Processing				
Land surface preparation Pitting & Pit surfacing Overhead pit bed Pruning and cutting Chopping	Technology being traditional	1	"Pray God"	Improving the traditional one Technology transfer
Marketing/consumption				
"Bulla", "Kocho" Fiber "Kacha" Mat "Kesha" made of "hoficho"	Largely home consumption	1		Market demand - traders come to village

Table 113: Cow value chain analysis (women)

Livestock type Cow	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Breed:- research/ breeding centres Improved local breeds	Shortage of water	1	Travelling or moving long distances	
	Shortage of fodder	2	Growing fodder crop, Collecting crop residue	
	Disease	3	Cultural treatment	Diary product market demand
	Shortage of grazing land	4		
Production				
Breeding Feeding Vaccination De-worming	Fodder shortage	1	Collecting/ using crop residue Using "Enset" Growing fodder crop	Labour availability
	Lack of vet health post/clinic	2	Cultural treatment	Commitment
Storage of Cow Products				
Pot Jug	Fermentation of milk, butter and cheese	1	Using pot as refrigerator	"Tukul "house
	Fast deterioration	2	Early use	"Tukul" house
Processing of Cow Products				
Butter, Cheese	Lack of processing scheme	1	Using local methods and materials	Market demand
Marketing of Products				
Milk, Butter, cheese				Market demand

Table 114: Potato value chain analysis (youth)

Crop type…Potato	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Improved seed Fertilizer Fungicide	High cost of fertilizer and seed	1	Loan obtained from credit organizations Applying reduced rate of chemicals, fertilizer	Experience or knowledge gained from model farmers
	Lack of improved seed	2	Using local seed	Cooperative union
	Cost, lack and delaying of supply	3	Applying compost and farmyard manure	
Production				
Land preparation Sowing Cultivation Chemical application harvesting	Lack of oxen and money for harvesting case(to hire labour)	1	Sharing together(who have 1 ox gives to another one who have also one and next time the next one will use))	FTC's and DA,s
	Erratic rain fall	2		M&E by Woreda agricultural office
	Shortage of land	3	Producing on existing land	'Idir'(borrows money)
	Poor management practices	5	Mutual benefit(who have land supplies labor and vice versa)	
	Disease and pest	4	Using chemicals	
Storage				
Storage facility and structures	Poor storage facility	1	Selling to market early	Experience from outstanding farmers who have good storage structures
	Decaying	2	Removing the decayed seeds frequently	
Processing				
None				
Marketing				
Transportation selling	High cost of product transportation		Renting donkey cart	Storage and selling for seed
	Distance of market			
	Price fluctuation		Storing Taking the product to low producing area and selling there	

Table 115: Sheep value chain analysis (youth)

Livestock type…sheep	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Improved breed Feed	Lack of money to buy needed number	1	Reducing number	
	Lack of improved bred	2	Use of local bred	Outstanding indigenous bred like Doyegena sheep bred and Adilo bred Introducing Dorper rams in collaboration with Areka agr. Res.center
	Lack of improved feed	3	Borrow money from "idir" even with interest to buy shee	Licha union (supplies processed feeds) Community based mobilization of sheep bred program in collaboration with Areka Agr. Res. centre
	Poor functioning of vet clinic	4	Buying processed feed from flour factory and traders	
Production				
	Lack of grazing land	1		
	Poor supply and high cost and not functioning of vet. clinics	2		
	Occurrence of disease	3		
	Distance of river and other water supply	4	Fetching water and drinking	
	Housing is not isolated from other livestock	5	Donot isolate from other livestocks	High cost of fattened sheep
Storage				
None				
Processing				
Marketing				
Transportation selling	Distance of market	1	Selling near markets with low price	Cash generating
	price fluctuation	2	Staying fattening until price increases	High market demand

Table 116: Water and irrigation availability

Men

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
Pond (ground water)		Domestic consumption, livestock consumption, cleaning, watering garden	From 3 months to year round	Fetching with different water equipment (Pot and Jericans)	Since 1986, but water volume is decreasing	Self sponsored	Owners responsibility	Side breakage and bottom leakage	Plastering with sand and cement
Spring		Domestic consumption, livestock consumption, cleaning, watering garden	July to December (for 6 months)	Fetching with different water equipment (Pot and Jericans)	Long years ago, amount of discharge is decreasing	Self sponsored (by the community)	Community members will repair it	Discharge volume reduced and stay not more than 6 months	Village or gott based spring maintenance and development
River		Domestic consumption, livestock consumption, cleaning, watering garden	Up to February (6-7 months)	Fetching with different water equipment (Pot and Jericans)	Water volume is decreasing			Water volume collapse after February	Constructing irrigation structure to use it before drying
Piped water		Domestic consumption, livestock consumption, cleaning	Year round	Fetching with different water equipment (Pot and Jericans)	Since 1992	Government	Government	Frequent damage, long distance (more than 1 hour for some community members)	Constructing piped water nearest to each village

Women

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River/stream (2)		People Livestock	7	-	-	-	-	Travelling long distance during dry season	Diversion and Commitment
Dam/pond (1)		Livestock	9	-	?	Community	Community	Travelling long distance during dry season	Labour for construction and awareness
Spring (1)		People Livestock	4	-	-	-	Community	Travelling long distance during dry season	Community commitment and participation
Pipe 3 stations		People	12	-	?	GOV & NGO	Community	Competition	Community commitment and participation
Shallow well (19)		People Livestock	12	-	?	Community	Community	Threat related to health	Community commitment and participation

Youth

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
Pond	Pond	Livestock Homestead use	June-nov (6 months)					Dries out during dry season	River is there
Shallow well	Well	For drinking For home use For livestock Crop production	June- feb (9 months)					Dries out during dry season	Experience gained from model farmer towards crop production
River	Reservoir	Livestock Cloth washing	Throughout the year					Distance too far	
Tap water	Tank	Drinking	Throughout the year but linked with electricity					Distance too far Works with availability of electricity	Fetch from hosanna town
Comm-unity dam	Reservoir (pond)	Livestock	June-december (7 months)					Dries out during dry season	Use river

ANNEX 3.3: UPPER GANA

PARTICIPATORY COMMUNITY ANALYSIS: CHALLENGES AND OPPORTUNITIES IDENTIFIED WITH LOCAL COMMUNITIES

CONTENTS

A SYNTHESIS FOR UPPER GANA KEBELE

Upper Gana is administratively located in Lemo woreda, Hadiya zone of SNNPR. It is located 13 km to the north west of Hosahina town. The kebele is characterized by a crop-livestock system with a strong perennial crops component. The kebele has a bimodal rainfall pattern. Total households of the kebele are 796, of which 710 are male- and 86 female-headed households. The farm households of the kebele are categorized as poor, average and better off farmers. About 50-60% of the community's households are grouped as poor whereas 12-20% as better off. Number of livestock, farm size, quality of residential houses and cash crops (perennial) holding are most important indicators for the wealth grouping. The livelihood of the communities is based mainly on crop and livestock production and off-farm activities. The status of most of the sources of livelihood enterprises has been changing due to various climatic, edaphic, socio-economic and anthropogenic factors. For instance, Enset production has been declining due to disease infestation. On the other hand, off-farm activities such as petty trading increased due to prevalence of land shortages. The youth and the disadvantaged women groups are landless in most cases.

Wheat, tef and faba bean are the most important cash crops whereas enset, wheat and maize are main food crops. The priority livestock species for different social categories include oxen, cows, donkeys and poultry although the order of importance of these livestock species varies among women, men and youth groups. Oxen provide plowing services and donkeys support transportation of production inputs and outputs. Egg and live sale of chicken are immediate cash sources for the women groups. The community in the kebele identified more than 8 institution that existed within and 7 outside the kebele. The most important locally available institutions that have direct and indirect contribution for agriculture productivity are Idir, religious institutions, kebele administration, agricultural offices, health and education centers.

Various constraints challenge crop and livestock productivity. The most important constraints for crops such as wheat and maize are high input and low output prices. Diseases, insects and pests, lack of improved and quality germplasm and farm implements, soil depletion and erratic rainfall distribution are also limiting the productivity of farmers' priority crops (enset, wheat and maize). Livestock related constraints focus mainly on feed, poor vet services, milk processing and marketing. Intensification and productivity of the crop-livestock system can be enhanced through improving access to crop and livestock production inputs, post-harvest handling of products and by-products, processing and marketing systems, soil and water management practices, and networking value chain actors. Strengthening partnership among farmers, local institutions (Universities, research, extension), international research centers, and establishment of a platform to improve communication and common decision making are also important issues for further consideration.

Table 117: Livelihood dynamics[1)]

	S	I	D		S	I	D
Buying and selling		4		4	0%	100%	0%
Carpenter		1		1	0%	100%	0%
Haricot Bean		2		2	0%	100%	0%
Potato		2		2	0%	100%	0%
Poultry		1		1	0%	100%	0%
Remittance		1		1	0%	100%	0%
Casual labour	1	2		3	33%	67%	0%
Fattening (livestock)		2	1	3	0%	67%	33%
Vegetables		2	1	3	0%	67%	33%
Wheat		2	1	3	0%	67%	33%
Faba bean		2	2	4	0%	50%	50%
Maize		1	1	2	0%	50%	50%
Transport (equines)		1	1	2	0%	50%	50%
Barley			2	2	0%	0%	100%
Bee keeping			1	1	0%	0%	100%
Black smith			1	1	0%	0%	100%
Cow for milk			3	3	0%	0%	100%
Enset			3	3	0%	0%	100%
Goat			2	2	0%	0%	100%
Linseeds			1	1	0%	0%	100%
Making and selling local drinks			3	3	0%	0%	100%
Pottery			1	1	0%	0%	100%
Sheep			3	3	0%	0%	100%
Sorghum			2	2	0%	0%	100%
Teff			3	3	0%	0%	100%

[1] Number of times mentioned by the groups

S=Static, I=Increasing, D=Decreasing

Table 118: Crop preferences

Crop	Cash priority				Food priority			
	M	W	Y	All	M	W	Y	All
Enset	5	4	4	**4**	1	1	1	**1**
Wheat	2	1	1	**1**	5	2	2	**2**
Maize	4	6	5	**5**	2	3	3	**3**
Teff	1	2	2	**2**	3	5	4	**4**
Faba bean	3	3	3	**3**	6	6	5	**6**
Sorghum	6	8	11	**8**	4	8	6	**6**
Barley		5	7	**6**		4	10	**7**
Potato	7	7	8	**7**	7	7	7	**7**
Haricot bean		9	10	**10**		9	8	**9**
Cabbage			5	**5**			9	**9**
Field Pea			8	**8**			11	**11**
Linseed			12	**12**			12	**12**

1-highest

Highlighted crops=interventions already initiated

Table 119: Livestock preferences

	M	W	Y	All
Ox	1	2	1	**1**
Cow	2	1	2	**2**
Mule	-	-	3	**3**
Donkey	3	6	4	**4**
Horse	4	4	5	**4**
Goat	5	5	6	**5**
Poultry	6	3	8	**6**
Sheep	7	-	7	**7**
Bees	8	-	8	**8**

1-highest

Table 120: Institutions

Men

Institutions Within community	Rank	Institutions outside the community	Rank
FTC (farmers training centre)	1	Woreda Agricultural office	1
Health post	1	Woreda water office	1
DA office	1	Woreda Health office	2
Kebele administration	1	Health Center	2
Church/Mosque	1	Woreda education office	2
Idir	1	Wisdom micro finance	2
School	2	Omo micro finance	2
Cooperative	3	Ambo Research Center	2

Women

Institutions inside community	Rank	Services delivered	Institutions inside community	Rank	Services delivered/role played
Farmers cooperatives	1	Supply Fertilizer	Woreda Agr. Office	1	Recruiting and assigning trained DA's and provision of inputs
Extension services	1	Awareness creation, mobilization and facilitate for improved technologies	Woreda Cooperative Office	2	
Omo Micro finance	2	Provide loan which is used to pay about half of the cost of the fertilizer	NGOs	3	
Kebele Administration	1	Enforcing the regulations regarding input uses & input loan repayment	Woreda Administration	2	Do not engage directly in operational activities. but pushes Woreda Agr. Office to work effectively on agriculture
			Religious institutions	2	

Youth

Institutions in the community	Rank	Institutions outside the community	Rank
FTC	1	Woreda Agricultural Office	1
Cooperatives	2		
Schools	1		
Health Center	3		
Kebele Administration	1		

[1]1-Best, 2=Less important, 3=Least important (for agriculture)

Table 121: Annual calendars

Men – not done

Women

	Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Indicate if men or women are more involved
Crops	**Activities**													
wheat & barley (Meher Season	Land preparation													Men
	Planting													Men
	Weeding													Men, women
	Fertilizer application													Men , women
	Weeding after fertilizer applic													Men , women
	Harvesting													Men
	Threshing													
	Storage													Men, women
Maize-Belg season (short season)	Land preparation													Men
	Planting													Men
	Fertilizer application													Men, women
	Weeding													Men
	Harvesting													Men, women
	Threshing													Men, women
	Storage													Men, women
	Livestock													
cow	Collecting crop straws													
	Stall feeding													

Youth

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Crops													
Land preparation		x		x									Men
Inputs preparation			x			x							Men
Planting			x			x	x						Men, Women
Herbicide application					x								Men
Weeding				x	x	x		x	x				Men, Women
Cultivation				x	x	x		x					Men, Women
Chemical spray				x					x				Men
Harvesting	x					x	x				x	x	Men
Trashing	x										x	x	Men, Women
Storage	x										x	x	Men, Women
Marketing	x											x	Men
Livestock													
Purchase for rearing										x			Men
Purchase for fattening						x							Men
Feed collection											x	x	Men, Women
Marketing			x						x				Men

Table 122: Farmer profiles

	Criteria	Poor	Average	Better
Men	Land holding	0.5ha	2ha	3ha
	Land Rent	Practiced	Not practiced	Not practiced
	Livestock number	1 sheep,1goat,1-2 chicken	2oxen,2sheep,2goats,2 cows,1donkey	4 oxen,3cows,1mule,>2 goats and sheep
	Housing	Grass roofed house	Guest house and grass roofed house	Metal roofed ,grass roofed houses and kitchen
	Credit	Take credit for agricultural input buying and in time of holidays	Not Take credit for agricultural input buying and in time of holidays	Not Take credit for agricultural input buying and in time of holidays
	Labour	Hiring out of labour	Not Hiring of labour	Not Hiring of labour
	Percentage in each category	50%	30%	20%
Women	Land size	0.25 ha	0.75 ha	3 ha
	oxen	0	1	>2 (>1 pair)
	Cattles(cows)	1 cow	2-3 cows	>10 cows
	Crop harvest/grain(qt)	< 4 qt	10 q	>30 qt
	Cash money	borrower	Can cover his money need by himself t	Put his money in banks
	Percentage in each category	50%	30%	20%
Youth	Agricultural land holding	< 1 ha	1-3 ha	> 3 ha
	Oxen number	1	2	> 4
	Cow number	0	01-Feb	≥ 3
	Trekking animals number	0	1	≥ 3
	Cash crop esp. Chat	0	0.125 ha	> 0.25 ha
	House	1 not well-done grass roof house	1 well-done grass roof house and 1 kitchen	1 corrugated house, 2 well-done grass roof houses, 1 kitchen and well managed compound
	% in each category	58%	30%	12%
	Parentage in all	53%	30%	17%

Table 123: Intervention areas (crops and livestock)

Crops	Gender
Enset	MWY
Faba bean[1]	MWY
Maize	MWY
Teff	MWY
Wheat[1]	MWY
Livestock	
Ox	MWY
Cow	MWY
Donkey	M
Poultry	W

M=Men, W=Women, Y=Youth

[1] Interventions already initiated

Table 124: Intervention to be considered

	Priorities
Crops	
Improving input supplies	
Community-based seed production	1
Linking farmers to agro dealers	2
Improving use of pesticides	3
Improving production	
Improving land preparation	4
Improving soil fertility, reducing erosion	1
Improving storage and processing	2
Improving household nutrition	1
Improving marketing	3
Livestock	
Improving livestock feeding	1
Improving livestock health	
Linking farmers with agro-vet suppliers	1
Supporting CAHWs	2
Improving breeds	4
Improving processing (milk)	1
Improving marketing	3
Watershed protection, improving access to water	
Linking with kebele initiatives	1

Table 125: Wheat value chain analysis (men)

Crop type (Wheat)	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Fertilizer Herbicide/pesticide Compost Certified seed Farming tools	Lack of Certified seed	1	Change crop type	
	High cost of fertiliser as well as supply	2	Using compost	The presence trees in the kebele
	Seed availability	3	Sharing seed and other materials from neighbours	
	Lack of farming tools	4		The presence of black smith in the kebele
Production				
Land preparation Crop rotation Weeding Soil fertility Rain distribution Sowing Mowing, Winnowing, and trashing	Lack of oxen	1	Sharing oxen, using family labour	Man power
	Labour	2	Work by using 1to 5(group working)	Sufficient rain
	Lack of seed	3	Sharing seed from neighbours	
	Herbicide supply	4	Hand weeding	Improve availability of inputs
	Poor soil conservation	5	Planting eucalyptus tree /around crop land	
	Flood	6	Integrated water shed management	Improving water management
Storage				
Barrel Sacks Pots	Rodents	1	Rearing of cats and use of anti-rodent chemicals	
	Weevil	2	Placing crops in cool area, use anti weevil treatments	The presence of indigenous knowledge
	Termites	3	Making stands and then put the crops on the stands	
	Fungus	4	Proper drying	
Processing				
Bread Enjera porridge	Distance from milling grains	1	Hand milling using local milling material	Availability of local milling material
	Fire wood	2	Using animal dung and plant leaves	Mixed farming
	Processing materials	3	Use modified local processing materials	The presence of pottery in the kebele
Marketing(wheat)				
Market Transportation Price	Price fluctuations	1	Keep until the price become high	Information from mass media(radio)
	Distance from market	2	Selling wheat to local merchants	Local merchants
	High price of donkey cart	3	Using of Man power	Man power/family

Table 126: Ox value chain analysis (men)

Livestock type (Ox)	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Feed Drugs water	Feed shortage	1	Planting improved forages and using crop residues and crop by products	The presence of roots and tubers
	Distance from water point	2	Digging of water well	
	Drug supply	3	Traditional treatments	Indigenous knowledge
	High price of drugs	4		
	External parasites	5		
Production				
	Feed shortage	1	Planting improved forages and using crop residues and crop by products	The presence of roots and tubers
Barn preparation Prepare sufficient feed Giving vaccination and other treatments Giving potable water	Place of barn preparation	2	Proper barn preparation	
	Distance from water point	3	Digging of water well	
	Drug supply and price	4	Traditional treatments	Indigenous knowledge
Storage				

Processing				
Beef skin	Eating of un inspected beef	1		The presence of animal health technicians
	Improper flaying	2	Proper flaying	
Marketing(ox)				
Live ox sales	Price fluctuations	1	Keep until the price become high	
	Distance from market	2	Selling ox for local merchants	Fattening

Table 127: Enset value chain analysis (women)

Crop type: Enset	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased input + source				
Suckers Organic fertilizer Labour Farm tool (Source: own)	Lack of selected ensect clones/varieties	1	Using locally available clones	Availability of clones with desirable qualities in adjacent zones(Guraghe)
	No sufficient and improved farm tools	2	Using locally available tools	
	Inadequate organic fertilizer(cow dung)	3	applying household diffuses and crop residues	
	No extension service on enset	4	Using indigenous knowledge	
	Lack of knowledge on spacing, amount and timing	5	Using the local knowledge	
Production				
	Failure to select better clones/varieties of enset	1	Using local clones of enset and bringing from other areas	
	Disease (Enset Bacterial Wilt)	2	Using disease resistant clones	Availablity of research on enset (Areka Research Center)
	Lack of knowledge on agronomic managements(distance b/n row and plants, depth of the planting	3	Learning from the better/model farmer	
	Lack of knowledge on land preparation for enset	4		
	Failure to weed at right time	5		
Processing				
'Kotcho' 'Bula' 'Katcha'	Lack of knowledge to prepare proper pit covering material to keep quality	1	Requesting the women who can help in this regard	
	Problem of handling	2		
Storage				
'Kotcho', 'Bula' & 'Katcha'	Decomposition of covering leaves and the exposure of the output for soil leading to the change in colour, odour and quality decline	1	Changing the pit and using new leaves to cover when while changing pit	
Marketing				
'Kotcho', 'Bula' & 'Katcha'	Lack of collectors who collect regularly	1	Taking the product where better demand	
	Problem of Price fixing	2	Selling for the price fixed by the buyers	
	Transport problem	3	Carrying on back and horse/donkey	

Table 128: Cow value chain analysis (women)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Breed Feed Vet. Drug Labour Housing	Lack of cross/ improved breeds	1	Mating the cows with local bull	
	Lack of AI	2		
	Unavailability of Vet. Clinic and drug	3	Traditional/ethno veterinary medicines	
	Shortage of feeds	4	Crop residues and enset	Desho grass introduced
	Housing problem	5	Housed with family	
Production				
	Poor/unproductive breed	1	Mating the cows with local bull	
	Disease	2	Traditional/ethno veterinary medicines	
	Shortage of feeds	3	Crop residues and enset	
	Low productivity	4		
Storage				
Milk Butter Cheese	Poor handling	1	Selling or consuming soon	
Processing				
Milk Butter Cheese	Lack of processing tool	1	Local knowledge	
Marketing				
Milk Butter Cheese	Problem of price fixation by buyers	1	Taking the price of buyers	
	Lack of collectors	2		
	Transport problem	3	Taking to the distant markets on foot	

Table 129: Maize value chain analysis (youth)

Crop type: Maize	Problem/Challenge	Priority	Coping strategy (existing practice)	Opportunity
Purchased inputs + source				
Fertilizer Improved seed	Shortage of fertilizers both in availability and price	1	Reducing the land under maize, planting maize on fertile soils and use of manure	Presence of farmers cooperative
	Lack of adaptable variety	2	Planting local varieties	Engagement of international institutes like AR in the kebele
	Lack of on time improved seed availability	3	Planting local varieties	Demonstration of improved varieties by Ambo Research Center Possibility of maize seed production with irrigation
Production				
Land preparation Planting Weeding & cultivation Harvesting	Shortage of moisture in Belg season	1	Adjusting planting time, reducing the land under maize	The presence of underground and surface water for tapping in to irrigation, presence of on-going activities on soil and water conservation
	Stock borer infestation	2	Adjusting planting time, leaving the crop for animal feed	The presence of protection experts at woreda level, presence of insecticide selling shops in Hossana town
	Lack of adaptable varieties	3	Use of locally available seed	Engagement of international institutes like AR in the kebele
	Porcupine attack	4	Fumigation with smoke, blocking its hole with cactus	
Storage				
Preparation of traditional storage structures Cleaning Storing	Weevil attack	1	Use of fumigants	The presence of chemical shops in Hossana town
	Rodents attack	2	Rearing cats, traps and chemicals	
Processing				
Grinding Bread Injera Porridge	-		-	-
	-		-	-
	-		-	-
Marketing				
Grain	Price fluctuation	1	Saving until the price increases	The presence of cooperative
	Transportation expenses due to distant market	2	Use of donkey carts	Improvement of road access to get sufficient transport

Table 130: Donkey value chain analysis (youth)

	Problem	Priority	Coping strategy (existing practice)	Opportunity
Purchased Inputs + source				
Improved breed	Lack of improved breed	1	Use of local breeds	The presence of breeding experience in the community once improved female donkey is available The presence of animal husbandry experts in the kebele The presence of farmers cooperative
Production				
Feed collection Rearing Treating from insects and diseases	Shortage of grazing land	1	Conserving crop residues, providing supplemental feeds like wheat bran, doxamine, barley, sorghum etc	The presence of improved forage varieties in the woreda, use of modern forage storage methods
	Disease	2	Treating with penicillin	The presence of vet clinic in neighbouring kebeles
	Lack of vet clinic	3	Treating donkeys with traditional knowledge	The presence of vet experts in the woreda
	Lack of extension service	4	Use of indigenous knowledge for donkey husbandry	The presence of experts in the woreda
	Lack of improved breed	5	Use of local breeds	The presence of improved breeds in neighbouring markets
Storage				
Preparation of barn Preparation of feed storage house	Lack of comfortable barn	1	Keeping donkeys in home with family, lining the floor with stone, lumber and grass	-
	Lack of feed storage structure	2	Storing feed in open air	The possibility of practicing improved feed preservation mechanism
Processing				
Marketing				
Donkey	High price during purchasing	1	-	-
	Distant market	2	Rearing donkeys at household level	The construction of roads linking different kebeles of the woreda
	Difficulty to distinguish among donkeys with long hoofs	3	Cutting hoofs at household level during the summer season	The presence of animal husbandry expert to provide advise

Table 131: Water and irrigation availability

Men

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River		For animal and human drink	1 seasonal river and 1perrinial river	-	-	-	Public	Parasites, seasonality	
spring		For human drink	4-5 months	-	-	-	Public	Sanitation, eucalyptus tree	
Tap water		For human drink	Yearling	-	1997 E.C	Sinodos church	Woreda water desk	eucalyptus tree, poor water utilization	
Hand dig well		For human drink	6-12 months	Bucket application	variable	Private	Private	Man power, pulling of bucket	
pond		For human drink	4-12 months	Bucket application	2002E.C	Public	Public	Parasites, seasonality	

Women

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
River	flowing	Cattle animals	12 months	The animals drink it from river	Natural	-	-		Can be used for agriculture
stream	‘’	Cattle/animals human	12 months	fetching	natural	-	community	Management problem	Can be used for livestock, human, and agriculture
Piped water	Concrete built	For human drinking	12 months	pipes	(Not mentioned)	Government	Gov’t and community	-	
Small ponds		grow horticultural crops	5-6 months	Jerrycans and jokes	d/t farmers constructed at d/t times	farmer	farmer	management	Producing more horticultural and other crops

Youth

Water source	Storage type	Main use Field/ garden /livestock /people Main crop	Availability (months per year)	Means of water application	When scheme constructed and present condition	Sponsorship (NGO / Govt /Other) and community contribution	Responsibility for maintenance	Challenges experienced	Opportunities identified
Spring	Tank	Garden, livestock and people Main crops are potato, beet root, carrot, Garlic, head cabbage, pepper and seedlings of eucalyptus	12	Pipe and siphon	2003, functional	Mekane Eyesus Central south Sinodos	Water committee of the kebele	Sanitation Protection	The presence of water desk in the woreda The on-going soil and water conservation activity
Ground water	Shallow well	Garden, livestock and people Main crops are beet root, carrot, tomato, onion, head cabbage and pepper	12	Manual with pot	1-15 years, functional	-	Farmers	Water depletion during the dry season	The on-going soil and water conservation activity, possibility of planting water harbouring trees like neem
								Poor water conveyance method	Availability of water conveyance machines in Hossana town
								Slide of the wall	Possibility of maintenance at household level
								Harbouring malaria	Possibility of draining excess water and forming caps for the wells