

Woreda **LMAT** (ወረዳ ልማት)

“Woreda profiling, planning and implementation through
Local **M**andating for Effective **A**gricultural **T**ransformation”

Guideline

**Stichting Wageningen
Research Ethiopia**



WAGENINGEN
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Local **M**andating for Effective **A**gricultural **T**ransformation”**

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This guideline designed to provide evidence-based, integrated, and participatory approaches tailored to local production potentials and socio-economic contexts. By engaging local stakeholders in meaningful dialogue, it ensures development strategies are inclusive, relevant, and responsive to community needs. The approach promotes coordinated, multi-sectoral efforts that optimize resources and enhance local ownership, driving sustainable progress in agriculture and food systems.

Keywords: bottom-up, evidence-based, integrated, participatory, planning

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Abbreviations and acronyms

AFPARI	Afar Pastoral & Agropastoral Research Institute
AHP	Analytical Hierarchy Process
ARARI	Amhara Regional Agricultural Research Institute
ARIs	Agricultural Research Institutions
BFIIs	Best Fit Innovations
CASCADE	Capacity Building Scaling Evidence Based Best Practices Agricultural Production Ethiopia
CEARI	Central Ethiopia Agricultural Research Institute
EIAR	Ethiopian Institute of Agricultural Research
FGD	Focus Group Discussion
FTC	Farmers training Center
GARI	Gambella Agricultural Research Institute
HLIs	Higher Learning institutions
KII	Key Informant Interview
LMAT	Local Mandating for Effective Agricultural Transformation
LUTs	Land Utilization Types
MEL	Monitoring, Evaluation, and Learning
MoA	Ministry of Agriculture
MoPD	Ministry of Planning and Development
IRM	Innovation Recommendation Mapping
ORARI	Oromia Agricultural Research Institute
RAISE-FS	Resilience Agriculture for Inclusive and Sustainable Ethiopian Food System
REALISE	Realising Sustainable Agricultural Livelihood Security in Ethiopia
RFSA	Rapid Food System Appraisals
SARI	Sidama Agricultural Research Institute
SEARI	South Ethiopia Agricultural Research Institute
SoPARI	Somali Pastoral & Agropastoral Research Institute
SWEARI	South West Ethiopia Agricultural Research Institute
TARI	Tigray Pastoral & Agropastoral Research Institute
WUR	Wageningen University & Research

Executive summary

Woreda LMAT (ወረዳ ልማት) has been developed as a strategic tool to support Ethiopia's multi-faceted national development aspirations by creating an enabling environment for inclusive, participatory, knowledge-driven, and locally responsive development. Specifically, it aims to: (i) promote the efficient and sustainable utilization of existing biophysical and socio-economic potential; (ii) strengthen and leverage the contributions of knowledge institutions, particularly higher learning institutions—including more than 50 public universities—and agricultural research institutes, in advancing local development; (iii) foster collaborative, integrated, and synergistic governance and implementation frameworks that effectively align national and regional priorities with locally driven initiatives through both top-down and bottom-up approaches; and (iv) enhance the institutional and technical capacities of local governments at the regional, zonal, and *woreda* levels to effectively plan, coordinate, implement and monitor sustainable development interventions.

This *Woreda* LMAT guideline is grounded in empirical evidence generated through the testing and validation of its core components. These include: (i) the institutional mandating of relevant knowledge institutes to facilitate and technically support the integrated planning process; (ii) comprehensive *woreda* profiling through Rapid Food System Appraisal, baseline surveys, and targeted studies for priority setting, combined with stakeholder validation; (iii) Innovation Recommendation Mapping to support evidence-based identification of context-specific scaling niches for innovations; (iv) systematic alignment with national and regional strategies, policies, and food system transformation initiatives as well as flagship programs; (v) structured facilitation of the *woreda* planning process; and (vi) the establishment of a robust Monitoring, Evaluation, and Learning system to ensure accountability, adaptive management, and continuous improvement.

The implementation strategy of the guidelines presents the clear delineation of roles and responsibilities among the different governance structures of the country and the different actors within each layer of governance (federal, regional, zonal, *woreda* and kebele administrative layers), along with institutional mandating of relevant actors. Accordingly, the Federal Ministry of Planning and Development at the federal level, the Regional Bureaus of Planning and Development, zonal, *woreda*, and kebele administrations are expected to facilitate the institutionalisation of this guideline.

Introduction

Local-level planning that considers the unique potential and opportunities of each locality, and is aligned with national initiatives, has proven to be a critical factor driving local economic transformation. By focusing on the specific attributes and resources of a community, local planning enables tailored strategies that harness inherent strengths and address particular challenges effectively (Sandhu, 2021). In countries like Ethiopia, characterised by diverse agroecological zones, the process of identifying and prioritising local conditions, key challenges, opportunities, and leverage points is vital for achieving sustainable development. Sustainable progress depends not only on recognising these factors but also on carefully planning to improve food and nutrition security, stimulate economic growth, and maintain environmental sustainability.

Addressing the multifaceted challenges of food systems, which include production, distribution, and consumption (van Berkum et al, 2018; de Brauw et al, 2019), demands a bottom-up approach to planning that emphasises locally defined priorities and interventions grounded in solid evidence (Sandhu, 2021). Such an approach ensures that development efforts are relevant, context-specific, and capable of generating meaningful and lasting impacts at the grassroots level. Nevertheless, implementing bottom-up planning effectively is complex due to the diversity of local contexts. These complexities include variations in stakeholder composition, with farmers, local leaders, government officials, and community organisations all having different roles and interests, as well as differences in governance structures and capacities, and the array of available methods and approaches to planning.

As per the Ministry of Planning and Development (MoPD), the absence of a clear interface between top-down and bottom-up development planning, along with weak implementation capacity and limitations in the monitoring and evaluation systems, has negatively impacted the proper development of plans and their effective execution. Additionally, the resource endowments and potentials of various localities have not been sufficiently identified. As a result, it has not been possible to strategically and sustainably utilise the natural, human, and other resources as the respective endowments of development targets. Moreover, the roles of development actors at various levels have not been mainstreamed and effectively utilised as per their respective responsibilities and capabilities (MoPDE, 2021).

Given these complexities and the stated challenges, it is essential to test and evaluate a range of bottom-up planning options to identify best practices that can be adapted to different settings. This requires experimenting with participatory techniques, data collection methods, and decision-making processes that accommodate the local realities and national initiatives. In addition, continuous assessment and adaptation are necessary to refine these approaches, ensuring inclusivity, transparency, and responsiveness to community needs. Ultimately, this iterative process of bottom-up planning, rooted in local knowledge and capacities, has the potential to enhance the effectiveness and sustainability of interventions aimed at transforming local economies and food systems in Ethiopia and beyond.

Such an iterative process has been tested and validated in 20 *woredas* in Amhara, Central Ethiopia, Oromia, Sidama, South Ethiopia, and Tigray regions that covered (i) *woreda* profiling, (ii) Innovation Recommendation Mapping (IRM) to identify niches for scalable of context-specific solutions, (iii) facilitating bottom-up planning at *woreda* level, and (iv) mandating knowledge institutes (Higher learning institutes and agricultural research centres) to undertake and facilitate *woreda* profiling and *woreda* planning together with officials and experts are *woreda*, zonal and regional level from public organizations, private actors and development partners.

The results demonstrate that the approach played a critical role in localized planning by empowering communities to actively identify their own needs and priorities. This enabled the selection of development interventions tailored to the local context, thereby increasing the likelihood of success. The approach also enhanced implementation effectiveness by fostering greater ownership and collaboration among grassroots stakeholders. Additionally, it generated valuable local evidence to inform decision-making and guide future

initiatives. Consequently, this guideline was developed to facilitate scaling up the *woreda* bottom-up planning process, providing a structured framework to replicate and expand this approach across all *woredas* to promote sustainable development outcomes.

This guideline provides a comprehensive overview of the approach by detailing its key characteristics, which define its distinctive features and operational dynamics. It outlines the guiding principles that serve as foundational values, shaping the implementation process to ensure consistency, inclusivity, and sustainability. The conceptual framework presented offers a structured understanding of how the approach functions, clearly illustrating the interrelationships between its components, stakeholders, and expected outcomes. This enables users to grasp how each element contributes to the process, fostering effective collaboration and achieving desired results in food system transformation.

Moreover, the guideline identifies the key driving factors for success, those critical elements and conditions that significantly contribute to achieving positive and impactful results. Understanding these factors enables policymakers and development practitioners to replicate successful practices and proactively address potential challenges. In addition, the guideline outlines the scaling process, which involves the systematic expansion and adaptation of the approach to new contexts or broader scopes. This includes strategies for scaling up, mechanisms to maintain quality and accuracy during expansion, and considerations for adapting to diverse local conditions. Together, these components equip stakeholders with a comprehensive roadmap for effective implementation, continuous improvement, and sustainable scaling of the approach.

1.1 Purpose and objectives of the guideline

The primary purpose of this guideline is to support and promote evidence-based, integrated bottom-up planning, aligned with national and regional initiatives, at the *woreda* level, tailored to the unique production potentials and socio-economic realities of each locality. By focusing on *woreda*-specific data and conditions, the guideline aims to strengthen participatory planning processes that meaningfully engage local stakeholders, ensuring that development strategies are relevant, inclusive, and responsive to local needs and opportunities. This approach facilitates coordinated, multi-sectoral interventions that optimise resource utilisation and enhance local ownership, thereby contributing significantly to sustainable development outcomes in the agricultural and food system sectors.

The specific objectives are:

- a) To promote the efficient utilisation of existing biophysical and socio-economic potential at the *woreda* level in line with national initiatives and top-down plans, thereby enhancing food and nutrition security, encouraging import substitution, boosting export promotion, and overall economic development.
- b) To facilitate and strengthen the role of knowledge institutions, especially higher learning institutions, including over 50 public universities, and agricultural research institutes with their extensive network of research centres in providing robust, evidence-based inputs that underpin informed, context-specific planning and decision-making.
- c) To enable and foster collaborative, synergistic governance and implementation frameworks that integrate both top-down (national and regional) and bottom-up initiatives, ensuring coordinated multi-level stakeholder engagement for more effective food system interventions, and
- d) To build the institutional and technical capacity of local governments at regional, zonal, and *woreda* level so that they can effectively fulfil their mandates and lead transformative efforts that contribute to sustainable economic and food system development within their jurisdictions.

This comprehensive approach ensures that *woreda* planning is grounded in local potential, evidence-based, collaboratively governed, institutionally empowered and aligned with national and regional initiatives to drive meaningful and sustainable food system transformation.

1.2 Scope and users of the guideline

This guideline is developed based on evidence and best practices to support effective *woreda* planning for food system transformation. It encompasses five core components: (i) institutional mandating¹ of knowledge

¹ In this guideline, mandating refers to the delegation of roles and responsibilities with accountability through a mutually agreed work modality between the zonal administration and knowledge institutes present in respective zones

institutes, (ii) conducting comprehensive woreda food system profiling to capture local production, consumption, and supply dynamics and socio-economic and environmental conditions; (iii) Innovation Recommendation Mapping (IRM) to identify niches and support the planning to promote scalable and context-specific solutions; (iv) alignment with national and regional strategies and initiatives, and (v) facilitating the *woreda* bottom-up planning process in alignment with national and regional initiatives by actively involving *woreda* stakeholders, including local government, private sector, and knowledge institutes operating within each target *woreda's* zone. Although focused on food systems, the principles and approaches of this guideline are adaptable and can be applied to other sectors such as education and health, where participatory, evidence-based and multi-stakeholder planning is required.

The primary users of this guideline include line ministries at the federal level, regional bureaus, zonal departments at the zonal level and *woreda* offices responsible for sectoral planning and implementation, as well as knowledge institutions (HLIs and ARIs) that provide technical support and capacity building.

In this guideline, mandating refers to the delegation of roles and responsibilities with accountability through a mutually agreed work modality between the zonal administration and knowledge institutes present in respective zones.

1.3 Need for evidence-based bottom-up and integrated planning

The bottom-up approach in the planning process places strong emphasis on public participation as a key driver for achieving customer satisfaction and effective outcomes (Healey, 1997). According to the World Bank (1996), public participation is “a process through which stakeholders influence and share control over development initiatives, as well as the decisions and resources that affect them.” This participatory approach ensures that those most affected by development interventions have a voice in shaping policies and programs, fostering ownership and relevance.

In Ethiopia, bottom-up planning is an important pathway to (i) facilitate the country’s food system transformation, (ii) ensure effective alignment with national initiatives, and (iii) support sustainability and resilience goals. By actively involving local communities, smallholder farmers, and grassroots stakeholders, the planning process is tailored to address the unique challenges and opportunities present in diverse regional contexts, along with better alignment with national and regional initiatives (Snel et al., 2022). For instance, *woreda* food system profiles were developed to capture detailed information on local demographics, agroecological conditions, production systems, markets, nutrition and social inclusion. These profiles served as evidence-based tools, guiding local planning and targeted interventions that align with on-the-ground realities. Engagement with a broad range of stakeholders through bottom-up planning also enables the incorporation of local knowledge, traditional practices, and community priorities into food system interventions. This approach assures that interventions are context-specific, nationally and regionally responsive, thereby increasing their effectiveness and sustainability (Snel et al., 2022).

Moreover, bottom-up planning promotes social inclusion by empowering marginalized groups such as women and smallholder farmers who often face disproportionate challenges within the food system (Sandhu, 2021). This empowerment is instrumental in addressing inequities, fostering equitable access to resources, and ensuring that food system benefits reach vulnerable populations.

Further, bottom-up planning builds trust, collaboration, and collective ownership among stakeholders, which are crucial for successfully implementing food system interventions (Koontz and Newig, 2014). In Ethiopia, this has translated into enhanced partnerships among local governments, research institutions, and community organisations, driving sustainable agricultural practices, improved food security, and economic development (GIZ, 2022).

Collectively, these elements highlight the transformative potential of bottom-up planning within Ethiopia’s food system, providing a participatory, evidence-based, and inclusive framework that aligns local insights with national development priorities and sustainable growth objectives.

1.4 Guiding principles

The key guiding principles that need to be considered for the application of this guideline are:

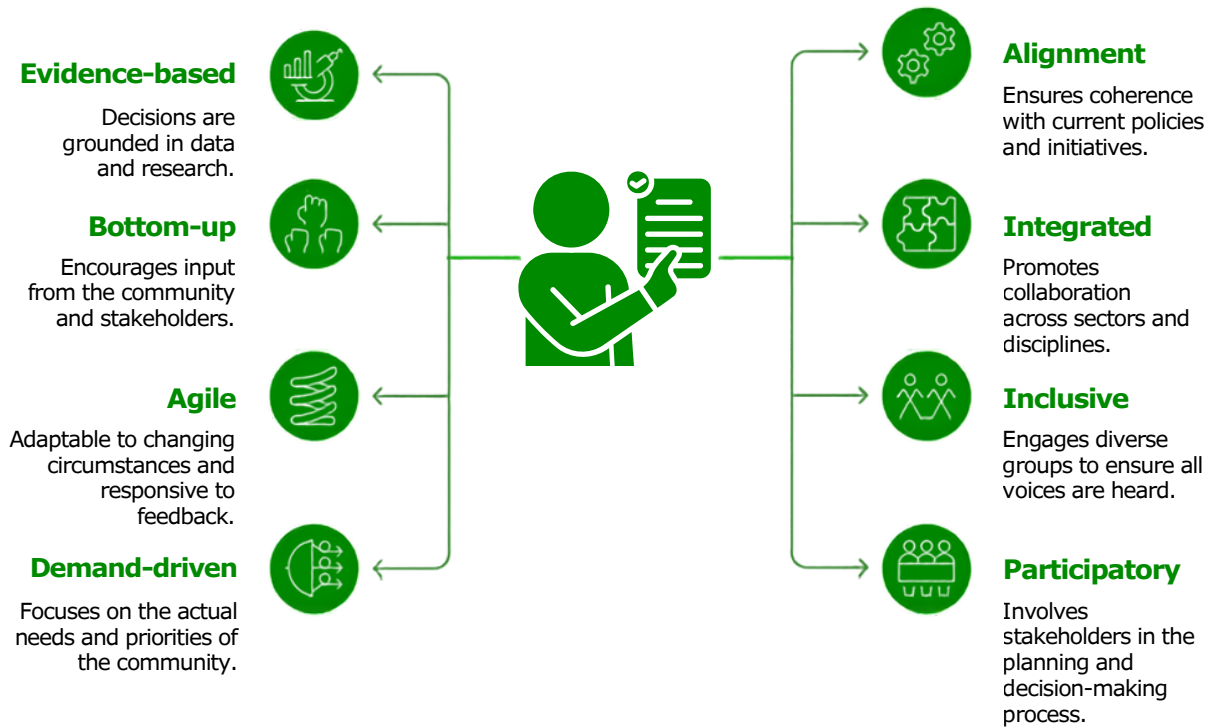


Figure 1 Guiding principles to be considered for the application of this guideline

2 *Woreda* LMAT conceptual framework

The “*Woreda* Profiling, Planning and Implementation through Local Mandating for Effective Agricultural Transformation” (*Woreda* LMAT) conceptual framework is grounded in five key components: Institutional Mandating, *Woreda* Food System Profiles, Innovation Recommendation Mapping, alignment with national and regional strategies and initiatives, and *Woreda* Bottom-Up Planning. This comprehensive framework provides a structured approach to understanding and managing the complex dynamics of local food systems and their alignment with national and regional initiatives at the *woreda* level.

Institutional Mandating refers to the clear delineation of roles and responsibilities among local government structures and knowledge institutes (universities and research institutes) at the regional, zonal, and *woreda* level to ensure effective coordination and governance. This element facilitates alignment of local initiatives with broader policy frameworks and national development goals, enabling coherent action across administrative tiers.

The *Woreda* Food System Profiles form the foundational element by offering detailed, evidence-based insights into each *woreda*’s demographic, agroecological, production, market, nutritional, and social inclusion characteristics. These profiles enable stakeholders to gain a deep understanding of the local realities, helping to identify specific challenges and opportunities that influence food system performance, along with ensuring better alignment with national and regional initiatives.

Woreda Bottom-Up Planning emphasises active participation of local stakeholders, including farmers, community groups, private sector actors, and government entities in the planning process. This participatory methodology ensures that interventions are contextually relevant and directly responsive to the unique needs and priorities identified within each *woreda* profile. It fosters ownership, collaboration, and accountability among stakeholders, which are critical for successful implementation and sustainable impact.

Together, the *Woreda* LMAT framework integrates content, methodology, and stakeholder engagement into a cohesive model. It guides the planning, execution, and monitoring of agricultural transformation efforts, supporting sustainable, inclusive, and resilient food systems relevant for Ethiopia’s diverse local contexts (Figure 2).

Framework: from woreda profiling to woreda bottom-up planning

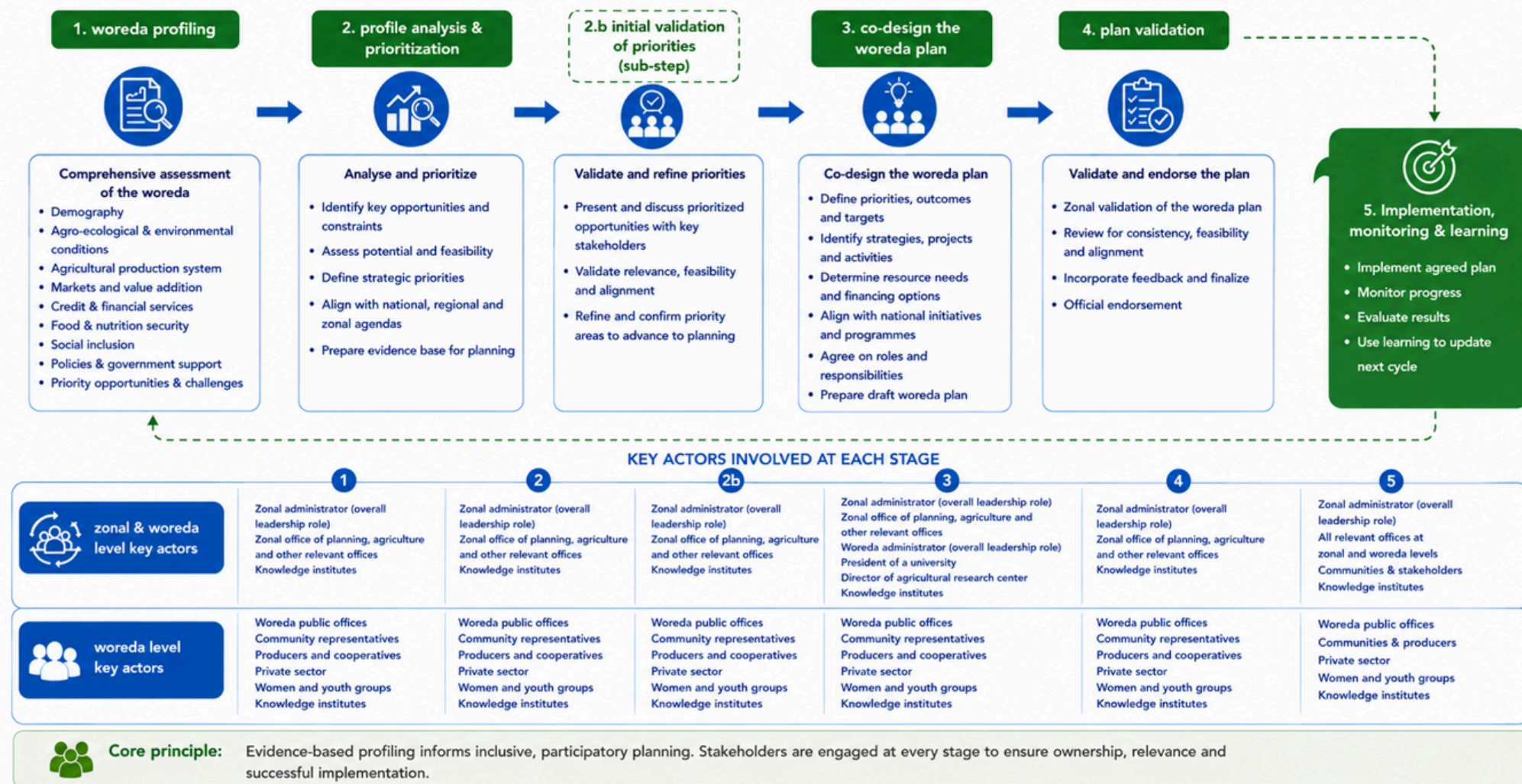


Figure 2 Woreda LMAT Conceptual Framework

3 Key steps and components for evidence-based bottom-up and integrated planning

The planning approach, *Woreda LMAT* has five key components, namely (i) mandating of relevant actors for collaborative governance and implementation, (ii) *woreda* food system profiling, which - undertaken through the Rapid Food System Appraisal and quantitative baseline surveys - aims at identification of *woreda* specific leverage points and priorities,, (iii) identification of suitable locations and required inputs for specific innovation bundles using Innovation Recommendation Mapping, (iv) alignment with national and regional strategies and initiatives, and (v) *woreda* bottom-up planning considering the actual coordination for implementation, monitoring and scaling of specific innovations (Figure 3).



Figure 3 Key components, steps and principles of Woreda LMAT

3.1 Institutional mandating of relevant actors – collaborative governance

Ensuring accurate profiling of the *woreda* food system and effective *woreda* bottom-up planning requires active engagement of knowledge institutions, including higher learning institutes and agricultural research institutes. Given the significant public investment, each zone across the country's regions has at least one knowledge institute (see Figure 4). This presence enables the involvement of these institutes in regularly profiling and generating essential information for each *woreda* within their respective zones. Additionally, they play a crucial role in facilitating the design of *woreda* bottom-up plans in collaboration with relevant stakeholders. Beyond supporting the planning processes, knowledge institutes are also responsible for (i) technology testing and validation, (ii) capacity building, and (iii) participation in monitoring, evaluation and learning activities.

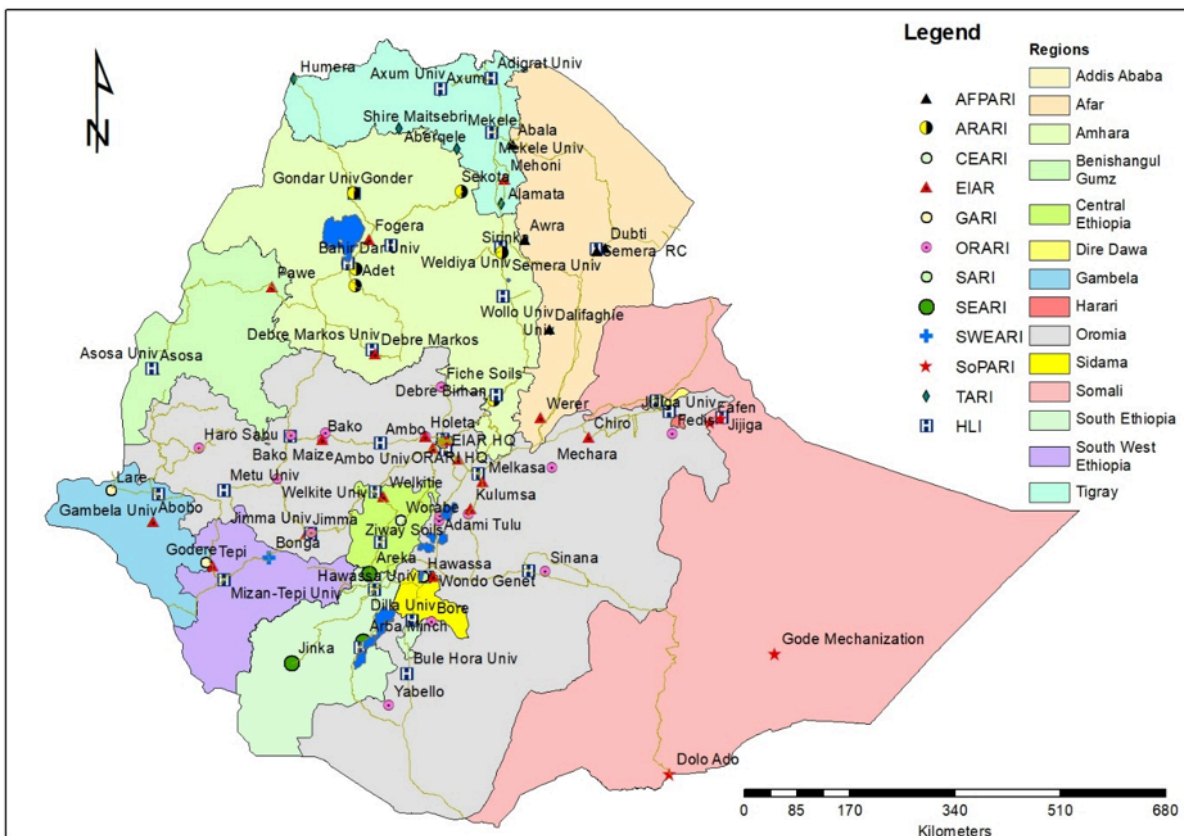


Figure 4 Distribution of members of the national knowledge institutes (research centres and universities)

Efforts to mandate knowledge institute members to promote the testing and validation of innovations at the zonal level highlight the need for these institutes to actively collaborate with zonal and *woreda* public organisations, such as offices of agriculture, health and industry. Specifically, the profiling of *woreda* food systems and the facilitation of *woreda* planning require expertise capable of implementing both qualitative and quantitative research methods, as well as a thorough understanding of global, national, and regional policies, production dynamics, and marketing opportunities.

Given the country's governance structure and the complexity of accountability, mandating knowledge institutes to support bottom-up *woreda* planning requires strong leadership from regional and zonal officials, particularly the regional president and zone administrator. Generally, this mandate involves: (i) establishing a forum for joint engagement to ensure locally specific collaborative governance; (ii) planning and coordinating the *woreda* food system profiling process, including the allocation of roles, responsibilities, and cost-sharing; (iii) drafting the *woreda* bottom-up plan based on the developed profile; and (iv) designing an implementation strategy with clearly defined roles and responsibilities, alongside a robust system for monitoring, evaluation, and learning.

Collaborative governance in local development planning is a formal, participatory process in which government and non-government actors jointly make decisions and manage development initiatives to more effectively address local needs through shared responsibility, consensus-building, and ongoing engagement (Van der Maden et al., 2025). This approach is different from top-down planning by actively involving diverse stakeholders who share decision-making power, work collaboratively, and engage in continuous dialogue to tackle complex local development challenges. These challenges can be identified through *woreda* food system profiling, conducted with the involvement of knowledge institutes. It also enhances the design of mutually acceptable development goals and forms reciprocal relationships.

3.2 Woreda food system profile

The woreda profile provides a comprehensive overview of the current status, dynamics, and behaviours characterising the local food system within a specific woreda. It serves as a critical tool designed to support stakeholders in implementing evidence-based, bottom-up planning by accurately reflecting the existing realities and complexities of the *woreda*. By offering detailed insights into demographic patterns, agroecological conditions, production systems, market structures, food and nutrition security, social inclusion, and policy environments, the profile ensures that all stakeholders develop a shared understanding of the multifaceted challenges and opportunities present. This shared understanding forms a solid foundation for the planning process, fostering alignment and informed decision-making.

The *woreda* food system profile is a comprehensive compilation of bio-physical and socio-economic information related to a specific woreda, highlighting the potential and opportunities available for improving local livelihoods and driving food system transformation (Figure 4). The profile encompasses several critical components: (i) demographic characteristics by kebele and livelihood zone within the woreda, which provide detailed population distribution and social structure insights; (ii) livelihood options, outlining the various economic activities and income-generating strategies practiced by local communities; (iii) agro-ecological potentials and production practices, describing the natural resource base, climate, soil conditions, and prevalent agricultural technologies; (iv) marketing practices, including market access, value chains, and the flow of goods and services; and (v) livelihood challenges, with particular focus on food security status and trends in shocks such as droughts, floods, or market disruptions that impact community resilience (Snel et al., 2022).

The information contained in the *woreda* profile is derived from rigorous data collection efforts, including qualitative Rapid Food System Appraisals (RFSA) and quantitative baseline surveys. These methodologies engage a diverse range of local stakeholders to collect representative and contextualised data that captures local nuances.

3.2.1 Rapid food system appraisal

The Rapid Food System Appraisal (RFSA) process incorporates participatory tools such as community mapping, activity calendars, in-depth dialogues, and other interactive exercises to explore food system components, seasonal dynamics, and community priorities.

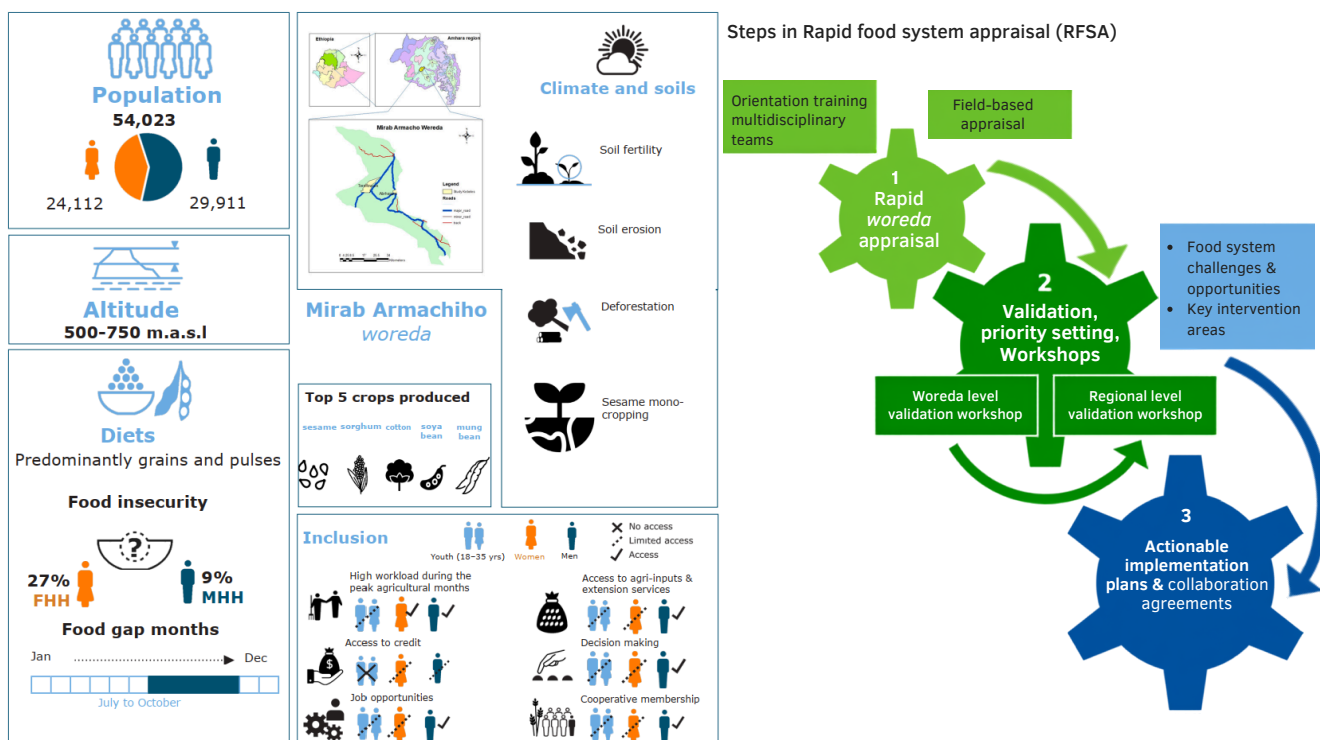


Figure 5 Food system profile of Yimana Densa Woreda, Amhara region Source: RAISE-FS Woreda Food System Profile #002 (<https://raise-fs.org/experience-paper/>)

Through these evidence-gathering processes, the *woreda* profile not only describes the current situation but also highlights priorities in key thematic areas such as social and economic inclusion, access to inputs and advisory services, climate resilience practices, value chain dynamics, and local food environments that are vital for driving sustainable and inclusive food system development. This comprehensive profile empowers stakeholders to design interventions that are context-specific, based in local demand, socially equitable, and environmentally sound, thereby increasing the likelihood of successful outcomes and long-term impact in the *woreda*.

The entire RFSA process starts with the establishment of multidisciplinary teams, followed by co-design and validation of diverse tools for data collection and drafting of the report (Table 1).

Table 1 Key steps for RFSA process

Key activities for RFSA	Description	Responsibility
Mandating	Participating knowledge institutes are identified and share roles and responsibilities with agreed accountability	Zonal administration
Multidisciplinary expert team establishment	A multidisciplinary team of experts from various sectors—agricultural economics, extension, breeding, horticulture, plant protection, agronomy, soil and water management, animal feeds, gender, and nutrition—is customised according to the <i>woreda's</i> specific farming system.	Plan and agriculture offices at zone and <i>woreda</i> levels
Design of RFSA checklists	The checklist of RFSA is based on food system outcomes such as socio-economics, healthy diet and sustainable environment	Plan and agriculture offices at zone and <i>woreda</i> levels
Identification of target key informants and members of FGDs	Key informants will include female and male groups, alongside other stakeholders at the <i>kebele</i> level. Each group will consist of youth, middle-aged individuals, and the elderly. The institutional stakeholder group comprises development agents, the heads of agricultural and health extension offices, cooperative managers, microfinance managers, land administration experts, and experts from various <i>woreda</i> sectors such as nutrition, natural resources, agronomy, gender, trade, and job creation, as well as private sector representatives.	Plan and agriculture offices at <i>woreda</i> level
Identification of relevant secondary sources	Identification of published and unpublished secondary sources from <i>woreda</i> offices	Plan and agriculture offices at national, regional, zonal and <i>woreda</i> levels
Primary data collection through KIIs and FGDs	KIIs and FGDs	The established multidisciplinary team of experts
Collection of secondary data	Collection of published and unpublished secondary sources from <i>woreda</i> offices	The established multidisciplinary team of experts
Analysis and draft report writing	Analysis will be done by a multidisciplinary team together with sector levels stakeholders. The report will be written based on Woreda planning template.	The established multidisciplinary team of experts
Validation of the draft report	The central objective of the validation workshop is to share and validate the findings obtained through the field-based survey. In addition, stakeholders are asked to reflect on priority actions for the <i>woreda</i> cases.	Plan and agriculture offices at regional, zonal and <i>woreda</i> levels together with the established multidisciplinary team of experts

Multidisciplinary teams are formed from various sectors of the respective *woreda* and their nearby knowledge institute (University or Research Institute). These teams, consisting of professionals with diverse expertise facilitate and organize the entire RFSA process in a specific locality. Before engaging in field activities, this team undergoes orientation training, where they learn about the RFSA, the tools they will use, and how to facilitate and document the RFSA process effectively. The training includes detailed planning of the activities to be conducted and covers both theoretical and practical aspects of the five RFSA tools: community mapping, activity calendar, in-depth dialogue, different plates activity and food systems resilient assessment (Table 2). Each RFSA tool has a specific function and contribution towards the *woreda* food system profile. Table 2 provides a summary of the respective functions and types of outputs for each RFSA tool

Table 2 RFSA tools and their functions

Tool	Function of the tool
Community mapping (Snel et al., 2022, page 13)	Generate an overview of the natural landscape, its resources and different land uses, Obtain and map insights related to infrastructure and services (FTC, cooperative, input suppliers, etc.), Obtain information about local agricultural production (farming system), livelihood strategies, market, consumption, employment opportunities Identify challenges and opportunities of the farming system
Activity/seasonal calendar (Snel et al., 2022, page 18)	Generate an overview of the patterns in income and expenditures, variation in livelihood activities, variability in markets & input prices and seasonal variability in food availability (Food gap months) and diets Understand how activities and time investments vary between male and female respondents Obtain insights regarding local seasonality (rainfall, drought, pest and disease prevalence, climate variability, etc.) Identify key challenges and opportunities for food system transformation
In-depth dialogues (Snel et al., 2022, page 24)	Obtain insights into local social norms and practices of social exclusion within the community, Generate information about the labour burden for different groups, Obtain insights about difference in access to markets, information and finance) for different population categories
Different Plates activity (Snel et al., 2022, page 30)	Generate insights into what typical diets look like for various socio-economic groups, Obtain insights into people's perception of a healthy diet and the reasoning and how they obtain information about nutrition. To identify the enablers and barriers to access good (nutritious) foods.
Resilience assessment	Generate an overview of the historical timeline of key shocks and stressors, Obtain insights about strategies to cope with shocks and stressors

After the orientation training, multidisciplinary teams travel to selected *kebeles* for participatory food system appraisal activities. Two *kebeles* are chosen per *woreda*; in each *kebele*, two-day group interviews are conducted with local stakeholders, focusing on inclusivity, especially for women and youth. To avoid the interviews being affected by a roadside bias, households beyond roads and city centres have to be engaged.

Using the developed tools, stakeholders reflect on their food system's current situation using semi-structured questions to guide group dialogues and discussions. Three separate working groups (female, male, and institutional stakeholders) engage in community mapping, activity calendars, in-depth dialogues and resilience assessment. Each group consists of approximately 12 participants, ensuring representation from different age demographics.

On day one, stakeholders create a community map and a seasonal calendar of activities. The second day features semi-structured discussions and key informant interviews to explore food system features and address social factors influencing food consumption. Insights are documented, processed, and analysed based on the themes of demography, agricultural production systems, sustainable management, markets and value addition, credit and financial services, food and nutrition security, gender and social inclusion, food system resilience, and policies and government support.

3.2.2 Quantitative survey

A quantitative survey is undertaken to collect numerical data that provides a snapshot of key indicators and conditions of the *woreda*. The main steps in conducting a quantitative survey include defining clear objectives and indicators, developing a well-structured questionnaire, selecting a representative sample using appropriate sampling methods, training enumerators, and conducting data collection through face-to-face interviews. The survey questionnaire typically covers multiple domains relevant to the key contents of a *woreda* profile, including demographic data, socio-economic status, livelihood activities, food security indicators, health and nutrition status, access to services, and characteristics of available natural resources. In addition, it uses the Women's Empowerment in Agriculture Index (WEAI) to understand women's agency, inclusion and role in the agri-food system.

The main steps and methods for conducting a quantitative survey typically include:

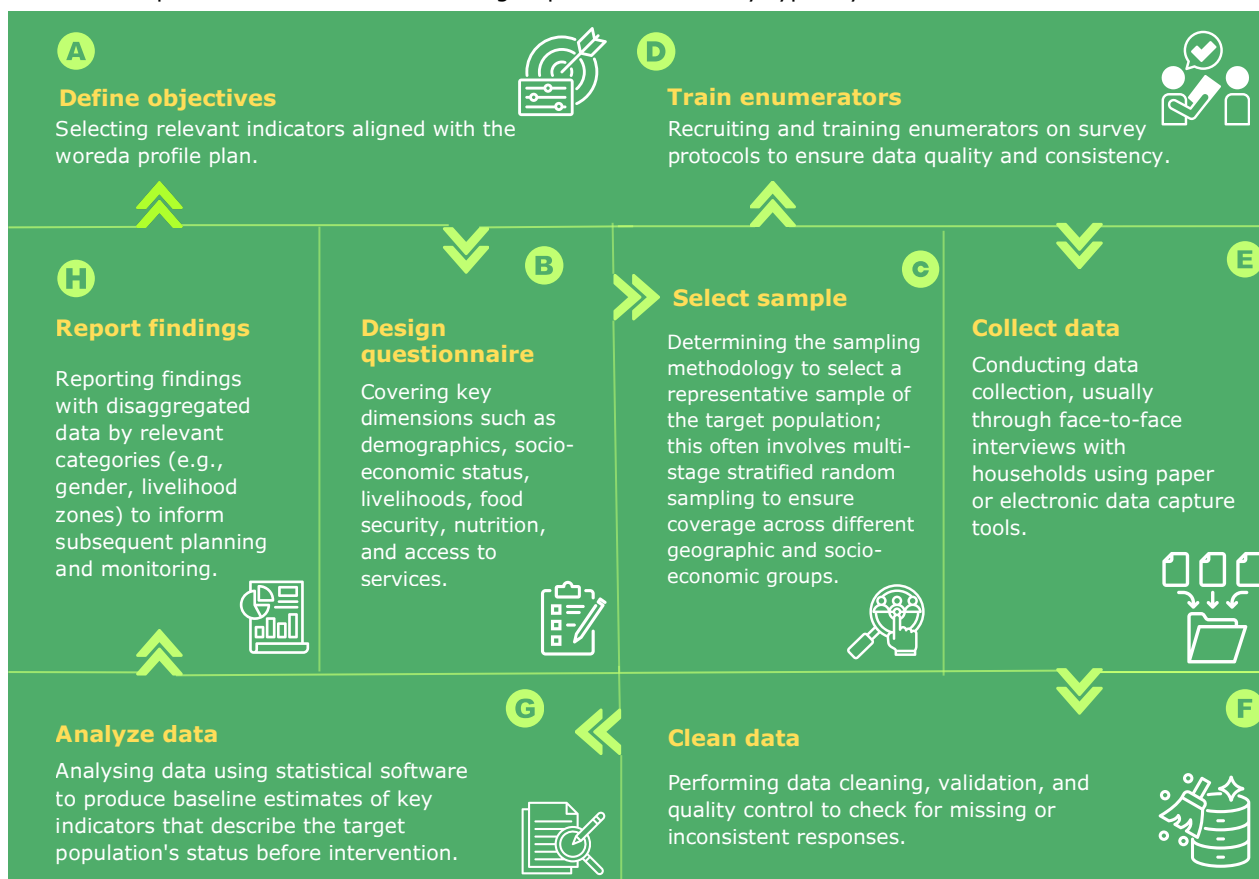


Figure 6 main steps and methods for conducting a quantitative survey

Insights from the quantitative surveys complement the results of the RFSA to provide context and understanding of the factors behind observed indicator values. This mixed-methods approach produces a comprehensive foundation for evidence-based planning, monitoring, and evaluation.

3.3 Innovation recommendation mapping

Based on the priorities identified in previous steps, Innovation Recommendation Mapping (IRM), can help guide next steps for scaling specific validated innovations in a designated area. IRM is a spatial modelling approach that integrates important biophysical, social, economic and infrastructural conditions to identify suitable areas for innovations and facilitate *woreda* planning for scaling of innovations to suitable niches. The tool enhances the participation of stakeholders and guides *Woreda* planning to make informed decisions. IRM matches land qualities in terms of soil, climate, topography, and socioeconomic factors in a *woreda* with the land use requirements of specific innovations.

The Innovation Recommendation Mapping was developed by Wageningen University & Research (WUR) and has been progressively tested and adapted for the Ethiopian context through collaboration in several Dutch-funded projects, including BENEFIT-CASCAPE, BENEFIT-REALISE, and RAISE-FS. This development has been a joint effort involving experts from WUR as well as domestic knowledge institutes and the Ethiopian Ministry of Agriculture (MoA). Continuous validation and contextualization have ensured that IRM meets local needs and effectively supports evidence-based agricultural planning and innovation scaling at the *woreda* level.

The IRM approach was validated in five major land utilisation types (LUTs)/innovations and use case *woredas*. These innovation types are (a) smallholder improved rainfed faba bean for Wolmera *woreda*, (b) smallholder improved rainfed sweet potato for Kersa (E. Harerghe) *woreda*, (c) smallholder improved rainfed maize-haricot bean for Silte *woreda*, (d) smallholder improved rainfed soybean for Hawassa Zuria *woreda*, and (e) smallholder improved rainfed Irish potato for Yilmana Densa *woreda*. Furthermore, during the validation process, there was an improvement in the IRM approach to reduce the time and resources required by automating the acquisition and preparation of spatial (biophysical and socio-economic) as well as AHP data. The approach was implemented using the improved/automated IRM tool to scale innovative land utilisation types into 24 new *woredas*.

The combined use of IRM and bottom-up planning tools and products has been rigorously tested to effectively support *woreda*-level planning for the scaling of validated agricultural innovations. This integrated approach not only improves the precision in identifying the most suitable locations and conditions for specific innovations but also enhances stakeholders' decision-making capacity by providing robust, evidence-based spatial and socio-economic data. By linking the geospatial suitability information from IRM with participatory bottom-up planning processes, *woredas* can prioritise interventions that are both contextually relevant and technically feasible. This synergy promotes more efficient resource allocation, increases stakeholder ownership, and accelerates the adoption and sustainable scaling of innovations within local food systems. Stakeholder feedback from practical applications in various Ethiopian *woredas* has highlighted the utility of this approach in forecasting input demand, revealing site-specific constraints, and fostering collaborative planning, making it a valuable model for achieving scalable and resilient food system transformation outcomes. The IRM approach considers the following six key steps.

Review of Best Fit Innovations (BFIs)

Based on the bottlenecks and leverage points identified during the bottom-up planning, stakeholders compile and assess innovations that have been previously tested under similar agro-ecological and socio-economic conditions. The innovations are bundled into packages that include a crop or variety, agronomic practice, etc. and the context in which it was successful. Innovation recommendation briefs are also examined to evaluate relevance and scalability. This stage results in a set of suitable BFIs ready for adaptation and scaling in the local context, with research institutions (such as EIAR and RARIs), the Ministry and Bureau of Agriculture, and development partners taking part.

Defining land use requirements for the selected BFIs

This involves identifying key suitability indicators such as climate variables, soil properties, and socio-economic considerations. Threshold values and rules for determining land suitability are then established for each innovation. The output is a detailed set of criteria and required datasets, developed with input from research institutions, GIS experts, and government agricultural bodies.

Spatial data preparation [biophysical and socio-economic layers]

This involves collecting and formatting a wide range of spatial datasets, including those related to soil, climate, land use/land cover, topography, infrastructure, and administrative boundaries. These datasets are processed and standardised at the *woreda* level using automation tools embedded within the IRM framework. The goal is to produce a complete and clean set of biophysical and socio-economic GIS layers that are ready to be used for modelling. This task is led by soil mapping experts, available within the Ministry of Agriculture and EIAR.

Calibration phase using the Analytic Hierarchy Process (AHP)

In this participatory stage, workshops are often conducted using KoboToolbox-based digital tools to engage experts and farmers. The purpose of this process is to account for and quantify farmers' priorities and weights representing the relative importance of biophysical and socio-economic indicators, and validate the assumptions underlying the suitability model. The output of this stage includes locally validated criteria, updated spatial datasets, and expert-reviewed scripts that define how land suitability will be computed. Stakeholders such as *Woreda* agriculture and planning staff, local researchers, and local farmers play a central role in this validation process.

Modelling and visualization

The IRM spatial model is run using the previously defined and validated suitability criteria. Accessibility factors such as distance to roads, markets, FTCs and input supply centres are also integrated into the analysis. The modelling phase generates thematic maps indicating areas where each innovation is most suitable, and produces summary statistics disaggregated by suitability class and by *kebele*. A technical team made up of national and *woreda*-level experts coordinates this stage.

Triangulation workshop

This step involves the validation of generated maps to ensure they reflect the realities on the ground. Diverse local stakeholders, including farmers, extension workers, and planners, review the suitability maps and provide feedback based on their practical knowledge and observations. Adjustments are made to improve the accuracy and relevance of the outputs. The final maps, enriched with expert judgment and local experience, and the statistics of suitability by *kebele* and sub-*kebele* are considered for the integration of IRM outputs into the evidence-based integrated *woreda* planning.

IRM outputs can be used to:

- a) Identify suitable interventions to optimise validated innovations in existing areas
- b) Identify new suitable areas to scale validated innovation bundles
- c) Quantify and forecast demand for agri-inputs (seed, fertilisers, etc.)

3.4 Validation and priority setting workshop

The multidisciplinary team that conducted the *woreda* profiling using Rapid Food System Appraisal (RFSA), Baseline Survey, and Innovation Recommendation Mapping (IRM) organises a validation workshop at the *woreda* level. This workshop engages a diverse group of relevant stakeholders, including representatives from *kebele* and *woreda* administrations, zonal authorities, and other relevant decision-makers. The primary objective of the workshop is to validate the development and policy leverage points identified throughout the profiling exercises. Through inclusive deliberation and consensus-building, participants prioritise leverage points² based on their feasibility, impact potential, and alignment with local development goals. The validated and prioritized leverage points then serve as the input for *woreda* planning, ensuring that subsequent interventions are evidence-based, locally relevant, and owned by the community and stakeholders. This participatory validation process strengthens the legitimacy, transparency, and effectiveness of the *woreda* planning cycle.

3.5 Alignment and complementarity between top-down and bottom-up planning

The *woreda* and regional validation workshops conducted during the rapid food systems appraisal present an opportunity for alignment and complementarity between top-down and bottom-up planning, as policymakers are involved in these validation workshops. Top-down planning, mainly in the form of national and regional programs and initiatives, offers a broader perspective based on national priorities, such as wheat, rice, and sorghum initiatives, while bottom-up planning focuses on local potential and opportunities. Furthermore, at the outset of the Rapid Food Systems Appraisal (RFSA), the multidisciplinary team initiates the field-level assessment by reviewing relevant national policies and strategic initiatives. This ensures that government priorities are integrated into the identification of local needs and planning processes.

3.6 *Woreda* bottom-up planning

The validated *woreda* food system profile, together with the prioritised intervention leverage points, serves as a key input in the *woreda* bottom-up planning process. This planning approach not only considers the inherent potential and livelihood options within the *woreda* but also actively explores emerging opportunities related to diversification of production and market access as per documented leverage points in the *woreda* profile. It integrates existing private and public initiatives, thereby building on ongoing efforts to enhance local development. A critical component of this process is the engagement of knowledge institutes, including universities and agricultural research centres, as well as BoAs at *woreda*, zonal, and regional levels. Furthermore, development partners operating within the respective zones should be actively involved in harnessing their expertise, resources, and experiences. This multi-stakeholder collaboration enriches the planning process, enabling the design of comprehensive, context-specific strategies that leverage local strengths, address challenges, and seize new opportunities for sustainable food system transformation and livelihood improvement.

Based on the *woreda* profile, various sectors within the *woreda*, including agriculture, health, environment, trade, cooperatives, job creation, women's affairs, and other relevant stakeholders, will collaboratively prepare the *woreda* plan.

² Leverage points are places within a complex system where a finely tuned, strategic shift in one element can yield transformational changes across the entire structure. (Meadows, 1999; Leventon et al., 2021).

4 Implementation strategy

The implementation strategy emanates from the clear delineation of roles and responsibilities among the different governance structures of the country and the different actors within each layer of governance, along with institutional mandating of relevant actors as presented in section 3.1. Recognising the current governance structure covering federal, regional, zonal, *woreda* and *kebele* administrative layers, there are clear roles and responsibilities at each layer identified as presented in Table 3. At each level, resource mobilisation is expected to be from the respective government offices as part of their annual budgeting.

Table 3 Roles and responsibilities by administrative layer

Administrative layer	Key actor	Role and responsibility
Federal	Ministry of Planning and Development (MoPD)	- Revise and finalise the draft <i>Woreda</i> LMAT guideline, ensuring it aligns with national policy frameworks. - Facilitate the integration and mainstreaming of bottom-up planning approaches within the MoPD National Annual Strategic Planning process. - Coordinate capacity-building and technical support for regional bureaus. - Sensitise and provide guidance to Regional Bureaus of Planning and Development on the <i>Woreda</i> LMAT guideline and its application. - Monitor and evaluate guideline implementation progress and regional compliance.
Regional	Regional Bureaus of Planning and Development	- Adapt and contextualise the national <i>Woreda</i> LMAT guideline to match regional socio-economic and environmental specificities. - Mainstream bottom-up planning into the Regional Annual Strategic Planning process. - Sensitise and train zonal planning offices and key stakeholders on the guidelines. - Provide technical assistance and oversight to zones and <i>woredas</i> for implementation. - Facilitate coordination among various sectors and development actors within the region. - Monitor regional implementation and report progress upward.
Zone	Zonal administration	- Custom-tailor the <i>Woreda</i> LMAT guideline to the needs and characteristics of <i>woredas</i> under the zone. - Lead stakeholder platform operations, facilitating multi-sectoral dialogue and collaboration for <i>woreda</i> plans. - Delineate clear roles and responsibilities among knowledge institutes (University and Research Institute) and sector offices within the zone for conducting <i>woreda</i> profile generation, Innovation Recommendation Mapping (IRM), and draft plan validation. - Collaborate with knowledge institutes and stakeholders to set schedules and timelines for <i>Woreda</i> LMAT bottom-up planning cycle. - Facilitate implementation oversight and feedback mechanisms for <i>woreda</i> plans.
<i>Woreda</i>	<i>Woreda</i> administration	- Facilitate and coordinate the development of <i>woreda</i> profiles, IRM, and validation processes for draft <i>woreda</i> plans, engaging local stakeholders. - Act as the primary implementer and coordinator for the validated <i>woreda</i> development plan in collaboration with <i>kebele</i> administrations. - Mobilise resources and manage implementation schedules. - Monitor and evaluate the progress of the <i>woreda</i> plan implementation and provide feedback to zone and regional levels. - Support capacity building at <i>kebele</i> level for data collection and plan execution.
<i>Kebele</i>	<i>Kebele</i> administration	- Facilitate the collection of accurate and timely data required for <i>woreda</i> profile and plan development from the local community. - Work jointly with <i>woreda</i> administration to facilitate the implementation of identified interventions and projects relevant to the <i>kebele</i>. - Engage the local community in participatory planning activities and ensure that their voices are included. - Monitor local-level progress and challenges, reporting upwards. - Promote local ownership and sustainability of interventions through community mobilisation and awareness.

5 Conclusion

The *Woreda* LMAT guideline is designed to strengthen the integration of bottom-up and top-down planning processes, with the overarching objective of: (i) enabling the full and strategic utilization of each *woreda*'s inherent potential and comparative advantages; (ii) ensuring coherent alignment of *woreda* development plans with national and regional strategies and policy priorities; (iii) systematically addressing the multidimensional needs of target communities; and (iv) promoting sustainable local development that contributes meaningfully to broader national development goals.

The guideline is grounded in empirical evidence generated through the testing and validation of its core components. These include: (i) the institutional mandating of relevant knowledge institutes to facilitate and technically support the integrated planning process; (ii) comprehensive *woreda* profiling through Rapid Food System Appraisal (RFSA), baseline surveys, and targeted studies for priority setting, combined with stakeholder validation; (iii) Innovation Recommendation Mapping to support evidence-based identification of context-specific scaling niches for innovations; (iv) systematic alignment with national and regional strategies, policies, and food system transformation initiatives; (v) structured facilitation of the *woreda* planning process; and (vi) the establishment of a robust Monitoring, Evaluation, and Learning (MEL) system to ensure accountability, adaptive management, and continuous improvement.

Given the validated evidence demonstrating the effectiveness of the *Woreda* LMAT approach in strengthening *woreda*-level planning, a phased scaling strategy is recommended. The approach should initially be piloted in selected zones within each region to enable contextual adaptation and further validation. Upon successful regional validation, the *Woreda* LMAT framework should be institutionalised and mainstreamed as a standardised national planning system to enhance coherence, efficiency, and impact across Ethiopia's local economic development landscape.

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Resilient Agriculture for Inclusive and Sustainable Ethiopian Food Systems (RAISE-FS) is a four-year program funded by the Dutch Embassy in Addis Ababa and hosted by Stichting Wageningen Research Ethiopia based in Addis Ababa, to bring about transformation in the Ethiopian food system. RAISE-FS will develop and implement a demand-driven and interdisciplinary approach to Research for Food System Transformation (R4FST) and as such contribute to the Government of Ethiopia's transformational agenda.
