RAISE-FS *Woreda* profile #003

# Mirab Armachiho *Woreda* Food System Profile

## Population

**54,023**

24,112 | 29,911

## Altitude

**500-750 m.a.s.l**

## Diets

Predominantly grains and pulses

## Food insecurity

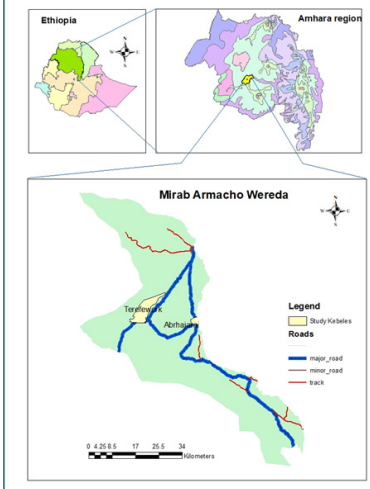
**27%** **FHH**

**9%** **MHH**

## Food gap months

Jan ..... Dec

July to October




## Mirab Armachiho *woreda*

## Top 5 crops produced

sesame | sorghum | cotton | soya bean | mung bean

## Climate and soils

- Soil fertility
- Soil erosion
- Deforestation
- Sesame mono-cropping

## 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 Mierab Armachiho *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 conditions, production factors, markets and value addition, food and nutrition security, social inclusion 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 Mirab Armachiho *woreda*, namely Abreha Jira 02 and Terefework 02. These two selected *kebeles* are assumed to represent the diversified agro-ecologies of the Mierab Armachiho *woreda*. Officials from the *woreda* administration acknowledged and certified that the RFSA engaged a diversity of stakeholders, and the findings present a realistic overview representing the entire territory of the *woreda*.

Activities conducted to construct the *woreda* profile were done in light of the Resilient Agriculture for Inclusive and Sustainable Ethiopian Food Systems (RAISE-FS) project. Mierab Armachiho is one of the selected implementation areas. A quantitative baseline and the qualitative rapid food system appraisal surveys were conducted in parallel and together with secondary data; these are the main inputs for this *woreda* profile. Data collection was conducted in two of the *woreda*'s *kebeles*, Abreha Jira 02 and Terefework 02. These *kebeles* were purposefully selected because of their potential for the project commodities (sesame, soya bean and sunflower). A structured standard questionnaire and RFSA tools were developed to collect field data. A total of 102 female-headed (FHH), male-headed (MHH), women in male-headed households (WMHH) and youth were proportionally and then randomly selected from a household living in the selected two *kebeles*. Quantitative data were collected from 102 respondents of which 38% were men, 35% were women and 26.5% were youth, including men and 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 plate's activity[1].

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

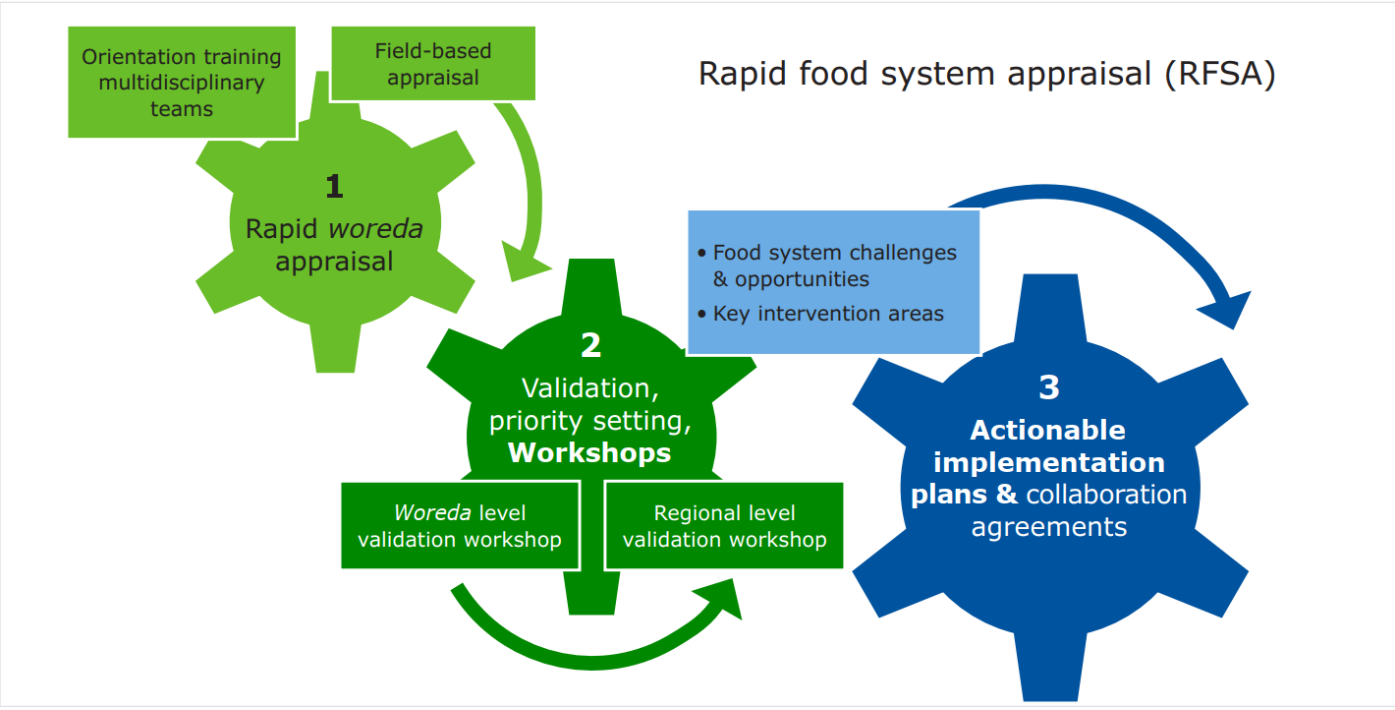


*Figure 1: Steps of the rapid food system appraisal (RFSA) process*

The activities were undertaken with female, male and institutional stakeholder groups separately. The female group consisted of 12 persons (5 youth <35 years of age, 4 adults between 35 and 60 and 3 elderly people >60 years of age). Similarly, the male group was composed of 12 persons (5 youth, 4 adults and 3 elderly people). At *kebele* level, the institutional stakeholder group comprised development agents (DAs), a health extension worker, an expert from the *Woreda* office of agricultural, cooperative promotion office, cooperative manager, a gender expert from Women Children and Social Affairs office.

The validation workshop was conducted with *woreda* administrator, researchers of Gondar agricultural research centre (GARC), and heads of the different offices in the *woreda* (agriculture, cooperative, women, children and social affairs, job creation, trade and development and health offices), representatives of the men and women groups who participated in the RFSA were present. During the workshop, key findings from the appraisal and baseline survey were discussed and validated. Suggestions received from workshop participants and key informants from the public institutions were used to enrich the document.

## Community maps

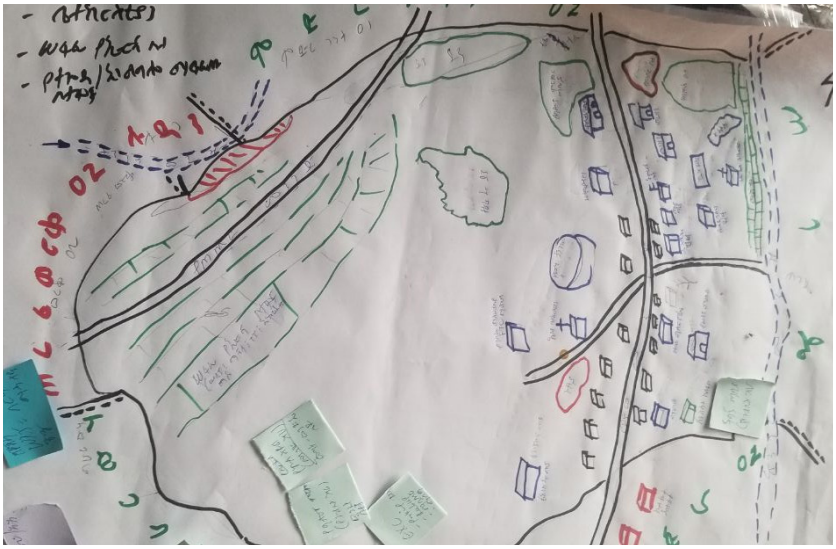

*Figure 2: Community map from Terefework 02 kebele from male focus group*

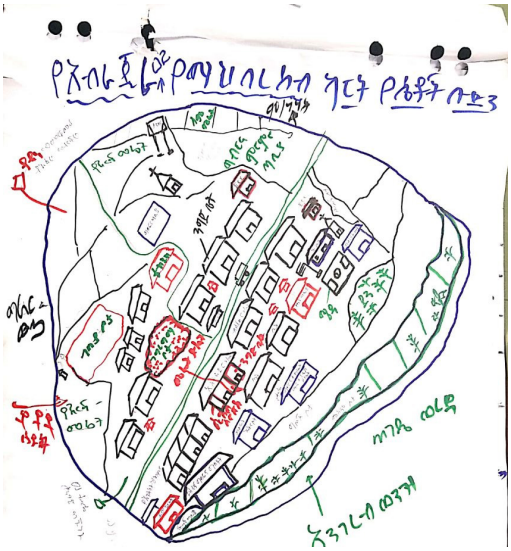

*Figure 3: Community map from Abrhajira 02 kebele from female focus group*

*Figure 5: Male FGD participants from Terefework 02 kebele*

*Figure 6: Women FGD participants from Abrhajira 02 kebele*

## Seasonal calendar

*Table 1: Seasonal calendar from Terefework 02 kebele from female focus group*

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

*Table 2: Seasonal calendar from Abrhajira 02 from male focus group*

| No | List of activities | Sept | Oct | Nov | Dec | Jan | Feb | Mar | April | May | June | July | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Expenditures | | | | | | | | | | | | |
| 2 | Income | | | | | | | | | | | | |
| 3 | Seasonal labour activities | | | | | | | | | | | | |
| 4 | Workload | | | | | | | | | | | | |
| 5 | The rainy seasons | | | | | | | | | | | | |
| 6 | Moments of critical drought | | | | | | | | | | | | |
| 7 | Key cropping season for different crops | | | | | | | | | | | | |
| 8 | High/low Market price months | | | | | | | | | | | | |
| 9 | Busiest months for women | | | | | | | | | | | | |
| 10 | Busiest months for men | | | | | | | | | | | | |
| 11 | Pest and disease prevalence | | | | | | | | | | | | |
| 12 | Prevailing livestock activities | | | | | | | | | | | | |

*The 'X' refers to the normal intensity level of the situation about the corresponding activity whereas XX and XXX represent strong and very strong intensity levels, respectively.*

# 1 Demography

Mierab Armachiho is one of the four *woredas* in the newly formed Mierab Gonder zone, Amhara Region, Ethiopia. It is located at the north-western part of the Mierab Gondar zone with elevations ranging from 500-750 meters above sea level (masl). The *woreda* is bordering with the Sudan in the west; by Metema *woreda* in the south; Setit Humera in the north and Tegede in the northeast; and in the east by Tach Armachiho *woreda*. The *woreda* administrative centre is Abreha Jira town, with a distance of 115km from Gondar and about 300km from Bahir Dar, the regional government seat.

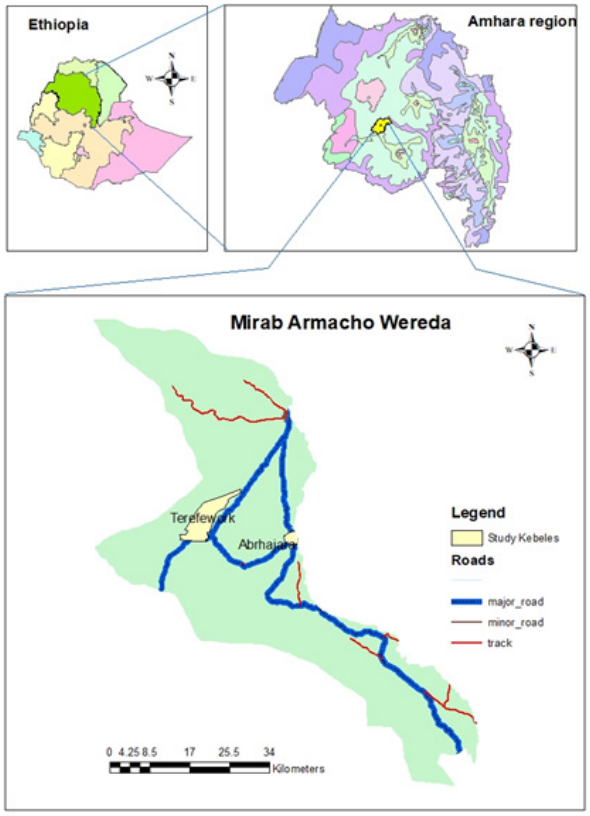


*Figure 7: Map of Mierab Armachiho woreda*

According to the *woreda* office of agriculture, the total area of the *woreda* is estimated to reach 3,557 km2, out of which 90% is flat land, which is suitable for mechanized farming. The remaining 10% is with undulating topography. About 68,103 ha is covered with forest, while the remaining area is used for animal grazing. The latest data obtained from the Mierab Armachiho *woreda* plan office indicate that the total area including Medregenet town administration is about 3,333.5 km2. Annual average temperature is estimated to reach 34-380C . But, in the hottest months the temperature might peak from 38 to 43 degree Celsius. Rainfalls range from 600-1100mm

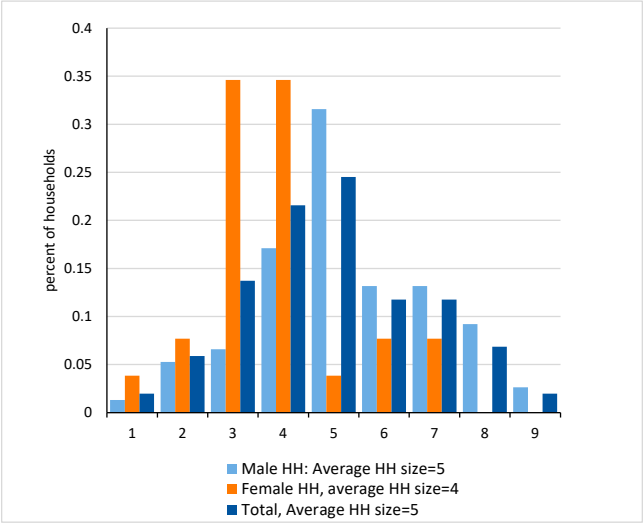


*Figure 8: Family size of surveyed households*

(*Woreda* office of agriculture 2022, unpublished).

The *woreda* has four towns and 10 rural *kebeles*. The towns include Abreha Jira, Girar wuha, Mdregenet and Terefework. Abreha Jira, Medregenet, and Terefework towns have two *kebeles* each (01 and 02), while Girar wuha has only one *kebele*. The town Medregenet has been raised to the level of town administration. These towns were formed through resettlement programs

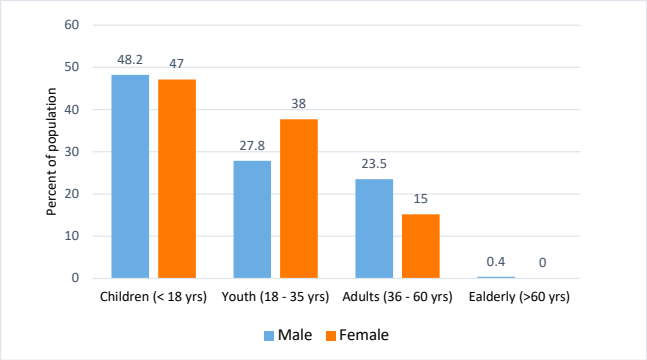


*Figure 9: Age category of surveyed households*

*Table 3: Education level of surveyed household head*

| Educational level | Male % | Female % | Total |
|---|---|---|---|
| Does not read and write | 52.6% | 73.1% | 57.8% |
| Adult and religious education | 11.8% | 15.4% | 12.7% |
| Primary school | 28.9% | 3.8% | 22.5% |
| Secondary school | 6.6% | 7.7% | 6.9% |
| Diploma and above | 0.0% | 0.0% | 0.0% |

**Education level of surveyed household heads**

The baseline survey indicates that about 58% of the household heads in the surveyed *kebeles* doesn't read and write. Out of male headed households (MHH), 53% doesn't read and write while out of female headed (FHH) 73% doesn't read and write (Table 1). The proportion of FHH who have completed primary school was less than 4%, while MHHs had better chance to complete primary school (29%). Surprisingly, about 8% of the FHHs have attended secondary school as opposed to 7% of the MHHs. Similarly, FHHs had better access (15%) to adult or religious education than their counter parts (MHH 12%). Generally, out of four MHHs only two can read and write. The difference is more pronounced in the case of FHHs, where out of four only one woman can read and write. The very low literacy level has significant impact on job opportunity, engaging in business, cooperative membership and to assume leadership positions in any community level activities. In general, results of the survey clearly indicate that the gender disparity between men and women among the society is evident in sending more boys than girls to school. Perception of the society in terms of gender inequality is well reflected in the saying 'set wode majet, wond wode danginet' which literally means 'women to the kitchen and men to the courtyard'.

The average family size of the surveyed HHs is five for male and four for female headed households. The family size in MHHs is slightly higher than in the FHHs. Most male headed households (31.6%) have five people in their family while 17%, 13% and 13% of MHH have four, six and seven members, respectively (figure 3). An equal percentage of the FHHs have three and four family members (34.6%), while 7.7% have six and seven family members. The overall family size for the *woreda* is estimated at about five people per household (Figure 3).

Children younger than 18 years of age are the dominant portion of the population, comprising more than 47%. The second populous group is the youth, aged between 18 and 35 years. In the area female youth are about 38%, while male accounting for 28%. In the case of adults (36 to 60 years of age), male are 24% as compared to women (15%). Elderly (>60 years) are less than 0.5% in both sex categories (Figure 4).

**Priority topics identified and validated by stakeholders**

- **Improve the low literacy level among women**

*Soybean field at Mirab Armaciho woreda*

# 2 Agro-ecological and environmental conditions

Agro-ecological settings: According to Derese Baye 2018 and unpublished data obtained from *woreda* office of agriculture, Mierab Armachiho *woreda* belongs to the traditional zone of Kolla or lowland. Based on the Global 16 Class classification system, the *woreda* belongs to the agro-ecological zone of warm-semiarid lowlands (Figure. 5). The *woreda* is located in the lowland plains of northwest Ethiopia and encompass areas with altitudes ranging from 500-750 meters above sea level (masl). The majority of the *woreda*'s topography is flatland, while the remaining small portion has an undulating landscape. The major soil types of the *woreda* are vertisols and fluvisols. Average annual temperature is about 34-380C. Rainfall ranges from 600-1100mm.

Climate change: Focus group discussants sensed weather and/or climate variability. Rainfall change is towards increasing intensity and frequency, causing water logging on vertisols with subsequent decline in productivity of sesame and mung beans. Late onset, early cessation and uneven distribution of rain are factors affecting crop production in the *woreda*.

Environmental degradation: Soil fertility depletion due to erosion, deforestation, sesame mono-cropping and limited use of inputs is some of the factors that contributed to environmental degradation.
The identified and stakeholder validated priority topics accentuate the real impact of environmental degradation and weather variability on the food system. To reverse the situation, it is important to apply climate smart technologies for sustainable crop and animal production thereby to secure food and nutrition in the commercial food system. Research efforts should gear towards the development of shock resilient and adaptive technologies. Mitigating environmental and soil fertility degradation and arresting soil physical loss due to wind and galley erosion require immediate attention of the society.

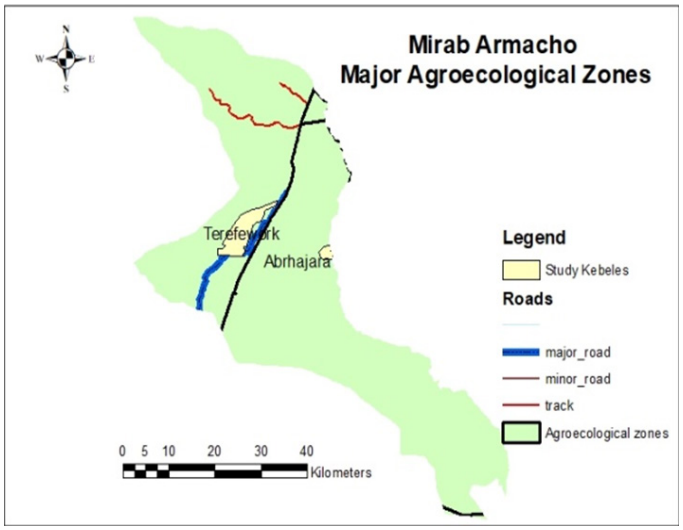


*Figure 10: Livelihood and agro-ecological zones of the woreda*

**Priority topics identified and validated by stakeholders**

- Generate, test and promote excess water drainage technology for sesame cultivation
- Develop, test and promote stress tolerant sesame variety
- Provide access to potable water shortage in areas where there is shortage
- Improve soil fertility and enhance sustainable land management to prevent soil erosion, land degradation, and deforestation.

# 3 Agricultural production system

The total farmland is estimated at about 130,574ha of which 51% (66,646ha) of the arable land in the *woreda* is occupied by large scale farmers, which experience sesame mono-cropping or rotation with few food and market crops. Similar production system is followed on 49% (63,927ha) of the area which is owned by both medium and small-scale farmers (*Woreda* plan office 2023, unpublished). Farm households in the *woreda* experience crop and animal mixed farming system. The environment is conducive for growing oil crops, fibre, cereals, pulses, vegetables, fruits and tuber crops using mechanization and/or draught power. Mechanized cultivation is largely experienced by large and medium scale farmers where sole cropping is the dominant farming system. Animal power (oxen and donkey) is used by smallholder farmers (Derese Baye, 2018, SBN 2018). Field crops production is solely based on short seasoned (June to September) rainfall. Vegetables and fruits production is conveyed under irrigation from September to April.

Smallholder farmers are mainly involved in crop production and animal rearing. Major animals liked to be owned by the different HHs include livestock, small ruminants (sheep and goats), equines (mainly donkey), poultry, and bees (apiculture). Few commercial farmers rear goats and sheep in large numbers for marketing. The *woreda* is endowed with diverse natural resources such as arable land, forest, marshy areas, rivers, domestic animals and wildlife, including birds. The majority of the land mass is cultivable. The common land use types include cultivation for both rain fed and irrigated crops production; grazing land for animal rearing; forest area for timber and firewood sourcing; and national park area for wildlife conservation and tourism (WoA, 2022).

The major crops grown in the *woreda* are sesame, sorghum, cotton, soya bean, mung bean, and maize. Results of the baseline survey indicate that 89% of the HHs planted sorghum, 70% sesame, 10% soya bean, 8% mung bean and 7% maize (Table 3). However, the RFSA participants put soya bean in third place, preceded by sorghum and sesame.

The use of improved varieties of sesame, sorghum, and mung beans is very low as compared to maize (57% HHs). The survey revealed availability of information gap among farmers in terms of improved varieties and production practices. This is because most crop varieties that are being produced in the area are improved varieties, except a sorghum cultivar known as Deber, which is long smuggled from the Sudan and established as a landrace currently. Other sorghum varieties such as Abshir, Birhan, Dekeba, Gobiye, Hormat and Melkam are some of the improved varieties that have been introduced to the area through the research system and its development partners like SBN and 2SCALE, in different periods either for malting purpose in the case of Birhan and Dekeba and for fulfilling the food security in the case of Melkam, Birhan, Gobiye, PAC-557 (hybrid), Hormat, and Dekeba. The varieties recommended for malting

*Table 4: Inputs used for major crops*

| Crop | HH that cultivate specific crops | HHS that used inputs | | | | Productivity (t ha$^{-1}$) | % Produce sold |
|---|---|---|---|---|---|---|---|
| | | Improved Variety | Urea | NPS | Pesticide | | |
| | % | % | % | % | % | | |
| Sorghum | 89.2 | 2.2 | 11.0 | 12.1 | 80.6 | 0.61 | 22 |
| Sesame | 69.6 | 1.4 | 9.9 | 8.5 | 38.7 | 0.32 | 90 |
| Soya bean | 9.8 | 10 | NA | NA | 40 | 0.10 | 78 |
| Mung bean | 7.8 | NA | NA | NA | 12.5 | 0.51 | 76 |
| Maize | 6.9 | 57.1 | NA | NA | 14.3 | 1.93 | NA |

*Table 5: Experience in agronomic practices*

| Household head | Inter-cropping | Relay cropping | Crop rotation | Agro-forestry | Green manuring |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Male | 22 | 22 | 95 | 22 | 3 |
| Female | 15 | 15 | 77 | 12 | 4 |
| Overall | 21 | 21 | 90 | 20 | 3 |

purpose (Birhan, Dekeba and Deber) are also suitable for injera making and thus are very much liked by the society. Therefore, the mentioned low use of improved variety (2.2% of HHs) could be related to limited access to seeds of improved varieties. As a result farmers considered them as local varieties.

Improved varieties of sesame have been introduced to the area since 1970s from the former Melka Werer, current Werer agricultural research centre (WARC). Similarly, farmers used to smuggle sesame seeds with different identities and names form the Sudan. However, since the establishment of the Gonder and Humera agricultural research centres (GARC) and HuARC, a number of varieties have been released for use in the north-western lowlands, such as Abasena, Humera-1, Setit-1, Setit-2, Setit-3, Gonder-1 and Gonder-2 are some. However, due to lack of sustainable supply of improved seeds of these varieties, farmers are forced to safe their own seed. This clearly shows that they are recycling the seeds in their hands without knowing the original sources. Long term recycling of crop varieties resulted in deterioration of productivity and quality of crops.

The same holds true for mung bean and soya bean technologies as these crops are new to the area. Mung bean varieties, Arkebe, Rasa and Boreda have been recommended for use in north-west Ethiopia. For Mierab Armachiho area use of variety Rasa is advised (SBN 2021). A number of soya bean varieties have been injected into the production system through, research, NGOs and commercial farmers. These included nationally released varieties Afgat, Awassa 95, Belessa 95, Gisham, Nova and Williams. Currently in Mierab Armachiho *woreda* Gisham and Afgat are being produced largely. On top of crop varieties, production manuals for both crops have been prepared and distributed to farmers and development agents. However, only 10% of HHs acknowledged availability and use of improved varieties and manuals. This again shows presence of information gap on mung and soya bean technologies.

The use of urea and NPS fertilizers is about 10% for sorghum and sesame. There is no evidence on use of fertilizers for soya bean, mung bean and maize (Table 3).

Pesticides use for sorghum (81%), for soya bean (40%) and for sesame (39%) is high compared to mung bean (12%) and maize (14%) (Table 4). The high percentage for sorghum is attributed to use of the herbicide, 2,4-D, for the control of striga and other broadleaved weeds. Similarly, herbicides are used for the control of grass weeds in soya bean and cotton.

Insecticides use on maize is targeted towards managing fall armyworm, stalk borer and earworms.

The general demand for improved seeds and pesticides is very high in comparison to fertilizer. During the focus group discussions stakeholders raised shortage and expensiveness of improved seeds of crop varieties, pesticides and fertilizers as major factors pushing away farmers from use .

Productivity of crops (6, 3, 10, 5 and 19 qt/ha for sorghum, sesame, soya bean, mung beans and maize, respectively is far below the research reported and the national average. The reported low yields of sorghum, soya bean and maize need further validation with stakeholders.

Mierab Armachiho *woreda* is well known for sesame production. However, 90% of the focus group discussion participants said that they are rotating crops. But, in reality it is not implemented properly because of the inviting market demand of sesame. It is only under soil fertility degraded situations that farmers fallow their land for about 2-3 years. Inter cropping, relay cropping, green manure and agroforestry are agronomic practices that are not employed by most HHs in the *woreda*. There is a slight difference between male and female HHs in terms of applying rotation (95 to 77%); inter- and relay-cropping 22 to 15% and agro-forestry (22 to 12%) (Table 4).

Addressing the validated priority topics is essential for increasing productivity of crops and animals. Strategically addressing the identified challenges and exploiting the available opportunities and natural resource in the *woreda* is essential in securing food availability, industrial raw materials, nutrition and dietary diversity.

**Priority topics identified and validated by stakeholders**

- Modernize the production and marketing systems
- Improve availability of inputs
- Develop mechanisms to anticipate unexpected rainfall (early or late, heavy)
- Increase labour availability during peak agricultural season
- Improve availability and service provision for agricultural machinery
- Facilitate access to finance or credit
- Increase availability of pesticides and drugs for the management of plant and animal pests.

# 4 Markets and value addition

Crops produced in the *woreda* are mostly destined for the market (Table ???). Sorghum is meant largely for home consumption and labourer's ration during weeding, harvesting and threshing of crops. Only a small portion (22%) of sorghum is sold out when it is above food security need. According to the baseline report, 90% of sesame; 78% of soya bean and 76% of mung beans channel to the market (Table 4).

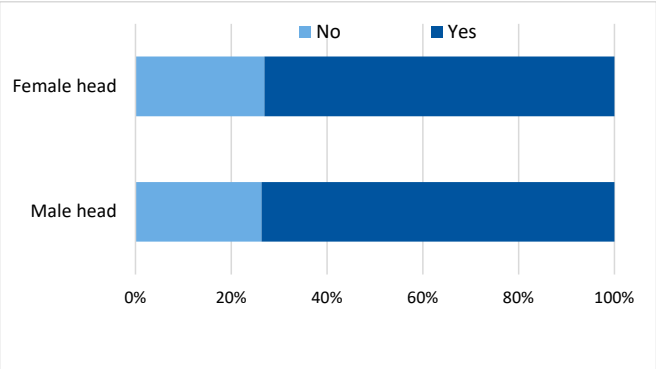


*Figure 11: Proportion of access to market information*

Access to market information is a fundamental issue for Mierab Armachiho *woreda* where commercial crops are produced in large volumes. In Ethiopia provision of market information (price, volume and grade) is on the shoulder of the government, specifically on Ministry of Trade (MoT), and its respective regional bureaus, *woreda* and *kebele* offices. However, reach of the information from MoT is limited to few commodities and is accessible only to urban dwellers that have TV sets and/or radio channels. On the other hand, the majority of farm households live in rural areas where there is no electricity and TV set to follow the market information provided by ECX on the major export commodities like coffee, sesame, soya bean, mung bean, common bean types, chickpea, pigeon pea, wheat, maize. Out of eleven ECX platforms traded commodities, four are successfully grown the *woreda*. Therefore, access to daily market prices of these commodities helps farmers to decide on to sell or keep longer. Thus, designing a strategy for wider reach of the service and increasing the efficiency of market information delivery system helps to make informed decision and minimize marketing risks.

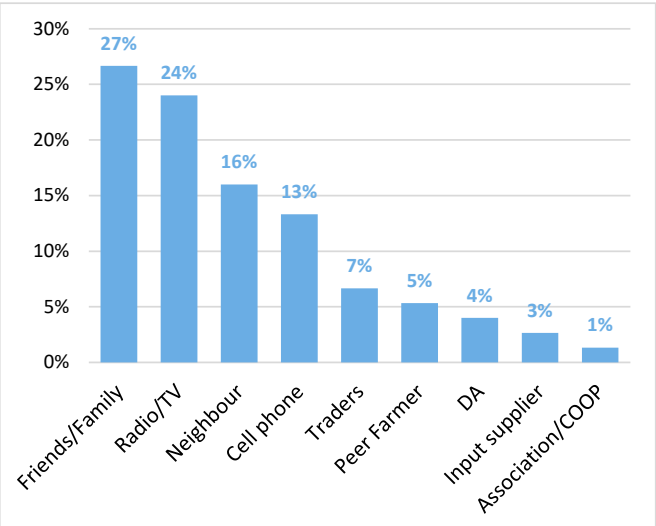


*Figure 12: Source of market information*

The baseline survey indicated that both MHH and FHHs have equal access (73%) to market information. The other 27% of the farm households do not have access to market information (Figure.6).

Farm households obtain market information from various sources (Figure 7). Nearly 27% farm households access market information through friends and family; 24% from radio or TV; 16% from their neighbours; 13% from cell phone; about 7% from traders and 5% from peer farmers. A negligible number of farm households obtain market information from development agents (DA), input suppliers and cooperatives. Generally, market information sources are very limited or missing. Up-to-date information on price, trends, and stock is scanty; and in many cases manoeuvred by brokers towards their interest. Thus, there is an urgent need to establish easily accessible and conversant market information delivery system.

People in the surveyed *kebeles* in particular and the *woreda* in general travel from place to place by using vehicles, motorcycles, animal back, donkey carts, and their own feet (Figure 8). Most part of the population use vehicle (motorcycles, mini-buses, tractors) for transportation. An equal number of HHs use animals and donkey carts while others walk on foot. Except those walking on foot, others use the available transport for own movement and taking the produce to the market. Produce like sorghum, millet, and green cob maize are taken to Abreha Jira and other *kebele* based open

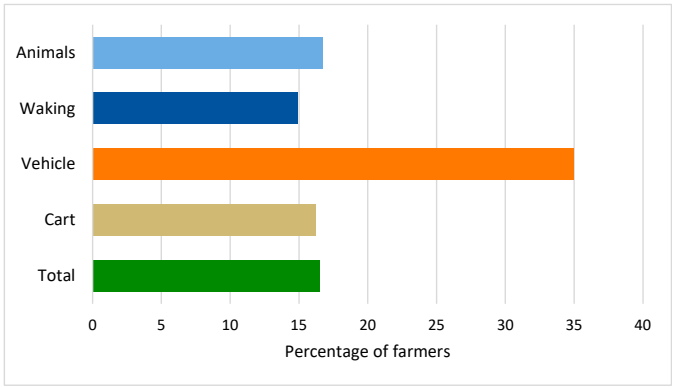


*Figure 13: Means of transport to market*

markets and are traded without any restriction. Those households who have produced sesame, soya and mung beans are obliged to sell the produce to registered primary market traders or primary cooperatives in their *kebeles* or take to the central market in Abreha Jira town as these commodities are allowed to be traded only in the ECX marketing centres.

About 53% of farmers from Abrha Jira 02 *kebele* use animal back; 31% carry and walk and 16% use carts to take their produce to market. Farmers from Terefework 02 *kebele* use animal back (59%), carts (14%) and car or Bajaj (4%) to travel to the market. The average time required to travel from their home to the nearest marketplace using animal back or carts to take their produce is about 17 minutes (Figure 8. The longest distance is usually travelled by vehicle or Bajaj and takes nearly 35 minutes.

Theere is no official market place in Girar wuha, Medregenet and Terefework *kebeles*, except open markets for purchasing small household and food items. In all *kebeles* there are shops for selling and buying goods and services. An official Saturday market is available only in the *woreda* administrative centre, Abreha Jira 01 *kebele*, which serves for both *kebeles* and for traders and consumers coming from the nearby villages and other *woredas*. The Abreha Jira market centre is about 30 km from Terefework, 20 km from Girar wuha and 20 km from Mdregenet towns.

Aside the public marketing centre in Abreha Jira 01 *kebele*, there is an ECX authority established marketing centre in Abreha Jira 02 *kebele*, which is meant for trading primary commodities (sesame, mung bean and soya bean). Adjacent there is a primary marketing centre, where more than 50 traders are buying and collecting seeds of the two commodities coming from all over the *woreda*. The traders sell the aggregated seed to processors or exporters in the ECX marketing centre. The centre also serves the *woredas* around Mierab Armachiho.

Though sesame and soya bean are produced in large volumes, there is no processing or value adding plant in the *woreda*. Therefore, what is produced is transported to Gonder, Bahir Dar or Addis Ababa for cleaning, re-bagging and exporting or processing locally. So far less than 5% of the total sesame production goes for value addition (SBN 2021).

Commonly, commodity prices fluctuate depending on national and international market demands and supply from competing countries. As the area produces exportable commodities (sesame, soya and mung beans), marketing of these crops remained a major challenge, specifically whenever there is excess supply or decreased international market demand. Particularly the price is very low at the beginning of the harvesting season and shows increasing trend from June to September, until the new harvest is marketed.

Low product quality coupled with low price of the produce; lack of product diversity, limited and poor transport facilities, long distance travel and limitations in marketing credit are some of the identified and prioritized challenges during the baseline and RFSA. To enhance performance of the sector, the identified challenges need an urgent attention and coordinated move of all concerned stakeholders.

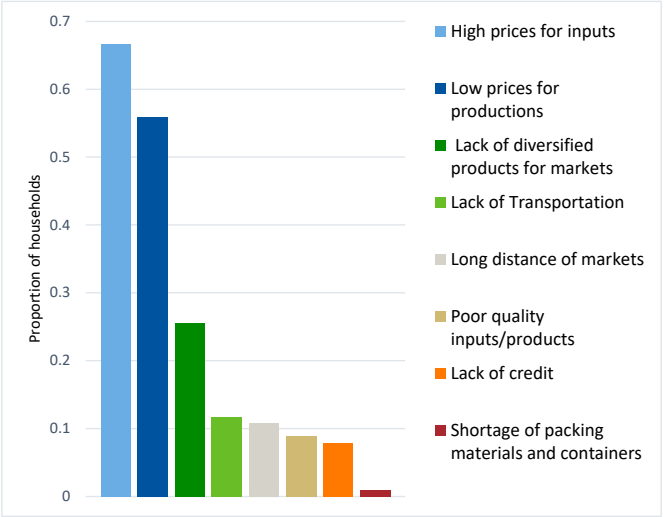


*Figure 14: Challenges faced in marketing*

**Priority topics identified and validated by stake-holders**

- Improve access to markets and price information of commodities
- Facilitate access to credit for marketing

# 5 Credit and financial services

Abay, Abissiniya, Amhara, Tsedey and Commercial Bank of Ethiopia (CBE) are the main banks operating in Mierab Armachiho *woreda*. Moreover, there are Rural Saving and Credit Cooperatives (RuSSACOs) and village-based saving groups in some *kebeles*. Despite presence of different financial institutes, credit provision to farm HHs is very limited. Moreover, access to and utilization of the financial institutes is very low due to lack of collateral; limited finance or liquidity problem, short credit period, high interest rates and low saving culture. Above all, the available credit provision systems do not benefit youth as they do not have access to fixed assets that can be used as collateral.

A number of preconditions have been put forward to access credit from financial institutes (FIs). These factors include having hard or group collateral, which exclude poor farm HHs, women, youth, and landless groups from accessing credit services.

Figure 10 shows the percentage of households with access to credit from both formal (NGO, Banks, MFIs, including RuSACCOs and VSLAs) and informal sources like informal money lenders, friends or relatives, and informal credit (saving groups, e.g. Ekub, funeral societies).

HHs in the *woreda* largely access credit from informal sources (38%) than the formal (12%), which means financial flow from formal sources to farm households is very limited. The percentage of men (14%) who accessed loan from formal sources is four times higher than women (3.8%) (Figure 10). This might be due to lack of hard or group collateral, which is mandatory for accessing credit from banks and micro-finance institutions.

About 35% of FHHs accessed loan from informal sources which is very close to that of MHHs, 39%. Thus, male and female HHs have almost equal access to loan from informal sources, indicating relative easiness of informal sources for accessing credit. However, the interest rate from informal sources (100-200%) is extremely high as compared to that of the formal sector (14-18%).
There is high need from farm HHs to increased access to finance and credit facilities. The credit is primarily required to purchase agricultural inputs, aggregate the produce, for marketing and investment on agricultural machineries and SME's.

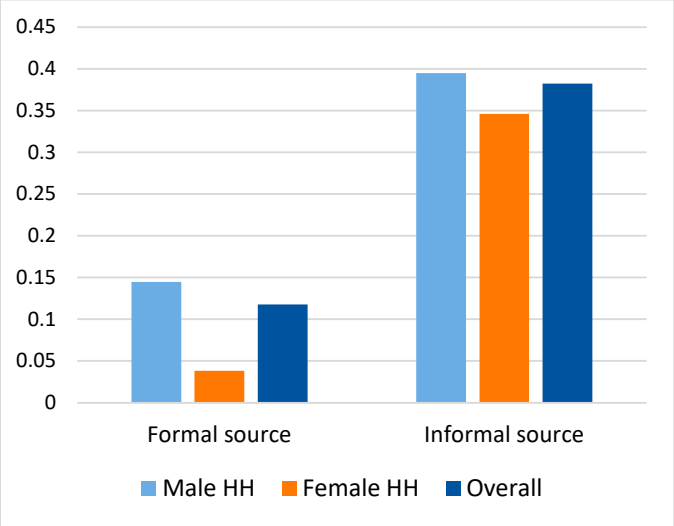


*Figure 15:* Proportion of housholds who have access to credit

**Priority topics identified and validated by stakeholders**

- Facilitate access to financial services and credit provision for entrepreneurs
- Develop innovative financial products with low interest rate and inclusive of women, youth, people with disabilities, and landless groups

# 6 Food and nutrition security

Eating nutritious and healthy foods is a prerequisit to lead a healthy life. However, lack of dietary diversity in majority of the world households is a global challenge (Richa et al. 2020). The same holds true for Ethiopia in general and Mierab Armachiho *woreda* in particular, where it is becoming difficult to obtain nutrient dense and balanced food types on a daily. As a result, many people in the *woreda* suffer from micronutrient deficiencies and undernutrition because of the limited diversity in foods eaten. The reasons for not eating a healthy and diverse diet is lack of access to different food types and knowledge gap on diversifyied diet composition; poverty, cultural norms and traditions.

The Dietary Diversity Score (DDS) is defined as the number of different food groups or foods consumed in a given period, measured every 24 hours (FAO, 2014). A daily diversity (DD) score of 5 or higher is associated with a lower change of micrunutrient deficiencies for women of reproductive age (15-49). The average dietary diversity of people in Mierab Armachiho *woreda* is very low, only 2.4 food groups. There is almost no difference in DDS between men (2.5), women (2.3) and women of reproductive age (2.3).

According to baseline survey report overall 3, 11 and 29% of HHs consumed 5, 4 and 3 food groups,

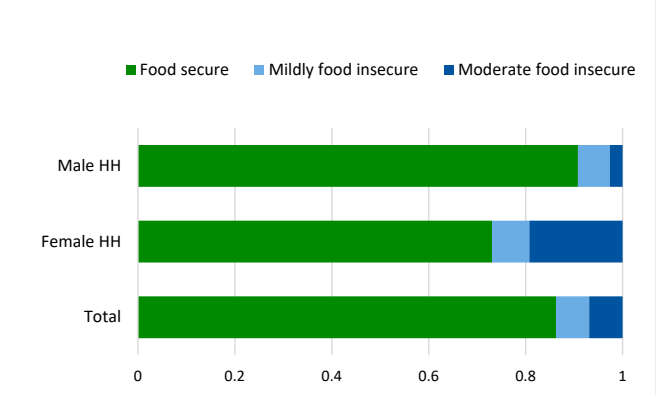


*Figure 16: Proportion of households categorized in different stages of food security levels* [2]

respectively. There is a slight difference between men (4%, 13%, 32%) and women (2%, 8%, 27%) and it is similar result for all women even they are at reproductive age (2%, 9%, and 28%) in consuming 5, 4, and 3 food groups, respectively.

The majority (99%) of the HHs consumed carbohydrates (grains, white roots, tubers and plantaines) and 98% pulses (beans, peas and lentil) in the 24 hour before

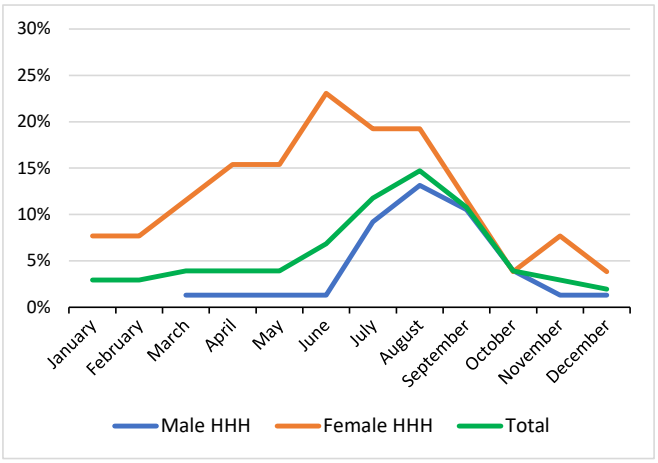


*Figure 17: Percentage of HH having insufficient food in different months of the year*

the survey. Around 18% consumed dark grean leafy vegetables while 20% consumed other non-leafy vegetables. Consumption of nuts and seeds, dairy products, meat and fish, eggs, fruits and vitamin A rich fruits or vegetables is almost zero. The low consumption rate of animal products could be due to coincidence of the survey time with the fasting period '*Filseta*'.

The focus groups discussed on the differences between

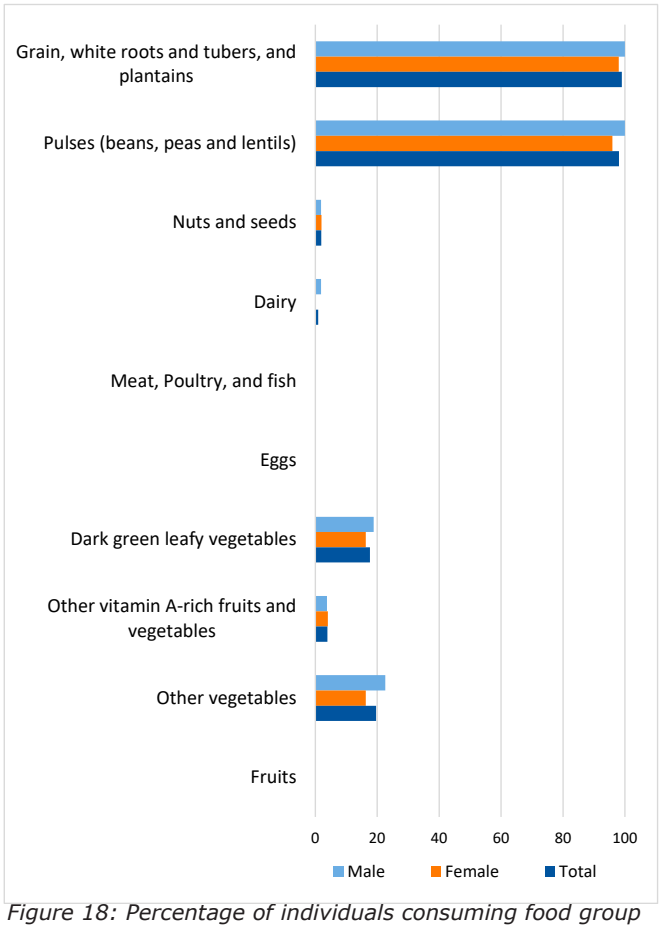


*Figure 18: Percentage of individuals consuming food group in the previous day to the interview*

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

a standard and a healthy meal. Both men and women groups indicated that the actual meal contains mainly cereals and pulses; few vegetables, oil and limited amount of animal products. While, a healthy diet mainly consists cereals including spaghetti, macaroni, animal products, vegetables, fruits and honey in sufficient amount.

Participants identifed barriers of consuming healthy diet as household income, low productivity of crops and animals; seasonality of fruits and vegetables and lack of awareness the main barriers for not consuming a healthy diet. Households obtain nutrition information from health extension workers, NGOs, schools, mass and social media, friends and family members.

The quantitative baseline study investigated the food security status of households. Results show that most households in Mierab Armachiho are food secure. However, there is a slight difference in food security between male (90%) and female (73%) households. Nearly 30% of female headed HHs are food insecure as compared to the male headed, only 10%.

Generally male HHs are more food secure than their female counter parts (Figure 11). Focus group discussions highlighted that in total food scarcity in Mierab Armachiho is most severe between July and October. Male HHs suffer from July to September, while the female HHs face food shortage earlier than men- from March to September (Figure 12).

Rapid food system appraisal and baseline survey of male and female focus group discussants revealed presence of variability in food intake because of age, income and wealth, religious and cultural norms and supply. Age related consumption differences is between children and elderly. Similarly the wealth difference is pronounced in food intake between the poor and rich. Both groups acknowledged that knowledge gap; religious and cultural norms are the major factors that shape food consumption pattern in the *woreda*.

Both women and male groups from the two *kebeles* perceived that dishes comprising of cereals (injera, bread, rice, macaroni, and spaghetti); animal products (milk, meat, butter, cheese and egg), pulses, vegetables, fruits and honey are healthy diets.
Both groups similarly have identified that eating warthog, pig, camel, porcupine and pregnant cow meat and meat of any animal died before slaughtering; drinking camel, sheep and goat milk is forbidden by taboos. Most of the food ban is religious for Orthodox Christians and Muslims. The ban on drinking camel, goat, and sheep milk is purely cultural. Untenable, but culturally banned food types in the society include eating any black animal meat; re-roasted grain (Dagem kolo), restrictions on feeding honey for babies and mustard for pregnant women.

The priority topics that were coined within this domain relate to a necessity for enhancing people's awareness and consumption behaviour change towards healthy and nutritious diets. This requires multi-pronged approaches that focus on increasing diversity in foods and diets; behavioural change in consumption and food handling practices.

The priority topics that have been prioritized also underscore the felt necessity to work on food safety related topics and simultaneously improve the infrastructure to enhance households' access to safe food and water.

**Priority topics identified and validated by stakeholders**

- Increase awareness on the importance of feeding on safe, healthy and diversified food groups
- Increase the availability food types and use of vegetables, fruits and their storage facilities
- Regulate and provide advice on proper use of pesticides on fresh products to minimize health and environmental risks and improve food safety
- Increase availability of safe food and water

# 7 Inequalities based on

In Mierab Armachiho *woreda*, specifically in Abreha Jira and Terefework *kebeles* youth is the most disempowered section of the society in terms of access and control over income; group membership; access to and decision on credit; inputs in production decision, and ownership of assets. As compared to men, women disempowerment is evident in lack of access to and decision on finance; speaking in public; workload and limited leisure time. Similarly, men suffer from lack of leisure time; access to input credit and workload during cropping season (Figure 13).

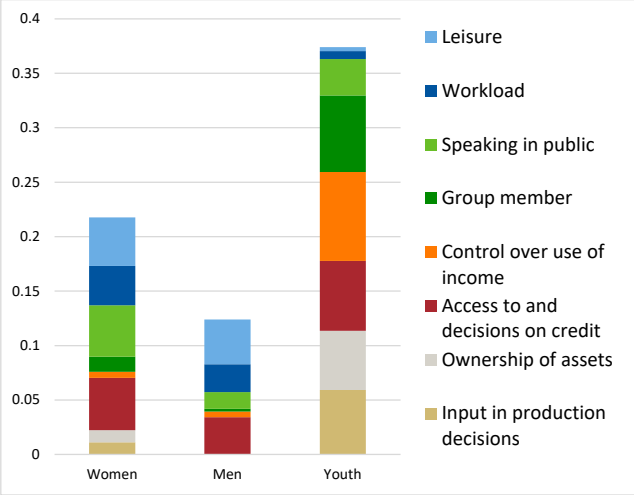


*Figure 19: Women empowerment in agriculture (WEIA) score. Weighted score of the % of people classified as disempowered in specific domains*[3]

Youth and men have narrower gaps regarding to speaking in public as compared to women. Workloads, speaking in public, and access to and decisions on credit are the most disempowerment factors for women. The WEIA cut-off values in the domains of leisure time (0.041and 0.048); access to and decisions on credit (0.048 and 0.034) show very close scores for women and men, respectively (Table 5). Control over and use of income is nearly 2.8 for women and 2.6% for men. Similarly, access to and decision on credit for women is (89%) and men (87%), indicating equal disempowerment of both sex groups. Findings of the RFSA complemented the baseline report. FGD participants reflected that both women and men are overburdened throughout the agricultural season. Usually, women participate equally to men in farm work during the day and takeover all household activities in the evening, which may continue up to mid night.

In domains of group membership and speaking in public women are six times and three times less empowered than men, respectively. The baseline study also surfaced disempowerment of women in production decisions and access to assets. RFSA participants agreed that women engaged in farming and business activities are unusually overburdened in household and reproductive roles.

### Women's empowerment and ideal women

Women are less empowered compared to men in the domains of speaking in public (50%), workload (36.1), group membership (13.9%), asset ownership (8.3%) and decisions on use of production inputs (5.6%). Men are empowered in the areas of speaking in public (17.9%); group membership (2.6%); asset ownership (0.0%) and decisions on production inputs (0.0%). Both, men and women are equally empowered in the domains of control over and use of income (2.6:2.8%). According to focus group discussants, men and women are equally disempowered in the domains of access to and decisions on credit (87.2: 88.9%) and leisure time (43.6:44.4%), respectively (Table 5).

Findings of the baseline survey showed that women disempowerment is explained by lack of access to credit and leisure time, and high workload throughout the year (Figure 13). Generally, lack of acceptance of the farm household assets as a hard collateral by financial institutes coupled with the low saving culture have exacerbated the access to and control over credit for both men and women.

*Table 6: Percentage of women, men, and youth classified as disempowered in different domains using the WEIA cut-off values*[4]

| 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 | 5.6 | 8.3 | 88.9 | 2.8 | 13.9 | 50.0 | 36.1 | 44.4 |
| Men | 0.0 | 0.0 | 87.2 | 2.6 | 2.6 | 17.9 | 25.6 | 43.6 |
| Youth | 29.6 | 40.7 | 100.0 | 40.7 | 70.4 | 33.3 | 7.4 | 3.7 |
| Overall | 9.8 | 13.7 | 91.2 | 12.7 | 24.5 | 33.3 | 24.5 | 33.3 |

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

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

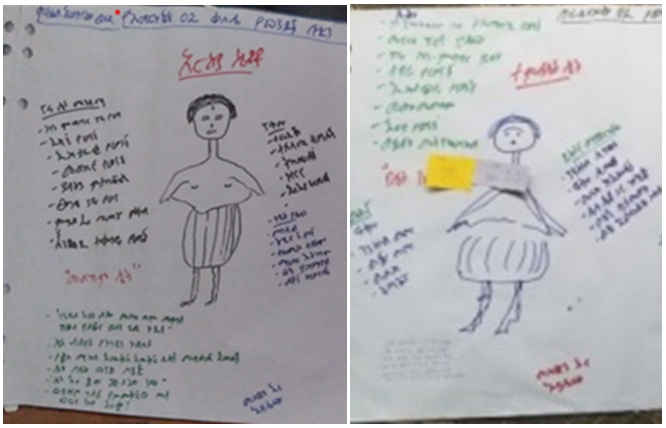

*Figure 20: Drawings of ideal women as described by the participants of the FGD. Mentioned characteristics: humble, beautiful, having good character, able to live peacefully with her family and neighbours; good cook; kind and helpful to the needy; calm and patient; religious and honest; conciliator, problem solving and excellent communicator.*

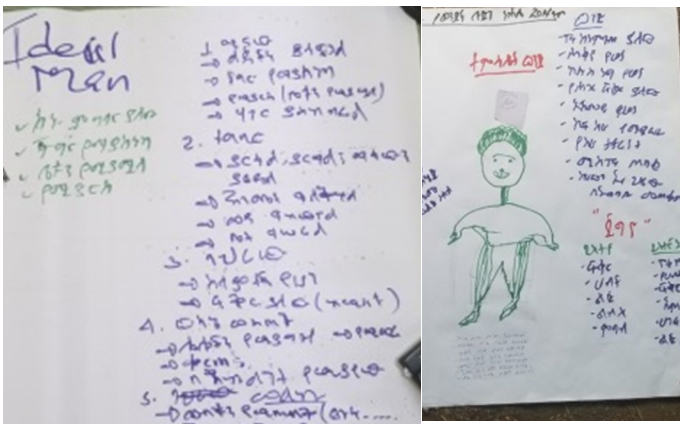


*Figure 21: Drawing of ideal men as described by participants of the FGD. Mentioned characteristics: honest, conciliator, exemplary, decision making, hardworking, model farmer; brave and loving his country, respectful, sociable, a person with solutions, not addicted, handsome, clean and well dressed, supportive, collabourative, religious and not extravagant.*

During community mapping practices women used red cards for access to health services, trade and revenue, finance, communication and civil service offices; microfinance institution, cooperative, sport centre, technical and vocational training centre to show their limited access to these institutions. Access and use of fertile and irrigated land is marked red to indicate their disempowerment. Similarly, entrance to marshy and forest areas are represented in red cards to indicate their disempowerment due to gender-based harassment. Both baseline and RFSA findings ascertained that limitations in access to trainings, financial and health services, group membership, and owning productive assets are major factors that contributed to women disempowerment.
All FGD participants characterised an ideal woman as humble, beautiful, having good character, able to live peacefully with her family and neighbours; good cook; kind and helpful to the needy; calm and patient; religious and honest; conciliator, problem solving and excellent communicator.

## Youth's disempowerment and ideal men

Youth are highly disempowered as compared to men and women in the domains of access to and decision on credit (100%), group membership (70.4%), control over and use of income (40.7%) and asset ownership (40.7%) (Figure 4; Table 5). Youth are disempowered in terms of job security and skill development opportunities. They are disempowered in the domains of inputs on production decision (29.6%) and in public speaking (33.3%). Whereas; they are relatively more empowered in the domains of workload (7.4%) and leisure (3.7%) compared to men above the age of >36; It is fact that having more leisure time indicates lower time invested for productive activities.

Young boys and girls mostly support parents in keeping animals and serve as messengers for communication. Young unmarried men support their parents in cutting grass for animal feed; ploughing, sowing, weeding, harvesting, threshing and transporting the produce to home. Girls in the teenage group perform almost all activities their mothers do. In most rural families, girls are busy with cleaning the house and barn; taking care of young sisters and/or brothers, gathering firewood, fetching water, washing all family clothes, milking cows, cooking food and feeding the family. They also equally participate in farm activities during peak operations like their brothers and fathers. Thus, the workload on the shoulder of girls is too much to the level that they could not even do their homework and read notes. The high workload on girls is the main reason for low success of women in education. Therefore, it is very difficult to generalize that youth have more leisure time than men and women as girls are more overburdened than their brothers and mothers within the same family.

In general, having more leisure time does not necessarily mean that youth are more empowered as this could emanate from seasonality of farm activities or lack of enough job opportunities for the youth in rural and urban areas.

## Men's disempowerment and ideal men

The FGD showed that men were relatively more empowered as compared to women and youth. This contention is more reflected in their easy access to training, meeting and extension services; specking in public and group membership. The finding from the base line survey indicates similar implications that men are highly empowered in domains of decisions on production inputs (0.0); asset ownership (0.0%); group membership (2.6) and speaking

in public (17.9) (Table 5). The data in table 5 also reveals that a significant percentage of men is still disempowered in certain domains. Like women, men are suffering from lack of access to credit (87%), limited leisure time (43.6%) and high workload (25.6%).

An ideal man is characterized as honest, conciliator, exemplary, decision making, hardworking, model farmer; brave and loving his country, respectful, sociable, a person with solutions, not addicted, handsome, clean and well dressed, supportive, col*labour*ative, religious and not extravagant. A person with such characteristics gains social benefits like trustworthiness and respect by the community. This implies that a person with such identities has a privilege to be empowered. On the other hand, the discussants clearly pointed out that alcohol addiction and gambling are some of the bad characters for men in the society. Those men's showing these behaviours could have the consequence of being disrespected and exclused from social life.

**Priority topics identified and validated by stakeholders**

- Enhance decision making on credit and income for women and youth
- Reduce gender-based workload/inequalities between men, women and youth
- Enhance the social and economic inclusion of women and youth
- Increase job opportunities for youth
- Deploy land redistribution policy for youth and women
- Minimize sexual harassment of women and girls

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# 8 Policies and government support

The baseline survey and focus group discussions have identified priority areas that need designing strategies to enhance local economic and social development in Mierab Armachiho *woreda*. These strategic challenges included:

- Social and economic inclusion of women, youth and the vulnerable groups,
- Enhanced inputs, extension and advisory services,
- Improved marketing systems and access to finance,
- Sustained land management and agricultural production,
- Diversified, safe and nutritious food systems,
- Promoting local food environments and healthy consumer behaviour,
- Building partnerships for integrated food system development and policies

**Social and economic inclusion of women, youth and the disabled groups**

Even though, women and girls represent half of the population (50.8%), gender inequality persists in all parts of the country. As in many parts of Ethiopia, both baseline and the RFSA identified a number of institutional and social barriers that imped participation of women, youth, elders, and people with disabilities in control over resources; access to inputs, decision making, and participation in public gatherings and in development initiatives (Andualem et al. 2020; FAO 2019, UN Women 2018). Thus, removing these barriers and empowering and ensuring equal and meaningful participation in decision-making, access to and control over resources, benefits sharing, and balancing power relations is a necessary step for sustaining social and economic empowerment of women and youth in Mierab Armachiho *woreda*. Engaging youth and women in agriculture is an essential economic empowerment driver that can create jobs for young people by harnessing opportunities in crop and animal production, value additions, marketing, natural resources management and service provision. The participation of women and youth in fruit and vegetable production, processing and value addition activities enhance availability and affordability of nutritious and safe foods in the community. Thus, the *woreda* in col*labour*ation with relevant stakeholders has to design strategies and programmes that address the prioritized socioeconomic thematic areas. National and regional development initiatives and NGO interventions should gear towards creating opportunities for women and youth engagement in all local economic development activities.

**Enhanced inputs, extension and advisory services**

Agriculture focused development programs like SDPRP, PASDEP, GTPI and GTPII have been implemented in the past 30 years with the aim of enhancing the country's economy, reducing poverty, ensuring food security and sustainable economic development. The main driver in building the nations' economy is agriculture. Increasing agricultural productivity require use of knowledge, inputs, technology and finance. Enhanced crop and animal production and productivity ensure food diversity and security, counteract malnutrition, reduce poverty and increase resilience to shocks. To this end improving the inputs, marketing, finance, extension and advisory services delivery systems is essential.

The current extension and advisory service provided by bureaus of agriculture mainly focus on training of farmers on production practices, distribution of inputs and natural resources conservation. The inadequate number of development agents (DA) limited their reach and quality of services. Thus, to improve quality of services and for a wider reach, designing policies, strategies and methodologies and engaging the private sector was found essential. To realize the private sector involvement in pluralistic extension and advisory services provision, the Ethiopia's Digital Agriculture Extension and Advisory Services Roadmap and the extension strategy were developed and enacted by House of Representatives. These policy improvements are anticipated to enhance the public sector involvement in capacity building, providing market and weather forecast information; financial management support and creating non-agricultural jobs in the food system of Mierab Armachiho *woreda*.

**Improved marketing systems and access to finance**

Mierab Armachiho is one of the *woredas* producing sesame, soya bean, cotton, mung bean and sorghum in large volumes for marketing and food security. Except cotton and sorghum, seeds of sesame, soybean and mung bean are allowed to be traded only in ECX marketing centres. Thus, farmers in the *woreda* face marketing challenges due to inaccessibility of spot markets, high transportation costs for taking the produce to marketing centres; weight cheating, down grading the quality and colluding to set lower price at spot markets. This is much worsened in the absence of cooperatives in commodity marketing. To increase farmers' income and efficiency of the marketing system, policy improvements

should start at spot markets by allowing participation of aggregators, cooperatives, processors and exporters in marketing centres.

Farmers in Mierab Armachiho *woreda* access finance mainly from informal and to some extent from the formal sources. The informal sources include own saving, informal social groups (Equb, friends, family) and informal money lenders. The formal credit providers are cooperatives, rural saving and credit cooperatives (SACCOs), sourcing companies and the commercial banks (CBE, Abay, Abyssinia, and Tsedey banks). However, the financial products from formal sources are exclusive to the rural poor, women and youth and not tailored to small-holder farmers. Bankers perceive agriculture as a highly risky business both at production and marketing side and thus require hard collateral (100% of the credit amount) for risk avoidance or minimization. To save farmers and SMEs from informal money lenders exploitation and improve household income, it is important to improve access to formal credit. Moreover, improving farmers' access to input and marketing credit is decisive for production and productivity improvement, product diversification, food security and economic development of the *woreda*. In the short run, government involvement in availing finance in the form of guarantee and/or revolving fund schemes is essential for encouraging banks to avail loan to farmers and SMEs (Schrader et al. 2021). For sustainable development of the agricultural sector, formulating policies enforcing finance institutes to allocate certain amount of their portfolio for agricultural investment should be mandatory.

**Sustained land management and resilient agricultural production systems**

Ethiopia experiences a very high soil loss of 40–130 t ha-1 year-1 from croplands that costs the country about 1.0-1.5 million tons loss of grain production per year (Dejene et al. 2020). To reduce soil loss, improve soil quality and contribute to sustainable agricultural production, conservation agriculture (CA) has been promoted for the last 40 years in the country. Despite more than four decades of research and promotion efforts on CA in Ethiopia, its impacts and benefits for soil quality enhancement and agricultural production improvements are not evidently valued and scaled (Dejene 2020). Climate variability and environmental degradation are increasingly affecting agricultural production, food and nutrition security of the *woreda*. Consequently, soil degradation remained a threat to improving crop and animal productivity and livelihoods of farmers; mitigating the changing climate and overall economic development of the Mierab Armachiho *woreda*. Thus, scaling CA in conjunction with crop rotation, minimum tillage and good agricultural practices is considered as a major action point for sustainable crop production, while protecting and enhancing the environment (Dejene 2020; FAO 2016; FAO 2012). However, due to remoteness of the *woreda*, coupled with the assumed 'investment area', reach of NGOs and development programs is very limited. Thus, the *woreda* has to exert maximum effort to attract initiatives and programmes that promote sustainable agriculture for improved agricultural production and food system innovations.

**Diversified, safe and nutritious food systems**

Sustainable development of a nation requires improved availability, accessibility, affordability and consumption of safe and nutritious foods. Nevertheless, quality, safety and nutritious food availability in Mierab Armachiho remains a challenge in months of June to December. Very narrow crop diversity, declining natural resources and soil fertility and climate variability are major factors that contribute to food insecurity in the *woreda*. Though the *woreda* is suitable for growing diversified crop species (cereals, pulses, fibre, tubers, roots, vegetables, fruits), current production is limited to sesame and cotton for cash and sorghum as a staple food crop. The sesame dominated production system is generally low in crop diversity, leading to low dietary diversity, poor food habits and low awareness on nutrition. To enhance dietary diversity and nutrition policies, initiatives and programmes that promote food systems approach is very essential.

**Promoting local food environments and healthy consumer behaviour**

Developing and transforming safe and nutritious food system in the *woreda* requires strategies and programmes that focus on awareness creation, knowledge and skill building and behavioural change in diversified, nutritious and safe food production and consumption. Strengthening and developing local value chains and supporting local value additions endeavours are highly important. To this end bonding with the different stakeholders working on safe and nutritious foods production; initiatives on nutrition and health is required to realize the food system transform in the *woreda*.

**Building partnerships for integrated food system development and policies**

Partnership building between government, the private sector and development organizations is essential for realizing food system outlook in rural areas. If the food system approach is well understood, large, medium and small-scale farmers in the *woreda* can investment on production practices and systems that contribute to food and nutrition security, environmental safety and sustainability; economic empowerment of youth, women and disabled groups. Partnering may facilitate development of strategies and programs that address food system challenges in the *woreda*.

**Overview of projects implemented in Mierab Armachiho**

Mierab Armachiho *woreda* is classified as investment area and thus, participation of development partners is very limited, except government initiatives like ATA, AGP I&II and the SBN support program. The situation worsened since 2019, because of internal instability and border conflict with the Sudan. The *woreda* is one of the underdeveloped districts in Ethiopia. Currently the *woreda* does not have access to electric power, telecommunication, irrigation facility and drinking water. It is very poor in crop diversity and weak in natural resources management. These thematic topics are of national significance and need strategic planning at regional and national levels. The Ethiopian Government and development partners should give priority to designing and implementing natural resources conserving; crop diversifying, resilience building; irrigation facility and infrastructure developing programs.

*Men and women participating in pest management practical training*

# Opportunities and challenges for Mirab Armachiho in a food system perspective

Imperative challenges and opportunities were identified through the RFSA and baseline surveys and validated by the stakeholders. Among these: low attention given to social and economic inclusion (women, youth and the disabled groups); poorly developed input delivery system; limited and public dominated extension and advisory services; under developed marketing systems; limited access to formal financial products; lack of land management strategies (soil fertility, erosion, deforestation, water logging) and land use policy; low agricultural (crop and animal) productivity; lack of diversified, safe and nutritious foods and healthy consumer behaviour; poorly developed infrastructure (power, telephone, drinking water, irrigation facilities, transportation); and weak col*labour*ation and lack of coordination among stakeholders for integrated bottom up *woreda* planning and food system development assumed primary importance. The challenges are formulated into goals, specific activities and interventions and placed into the food systems framework (Figure 16).

Availability of vast fertile land; conducive environmental conditions for crop and animal production; suitability of the area for mechanized and commercialized farming of oilseeds, pulses, fibres, vegetables, fruits and tuber crops production for enhancing availability of diversified, safe and nutritious foods and sustaining household food security; high local and international market demand for oil, pulse and food crop products; opportunity to double yields with minimum inputs; and availability of year round flowing rivers are some of the unexploited legacies of the *woreda*.

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.

*Gondar ARC agricultural research field*

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**List of abbreviations:**

| | |
|---|---|
| AEZ | Agro-ecological zones |
| DA | Development agent |
| FGD | Focus group discussions |
| FHH | Female headed households |
| HH | Household |
| 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 |
| WEIA | Women empowerment in agriculture |
| Qt | Quintals (10 Quintals = 1 metric tonne) |

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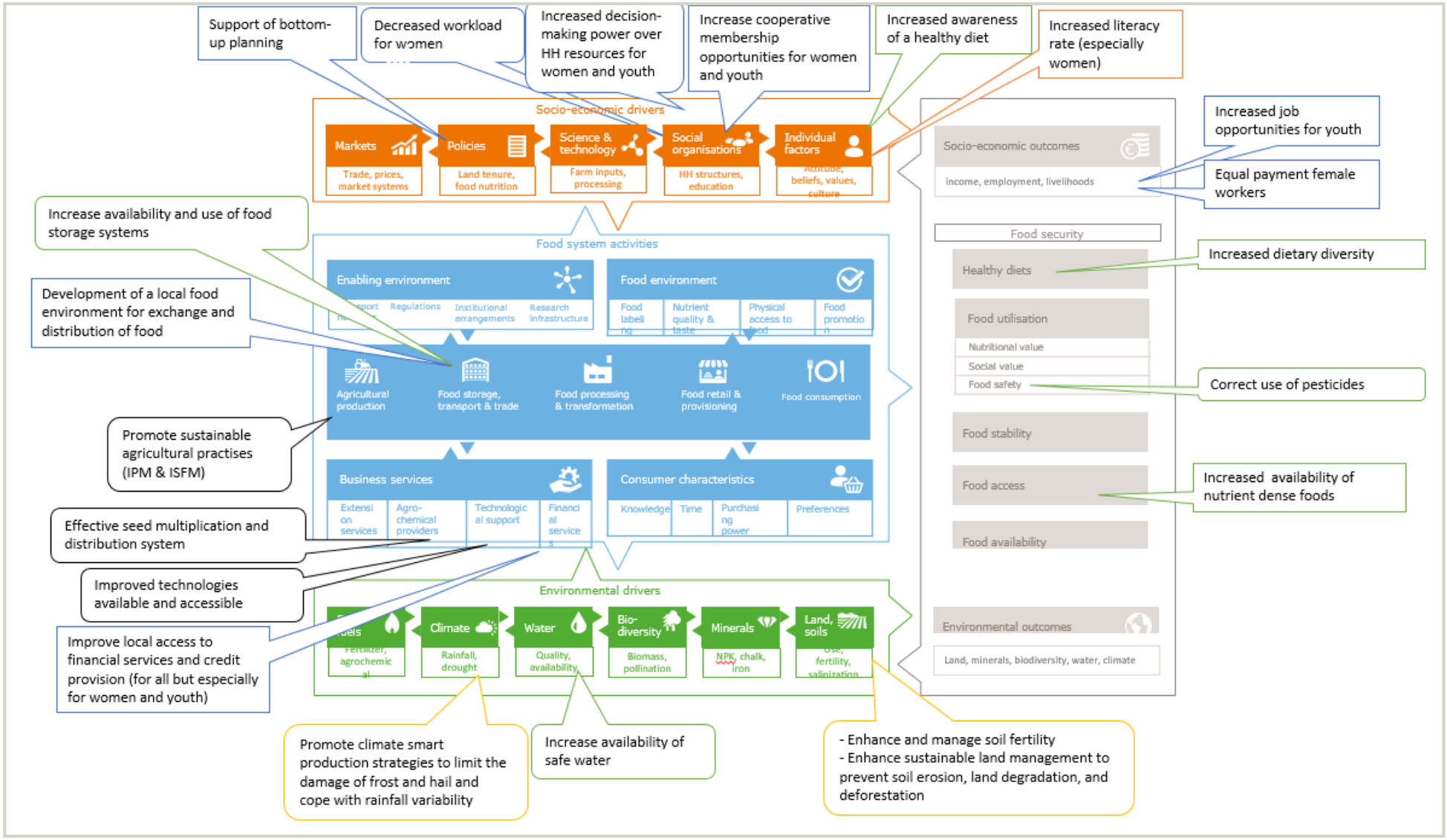


*Figure 22: Identified priority topics in a food systems perspective (following van Berkum et al., 2018)*


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