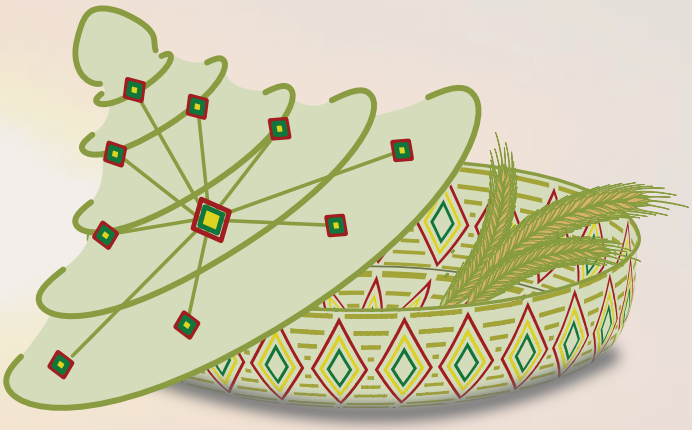

ETHIOPIAN
FOOD SYSTEM
AND NUTRITION

A Pivotal Commitment: Transforming Ethiopian Food Systems

A Comprehensive Synthesis: Game-Changing Solutions, Governance and Implementation Arrangements to Transform Ethiopia's Food Systems

Revised and Expanded

May, 2024
Addis Ababa, Ethiopia

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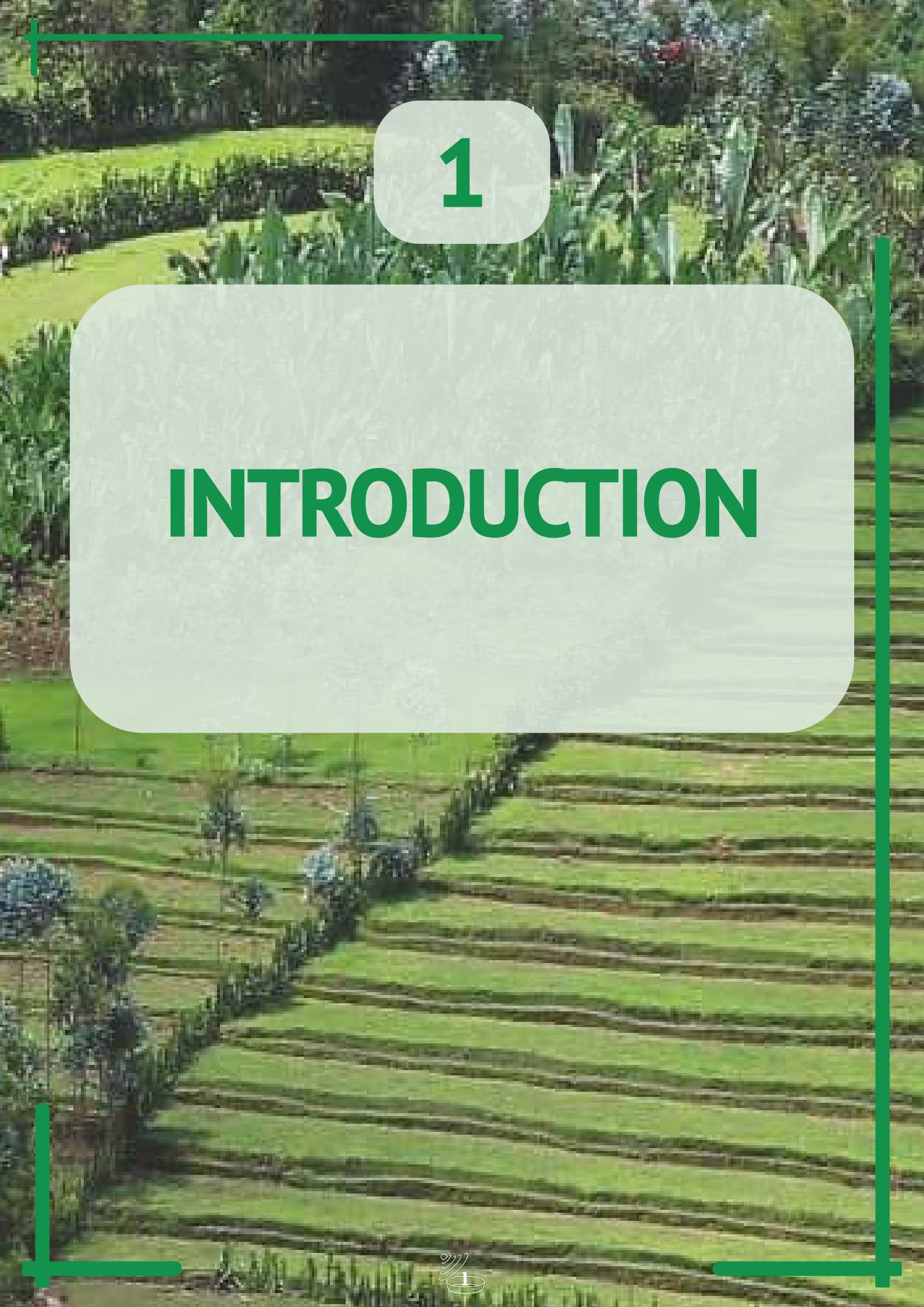
Table of Content

List of abbreviations

ACC	Agricultural Commercialization Cluster
ACPZ	Agro-Commodity Procurement Zones
ADLI	Agriculture Development Led Industrialization
ARC	African Risk Capacity
AU	African Union
CRGE	Climate-Resilient Green Economy
CSOs	Civil Society Organizations
DRM	Disaster Risk Management
EDHS	Ethiopia Demographic and Health Survey
EFDA	Ethiopian Food and Drug Authority
EFS	Ethiopian Food Systems
ESA	Ethiopian Standards Agency
FBDs	Food-Borne Diseases
FPC	Farmer Production Cluster
FSN	Food Security and Nutrition
GC	Game Changer solution
GERD	Grand Ethiopian Renaissance Dam
GHG	Green House Gases
GTP	Growth and Transformation Plan
IRM	Innovation Recommendation Mapping
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoH	Ministry of Health
NGOs	Non-Governmental Organizations
NMIS	National Market Information System
PSNP5	Productive Safety Net Program
SDGs	Sustainable Development Goals
UNFSS	Un Food Systems Summit



1

INTRODUCTION

1. Introduction

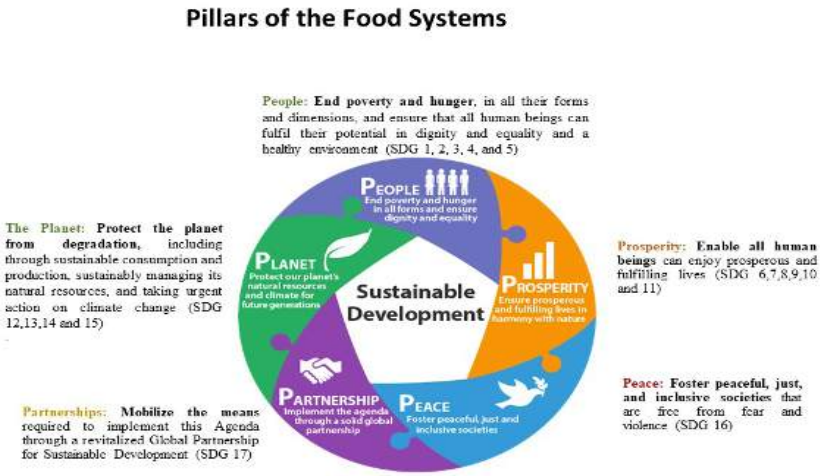
Introducing the UN Food System Summit

The United Nations Secretary-General convened the UN Food Systems Summit (UNFSS) in New York in September 2021. The summit is designed to support member states in driving food systems transformation and accelerating global progress towards the Sustainable Development Goals (SDGs).

The Food System Summit is organized around 5 'Action-Tracks' or key outcomes: (i) ensure safe and nutritious food for all; (ii) shift to sustainable consumption patterns (iii) boost nature-positive production; (iv) advance equitable livelihoods; and (v) build resilience to vulnerabilities, shocks, and stresses.

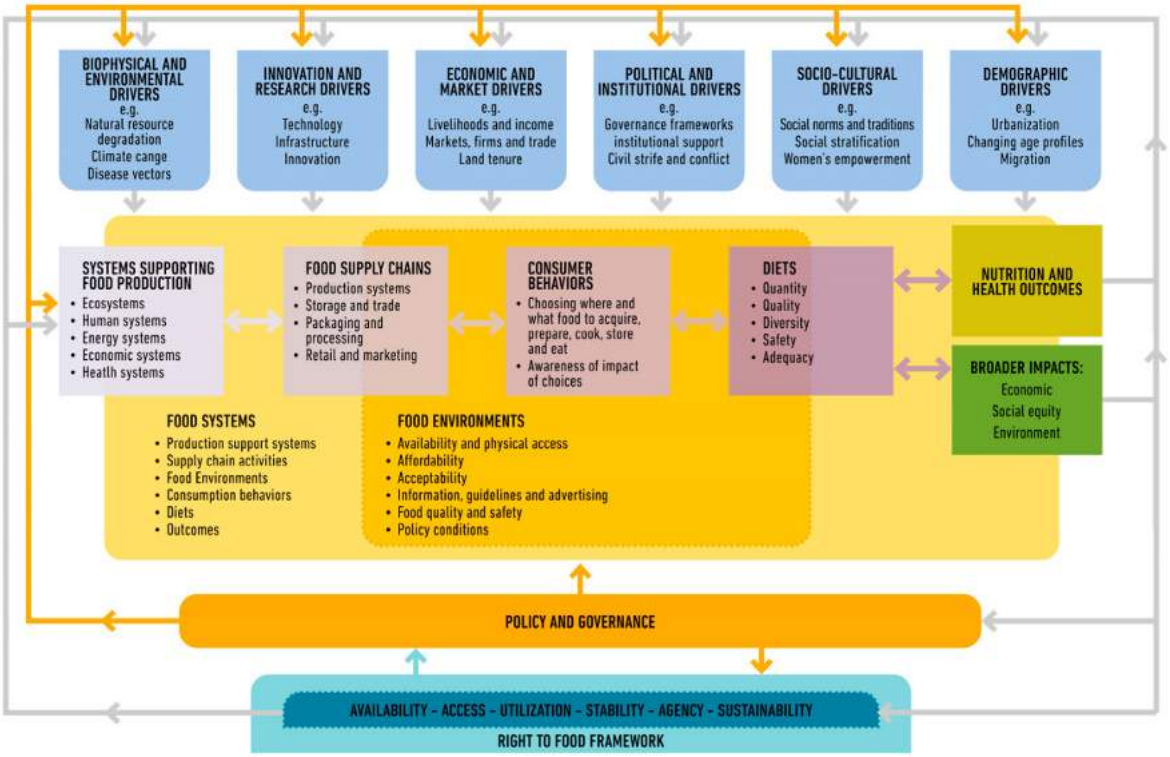
The UNFSS calls on member states to apply a food systems approach to achieve the SDGs. The UN Committee on World Food Security's High-Level Panel of Experts on Food Security and Nutrition (HLPE: 2017) defines a food systems approach as one that "*gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation, and consumption of food, including waste management, and the outputs of these activities, including socio-economic and environmental outcomes."* Food Systems transformation is intrinsically about people, the planet, prosperity, peace, and partnerships (see Figure 1):

Figure 1: The Five 'Ps' of the food system:



The High-Level Panel of Experts has created a conceptual framework (see Figure 2) that supports national food systems by identifying the six key drivers of food systems changes: (i) *biophysical and environmental* (including natural resource degradation, climate change, diseases, and their vectors); (ii) *technology, innovation, and infrastructure* (new plant varieties and animal breeds, data-driven innovations and management systems, new plant breeding technologies, post-harvest management, and infrastructure); (iii) *economic and market drivers* (livelihoods and markets, firms, trade, and land tenure); (iv) *political and institutional drivers* (governance frameworks, institutional support, civil strife and conflict); (v) *socio-cultural drivers* (social norms and traditions, social stratification, women's empowerment); and (vi) *demographic drivers* (population growth, youth bulge, urbanization, changing age profile, migration).

Figure 2: HLPE Food Systems Framework



Source: HLPE 2020. Food Security and Nutrition: Building a global narrative towards 2030. A Report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

For these six key drivers to be addressed, *food production systems* need to be transformed. A food systems approach focuses on production, nutrition, health outcomes, and the broader political, economic, social equity, and environmental impacts. These outcomes are made possible through driving change in four key areas: (i) systems supporting food production, (ii) food supply chains, (iii) consumer behaviors, and (iv) diets. Considering these closely interrelated areas within the broader food system prevents siloed thinking through a thorough consideration of how different subsystems interact. Furthermore, *food supply chains* (also often referred to as food production and distribution networks), consisting of production systems, storage and trade, packaging and processing, and retail and marketing need to be transformed, which requires support for actors across the supply chain, including farmers, agribusinesses, processors and packaging plants and retailers and vendors, among others. In addition to food production systems and supply chains, consumer behaviors and diets must support the broader food system and drive improved health and nutrition outcomes.

To further support these drivers, food policy and governance must seek to shape food system outcomes and, in doing so, shape how drivers of food systems consumer behaviors and the rules by which supply chain actors must operate, all of which ultimately flow through to drive positive outcomes.

The Ethiopian Food Systems (EFS) vision is built around addressing these drivers as they relate to the specific challenges and opportunities and driving towards achieving the UNFSS Action Areas by 2030.

Initial Design of the Ethiopian Food Systems

Ethiopia is fully committed to achieving the Sustainable Development Goals and has participated wholeheartedly in the UN Food Systems Summit. The Government of Ethiopia, therefore, launched the Ethiopian Food Systems (EFS) process in December 2020 (which started earnestly from January 2021) to define Ethiopia's vision and pathway for national food systems transformation, which will be presented at the UN Food Systems Summit. The EFS has been convened[1]by His Excellency Oumer Hussein, Minister of Agriculture, and Her Excellency Dr. Lia Tadesse, Minister of Health, and has been built around a High-level roundtable discussion and Background paper, followed by two sequential national dialogues and a formal EFS launch:

1) **EFS Dialogue 1 - *Current and Future Prospects of the Ethiopian Food Systems:*** aimed at identifying key trends in the food systems and challenges that will need to be addressed for each UNFSS Action Track to achieve the SDGs;
2) **EFS Dialogue 2 – *Towards transforming Ethiopia's food systems:*** aimed at evaluating and selecting 'game-changing solutions' (*see below)* that will address the challenges identified in EFS Dialogue 1 and craft a path to transforming Ethiopia's food systems and achieving the SDGs; and
3) **EFS Dialogue 3 - *the EFS Launch -*** *aimed at publicly affirming the Government of Ethiopia's commitment* to the EFS Plan and calling key stakeholders, development partners, and the country as a whole to action.

The EFS process has brought together over 120 stakeholders and leveraged the experience of government departments, private sector corporations, universities, research institutes, civil society organizations, and multilateral and bilateral institutions to design and launch the EFS Plan across the three dialogues.

The EFS pathway follows in the footsteps of Ethiopia's Homegrown Economic Reform Agenda, which aims to transform Ethiopia from a largely agrarian low-income country to an industrialized lower-middle-income country. It has been carefully designed to both align with and evolve Ethiopia's existing food systems policy ecosystem and critical national programs, including the Homegrown Economic Reform, the Ten-year Development Plan: the Pathway to Prosperity; Food and Nutrition Policy, the Ministry of Agriculture's Nutrition Sensitive Agriculture Strategy and the Multisectoral Food and Nutrition Policy, the Disaster Risk Management Policy (DRM), social protection policies such PSNP5 (Productive Safety Net Program), and the Seqota Declaration, among others. The EFS also incorporates lessons from the Government of Ethiopia's previous plans and programs, such as agricultural and nutrition plans, including GTPs (Growth and Transformation Plan) I and II and ADLI (Agriculture Development Led Industrialization).

1 A convener is a person, group of persons, vested with special authority to bring together and forge alliance among specialists (proposing a technically feasible and necessary solutions) and policymakers (who has the mandate to act on a rather complex often 'no go' political issues) to facilitate transformation of the Ethiopian food system. The conveners earn the trust of all parties'.

EFS Country Diagnostics

Once the technical design of the EFS was completed in July 2021, the more complex question of how to implement the proposed game-changing solutions came into focus, which is different from the past ways of conducting development and emerged as a critical agenda. Many observers were skeptical that Ethiopia would take bold actions to bring about a sustained and inclusive food system transformation through collective action. Keeping the fundamental question in mind, the core team continued to develop tools and processes necessary to implement the EFS under the leadership of the Ministers of Agriculture and Health.

From mid-2021 through the first half of 2023, much time was dedicated to preparing a roadmap with several iterations, designing a socialization and communication strategy, and crafting a governance architecture that facilitates coordination and synergy among food systems stakeholders. The governance structure shown in Figure 12 was approved in March 2023 by the Ethiopian leadership, which is an expression of the government's commitment. In June 2023, an Inter-Ministerial Steering Committee (IMSC) was launched. At that meeting, the IMSC asked the Secretariat to undertake a country diagnostics to map out resources, identify who is doing what with a specific focus on areas of collaboration, and identify what additional resources (finance or technical or human) needed to rollout the EFS game-changing solutions nation-wide (see Figure 3 for the timelines of the EFS).

The Country Diagnostics was conducted from October to December 2023, and once data synthesis was completed, it was validated at the end of January 2024. Key findings of the country diagnostics are:

- Total alignment of each game-changing solution for every participating organization (except a few Ministries and development partners who did not report back);
- 160 of 165 interventions (97%) were aligned
- 481 of 605 activities (80%) are aligned – 124 activities require further alignment
- 142 activities submitted as new by the organizations, of which only 37 activities were found to be unique
- Resource shortfall of nearly 2 billion birr for operational activities
- Additional resources for coordination, facilitation, and technical support will be needed

At a specific level, the diagnostics indicate that the EFS technical design is well thought-through and consistent with the national plan and development priorities. In this case, alignment means the presence of a greater buy-in and participation across a multitude of organizations.

However, the result also reveals a very high degree of overlap or duplication of efforts among organizations. Implicitly, the crowded presence of organizations around the game-changers and interventions raises concern about the effectiveness of resource allocation and the need to coordinate implementation arrangements, especially at the regional and local levels. There has always been competition for funds among agencies; the EFS might bring such competition to the forefront. Coordination efforts should look into the geographic dispersion of agencies, sectoral specialization, and leader organization to facilitate complementarity and synergy. Regions will likely prioritize specific GCs; for example, Afar, Somali, Gambela, and Borana might focus on their areas of specialization and sequencing and prioritizing game-changing solutions. Further work is needed to assign activities not allocated to relevant organizations.

Participants at the validation workshop raised important issues, offering many insights and follow-up actions. There is resounding support for the EFS inclusive approach, task allocation, reexamining alignment, and budget allocation, highlighting the need for stronger coordination and social mobilization (see Table 1).

Table 1: Key Outcomes and Recommendations of the Country Diagnostics Validation Workshop

Issues/ Questions	Participants' Observations/Suggestions
1. What did you learn from the diagnostics, and what stands out?	1. Coherence: • Strong alignment; the level of alignment across the clusters was high • Multisectoral integration • We understand that the food system needs a systemic & holistic approach & all sectors have a role in it • It assists us in identifying and taking responsibility for our role • It is a timely issue and multisectoral, unlike the existing piecemeal approach • The presentation was clear, and the framework is very comprehensive and can be used/ shared with other initiatives/countries • Ranking activities based on their ability to contribute to the game-changer 2. Resource issues: • Putting the budget is somehow challenging • The diagnostic identifies the existing resources and gaps • Revisiting the budget amount that says there is no gap in some of the clusters ○ 3. Duplication /coordination issues – • there are potential overlaps and duplications; Skewness of interventions and activities in some clusters • EFS is a coordinated, multi-stakeholder, participatory that enhances engagement effort 4. Inclusion issues: • Considering the coverage is very important • There is a Missing link: so many project activities and institutions are left unaddressed, and private sector and CSOs are not well covered • The WASH sector to be assessed again • Other DPs, such as the EU, UNICEF, UNDP, foundations, etc., are not assessed. • No representation of the private sectors • Missing information from partners on contributions? Need follow-up on the activity • The road map identifies stakeholders and activities • Addresses the problems related to climate change and drought 5. The policy implication of the strong and weak alignment by organizations • Nutrition availability, safety, and quality are the cornerstone of the EFS • Assignment of activities and intervention into clusters is a good way to commence the EFS project • The diagnostic study shows both quantitative and qualitative aspect • Organizations that didn't report, such as the Minister of Finance and MoPD • It identifies aligned and nonaligned interventions and activities
2. Is the reported (existing) budget accurate and sufficient to accelerate EFS transformation?	1. We understand it is not enough budget; we can start with what we have at hand, but the accuracy of reporting (risk of underreporting) 2. This is a budget tracked from the existing resources, but to address the existing chronic food and nutrition insecurity, it needs to mobilize additional resources and exert additional efforts 3. The budget indicated is mostly commitment-based and may not be available. So, it needs further investigation to check whether it is planned or committed 4. The alignments need further investigation; for instance, the report indicates that there is no alignment for IFAD, but IFAD is mostly working on FS 5. When we fill the template, we first identify the budget at hand and make a forecast for the future, so what is forecasted may not be at hand 6. Needs to evaluate redundant activities to avoid resource duplication 7. Budget: • Associated with the costing of the road map or the committed amount reported? • Revisit the budget costing: remove overhead costs, duplications, etc., • The budget should be reviewed to accommodate current market inflation and ever-increasing population growth; • We agreed that the budget is on the lower side; • The Budget is not guaranteed and will have to be revised when the budget is allocated for the next year and the year after; WW • Inflation should be accounted for 8. We should also look at the targets; what is expected should be outlined to measure the impact

3. Please review and discuss the proposed action needed for activities that are not allocated to organizations	1. Lack of understanding 2. Stakeholders should relook into the list and re-alien themselves 3. There are institutions dedicated to most of the activities listed as orphan 4. Each ministry should have a designated focal person 5. The FS intervention should be part of the organization's plan 6. There are activities related to inclusiveness that were not part of the GCS concerning vulnerable persons. We included them in the diagnostics report and need consideration 7. Set a technical group to revisit this besides assessing additional DPs (can be allocated to those activities), such as a. Some EU member states develop cooperation b. Trust and foundations c. Private sectors 8. Needs prioritization, sensitization, and targeted discussion with partners 9. The secretariat to review and make proactive engagement/assignment 10. To be emphasized during recirculation! 11. Experts should be involved in mapping the orphan activities with sector mandate 12. Precise KPIs have to be appropriately identified to enhance the alignment of activates 13. Experts should come together and identify potential activities for unlocated activities
Discuss/ suggest how public sector/ Dev't Partners/organizations should coordinate EFS internally	1. Alignments at the planning stage 2. Structure to look into the alignment 3. Joint plan with sector and institution, etc. 4. Mapping backward to the Ethiopian food system 5. We should identify which activities are the responsibilities of the government and the partners. 6. Expanding/ strengthening the existing coordination mechanisms/platforms 7. Establishing EFS coordination office/body 8. Representation of all stakeholders in the EFS coordination platforms (inclusiveness) 9. Government –partnership coordination platform should be established. 10. Cluster level of coordination should be established (e.g., technical working groups, task force) 11. The government should sensitize development partners 12. Internal coordination of centers (UN, CGIAR, Alliance 15) plus linkage with FS governance structures 13. Mainstreaming the activities with their sector plan 14. The Government should play a coordination, communication, and leading role 15. Development partners/organizations should play a funding, capacity building, and awareness creation role 16. Monitoring and evaluation should be a joint role 17. Strengthen and enhance the role of each focal person in every organization 18. Create a common platform for discussion 19. Forming a separate institution and coordination unit at a federal level 20. A platform of coordination for EFS implementers 21. Having an EFS council at the PM office 22. Having a double track from both the donors' side but also from the implementers
How can we improve outreach and socialize EFS?	1. A clear advocacy and outreach strategy 2. Mainstreaming in the extension system and school curriculum 3. Capacity building 4. Needs frequent public dialogue and advocacy 5. Awareness forums should be organized at all levels 6. Requires strong public mobilization 7. Make front-line workers part of the socialization process (Social workers, etc.) 8. The EFs may need to transform the existing food FS pattern, so each sector should align its activities accordingly 9. Familiarization with EFS using media and community mobilization 10. Familiarization with EFS sessions specific to the private sector, CSOs, sectoral offices, research and university, donor agencies, etc., 11. Develop a deliberate strategy for different stakeholders at different levels 12. Leverage existing platforms 13. Organizing nutrition clubs at school levels 14. There should be a dedicated mainstream and social media for communication and awareness-raising 15. Incorporate the nutrition issues into the school curriculum 16. Mainstream and enhance the EFS into health extension and agricultural extension packages 17. Having an informal platform and having a discussion, On the job interactions

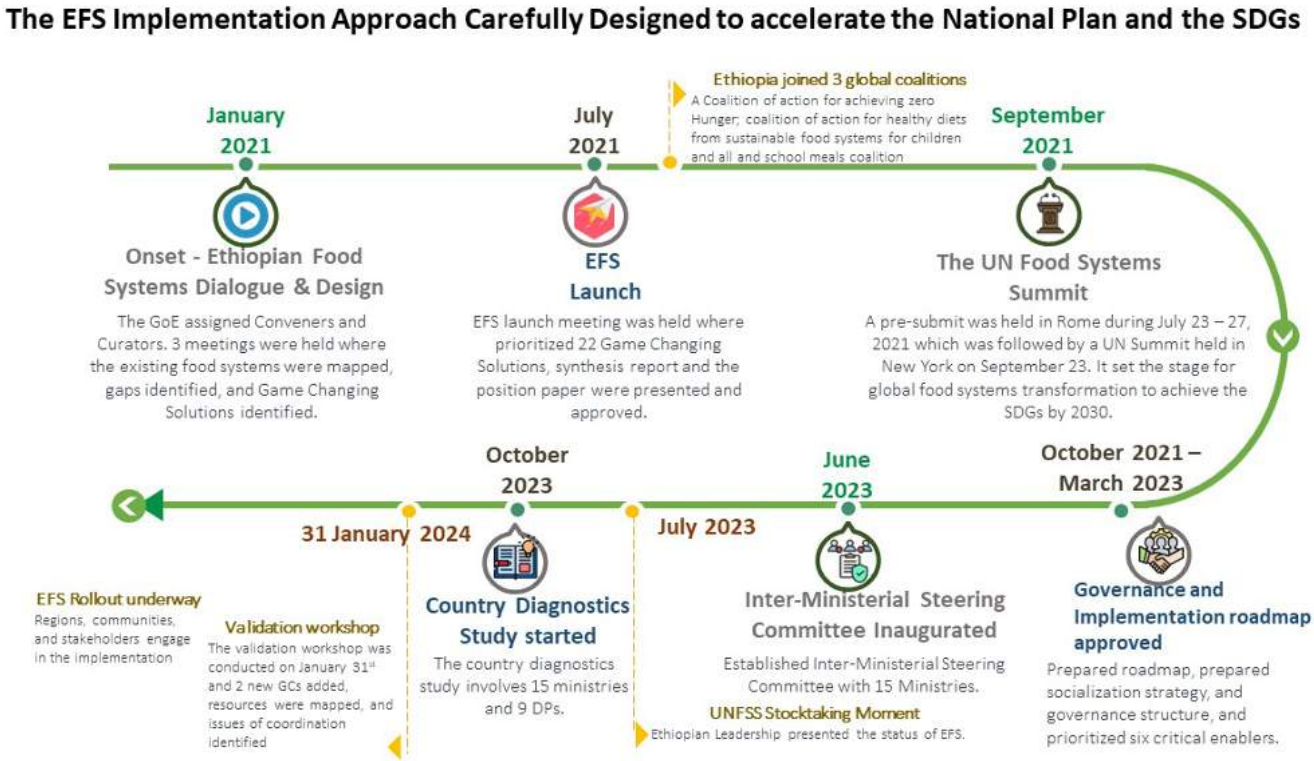
How should we support the rollout of the EFS to regions, and what role will your organization play?	1. Contextualization of the regional context 2. Inclusion into our project activities 3. It can be rollout to regions using the existing organizational structure 4. Since it needs additional resources, it may need to rollout it jointly with the EF implementing sectors 5. Plan alignment of implementing agencies 6. In collaboration with the coordination office, organizing familiarization workshops in their operation areas 7. Support coordination platforms 8. ensure take-ups through regional partnerships 9. Identify the most catalyzing activities 10. Government to lead coordination among development partners and donors on funding catalytic perspectives of the FS roadmap 11. High government official commitment is highly significant 12. Produce guidelines and manuals to address the issue 13. Continuous capacity building and awareness creation 14. The approach should go down from the federal level to the regions 15. Each region should prioritize the activities based on the needs of the region 16. Each of the technical organizations will work on EFS activities that make them region-specific

Source: Country Diagnostics Workshop Validation Workshop, 31st January 2024

These first diagnostics have made clear the need to repeat them at an agreed-upon interval to assess further progress on coordination, resource allocation, complementarity, and progress.

In sum, coordination and technical support to regions and key governance pillars must be continuous activities that cannot be delivered as part-time or secondary functions. A dedicated technical support unit under the auspices of the Secretariat/ Conveners should be considered with dedicated funds.

Figure 3: The Timelines of Ethiopian Food Systems



The various processes have resulted in an ambitious vision to transform Ethiopian food systems by 2030, expressed in the EFS Technical Synthesis (this document), which summarizes the current state of Ethiopian Food Systems and introduces the game-changing solutions that form the basis of the EFS transformation. It also includes critical priorities and a roadmap, which presents implementation arrangements, timelines, roles & responsibilities, accountabilities, and resource requirements. Ethiopia's position statement endorsed the technical synthesis.

Driving a Radical Shift in Ethiopia's Food Systems

Transforming Ethiopia's food systems and attaining Agenda 2030, especially SDG 2 ('Zero Hunger'), requires concerted and radical policy action. To achieve this, the Government of Ethiopia has developed the EFS around the Five UNFSS Action Tracks. These Action Tracks represent long-term outcomes for Ethiopia. These Action Tracks are supported by fourteen Action Areas, which represent intermediate outcomes specific to the needs of the Ethiopian Food Systems. These long and intermediate outcomes represent the bedrock of the EFS Plan. The fourteen EFS Action Areas are listed in Figure 4 below.

To achieve both the long-term and intermediate outcomes, Action Tracks and Action Areas, respectively, the Government of Ethiopia has identified game-changing solutions, each representing an idea that addresses a specific challenge within the Ethiopian Food Systems. The EFS mutually reinforcing game changers are designed to produce a significant impact by 2030 and be implementable at a scale sufficient to reach a large portion of the Ethiopian population and be sustainable in the medium to long term[2]. EFS game-changing solutions were collected through a national portal. The EFS Technical Committee reviewed these ideas and then discussed and prioritized them at the Second National Dialogue. Prioritized ideas were then clustered and developed into a full implementation plan by the EFS Technical Committee.

Figure 4: Action Tracks and Action Areas

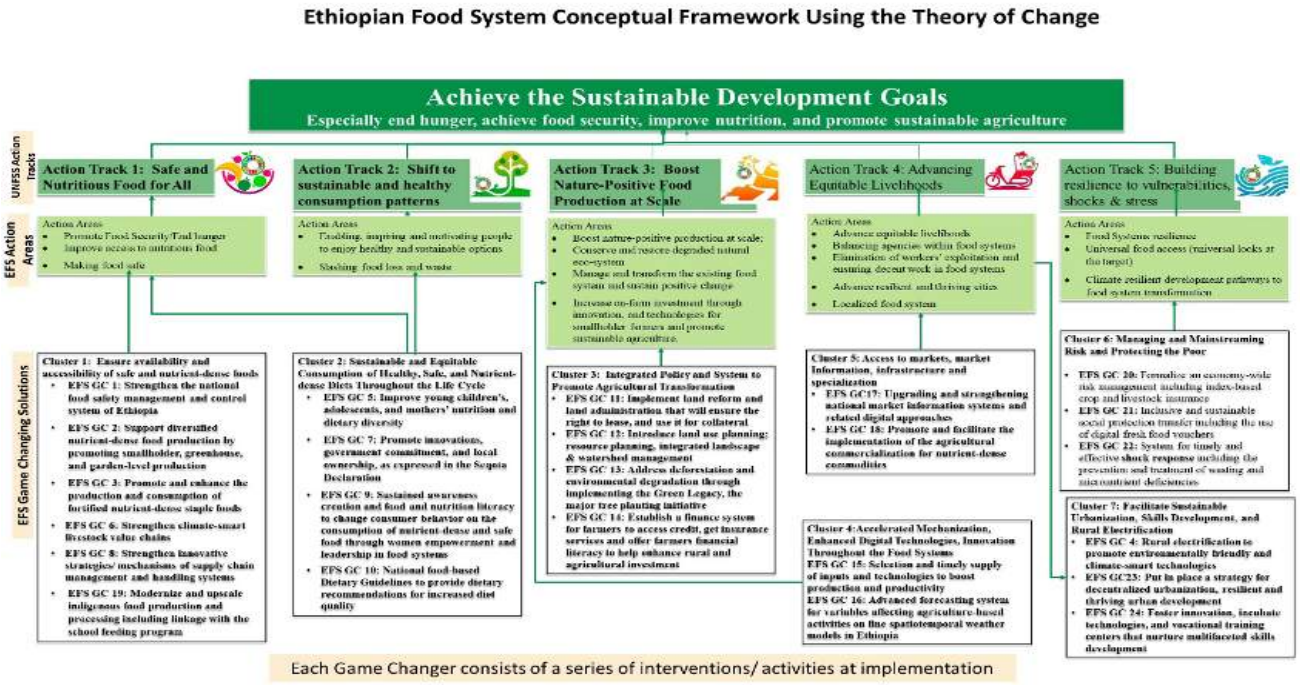
2 For more detailed reading, see Avelino, F., J. M. Wittmayer, R. Kemp, and A. Haxeltine. 2017. Game-changers and transformative social innovation. *Ecology and Society* 22(4):41. https://doi.org/10.5751/ES-09897-220441

After the Country Diagnostics study, the EFS works to address 24 Game-changing solutions, including additions. These are designed to address systemic bottlenecks in Ethiopia's food systems (see Chapter 3 for more detail on the game changers), mutually reinforce each other, and act across Action Tracks. The connection between these solutions is illustrated in Figure 5, which depicts this report's theory of change.[1]. A theory of change explains how the activities undertaken by an intervention contribute to a chain of results that lead to the intended or observed impacts.

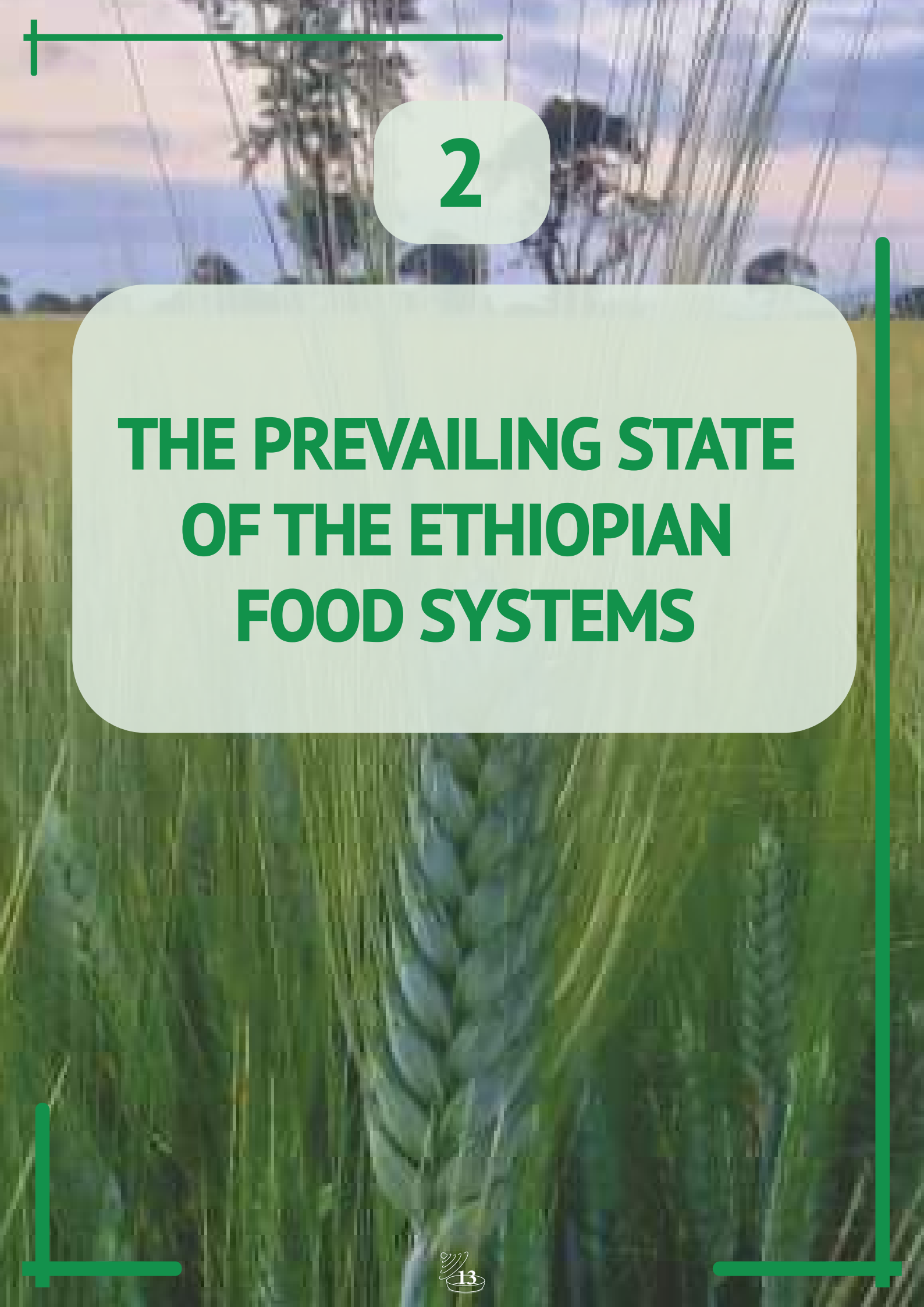
The EFS technical synthesis was prepared through significant collaboration between government departments and agencies, national and international NGOs and CSOs, UN bodies, international organizations, development partners, universities and research institutions, and private sector corporations. The government of Ethiopia would like to thank all those who submitted game-changing solutions, participated in the national dialogues, and participated in the country diagnostics exercise. The government would like to extend special thanks to the EFS Core Team and Technical Committee for their efforts in managing the EFS process and writing the Technical Synthesis and Position paper. Appreciation is also extended to development partners and allies who have supported the process. A complete list of participants and donors can be found in *Annex 1*.

This synthesis report constitutes Part I of the Ethiopian Food System Transformation, and Part II presents a Roadmap for implementation arrangement.

Figure 5: Ethiopian Food Systems Conceptual Framework using the theory of change



1 Anderson, A. The Community Builder's Approach to Theory of Change. A practical guide to theory development



2

THE PREVAILING STATE OF THE ETHIOPIAN FOOD SYSTEMS

2. The Prevailing State of the Ethiopian Food Systems

Structure of the prevailing Ethiopian food systems

This chapter aims to map the prevailing state of Ethiopian Food Systems and the key challenges that need to be addressed to accelerate transformation. The challenges discussed in this chapter are outputs of an EFS High-level Roundtable held in February 2021, which initiated cross-sectoral discussions. The Roundtable was informed by a background paper, *Informing the Ethiopian Food Systems' Transformation: Towards the UNFSS Plan of Action*, which outlined pertinent trends and synthesized existing research. EFS National Dialogue 1 was then held on 31st March and 1st April 2021, which brought together more than one hundred experts and stakeholders from across the Ethiopian government, bilateral and multilateral donors, NGOs, civil society, farmer groups, and trade associations, and the private sector (see *Annex 1* for a complete list of participants). The outputs of the National Dialogue 1 and its implications are synthesized to form Ethiopia's position paper, including the Implementation Roadmap.

Ethiopian Food Systems are transforming, driven by a fast-growing population, rising incomes, rapid urbanization, development of agro-processing industries, and climate change. This transformation needs to be shaped in a way that increases food availability and choice, promotes equitable incomes, and supports the adoption of healthy diets. However, significant challenges need to be resolved to achieve these outcomes. Changing demography and rising incomes will increase the demand for nutritious foods, placing increasing strain on finite arable land. Furthermore, increasing soil erosion and land degradation need to be addressed through increased use of regenerative farming practices that preserve and restore soil fertility and reduce reliance on chemicals such as pesticides. Production needs to be diversified to reduce monocropping and increase food choice and the availability of affordable, nutrient-dense foods. Livestock production must be expanded to improve access to nutritious animal-sourced foods without significantly increasing greenhouse gas emissions. The growing agro-processing sector must be supported to increase job creation and access to healthy and nutritious foods, such as biofortified foods. All this transformation must protect and enhance smallholder farmers' role and increase their incomes.

To feed and improve the health of a growing populace, Ethiopia must produce a more nutrient-dense food basket. Nutrient-dense food is defined as high in nutrients but low in calories, such as fruits, vegetables, whole grains, low-fat or fat-free milk, lean meats, beans, and pulses.[3] Nutrient-dense foods contain vitamins, minerals, complex carbohydrates, lean protein, and healthy fats. Examples of nutrient-dense foods include fruits and vegetables, whole grains, low-fat or fat-free milk products, seafood, lean meats, eggs, peas, beans, and nuts.

3 Definition of nutrient-dense food - NCI Dictionary of Cancer Terms - National Cancer Institute

Ethiopia must achieve all this whilst limiting the environmental impact of agriculture and livestock. An assessment conducted in 2011 by Community Development Research for the Global Methane Initiative indicates that, while CO2 and methane emissions (two of the most damaging greenhouse gases (GHG)) in Ethiopia have historically been low, emissions have proliferated over the past two decades in tandem with economic growth. As the agricultural sector evolves to deliver a more diverse food[4] and nutrient-rich food basket, food systems' contribution to national GHG emissions will grow. The Government of Ethiopia has initiated a Climate-Resilient Green economy initiative (CRGE, 2011) that identifies opportunities to reduce GHG emissions by 64% by 2030, compared to a business-as-usual scenario. This includes specific interventions for the agricultural sector. Current low productivity levels for crops and livestock mean that emissions per unit of production are higher than in equivalent high-productivity agricultural systems. Therefore, by increasing farm productivity, promoting the adoption of more sustainable regenerative farming practices, and reducing food losses, GHG emissions growth can be curbed, or at least contained, in Ethiopia.

The effects of climate change and environmental degradation are highly visible in Ethiopia through recurrent extreme climatic events such as droughts and floods. Land and soil degradation represents a major challenge to continued productivity, whilst deforestation has taken place at pace. To counter these challenges while increasing agricultural output, production practices must also become regenerative to counter land, soil, water, and forest degradation. Food systems transformation needs to take a holistic account of these realities.

Furthermore, as the food system transforms, it increases land and labor productivity, releasing surplus labor from the dominantly '*traditional*' and subsistence system to an increasingly commercialized system and residing in cities. To ensure the food systems provide equitable livelihoods, Ethiopia must foster and support the continued growth of small and medium-sized manufacturing and agro-food processing enterprises to provide additional employment and absorb surplus labor from agriculture and livestock.

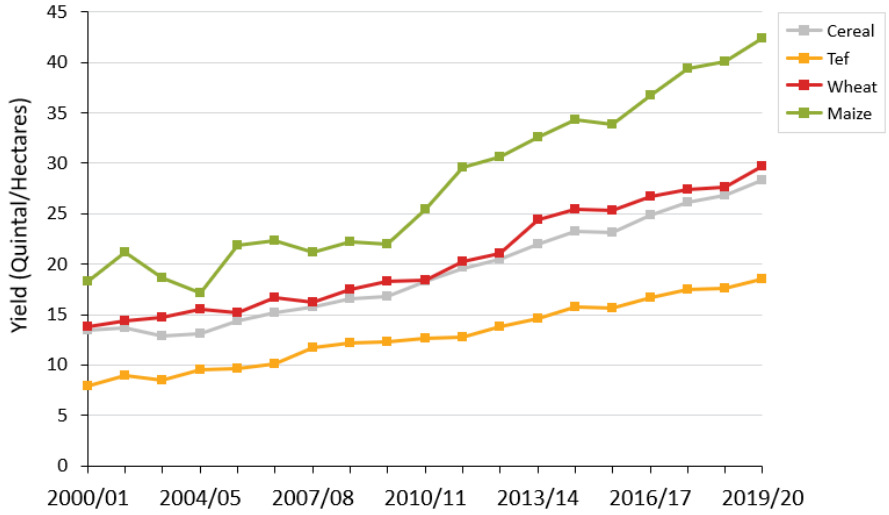
Transformed food systems are expected to induce the development of small and medium manufacturing and agro-food processing enterprises and urbanization, as is happening in Ethiopia. The emergence of such enterprises leads to specialization and commercialization, taking advantage of local conditions, such as livestock production, fruit, vegetables, pulses, or oilseeds production specialization.

4 Food and dietary diversification at the community and household levels include a range of food-based activities that can maximize the availability of adequate amounts and greater variety of nutritious foods. These activities include: promotion of mixed cropping and integrated farming systems; introduction of new crops (such as soybean); promotion of underexploited traditional foods and home gardens; small livestock raising; promotion of fishery and forestry products for household consumption; promotion of improved preservation and storage of fruits and vegetables to reduce waste, post-harvest losses and effects of seasonality; strengthening of small-scale agro-processing and food industries; income generation; nutrition education to encourage the consumption of a healthy and nutritious diet year round. Agriculture food and nutrition for Africa - A resource book for teachers of agriculture (fao.org)

Recent progress and advances in the Ethiopian food systems

Over the last two decades, Ethiopia has made significant progress in increasing staple cereal production to reduce hunger and undernutrition. Total cereal production increased 2.7 times from 10.9 million metric tons (mt) in 2000/01 to 29.7 million mt in 2019/20.[5] As Figure 6 shows, aggregate cereal crop productivity increased from 1340 kg to 2832 kg/ha, doubling the total production of cereals in two decades. The total area under cereal cultivation grew by 1.34% p.a., total production grew by 5.4% p.a., and cereal productivity grew by 4% p.a. since 2000/01[6]. Maize accounts for 32.5% of total cereal and 21.7% of total area under cereal, followed by wheat 17.9% of cereal production and 17.1% area, sorghum 17.4% of total cereal production and 17% of area, teff 19.3% of cereal production and 29.6% of total area, barley accounts for 8% of total production and 9.1% of area, finger millet 3.8% of production and 4.3% of area, and oats 0.2% of production and 0.2% of area. It is important to note that maize is the most dominant crop in total production, whereas teff dominates the area cultivated. As Figure 6 clearly shows, yield has increased significantly for all major cereal crops since 2000/1, which has helped increase production.

Figure 6: Cereal crop yield 2000/01 – 2019/20[7]



Consequently, total annual food consumption has increased from 288 kg per year in 1996 to 447 kg in 2011[8]With increased consumption, national hunger rates fell from 56% to 29% between 2000 and 2019, and the percentage of chronically undernourished children (with insufficient dietary energy) declined from 58% to 37%. Such progress has resulted in lower mortality rates and improved life chances for millions of families and their children.[9]

Similarly, pulses and oil seed production have grown significantly over the past two decades. Pulses represent a critical source of protein and minerals such as iron, zinc, selenium, phosphorous, and potassium. Figure 7 below shows that increased pulse crop production has been supported by strong yield increases across all key pulse crops.

5 CSA

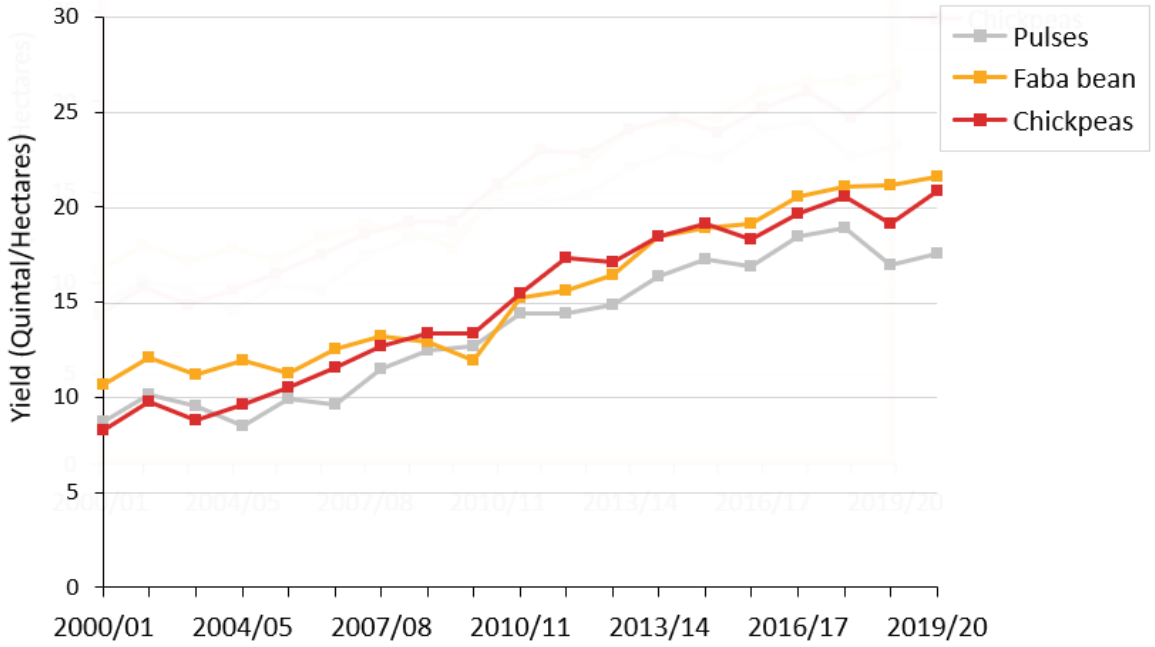
6 Diriba, 2020. Agricultural and Rural Transformation in Ethiopia. Obstacles, Triggers and Reform Considerations.

7 Diriba, 2020. Agricultural and Rural Transformation in Ethiopia. Obstacles, Triggers and Reform Consideration. Policy Working Paper No.01/202. Ethiopian Economics Association. The data is updated using CSA data

8 HCIS

9 Ethiopian Public Health Institute (EPHI) [Ethiopia] And ICF. 2021. Ethiopia Mini Demographic And Health Survey 2019: Final Report. Rockville, Maryland, USA: EPHI And ICF; GHI, 2018

Figure 7: Pulse crop yield 2000/01 – 2019/20[10]



Oil seeds are very important for sustainable food and nutrition as they constitute the sources of oils, protein, fat, and carbohydrates. They are essential food complements in the form of accompaniments of Ethiopia's staple food. Overall, the area under oilseed cultivation has been growing at a rate of 3.4%, production at 6.6%, and yield per hectare at 3% over the past two decades (see Figure 8). However, despite sustained growth in production and productivity, oil seed production in Ethiopia is far below national demand. Domestic oil processing factories operate at low capacity due to limited oil crop availability and the fact that most vegetable oils are not being processed in the country.

As overall poverty levels have reduced, dietary diversity has increased. Cereals' share of total household food expenditure declined from 47% in 2000 to 33% in 2017, expenditure on fruit and vegetables increased from 4.5% to 7.9%, and expenditure on animal-sourced foods increased from 7.9% to 11.3% over the same period.[11]

Increased consumption, dietary diversity, and significant governmental and civil society focus on improved nutrition have delivered significant health advancements. The percentage of families that are food and energy-deficient has decreased from 64% in 2000 to 40% in 2016, and the proportion of underweight children declined from 41% to 24% in the same period.[12]

Furthermore, the transformation of food systems has driven tangible economic benefits. Average farmer incomes have risen significantly, driven by an increase in the real value of agricultural commercial surplus, which has doubled over the last decade, from 8 billion to 16 billion Birr.[13] This has helped reduce rates of rural poverty from 47% in 1999/2000 to 28% in 2015/16.[14]

10 Diriba, 2020, ibid.

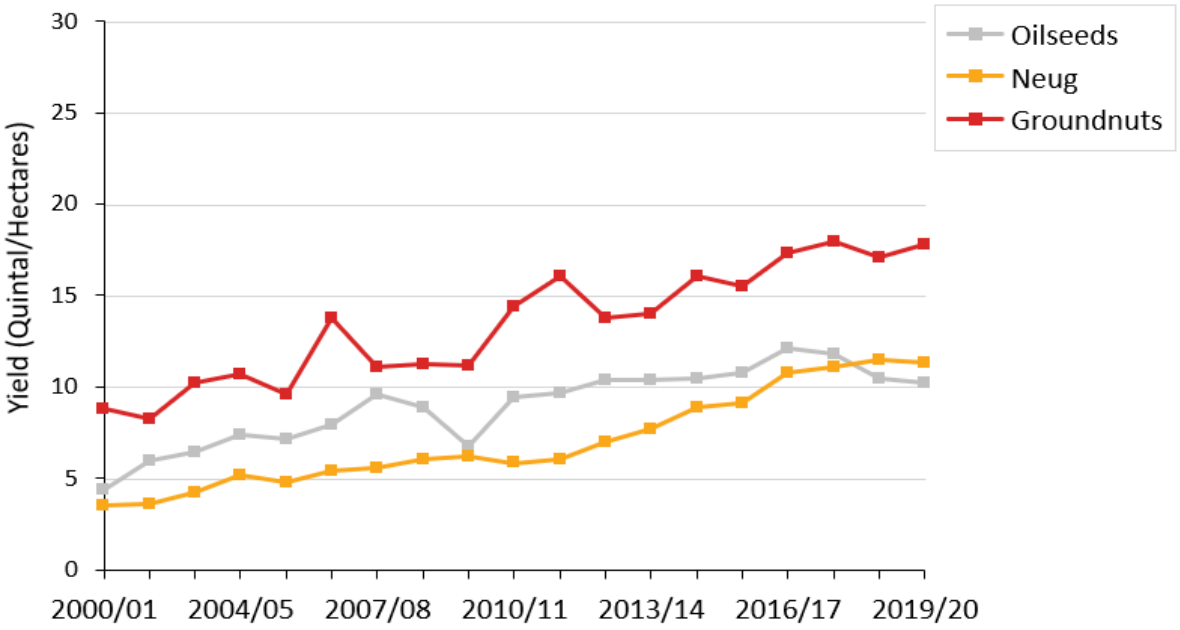
11 IFPRI Evolving food systems in Ethiopia: Past, present and future, 2018

12 Ministry of Health, Food and Nutrition Policy, 2018; UNICEF, Ethiopia Nutrition Report, 2019

13 IFPRI Evolving food systems in Ethiopia: Past, present and future, 2018

14 IFPRI, Ethiopia's Agrifood System: Past trends, present challenges, 2020

Figure 8: Oilseeds yield 2000/01 – 2019/20[15]



Increased marketable surpluses have led to more significant development of commercial food markets and the emergence of modern food distribution and retail infrastructure. Private sector agricultural investment has increased significantly in the last decade, with formal agribusiness' share of GDP growing from 5% in 2012 to 13% in 2018.[16] This investment has led to a rapid growth in the number of agro-processors, albeit from a low base. Between 2007 and 2017, the number of dairy processors in Ethiopia increased from 8 to 25, whilst the number of licenses granted to new flour processing plants increased from 15 per year to more than 50 over the same period. Increased agricultural marketization is serving to increase food availability and reduce price seasonality for staple crops.[17]

This serves to demonstrate the rapid food systems transformation achieved by Ethiopia over the past two decades. Significant production increases have led to increased consumption, heightened dietary diversity, improved health outcomes, and more substantial development of food markets. However, despite rapid progress, many vestiges of the '*traditional'* food systems persist. Significant challenges persist that will need to be addressed to ensure the rate of progress does not stagnate but accelerates.

15 Diriba 2020. Ibid.

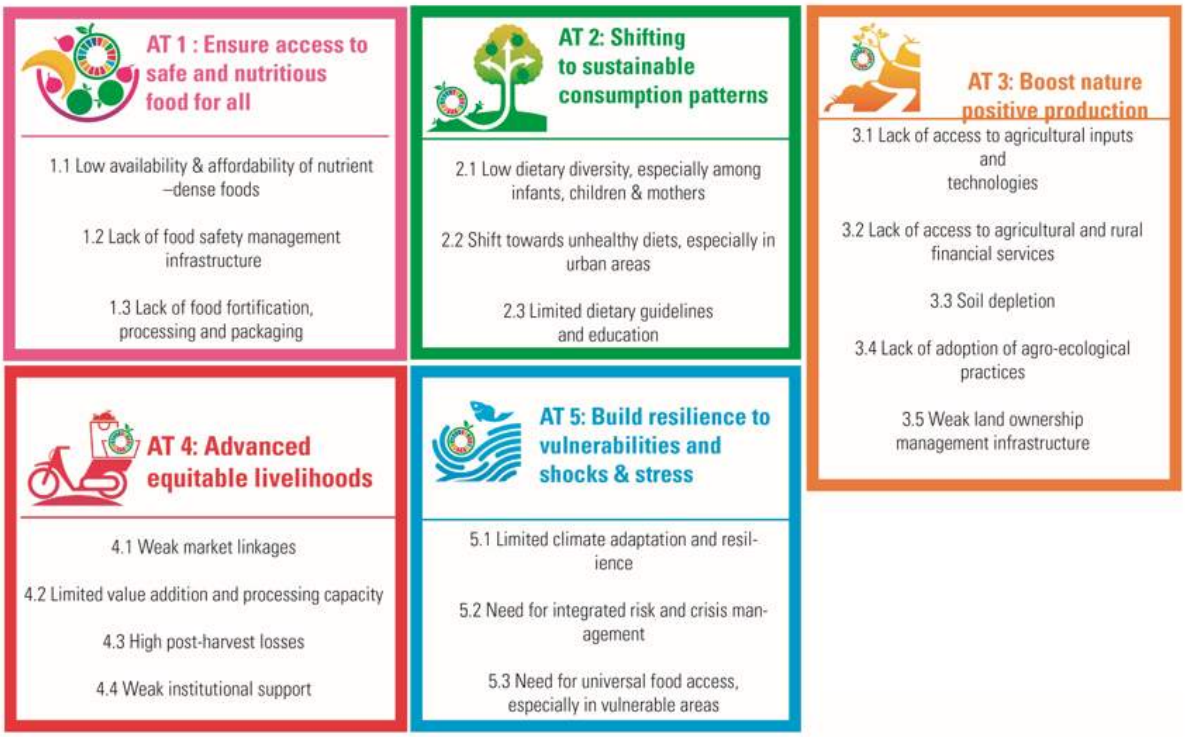
16 UNIDO, Agro-Industrial Parks in Ethiopia, 2018

17 IFPRI Evolving food systems in Ethiopia: Past, present and future, 2018

Challenges to address

Despite the rapid progress across the Ethiopian Food Systems in the last decade, significant challenges remain at each stage, from production to retail and consumption. These challenges need to be addressed to accelerate food systems transformation and development and improve outcomes from production through consumption to ensure the availability of safe and nutrition-rich foods. At Dialogue 1, participants identified 18 critical challenges aligned with the UNFSS Action Track (see Figure 9). These challenges are detailed in the Action Track below.

Figure 9: Systemic Challenges to Ethiopia's Food Systems



Action Track 1: Ensure access to safe and nutritious food for all

Firstly, Ethiopia faces the continued challenge of feeding a fast-growing population. Production growth is starting to slow. Growth over the past two decades has been driven by strong yield growth and an increase in land under cultivation. Yield growth is now slowing, with cereal yield growth declining from an average of 6% p.a. between 2005 and 2016 to less than 4% p.a. from 2016 to 2019.[18] Issues such as poor soil quality, a lack of availability of high-quality seeds, low usage of agricultural technology, and high post-harvest losses will be required to drive high-yield growth in the future. Furthermore, significant potential exists to increase yields by increasing the proportion of irrigated land. Nonetheless, these challenges will need to be addressed to ensure the continued yield increases required to feed a population growing at 2.7% a year.[19]

18 World Bank, 2018

19 UN Populations Division, World Population Prospects, 2019

The availability and affordability of safe and nutritious foods are particular challenges. Despite increased diversity of production, cereals still account for nearly 75% of total land cultivated and over 60% of total agricultural output by volume, leading to a lack of availability of more nutrient-dense crops such as fruits, beans, and pulses. Furthermore, the supply and prices of fruit and vegetables fluctuate seasonally, with particularly low availability between June and September. This significantly restricts the possibility of ensuring sustainable consumption patterns year-round. This contributes to Ethiopia having a low intake of fruits and vegetables, with the average household in Ethiopia consuming 42kg per person annually, less than 30% of the recommended amount.[20]

The availability of animal-sourced foods also represents a significant challenge. Despite having the largest livestock population in Africa, Ethiopia's livestock productivity is low due to a range of factors, including low feed availability, limited access to health services, the predominance of less productive breeds, and other factors that inhibit the strength of livestock value chains. [21] Consequently, access to animal-sourced foods is limited, and consumption is low. Ethiopian adults' per capita milk consumption is 16.6 kg per year, and for meat, it is 7.5 kg per year. These figures are considered very low, even by Sub-Saharan African standards.[22]

A large causational factor in Ethiopia's low levels of dietary diversity is the limited purchasing power possessed by many consumers. One in four (24.8 %) households in Ethiopia fall below the food poverty line, and 25.5% of individuals are food insecure. Consequently, starchy staples, the cheapest energy source, contribute the highest share of the energy intake (71.4 %).

Food safety is a critical challenge, as is the low availability and affordability of nutrient-dense foods. Low levels of food safety represent a significant health challenge, leading to a high prevalence of food-borne diseases (FBDs), especially diarrheal conditions, which currently account for 93% of FBD cases and drive significant medical and non-medical expenses for sufferers.[23] Ethiopia currently has limited infrastructure to monitor and enforce food safety standards. The Ethiopian Standards Agency (ESA) and the Ethiopian Food and Drug Administration (EFDA) require additional support to continue to improve food safety standards throughout the country.

Recently, Ethiopia approved food fortification as mandatory for wheat flour and edible oil. While this is an important milestone, Ethiopia lacks food fortification, processing, and packaging capacity. Increasing both fortification and biofortification levels can significantly increase nutritional outcomes and reduce micronutrient deficiencies. Furthermore, additional processing and packaging capacity can reduce levels of post-harvest loss and improve access to nutrient-dense foods.

20 IFPRI, Promoting fruit and vegetable intake in Urban Ethiopia, 2019

21 USAID, Looking beyond productivity: barriers to animal-sourced food consumption in Ethiopia, 2018

22 Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Reference Life Table. Seattle, United States of America: Institute for Health Metrics And Evaluation (IHME), 2021. DOI HTTPS://DOI.ORG/10.6069/1D4Y-YQ37

23 Havelaar, A. H., Kirk, M. D., Torgerson, P. R., Gibb, H. J., Hald, T., Lake, R.J. et al. 2015. World Health Organization Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010. PLoS Med 12(12): e1001923. https://doi.org/10.13

Action Track 2: Shift to Sustainable Consumption Patterns

In terms of consumption, although significant advances have been made in increasing overall consumption and nutrient intake, dietary diversity remains low. The challenge is particularly pronounced among infants, children, and mothers. According to the 2016 Ethiopia Demographic and Health Survey (EDHS), only 12.8% of children 6-23 months of age met the Minimum Dietary Diversity of 5 food groups out of eight.[24] Only 2.4% of the adult population meets the WHO recommendation of five servings of fruits and vegetables per day).[25] The 2016 national micronutrient survey also indicated that anemia, zinc, vitamin A, folate, and vitamin B12 deficiencies are at the level of public health concern. More than half of children at the age of 6-59 months (57%) and 24% of women aged 15-49 years were anaemic.[26]

In contrast, challenges of over-consumption of non-nutritious foods are growing, especially in urban areas. Salt consumption is above the WHO threshold of 5 grams per day in every region of Ethiopia. The national average salt intake is 8.2 g/day.[27] The low diversity of the national diet, food safety concerns, and unhealthy salt and sugar intake trends could explain the increase in non-communicable diseases stretching the health system. Indeed, about 5% of the adult population is diabetic, and close to a third of the Ethiopian adult population has high blood pressure. From 2009 to 2019 alone, the cause of death and disability related to dietary risk factors increased by 18%.[28]

A major contributing factor to the prevalence of unhealthy and unsustainable consumption patterns in Ethiopia is the lack of nutrition and dietary education and guidelines. A guideline has been developed and is being distributed. Further resources will need to be invested in increasing training and education on balanced diets per the guidelines on recommended consumption patterns.

24 CSA (Central Statistical Agency)[Ethiopia] and ICF, 2016. Ethiopia Demographic and Health Survey 2016, Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF

25 Baye, K. & Hirvonen, K. 2020. Accelerating progress in improving diets and nutrition in Ethiopia; ESSP Strategy Support Program | Working Paper 144; Washington, DC

26 CSA (CENTRAL STATISTICAL AGENCY)[ETHIOPIA] AND ICF, 2016. ETHIOPIA DEMOGRAPHIC AND HEALTH SURVEY 2016, ADDIS ABABA, ETHIOPIA, AND ROCKVILLE, MARYLAND, USA: CSA AND ICF

27 Challa, F., Tadesse, W., Mudie, K. & Zeleke, G. 2019. Urinary sodium excretion and determinants among adults in Ethiopia: Findings from National STEPS survey August 2019, Ethiopian Journal of Health Development 31(Special):371-377

28 Global Burden Of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD 2019) Reference Life Table. Seattle, United States of America: Institute for Health Metrics And Evaluation (IHME), 2021. DOI HTTPS://DOI.ORG/10.6069/1D4Y-YQ37

Action Track 3: Boost nature-positive production

Ethiopia has one of Africa's most biodiverse agricultural land systems, but intensive agriculture also makes it one of the most degraded.[29] Ongoing deforestation and soil depletion, salination and erosion, biodiversity loss, and increasing water scarcity challenge the food systems' continued transformation. Agricultural intensification has driven significant soil depletion and salination across all agro-ecological regions. Soil depletion represents an additional major challenge for Ethiopia. Ethiopia's major causes of land and soil degradation are agricultural intensification, severe soil loss, deforestation, low vegetative cover, and unbalanced crop and livestock production. For nature-positive production and environmentally sustainable development, there is an urgent need to improve land planning, resource planning, and watershed management to conserve land and soil health and preserve agricultural lands for future generations.

Ethiopia must address the shortage of agricultural inputs and technologies to increase productivity while conserving and restoring degraded land. Access to high-quality and drought-resistant seed varieties is limited. Although fertilizer use has improved significantly over the past decade, fertilizer per hectare is six times lower than in India and twenty-two times lower than in China. Given the country's diversity of soil types, there is also a lack of nutrient blends suitable for all soil types.[30]

Levels of mechanization are deficient. Using agricultural equipment such as row planters, combine harvesters, and tractors is low and cost-prohibitive. Furthermore, access to irrigation can significantly increase productivity and preserve soil health remains limited. As Table 1 shows, there are 11,000 tractors with 70-180 hp plus 3,000 tractors with 40-65 hp. That is 14,000 tractors and 1,800 combined harvesters to 12.86 million hectares under cereal, pulses, and oilseed cultivation. That is 918.8 ha to a tractor and 7,145 ha to a combine harvester. This is the lowest ratio compared to the world and sub-Saharan Africa (see Table 2). Similarly, the milk processing equipment of 1,250 is unmatched by the country's total number of dairy cows.

Table 2: Agricultural Machineries and Services Data, 2020, Ministry of Agriculture

Types of Agricultural machineries and Services	Number	Remark
Agricultural combine harvesters	1,800	All machinery is owned by both private & and public-based agribusiness in all regions (but machinery above 200Hp, primarily found in sugar industries, is omitted)
Agricultural tractors, 70-180 HP, including accessories	11,000	
Agricultural tractors, 40-65 hp with accessories	3,000	
Irrigation water pumps with 5-15 hp with accessories	240,000	
Engine-driven multi-purpose threshers	15,000	
Engine-driven maize shellers	5,000	
Self-propelled rippers, riper binders/ harvesters, maize shellers	2,600	
Walking Tractors	3,200	
processing mills, rice hullers, inset processing equipment	800	Owned by groups, individuals
milk processing equipment /centers	1,250	
Machinery operation/ driving and maintenance technicians training colleges	8	3 Public (Alegena, Kulumsa and Alage) and 5 Private

Source: Ministry of Agriculture

29 Lemlem Tajebe, Status, Challenges and Opportunities of Environmental Management in Ethiopia, 2018

30 IFPRI, Ethiopia's Agrifood System: Past trends, present challenges, 2020

In addition to productivity enhancement and nature-positive inputs and technologies, the adoption of innovative agroecological practices is low. Existing extension services primarily focus on techniques that boost yield rather than strategies that support environmental production. Existing extension often takes a 'one size fits all' approach, and it is necessary to ensure that extension and the production practices they encourage are appropriate to a specific region and its agroecology.

Access to agricultural and rural financial services is key to increasing access to inputs and technologies and improving land management and agroecological practices. Farmers lack access to financing, which is essential to facilitate investment in productive technologies and equipment. This lack of financial institutions explicitly serving Ethiopia's vast smallholder farmer population has prevented households from capitalizing on their farms, preventing them from increasing incomes. The Agricultural Transformation Agency's annual survey showed that only 28% of smallholder farmers reported access to financial services.[31]

Boosting nature-positive production in Ethiopia also requires addressing the major challenge of land availability and management. Low productivity and agricultural yields have meant that rapid expansion in agricultural land has been required to ensure production can meet the demand of a fast-growing population. Total land under cultivation increased by nearly 2% per year between 2001 and 2013.[32] Therefore, the availability of cultivable land in Ethiopia is likely to be a major problem shortly. With a large and fast-growing population, land availability is scarce, with an estimated 66% of all potential cropland under cultivation.[33] Especially notable is that the number of holders owning less than 0.1 ha of land (1000 square meters) is growing at a rate of 8.4% per year; this size of landholding is insufficient to sustain food security.[34] The number of landholders in other categories of land size has grown during the same time, the largest growth rate being in the land category of 0.1-0.5 ha, which grew at a rate of 4.5% per annum (see Figure 10). The growing land scarcity combined with an increasing population has led to a decrease in average farm size, with the average small farm currently covering just 0.65 hectares among crop growers, leaving farmers reliant on agricultural intensification, which represents a significant challenge to land conservation and ensuring sustainable, nature positive production.[35]

31 ATA, 2021 FPC Farmer Survey, 2021

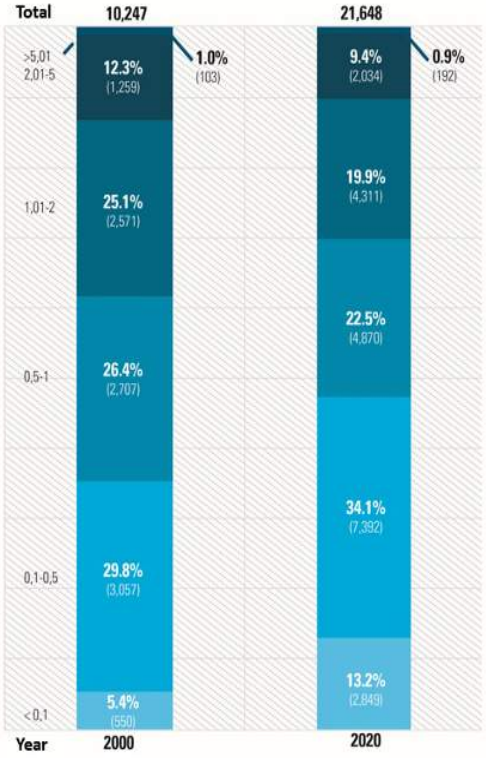
32 IFPRI, Ethiopia's Agrifood System: Past trends, present challenges, 2020

33 IFPRI, Ethiopia's Agrifood System: Past trends, present challenges, 2020

34 Diriba 2018, Overcoming Agricultural and Food Crises in Ethiopia.

35 FAO, The Economic Lives of Smallholder Farmers, 2015

Figure 10: Trends in agricultural holders across land holding size, 2000-2020[36] (holders in '000)



Land holding size	Growth rate
>5,01	3.2%
2,01-5	2.4%
1,01-2	2.6%
0,5-1	3.0%
0,1-0,5	4.5%
<0,1	8.6%

The prevailing property rights and public land ownership have produced land fragmentation, persistently declining land per capita, and an increasingly effective landless population. High levels of land fragmentation prevent land management and coordination and restrict the application of mechanized farming or obtaining long-term capital investment on land.[37] To address the challenges of decreasing plot size and growing land scarcity, reform and the permission of leasing and the use of land for collateral will be essential. This will also address the challenges of weak land management and ownership infrastructure.

Action Track 4: Advance equitable livelihoods

Advancing equitable livelihoods while delivering nutrition, health, and environmental outcomes requires strengthening an enabling environment and institutional settings for the vulnerable actors in the food systems in the different livelihood and agroecology zones in Ethiopia. To achieve this, the lack of production diversity and cultivation of nutrient-dense foods need to be addressed, along with activities across the food system (postharvest handling, value addition, processing, formal and informal markets). Women, youth, smallholder farmers, and enterprises dominate these diversified activities. Women are the primary workers in small-scale horticulture production and processing.

36 Diriba 2020. Agricultural and Rural Transformation in Ethiopia; Obstacles, Triggers and Reform Considerations. EEA

37 Diriba, 2020. Ibid.

These vulnerable actors face entrenched institutional and social norms and practices that limit their access to inputs, land, finance, technologies, and innovations to enhance their sustainable livelihoods. Thus, transformation means revitalizing pathways of their access to, use of, and control of resources (land, distribution corridors, division of labor, decision-making power); their access to stable markets (including fair and consistent prices); strengthening sustainable consumers, processors, retailers' choice patterns; resilient working environments.

To ensure safe and nutritious foods for all at affordable prices and improve nutritional and health outcomes, Ethiopia will need to develop not only its production capability but also its food market infrastructure and the challenge of weak market linkages throughout the country. In addition to limiting production losses, farmers require simple access to fair markets so that goods can be sold at a fair and cost-recovery price. This, in turn, will help increase incomes for those who depend on the food system for their incomes. Agribusiness and food retail have developed significantly over the last decade. However, only a small minority of farmers are fully commercial. Given the size of Ethiopia, commercialization is hindered by long value chains typically comprised of large numbers of private traders. Long chains between farmers in rural areas and processors in urban and peri-urban locations limit income potential, driving high post-harvest losses and increasing agricultural prices.[38] Significant investment will be required to support private actors directly supporting farmers, such as input manufacturers. Additional action will be needed to support aggregation and transportation facilities and encourage investment and financial support for agro-processors and retailers. Supporting farmers in accessing reliable and equitable markets, efforts will need to be made to drive job creation in the broader Ethiopian food system, where limited capacity for processing and value addition currently exists.

An effective food system must deliver nutrition, health, and environmental outcomes to provide equitable livelihoods to those whose income depends on food markets. To achieve this, issues with production and post-harvest agricultural losses must first be addressed. According to a 2017 FAO study, post-harvest losses for staple cereals ranged from 14 to 27% of total production, which limits total output and erodes farmer incomes.[39] Limiting agricultural losses will require improving the efficiency of distribution networks and increasing access to storage technologies, which are currently unaffordable to many farmers.

Finally, institutional and regulatory guardrails are currently limited. A regulatory environment will be required to support genuinely equitable markets and ensure fair value pricing for producers, manufacturers, and retailers. This must include improved farmer financial literacy and access to market information to limit price fluctuations and improve smallholder farmers' ability to sell their produce at a fair and consistent price.

In addition to these challenges, driving equitability requires balancing agency within Ethiopia, specifically supporting women, young landless households, and other groups through skills development and urbanization strategy. Rural-to-urban migration will rise further, fuelled by the food systems transformation.

38 UNIDO, Agro-Industrial Parks in Ethiopia, 2018

39 FAO, Postharvest loss assessment of maize, wheat, sorghum and haricot bean, 2017

Action Track 5: Build resilience to vulnerabilities, shocks, and stress

Ethiopia is experiencing increasing global warming and a growing frequency of climatic shocks and events, heightening Ethiopia's already high vulnerability to drought and food shortage. Twice in the last fifty years, widespread drought and crop failures have led to famine (1972-4 and 1984-5). Increased adaptation to the effects of climate change and natural events will be required going forward, as climate scientists predict Ethiopia will experience heightened temperatures, changes to season duration and seasonal precipitation, and increased frequency and intensity of extreme weather events. The scale of these challenges may be exacerbated by the ongoing degradation of rural environments through deforestation and land degradation, and limited structures exist to restore agricultural and post-industrial land. To drive adaptation and resilience, the current shortage of climate-resistant inputs and technologies will need to be addressed. Access to climate-resistant crop varieties and seeds will need to be expanded, whilst increased research into climate-smart techniques and technologies will be required, as well as a significant extension to raise awareness and uptake of new practices.

Furthermore, increased disaster risk preparedness will be needed to mitigate the impact of shocks and stresses. Effectively managing risk within the Ethiopian food system is critical to ensuring food security nationwide. Currently, limited infrastructure exists to provide insurance or immediate economic support to individuals in areas affected by sudden shocks. Too often, a siloed approach is taken to risk and crisis management.

Finally, universal food access must be ensured across the country to ensure food security in the aftermath of natural disasters or shocks. The EFS must incorporate nutrition-sensitive shock responses and develop and evolve the Productive Safety Net Program to ensure greater social protection measures, especially to cover infants, children, mothers, and others particularly vulnerable to malnutrition in vulnerable areas.

Overall, there are numerous challenges to address across the five UNFSS Action Tracks. However, each challenge represents an opportunity to accelerate transformation across the food system and remove systemic constraints that have inhibited Ethiopia's ability to provide safe and nutritious food, drive sustainable consumption patterns, produce food in a nature-positive manner, and advance equitable livelihoods while also building resilience to shocks.

The challenges identified by the EFS process will be used in devising the game-changing solutions discussed in Chapter 3 below.

3

THE FUTURE STATE: COMMITMENT TO TRANSFORM ETHIOPIA'S FOOD SYSTEM

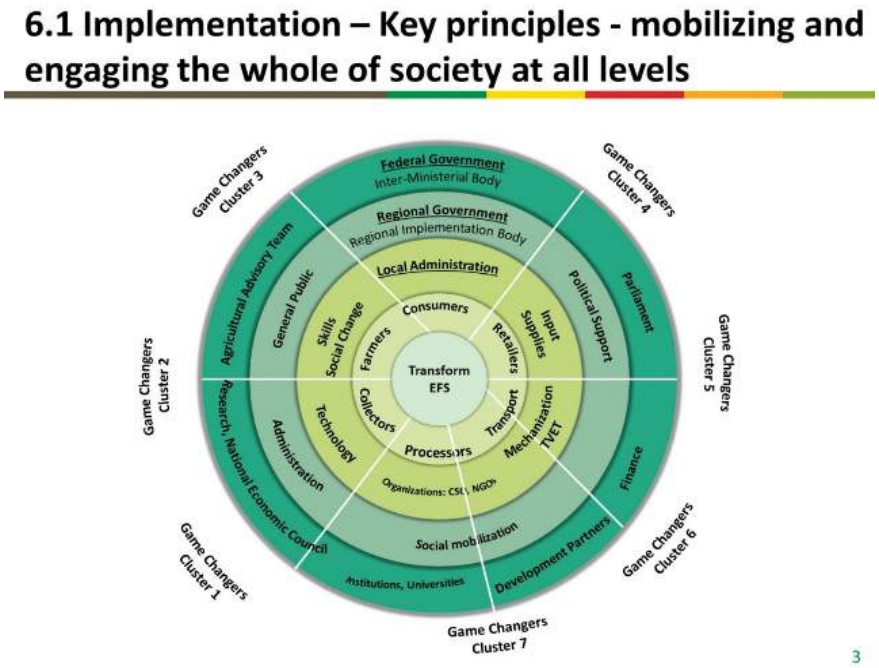
3. The Future State: Commitment to Transform Ethiopia's Food System

Our Approach

The Whole of Society

The whole-of-society approach builds on the present state of the Ethiopian Food System (*as outlined in Chapter 2*). Then, it details how specific game-changing solutions, building on existing and evolving policies, institutions, and programs, are implemented to drive wholesale society transformation. Implementing the EFS will be complex and requires all actors in the food system chain to be committed, cohesive, and synergistic. Implementing EFS entails the participation of the whole society and national and international partnerships. The period of implementation of the EFS coincides with internal conflicts and, in some cases, post-crisis recovery and reconstruction efforts. While the EFS is fully in synch with recovery and reconstruction efforts, careful attention shall be made to ensure they are mutually self-supporting. The whole-of-society approach is needed to roll out the EFS (see 11).

Figure 11: The Whole of Society Approach



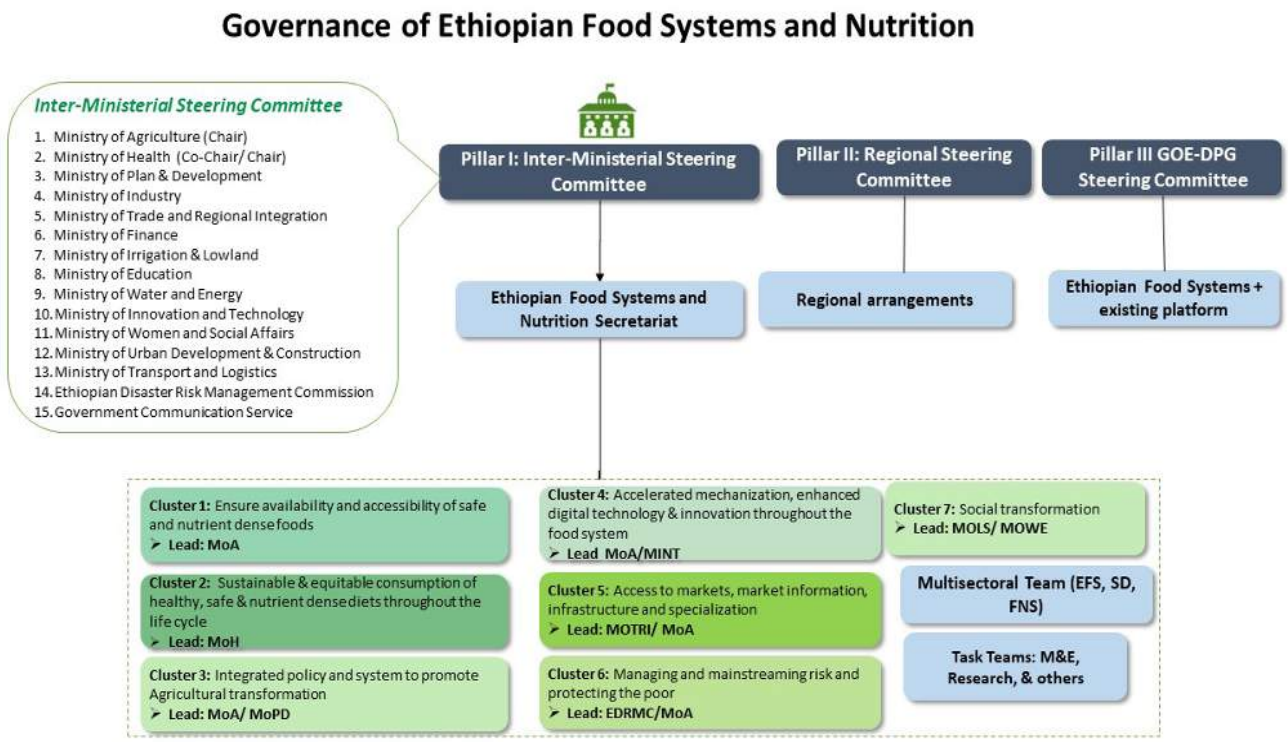
Governance of Food Systems Transformation

There have always been concerns about whether the Ethiopian government is wholeheartedly committed to the transformation agenda and whether all the private sector (farmers, investors, technologists/ innovators, input suppliers, aggregators, processors, distributors, retailers, innovators, Universities, research institutions) will have the space necessary to play their respective parts. Implicit in the approved coordination framework and the Home-Grown Economic Policy, Ethiopia is committed to transforming its food system. Due to a growing youth bulge, environmental pressure, and climate change, Ethiopia cannot afford to delay this process. The public and private sectors and many actors will be critical to this transformation.

The EFS coordination consists of three pillars: federal, Regional, and Partnerships (see Figure 12). The government's highest decision has approved the coordination pillars. Within each pillar, the private sector, research institutions, universities, civil society organizations, Non-Governmental Organizations (NGOs), and the general public will be crucial building blocks across the food systems chain.

The Inter-Ministerial Steering Committee (IMSC), consisting of 15 ministries, was launched in June 2023, and efforts are underway to roll out the remaining pillars. Coordination is very crucial to synchronize the efforts of different individuals, groups, or departments to achieve a common goal. It helps to communicate areas of importance and priority so that everyone knows what to do and when to do it; guide and motivate the team members by providing feedback, recognition, and support; utilize the resources effectively by avoiding duplication, wastage, and conflicts; enhance the performance and productivity by ensuring quality, timing, and harmony of work; and expand the capacity of implementing the EFS by adapting to changing environments and community needs at local levels.

Figure 12: Governance Pillars of the Ethiopian Food Systems and Nutrition



Sustained Socialization, Communication, and Technical Support

The EFS requires continual socialization and communication at all stages of implementation. Socialization action focuses on:

- Political and operational buy-in: taking EFS to Regions, the Council of Ministers, and the Parliament and begin to operationalize EFS
    - Socialize EFS to relevant government directorates; Agricultural and health advisory teams; the National Economic Council; donors and other partners; private sector actors, philanthropists, coalitions, etc.;
    - Communication and awareness raising and media campaign for the Ethiopian public;
    - Translate the EFS design document into Amharic, Afar, Oromia, Somali, etc. before regional socialization

- Continual learning at each stage of implementation, which will require refining and harmonizing game-changing solutions
- Prudent use of resources to support rollout action by repurposing existing funds, fundraising new money

Establishing a Technical Support Team as an integral part of the Secretariat, consisting of core technical experts to help roll out EFS and produce practical guidance for all food systems actors is essential. Such a technical support team will provide strategic inputs and policy decision support tools for the Inter-Ministerial Steering Committee deliberations. The Ethiopian food system transformation produced 24 Game-Changing solutions to help transform the Ethiopian food system, of which six are designated as critical enablers. These critical enablers require strong, unified, and prioritized policy commitments, and implementing them will require evidence-based analysis of each of the six critical enablers. What is needed is rigorous analytical work to back up policy choices and mobilize political commitments to act on each of the critical enablers. Socialization calls for establishing knowledge hubs, including:

- Create a dedicated webpage for EFS (structure, content, display system)
- Implementation activities and progress report
- Progress and implementation by regions, Woreda, and localities

Clustering Game-changing solutions

After the First and Second National Food Systems Dialogues concluded in March, April, and May 2021, the Ethiopian government focused on identifying, selecting, and refining game-changing solutions in close collaboration with various governmental and non-governmental stakeholders. Following the First National Dialogue, national and international food systems experts identified, evaluated and shortlisted an initial longlist of 85 game-changing solutions submitted through an online portal in two waves. The initial list of solutions was then distilled down to 33 high-priority game-changing solutions discussed and evaluated at the Second National Dialogue. Following the Second National Dialogue, game-changing solutions were refined and merged by the EFS Technical Committee and the Core Team to leave a final list of 24 solutions after a recent update based on country diagnostics.

Since the Ethiopian government adopted the EFS in July 2021, the core team continued its work under the leadership of the Conveners. In November/ December 2023, a Country Diagnostics was conducted to map resources and organizations across the game-changing solutions, which added two game changers.

These game-changing solutions form the basis of the EFS Technical synthesis, position statement, and Roadmap.

The 24 game-changing solutions were then clustered into seven:

i) Ensure availability and accessibility of safe and nutrient-dense food;
ii) Sustainable and equitable consumption of healthy, safe, and nutrient-dense diet throughout the life cycle;
iii) Integrated policy and system to promote agricultural and rural transformation;
iv) Accelerated mechanization, enhanced digital technologies, and innovation throughout the food system;
v) Access to markets, market information, infrastructure and specialization;
vi) managing and mainstreaming risk and protecting people with low incomes; and
vii) Facilitate and ensure sustainable urbanization, skills development, and rural electrification

The Ethiopian Food System's Technical Synthesis is built on these seven solution clusters and aspires to attain the Sustainable Development Goals as expressed in the five long-term outcomes articulated in the UNFSS Action Tracks (long-term outcomes) and Action Areas (intermediate outcomes) within the UN Food Systems framework. This chapter outlines the rationale for each cluster. The clustering of game-changing solutions is intended to form coherent groupings of related technical and policy actions to foster a cohesive agenda around which coalitions of domestic and international institutions can be created. While most clusters primarily relate to one Action Track, many support the aims of multiple Action Tracks.

Each cluster of game-changing solutions seeks to address critical challenges identified in Chapter *2*.[40] Addressing these long-term challenges will transform Ethiopia's food systems. Food system transformation is expected to drive the shift from subsistence-oriented staple food production towards more specialized market-oriented production, facilitated by increased farm specialization, input use, and agricultural technologies to increase labor productivity and marketable surpluses.[41] More specialized, equitable, and efficient agricultural production will inevitably lead to a significant proportion of rural populations diversifying their incomes beyond farming and earning reliable incomes through on and off-farm agricultural businesses and markets. This transformation should be directed towards improvement in diets, nutrition, and overall societal health through strengthened social awareness and regulatory nutrition standards. Facilitating this transformation will require significant growth in value addition and agro-processing as a proportion of total agricultural output, as well as more significant aggregation of small farms and increased availability of agricultural technologies, improved supply chain infrastructure, and greater integration of agriculture and livestock into the broader economy.

At its most fundamental level, food systems transformation is about driving positive changes in the quality of lives of rural and urban populations through improved food availability and nutritional outcomes. Within this broader articulation, the EFS transformation seeks to achieve the following intermediate outcomes; most immediately, the game-changing solutions are designed to bring about 14 intermediate outcomes or what has been referred to as Action Areas within the UNFSS processes (see Figure 3).

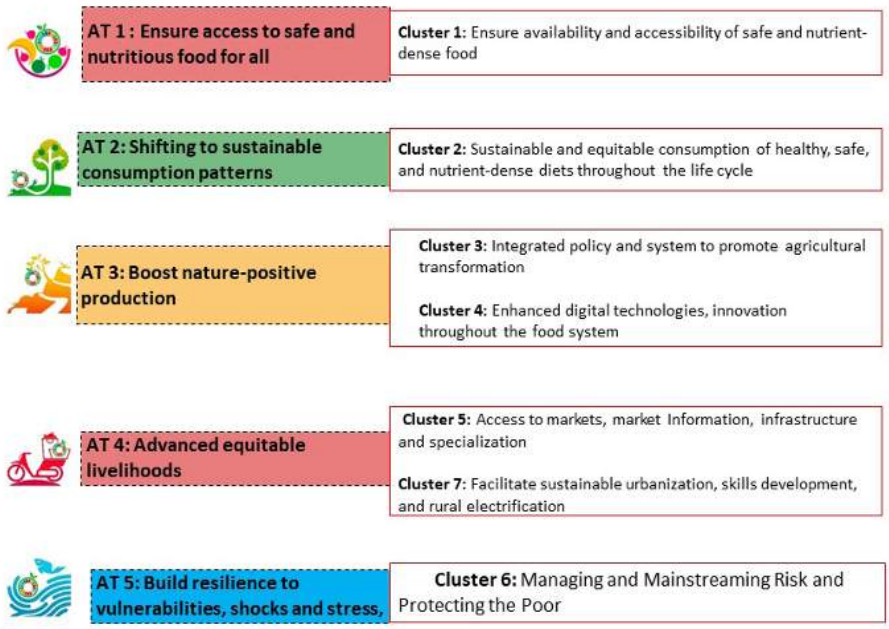
40 These challenges are: low availability and affordability of diversified nutritious foods, lack of food processing, fortification, packaging; lack of access to agricultural inputs, technologies including small-scale irrigation, soil depletion (erosion, lack of crop rotation and diversification, high acidity, lack of zinc) and Lack of adoption of agroecology practices (agroforestry, permaculture, biodiversity, preservation), low productivity and production diversity, absence of financial services, poor tenure system, weak market linkages and poor value addition, poor post-harvest management, poor institutional support, and lack of integrated risk and crisis management, climate adaptation, mitigation and resilience, and universal access to food.

41 For more detailed discussion, see Delgado 1995, Timmer 1998, FAO 2017, Naseem 2017, Diriba 2020

Game Changers to Transform Ethiopia's Food System

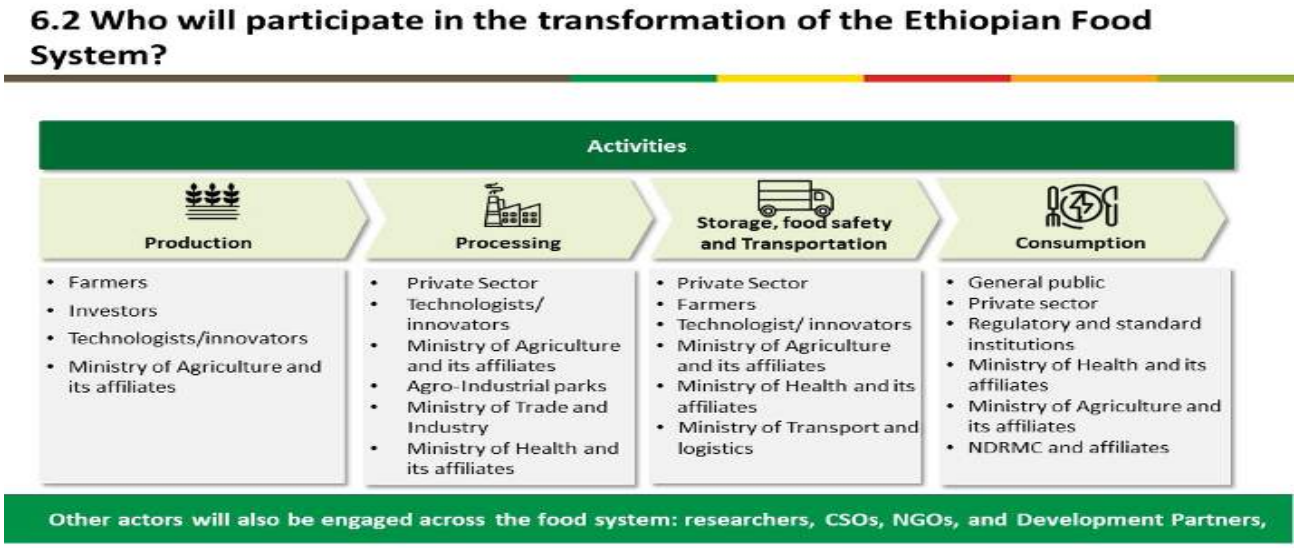
The 24 EFS game changers are categorized into seven clusters, each relating to pre-defined UNFSS Action Tracks and Action Areas. A summary of the seven clusters can be found in Figure 13 below.

Figure 13: Action Tracks and Clustered Game-changing Solutions



Significant action will be required across Ethiopia to implement the 24 game changers and their seven clusters, involving a wide range of actors at each stage of the food system. Both governmental departments and agencies, as well as private sector actors, investors, regulatory bodies, CSOs, development partners, NGOs, farmers, and the Ethiopian general public, will need to play their part (see Figure 14).

Figure 14: Contributors and participants of the Ethiopian Food System



CLUSTER 1

ENSURE AVAILABILITY AND ACCESSIBILITY OF SAFE AND NUTRIENT-DENSE FOODS

Cluster 1: Ensure availability and accessibility of safe and nutrient-dense foods

This cluster consists of six game-changing solutions identified to deliver on Action Track 1 (*ensuring access to safe and nutritious food for)* all and the corresponding Action Areas (see Figure 3). These are:

1. **EFS GC 1:** Strengthen the national food safety management and control system of Ethiopia;
2. **EFS GC 2:** Support diversified food production to increase the supply of nutrient-dense foods (animal-sourced and plant-based foods) through promoting smallholder, greenhouse, and garden-level production;
3. **EFS GC3:** Promote and enhance the production and consumption of fortified nutrient-dense staple foods through using industrial food fortification and biofortification;
4. technologies, including solar-powered community refrigerators and irrigation;
5. **EFS GC 6:** Strengthen climate-smart livestock value chains;
6. **EFS GC 19:** Modernize and upscale indigenous food production and processing for the general population;

This cluster focuses on diversified food production, food safety, food fortification, and livestock value chain, which collectively increase production and reduce harvest loss, increasing food availability and improving food safety standards.

Increased food production and availability will support the Government of Ethiopia's efforts to improve access to nutritious food, make food safe, deliver food security, and end hunger. Attainment of these intermediate outcomes is made possible by scaling up industrial fortification and biofortification and directly addressing the current low diversity of food production, poor access to nutrient-dense foods such as vegetables and fruits, low dietary diversity, inadequate access to nutrition information, low nutrition literacy, low involvement of women in decision making at household level and limited availability of critical platforms to spread nutritional information.

This cluster will a) improve the diversity of and increase production of nutrient-dense crops such as fruits and vegetables; b) increase the accessibility and improve quality of nutrient-dense food, vegetables, and fruits; c) expand market access to vulnerable groups and expand markets for nutritious foods; d) ensure access to labor and energy saving technologies and improve the decision making role of women through providing skill based business and other related training; e) give particular emphasis to target the nutritionally vulnerable populations, and f) maintain or improve the agricultural natural resource base (i.e. water, soil, air).

The cluster plays a critical role in strengthening supply and value chains, with particular attention to linking production to markets across all primary agricultural products and manufactured goods and services. The cluster will also go hand in hand with Ethiopia's plan to expand value chain development across the country to support income generation and job creation. For example, Ethiopia's Ten-year Development Plan aims to (i) enhance capacity utilization, (ii) strengthen market coordination, (iii) raise production and productivity, (iv) satisfy domestic demand as well as supply export markets by producing competitive industrial products such as foodstuffs, wearing apparel, housing materials and pharmaceuticals; (v) encourage manufacturing industries that utilize locally produced inputs; (vi) raise the variety, quantity and quality of exportable industrial commodities; (vii) strengthen key value chains, interlinkages, and interdependencies within the manufacturing industry. This cluster will support attaining the Ten-year Development Plan by prioritizing and developing key crop and livestock value chains and supporting supply chain development.

Within the livestock subsector, the cluster will advance the continued operationalization of the Ethiopia Livestock Master Plan. Strengthening climate-smart livestock value chains will include improving access to high-quality breed and breeding services and animal feed, increasing access to animal health services, and building pastoralist communities' knowledge and skills in livestock management. The cluster will also create agribusiness alliances and link them with rural finance institutions, build business capacities, and ensure inclusiveness of agribusiness alliances (e.g., business development, financial literacy, and gender equity training), which help build equitable livelihoods in vulnerable communities. This will include leveraging Ethiopia's Integrated Agro-Industrial Parks and the Agro-Commodity Procurement Zones (ACPZ) development mode. It will also leverage and formalize best practices by building on evidence and lessons learned from existing projects and programs such as the Agricultural Growth Program and the Seqota Declaration. It will bring together agriculture, industry, transport, and health sectors and drive coordinated value chain development in their respective strategies.

Strengthening livestock value chains (cattle, camel, goat, and poultry) and perishable nutrient-dense value chains such as vegetables, fruit crops, and other commodities will be critical to evolving and transforming the Ethiopian food system. It will enable people to enjoy healthy and sustainable diets while slashing food loss and waste. The role of the private sector in driving the progress in this cluster and supporting the attainment of all five

It will be particularly impactful in shifting Ethiopia to sustainable consumption patterns, ensuring access to safe and nutritious food for all food safety, and building resilience to vulnerabilities, shocks, and stress. Furthermore, the cluster can leverage and support the development of the Ethiopian Standards Agency (ESA) and the Ethiopian Food and Drug Administration (EFDA) to offer relevant regulatory and safety standards for domestic and imported foods. As the demand for market-supplied food increases, including processed foods, the need to improve quality control and ensure food safety will increase dramatically.

Improved indigenous crop production (EFS GC 19) will complement sustainable and equitable consumption of healthy, safe, and nutrient-dense diets. Furthermore, indigenous crops suitable to local contexts (for example, moringa, root and tubers, fruit crops, etc.) could improve smallholder farmers' livelihoods with benefits to the broader ecosystem.

CLUSTER 2

SUSTAINABLE AND EQUITABLE CONSUMPTION OF HEALTHY, SAFE, AND NUTRIENT-DENSE DIETS THROUGHOUT THE LIFE CYCLE

Cluster 2: Sustainable and equitable consumption of healthy, safe, and nutrient-dense diets throughout the life cycle

The second cluster focuses on improving sustainable consumption patterns of safe and nutritious food through strengthening systematic analysis and systems approach, promoting innovation and government commitments, issuing national dietary guidelines and sustained awareness creation among the population, and indigenous food production and processing. This cluster is comprised of four game-changing solutions, and it is directly linked to Action Track 2, which is shifting to a sustainable and healthy consumption pattern:

1. **EFS GC5:** Improve young children's, adolescents, and mothers' nutrition and dietary diversity through systematic analysis and a systems approach;
2. **EFS GC 7:** Promote innovations, government commitment, and local ownership, as expressed in the Seqota Declaration;[42]
3. **EFS GC 9:** Sustained awareness creation and food and nutrition literacy to change consumer's behavior on the consumption of nutrient-dense and safe food through women empowerment and leadership in food systems and
4. **EFS GC 10:** National food-based Dietary Guidelines are to provide dietary recommendations for the Ethiopian population two years and older for increased diet quality and safety, including dietary diversity and food safety for optimal health.

A food systems approach, which encompasses the entire food ecosystem from farm to consumer plate, requires consideration of improving young children's, adolescents, and mothers' nutrition and dietary diversity, promoting government commitment, creating sustained awareness of food and nutrition literacy, preparation and availability of food-based dietary guidelines, and modernizing and upscaling indigenous production and processing. This cluster is also well placed to support and advance Ethiopia's existing policy landscape, including the Homegrown Policy Reform agenda, the Seqota Declaration, the National Nutrition Policy, the National Disaster Risk Management Policy, and the Ten-year Development Plan ecosystem.[43]

The cluster is designed to closely align with and support national policy and regulatory frameworks.

42 The Seqota Declaration centres on introducing innovative approaches to increase food availability and distribution to reduce infant stunting through combining agricultural, manufacturing, transport and health & nutrition interventions

43 Ethiopia's Homegrown Policy Reform agenda, launched in 2019, outlines a 'bridge to prosperity' for Ethiopia through critically identifying and assessing key bottlenecks in Ethiopia's development and outlining context-specific solutions; The Seqota Declaration is the Government of Ethiopia's Commitment to end stunting in children under 2 by 2030; Ethiopia's Ten-Year Development Plan, launched in 2021, builds on the Homegrown Economic Reform agenda through laying out the key interventions required to further catalyze Ethiopia's development through to 2031.

CLUSTER 3

INTEGRATED POLICY AND SYSTEM TO PROMOTE AGRICULTURAL TRANSFORMATION

Cluster 3: Integrated policy and System to promote Agricultural transformation

The third cluster aims to implement integrated and coherent policymaking infrastructure to facilitate rapid food systems transformation by addressing land availability and ownership restrictions, access to financial services, and other critical priorities. Too often, policies are developed in government department silos with little interaction between departments. Food Systems thinking offers a platform to acknowledge that societal transformation requires mutually beneficial action across different policy areas. Only a joint approach will enable policymakers to design a robust and integrated policy that addresses today's policy challenges and pre-empts likely future challenges and opportunities.

For these challenges to be addressed and to transform the Ethiopian food system, the following four game-changing solutions are proposed:

1. **EFS GC 11:** Implement land reform and land administration that will ensure the right to lease and use it for collateral to facilitate land consolidation, adoption of innovation, and reduce environmental degradation;
2. **EFS GC 12:** Introduce land use planning, including resource planning, integrated landscape & watershed management with nature-inclusive and climate-smart approach;
3. **EFS GC 13:** Address deforestation and environmental degradation through implementing the Green Legacy initiative, the prominent tree planting undertakings, and
4. **EFS GC 14:** Establish a finance system for farmers to access credit, get insurance services, and offer farmers financial literacy to help enhance rural and agricultural investment, and support primary investment on farms and capitalize the farm (including a guarantee scheme throughout the whole food system;

This cluster is designed to support ongoing cross-departmental efforts to drive land reform to support agricultural production. As discussed in Chapter 2, the number of households relying on 0.1 ha of land or less has increased rapidly over recent decades, accounting for 13.16% of total farm households. It has been growing at 8.4% per annum and is forecast to continue to grow. Smaller agricultural landholdings present a significant challenge to increasing yield and efficiency production and pressure farmers to produce more output from small plot sizes, leading to environmental degradation and soil depletion. To address this challenge, the MoA has undertaken a wide-ranging consultation process focusing on how land consolidation can be leveraged to facilitate more effective and efficient agriculture and livestock with higher technology adoption rates. The Council of Ministers has cleared a draft of the land reform proclamation, which is being considered by the parliament.

The trend of intensifying farmland usage and crop productivity has continued in Ethiopia (as discussed in Chapter 2). However, the growth in crop yield driven by agricultural intensification is slow due to inefficient land management, rain-dependent farming, droughts, low or non-existent farm capitalization, and increasing levels of environmental degradation. Farmlands are spatially organized in small plots of a national average of 0.65 ha, which is inefficient, hinders modern land management systems, and prevents natural and environmentally sound food production. The size of farmland plots is decreasing, driven by rapid population growth. For this reason, it is critical to introduce land reform that permits leasing and the use of collateral while not requiring a lengthy constitutional amendment process to be initiated. A precedent already exists for urban land where leasing has been introduced, and this same principle must be applied to reforming rural lands. *Cluster farming* for strategic crops has been introduced in different parts of Ethiopia, increasing productivity and market access for smallholder farmers by encouraging farmer specialization and aggregation to facilitate scaled production and contract farming. Within specialized farmer clusters, an extension can also be highly technical and targeted to preserve biodiversity and ensure the adoption of climate-smart techniques.

Similarly, a lack of financial institutions explicitly serving Ethiopia's vast smallholder farmer population, including women, youth, and the landless, has prevented households from capitalizing on their farms or investing in improved technologies or value-added equipment, forcing them to continue to live in a cycle of poverty. Establishing adequate access to financial services and rural development banks focused on agricultural lending is vital to the MOA's reform agenda. Driving reform across these areas represents a bold political commitment for Ethiopia.

Establishing inclusive agricultural financing systems (saving, credit, and agricultural risk insurance) will support smallholder farmer development and agriculture-related livelihoods and encourage access to improved inputs and technologies. Existing banks (both private and state-owned commercial banks) and the Development Bank of Ethiopia are geared towards medium and large-scale farms, with minimal incentive to support the smallholder farmers that dominate Ethiopian agriculture. Ethiopia will need to support agricultural, cooperative, and rural development banks and develop the necessary legal and operational frameworks and regulations that can be rolled out throughout the country. Furthermore, to maximize the benefit of rural and agricultural financial services and drive financial inclusion, farmers must be provided with financial literacy support and education to help stimulate demand and facilitate access to credit, enhance rural and agricultural investment, support primary investment on farms, and capitalize the farm.

CLUSTER 4

ACCELERATED MECHANIZATION, ENHANCED DIGITAL TECHNOLOGY, AND INNOVATION THROUGHOUT THE FOOD SYSTEM

Cluster 4: Accelerated Mechanization, Enhanced Digital Technology, and Innovation Throughout the Food System

This cluster of game-changing solutions focuses on the adoption of agricultural inputs (improved seed varieties, enhanced livestock breeds, fertilizer, agro-chemicals and microorganisms to support decomposition and soil conservation), innovation (improved agricultural and food processing practices), and technologies (farm machinery and information technology services).

To drive increased access to and adoption of agricultural technologies and inputs, two game-changing solutions are proposed:

1. **EFS GC 15:** Selection and timely supply of agricultural inputs and technologies to boost production and productivity using agricultural mechanization, digital technologies, and innovation; and
2. **EFS GC 16:** Advanced forecasting system for variables affecting agriculture-based activities on exemplary spatiotemporal weather models in Ethiopia;

Ethiopia's food system currently struggles with low yield, productivity, and post-harvest food loss. Adopting new and improved technologies and inputs will serve as a critical enabler to address these challenges, increase agricultural productivity, and drive the transformation of food systems. A lack of access to high-quality inputs has augmented these challenges. A reliable supply of critical inputs such as improved seed varieties, fertilizers, pesticides, and veterinary medicine will improve yields and reduce food loss.

The transition to mechanized agriculture and livestock has significant potential to improve labor productivity, increase agricultural yields, and reduce food loss due to inadequate storage facilities. Vital elements of mechanization include expanding the use of machinery such as tractors, combine harvesters, milking machines, cold chain facilities, irrigation equipment, grain and animal product storage and preservation systems, including silos and vacuum packaging, amongst other technologies to support increased productivity and reduce food loss. To ensure the success of these modern agricultural technologies, Ethiopia will need to build capacity to train machine users and a solid and stable supply of trained maintenance technicians to ensure high utilization levels.

The introduction and widespread adoption of mechanized technologies will dramatically increase land and labor productivity, reduce land degradation and deforestation, and open up opportunities for sustainable land use and management. To ensure the successful and lasting adoption of mechanized technologies, Ethiopia must establish training, demonstration, and service centers and mechanization service centers to support users of tractors, combine harvesters, and other agricultural machinery.

The selection, timely supply, and appropriate use of agricultural inputs and technologies will pave the way for Ethiopia's gradual and continuous adoption of technologies and innovation. The adoption rate of these technologies will likely vary by region due to local contexts and ecological variations, and demand dynamics for different regions must be fully mapped out to ensure supply meets demand. Demand estimation from across the country can be systematized by introducing an online demand forecasting system, which can eventually be evolved to leverage machine learning (artificial intelligence).

In addition to mapping inputs to demand, Ethiopia must strengthen investment in capacity-building activities, including retraining agricultural extension officers, veterinary specialists, plant protection specialists, and other service providers to ensure their service provision covers new technologies and inputs.

To drive the uptake of existing agricultural technologies, allocating Research and Development (R&D) funds to support the development of new agricultural technologies will be critical. R&D funds can also support the development of technologies that reduce pre- and post-harvest losses and enhance value-added product, preservation, and packaging, including small and medium agro-processing industries. The private sector will be increasingly important in providing access to new technologies.

Finally, advanced crop and pasture forecasting capacity based on fine spatiotemporal weather data will be an important innovation that will provide policymakers and farmers with reliable information on weather, crop dynamics, and crop plagues. Advances in satellite data-based and vegetation index-based weather forecasting can offer higher meteorological accuracy. When combined with detailed field-level crop data, this can be used to model and forecast crop production dynamics in different scenarios, which in turn can be used to plan and design highly targeted interventions and determine risk-insurance pay-outs.

CLUSTER 5

ACCESS TO MARKETS, MARKET INFORMATION, INFRASTRUCTURE AND SPECIALIZATION

Cluster 5: Access to Markets, Market Information, Infrastructure and Specialization

Cluster 5 focuses on supply chain management, access to markets, and market information systems, including promoting agricultural commercialization using crop specialization, corridor, production specialization, and agro-commodity procurement zones. Increased agricultural specialization will support agricultural corridor development and drive broadened market participation. The Agricultural commercialization/corridor specialization approach integrates efforts of various actors in agriculture to commercialize smallholder farmers through market-driven value chain development. This cluster comprises two game-changing solutions:

1. **EFS GC 8:** Strengthen innovative strategies and private sector engagement mechanisms for *supply chain management and handling systems*, particularly for nutrient-dense crops (for example, fruit, vegetables, and animal-sourced foods);

2. **EFS GC 17:** Upgrade and strengthen national *market information systems* and related digital approaches for mapping to support evidence-based agricultural development planning and

3. **EFS GC 18:** Promote and facilitate the implementation of *agricultural commercialization* by creating production-specific specialization corridors for nutrient-dense commodities and strengthening market linkages (e.g., agro-industrial parks)

Cluster five is central to developing and strengthening value and supply chains. Increasing food safety awareness can leverage the rapid development and privatization of Ethiopia's telecommunications sector, which will drive significant expansion in internet coverage in Ethiopia. These reforms are expected to significantly improve access to digital platforms, speed up innovation in supply chain management, and increase opportunities for online self-learning and awareness creation.

This cluster aims to drive the Ethiopian food system to support more equitable livelihoods for farmers and other market actors, with due focus on the most vulnerable actors—women, youth, and indigenous populations. It will enhance equitable market linkages by strengthening the market information system and enhancing industrialization and commercialization corridors for more diversified crops while modernizing value chains that provide equitable and sustainable livelihoods for vulnerable populations.

The National Market Information System (NMIS) addresses a key challenge of accurate pricing information availability, which can significantly increase the bargaining power of farmers to achieve fair prices for their produce. The National Market Information System (NMIS) already exists at federal and regional levels but currently has disparate coverage (due to poor or incomplete data, low levels of accessibility, focus on staple crops, and limited digitalization) and requires significant strengthening. The proposed game-changer solution will strengthen and upgrade the existing system to ensure continuous and spatially distributed data collection over time, expand its data to nutritious foods, and improve access and literacy to digitalization and online availability. Linkages to other existing mapping and information systems like Innovation Recommendation Mapping (IRM) for evidence-based agricultural development planning and others are highly encouraged to complement the information dissemination for equitable use of the system.

The Agricultural Commercialization Cluster (ACC) and Farmer Production Cluster (FPC) approaches identify defined geographic clusters that can specialize in high-priority and high-value commodities. Clusters can receive high-quality inputs and targeted extension and advisory services to boost productivity. As well as increasing specialized crop production, clusters can be supported to further engage in value addition and processing activities to boost incomes. The clusters can then be linked with institutional buyers to ensure guaranteed, contracted volumes and support sustainable incomes. Furthermore, the ACC/FPC approach focuses on interventions that will improve production specialization and land productivity while reducing degradation, improving market access, increasing value-added activities, and creating off-farm employment opportunities.

The ACC/FPC approaches can be integrated with the Integrated Agro-Industrial parks with the Agro-Commodity Procurement Zones (ACPZ) development model to help address the challenge of ensuring equitable livelihoods and eliminating malnutrition. The ACPZ development model is inclusive and built on a robust Public Private Partnership approach, bringing together the Government of Ethiopia, the Private sector (at large scale including SMEs, producers' organizations), and households (including poor small-scale farmers, women-headed households) in well-coordinated and balanced bargaining power for all, and granting due attention to food security and nutrition (FSN) in targeted areas.

The ACC and NMIS game-changing solutions depend on successfully implementing other game-changers to enhance their efficacy. For example, improved agricultural input supplies (seeds supply, fertilizers, pesticides, equipment), access to critical technologies (e.g., small-scale irrigation), and access to knowledge and skills will be essential to maximizing the impact of these game changers.

CLUSTER 6

MANAGING AND MAINSTREAMING RISK AND PROTECTING THE POOR

Cluster 6: Managing and Mainstreaming Risk and Protecting the Poor

Effectively managing and mainstreaming risk within the Ethiopian food system is a critical enabler in ensuring food security across the country. Ethiopia's economy and food system participants, especially smallholder farmers, are highly vulnerable to shocks and stresses. The ongoing COVID-19 pandemic threatens the incomes of millions of people nationwide who depend on the food system for their livelihoods. In addition, locust infestation also had a significant impact on the incomes of smallholder farmers. This is made worse by a series of internal conflicts, leading to a significant displacement resulting in food and nutrition insecurity. It has also exposed the fragility of Ethiopia's food system and everyone who lives and works around it. Challenges due to the disruption of the tourist industry have affected the service industry, adversely impacting millions of workers. The ensuing crisis has highlighted the need to reshape food systems to build back more resilient and inclusive, environmentally sustainable, and economically vibrant communities. Robust and inclusive social protection schemes will be essential to building greater resilience in the future.

The three game-changing solutions included in this cluster are:

1. **EFS GC 20:** Formalize integrated and mainstreamed disaster risk management, including index-based crop and livestock insurance;
2. **EFS GC 21:** Inclusive and sustainable social protection transfer, including linkage with the school feeding program and the use of digital fresh food vouchers among PSNP households with pregnant and lactating women and children under two years of age in woredas with the highest prevalence of stunting); and
3. **EFS GC 22:** Strengthen the system for timely and effective shock response, including preventing and treating wasting and micronutrient deficiencies.

Despite massive efforts to conserve the degraded ecosystem and, more recently, the ongoing Green Legacy Project (EFS GC 13) that plants billions of trees yearly, there is still a large-scale land degradation problem. Hence, concerted efforts are needed to recover the degraded natural resources. Watershed management will also support sustainable reforestation of degraded mountainous areas, climate regulation, increased land productivity, increased forage feed, improved water availability, and spring development for downstream users.

In addition to small-scale irrigation, led by the Ministry of Agriculture, which is central to mitigating weather-induced risk, it is also crucial that formal and economy-wide risk management is implemented in the form of agricultural commodity risk insurance. Social and economic risks are intertwined with environmental degradation and poverty. As many studies have attested to, poverty and hunger are persistent in rural Ethiopia despite the continued national and international efforts to combat it. Declining land per capita, lack of formal insurance against multiple agricultural risks, lack of access to credit, and the inability of farm households to capitalize on their farms continue to push farmers to practice farming in degraded areas and areas unsuitable for agriculture.

Index-based crop and livestock insurance promotion will protect farmers against periodic risk. Experience has already existed in Ethiopia over the past decade, including within the African Union (AU) under the auspices of the African Risk Capacity (ARC) project. It is time that existing experiments and pilots of weather-based insurance are scaled up to cover crop and livestock risk insurance as a disaster risk mitigation measure.

Pastoralism as a means of livelihood is challenged by climate change-induced drought, which has significantly depleted livestock herds. Recurrent drought caused a shortage of pasture and water, leading to deterioration of livestock body conditions, lower milk production and lower market price, loss of livestock, and further aggravated opportunistic diseases. Implementing Index-Based Crop and Livestock Insurance is a proactive risk mitigation strategy that protects households against crop and livestock losses. The index-based insurance is linked to independently verifiable, transparent, and pre-defined quantitative weather indicators monitored using the satellite (such as vegetation cover/greenness) with ground truthing, which are closely associated with the underlying risk and mirror potential losses to be experienced. Based on the threshold set of moisture and resulting vegetative greenness, insurance is paid out to the policyholders from insurance companies.

In the Ethiopian context, the links between agriculture and livestock, sustainable social protection system, biodiversity conservation, and environmental sustainability are strong and direct. Women's empowerment to influence changes in women's time use, decision-making, and promotion of home gardens for improved dietary diversity is therefore both critical and necessary. Agricultural development initiatives must incorporate nutrition-sensitive shock responses and ensure a social protection system that takes PSNP to universal social protection measures. Furthermore, social protection (universal access to food) will be integral to game-changing solutions. Social protection must be streamlined to include the PSNP and expanded to cover school feeding, which Ethiopia is already rolling out. School feeding is the most extensive social safety net in many countries, with one in every two schoolchildren receiving school meals daily from national programs. According to the recently released AU Biennial Report on Home-Grown School Feeding, 65.4 million children across Africa received school meals in 2019, a staggering 71% increase from 38.4 million in 2013. This reflected the understanding that, by feeding the young generations, school meals are a wise investment in any nation's human capital development efforts.

CLUSTER 7

FACILITATE SUSTAINABLE URBANIZATION, SKILLS DEVELOPMENT, AND RURAL ELECTRIFICATION

Cluster 7: Facilitate sustainable urbanization, skills development, and rural electrification

Under cluster 7, three game-changing solutions are designed to accelerate, support, and prepare for the aftermath of the transformation processes.

EFS GC4: Rural electrification to promote environmentally friendly and climate-smart

EFS GC 23: Put in place a strategy for decentralized urbanization, resilient and thriving urban centers, balanced land use planning, and sustainable cities

EFS GC 24: Foster innovation, incubate technologies and vocational training centers that nurture multifaceted skills development

For rural electrification, the Ten-year Development Plan envisages grid access will rapidly extend throughout Ethiopia in the coming decade, supported by power generated by the Grand Ethiopian Renaissance Dam (GERD). The Plan envisages increasing the grid-based electricity coverage from 33% to 96%.[44] Grid sources of electricity supply will also be supplemented by off-grid using solar power. This will dramatically improve the quality of life for a broad cross-section of the Ethiopian population and explicitly offer a major opportunity to enhance food preservation and safety. To capitalize on this opportunity, the EFS envisages significantly increasing the availability of refrigerators, processing equipment, and irrigation systems.

Social transformation is crucial to Ethiopia's food systems (EFS) transformation. The EFS transformation goes beyond just bringing about structural changes in the economy through technological adoption and increased productivity; it also induces the dislocation of the agricultural labor force, leading to rapid urbanization. In concert with the definition of food systems provided by the UN Committee on World Food Security's High-Level Panel of Experts on Food Security and Nutrition (HLPE: 2017), socio-economic and environmental outcomes: social transformation. Social transformation, i.e., socio-economic and environmental consequences, as stipulated in SDG 8 and 11.

- SDG 8 commits to promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
- SDG 11 commits to making cities and human settlements inclusive, safe, resilient, and sustainable

Social transformation is a process that fundamentally changes how individuals and societies are organized and how resources are distributed. It involves individuals changing their social status from the one they inherited from their parents to the one they achieve through their actions. Social transformation can occur at an individual level, where individuals experience a significant change in their social status, or at a societal level, where there is a deep and sustained, nonlinear systemic change in a society or culture.

44 Federal Democratic Republic of Ethiopia 2021. Ethiopia 2030: The Pathway to Prosperity. Ten Years Perspective Development Plan (2021 – 2030), page 55.

Various factors can influence social transformation, including political, economic, technological, demographic, and cultural changes. These factors interact and shape a society's trajectory of social transformation. The three interconnected consequences of social transformation are particularly noteworthy: population dynamics, urbanization, and skills development. Social transformation can impact population dynamics by influencing fertility rates, migration patterns, and age structures. As rural communities experience dislocation due to changes in the agricultural labor force, migration to urban areas becomes more prevalent. This shift in population dynamics can have significant implications for food production, consumption patterns, and resource allocation. Ethiopia is experiencing substantial changes in its population dynamics, with a growing and youthful population. The median age of the population is less than 20 years. Still, the age structure is shifting, characterized by a decline in the under-15-year population and an increase in the working-age population in urban and rural areas. However, the pace of change is more pronounced in urban areas.

Currently[45]Ethiopia's population is around 107.3 million, making it the second most populous country in Africa and the 11th globally. Its urban population is around 24.8 million, accounting for approximately 23.1% of the total population. These figures reflect a significant increase compared to previous years. For instance, in 1994, the total population was 53.5 million, with the urban population at 7.3 million. By 2007, the figures had risen to 73.9 million and 11.9 million, respectively.

Projections indicate that Ethiopia's population will continue to grow, reaching approximately 136 million by 2037. The urban population growth rate has been exceptionally high, with a 3.7% increase between 1994 and 2007 and a further rise to 4.7% in 2017. The overall urban population increased from 11.9 million in 2007 to 19 million in 2017, and it is projected to reach 31 million by 2030.

It is worth noting, however, that there is a discrepancy between official population data and international estimates. While the official data suggests a population of 107.3 million, international estimates put it at 126.5 million. The urban population is estimated at around 27.9 million, accounting for approximately 22% of the total population. This significant variance underscores the complexity of accurately assessing population dynamics.

The changing population dynamics have also contributed to notable shifts in mortality and fertility rates. Over the past few decades, Ethiopia has witnessed a decline in infant and child mortality rates. Similarly, total fertility rates (TFR) have decreased, although with regional variations. The Amhara Region, for example, has registered the largest decline in TFR, with a 37.3% reduction between 2000 and 2016. Other regions, such as the SNNPR, Gambela, Tigray, Benishangul-Gumuz, and Oromia, have also seen decreases ranging from 15.6% to 22.8% during the same period. However, fertility rates have increased in the Afar and Somali regions (See EEA 2021).

45 According to Ethiopian Statistical Services (ESS) data.

Migration patterns also play a significant role in population dynamics. Rural-rural migration is the most common form of mobility, followed by rural-urban migration. Between 2005 and 2013, rural-rural migration decreased by 17%, while rural-urban migration increased by 8%, reaching 34% of all migrants. People migrate for various reasons, including seeking better opportunities, scarcity of farmland, recurrent drought, food shortages, and the desire for higher education or job prospects. The pull factors for rural-to-urban migration include education and job opportunities, better payment, access to services, and family ties.

If adequately managed, rural-urban migration can have positive effects, such as relieving pressure on farmland, fulfilling labor demands in the formal and informal sectors, and promoting economic growth. However, if poorly managed, it can strain urban infrastructure, including access to education, employment, healthcare, and housing. Addis Ababa is the largest recipient of urban migrants, further pressuring the provision of basic amenities and services.

In addition to the natural population growth, the dislocation of the agricultural labor force leads to rapid urbanization, as people seek new economic opportunities and better living conditions in urban centers. Urbanization changes social structures, cultural practices, and access to essential services such as healthcare and education. It also creates new challenges and opportunities for food systems, as urban areas require efficient and sustainable ways of providing food for their growing populations.

Urbanization in Ethiopia is currently at a relatively low level compared to other African countries. As of 2019, only 21.2% of the population lives in urban centers. However, this is expected to change significantly in the coming years, with a projected increase of 40% by 2050, according to the United Nations. The current low level of urbanization presents a unique opportunity for Ethiopia to promote inclusive growth and sustainably guide its urbanization process. With most of the existing urban centers concentrated at the lower end of the urban hierarchy, there is a chance to minimize congestion and protect against negative externalities.

Furthermore, Ethiopia is undergoing a demographic transition, with an increasing youth labor force. According to the Central Statistical Agency (CSA 2013), this workforce is expected to grow from 53.2 million in 2019 to 91 million by 2037. This highlights the need for job creation and the growth of the economy's productive and service sectors. These measures are crucial for Ethiopia to fully exploit the demographic dividend and achieve sustainable development.

To better understand the distribution of urban resources, the Ethiopian Ministry of Urban Development and Construction (MoUDC) has established five city-size classifications. These include small towns (2,000 to 20,000), medium towns (20,001 to 50,000), large towns (50,001 to 100,000), cities (100,000 to 1,000,000), and metropolises (more than 1,000,000). As of 2017, Ethiopia had one metropolis, 21 cities, 29 large towns, 108 medium towns, and over 1000 small towns. This classification provides insight into the nature of urban growth dynamics and processes, enabling a better understanding of the country's urban concentration level. Investments in urban infrastructure are needed to achieve sustainable development, and current efforts have led to improved housing conditions. However, a significant proportion of the urban population still lives in slum areas, and existing infrastructure may struggle to cope with the anticipated surge in urbanization. Inclusive policies are necessary to address potential disparities in wealth and opportunities. At the same time, cultural preservation initiatives and effective governance structures will be critical to maintaining a strong sense of identity and managing the complexities of urban growth.

Ethiopia is one of the fastest urbanizing countries in the world, with its urban population growing at a rate of 3.7% per year. Urbanization is a crucial factor for sustainable development, as it offers opportunities for economic growth, social inclusion, and environmental protection. However, urbanization also poses challenges for providing adequate housing, essential services, and infrastructure for urban dwellers.

Housing conditions in urban Ethiopia have improved significantly over time, as the proportion of the urban population living in slum areas decreased from 95.5% in 1990 to 74% in 2014. This is partly due to the construction of condominiums and urban regeneration programs (MoUDH, 2018). However, a large share of the urban population still lives in slum areas and faces extreme poverty (World Bank, 2016).

Ethiopia's urbanization is expected to accelerate in the following decades, driven by population dynamics, economic development, and infrastructure expansion. The current urbanization rate, around 21%, is projected to increase to 40% by 2030. This means that not only existing cities will grow, but small rural villages will also transform into towns and cities.

One of the main impacts of this rapid urbanization is the pressure on existing infrastructure. Cities will face difficulties providing essential services such as housing, transportation, sanitation, education, health care, and land management. To address these issues, Ethiopia must adopt sustainable urban planning that considers the social, economic, and environmental factors, especially land use planning. Urbanization will also be influenced by the anticipated land reform that gives owners the right to transfer land by means of lease and property rights. This could have implications for urban land use and governance.

Social transformation necessitates the development of new skills and capabilities among individuals and communities. As people transition from rural agricultural work to other sectors in urban areas, there is a need for training and capacity-building programs to help them adapt to new roles and responsibilities. Skills development becomes crucial in ensuring a smooth transition and enabling individuals to thrive in the changing economic and social landscape. The transformation of Ethiopia's food systems is expected to shift the labor force from rural to urban areas, creating a demand for new skill sets. To address this issue, establishing innovation centers, technology incubation, and skills development and training centers are crucial for sustainable and inclusive development. Innovation and technology incubation are essential for economic growth, and partnerships between government, industry, and educational institutions can create a responsive ecosystem that adapts to evolving job markets. Ethiopia must expand robust research and development (R&D) efforts, formalize policies for collaboration, provide funding for innovation and incubation, and enhance mentorship and guidance to achieve successful startup ventures.

Developed economies, like Germany, have successfully established vocational training programs tailored to the emerging needs of the urban workforce, emphasizing apprenticeship systems and practical skills. Partnerships between government, industry, and educational institutions are crucial in creating a responsive ecosystem that adapts to evolving job markets. Ethiopia can take inspiration from these successful models to develop its skill-building initiatives.

Ethiopia must take some important early actions to achieve the skills development initiatives. These include:

- Expanding a robust Research and Development (R&D) effort[46] that fuels innovation by exploring new ideas, technologies, and solutions.
- Formalizing and implementing policies that strengthen and fund collaboration between researchers, entrepreneurs, and industry experts to incubate new technologies and creativity.
- Allocating adequate funding that is crucial for both innovation and incubation. The fund should support the development of prototypes, market research, and initial commercialization efforts.
- Enhancing mentorship and guidance from experienced mentors who can significantly contribute to the success of startups. Incubators should connect entrepreneurs with mentors who provide valuable insights.

The Critical Priorities/ Enablers and the Roadmap

The EFS has identified six critical priorities (critical enablers) among the 24 game-changing solutions. The six critical enablers are selected based on their economy-wide impacts and help accelerate the implementation of the remaining game-changing solutions. The six critical enablers require strong, unified, and prioritized policy commitments, and implementing them will require evidence-based analysis of each of the six critical enablers. It also makes the private sector a principal player in transforming food systems. Acting on the critical enablers calls on strong cooperation among government departments, research bodies, the private sector, civil society and non-governmental organizations, development partners, and, ultimately, the general public. What is needed is rigorous analytical work to back up policy choices and mobilize political commitments to act on each of the critical enablers. The remaining 18 GCs will depend on the six critical enablers.

- ***EFS GC 14 -*** *Establish a finance system for farmers to access credit, get insurance service, and offer farmers financial literacy to help enhance rural and agricultural investment*
- ***EFS GC 15*** *- Selection and timely supply of inputs and technologies to boost production and productivity*
- ***EFS GC 4*** *- Rural electrification to promote environmentally friendly and climate-smart technologies*
- ***EFS GC 20*** *- Index-based crop and livestock insurance as disaster risk mitigation measures*
- ***EFS GC 11*** *- Implement land reform and land administration that will ensure the right to lease and use it for collateral*
- ***EFS GC 12*** *- Introduce land use planning; resource planning, integrated landscape & watershed management*

46 Examples include: Silicon Valley, USA known for its vibrant tech ecosystem, Silicon Valley has numerous incubators and accelerators supporting startups. Israel's Innovation Ecosystem - Israel has a strong tradition of innovation, partly due to the Israeli Defense Forces' emphasis on technology. Incubators like Yozma Group played a crucial role in the growth of Israel's tech sector. Zhongguancun is China's closest equivalent to Silicon Valley. It's host to electronics super malls, research centers, publicly-listed tech giants, and hundreds of startups.

The critical enablers will be the core elements of the Homegrown Economic Policy reform, Ethiopia-specific policy choices, and political commitments. The Technical Support Team will undertake or facilitate policy-support diagnostics, offering a deeper insight for the policymakers and the IMSC. The policy support will bring other policy and legislative arrangements into the fold. As this is updated, a land reform proclamation is being reviewed at the House of the People's Representatives (the parliament).

The EFS vision, encapsulated by its 24 game-changing solutions and the seven clusters, will accelerate transformation across the food system by increasing the production of safe, nutrient-dense foods to drive dietary diversity and improve nutritional awareness. The EFS transformation will increase access to rural and agricultural financial services and high-quality inputs to support farmers in boosting production and accessing markets while conserving their land and soil for future generations. The EFS will also provide enhanced protection and risk management to ensure food system resilience and safety for the most vulnerable during shocks and stresses. Taking these steps will allow Ethiopia to create a strong and equitable food system that can deliver on the promises of the UN's Sustainable Development Goals and Ethiopia's Homegrown Economic Reform Agenda – leaving no one behind.

A detailed Roadmap will be prepared as a compendium of this synthesis. Additionally, the Ethiopian Institute of Agricultural Research (EIAR) and CGIAR are spearheading a monitoring and evaluation (M&E) framework; they are expected to produce a compendium for this synthesis report.

It is the conviction of the Government of Ethiopia that this is Ethiopia's decade and a decade of prosperity for all Ethiopians. The EFS vision affirms this commitment and represents a significant step forward for Ethiopia.

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Annex 1: List of participants during the EFS Design Phase

The government of Ethiopia would like to extend sincere thanks to all individuals who have kindly and tirelessly participated in the Technical Committee and National dialogues.

Name	Position/organization
H.E. Ato Oumer Hussein Oba	Minister, Ministry of Agriculture
H.E. Dr. Lia Tadesse	Minister, Ministry of Health
Dr. Mandefro Nigussie	CEO, Ethiopian Agricultural Transformation Insitute
Dr. Dereje Duguma	State Minister, Ministry of Health
Dr. Fikru Regassa	State Minister, MOA
Fatouma Seid	FAO Representative
Dr. Getachew Diriba	Senior National Consultant, UNRCO
Mahlet Israel	Ethiopian Agricultural Transformation Institute
Dr. Ferew Lemma	Ministry of Health
Dr. Mulugeta Teamir	Ministry of Agriculture
Dr. Sisay Sinamo	Ministry of Health
Alemtsehay Sergawi	Ministry of Agriculture
Fernando Rodrigues	Ethiopian Agricultural Transformation Institute
Matthew Ingram	Ethiopian Agricultural Transformation Institute
Mebrate Erstu	Ethiopian Agricultural Transformation Institute
Yanet Samson	Ethiopian Agricultural Transformation Institute
Aster Mihret Zewdie	GAIN
Dr. Aweke Kebede	ECSC-SUN/SCI
Fesseha Tekele	Ministry of Health
Dr. Filippo DIBARI	WFP
Gabriele Schulz	GIZ
Maya Hage-Ali	FIRST- FAO/EU
Namukolo Covic	IFPRI
Tewodros Girma	Ministry of Agriculture
Temsgen Gebeyehu	Ethiopian Agricultural Transformation Institute
Eshetayehu Tefera	Ethiopian Agricultural Transformation Institute
Solomon Tilahun	Ethiopian Agricultural Transformation Institute
Ton Thomas Haverkort	GAIN
Professor Shimelis Admassu	AAIT, Food Engineering
Dr. Kaleab Baye	Addis Ababa University, Food Science, and Nutrition Centre
Kebede Tafesse	Alive and Thrive
Abreham	Alliance2015
Sara Worku	Alliance2015
Dr Ermias Abate	Amhara Agricultural Research Institute
Yibeltal Birhanu	Amhara Bureau of Trade and Industry
Dr. Admassu Fenta	Bahir Dar University, School of Chemical and Food Engineering
Tewodros Ketsela	christian aid
Dr Christine Chege	CIAT-Bioversity
Dr Setegn Gebeyehu	CIP
Fekadesilasie Tadese	Dairy Producers and Processors
Mebratu Tsehaye	World Vision

Dr. Belaynesh Yifru	Ministry of Health
Dr Kassaye Tolessa	EIAR
Bekele Mekuria	Ethiopian Food, Beverage, and Pharmaceuticals Development Institute
Pierre-Luc Vanhaverbeke	EU
Nicoliene Oudwater	FCDO, Ethiopia
Sir John Beddington	Global Panel Chair
Dr. Siboniso Moyo	CGIAR
Obert Pimhidzai	World Bank
Sidy Niang	FAO
Tewodros Hailemariam	NDRMC
Dr. Ermiass Abate	Amhara Agricultural Research Institute
Derek Flynn	Global Panel Consultant
Darren Hughes	Global Panel Consultant
Tom Arnold	Global Panel Member
Emmy Simmons	Global Panel Member
H.E. Rhoda Tumusiime	Global Panel Member
Professor Patrick Webb	Global Panel Secretariat
Professor Sandy Thomas	Global Panel Secretariat
Ivan Kent	Global Panel Secretariat
Jack Ryan	Global Panel Secretariat
Dr. Kebede Abegaz	Hawassa University, School of Nutrition, Food Science and Post-Harvest Technology
Tewodros Zewde	Horticulture Producers Exporters Association
Lucie Vergali	IFAD
Seyoum Tesfa	IFAD
Mawira Chitima	IFAD
Andrea Limiroli	Italian Agency for Development Cooperation
Dr. Yetnayet Bekele	Jimma University, Post-Harvest Management Department
Esayas Lemma	Ministry of Agriculture
Asmelash Berhe	Ministry of Agriculture
Hussein Abegaz	Ministry of Agriculture
Sentayehu Demissie	Ministry of Agriculture
Girma Bekele	Ministry of Agriculture
Abdela Negash	Ministry of Agriculture
Tsigereda Fikadu	Ministry of Agriculture
Keberu Belayneh	Ministry of Agriculture
Nuredin Asaro	Ministry of Agriculture
Wegayehu Yireda	Ministry of Foreign Affairs
Dr. Dereje Woltedji	Oromia Agricultural Research Institute
Yilma Muluken	OXFAM
Dr. Tadesse Fikre	Post-Harvest Professionals Association
Birhanu Million	Poultry Producers and Processors
Tamene Taye	Save the Children - Ethiopia
Engidu Legesse	SBN
Israel Hailu	SCI/ESCN-SUN

Dr. Fekadu Gurmu	SNNP Agricultural Research Institute
Berhanu Hebana	SNNP Bureau of Trade and Industry
DR Mohammed Ibrahim	Somali Bureau of livestock and pastoralist development
Abdikarin Mohamed	Somali Research for Pastoralists Institute
Gerda Verburg	Sun Movement Secretariat
Francisca Gomez	Sun Movement Secretariat
Daniel Valenghi	Swiss Development Cooperation
Mwangi Watiru	VSO
Stephen Were Omamo	WFP
Getahun Teka	WHO
Sofia Ahmed	WRI

Annex 2: Participating Organizations During EFS Design Phase

The government of Ethiopia would like to thank organizations that participated in the national dialogues of the Ethiopian Food Systems.

Annex 3. A: List of Participants During Country Diagnostics

List of Government ministries and Affiliates

No.	Name	Company
1.	Dr. Girma Amente	MoA, Minister
2.	Ambassador Dr. Shiferaw Tekelemaryam	Commissioner
3.	Dr. Dereje Duguma	MoH, State Minister
4.	Dr. Meles Mekonen	MoA, State Minister
5.	Dr. Sofia Kassa	MoA, State Minister
6.	Dr. Fikru Regassa	MoA, State Minister
7.	Dr. Efa Muleta	MoA, State Minister
8.	Prof. Eyasu Elias	MoA, State Minister
9.	Dr. Mandefro Nigussie	ATI, Director General
10.	Dr. Getachew Diriba	MoA
11.	Alemtsehay Sargawi	MoA
12.	Dr. Mulugeta Teamr	MoA
13.	Kalkidan Seifu	ATI
14.	Senait Zemenu	ATI
15.	Dagmawit Yared	MoA
16.	Dr Kefena Effa	DU
17.	Benebem Assefa	PSI
18.	Daniel Olani	MoI
19.	Dawit Azene	MoE
20.	Dejen Eshetu	MUI
21.	Derege Moges	MOTL
22.	Dr. Chala Wordafe	MoA
23.	Dr. Firew Tafesse	Betin
24.	Dr. Sisay Sinamo	MoH
25.	Dugassa Dunfa	MoI
26.	Fanuel Abera	MOWSA
27.	Fesseha Tekele	MOH
28.	Getachew Metaferya	EDRMC
29.	Girma Guluma	FDREEPA
30.	Hiwot Darsene	MoH
31.	Jemal Allye	MoA
32.	Kebede Dacha	Gov. Communication Service
33.	Lemlem Tesfaye	MoILL
34.	Mamo Dogiso	MoA
35.	Neagsh Sime	EFDA
36.	Saba Alemshay	MinT
37.	Temesgen Walelign	MOTL
38.	Tesfaye T/Mariam	EPHI
39.	Yared Mekuria	EPA
40.	Zeleke Belay	MoA

41.	Kidus Debebe	ATI
42.	Amsalu Tadesse	MoA
43.	Fasil Beyene	ATI
44.	Asnake Belay	MoA
45.	Shibabaw Yirsaw	MoA
46.	Tekeste Getachew	ATI
47.	Peka Befekadu	ATI
48.	Lydia Berhanu	ATI
49.	Abdi Mumed	Ecc
50.	Musba Kedir	EIAR
51.	Abebe Olani	AHI
52.	Melese Maryo	EBI
53.	Musba Kedir	EIAR
54.	Tolesa Alemu	EIAR
55.	Wubshet Teshome	EBI
56.	Tamene Yohannes	EBI
57.	Talemo Date	EFD
58.	Mekonnen Bekele	PSI
59.	Tesfamariam Cerye	Betin
60.	Dr.Bruktawit Ejigu	ATI

List of Development partners

No.	Name	Organization
1.	Adriano Spinelli	FAO
2.	Adugna Eneyew	GIZ
3.	Ahunas Myhasdo	WFP
4.	Blen Terfe	Alliance Bioversity & CIAT
5.	Carolin Speckhahn	GIZ
6.	Dejene Kassahun	ABC
7.	Dr Maru Shete	FAO
8.	Ermias Tadesse	Ayuda en Accion
9.	Genet Gebremedihin	GAIN
10.	Girmay Kassa	BRE
11.	Hanna Schmitt	UNIRCO
12.	Luelseged Tamene	Alliance Bioversity & CIAT
13.	Maya Hage-Ali	FAO
14.	Dessalegn Molla	ILRI
15.	Mengesha Tadesse	IEG/WorldBank
16.	Meron Wubshet	Helvetas
17.	Moges Mesfin	UNIDO
18.	Muluken E. Alemesged	IWMI
19.	Naomi Berehanu	WHH
20.	Negus Melese	Concern
21.	Ramadan Noor	UNICEF

22.	Sale Klasnia	CCRDA
23.	Sara Worku	Alliance 2015
24.	Serkalem Getahun	People In Need
25.	Setegn Gebeyehu	CIP
26.	Stanley Chicklve	UNICEF
27.	Kalkidan Alele	CIAT/CGIAR
28.	Wubet Girma	GAIN
29.	Yetayesh Mane	UNICEF
30.	Yidnekachew Wondimu	World Vegitable Centere
31.	Yirgalem GebreMeskel	USAID
32.	Tigist Worku	ILRI
33.	Namukolo Covic	ILRI
34.	Kumlachew Geremew	ILRI
35.	Getachew Legese Feye	ILRI
36.	Mulugeta Yitayih	ICRI

Annex 3. B: Participating Organizations During Country Diagnostics

t: +251 115 570 678 // +251 115 570 679

info@ati.gov.et
www.ati.gov.et