RAISE-FS *Woreda* profile #011

Tseada-emba *woreda* Food Systems Profile

Population

85,131

44,445 | 40,686

Altitude

2,200–2,800 m.a.s.l.

Diets

Predominantly grain, pulses and potato

Food insecurity

56.7% **FHH**

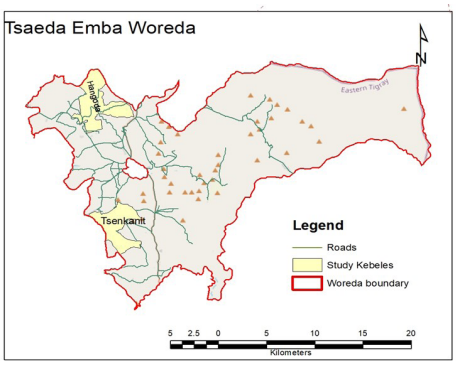
37.5% **MHH**

Food gap months

Jan ····· Dec

April–September

Hangoda



Tseada-emba *woreda*

Top 5 crops produced

wheat barley finger millet maize

Climate and soils

Soil fertility

Soil erosion

Land degradation

Deforestation

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

WAGENINGEN UNIVERSITY & RESEARCH

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

Introduction and methodology

The present study, also referred to as the *woreda* profile, offers an overview of the state, dynamics, and behavior of the local food system in the Tsaeda Emba *woreda*. The purpose of this *woreda* profile is to support stakeholders in utilizing evidence-based, bottom-up planning that considers the current situation of the *woreda*.

The purpose of this profile is to ensure that stakeholders have a shared understanding of the complex challenges and realities faced by the *woreda*. This understanding will serve as a foundation for the *woreda* planning process. The document consists of ten chapters that outline the current situation in the *woreda*. It provides data and information on various topics, including demographics, agroecological and environmental conditions, production variables, market dynamics, value addition, food and nutrition security, social inclusion, and resilience, along with insights into relevant policies and government support.

The information for this *woreda* profile comes from the Rapid Food System Appraisal (RFSA) and a baseline survey conducted in two *kebele*s: Hangoda and Tsenkanet, located within the Tsaeda Emba *woreda*. These two *kebele*s represent approximately 83.33% of the midland area and share similar agro-ecological characteristics. In contrast, the lowland areas make up 16.67% of the kebelles's total area. Administration representatives from the *woreda* have confirmed that the RFSA included a diverse range of stakeholders, and the findings provide a realistic overview that accurately reflects the conditions of the entire *woreda*.

Data collection took place in two specifically chosen *kebele*s, Hangoda and Tsenkanet, selected for their significant potential in cultivating project commodities such as potato. These areas were identified as high-potential production systems, making them ideal for the goals of the project. To gather field data, a structured questionnaire and tailored RFSA tools were meticulously crafted. Respondents were carefully selected in proportion to the demographics of the *kebele*s, ensuring that the survey included diverse perspectives from female-headed households, male-headed households, women living in male-headed households, and the youth.

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 (see Figure [1]). The applied RFSA tools were community mapping, activity calendar, in-depth dialogue and different plates activity[1].

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

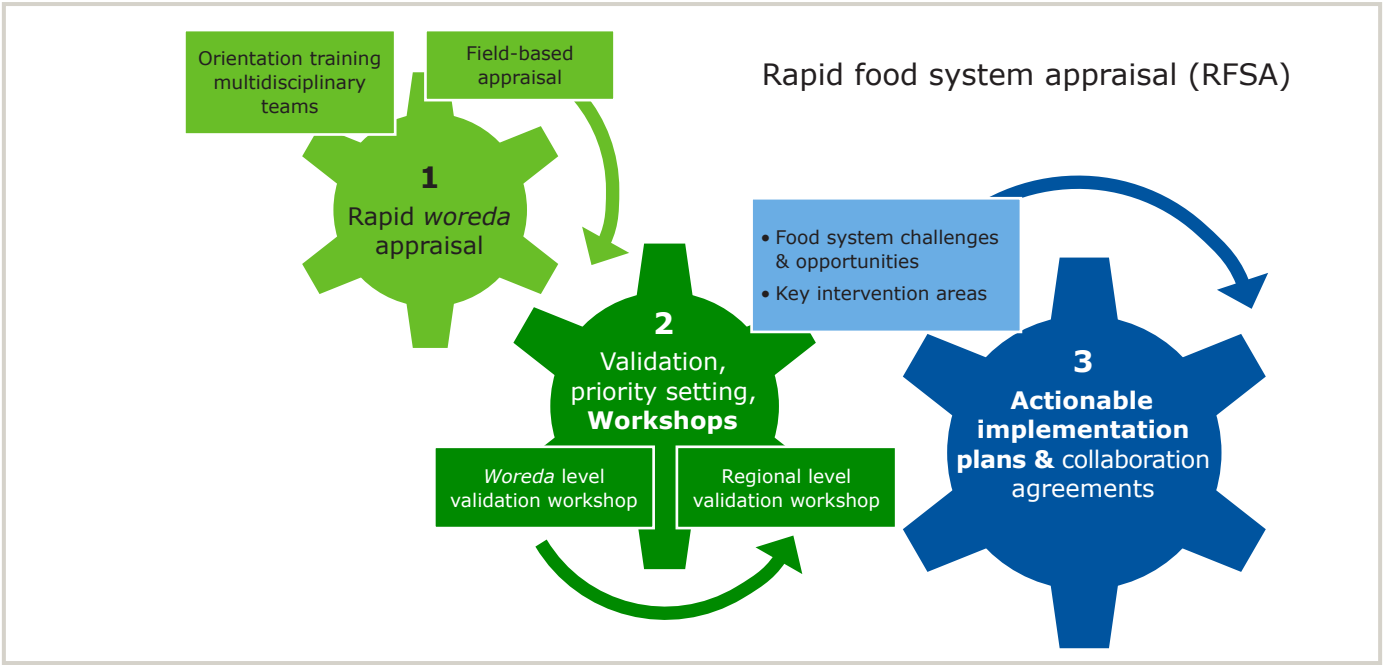
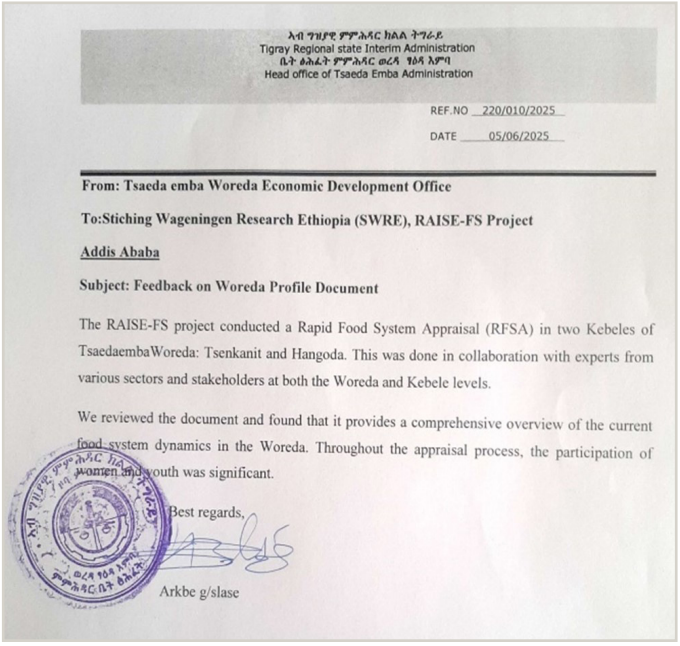


Figure 1: Steps of the rapid food system appraisal (RFSA) process

The participants were grouped by gender and age, facilitating a nuanced understanding of stakeholder perspectives. From each *kebele*, a total of twelve men participants, categorized into distinct age brackets: four young adults aged 18 to 34, four middle-aged individuals between 35 and 60, and four elderly participants aged over 60. The female participants mirrored this composition, also comprising 12 women split into the same age categories of four young women, four middle-aged women, and four elderly women. Furthermore, the institutional stakeholder group comprised a comprehensive representation of both *kebele* and *woreda*-level participants. This group included development agents (DAs), health extension worker, cooperative coordinator, microfinance expert, and land administration specialist. Additionally, experts from the *woreda*'s office of agriculture, cooperative promotion office, the department of women, children, and social affairs office, as well as trade and development offices.

The validation workshop brought together a diverse group of stakeholders, including members of the *woreda* administration, researchers, academia, and project coordinators. Also in attendance were heads of various *woreda* offices, covering areas such as agriculture, cooperatives, finance, women's and children's affairs, social affairs, job creation, trade, and health. Representatives, both men and women, who had actively participated in the RFSA were also present, adding valuable inputs to the discussions. Throughout the workshop, participants engaged in thorough discussions, reviewing and validating key findings derived from the recent appraisal and baseline survey. Suggestions from *woreda* officials about the *woreda* profile were thoughtfully considered and included in the final document, enhancing its content and context.



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Head office of Tsaeda Emba Administration

REF.NO 220/010/2025

DATE 05/06/2025

From: Tsaeda emba Woreda Economic Development Office

To:Stiching Wageningen Research Ethiopia (SWRE), RAISE-FS Project

Addis Ababa

Subject: Feedback on Woreda Profile Document

The RAISE-FS project conducted a Rapid Food System Appraisal (RFSA) in two Kebeles of TsaedaembaWoreda: Tsenkanit and Hangoda. This was done in collaboration with experts from various sectors and stakeholders at both the Woreda and Kebele levels.

We reviewed the document and found that it provides a comprehensive overview of the current food system dynamics in the Woreda. Throughout the appraisal process, the participation of women and youth was significant.

Best regards,

Arkbe g/slase

Figure 2: Official communication from the Tsaeda Emba woreda Economic Development Office

Community mapping

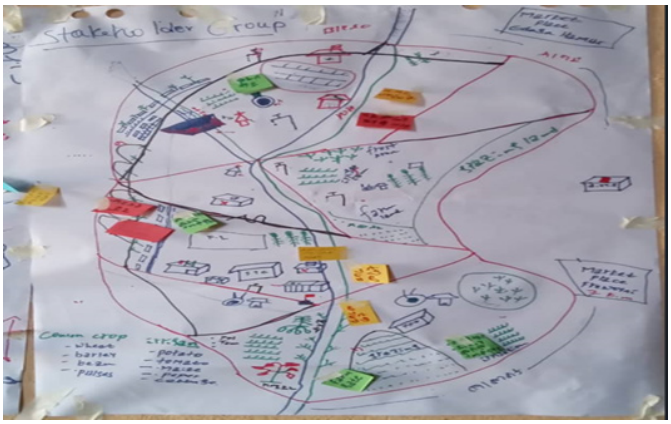

Figure 3: Community map from Hangoda kebele from female focus group participants

Figure 4: Community map from Tsenkanet kebele from female focus group participants

Seasonal calendar

Table 1: Seasonal calendar from Dabal Kebele from female focus group

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

1 Demography

Tsaeda Emba is a *woreda* located in the eastern zone of the Tigray region, which lies approximately 75 kilometers away from the regional city, Mekelle. Fireweyni is the woreda's main town, commonly referred to as Sinkata. According to the data provided by the Woreda Plan and Development Commission office, Tsaeda Emba is home to a total of 19,702 households, of which 10,032 (51%) are headed by men, while 9,670 (49%) are headed by women. The total population of Tsaeda Emba *woreda* is 125,817 (85,131 males and 40,686 females). The baseline data indicates that the average household size in this *woreda* is six members.

Families led by men have an average size of six members, while those headed by women tend to be slightly smaller, averaging five members. Demographically, approximately 48.75% of the inhabitants are children (<18 years), while youths aged 18 to 35 account for 23.88%. Adults, aged 36 to 60 years, represent 18.71% of FHHs and 19.64% of MHHs. Notably, about 8.47% of the population consists of elderly individuals aged over 60.

The education level of HH (Table 2), 70% of FHHs and 37% of MHH unable to read and write. Furthermore, around 42% of MHHs and 13% of FHHs have completed primary school, whereas about 10% of males and 13% of females have achieved secondary education. households.

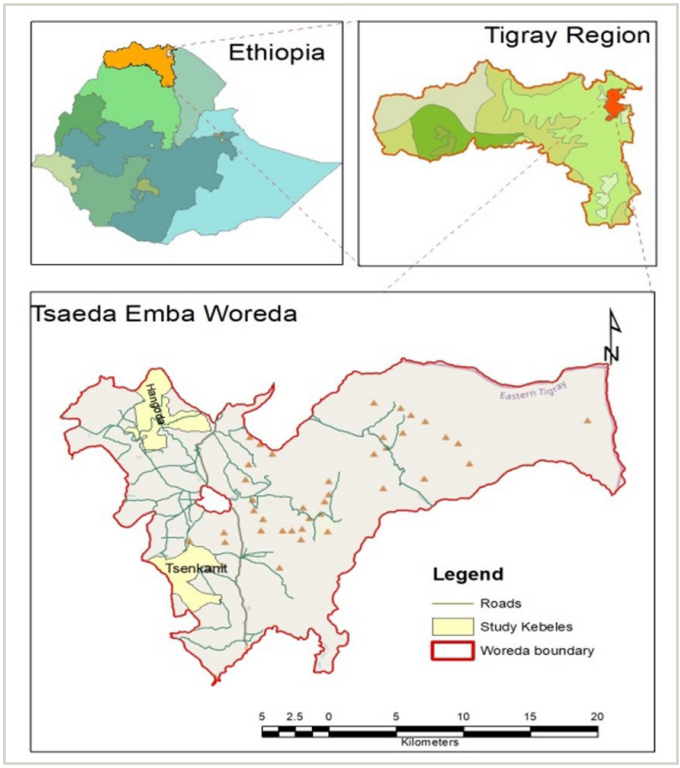

Figure 5: Map of Yilmana Densa woreda

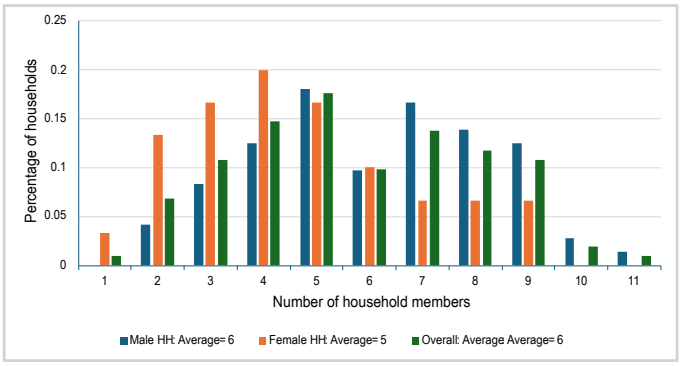

Figure 6: Family size of surveyed HHs

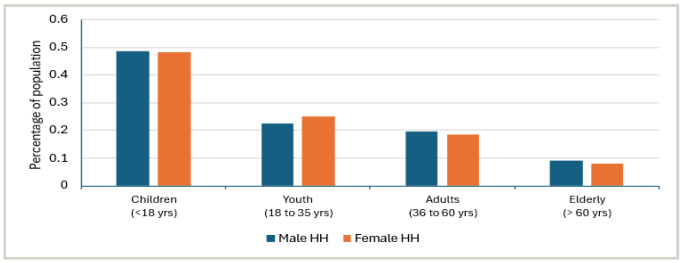

Figure 7: Age category of surveyed HHs

Overall, the data reveals significant educational challenges, indicating that 47% of respondents in Tsaeda Emba are unable to read and write, while a somewhat encouraging 53% possess literacy skills.

Table 2: Education level of surveyed HH head

Educational level	Male head %	Female head %	Total %
Does not read and write	37	70	47
Primary school	42	13	34
Secondary school	10	13	11
Adult and religious education	11	3	9

Priority topics identified and validated by stakeholders

- Adult education and training especially for women
- Appropriate demographic data management

2 Agro-ecological and environmental conditions

According to secondary data obtained from the Tsaeda Emba Office of Agriculture, the Tsaeda Emba *woreda* consists an area of 51,552.20 hectares. This diverse landscape includes various types of land utilization. Specifically, the cultivated land under rainfall measures 10,481 hectares, while irrigated land accounts for 1,012 hectares. The *woreda* also features 4,988.71 hectares of pastureland, rugged mountain terrains covering 17,182.7 hectares, and a forest area measuring 18,196 hectares. Tsaeda Emba has an altitude ranging from 2,200 to 2,800 m.a.s.l. The *woreda* consists of two principal agroecological zones: highland, making up approximately 2% of the area, and midland, which dominates with 98%. The temperature ranges between 20 and 27 °C, providing a generally mild and conducive environment for crop growth. The *woreda* has an annual average rainfall of 350 to 800 mm with unimodal distribution pattern, primarily occurring from June to September. Additionally, Tsaeda Emba has varied soil textures, loam soil consists about 68%, sandy soil about 30%, and clay soil constituting 2%.

The major crops grown in the area are teff, maize, barley, finger millet, and wheat, as well as valuable tubers like potatoes. Pulse crops like faba beans, grass peas, and field peas are commonly grown. However, farmers face significant challenges due to the unpredictable nature of rainfall. Problems such as late onset of rain, early cessation, and uneven distribution are becoming more common, severely impacting crop yields. The area also suffers from crop damage caused by desert locust invasions, as well as the harsh effects of frost and hail.

Livestock plays a crucial role in the food system by providing multiple benefits. They are a valuable source of income, especially when external inputs are needed, and serve as a reliable source of draft power for essential farming tasks such as land preparation. Additionally, livestock contribute to food and nutrition security by providing milk, meat, and eggs, which are vital for nutrition. The manure they produce also plays a key role in improving soil fertility and supporting sustainable agricultural practices.

Land degradation (soil erosion, deforestation, poor fertility management) is a major problem related to environmental degradation. The communal forest was tragically exploited for energy during the war, as communities relied on it for both energy and income. This neglect resulted in decreased farm productivity and soil fertility over time.

Tsaeda Emba *woreda* has more access to safe drinking water, but there is shortage of water available for irrigation.

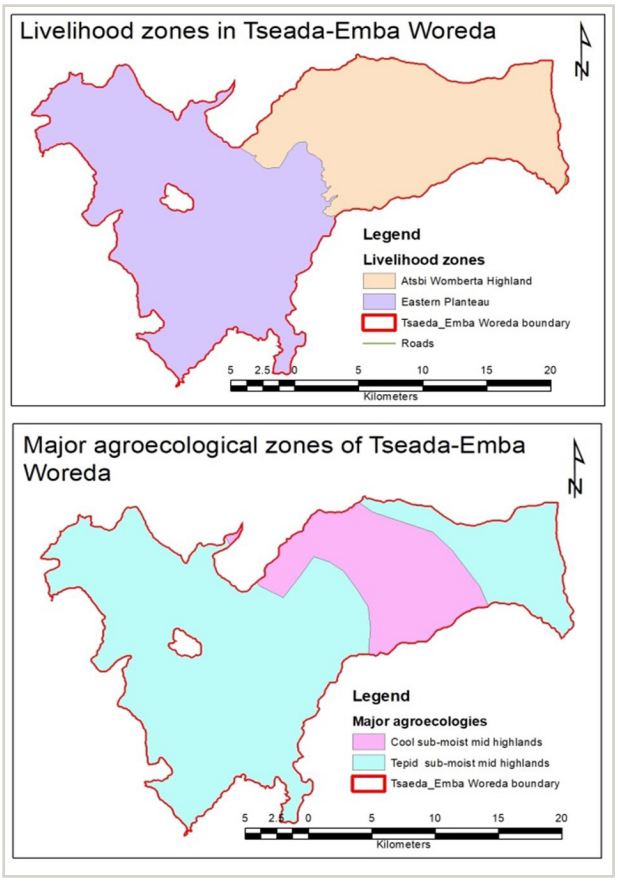

Figure 8: Livelihood zones and agro-ecological zones of the woreda

Even though the implementation of river diversion and dams in Tsenkanet and Hangoda *Kebele*s, many households still lack access to irrigation water due to high population density and the high costs of extracting groundwater.

The primary issues that the stakeholders identified and evaluated underscore the significance of predicting how future climate variability and environmental degradation would impact the food system. A future-proof food system will need to be resilient, to adapt to climate variability and to mitigate environmental degradation, and soil fertility and water resources loss.

Priority topics identified and validated by stakeholders

- Promote sustainable agricultural practices
- Implement effective soil conservation techniques such as terracing, mulching, and reforestation efforts
- Manage and improve soil fertility through practices like integrated soil fertility management, composting, and the use of organic fertilizers
- Promote climate-smart agricultural production strategies
- Optimized planting schedules, and improved water

3 Agricultural production system

Mixed crop and livestock production systems dominates the farming system. Crops are produced using irrigation systems and rainfall. Additionally, poultry farming and the fattening of sheep and oxen are common practices in the *woreda*.

Common land use types in both *kebele*s are: forest land, cultivated land, mountainous and pasture lands. During a community mapping dialogue, respondents indicated that landscape of Hangoda *Kebele*'s cultivated area is significantly influenced by the mountains. Grazing lands were located near rivers and dams, while the majority of flat land was used for crop production.

Despite the presence of groundwater and a few dams in both *kebele*s, there is considerable potential for irrigation. However, only a limited number of communities are able to access irrigation resources, primarily due to their proximity to rivers and dams. Some areas rely on both private and communal wall dams for their water needs. Unfortunately, there is a significant lack of proper maintenance and efficient utilization of the existing water sources, leading to reduced availability and effectiveness. Additionally, the shortage of irrigation water, coupled with the high costs associated with extracting water from the dams, further limits access. The scarcity of resources, combined with the potential for conflict over water use, exacerbates the situation. These challenges, including insufficient infrastructure, inadequate water management, and the high cost of water extraction private dams, prevent the full utilization of the irrigation potential in both *kebele*s, hindering agricultural productivity and the economic growth of the communities.

The *woreda* has two primary production seasons: one that relies on rain-fed agriculture and another that utilizes irrigation. The main production season is from June to September and the irrigation production takes place from October to April.

The commonly produced crops were barley, wheat, Teff, grass pea and faba bean. The focus on commercial (market oriented) commodities was similar in both *kebele*s. Similarly, the commercial commodities were included vegetables (potato, onion, tomato, and beetroot), animal fattening (sheep and oxen) and beekeeping (honey and bee colonies) and poultry production is a common practice in the area.

Table 3 provides a detailed breakdown of crop production among farmers, highlighting that the majority of farmers cultivate bread wheat (78%), food barley (51%), maize (11%), and potatoes (11%). Despite the widespread cultivation of these crops, productivity levels remain significantly lower than the genetic potential of these crops, suggesting room for improvement in farming practices. Farmers, particularly in potato production, demonstrate considerable awareness. They utilize improved potato varieties and apply fertilizers, pesticides, and manure to enhance yields. A key factor contributing to this success is that 89% of the potatoes produced are intended for commercial purposes, motivating farmers to adopt more efficient production methods to meet market demands. However, outside of potato cultivation, farmers' experience using input is generally limited, especially in the case of maize and barley.

Table 3: Inputs used for the three major crops[2]

Crop	% HH that cultivate specific crops %	Improved variety % HHs	Urea % HHs	NPS % HHs	Pesticide % HHs	Productivity QT/Ha	% Produce sold %
Bread wheat	78	14	68	11	71	11	1
Food Barley	51	10	46	6	85	11	5
Maize	11	-	45	27	55	17	0
Potato	**11**	**82**	**91**	**73**	**82**	**84**	**89**

Table 4: Experience in agronomic practices

HH head	Intercropping %	Relay cropping %	Crop rotation %	Agro-forestry %	Green manuring %
Male	1	0	71	1	3
Female	0	0	60	0	0
Overall	1	0	68	1	2

[2] *h10 Quintals = 1 metric tonne*

The survey and discussions revealed that most farmers use chemical fertilizers, particularly in irrigated agriculture, where recommended quantities are applied to optimize crop growth. However, rain-fed farming systems show a gap in fertilizer application, particularly for cereal crops. Crop rotation is a widely adopted practice, with 71% of MHH and 60% of FHH recognizing its benefits for soil health and productivity. Additionally, some farmers incorporate sustainable practices like agroforestry and green manuring to improve soil fertility and biodiversity. While farmers demonstrate expertise in areas such as potato production and crop rotation, there remains room for improvement in pesticide use and fertilizer application in rain-fed systems.

Continuous cereal-based crop rotation is a widely practiced system in both *kebele*s, with many farmers rotating crops such as teff with wheat or barley. Wheat is also frequently rotated with maize, while a smaller group of farmers rotate faba bean or grass pea with wheat, teff, or maize. Discussions with stakeholders and observations in the field revealed that the traditional legume-cereal rotation system, which was once a cornerstone of sustainable farming, has experienced a significant decline in both *kebele*s. This shift toward continuous cereal cropping reflects a reduction in farming system diversity, which raises concerns about long-term soil health and productivity.

Interestingly, a small number of farmers still engage in intercropping, particularly by combining maize with faba bean or grass pea. While this practice remains limited, it shows that there are ongoing efforts to diversify crop production and enhance soil fertility. In terms of soil and water conservation, farming households are adopting various techniques such as terracing, compost production and application, and the use of manure to preserve soil fertility and combat erosion. However, the baseline survey revealed that relay cropping is virtually unknown among farming households, and very few farmers are involved in green manuring or agroforestry practices. This highlights a significant gap in the adoption of more diverse and sustainable agricultural methods (Table 4).
Both *kebele*s are considered high potential areas and therefore the demand for agricultural inputs and technologies are very high. However, the input provision and distribution system as well as the extension system are constrained by a series of challenges. In the focus group discussions, stakeholders mentioned issues such as shortage and unavailability of agricultural inputs and technologies, high price of inputs, lack of improved crop varieties, poor extension services, lack of agricultural machinery and post-harvest technologies. In the case of irrigated crops, stakeholders reported that they lack quality basic seed for most crops, particularly potato.
The baseline survey also indicates that MHH apply more of the recommended agronomic practices compared to FHH. This may be due to the fact that MHH often have better access to information and training than their female counter part. (Table 4).

The *woreda* holds significant potential to strengthen and diversify its agricultural production, thereby enhancing the food and nutrition security of its residents. To realize this potential, there is a pressing need for integrated food system development strategies that not only improve the availability of agricultural technologies but also enhance access to these innovations. Furthermore, there is an opportunity to bolster extension and advisory services, which would support farming households in increasing their practical knowledge and awareness of climate-smart and sustainable agricultural practices, such as integrated pest management and integrated soil fertility management.

Customized extension services have the potential to play a crucial role in assisting vulnerable groups, ensuring they can access both healthy diets and income-generating opportunities. By providing targeted support, these services can help improve the livelihoods of those most in need, fostering resilience and promoting long-term food security.

The validated priority topics for agricultural production strongly correspond with the insights generated from the baseline survey and focus group discussions.

Priority topics identified and validated by stakeholders

- Enhance availability of affordable agricultural inputs
- Strengthen extension services and provide customized extension services for women and youth
- Enhance the efficiency and effectiveness of the seed multiplication and distribution system
- Promote sustainable agricultural practices
- Promote farmer cooperatives and associations to strengthen collective action, improve bargaining power, and access shared resources
- Promote water-efficient irrigation systems to enhance productivity, especially in drought-prone areas.

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)[3], public dissemination of prevailing market prices and conditions is one of the formats whereby farming HHs obtain market information. Public provision of market information aims to reduce asymmetry of information in the marketplace. The data obtained from the baseline (Figure 8) shows that MHH (87.5%) has less access to market information compared to FHH (93.33%).

Most farming HHs (90.42%) have access to market information, which they obtain through a variety of sources. Most farmers access market information from neighbour (63.74%) and cell phones (21.98%). A very small proportion of market information were accesses from other sources like friends, family, radio, development agent

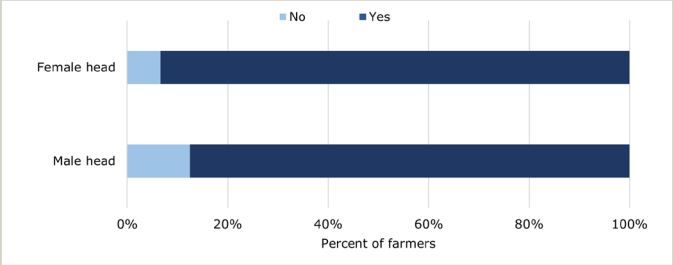

Figure 9: Proportion of households with access to market information

and peer farmer (Figure 9). The focus group discussion

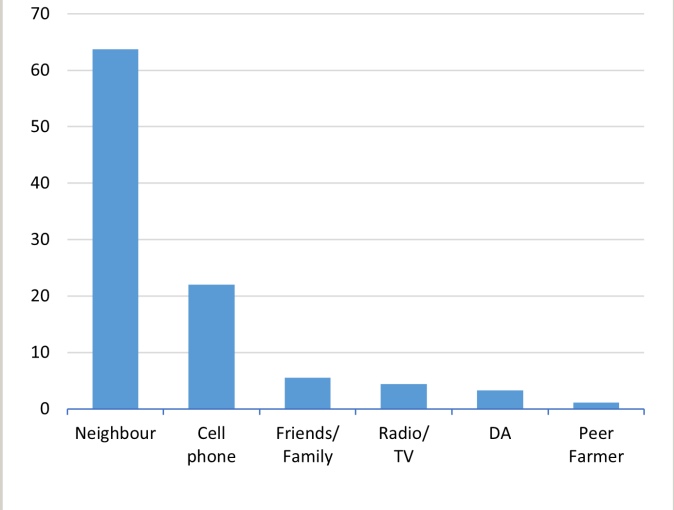

Figure 10: Source of market information

indicates that contact with the extension workers (DAs) decreased extremely as a result of the war in Tigray. Farmers in the *woreda* utilize various methods of transport to bring their products to market (Figure 10). Insights from the baseline survey revealed that a significant number of farming households in Tsenkanit and Hangoda *kebele*s rely on walking to transport their produce to the nearest market, with approximately 62.5% and 63.26% of households, respectively, using this means of travel. However, in using animals for transport slight differences are observed between the *kebele*s.

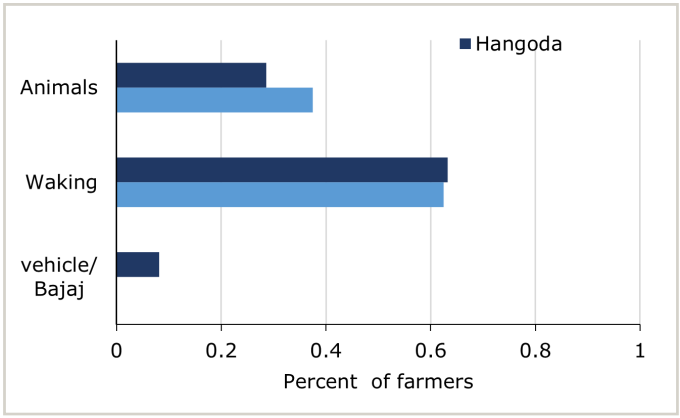

Figure 11: Means of transport to market

In Hangoda, 28.57% of respondents rely on animals for transport, while in Tsenkanit, 37.5% of households use animals to transport their produce to market. In contrast, about 8.1% of farmers in Hangoda use vehicles or "Bajaj" for transportation. However, access to vehicles and Bajaj is limited in certain areas, such as Akora Kushet in Hangoda and Mongo lahatse Kushet in Tsenkanit, where households are forced to rely solely on animal transport or walking, particularly during the rainy season.

On average, households in Tsenkanit spend 82 minutes traveling from their farms to the nearest market, while in Hangoda, this travel time increases to 97 minutes when using walking or animal transport. These extended travel times underscore the significant challenges farmers face in accessing markets, especially in more remote areas with limited transportation options.

Focus group discussions and field observations reveal the absence of local marketplaces in both Tsenkanit and Hangoda *kebele*s. Insights from focus group discussions and field level observations indicate that there are no local marketplaces in both Tankanit and Hangoda *kebele*s. The Freweyni market- in the *woreda* center town, is located about 7 kilometres from Tsenkanit and 10 kilometres from Hangoda. This market serves as the primary center of trading for HH of both *kebele*s. As a result, farming HHs incur significant transportation costs, if they want to sell their agricultural produce on the market, or if they want to

[3] Shepherd, A.W. (1997) *Market Information Services: Theory and Practice.* FAO, Rome.

purchase food products. Both *kebele*s have all-weather unpaved roads to Freweyni town. Marketplaces such as Mymegelta and Hawzen are essential for farmers in Hangoda *kebele*, where they sell potatoes, livestock, and cereals. Households from Tsenkanit also sell their products in Tekatesfay and Hawzen. A limited number of households from both *kebele*s, with access to irrigation, sell their potato production in the regional market of Mekelle. Most farming HHs that make use of the main irrigation systems for their agricultural production, are not able to sell their

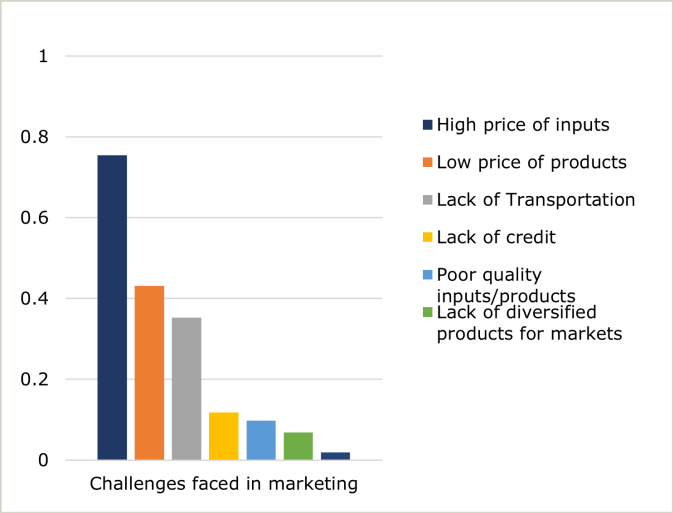

Figure 12: Challenges faced in marketing

products in their locality. Due to the absence of a local market and local food processing, cereal and vegetable crops are sold directly to traders without value addition. Infrastructure-related problems such as lack of electricity system, insufficient water and a lack of roads connecting different *kebele*s, are among the major contributors for joblessness in both *kebele*s. In focus group discussions participants mentioned that service providing organizations particularly farmers training center have limitations in providing support to the community.

Data generated in the baseline and focus group discussions revealed that there is an absence of medium and large-scale businesses that are working with or adding value to raw agricultural products. Market prices for most crops and livestock vary throughout the year. The price of cereal crops generally rises from May to September due to limited supply and declines from October to February after the majority of the crops have been harvested.The price of vegetable crops increased from June to September and fell from February to April. High market price for livestock February to May because of cultural ceremonies, holidays and non-fasting but price fell June to September because most famers sell livestock for input preparation.
In both *kebele*s the frequent challenges face to the farmer in relation to marketing were high input prices (75.49%) and low output price (43.14%). This results from limited access of input, low competition of suppliers, limitation alternative market, high exposure to brokers, lack of market information and lack of horizontal and vertical market linkage. Additionally lack of transportation (35.29%) was the main problem faced for farmers unable to sell and purchase different agricultural products and inputs in alternative markets (Figure 12). As a result of the dialogues maintained in the RFSA investments to support the development of local market has been prioritized by stakeholders and farmers. This local market would generate a physical location where farmers can sell and buy diverse, healthy and safe food products. Strengthening the local market has the potential to dynamize the local food system by supporting exchange and distribution of diverse food items produced locally and traded regionally.

Priority topics identified and validated by stakeholders

- Support for bottom-up *Woreda* development planning and prioritization approaches.
- Support in developing market linkage and market information's.
- Support for development of local market to have physical food availability, sell and buy diverse, healthy and safe food products.
- Support for improved storage and transportation facilities
- Enhancing Supply Chain Efficiency and Reducing Transaction Costs
- Enhancement of Market Linkages and Cooperatives
- Strengthening Value Chains and Agro-Processing

5 Credit and financial services

The results from the baseline survey and RFSA indicate that there are microfinance institutions (MFIs) in the *woreda* and Rural Saving and Credit Cooperatives (RuSACCOs) in the *kebele*s. Access and utilization of financial services have declined due to the prolonged war and siege in Tigray. This has led to a shortage of credit, loss of collateral and reduces a saving culture among farmers. Additionally, various constraints, including limited credit repayment period, bureaucratic complexities, high interest rates, and age discrimination (where individuals above 65 are not eligible for Dedebit microfinance), further exacerbate the challenges faced by the farming community.

The baseline survey clearly shows that there are a very limited number of community credit institutions (RuSACCO) which provide credit with low interest rates. Focus group discussions revealed that the available credit systems do not benefit the rural youth as they do not have access to land or other assets that they can use as collateral with financial institutions.

The data from the RFSA show that a number of the preconditions set to access credit imposed by MFIs such as having access to collateral (land). As a result, it leads excluded poor farming HHs, women, landless HHs and the youth from accessing credit services. In addition, resource poor HHs are reluctant to take out loans as they are afraid of failing to repay their loans.

The proportion of MHHs and FHHs access credit from formal institution were about 34.72% and 30%, respectively. Farmers in the *woreda* as whole access credit from formal institutions (33.33%) (non-governmental organizations, bank/financial institution, micro-finance including village saving and loan associations and rural savings and credit cooperative). Most farmers access credit from informal sources (56.08%) such as (informal lender, friends or relatives, informal credit/ savings groups (Figure 13). Both MHH and FHH have experience accessing loans from both formal and informal sources; however, the war created a shortage of money in financial institutions across the region, which led most farmers to rely on informal sources.

Insights from the focus group discussions revealed that the alternative measures that some resource poor HHs' resort to, to obtain cash, frequently deteriorate their livelihoods further. Informal loan services, from village money lenders, are often obtained at exceedingly high-interest rates, compared to the interest rates of MFIs and banks.

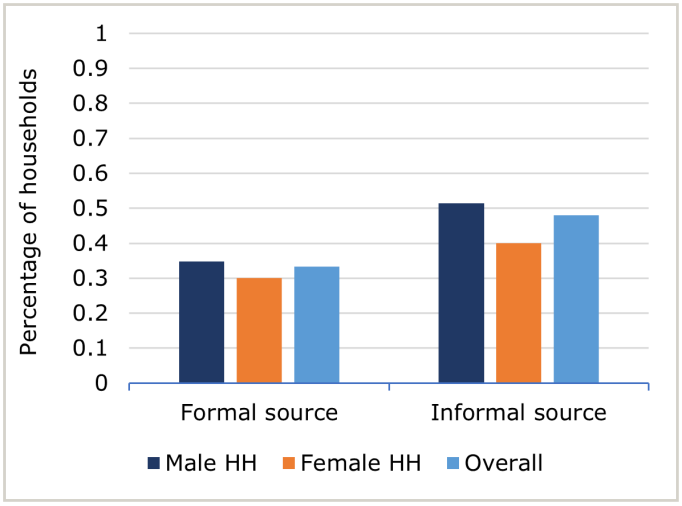

Figure 13: Access to credit

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. Credit should be provided for purchasing agricultural technologies, as well as for credit facilities aimed at SMEs 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 local access to financial services and credit provision
- Develop innovative mechanisms for local credit provision that are inclusive for women and youth, have low interest rates and are administered and managed locally
- Support on capacitating women and youth on entrepreneurship, business development, marketing and financial management
- Creating innovative financial products that address the lack of formal collateral (e.g., land titles) by using alternative forms of collateral like crops, livestock, or future harvests.
- Strengthen and expanding rural financial institutions to provide tailored financial services to rural and

6 Food and nutrition security

The *woreda* is characterized by food insecurity in both quality and quantity. Approximately 43.14% of the households were classified as food insecure, with 22.55% experiencing moderate food insecurity, 5.88% facing mild food insecurity, and 14.71% falling into the category of severe food insecurity. Figure 13 shows that FHH (56.67%) were significantly food insecure compared to

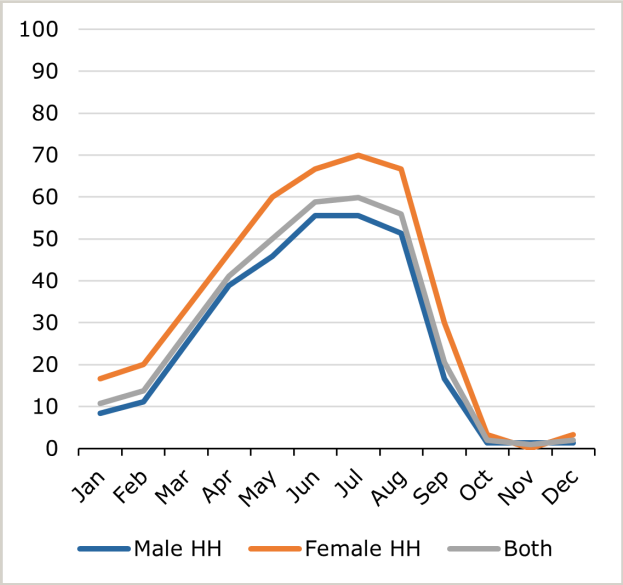

Figure 14: Percentage of HH having insufficient food in different months of the year

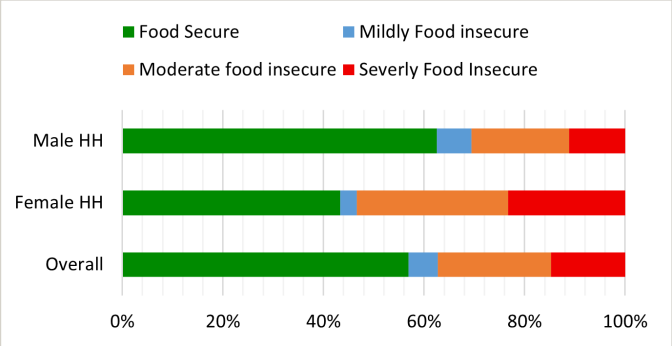

Figure 15: Percentage of HH classified in different stages of food security[4]

the MHH (37.5%). Evidence from the baseline survey also clearly demonstrates that FHHs are mostly dependent on their own production for their food.

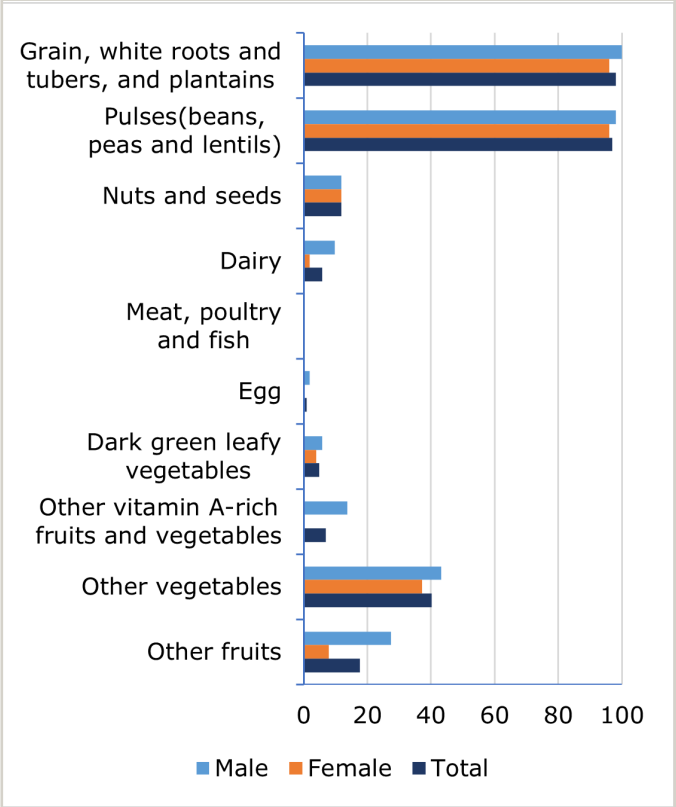

Figure 16: Percentage of HH consuming food group in the previous day to the interview

FHH particularly experience more food insecurity (Figure 14 and Figure 15). Food scarcity in both *kebele* is most starts from April to September but it reaches the severely stage throughout May to August. Farmers experience sever food insecure due to low productivity, loots of agricultural products, farm implements and livestocks during the war period. Moreover, severe drought and

People in both *kebeles* consume a low variety of different foods and the diet consists mainly of grains, pulse, vegatables and some fruits (Figure 16). In the *Woreda* on average, only 2.8 different food groups are consumed and diets consist mainly of grains, pulses and vegatables, which is far below the recommended score of 5 food groups. There is little difference between men (3.1) and women (2.5) consuming different food groups. Of all the people interviewed, none of the respondents consumed 5 or more food groups on the previous day. This makes the probability of micronutrient deficiencies in women very likely.

Focus group discussions showed that income, availability, affordability of foods and religious (fasting and non fasting) and cultural food practices are the main factors shaping peoples food consumption. According to insights from focus group discussions, inhabitants of the *woreda* believe that a healthy diet contains red teff, vegitabels,

[4] https://www.fantaproject.org/sites/default/files/resources/HFIAS_ENG_v3_

fruits and animal products like eggs, dairy and meat, oil (Omar type) and butter. Focus group discussions with men indicated that HHs with access to irrigated land were able to increase the diversity of their diets particularly vegetables and fruits.

The participants in the focus group discussions noted that while they occasionally attend trainings on nutrition and healthy diets, provided by health extension experts, and sometimes listen to radio, they still need to improve their knowledge and skills in the area of nutrition. Despite the *woreda*'s ideal climatic conditions for a variety of food products, there is a lack of awareness and knowledge about nutrition and a healthy diet as well as limited production and availability of nutrition dense foods. Farmers in Hangoda *kebele* have more information on food nutrition training than Tsenkanit *kebele*s.

Priority topics identified and validated by stakeholders

- Provide assistance in accessing nutrient-dense foods to enhance dietary diversity.
- Focus on empowering women to improve their food security.
- Empowe women farmers through access to land, credit, education, and technology
- Enhance farmers' knowledge, skills, and attitudes regarding nutrition and healthy diets.
- Promote the availability and affordability of diverse, nutritious foods, such as fruits, vegetables, legumes, and animal products
- Improve post-harvest handling, storage, and preservation techniques
- Raise awareness about the importance of proper nutrition and healthy diets through community-based education programs and supporting behavior change campaigns focused on improving dietary habits
- Encourage livelihood diversification and supporting alternative income-generating activities
- Establish models for home gardening and poultry farming to ensure year-round production and consumption
- Support research and innovation focused on developing high-yield, nutrient-dense crop varieties,

Agricultural field landscape Hangoda kebele, Tsaeda Emba woreda
Photo taken by Mizan Amare

7 Inequalities based on gender identity and age

Youth and women in Hangoda and Tsenkanit *kebele*s face the most disempowerment (Figure 18, Table 5). The youth are challenged especially due to their limited access to and decision making on credit, agricultural inputs and agricultural production, and lack of group membership. Women are overall less empowered than men due to partly to social norms. Access to and decision on credit, group membership, speaking in public, workload and the absence of leisure contributed most to women's and youth's disempowerment.

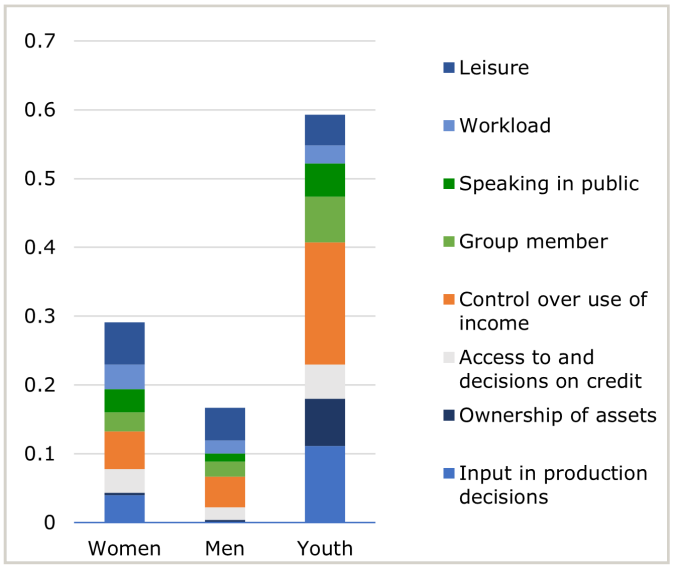

Figure 17: Score of empowerments in agriculture for women, men and youth

Figure 18: Drawings of ideal women as described by the participants of the FGD.

Participants of the FGDs (FGD) revealed that women have limited experiences in public speaking, gathering information and taking leisure. Speaking in public was free for men due to social norms that the men group consider it as a typical task for men and not for women. One characteristic of an ideal woman is to be descent, silent and to be submissive to her husband (Figure 16). These social norms contribute to the difference in empowerment between men in women in the domains of group membership and speaking in public. Women and youth female have a high workload, during the peak agricultural months and holiday and other ceremonies almost through out of the year except February, March, May and June (Table 5). Women perform agricultural work during the day, and in addition perform all their work within the HH during nighttime. It was indicated that workload for women was higher than for men, however, the WEIA score (Table5) shows that a high workload and absence of leisure contributes substantially to the disempowerment of both men and women. This discrepancy between WEIA and the focus group discussions could partly be explained by the fact that men have a very high workload, especially during the cultivating season. Men spend on average 7.2h a day on productive and reproductive tasks while women spend on average 9.3h on those tasks.

Women's disempowerment and ideal women

Other high contributors to disempowerment for women were their limited access to and decisions on credit about 53.8% (Table 5). The focus group discussions highlighted that access to finance is limited due to short credit time, low amount of credit, high interest rates, the requirement of collateral and low saving culture. These challenges were experienced by all people including land less, poor farmers and youths.

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 (52.8%), workload (27.8%), control over use of income (22.2%) and group member group (25%). The FGD showed that men face similar challenges as women

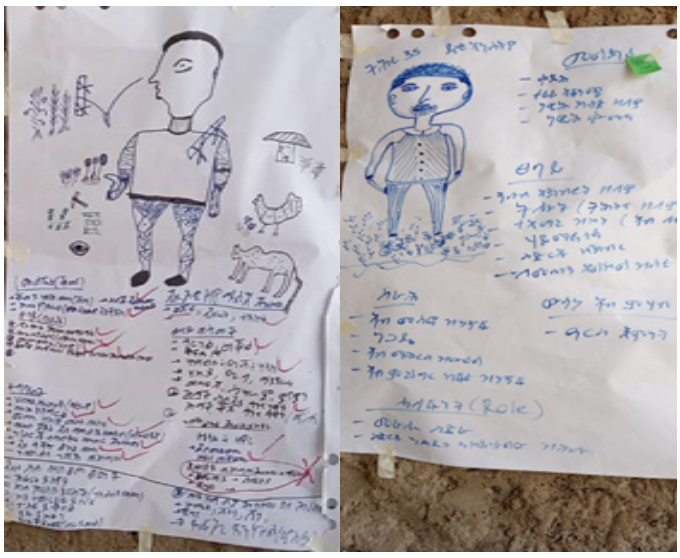

Figure 19: Drawings of ideal men as described by the participants of the FGD.

with regard to access to finance, high workload and limited leisure time were for both men and women main contributor to their disempowerment. However, men and women have different responsibilities and roles. Being free from alcohol addiction was a character trait for men was also mentioned (Figure 16). This could indicate that alcohol addiction in men is prevalent and troublesome for both men and women.

were mainly seen as a task for young men. Education was described as a task for both young men and women. 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 in both locations. Among the priority topics, we find challenges that the youth encounter in terms of access to

Table 5: 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	20.0	2.6	53.8	29.7	28.2	33.3	35.9	71.8
Men	0.0	2.8	33.3	22.2	25.0	11.1	27.8	52.8
Youth	55.6	51.9	74.1	88.9	66.7	48.1	29.6	48.1
All respondent	22.9	15.7	52.0	43.0	37.3	29.4	31.4	58.8

YOUTH DISEMPOWERMENT

Young people (between 18 years and 35 years) that are not HH heads are most disempowered compared to men and women above the age of 35 (Figure 19). Most young people are disempowered in the domain of limited access and decision on credit (74.1%), control over use of income (88.9%), group membership (66.7%) and speaking in public (Table 5). Furthermore, a high percentage of young people were disempowered compared to men in the domains of decision making on production and inputs (55.6% for youth vs. 0 % of men), ownership of assets (51.9 % for youth vs. 2.8 % for men), control and use over income (88.9% for youth vs. 22.2 % for men). Young people were more empowered in the domain of leisure time compared to men and women above the age of 35. From the focus group discussions, it was indicated that young people have less access to collateral and assets this leads youth group less access of credit. This contributes to their disempowerment of control over income but also ownership of assets and limited input in production decisions.

The disempowerment score for male and female youth was not calculated separately due to the limited sample size. However, the focus group discussions suggest that disempowerment is probably different for young men and women and the low empowerment could partly be explained by gender inequality. Young men and women have different tasks than older people, for example, cleaning, cooking and watching toddlers were seen as specific tasks for young women while looking after animals

employment opportunities, access extension support and agricultural inputs. The priority topics also reveal that both women and youth are often not members of cooperatives. 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 social analysis and foster inclusion to empower marginalized communities.
- Raise awareness about the disproportionate workload and disempowerment faced by women
- Create sustainable income-generating opportunities specifically for youth and women
- Facilitate access to finance and develop simplified credit options to support small-scale entrepreneurs
- Ensure the active participation of women and youth in cooperative-based services and development initiatives for collective progress.
- Ensure that both women and men, as well as youth, have equal access to essential agricultural resources, such as land, credit, seeds, fertilizers, etc.
- Provide tailored business support, training, and mentorship for young farmers
- Reduce the time burden on women and girls by promoting labor-saving technologies, improving access to childcare, and fostering more equitable distribution of household responsibilities.

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

8 Food systems resilience

Definition and concept of resilience

Resilience has been conceptualized as a personality trait or cluster of traits that refer to one's ability to adapt to adversity and restore equilibrium (Greeff and Ritman 2005 and Jacelon 1997). Resiliency has also been conceptualized as a process or capacity that can be enhanced or taught (Southwisk.SM et al.,2014). Specifically, individuals can develop resilient skills and perspectives, including manifesting adaptive behaviors, engaging in problem solving skills, maintaining optimistic perspectives, sustaining positive social functioning, utilizing positive emotion eliciting coping strategies (e.g., cognitive reappraisal, benefit finding, humor), and finding meaning (Connor and Davidson 2003).

The food system resilience in the Tigray particularly in the study area, is a critical area of focus, especially given the region's vulnerability to various environmental, economic, and socio-political challenges. The *woreda*, which is predominantly rural and heavily reliant on agriculture, faces a host of difficulties that threaten the stability of its food systems. These include climatic shocks such as droughts and floods, limited infrastructure, socio-political instability, and a rapidly changing agricultural landscape. Strengthening the resilience of the food system in this region is crucial for ensuring food security, improving livelihoods, and building long-term sustainability.

Both Keblle faces a multitude of severe shocks and stressors that have had a profound impact on its agricultural systems, economy, and social fabric. The top three shocks identified in the *woreda* include the prolonged war and siege, droughts (characterized by erratic rainfall patterns), and total production loss. These primary shocks have disrupted food production, decimated livelihoods, and caused widespread suffering across the region. In addition to these major shocks, the community has been affected by a series of other critical challenges, including desert locust invasions, the COVID-19 pandemic, outbreaks of pests and diseases affecting both crops and livestock, and a persistent shortage of essential agricultural inputs. The top three stressors in the *woreda* were lack of credit and credit service, food shortage and price inflation. Additionally, the respondents identified political instability, trauma, interruption of education, infestation of cochineal, limited and shortage of rainfall, health problem such as cholera, land erosion and drain of water sources were stressors affecting the community. These compounded shocks and stressors have significantly reduced the ability of farmers to produce adequate food, resulting in widespread food insecurity.

Several coping strategies were mentioned in this focus group discussion to address work-related stressors (credit, food shortage and inflation) and shocks (war, droughts (erratic rainfall) and total production loss). The coping strategies food stressors and shocks respondents were focuses on short-term consumption-related behavior, cash or money-borrowing strategies, access to or utilization of financial services (e.g., savings groups, credit), remittance and developing social interaction, cultural medicine, holly water, selling their assets, protect extravagance ceremonies, soil and water conservation and diversions, using backyard farm, collection of animal feed.

Priority topics identified and validated by stakeholders

- Strengthen and promoting climate-smart agricultural practices resilience to climate-related shocks, such as droughts, erratic rainfall, and floods to reduce vulnerability.
- Promote peacebuilding and conflict resolution initiatives to stabilize the region and enable agricultural recovery.
- Strengthen and promoting Integrated Pest Management (IPM) outbreaks of pests, such as desert locust invasions and crop/livestock diseases, which have devastated agricultural productivity.
- knowledge on sustainable practices, pest management, and climate adaptation.
- Enhance livelihood diversification to reduce dependence on agriculture and increase resilience to shocks (e.g., introducing non-agricultural income sources, value-added processing).
- Postering post-conflict recovery strategies that focus on rebuilding agricultural infrastructure, supporting displaced farmers, and reestablishing local markets.
- Address the trauma and psychological effects of the war and siege on farmers, particularly on their capacity to return to farming activities.

9 Policies and government support

Policies and Government Support for Food System Resilience in Tsaeda Emba

The findings from the baseline survey and focus group discussions underscore the urgent need for policies that are tailored to the specific needs of vulnerable households (HHs) and marginalized populations, particularly women and youth. Given the challenges in Tsaeda Emba, addressing food system resilience is a critical area for government and policy intervention. The impacts of war, climate shocks, and socio-economic stresses have exacerbated vulnerabilities, particularly in the agricultural sector. Policymakers must recognize the distinct challenges these groups face and design policies that can both protect and empower them. Strengthening food system resilience is essential for building sustainable agricultural development and improving food security, while also fostering economic stability and equity. Below are the identified priority thematic policy areas:

The thematic policy areas for Tsaeda Emba were: Social and economic inclusion for local economic development,

- Enhanced extension and advisory services,
- Diversified and nutritious food systems,
- Promoting local food environments and healthy consumer behaviour,
- Climate smart and resilient agricultural practices,
- Partnerships for integrated food system policies, planning and governance
- Access to Credit and Financial Services
- Promoting Rural Entrepreneurship and Agricultural and Non-Agricultural Jobs
- Strengthening Community-Based Social Protection Systems
- Strengthening Agricultural Insurance and Risk Management
- Addressing Vulnerability to Shocks and Stressors
- Promoting Diversified and Climate-Resilient Agricultural Systems
- Mental Health and Trauma Recovery for Farmers
- Policy Support for Long-term Agricultural Development
- Strengthening Community-Based Agricultural Cooperatives

Social and economic inclusion for local economic development

Economic inclusion is key to overcoming the cycle of poverty and improving the livelihoods of marginalized groups. Policies in this area should focus on integrating vulnerable populations, especially women and youth, into the local economy. Initiatives such as enhancing the local extension system, improving access to markets, and providing credit and financial services are essential for enabling these groups to participate in local economic activities. Furthermore, promoting small and medium-sized enterprise (SME) development can catalyze broader economic growth by supporting value chains and creating more income-generating opportunities. These initiatives should be designed with a gender-sensitive lens, ensuring equitable access to resources and opportunities for all.

Enhanced extension and advisory services

The role of extension services in improving agricultural productivity cannot be overstated. The Ethiopian Digital Agriculture Extension and Advisory Services Roadmap 2030 emphasizes the need for a pluralistic extension system, which integrates both public and private sector actors at the *woreda* and *kebele* levels. Beyond traditional agricultural advisory roles, these services should focus on entrepreneurship, financial literacy, and access to market information. Policies should promote the development of local agro-entrepreneurship, including seed capital, and foster the creation of non-agricultural job opportunities within the food system. By empowering local communities with the right knowledge and resources, agricultural innovation can be driven from within, ensuring sustainable development.

Diversified and nutritious food systems

Achieving food security goes beyond mere food availability; it is also about ensuring the availability of nutritious and diverse foods. Policies should encourage diversified agricultural systems that incorporate nutrient-dense crops, such as pulses, legumes, and horticultural crops, alongside traditional staple crops. This will help improve dietary diversity and nutrition security. Additionally, policies must support the establishment of mechanisms to improve market access and information, ensuring that farmers can sell their produce at fair prices and consumers have access to a variety of nutritious food. In addition, local and national programs aimed at nutrition education should be expanded to increase awareness and promote healthier consumption habits among community members.

Promoting local food environments and healthy consumer behavior

To ensure long-term food and nutrition security, policies must also focus on developing healthy local food environments. This involves supporting the establishment and improvement of local food value chains that include production, processing, distribution, and consumption. Strengthening local markets is essential for facilitating access to fresh and nutritious food. Additionally, promoting post-harvest services, food processing, and

value addition activities will improve the overall quality of food available in local markets and extend its shelf life. Integrated communication campaigns and behavioral change programs, focusing on healthy dietary behaviors, will be essential to shifting consumption patterns. Collaboration between agriculture, nutrition, and health sectors will enhance the impact of such policies.

Climate-smart agricultural practices and resilient production systems

Climate change remains one of the most pressing challenges to agricultural productivity in Tsaeda Emba. Therefore, policies must prioritize the promotion of climate-smart agriculture (CSA) to ensure the long-term sustainability of food systems. CSA includes practices such as crop diversification, improved water management, conservation tillage, and soil fertility management. In addition, promoting stress-resistant crop varieties, integrated pest management, and sustainable land management practices will help build resilience to extreme weather events. Given the high cost of imported fertilizers, policies should also encourage the use of organic and locally produced fertilizers, which are more affordable and sustainable.

Partnerships for integrated food system policies, planning, and governance

Developing a robust and integrated food system requires collaboration across sectors and levels of government. Policies should foster multi-stakeholder partnerships, which include government agencies, non-governmental organizations (NGOs), the private sector, local communities, and international development partners. These partnerships should focus on creating and implementing localized strategies that address food security and resilience at the grassroots level. The food systems approach ensures that food production, nutrition, and environmental sustainability are considered in a holistic manner, leading to more effective and context-specific interventions.

Access to credit and financial services

One of the major barriers to agricultural recovery and resilience is the lack of access to affordable credit. Farmers need financial support to purchase essential inputs, invest in modern farming techniques, and recover from shocks. Financial inclusion programs should prioritize smallholder farmers, with a focus on women and youth. Policies should expand access to low-interest loans, savings programs, and provide financial literacy training. Additionally, the use of mobile banking and digital platforms can further extend access to financial services, particularly in rural areas where traditional banking infrastructure is limited.

Promoting rural entrepreneurship and agricultural and non-agricultural jobs

Strengthening rural entrepreneurship is crucial for reducing poverty and diversifying income sources. Policies should focus on creating an enabling environment for rural enterprises to thrive, offering skills training, facilitating access to markets, and supporting value-added activities within agriculture. Expanding job creation, not just in agriculture but also in non-agricultural sectors, is key to boosting economic growth in rural areas. Youth and women, who are often excluded from economic opportunities, must be empowered through targeted entrepreneurship programs to contribute meaningfully to local economies.

Strengthening community-based social protection systems

Social protection systems are vital for safeguarding vulnerable populations from economic shocks. Post-conflict recovery should prioritize community-based social protection mechanisms that provide targeted assistance to households affected by food insecurity, economic disruption, or health crises. Social protection programs could include cash transfers, public works programs, and food aid, ensuring that communities can weather short-term crises while rebuilding their livelihoods. Such programs should be inclusive, ensuring that the most vulnerable populations, including women and children, are not left behind.

Strengthening agricultural insurance and risk management

Agricultural insurance is an essential tool for mitigating the financial risks associated with climate-related stocks such as droughts, floods, and pest outbreaks. Policies should support the development and expansion of agricultural insurance programs that provide farmers with a safety net in case of crop failure or livestock loss. Furthermore, risk management strategies, such as promoting crop diversification, water conservation, and soil health practices, should be integrated into insurance schemes to help farmers reduce their exposure to risks.

Addressing vulnerability to shocks and stressors

Vulnerability to shocks and stressors, such as natural disasters, economic fluctuations, and political instability, exacerbates food insecurity in Tsaeda Emba. To mitigate these risks, policies should focus on building disaster resilience through early warning systems, preparedness programs, and emergency response mechanisms. Buffer stocks of food and agricultural inputs can provide emergency relief during times of crisis, while long-term strategies should focus on improving farmers' adaptive capacity to withstand future shocks.

Promoting diversified and climate-resilient agricultural systems

Encouraging diversified farming systems is a key strategy to improve food security and reduce vulnerability to climate change. Policies should incentivize the adoption of agroecological practices that integrate crop and livestock systems, agroforestry, and sustainable land use. These diversified systems are more resilient to environmental fluctuations and help ensure a continuous supply of food and income. By integrating climate-resilient crops and practices, farmers can adapt to changing climatic conditions and safeguard their livelihoods.

Mental health and trauma recovery for farmers

Conflict and war cause significant trauma to individuals, which can severely hinder recovery efforts. Policies should prioritize mental health support for farmers and rural communities, addressing the psychological impacts of war and displacement. Providing access to counseling, trauma-informed care, and community support groups will help farmers regain emotional resilience and enable them to return to productive farming activities.

Policy support for long-term agricultural development:

Sustainable agricultural development requires a long-term vision that transcends emergency recovery efforts. Policies should create an enabling environment for long-term investments in agriculture, including land tenure reforms, rural infrastructure development, and institutional strengthening. These policies must provide clear guidelines, subsidies, and incentives that encourage both public and private sector investment in agriculture, ensuring that farming communities are supported in their journey toward sustainable development.

Strengthening community-based agricultural cooperatives:

Agricultural cooperatives are a powerful tool for enhancing collective action among smallholder farmers. By pooling resources, farmers can access better inputs, share knowledge, and achieve economies of scale. Policies should encourage the development of agricultural cooperatives, providing them with access to credit, training, and technical assistance. Cooperatives can also help farmers recover more quickly after shocks by providing a collective platform for marketing, input procurement, and resource-sharing.

Overview of projects implemented in Tsaeda Emba

The *woreda* administration in collaboration 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, regenerative agricultural practices, soil and water conservation, watershed management and agroforestry. Some noteworthy projects, programme's and interventions that have been implemented at the level of the *woreda* are:

- SLMP Soil and water conservation and watershed management programme
- World vision Ethiopia safety-net, enhance nutrition, irrigation development and increasing agricultural production
- Weforest in natural resource restoration and livelihood development
- CALM-P4R Natural resource restoration and management connecting with livelihood

Opportunities and challenges for Tsaeda Emba in a food system perspective

An overview of the most important opportunities and challenges of the *woreda* was identified through the RFSA and baseline surveys and validated by the stakeholders, presented in Figure 22. The challenges are formulated into goals, specific activities and interventions and placed into a food systems framework. This result illustrates how the identified opportunities and challenges are scattered throughout the different areas of the food system framework. In addition, it reveals how opportunities interlink and mutually contribute in specific ways to specific food system outcome areas of RAISE-FS.

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

Food systems are by nature complex and dynamic and are characterized by interconnected, non-linear relations between the system elements and outcomes Jagustovi et al.,2019. 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 focusing 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 behaviors 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.

According to a system study, promoting home gardens might potentially have both advantages and disadvantages. Positive effects include increasing dietary diversity at the home level and empowering women in terms of their income and ability to make decisions. 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 but 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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Publication ID: SWRE-RAISE-FS-25-044

List of abbreviations

AEZ	Agroecological zones
DA	Development agent
FGD	Focus group discussions
FHH	Female headed households
GIZ	German Agency for International Development Cooperation
HH	Household
ICRISAT	The International Crops Research Institute for the Semi-Arid Tropics
KfW	KfW (German) Development Bank
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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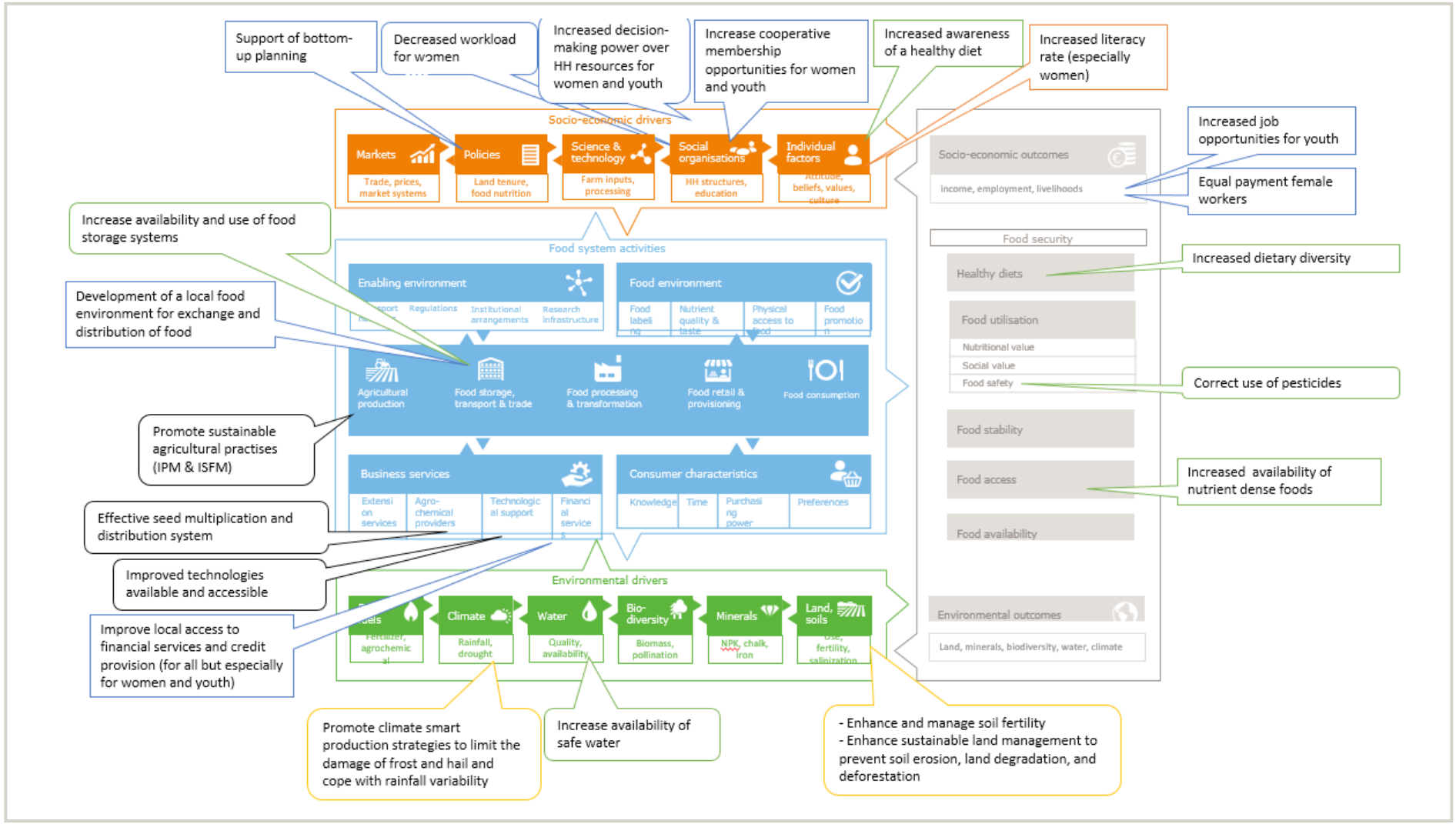

Figure 20: Identified priority topics in a food systems perspective (following by Berkum et al., 2018)

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