RAISE-FS *Woreda* profile #008

Welmera *Woreda* Food System Profile

Population

119,458

59,845 | 59,613

Altitude

1,800–3.380 m.a.s.l

Diets

Predominantly grains and pulses

Food insecurity

28% **FHH**

10% **MHH**

Food gap months

Jan ····· Dec

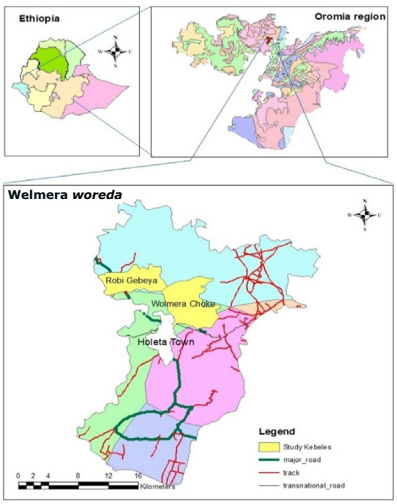
Julyl - September

Choke *kebele*

Jan ····· Dec

August - October

Geba Robi *kebele*



Welmera *woreda*

Top 5 crops produced

Barley | Wheat | teff | Potato | Faba bean

Climate and soils

- Frost and hail damage
- Soil erosion
- Soil acidity
- Deforestation and overgrazing
- Land degradation

Inclusion

Youth (18–35 yrs) | Women | Men

No access | Limited access | Access

- High workload during the peak agricultural months
- Access to agri-inputs & extension services
- Access to credit
- Decision making
- Job opportunities
- Cooperative membership

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RAISE-FS Resilient Agriculture for Inclusive and Sustainable Ethiopian Food Systems

1 Introduction and methodology

This document gives an overview of the current status, dynamics, and behaviour of the local food system present in the Welmera *woreda* and is called the *woreda* profile. The *woreda* profile was developed to support stakeholders' exercising evidence-based, bottom-up planning based on the existing reality of the *woreda*. The profile is meant to enable stakeholders to be on equal footing in understanding the complex challenges and realities of the *woreda*, and to use these insights as starting point for the *woreda* planning process. This document describes the current situation of the *woreda* in eight chapters. It endeavours to provide information and data on demography, agro-ecological and environmental conditions, agricultural production, markets and value additions, credit and financial services, food and nutrition security, inequalities based on gender identity and age as well as policies and government support.

This *woreda* profile is generated based on insights obtained from the baseline survey and rapid food system appraisal (RFSA) that took place in two *kebeles* of Welmera *woreda* (Welmera Choke and Burkusami Geba Robi). The two selected *kebeles* represent the two main agroecologies of the *woreda* (highland and midland).

Officials from the *woreda* agricultural office acknowledge and certify that the RFSA engaged a diversity of stakeholders, and that the findings present a realistic overview representing the entire *woreda*.

Activities conducted to construct the *woreda* profile were done in light of the RAISE-FS project. Welmera *woreda* is one of the selected implementation areas in Oromia region. A quantitative baseline survey and a qualitative RFSA were conducted in parallel and together with secondary data, these are the main inputs for this *woreda* profile. As mentioned above, data collection was conducted in two of the *woreda*'s *kebeles* (Welmera Choke and Burkusami Geba Robi). These *kebeles* were purposefully chosen because of their potential for the project commodities (potato and faba bean). A structured standard questionnaire and RFSA tools were developed to collect field data. Female-headed, male-headed, women in male-headed households and youth were proportionally selected randomly from the total of households living in the selected *kebeles*. Quantitative data were collected from 106 respondents of which 39% were men, 38% were women and 23% were youth (of which 50% were men and 50% women).

The RFSA comprised a sequence of steps and activities that consecutively build on one another to provide a diverse and integrated perspective on the current food system situation, key challenges and opportunities (Figure 1). The applied RFSA tools were community mapping, activity calendar, in-depth dialogue and different plates activity[1].

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[1] An extended description of the tools can be found here: https://doi.org/10.18174/590873.

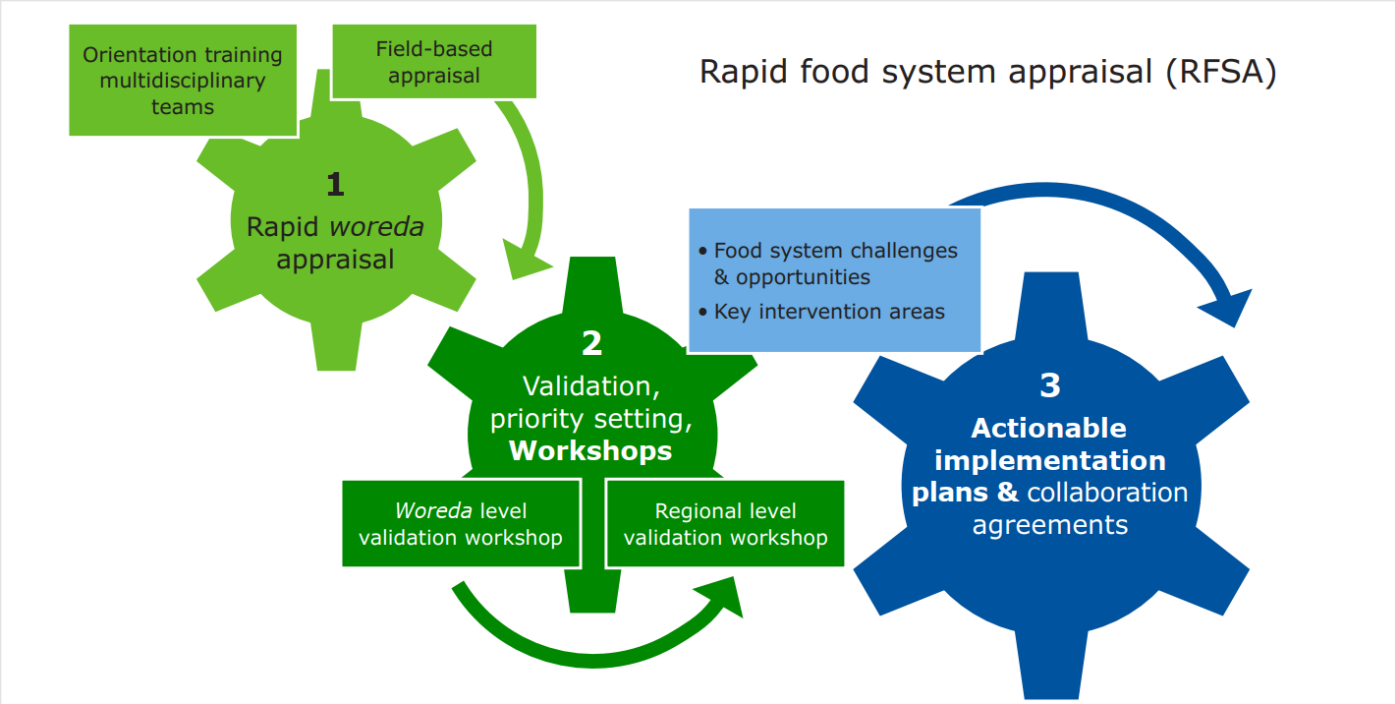

Figure 1: Steps of the rapid food system appraisal (RFSA) process

The community mapping activities, activity calendar and in-depth dialogue were undertaken with female, male and stakeholder groups separately. The different plates activity was performed with a female and male group only. The female group consisted of 12 persons (5 youth <35 years of age, 5 adults between 35 and 60 years of age and 2 elderly people >60 years of age). Similarly, the male group was composed of 12 persons (4 youth, 5 adults and 3 elderly people). The institutional stakeholder group comprised of development agents (DAs), head/ representative of agricultural offices, agricultural extension, health extension, horticultural expert, nutrition expert, cooperative managers, and *kebele* administrators.

The validation workshop was conducted with the Head of the *woreda* agricultural office, researchers of Holeta Agricultural Research Centre, and heads of different offices of the *woreda* (cooperative, women, children and social affairs, job creation, trade and health). In addition, representatives of the men and women who participated in the RFSA and representatives of private agricultural input suppliers attended the validation workshop. During the workshops, the key findings from the results of the appraisal and baseline survey were presented, discussed and validated. In addition, suggestions received from *woreda* officials regarding the *woreda* profile (Figure 2) were taken into consideration and added in this document.

Lakk: LWnAW/3035/196/15
Guyyaa: 13-11-2015

Pirojeektii "RAISE-FS" ttif

Finfinne

Dhimmi: Qorannoo Gaggeeffame Irratti Yaada Keennu Ilaalta

Akkumma mata duree armaan olitti irratti ibsamuuf yaalameetti piroojeektiin "RAISE-FS" jedhamu qorannoo hirmaannaa haawaasa garee garaagaraa fi ogeessoota aanaa seekatara hunda hirmaachisee aanaa Walmaraa ganda **Walmaraa Cooqee fi Burkusaami Gabaa Roobii** keessatti gaggeessuun isaa ni yaadatama.

Oddeeffannoo fuunaanamee kun gara sanada tokko yookiin barreeffamatti jijjiramee akka yaada itti keenninu haala gabatee armaan gadittin gaaftamnee jira. Gareen sanada kana gammaaggamees yaada isaa akkatumma armaan gadittin ibsine kan isiniif ergine tahu keenya kabaja waliin isin beeksifna.

Nagaa wajjiin!

Gaaffii gammaaggamaa	Yaadoota fi gorsoota	Kuta/ mata duree	Lakkoofsa fuula (page number)
Sanada kanan walqabate, maalii isaa jaalatte?	Haalii qoranoon itti gaggeefamee bay'ee garii ta'uu fi gadi fageenyaan ilalamuu isaa hubaneraa	Mata duree hundaa	Mata duree hundaa
Sanadin kun, haala qabatamaa sirna nyaatas aanaa walmaraa kan yeroo ammaa kana akka waliigalaatti ni ibsa jettanii yaadduu?	Eyyee Ni-ibsa	Mata duree hundaa	Mata duree hundaa
Mata dureewwaan kam kamitu hanqata jettanii yaadduu? Mata-dureewwan kaniinii walqabatee ragaalee fi odeeffannoowwan jiraniif?	Mata dureen hanqatuu hin jiruu	Mata duree hundaa	Mata duree hundaa
Ragaa maaliitu hanqate? Sanada kanatti dabaluuf ragaalee baayyee faayidaaqabeessa ta'ani dabalamuu qaban jiru?	Ka'umsaaf ragaa gahaa ta'ee waan qopha'eef gahadha .	Mata duree hundaa	Mata duree hundaa
Wantoota sirnaan hin ibsamne jettanii yaaddan fakeenyaafi: barreeffamooniif, fakkiiwwan/graphs, fakeenyii sanada keessatti fayyadamaman) jiruu?	1.Ragaa W/Coqee irraa fudhatameef keessaa Fulbana irratti yeroo goginsa jedhamee akkaa ragaan adda adda ibsuuti nannoo kanatii kan hin ibsinee waan ta'ee osoo foyyeeffame garii dha. 2.G/B/G/Roobitt Sirna nyaata keessa hanqini nyataa ji'aa Onkololessaa ni jira kan jedhuu onkollessaa kessaa midhaanii kaneen akka mosee,baqeelaa fi kuduraan adda addaa wan gahuf osoo sirraatee.	Seasonal calendar irratti	4

	3. Hanqini nyaataa G/W/Coqee Fulbana irratti ibsame akkumaa midhaanii kaneen akka mosee,baqeelaa fi kuduraan adda addaa wan gahuf osoo sirraatee gariidhaa.		
Sadarkaa kanatti, kutaaleewwan kamiitu (barreeffamootaa, fakkiiwwan/graphs, fakeenyawwan sanada keessa fayyadamaman) ifa hin taanee/ifaa miti? Akkamitti akka fooyya'iniifii ergaa karaa adda ta'een dhiyeessu akka dandeenyuu yadoota akka nuuf kennitanii kabajaan isin gaaffanna.	B/G/roobii Roobni Arfasaa waan hin jireef Ji'aa Ebila kan jedhuu osoo haafe.Akka waligaalatii roobnii Arfaasa kan hin jiree ta'ee rooba idileen kan fayyadamaan ta'uudha.	Seasonal calendar irratti "	4
Sanada kanan walqabate, maalii isaa jaalatte?	Haalii qoranoon itti gaggeefamee bayee garii ta'uu fi gadi fageenyaan illalamuu isaa hubaneraa	Mata duree hundaa	

Figure 2: Official letter from Welmera woreda Agricultural Office

Summary of the content of the letter

From: Welmera *woreda* Agricultural Office
To: RAISE-FS Project
Subject: Giving feedback on *woreda* profile document

As it is well known, the RAISE-FS project undertook baseline survey and RFSA in two *Kebeles* of Welmera *woreda* (Welmera Choke and Burkusami Geba Robi *kebeles*) in col*labour*ation with experts of different sectors of the *woreda* and *kebele* level stakeholders. We reviewed the document and found out that the document is fully provides a summarized overview into the current food system dynamics of our *woreda*.
We suggested minor comments on the activity calendar on page 5 with regard to moments of critical drought for Welmera Choke *kebele* and periods/months of food scarcity in Burkusami Geba Robi *kebele*.
In general, we found that, there are no missing topics in the current study. Besides, the way the study carried out and in-depth analysis of the *woreda* food system is highly appreciable.

With best regards,

Community maps

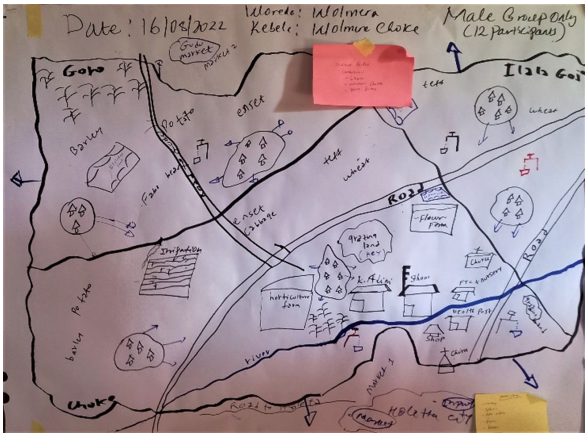

Figure 3: Community map from Welmera Choke kebele from male focus group

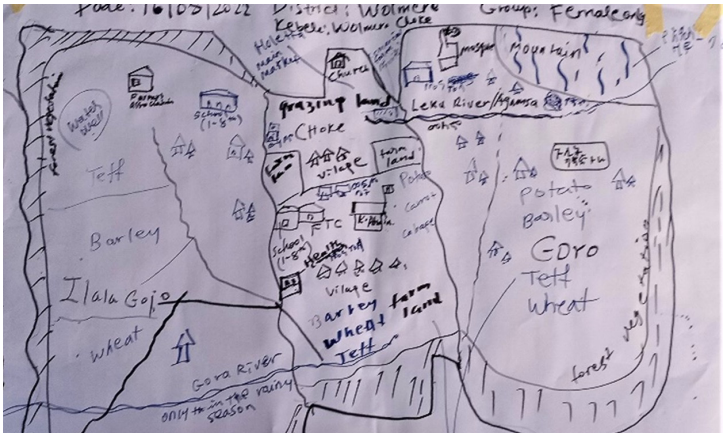

Figure 4: Community map from Welmera Choke kebele from female focus group

Figure 5: Community map from Burkusami Geba Robi kebele from male focus group

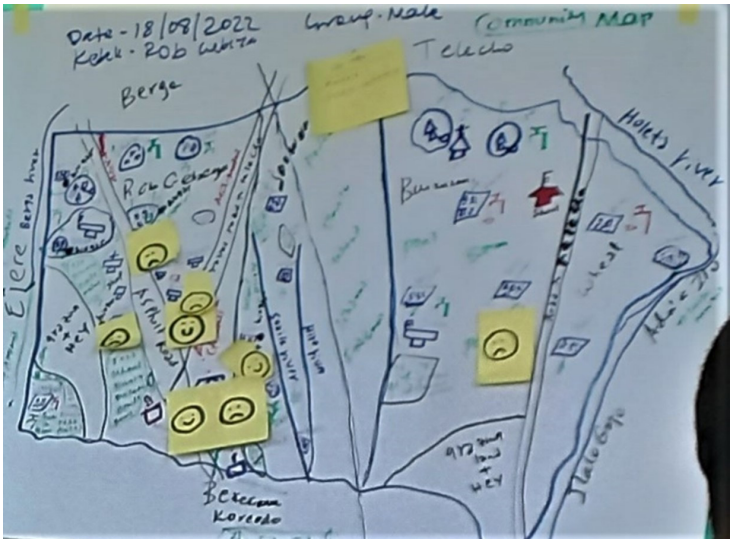

Figure 6: Community map from Burkusami Geba Robi kebele from female focus group

Seasonal calendar

Table 1: Seasonal calendar from Welmera Choke kebele from female focus group

No	List of activities	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug
1	Expenditures	X				X			X		X	X	X
2	Income			X	X	X					X	X	
3	Seasonal labour activities	X		X	X	X	X			X	X	X	X
4	High workload	X		X	X	X					X	X	X
5	The rainy seasons	X								X	X	X	X
6	Moments of critical drought				X	X	X	X		X			
7	Key cropping season for different crops	X	X	X	X	X				X	X	X	X
8	High Market price months	X										X	X
9	Low market price months			X	X	X							
10	Busiest months for women	X		X	X	X					X	X	X
11	Busiest months for men			X	X					X	X	X	
12	Pests and diseases prevalence		X	X								X	X
13	Prevailing livestock activities	X	X								X	X	X
14	Local market demands for local products	X									X	X	X
15	Periods of food scarcity	X										X	X

Table 2: Seasonal calendar from Burkusami Geba Robi kebele from male focus group

No	List of activities	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug
1	Expenditures	X		X				X	X	X	X		
2	Income	X			X	X					X	X	X
3	Seasonal labour activities			X	X	X					X	X	X
4	Workload			X	X	X					X	X	X
5	The rainy seasons	X							X		X	X	X
6	Moments of critical drought				X	X	X	X					
7	Key cropping season for different crops		X	X	X	X	X		X	X	X	X	X
8	High/low Market price months	X	X			X	X				X	X	X
9	Busiest months for women	X		X	X	X			X	X	X	X	X
10	Busiest months for men			X	X	X			X		X	X	X
11	Pests and diseases prevalence											X	X
12	Prevailing livestock	X	X	X	X	X	X	X	X	X	X	X	X
13	Local market demands for local products	X						X	X			X	X
14	Periods of food scarcity	X									X	X	X
15	Periods of food scarcity	X						X	X	X	X	X	X

1 Demography

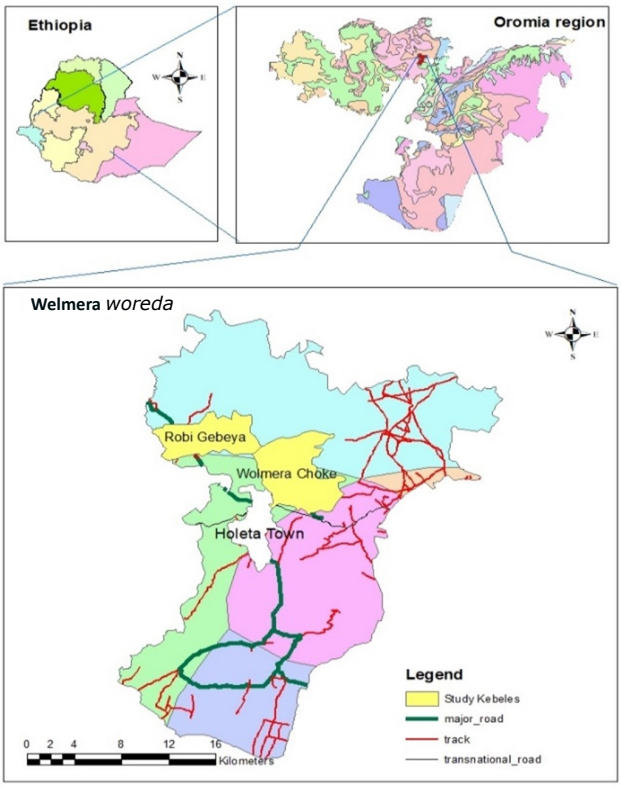

Figure 7: Map of Welmera woreda

Welmera is a *woreda* in West Shewa Zone, Oromia Region. The main town of the *woreda* is Holeta, which is 39 km far from Addis Ababa (Figure 7). Data from the Central Statistical agency shows that the population size of Welmera *woreda* is 119,458 of which male: 59,613 and female: 59,845. The population trend in the *woreda* shows that there an increment of population in the *woreda* which exposed the youth for lack of job opportunity, lack of farming land and also migration.

The quantitative baseline study demonstrated that the median household size consists of 5 people in the two studied *kebeles*. Male-headed households have a size of five people on average while the median female headed households have a slightly smaller size of four people (Figure 8). About 41% of the population are children (< 18 years) and about 31% are youths (18 years to 35 years). Adults (36 years to 60 years)

Table 3: Education level of surveyed household head

Educational level	Male %	Female %	Total
Does not read and write	24.4	60.7	34.0
Adult and religious education	50.0	28.6	44.3
Primary school	15.4	3.6	12.3
Secondary school	6.4	0.0	4.7
Diploma and above	3.8	7.1	4.7

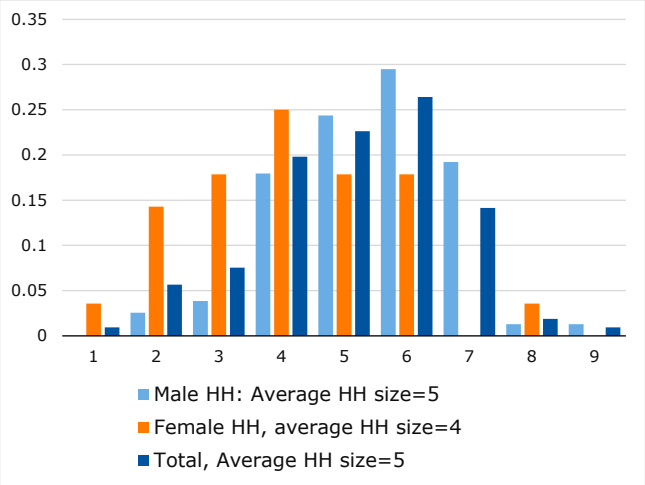

Figure 8: Family size of surveyed households

account for 21% of male headed household while 30% for female headed households. Elderly people (aged above 60 years) account for 4% of the people living in interviewed households (Figure 9). The educational level of household head was assessed in the baseline survey., about 60.7% and 24.4% of female and male heads of households respectively cannot read and write which together accounts for about 34% (Table 3). About 50% of male and 28.6% of female heads of households completed primary schools (grades 1 to 8) and about 15.4% of male and 3.6% of female heads of households completed secondary schools (grades 9 to 12). About 6.4% of male heads of households completed diploma and above however, the percentage for women is almost nil. About 3.8% of male and 7.1% of female heads of households read and write through adult and religious education.

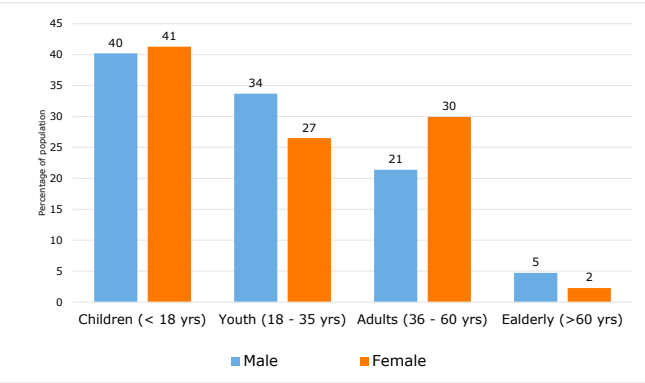

Figure 9: Age category of surveyed households

Priority topics identified and validated by stakeholders

- Population pressure
- Increase participation of youth in agriculture
- Improve illiteracy rate and reduce secondary school drop out for women

2 Agro-ecological and environmental conditions

Secondary data obtained from Welmera *woreda* Agricultural Office (2023) indicated that the size of the *woreda* is around 53,421 ha. The *woreda* has altitudes ranging between 1800−3380 meters above sea level (m.a.s.l) with the average of 2590 m.a.s.l. The *woreda* has two main agro-ecologies, highland (61%) and midland (39%). Temperature ranges from 18 to 27 oC with an average of 22.5 oC . The annual rainfall ranges from 834−1300 mm with average of 1,067 mm. Rainfall distribution is commonly unimodal with a rare short *belg* season. Currently, such small rainfall in *belg* season is become less frequent because of climate change.

The topography of the *woreda* is varied, with flat land, mountains and undulating topographies. Out of the total area of the *woreda*, 30,386 ha is cultivated land, 11, 920 ha grazing land, 6,315 ha forest land, 4,179 ha residential, and 621 ha is lands covered by commercial flower farms, fruit nurseries, and degraded land not suitable for agriculture due to gully erosion. The major soil types of the *woreda* according to the report from HARC soil fertility department are nitisol (80%) which is characterized by shiny red colour, acidic with low organic matter and vertisol (20%) which is characterized by moderate organic matter content, low acidity and high waterlogging problem.

The major crops grown in the area are barley, wheat, teff, potato, and faba bean. Besides, vegetable crops such as head cabbage, carrot, kale, garlic and beetroot are also grown. Livestock, especially oxen, which provide draft power used for land preparation, plays a major role in the farming system.

Rainfall variability (late onset of rain, early cessation of rain, erratic distributions of rain- sometimes excessive and extended rainfall and at other times low rainfall) occasionally affects crop production. Major environmental challenges observed in both *kebeles* are land degradations such as erosion, flooding, decline in soil fertility, poor soil fertility management, soil acidity, overgrazing and deforestation.

Changing weather patterns due to climate change are also prevalent such as uneven distribution of rainfall, hail damage, frost etc. resulting in overgrazing, and occurrence of crop pests and diseases. These problems have had a negative impact on both crop and livestock production and productivity and thereby adversely affecting the livelihoods of the community.

In both *kebeles*, access to clean and safe water is limited to some *kebele* areas. Only 25% of the community in the *kebeles* have access to clean and safe water. Hand pump water points have been established in the *kebeles* but some of them are not well functioning; they are not chlorine-treated, and also lack some hygiene. Generally, both *kebeles* have high water source potentials such as rivers, ground water and springs for irrigated crop production.

However, within the *kebeles*, irrigation facility is not accessible for all households. Only few households whose land is nearby river or in irrigation command areas have access to irrigation. Relatively more irrigation facility is available in Welmera Choke *kebele* than Burkusami Geba Robi *kebele*.

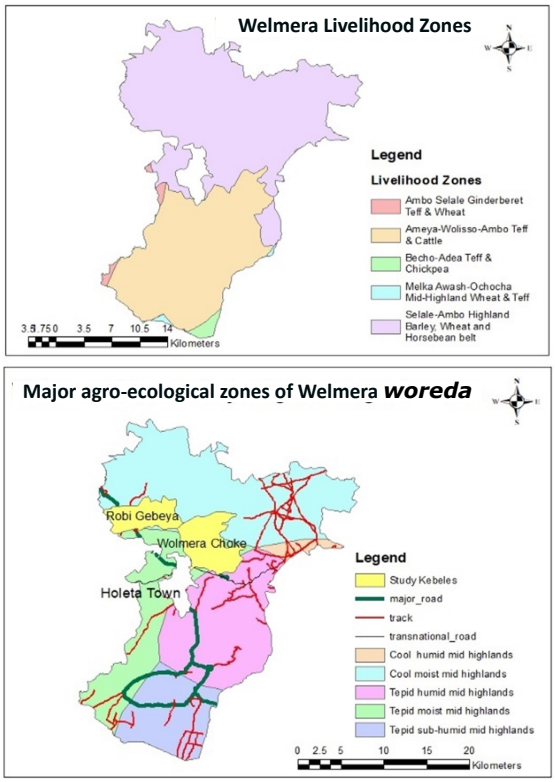

Figure 10: Livelihood and agro-ecological zones of

Stakeholders validated the priority topics which needs to rehabilitate degraded environments and adapt to climate changes for a sustainable food system.

Priority topics identified and validated by stakeholders

- Enhance sustainable land management through appropriate land use policy
- Enhance and manage soil fertility, waterlogging, reclaim acid affected soil, reforestation
- Promote climate smart production strategies to limit the damage of frost and hail

3 Agricultural production system

Mixed crop-livestock production systems dominate much of the agricultural production of both *kebeles*. Crops have been produced under rain-fed, irrigation and residual moisture. Dairy and poultry production are also common practices in both *kebeles*. Recently, significant hectares of irrigable areas are devoted for irrigated wheat production during off season in the *woreda*. Vegetable production under irrigation is significantly reduced as more emphasis is given to wheat production as a new initiative to meet wheat self-sufficiency.

Different land use types are common in both *kebeles*. The common land use type of Welmera Choke *kebele* is cultivated lands, two communal grazing lands, privately owned grazing lands, irrigable lands, mountainous land, forest land and land covered by eucalyptus trees. Besides, one commercial flower farmland, one commercial fruit nursery, one government owned nursery, and three areas of degraded land (due to gully soil erosion) are present in the *kebele*. Farmland, grazing land, land covered by eucalyptus tree, forest land and few irrigations land are the common land use type of Burkusami Geba Robi *kebele*.

A community mapping exercise showed that most of the flat lands are used for crop production, whereas mountain areas are covered with forests. Eucalyptus tree plantation is also sharing cultivable lands in both *kebeles*. Grazing lands are found near rivers and springs as well as in waterlogged and marshy areas. Also, most of the areas with access to irrigation are located following river sides.

The *woreda* has two main production seasons: rainfed and irrigation production systems. The main production season is from May to January and the irrigation season is from October to April/May.

Barley, wheat, potato, teff, and faba bean are the commonly produced crops in Welmera Choke *kebele* and home gardens (kale, cabbage, maize, and garlic) are also present. Majorly produced crops in Burkusami Geba Robi *kebele* are barley, wheat, teff, potato and faba bean whereas oat, linseed, and pea are produced to a lesser extent in this *kebele*. There is also experience in producing vegetables using irrigation in both *kebeles* (but largely at Welmera Choke *kebele*). In the surveyed *kebeles*, most farmers produce barley, wheat, teff, potatoes, and faba beans with a proportion of 71.7%, 71.7%, 70.8%, 36.8% and 19.6%, respectively.

Generally, the productivity of these crops in the *kebeles* are low, productivity for wheat, barley, teff, faba bean and potato are 35, 32, 18, 23 and 200 quintal/ha respectively (The figures were commented by the *woreda* experts).

There are few model farmers in the *woreda* who are resourceful and have access to extension services. In general, households have limited access to and use of improved varieties of teff, barley and faba beans in comparison to the use of improved varieties for potato and wheat for production.

Farmers have little experience in the use of pesticides, especially in the case of faba bean, however, relatively they have high percentages of use of pesticides for barley, wheat, teff and potato production, but with limited safe and proper pesticide use skill and knowledge. The majority of farmers use fertilizers for wheat, teff, barley and potato production. Households use limited fertilizers for faba bean production.

Monotonous cereal-based crop rotation is a common practice in both *kebeles*. For example, the study observed rotation of teff with barely/wheat at both *kebeles*. The dialogues made with stakeholders during the RFSA, and the prevalence of monoculture cereal-based cropping systems have shown that generally, the legumes-cereal crop rotation practices is not common in the farming system of both *kebeles*. However, some potato-cereal rotation system has been observed in the farming system of both *kebeles*. The practice of intercropping is also not common in both *kebeles*. Farming households are applying soil fertility management (ISFM) practices such as the production and application of compost, utilization of manures (particularly for home gardening), and some lime application practices to treating acid affected soils.

Both *kebeles* are considered high-potential areas for crop production and therefore the demand for agricultural inputs and technologies is very high. Nevertheless, the input and extension systems are constrained by a series of challenges. In focus group discussions stakeholders mentioned issues such as shortage and unavailability of agricultural inputs and technologies, high input prices, lack of improved crop varieties except for wheat and potatoes, limited extension services, and lack of agricultural machinery and post-harvest technologies. Farmers have less access to agricultural inputs and irrigation facilities such as water pumps for irrigated crop production except for the recent irrigated wheat production initiatives where a number of water pumps were distributed to farmers who have access to irrigation. Besides, limited extension services have been provided during irrigated crop production season except for the

Table 4: Inputs used for the major crops

Crop	% HHS Produce	%HHS used inputs				Productivity (t ha^{-1})	% Produce sold
		Improved Variety	Urea	NPS	Pesticide		
	%	%	%	%	%		
Barley	71.7	15.8	97.4	98.7	89.5	1.40	9
Wheat	71.7	60.5	100	100	94.7	1.27	10
Teff	70.8	5.3	98.7	98.7	92.0	0.90	7
Potato	36.8	64.1	97.4	97.4	87.2	7.03	65
Faba beans	19.8	14.3	38.1	52.4	42.9	0.84	2

Table 5: Experience in agronomic practices

Household head	Inter-cropping	Relay cropping	Crop rotation	Agro-forestry	Green manuring
	%	%	%	%	%
Male		1%	99%	27%	1%
Female		11%	75%	29%	
Total		4%	92%	27%	1%

recent irrigated wheat production initiative. Less access to and availability of seeds of improved vegetable crops is common in both *kebeles*.

Crop pests such as potato bacterial wilt and fungal diseases, wheat rust, faba bean chocolate spot and blotch, barley scald and net blotch diseases are the major crop pests that cause significant yield losses annually. The farmers usually use fungicides and other pesticides to manage the diseases, however, the availability, affordability and safe and proper use of pesticides are questionable for controlling these pests in the *woreda*. The use of integrated pest management (IPM) is suggested for the management of pests to reduce crop yield losses due to pests.

Vegetable crops such as head cabbage, carrot, beetroot and Ethiopian kale, are the principal nutrition-dense crops at both *kebeles*. The focus on commercial (market-oriented) commodities is different for the two *kebeles*. Potato, carrot, cabbage and livestock and livestock products sale are the main commercial agricultural products for income generation for farming households in Welmera Choke *kebele*. Potato, wheat, barley, eucalyptus tree and livestock sale are the main agricultural products for income generation at Burkusami Geba Robi *kebele*. Besides, dairy and poultry production, are additional income-generating sources in both *kebeles*.

Respondents of the baseline survey were asked questions in relation to agronomic practices they apply such as intercropping, relay cropping, crop rotation, agroforestry and green manuring. Most farming households responded that they have experience with crop rotation, however, they weren't following the recommended rotation crop rotation practices: i.e, cereal-pulse rotations (Table 5). The practices of agroforestry and relay cropping are less in both *kebeles*. Relay cropping is mainly practiced at Welmera Choke *kebele*, for instance, planting of barley and wheat after harvesting *belg* season potato production. Green manuring practice is not common in both *kebeles*.

The data indicate that male-headed households apply more agronomic practices as compared to female-headed households. The possible reason for this is that female-headed farmers have less access to extension services including training opportunities on best agronomic practices for crop production. Those farming households who have experience with crop rotation, mostly (about 90%) rotate cereals with cereal crops, which is in fact not a recommended crop rotation practice. Female-headed households practiced agroforestry and relay cropping more than male-headed households.

The insights generated from the baseline and the RFSA were strongly supported and validated by both the *woreda* level and regional level stakeholders. The validated priority topics for agricultural production are indicated in following box. The *woreda* has great potential to strengthen and diversify its agricultural production and enhance the food and nutrition security of its inhabitants. There is a need for integrated food system development strategies that aim to enhance the availability and improve access to agricultural technologies. Besides, the *woreda* has been working in col*labour*ation with non-governmental organizations including SNV and KOPIA on home gardening activities. The *woreda* has also been closely working with Holeta Agricultural Research Centre on smallholder farmers

in the areas of livestock, crops, fruits and vegetables production.

In addition, there is a need to strengthen the extension and advisory services, and by doing so, supporting farming households to advance their practical awareness about sustainable agricultural practices (i.e. integrated pest management and integrated soil fertility management, acidic soil treatment, waterlogging management etc.) to increase agricultural production and productivity. Customized extension has the potential to support vulnerable groups of the population to secure access to healthy diets and income generating opportunities.

Priority topics identified and validated by stakeholders

- Improve input supply, distribution and accessibility
- Enhance crop production & agronomic practices
- Improve soil and natural resources conservation
- Strengthen and provide customized extension services for women and youth
- Improve vegetable seed availability and affordability
- Promote sustainable agricultural practices such as ISFM, land use policy and land administration.
- Promote integrated crop pest management (IPM) to deal with new emerging pests due to climate change as well as to control existing pests
- Support on sustainable irrigated crop production and irrigation agronomy including soil water management

Burkusame Geba Robi kebeles agriculture field landscape (top) and Welmera Choke kebele agriculture field landscape (bottom) Photos taken by: Asfaw Zewdu

4 Markets and value addition

The provision of basic market information is a service that aims to increase the efficiency of agricultural markets and contribute towards overcoming issues of market failure based on asymmetric access to basic market information. According to Shepherd (1997), public dissemination of prevailing market prices and conditions is one of the formats whereby farming households obtain market information. Public provision of market information aims to reduce the asymmetry of information in the marketplace.

The data obtained from the baseline (Figure.11) shows that most farming households (74%) have access to market information and obtain this information from different sources. The remaining 26% of farming households do not have access to market information.

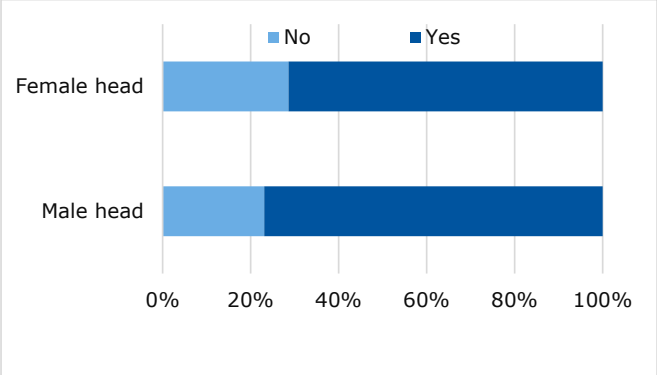

Figure 11: Proportion of access to market information

Female headed households had relatively less access to market information as compared to male headed households.

The majority of the farmers get market information mainly from informal sources (Figure 12). Most farmers (53%) access market information from farmers living in

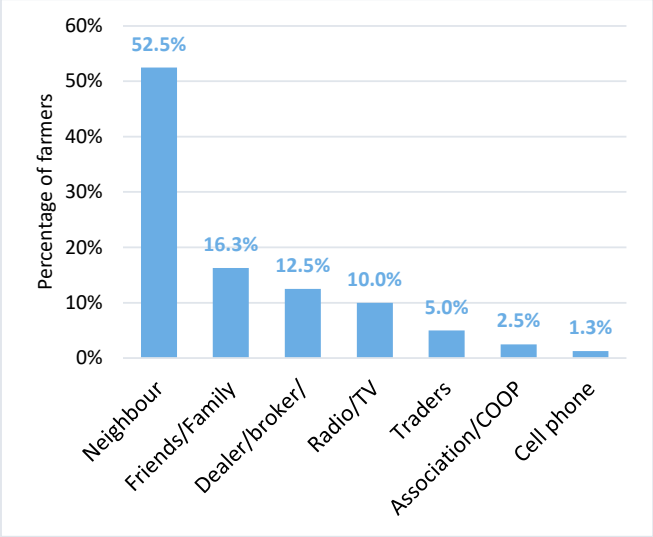

Figure 12: Source of market information

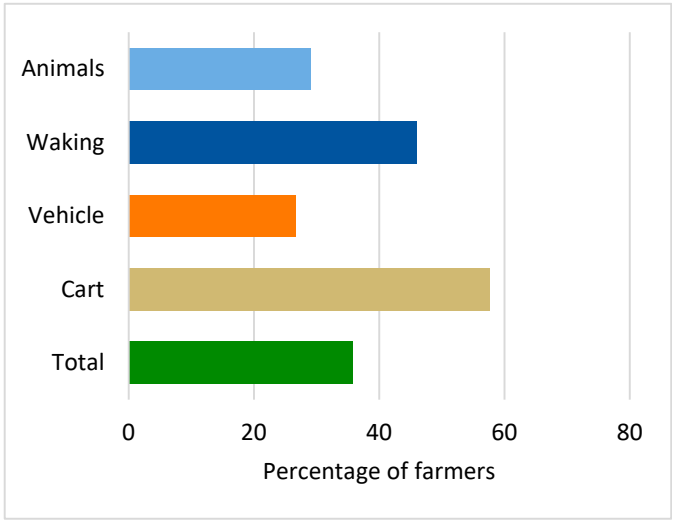

Figure 13: Means of transport to market

their neighbour. About 16% of farming households obtain market information from friends and family, while 13% of them obtain from dealers or brokers. About 10% and 5% of the farming households get market information from Radio andTV and traders respectively. A very small proportion of farming households obtain market information from formal sources such as association, cooperative and through cell phones.

Most farmers in the surveyed *kebeles* use vehicles or Bajaj as a means of transport to take their produce to the market (76% and 42% for Burkusami Geba Robi and Welmera Choke *kebele*, respectively) (Figure 13). This is mainly due to the fact that both *kebeles* are in close proximity to the main road as well as to Addis Ababa city. The figure is high for Burkusami Geba Robi because of its accessibility to the main road (asphalt) as compared to the Welmera CChoke *kebele* where the access road is rough and difficult to travel particularly during the rainy season. The next transport alternative means for both *kebeles* is using horse carts (20% and 31% for Burkusami Geba Robi and Welmera Choke respectively). Only farming households living in Welmera CChoke *kebele* (11%) take their produce to the market by carrying it themselves. The average time spent traveling from the farm to the nearest market, using animals and walking as a means of transport, is 29 and 46 minutes, respectively. The RFSA showed that both *kebeles* do not have marketplaces at the *kebele* level. The farmers are using nearby towns such as Holeta for marketing which is nearly 10 km and 15 km away from Burkusami Geba Robi and Welmera Choke respectively. This marketplace serves as the primary centre of trading for Burkusami Geba Robi and Welmera Choke farming households. Burkusami Geba Robi has relatively better access to the market and main road as compared to Welmera CChoke *kebele*. Communities in both *kebeles* incur

significant costs for transportation services (for human and agricultural producers) to the marketplace (Holeta). Besides, they will incur additional cost of transportation if they want to purchase food products for home consumption .

Surrounding *woreda* towns such as Ada'a Berga (Bekate) and Ejere are important towns for Burkusami Geba Robi farmers where they sell their milk, milk products, livestock, poultry, egg, potatoes, and vegetables. Even farming households that make use of the main irrigation systems for their agricultural production are not able to sell their products in the immediate locality. Due to the absence of a local market, small agro-processing facilities, and local "food environment", cereal and vegetable crops are sold directly to traders without any value addition.

Infrastructure-related problems such as lack of electricity, limited availability of safe drinking water, limited availability of irrigation facilities, and limited availability of roads connecting different *kebeles*, are among the major infrastructure related challenges of both *kebeles*. Lack of financial institutions, limited-service provision of cooperatives, veterinary clinics, health extensions, and schools (secondary school), have been some of the shortcomings in providing full services to the community. *Kebele* administration and FTC lack some basic infrastructures (ICT, logistics, office facility, etc.) to provide adequate services to the community.

Data generated from the baseline and RFSA revealed that there are no medium and large-scale business enterprises that are working with or adding value to raw agricultural produce. Many agricultural commodities produced in the *kebele* which can be used as raw material for agro-processing industry (potato, wheat, milk, etc.) are sold without any value addition. Market prices fluctuate for most crops throughout the year; they increase from June to October when the supply is constrained and drop from January to February when most of the crops have been harvested and there is a surplus supply. However, for vegetables, roots and tubers (potato and carrot) high market price is prevalent from February-April and the low market price for these crops is from September-November.

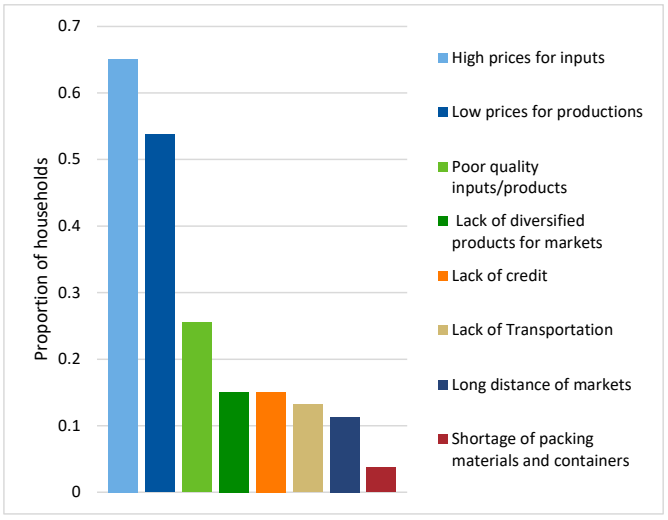

Figure 14: Challenges faced in marketing

The main challenges in both *kebeles* with regard to marketing include among others: high price for agricultural inputs, low prices for productions (for some commodities example potato, milk etc) and horticulture crops (vegetables) produced through irrigation, poor quality inputs/products, lack of diversified products for marketing and lack of credit services (Figure 14). Besides, lack of transportation and nearby market are also among mentioned challenges with regard to marketing. Moreover, absence of local market exposed farmers to brokers particularly for commodities such as potato and milk. The current high market price for different agricultural inputs used to produce crops is mentioned as a major challenge for farming households in both *kebeles*. These high price for agricultural inputs will probably leads farmer to use low amount/lower than recommended amount of inputs which in turn leads to low productivity particularly in the absence of credit services to the farmers. As a result of dialogues in the RFSA, investments to support the development of a fully-fledged local food environment have been prioritized by stakeholders. This local food environment would generate a physical location where *woreda* stakeholders can sell, buy and promote diverse, healthy and safe food products. Strengthening the local food environment has the potential to dynamize the local food system by supporting the exchange and distribution of diverse food items produced locally and traded nationally.

Priority topics identified and validated by stakeholders

- Strengthen market linkage and value chain and access to market information
- Improve access to agricultural inputs through strengthening of cooperative at local level
- Diversify crop production both for income and nutrition

5 Credit and financial services

Micro-finance institutions (MFIs) and Rural Saving and Credit Cooperatives (RuSACCOs) are not available in both *kebeles*. However, microfinance, credit providers, and Siinqee Bank, a recently established bank, are present in Holeta, which is the *woreda* town. These financial organizations mainly support farmers by providing credit. There are also some informal credits and saving associations organized by individuals and they provide credit/loans only for the member of the association but with high interest rates. Generally, access to and use of financial institutes for credit/loan services is very low due to a number of constraints such as short credit time, low amount of credit, high-interest rates, and collateral requirements. low saving culture (farmers usually expend their seasonal income during holidays, different ceremonies such as weddings). However, recently the regional government improved the regulation of credit provision for farmers where farmers who have land are not required to have additional collateral to get credit and are allowed to get credit using their land as a collateral. Focus group discussions revealed that the available credit systems do not benefit the rural youth and landless women as they do not have access to land or other assets that they can use as collateral with financial institutions. Besides, there hesitations from credit providing institutions to provide credit services to these groups as they assume that these group of society will not able to repay their credit.

A number of the pre-conditions to access credit imposed by MFIs - such as having access to collateral have excluded land less poor farming households, and the youth from accessing credit services. In addition, resource-poor households are reluctant to take out loans as they are afraid of failing to repay their loans because they are vulnerable and do not have knowledge of business to properly make use of the credits they get from MFIs.

Generally, around 16% and 30% of households can access loans from formal sources (NGO, bank/ financial institution, micro-finance including village saving and loan associations (VSLAs/RuSACCOs)) and informal sources (informal lenders, friends or relatives, and Informal credit/ savings groups, e.g merry-go-rounds, Edir), respectively (Figure 15). There are small differences between male and female-headed households in getting access to credit from formal sources (17% and 14% respectively). Regarding informal sources, about 36% male-headed households access loans from

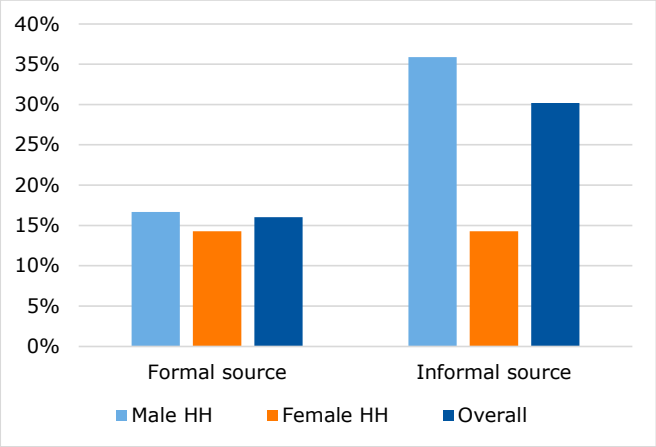

Figure 15: Access to credit

informal sources whereas, only 14% female-headed households access loans from informal sources. Results from focus group discussions reveal that the alternative sources of credit for some resource poor households are adversely affecting their livelihoods. Informal loan services, from village money lenders, often provide loans to these vulnerable households at extremely high-interest rates, compared to the interest rates of MFIs and banks.

The results of the baseline survey clearly demonstrated that there are a very limited number of community credit institutions which provide credit with low interest rates in both *kebeles*.

The topics that have been prioritized in this particular domain correspond to these specific challenges. There is a need to improve access to financial services and credit provision. This is a credit to purchase agricultural technologies but also credit facilities for SME's and entrepreneurial investments in the agri- food sector. In addition, there is a strong need to develop and implement innovative and inclusive finance instruments which are customized and attractive for women and youth and help to strengthen the skills and competences of emerging entrepreneurs.

Priority topics identified and validated by stakeholders

- Improve accessibility of financial services and credit provision at *kebele* level
- Improve access to information on the availability of credit providing institutions
- Strengthen the skill and knowledge of saving and business literacy of the community
- Enhance inclusive credit provision mechanisms at *kebele* level for landless and vulnerable households, women and youth with low interest rate, and without the requirement of collateral

6 Food and nutrition security

The result of the baseline survey indicates that, the dietary diversity is extremely low in both studied *kebeles* of Welmera *woreda*. The average dietary diversity score was 3.1. There are clear gendered differences around food and nutrition security. Approximately 40% of female headed HH are moderate to mildly food insecure as compared to 24% of the male headed HHs who are moderate to mildly food insecure. Moreover, evidence from the baseline survey clearly demonstrates that the households in the Welmera *woreda* are mostly depending on their own production for their food and less purchase from market.

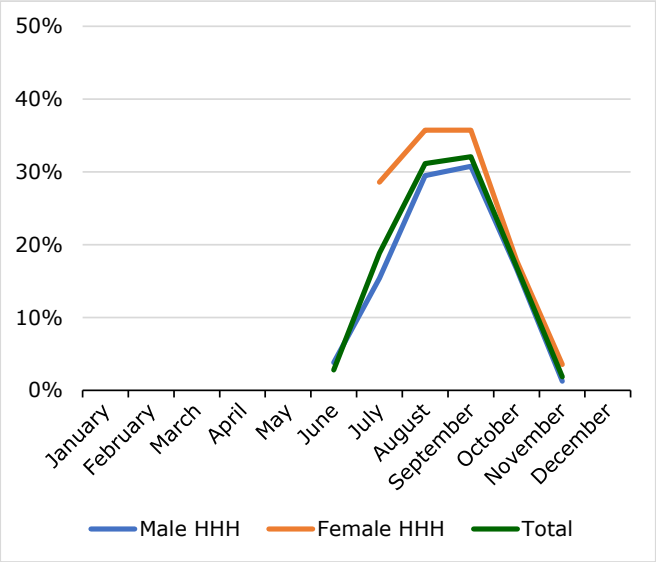

Figure 16: Proportion of households having insufficient food in different months of the study year (2022)

Female headed HH experience more food insecurity as compared to the male-headed HH. Focus group discussions and the quantitative baseline survey highlighted that food scarcity in Welmera Choke *kebele* is most severe from July to September. In Burkusami Geba Robi, the food scarcity period occurrs from August to October while until July, food is available and farmers will not finish their food from their stocks (Figure 16). Both survey and FGD showed that most HHs depend on their own production for the food they consume.

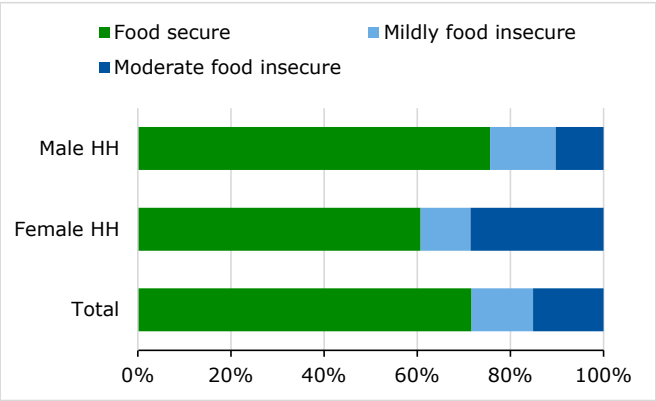

Figure 17: Proportion of households categorized in different stages of food security levels [2]

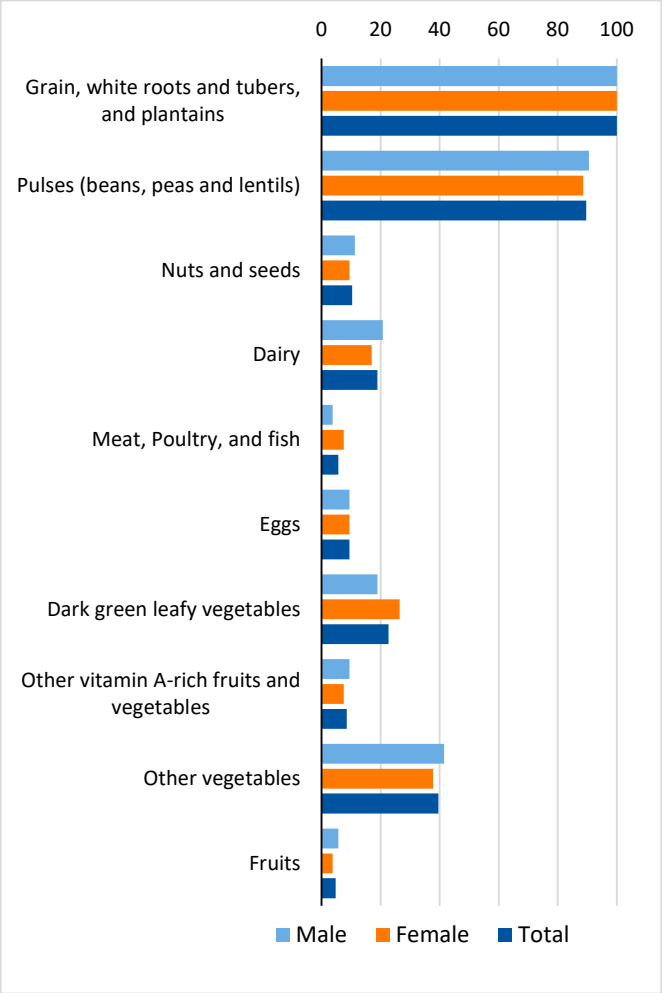

Figure 18: Food groups consumed in the two study kebeles of Welmera within 24 hours

People in Welmera *woreda* consume a low variety of different foods (Figure 18). The diet mainly consists out of grains and pulses. Furthermore, more than 22% of people consumed green leafy vegetables and about 40% of people consumed other vegetables.

On average, 3.1 different food groups are consumed by the households living in the *woreda*. There is little difference between men and women and between the two *kebeles*. Consuming an average of 3.1 food groups is far below the recommended score of 5 food groups for both men and women. Of all the people interviewed, only very few respondents consumed 5 or more food groups on the previous day (11% men and 17% women with overall average of 14%). This makes the probability of micronutrient deficiencies very likely .
Focus group discussions showed that wealth, family

[2] https://www.fantaproject.org/sites/default/files/resources/HFIAS_ENG_v3_Aug07.pdf

[3] https://www.fao.org/3/cb3434en/cb3434en.pdf

size, land size, education, gender and age are the main socio-economic and cultural factors influencing peoples' diets. According to insights from the FGD, inhabitants of the *woreda* believe that a healthy diet is the diet that builds a human body and gives energy to the body and obtained usually from traditional food dishes. Women FGD indicates that the healthy diet contains meat, milk with chechebsa (bread scrambled and with addition of butter) prepared from red teff, chuko (flour of roasted and milled barley mixed with spicy butter) whereas men FDG group mentions that injera from barley and red teff, meat, vegetables, egg, milk, butter, beso, chechebsa and bulla are considered as a healthy diet. Fruits are not mentioned as component of healthy diet by both men and women group; however, vegetables were mentioned as a component of healthy diet by men group. Generally, the importance of vegetables and fruits were not mentioned as a component of healthy diet even though these food groups are known for their contribution for health. Focus group discussions with men indicated that, those households who have access to irrigation (particularly those households living in Welmera cCoke *kebele*) have a larger opportunity to diversify their diets as compared to those who don't have irrigation as their access to irrigation will allow them to produces diverse vegetable crops on their farm.

Both women and men participants in the FGD mentioned that health extension, different NGOs, TV/ Radio, neighbour/friends, schools (from school feeding program), FTC, elders and the research centre (Holeta Agricultural Research Centre) were the main sources of information on diet. The women participants in the FGD also noted that while they occasionally attend trainings on nutrition and healthy diets by health extension experts, and different sources, they mentioned that they still need to improve their knowledge and skills in the area of nutrition. Health extension officers focus mainly on the women in the household when delivering nutrition information. Food safety information and lessons were mainly obtained from health extension agents, NGOs and research centres. Despite the *woreda*'s ideal climatic conditions for producing a variety of foods, there is a lack of awareness and knowledge about nutrition, food diversification and a healthy diet. Besides, food inflation, seasonality of food source, agro-ecology, unavailability of some foods, and high cost of agricultural inputs are barriers for consuming healthy diet.

Food taboos were also prevalent in the *woreda*. For example, some of the mentioned food taboos were the consumption of equine meat and milk, pork meat, sheep and goat milk and as such not consumed by the community in the *woreda*. Porridge, *beso*, coffee, *astara enset* and cheese are not allowed to be consumed by pregnant women as it is believed that these foods will make the baby in the womb grow too big and make delivery difficult, and also increase chance of abortion. Besides, adolescent girls are also not allowed to consume pepper due to the believe that this will enhance their sexual desire before marriage. These above-mentioned food taboos will negatively affect the health and reproductive of women, girls and children. Awareness should be created as these believes will affect the health and productivity of the society. During the *woreda* level validation workshop, stakeholders mentioned that, stunting and wasting are also becoming common problems in under five years of children. The priority topics that were coined within this domain relate to a necessity to enhance people's awareness, knowledge, preparation of healthy diets, and consumption behaviour towards healthy and nutritious diets. These challenges require multi-pronged and bundled approaches that focus on increasing diversity in diets, while working on behavioural change in consumption behaviour and food handling practices in parallel. The topics that have been prioritized also underscored the importance and necessity of working on food safety related topics and simultaneously improve the infrastructure to enhance households' access to safe water. Furthermore, reduction of pesticides uses particularly in vegetable crop production, dietary diversification through home gardening and nutrient dense crop production and increasing income opportunities, aware households to develop a culture of consuming nutrient dense animal products such as egg, milk and other products are among possible steps suggested to tackle the food and nutrition security challenges within the *woreda*.

Priority topics identified and validated by stakeholders

- Increase awareness on the knowledge and behavioral change on the consumption of nutritious, diverse and health diets
- Enhance good hygiene practices and cooking demonstration
- Enhance the practice of home gardening and diversified and nutrient dense crop and production
- Increase supply of vegetable and fruits seeds/ seedlings
- Decrease the prevalence of stunting and wasting within children under 5
- Increase the availability of safe and clean water
- Chemical utilization and application mechanisms

7 Inequalities based on gender identity and age

The result of the baseline survey shows that youth and women face disempowerments in Welmera *woreda*. The youth are challenged especially due to their limited decision-making power on production related issues, limited control over and use of income, less access to and decisions on credit, and their lack of group membership (Figure 19; Table 6). Women are also disempowered due to their high workload, limited access to and decision on credit, lack of group membership and less room to speak in public. Men also face disempowerment, especially due to their high workload and limited access to and decisions on credit but with levels lower than that of women and youth.

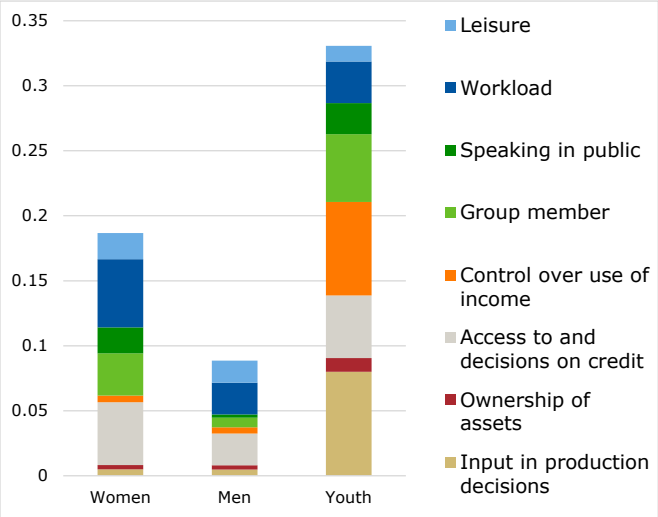

Figure 19: Women empowerment in agriculture (WEIA) score. Weighted score of the % of people classified as disempowered in specific domains[4].

Women's disempowerment and ideal women

Women are overall less empowered than men (Figure 19; Table 6),high workload, limited access to and decision on credit, lack of group membership and less leisure time were seen as the highest contributors to women disempowerment.

Focus group discussions (FGD) revealed, amongst others, that, women have limited to speak in public,this is due to the believe in the society that, speaking in front of public gathering could not be considered as good character of women.

The same FGD also showed that women have a high workload. For instance, women in Burkusami Geba Robi *kebele* were busiest for seven months except relatively relax in the months of October, February and March due to the fact that agricultural activities are less in these particular months. Beside domestic work, women are also engaged in crop production activities such as sowing, weeding, harvesting, threshing, cleaning and storing as well as in livestock activities such as caring, milking and selling in the markets of livestock products such as poultry, milk, butter and eggs. Similar to the baseline finding, the FGD also indicated that workload for women was higher than for Other high contributors to the disempowerment for women were lack of access to and decisions on credit and lack of group members as compared to men and in these disempowerment domains, 85% and 32.5% of women were disempowered respectively (Table 6). FGDs showed that access to finance is limited due to lack of awareness and information, lack of collateral, absence of financial institutions in *kebele*, no attention given to unemployed youth.

Youth's disempowerment and ideal men

Young people whose age is between 18 years and 35 years and which are not household heads are most disempowered compared to men and women above the age of 35 who were the head of household (Figure 19). Most young people are disempowered in the domain of limited access and decision on credit (96%),group membership (52%) and decision making on production and inputs (40%) (Table 6). The FGD indicated that young people have less access to collateral and assets. This contributes not only to their disempowerment of control over income but also ownership of assets, and limited input in production decisions. Although their high disempowerment score, young people were more

Table 7: Percentage of women, men, and youth classified as disempowered in different domains using the WEIA cut-off values[5] .

Respondent	Input in production decisions	Ownership of assets	Access to and decisions on credit	Control over use of income	Group member	Speaking in public	Workload	Leisure
	%	%	%	%	%	%	%	%
Women	2.5	2.5	85.0	2.5	32.5	20.0	60.0	20.0
Men	2.4	2.4	65.9	2.4	7.3	2.4	41.5	17.1
Youth	40.0	8.0	96.0	36.0	52.0	24.0	36.0	12.0
Overall	11.3	3.8	80.2	10.4	27.4	14.2	47.2	17.0

[4] https://www.ifpri.org/project/weai

[5] https://www.ifpri.org/project/weai

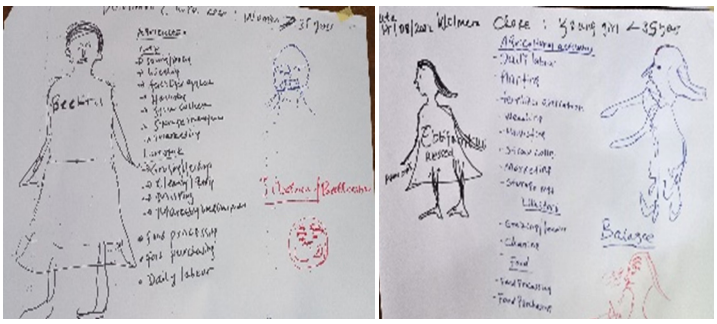

Figure 20: Drawings of ideal women as described by FGD. Mentioned ideal characteristics for women: Humble, good at cooking, well managing the family, active engagement on economic activities, well dressed, peaceful engagement and relations with neighbour, respecting the society, representative and active involvement in social networks like Edir and community works, locally called as "Beektuu" which means knowledgeable, loved by community, solve family level disputes through dialogue without exposing to externals to hear, be patient, and be a role model in the community.

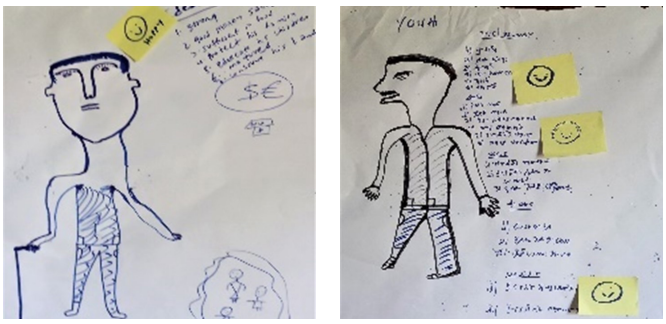

Figure 21:drawing of ideal men as described by FGD. Mentioned ideal characteristics of men: honest, strong, not interfering while elders speaking, locally called "Beekaa" which means knowledgeable or "Jaarsa Biyyaa" which means elders of community, sociable, not addicted to alcohol drinking, khat chewing and other bad habits, mediator, collabourative, respect his family, cooperative and supportive, well dressed, not extravagant, having sufficient food/better owner of assets for his family.

empowered in the domain of leisure time, and workload compared to men and women above the age of 35.

The disempowerment score for young men and women was not calculated separately due to the limited sample size. However, the FGDs suggest that disempowerment is probably different for young men and women and the low empowerment could partly be explained by gender inequality. The FGD indicated that young men and women have different tasks than older people. For example, domestic cares such as cleaning, fetching water, purchasing food items from market, cooking and watching toddlers were seen as specific tasks for young women besides agricultural works such as sowing, weeding, harvesting and feeding livestock. Caring for livestock, ploughing, sowing, weeding, harvesting and threshing were seen as a young men's main tasks. Education was described as a specific task for both young men and women.

Men's disempowerment and ideal men

Men were most empowered compared to women and youth but still a high percentage of men are disempowered in some domains. Most men were disempowered in the domain of access to and decision on credit (65.9%) even though they are better than that of women and youth. Besides, they were disempowered in domains of workload (41.5%) and limited leisure time (17.1%) as compared to youth.

The FGD highlighted that men face similar challenges but with little difference as that of women with regard to access to finance. High workload and limited leisure time were for both men and women and these are the main contributor to their disempowerment. However, men and women have different responsibilities and roles (see women's disempowerment).

The FGD also showed that being free from alcohol addiction and khat chewing were a character trait for ideal men. This could indicate that alcohol addiction and khat chewing of some of men nearby Holeta town are becoming prevalent and troublesome for men and women within the *kebeles*.

The insights obtained from the focus group discussions and the baseline correspond, to a large extent, with the priority topics regarding social and economic inclusion, that were identified and validated by stakeholders. Among the priority topics, stakeholders accepted as challenges faced women and youth in terms of agricultural inputs, credits, youth unemployment, access to extension services and support and women workloads.

Enhancing the social and economic inclusion of women and youth can bring significant positive change in food system outcomes. Effective transformation of the food systems will require integrated strategies addressing these topics.

Priority topics identified and validated by stakeholders

- Enhance inclusive accessibility to agricultural inputs and credit and financial services
- Improve wage payment for daily labourers in both public private companies
- Reduce unemployment and high youth migration to nearby towns
- Reduce workload on women
- Social inclusion and empowerment of women and youth in decision making on the uses of resources

8 Policies and government support

This sub-chapter of the *woreda* profile uses the insights generated from the baseline survey and rapid appraisal process to synthesize and extrapolate seven overarching thematic areas that have the potential to catalyse sustainable and inclusive socio-economic development for the *woreda* and its inhabitants. These areas are:

- Social and economic inclusion for youth, landless men and women, and empowerments of women and youth
- Enhanced access to agri-inputs and agricultural extension and advisory services,
- Enhance diversified, safe and nutritious food systems and enhance awareness on knowledge and behavioural change on nutrition and healthy diets
- Strengthen market linkage and value chain and value additions and access to market information
- Enhance Sustainable agricultural production and natural resource conservation practices
- Agricultural mechanization for agricultural management, post-harvest and labour-saving technologies
- Collabourative planning, partnerships for integrated food system policies, and governance.

Social and economic inclusion for youth, landless and women

This thematic area encompasses enabling programs focusing on the youth unemployment, access to agricultural finance and credit providing institutions, participation in social activities, cooperatives and public, access to irrigation, school (female youth), improve participation in agricultural production, and mechanisms to provide access to customized extension services and training support for excluded groups in the society. Fair and equitable wage payment for youth in private companies, empowerment of youth and women in decision making on the use of resources and income, reduce workload. Development and scale up of best practices for women and youth to engage in socio-economic development activities, in accordance with their existing potentials and local agro-ecologies.

Enhanced access to agri-inputs and agricultural extension and advisory services

The *woreda* has potential in on-farm, off-farm and non-farm economic activities. Agricultural production potentials, agro-ecologies and local resources are favourable for agri-inputs and advisory services. Ethiopia's Digital Agriculture Extension and Advisory Services (DAEAS) Roadmap 2030 and the extension strategy refer to the strengthening of pluralistic extension system which would enable private sector stakeholders to start operating as service providers at *woreda* and *kebele* levels. Experience derived from the cooperative sector and other innovative structures, and experiences from initiatives to distribute and disseminate agricultural services and inputs (i.e.: one stop shop, Direct Seed Marketing (DMS)) need to inform future policies and investments within this domain. Scale up of existing best practices on inputs delivery and advisory services in local areas through private or groups means to address agri-inputs and advisory services challenges.

Integrated inputs and extension services up on the demand of local farmers and research domains for reduction of food and nutrition security. Customized inputs supply system on nature of commodities and practices, for instance, home garden requires small packs of vegetable seed supply in needed times. Policies, mechanisms and instruments are required to create structural support for local (agro) entrepreneurship. Strengthen and capacitating cooperatives and farmers training centres (FTCs) at local level to adequately provide services required. Linking jobless, youth, women and landless with support in areas such as, capacity strengthening in rural entrepreneurship, business literacy, saving culture, providing access to market information, provision of financial support, linking with input suppliers, and seed capital for development of the agri-food sector and supporting the creation of non-agricultural jobs in the food system are crucial.

Enhance diversified, safe and nutritious food systems and enhance awareness on knowledge and behavioural change on nutrition and healthy diets

Policies and programs that promote diversified production systems by integrating nutrition dense horticultural crops and pulses can enhance resilience of the food system and the nutrition security of *woreda* households. Besides, strengthening good agricultural practices, increase access to clean and safe drinking water and good hygiene practices of food supply chain actors for safety and quality of foods to meet the demand of urban and rural consumers.

Supporting value-chain actors to supply dense food commodities for market and made accessible for urban and rural consumers to enhance with sufficient market information and fair prices, safe and timely affordable in the local market. Improving knowledge and skills through

awareness creation for changing food consumption behaviour, diversify their incomes, cooking demonstration, safe production and supply and enable them to access nutrient dense foods from their field in year rounds like home gardening for sustainable agri-food systems.

Strengthen market linkage and value chain and value additions and access to market information

Basic market information for both out puts and inputs is necessary for increasing the efficiency of agricultural market and to avoid market failure. The majority of the households get market information from informal sources. Thus, there is a need for digital and formal market information services. For this there should be a supportive government policy that enhance market information and effective market value chain linkages in the *woreda*. There is an initiative at national level (the National Market Information System) that helps to enhance digital market information.

Agricultural products both crop and livestock are supplied to the market with very limited value additions. There is a need to strengthening local agro-processing that add values to the agricultural produces. Linking smallholder farmers with value chain actors for value additions and safety, and quality of products to be competitive in international and urban markets towards access to fair prices and sustainable markets.

Enhance sustainable agricultural production and natural resource conservation practices

Climate vulnerability and environmental degradation such as frost, hail damage of crops, erratic rainfall distribution, late on set and early cession of rainfall, extreme reduction of *belg* season, and cropping pattern change, gully erosion, over grazing, deforestation and expansion of acid affected soil are negatively affecting agricultural production, food and nutrition security and population dynamics in the *woreda*.

A diversity of national and regional initiatives has been deployed to prepare the agricultural sector for climate readiness. Successful initiatives that have been tested and validated at *woreda* level, with the support of research and development partners, can be scaled and disseminated to reach more farming households in other *kebeles* of the *woreda*.

There are ample evidence and proven positive impact of climate smart, best agricultural practices including amongst others, crop diversification, use of integrated soil fertility management (vermi-composting, compost, manure and lime uses), integrated crop pest management, waterlogging management and drainage on vertisol, green legacy initiatives (tree and multi-purpose tree plantation initiative), sustainable land management through developing appropriate land use policy to reduce soil erosion, flooding, land degradation, over grazing and deforestation,). There is a need to expand programs and policies promoting the dissemination and uptake of these types of agricultural and food system innovations.

Agricultural mechanization for agricultural management, post-harvest and labour-saving technologies

There are very limited agricultural mechanization and labour saving and technologies in the *kebeles*. These agricultural technologies include tractors, combined harvester, small scale threshers, milk churners, feed choppers, potato diggers, cultivators, modern stoves, and enset squeezers (especially for women) in the *kebeles*. Organizing youth and women to access to efficient agricultural mechanizations, postharvest technologies and labour-saving technologies through linking with micro-finance institutions, NGOs and banks is very essential. These are also mechanisms for reducing joblessness, reduce workload on women and create income generations opportunities through grouping youth to rent these agricultural machineries.

The recent reform on tax and duty policy made by the government on agricultural mechanization and animal feed technologies encourage and facilitate farmers to get access to agricultural technologies which contributes to the effort to ensure food and nutrition security at both household and national levels. The attention given for irrigation facility (irrigation development, water pump distribution etc.) are enhanced in the region to support the irrigated wheat production initiative.

Collabourative planning, partnerships for integrated food system policies, and governance

Addressing complex food system requires col*labour*ative partnerships among stakeholders from different disciplines, sectors and jurisdictions of government. There is a need to develop strategies and plans that account for local complexity and diversity in the food systems and take into consideration locally identified priorities. Currently, there is a platform called Agricultural Transformation in Oromia which established in the region and now cascaded to the zone and *woreda* levels where the stakeholders engaged in agricultural development meet together and jointly plan on agricultural development activities. Strengthening this kind of existing platform will help in addressing complex food system challenges.

Using a food system approach, stakeholders should consider investments that contribute to the socio-economic inclusion and wellbeing, food and nutrition security and ecosystem health.

Overview of projects implemented in Welmera

The *woreda* administration in collabouration with diverse partners, have deployed and implemented different national policies and support programs at a local level. Policies and programmes have worked on supporting agricultural development, nutrition and health, sustainable agricultural practices, soil and water conservation, watershed management and agro-forestry. Some noteworthy projects, programmes, initiatives and interventions that have been implemented at the level of the *woreda* are:

- Agricultural Growth Programme/ Ethiopian Food Systems Resilience (EFSR) – Government flagship programme - the follow-up of the previous AGP-II project
- Watershed management programme supported by development partner (supported by KFW)
- Integrated Soil Fertility Management (ISFM) supported by (GIZ)
- Household based vegetables and fruits seedling home gardening (supported by SNV programme)
- Vegetable crop production supported by KOPIA
- Potato research supported by the International Centre for Potato Research (CIP) and potato, faba bean and other agricultural technologies by Holeta Agricultural Research Centre
- Private sectors involvement in input supply and distribution (seed and agricultural pesticides distributors)

Woreda baseline study multi-disciplinary team

Photo taken by:

Opportunities and challenges for Welmera in a food system perspective

An overview of the most important opportunities and challenges, as identified through the RFSA and baseline surveys and validated by the stakeholders, are and presented in figure 22. The challenges are formulated into goals, specific activities and interventions and placed into a food systems framework.

This overview illustrates how the identified opportunities and challenges are scattered throughout the different areas of the food system framework. In addition, it portrays how opportunities interlink and mutually contribute in specific ways to specific food system outcome areas.

Understanding and managing trade-offs and synergies in the food system

Food systems are by nature complex and dynamic and are characterised by interconnected, non-linear relations between the system elements and outcomes. When looking at any food system, one must be explicit and intentional to understand how certain activities affect different food systems outcomes, both positively and negatively.

An analysis of potential synergies and trade-offs is essential in understanding how food system outcomes at times compete and conflict with each other. For example, activities focussing on the production and productivity of staple crops have the potential to generate positive benefits in terms of yield increases with synergies that translate to the generation of income for farming HHs and contributions to improve food security at national level. Nevertheless, these activities might also generate negative trade-offs such as the formation of acid soils due to excessive use of fertilizer. In addition, a focus on staple crops might negatively deteriorate HH nutrition security and HH dietary diversity when farming HHs do not utilize the increased income to purchase healthy and nutrient dense food products. Another example of system behaviour is how activities to promote home gardens can improve the production of nutrient dense crops with potential synergies to enhance HH dietary diversity and to create a series of alternative livelihood and employment opportunities for women and youth in sector related support activities such as transport, value addition, distribution etc.

A system analysis reveals that the promotion of home gardens can also potentially generate trade-offs that have a negative impact on producers, consumers and the environment. For example, home gardening has the potential to increase the labour burden for women in the HH. In addition, the excessive use of fertilizers and pesticides in home gardening activities has the potential to negatively affect the health of producers and consumers and also has a negative impact on the environment.

When designing any type of food system interventions, one must be explicit and intentional to try to understand and manage how specific interventions can affect different food system outcomes. Understanding how trade-offs and synergies affect the food system and being explicit about how certain interventions can create trade-offs and synergies can support the design of bundled intervention packages, that actively pursue integrated approaches, designed to address multiple systemic food system issues.

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List of abbreviations:

AEZ	Agroecological zones
CIP	International Centre for Potato Research
DA	Development agent
DAEAS	Digital Agriculture Extension and Advisory Services
DMS	Direct Seed Marketing
EFSR	Ethiopia Food Systems Resilience
FGD	Focus group discussions
FHH	Female headed households
GIZ	German Agency for International Development Cooperation
HARC	Holeta Agricultural Research Center
HH	Household
ICRISAT	The International Crops Research Institute for the Semi-Arid Tropics
IPM	Integrated Pest Management
ISFM	Integrated Soil Fertility Management
KOPIA	Korean Program on International Agriculture
M.A.S.L.	Meters above sea level
MHH	Male headed households
MFI	Micro-finance institutions
RFSA	Rapid food system appraisal
RuSACCOs	Rural Saving and Credit Cooperatives
SLM	Sustainable Land Management
SNV	Netherlands Development Organization
WEIA	Women empowerment in agriculture
VSLAs	Village saving and loan associations

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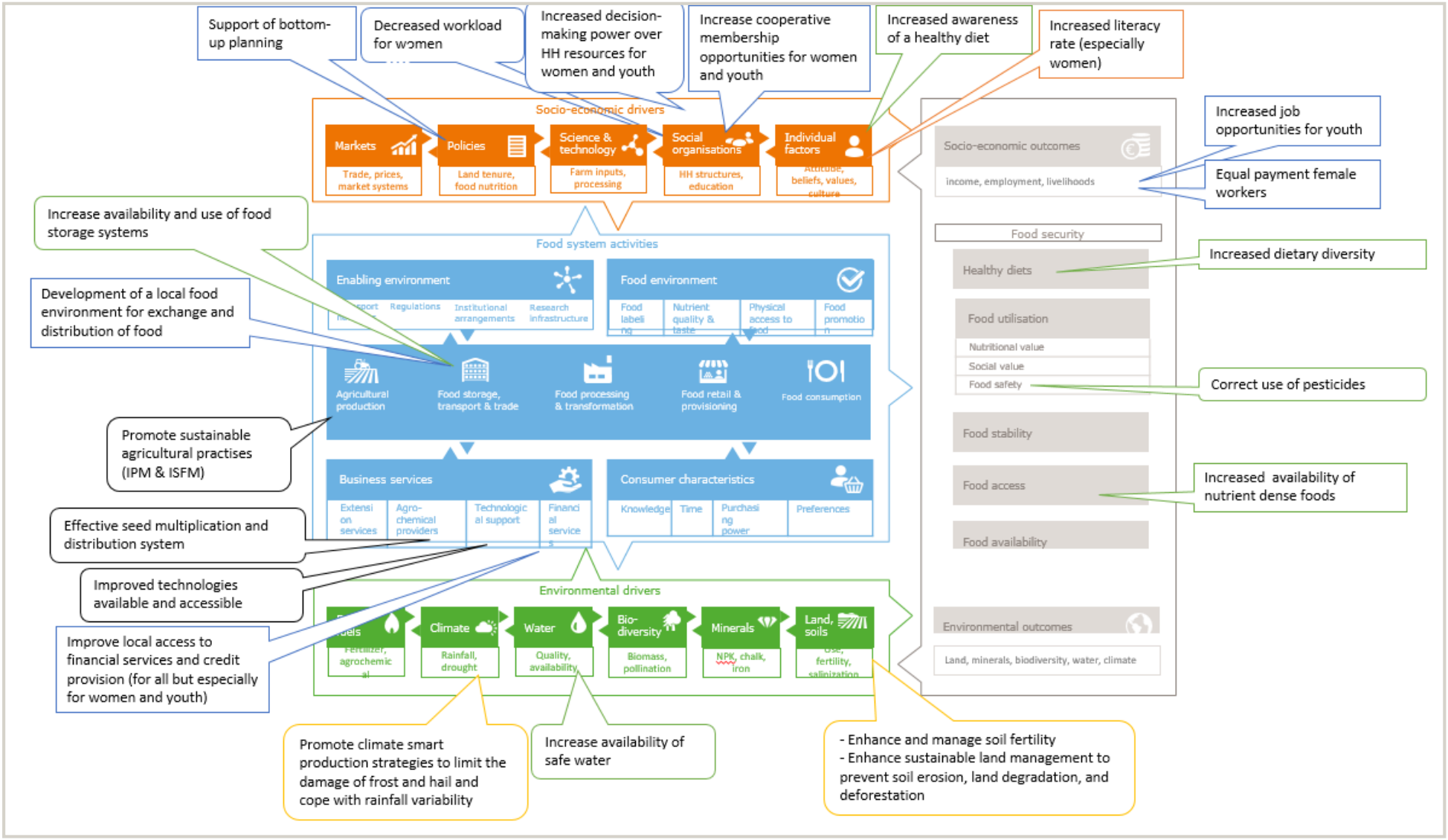

Figure 22: Identified priority topics in a food systems perspective (following van Berkum et al., 2018)

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