Food and Agriculture Organization
of the United Nations

A GUIDANCE NOTE TO ENHANCE NUTRITION SENSITIVITY

in Global Environment Facility (GEF) investments and programming

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FOREWORD

As a partner agency of the Global Environment Facility (GEF), the Food and Agriculture Organization of the United Nations (FAO) supports over 130 countries in delivering global environmental benefits and advancing the Sustainable Development Goals.

FAO and the GEF are increasingly taking an integrated approach to effectively address complex challenges at the intersection of agrifood systems and the environment. Agrifood systems are responsible for one-third of global greenhouse gas emissions, 80 percent of deforestation, 70 percent of freshwater use, and are the single greatest cause of terrestrial biodiversity loss. The way we produce and consume food has a significant impact on the environment, with dietary patterns being influenced by agrifood systems but also shaping supply systems with different environmental footprints.

In this regard, FAO recognizes healthy diets as a strong lever for improving nutrition and environmental sustainability. Recognizing healthy diets as both an outcome of and a driver of agrifood systems change can advance GEF work on climate change and biodiversity, and ultimately support the achievement of global environmental benefits. Likewise, planning programmes with this mindset can also have positive impacts on gender empowerment, youth inclusion, and the resilience and food security of communities and individuals living in situations of vulnerability.

The eighth GEF replenishment cycle (GEF-8), which operates under a "Healthy People, Healthy Planet" framework, puts human health and well-being at the forefront and provides greater opportunities for collaboration to further integrate a healthy diet perspective into GEF programming. GEF-8 is therefore an opportunity not only to accelerate action on the environment, but also to support interventions that improve availability, accessibility and affordability of healthy diets and create more resilient livelihoods, while improving ecosystem health.

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ABBREVIATIONS AND ACRONYMS

APFS	agro-pastoral field schools
DSL IP	Drylands Sustainable Landscapes Impact Programme
ESN	Food and Nutrition Division, FAO
FAO	Food and Agriculture Organization of the United Nations
FFS	farmer field school
FIES	Food Insecurity Experience Scale
GEB	global environmental benefits
GEF	Global Environment Facility
GHG	greenhouse gas
HDDS	Household Dietary Diversity Score
MDD-W	Minimum Dietary Diversity for Women of Reproductive Age
MDD-Y	Minimum Dietary Diversity for Young Children
M&E	monitoring and evaluation
MTM	mapping of territorial market
NTFP	non-timber forest product
NUS	neglected and underutilized species
OCB	Office of Climate Change, Biodiversity and Environment, FAO
PAW	programmatic areas of work
SHARP+	Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists
SMEs	small and medium enterprises
STAP	Scientific and Technical Advisory Panel
TAPE	tool for agroecology performance evaluation
WASH	water, sanitation and hygiene
WHO	World Health Organization


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EXECUTIVE SUMMARY

With the aim of enhancing nutrition sensitivity in Global Environment Facility (GEF) investments and programming, this guidance note is based on a review of 12 purposively selected GEF-6 and GEF-7 projects within the FAO portfolio that was conducted in the first half of 2022. Following an agrifood systems approach, the guidance note provides a list of potential opportunities for action that could be considered in GEF project[1] design to ensure nutrition gains are achieved as co-benefits alongside the formally set global environmental benefit (GEB) targets.

Good nutrition is necessary for health, growth, development and all aspects of well-being. Eating a healthy diet is crucial for preventing all forms of malnutrition, including undernutrition (stunting, wasting, low weight, micronutrient deficiencies) and overweight and obesity. Addressing malnutrition in all its forms offers one of the greatest development opportunities in the world today to achieve the 2030 Agenda for Sustainable Development. Since the Second International Conference on Nutrition in 2014, FAO Members have called for a transformation in agrifood systems to provide healthy diets for all.

A recent FAO publication, *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities* (FAO, 2021a) proposes a theory of change in which biodiversity and healthy diets are two levers to enhance nutrition and health outcomes and optimize environmental and social impacts. The guidance note adopts an agrifood systems perspective to identify a range of transformative actions, from the ecosystems supporting food production all the way to food consumption.

Results from the desk review of 12 purposively selected GEF-6 and GEF-7 projects within the FAO portfolio identified as having the potential to be nutrition-sensitive reveal that these projects consider improvements in food security and nutrition as co-benefits. While assessed project interventions covered ecosystem services (e.g. biodiversity conservation, preservation of freshwater resources) and supply chains (e.g. increased productivity of selected nutritious foods) extensively, significantly less consideration was given to interventions focusing on the food environment[2] and consumer behaviour to enhance accessibility, affordability and desirability of sustainably produced nutritious food. Interviews with key informants confirmed limitations in the availability and knowledge of tools and metrics to help prioritize interventions with the highest nutrition, dietary, environmental and socioeconomic returns.

The guidance note provides opportunities for action across agrifood systems to increase availability, accessibility and consumption of safe and nutritious food as part of healthy diets, with a focus on those groups and individuals at greatest vulnerability. The GEF-8 projects (2022–2026) represent an opportunity to bring greater coherence between environmental benefits and nutrition, health and social outcomes as co-benefits of the GEB targets.

[1] GEF projects refer to the cluster of trust funds, including the GEF Trust Fund, Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF).

[2] The physical, economic, political and sociocultural context in which each consumer engages with the agrifood system to acquire, prepare and consume food. The key elements of the food environment that influence food choices, food acceptability and diets are physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety (HLPE, 2017).

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INTRODUCTION

Purpose

The purpose of this guidance note is to enhance the nutrition sensitivity[3] of GEF investments and programming. The guidance note describes potential opportunities for action that could be considered in project design to leverage GEF impacts beyond GEB targets.

The GEF recognizes that the socioeconomic co-benefits of the GEB targets, which include nutrition, can be essential and useful, and encourages the pursuit of these through the Rio markers.[4] Nevertheless, the impact of these socioeconomic co-benefits is not systematically measured as part of the GEF programming.

This guidance note identifies opportunities for action to link environmental interventions, which are the core of GEF activities, and interventions to transform agrifood systems to provide safe and nutritious foods for healthy diets. In line with the **"Healthy People, Healthy Planet" approach adopted by the GEF**, a nutrition-sensitive approach in programming has the potential to accelerate the achievement of the GEB targets by deepening the impact on resilience building and vulnerability reduction. The set of actions agreed upon to enhance the nutrition sensitivity of GEF programming will depend on the context, the capacity of implementing agencies and the available resources. The guidance note outlines incremental steps to ensure the highest uptake during the design phase of new GEF projects.

The development of this guidance note represents an important and timely endeavour considering the new four-year funding cycle, the **GEF-8**, which began in July 2022. It is aligned with the recent adoption of the new FAO Strategic Framework for the period 2022–2031, which aims to support the 2030 Agenda through a transformation to more efficient, inclusive, resilient and sustainable agrifood systems.

The centrality of agrifood systems to the provision of safe and nutritious food for healthy diets is also stated in the recent *FAO Strategy on Climate Change 2022–2031*:

> "*Agrifood systems are sustainable, inclusive, resilient, and adaptive to climate change and its impacts and contribute to low-emission economies while providing sufficient, safe and nutritious foods for healthy diets, as well as other agricultural products and services, for present and future generations, leaving no one behind*" (FAO, 2022a).

[3] A concept designed to address the underlying determinants of nutrition (which include household food security, care for mothers and children, and primary health services and sanitation) but not necessarily as a predominant goal (FAO, 2014).

[4] The Rio markers, introduced by the Organisation for Economic Co-operation and Development, aim at monitoring and reporting on the development finance flows targeting the themes of the Rio Conventions (biodiversity, desertification, climate change mitigation and climate change adaptation).

As part of its commitment to upscaling support for improved nutrition and healthy diets for all, FAO has committed to increasing the share of nutrition-sensitive projects and programmes in its portfolio by 50 percent by 2025, maintaining or increasing this share through 2030 (Nutrition for Growth, 2021). The Organization has also pledged to have at least 90 percent of its new action plans related to agrifood systems include enabling access to healthy diets as a priority.

Structure

This guidance note is structured as follows:

- relevance of nutrition for GEF goals and work;
- summary results from the review of 12 purposively selected GEF-6 and GEF-7 projects within the FAO portfolio identified as having the potential to be nutrition-sensitive;[5]
- recommendations for enhancing nutrition gains in GEF-8 project design.

Target audience

The primary target audience of this guidance note is the GEF secretariat, the GEF Scientific and Technical Advisory Panel (STAP) and the OCB-GEF Coordination Unit in FAO, as well as FAO country offices that provide technical assistance for the design and implementation of GEF projects.

The guidance note can also be useful for other GEF agencies, GEF operational focal points, partners, and consultants involved in GEF projects. The aim is to guide them on the selection of potential opportunities for action to support nutrition gains as a socioeconomic co-benefit of the GEB targets.

[5] For the purposes of this report projects were considered to have the potential to be nutrition-sensitive if they embrace an approach through which improving diets and/or addressing one or several underlying determinants of nutrition (which include household food security, care for mothers and children and primary health care services and sanitation) is a significant dimension of a project while not being its principal objective.

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RELEVANCE OF NUTRITION FOR GEF GOALS AND WORK

Climate change, biodiversity and nutrition nexus

Climate change, undernutrition and obesity have been characterized as a "global syndemic" – multiple pandemics that interact with each other. Together, they are the paramount challenge to both human and planetary health, affecting all regions of the world and sharing common drivers (Swinburn *et al.*, 2019).

As highlighted in the recent FAO publication, *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities* (FAO, 2021a), the urgency in tackling these interlinked challenges is widely recognized, but there is less clarity on how to position food and diets at the centre of this nexus.

As summarized by the EAT-Lancet Commission, "Food is the single strongest lever to optimize human health and environmental sustainability on Earth. However, **food is currently threatening both people and planet**" (EAT, 2019). Indeed, while climate change and environmental degradation are key drivers shaping agrifood systems, these systems in turn are a top contributor to environmental degradation, climate change and biodiversity loss (FAO, 2021a).

Impact of agrifood systems on biodiversity and climate change

Agrifood systems are responsible for one-third of global greenhouse gas (GHG) emissions (Crippa *et al.*, 2021), 70 percent of global freshwater withdrawals (FAO, 2017b), and a significant amount of conversion and degradation (FAO and WHO, 2019). There is an increasingly larger proportion of GHG emissions generated off-farm, in the pre- and post-production processes (Tubiello *et al.,* 2022). Between 1990 and 2019, emissions from pre- and post-production processes more than doubled from 2.8 to 5.8 billion tonnes, while on-farm emissions increased by 9 percent (from 6.6 to 7.2 billion tonnes) and emissions from land use decreased by 25 percent (from 4.6 to 3.5 billion tonnes). Thus, of the total GHG emissions from agrifood systems, it is estimated that 13 percent currently come from farm production (19 percent in 1990), 6 percent from land-use change (13 percent in 1990), and 11 percent from pre- and post-production processes (8 percent in 1990). This increase in off-farm emissions has important implications for addressing climate change.

It is estimated that 8–10 percent of GHG emissions are associated with food loss and waste (UNEP, 2021). Globally, 14 percent of food produced is lost up to and excluding the retail stage (FAO, 2019a), while 17 percent of food available for human consumption is wasted at the retail and consumer stage (UNEP, 2021), resulting in unnecessary and avoidable emissions and waste of resources.

Agrifood systems are the single greatest cause of terrestrial biodiversity loss (UNCCD, 2022). The global dependence on the consumption of a small number of widely commercialized staple foods is contributing to biodiversity loss, poor dietary quality and increased risks of malnutrition (Owino et al., 2022; Wijerathna-Yapa and Pathirana, 2022). The global food landscape currently relies on just 12 crops and five animal species to provide 75 percent of the world's food availability, therefore decreasing resilience to shocks (FAO, 2016b).

Impact of climate change and biodiversity loss on food and nutrition

Climate change is projected to lead to higher mortality of livestock, decreased fish catch potential and increased risk of wildfire, resulting in diminished access to bushmeat and other wildlife. Other negative impacts include decreased crop yields, species loss and extinction, and changes in the distribution of pests and disease, which will impact food availability and price stability. Food losses and waste, especially of fruit and vegetables, are also predicted to increase as a result of climate change (Mbow *et al.*, 2019).

Climate change also threatens food safety by exacerbating the problem of food-borne diseases, which can increase the persistence, virulence and (in some cases) toxicity of certain pathogens (Duchenne-Moutien and Neetoo, 2021). Food safety can thus be jeopardized through a number of risks in a changing climate, from increased pesticide use due to greater pest resistance, increased complexity in establishing secure cold chains, or the occurrence of more severe weather events that cause runoff of chemical contaminants into the environment (Duchenne-Moutien and Neetoo, 2021).

In addition, from a nutritional standpoint, climate change affects micronutrient concentrations in some plant-based foods and may therefore increase risk of some micronutrient deficiencies (Semba *et al.*, 2022; Myers *et al.*, 2015). While increased carbon dioxide levels can support crop productivity if average temperatures do not increase over certain thresholds, estimates from climate change models suggest that the nutritional value of some staple foods such as wheat and rice will be reduced due to lowered concentrations of protein, zinc and iron (Mbow *et al.,* 2019; Zhu *et al.*, 2018; Myers *et al.*, 2015).

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The role of healthy diets for human and planetary health

A healthy diet is health-promoting and disease-preventing. It provides adequacy, without excess, of nutrients and health-promoting substances from nutritious foods and avoids the consumption of health-harming substances (Neufeld, Hendriks and Hugas, 2023).

FAO and the World Health Organization (WHO) consider that healthy diets adhere to principles of sustainability when they promote all dimensions of individuals' health and wellbeing; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. They must combine all dimensions of sustainability to avoid unintended consequences (FAO and WHO, 2019).

Healthy diets from sustainable agrifood systems are key levers to improve human and planetary health. Healthy diets from sustainable agrifood systems help to achieve optimal growth and development and support functioning and physical, mental, and social wellbeing at all life stages. They also prevent all forms of malnutrition, including undernutrition, micronutrient deficiency, overweight and obesity, and reduce the risk of diet-related non-communicable diseases and mortality. Healthy diets can minimize diet-related greenhouses emissions, water and land use of current agrifood systems, enhance biodiversity by encouraging diversification of food production, reduce food loss and waste by promoting local and seasonal foods, and improve the resilience of agrifood systems to shocks and stresses.

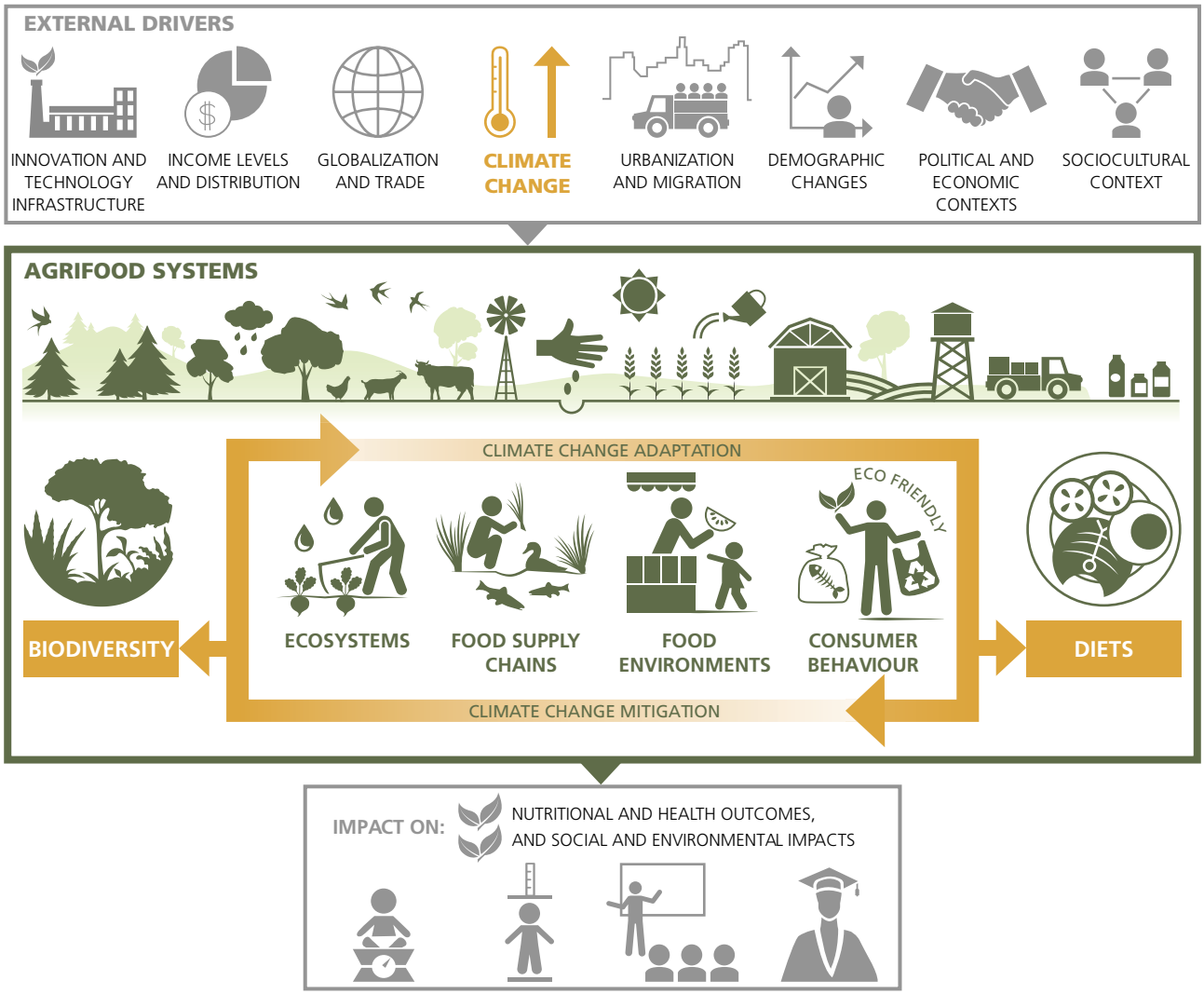
A shift towards healthy diets through more efficient, inclusive, resilient and sustainable agrifood systems could drastically reduce the health and climate change costs of current diets, estimated at USD 1.3 trillion and USD 1.7 trillion respectively (Springmann, 2020). Addressing environmental challenges and malnutrition simultaneously to accelerate progress on all aspects requires actions across the agrifood systems from the ecosystem, to production, processing, distribution and consumption of safe and nutritious food, as part of healthy diets.

The FAO publication, *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities* (FAO, 2021a) proposes a theory of change (Figure 1) in which biodiversity and healthy diets are two levers to enhance nutrition and health outcomes and optimize environmental and social impacts.

This recognizes the importance of agri-food systems that are inclusive of the most vulnerable people and resilient to shocks and stresses from climate change, based on the following premises:

> *If biodiversity within and across terrestrial, marine and other aquatic ecosystems is protected and promoted as the foundation for healthy diets through agroecological, people-centred approaches, then a wider range of sustainable production systems (agriculture, forestry and fishery) will be incentivized; as a result a variety of safe and nutritious foods will be made more accessible and affordable throughout the year.*
>
> (FAO, 2021a)

Figure 1. Theory of Change: climate change, biodiversity and nutrition nexus



Source: **FAO.** 2021. *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities.* Rome. Adapted from 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.

Climate-change adaptation comprises the measures that the agri-food systems must adopt in response to the adverse effects of climate change and in preparation for future shocks and stressors; it includes actions from the ecosystems level all the way to the coping behaviours of consumers (FAO, 2018a). In contrast, **climate-change mitigation** starts from the standpoint of the consumer, demonstrating the critical role that changes in demand can play in incentivizing shifts in the supply of foods that reduce pressure on the environment and biodiversity loss and contribute to the reduction of greenhouse gas GHG emissions (FAO, 2018a).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Box 1. Diets and biodiversity

Recent years have seen growing interest in the links between diets and biodiversity.[a]

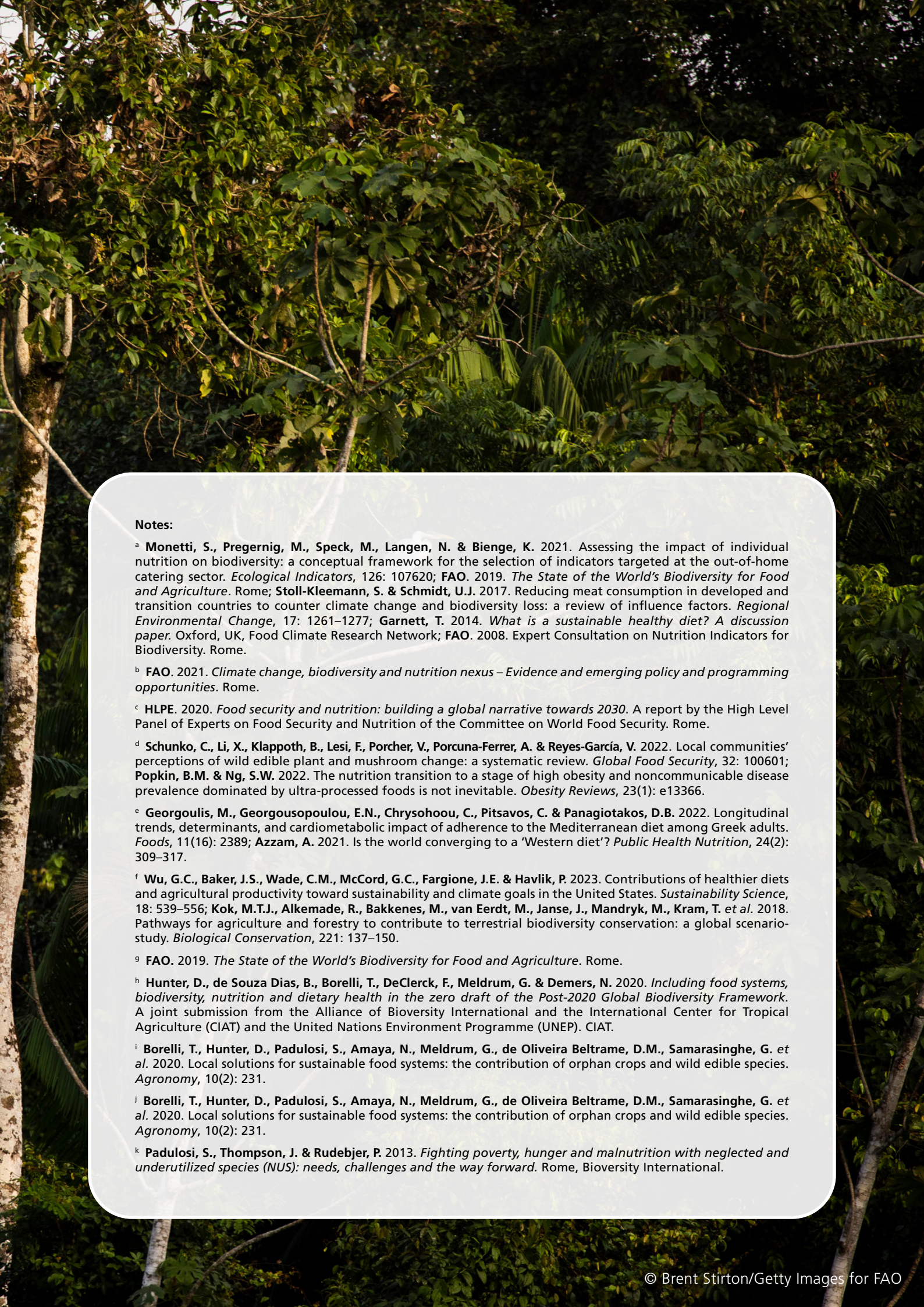
The dependency of global food supply and diets on a limited number of commodities has not only nutritional implications in terms of micronutrient deficiency and increased prevalence of obesity but also environmental consequences, namely an increasingly homogenous food landscape and decreases in the variety of crops and the number of animal species reared in the world.[b,c] This global trend has led to an increase in the supply of nutrient-dense foods but a decrease in the quality of diets, now characterized by high consumption of added sugars and fats, sodium, and refined carbohydrates, while vegetables, legumes, minor crops and wild foods have become less prominent.[d] This nutritional transition, driven by economic growth, globalization and urbanization, often results in more consumption of oils, fats, salt and a global homogenization of diets especially in countries highly connected to the global economy.[e] Although their environmental impacts vary, dietary shifts towards nutritious foods that are sustainably produced could lower GHG emissions and land use, reduce agrifood systems' environmental footprint, support biodiversity preservation and improve human health.[f]

Promoting the sustainable use and conservation of ecosystems (e.g. forests, grasslands, marine and coastal waters) and biodiversity plays a key role in regulating GHG concentrations through the earth's carbon cycle and also in improving the resilience of production systems. For example, managing production systems to increase soil organic matter contributes to biodiversity, which enhances the soil's capacity for nutrient retention, nutrient cycling and water retention, thus increasing resilience to weather-related shocks. Agricultural biodiversity provides to producers a source of multiple crops and breeds to better adapt to alterations in precipitation and temperature regimes. Wild relatives of domesticated species provide a pool of genetic resources for hybridization and selection, supporting a diversity of foods needed for a healthy diet. Biodiversity interacting with production systems is also essential to ecosystem services, including pollination, control of pests and regulation of water supplies.[g]

The development of the Post-2020 Global Biodiversity Framework underlines the need to promote agrobiodiversity in diets and, more generally, in production landscapes, by tackling both supply and demand in agrifood systems.[h]

The promotion of neglected and underutilized species (NUS) and wild edibles (i.e. uncommon species and varieties that have been overlooked in agricultural research and investments) represents an important strategy to enhance agrobiodiversity and improve dietary diversity that is time- and resource-efficient.[i] NUS, and specifically the great number of nutrient-rich crops that are already locally available and affordable, are in fact interesting from both environmental and nutrition perspectives. They are generally more climate-resilient, being adapted to local conditions and requiring fewer inputs, and could play an important role in improving nutrition.[j]

Local cultivars and NUS already play a central role in food security and nutrition and the social and economic welfare of many rural populations. In many areas, rural women and Indigenous Peoples are the main custodians of these species and associated knowledge, making them an important lever for the empowerment of these groups and the improvement of local livelihoods.[k] However, this knowledge is rapidly disappearing due to cultural loss, which in turn contributes to erosion of genetic diversity at different levels. Supporting the preservation and transmission of such species knowledge through equitable and inclusive agrifood systems that appropriately involve these communities is essential to ensure healthy diets and protect the environment.



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[h] **Hunter, D., de Souza Dias, B., Borelli, T., DeClerck, F., Meldrum, G. & Demers, N.** 2020. *Including food systems, biodiversity, nutrition and dietary health in the zero draft of the Post-2020 Global Biodiversity Framework*. A joint submission from the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT) and the United Nations Environment Programme (UNEP). CIAT.

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[j] **Borelli, T., Hunter, D., Padulosi, S., Amaya, N., Meldrum, G., de Oliveira Beltrame, D.M., Samarasinghe, G.** *et al.* 2020. Local solutions for sustainable food systems: the contribution of orphan crops and wild edible species. *Agronomy*, 10(2): 231.

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SUMMARY RESULTS FROM THE REVIEW OF 12 GEF-6 AND GEF-7 PROJECTS

The review of 12 purposively selected GEF projects within the FAO portfolio identified as having the potential to be nutrition-sensitive highlighted the following aspects as the basis of a potential nutrition-sensitive approach:

- **Food security and nutrition improvements** are clearly mentioned as co-benefits of the GEB targets, although the review shows that the emphasis is more on food security dimensions linked to availability and accessibility of food with less consideration given to dietary and nutrition aspects.
- **Food security is assessed** in 5 of the 12 projects through the use of the Food Insecurity Experience Scale (FIES).
- **Dietary diversity of producers' households** is assessed in 8 of the 12 projects through the use of the Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP+) and the tool for agroecology performance evaluation (TAPE). None of the projects has assessed individual dietary diversity.
- **Opportunities for action to support healthy diets and nutrition** are identifiable in all projects. These include diversification in production; sustainable food value chain development; homestead production and community gardens market access for smallholder producers; and promotion of consumption of agrobiodiverse nutritious foods.
- **Promotion of food commodities with potential contribution to healthy diets** are observed in many projects which support horticultural products, legumes, nuts, and livestock-derived food and fish.

The heat map in Figure 2 summarizes the results of the review of GEF-6 and GEF-7 projects based on the identification of activities with the potential to enhance the nutrition sensitivity of GEF programming (see Appendix 1 for the full review). The activities are grouped under six overarching categories, and a colour-coded scale indicates how prevalent they are in the reviewed projects. The scale goes from potentially nutrition-sensitive activities that are lacking in all projects (e.g. production of biofortified staples or reduction of food waste at retail level) to activities that are present in few projects (e.g. nutrition education for producers/farmers or public procurement), many projects (e.g. data collection on food security and household dietary diversity), most projects (e.g. homestead production for self-consumption or activities linking smallholder farmers/producers to markets) and all projects (e.g. activities targeting women or aimed at preserving ecosystem services).

Figure 2. Heat map summarizing the presence of potentially nutrition-sensitive activities in the 12 GEF projects reviewed

Nutrition and dietary situation analysis	Gender, youth and communities in vulnerable situations	Ecosystems	Food supply chains	Food environment	Consumer behaviour
Activities to collect data on food security and household dietary diversity score	Activities targeting communities in vulnerable situations	Activities aimed at preserving ecosystem services in support of food or feed production	Activities promoting production of nutrient-dense local cultivars	Activities related to direct market access and infrastructure for nutritious food	Activities related to nutrition education / awareness raising among consumers
	Activities targeting women	Activities promoting wild, local and native species	Activities promoting production of biofortified staples	Activities aimed at reducing food waste in retail and restaurants / food service	Activities linking demand with supply of nutritious food promoted in the project
	Activities targeting youth	Activities promoting neglected and underutilized species	Activities aimed at reducing food loss at farm gate through facilities, equipment, knowledge, skills	Activities related to public procurement	Activities aimed at reducing food waste at consumer level
			Activities promoting homestead production for own consumption	Activities related to food labelling	
			Activities linking producers/ farmers to markets	Activities related to financial incentives for purchase of nutritious food	
			Activities related to nutrition education for producers/ farmers		
			Activities aimed at improving storage and processing targeted to small and medium enterprises (SMEs), cooperatives, community-based groups, etc.		

Scale: nutrition sensitive activites lacking in all projects (0) to activities present in all projects (12):

0	1	2	3	4	5	6	7	8	9	10	11	12

Source: Authors' own elaboration.

Box 2. Nutrition and resilience

Strengthening the resilience of agrifood systems and livelihoods has been identified as a key development objective towards anticipating, preparing for and responding to natural hazards, crises and climate change.[a]

Among other strategies, improving nutrition is a powerful means of increasing the resilience of individuals and communities. Well-nourished children are more likely to grow up to be healthy individuals who can contribute towards economically productive societies with increased GDP.[b] According to a study in Africa, investing USD 1 in nutrition results in a USD 16 return.[c] Investing in both nutrition-specific and nutrition-sensitive interventions will ensure a more rapid reduction of malnutrition.[d]

Building resilience must be addressed at all levels, identifying the most vulnerable individuals, households and communities that cannot withstand shocks and are therefore likely to be increasingly unable to meet their nutritional needs.[e] Quantifying resilience and climate change adaptation in a more substantial way beyond primary production could be achieved by measuring nutrition status among nutritionally vulnerable individuals such as young children under five years of age and pregnant and lactating women. This could be done in conjunction with other United Nations agencies such as the United Nations Children's Fund and the World Food Programme that are specialized in conducting population-based representative nutrition surveys.

The resilience index measurement and analysis (RIMA), for example, estimates household resilience to food insecurity with a quantitative approach by considering components such as food expenditure and consumption and the FIES.[f] While the Household Dietary Diversity Score (HDDS) provides an indication on food insecurity, the inclusion of the Minimum Dietary Diversity for Women (MDD-W) of Reproductive Age and/or the Minimum Dietary Diversity for Young children (MDD-Y) between 6 and 23 months could provide a better indication of diet quality and risks of micronutrient inadequacy.

Metrics that include dietary indicators could help strengthen current GEF measures taken to assess resilience among target beneficiaries.

Notes:

a **Choptiany, J.M., Phillips, S., Graeub, B.E., Colozza, D., Settle, W., Herren, B. & Batello, C.** 2017. SHARP: integrating a traditional survey with participatory self-evaluation and learning for climate change resilience assessment. *Climate and Development,* 9(6): 505–517.

b **Hoddinott, J.** 2016. *The economics of reducing malnutrition in Sub-Saharan Africa*. Global Panel on Agriculture and Food Systems for Nutrition Working Paper.

c **Hoddinott, J.** 2016. *The economics of reducing malnutrition in Sub-Saharan Africa.* Global Panel on Agriculture and Food Systems for Nutrition Working Paper.

d **Hoddinott, J.** 2016. *The economics of reducing malnutrition in Sub-Saharan Africa.* Global Panel on Agriculture and Food Systems for Nutrition Working Paper.

e **FAO.** 2021. *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities.* Rome.

f **FAO.** 2016. *Resilience Index Measurement and Analysis – Short Questionnaire*. Rome. https://www.fao.org/agrifood-economics/publications/detail/en/c/1364001/

RECOMMENDATIONS FOR ENHANCING NUTRITION SENSITIVITY IN GEF-8 PROJECT DESIGN

Based on the results from the review of 12 GEF-6 and GEF-7 projects within the FAO portfolio identified as having the potential to be nutrition-sensitive, this section provides a suggested approach to incorporate options, which could improve diet and nutrition as co-benefits of the GEB targets along the four components of the agrifood system.

The following tables are organized according to the six overarching categories that were used for the review of GEF-6 and GEF-7 projects, with a short introduction to explain the relevance for GEF-8 project design.

- The **first column** in the tables lists all the **entry points** already included in GEF programming that have potential for enhancing nutrition gains.
- The **second column** provides the **opportunities for action** that are recommended for integration in GEF-8 project design to enhance nutrition gains.
- The **third column** lists the **expected outcomes** from the implementation of the recommended actions.
- The **fourth column** lists potential links with **GEF programmatic areas of work**.

The actions are presented as opportunities that can be selected according to the context (i.e. food insecurity and malnutrition determinants, or risks and opportunities associated with improvements), the scope of the project, and the capacity of the implementing agencies.

Table 1. Key opportunities within nutrition and dietary situation analysis to enhance nutrition sensitivity in GEF-8 project design

NUTRITION AND DIETARY SITUATION ANALYSIS			
Many of the 12 GEF projects reviewed assess food security and dietary diversity of producers' households to provide background information during the design and planning stage. In some cases, indicators such as FIES and HDDS are integrated in the monitoring and evaluation (M&E) framework and measured during baseline and endline. A nutrition and dietary situation analysis can help clarifying the nutritional status of the GEF beneficiaries by assessing dietary habits, identifying and anticipating nutritional deficiencies, and highlighting some of the barriers to accessing and consuming safe and nutritious foods as part of healthy diets.			
Entry points within GEF programming	**Key opportunities to enhance nutrition sensitivity**	**Expected outcomes**	**Potential links with GEF programmatic areas of work (PAW)**
Design stage **Development of M&E frameworks**	Systematize the inclusion and monitoring of nutrition and dietary situation analysis in all GEF projects through the use of SHARP+, TAPE and MTM tools. To the extent possible, integrate minimum dietary diversity among women of reproductive age (MDD-W) and young children (MDD).	Increased likelihood that the design of GEF projects and specific interventions address nutrition, environmental and socioeconomic benefits and related linkages. Increased likelihood that the dietary impact is measured through adequate M&E systems.	• Biodiversity • Agrobiodiversity • Wild crop relatives • Wildlife conservation for development • Critical forest biomes • Ecosystem restoration
Resources: **FAO**. 2015. *Designing Nutrition-Sensitive Agriculture Investments. Checklist and Guidance for Programme Formulation*. Rome. https://www.fao.org/documents/card/en/c/6cd87835-ab0c-46d7-97ba-/ **FAO**. 2023. *FAO e-learning courses on nutrition-sensitive agriculture and food systems*. In: FAO Nutrition. Rome. [Cited 11 May 2023]. https://www.fao.org/nutrition/policies-programmes/e-learning/en/ **FAO**. 2017. Nutrition-sensitive agriculture and food systems in practice – Options for intervention. Rome. https://www.fao.org/3/i7848en/I7848EN.pdf **FAO**. 2016. Compendium of nutrition-sensitive indicators in agriculture. Rome. https://www.fao.org/documents/card/en?details=644881b0-22f4-476c-8fdb-%2f			

Source: Authors' own elaboration.


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Table 2. Key opportunities related to gender, youth, and communities in vulnerable situations to enhance nutrition sensitivity in GEF-8 project design

GENDER, YOUTH, AND COMMUNITIES IN VULNERABLE SITUATIONS

All 12 GEF projects reviewed integrate a gender perspective through dedicated gender equality and women's empowerment activities, or through project analyses that clearly explain the gender implications of each specific activity. Similarly, youth play a central role within the GEF. While youth and gender are well integrated, the social inclusion of communities in vulnerable situations is less systematic. A better understanding of the needs and entitlements of these communities could help generate evidence for designing specific interventions within GEF-8 projects.

Entry point within GEF programming	Key opportunities to enhance nutrition sensitivity	Expected outcomes	Potential links with GEF programmatic areas of work (PAW)
Gender **Youth** **Indigenous Peoples** **Communities in vulnerable situations**	Identify the individuals and groups with the greatest food insecurity and nutritional vulnerability to help them overcome the barriers to accessing and consuming safe and nutritious foods as part of a healthy diet. Ensure that the needs and entitlements of local communities and Indigenous Peoples are protected and that economic opportunities align with their food systems and knowledge. Ensure the inclusion of smallholder farmers and producers in the development of food value chains, minimizing potential risks to their livelihoods, including dietary habits. Integrate the empowerment of women and youth in the development of food value chains, including aspects such as control over income and time/labour burden to minimize potential risks.	Increased likelihood that the design of GEF projects and specific interventions address nutrition, environmental and socioeconomic benefits and related linkages. Minimization of trade-offs that could harm gender, youth, Indigenous Peoples and communities in situations of greatest vulnerability, with a specific consideration to their dietary habits and nutritional needs.	• Biodiversity • Agrobiodiversity • Wild crop relatives • Wildlife conservation for development • Critical forest biomes • Ecosystem restoration

Resources:

FAO. 2020. FAO e-learning course on developing gender-sensitive value chains. In: *FAO eLearning Academy*. Rome. Cited 11 May 2023.

FAO. 2014. FAO e-learning course on gender in food and nutrition security. In: *FAO eLearning Academy*. Rome. Cited 11 May 2023.

FAO. 2014. *Nutrition and Resilience. Strengthening the links between Resilience and Nutrition in Food and Agriculture*. Rome. https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/458441

Source: Authors' own elaboration.


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Table 3. Key opportunities within ecosystems to enhance nutrition sensitivity in GEF-8 project design

ECOSYSTEMS All 12 GEF projects reviewed focus on ecosystem services restoration to sustain natural resources (including the quality of fresh water and soils on which humanity depends), maintain biodiversity and genetic resources, regulate the climate, provide pollination and pest control, and reduce the impact of natural hazards. The inclusion of NUS, wild and local/native species within value chains should be assessed against the potential risks for local communities and Indigenous Peoples, who depend on these species for their own dietary needs and livelihoods.			
Entry point within GEF programming	**Key opportunities to enhance nutrition sensitivity**	**Expected outcomes**	**Potential links with GEF programmatic areas of work (PAW)**
Biodiversity and genetic resources	Promote NUS, wild and local/native species that can be part of diverse and healthy diets. Map and characterize NUS, wild and local/native species with the support of local communities and Indigenous Peoples to ensure that their entitlements are fully protected.	Increased likelihood that the design of GEF projects and specific interventions address nutrition, environmental and socioeconomic benefits and related linkages. Environmental goals and livelihood diversification aligned with nutritional outcomes, safeguarding nutritional and dietary needs of the individuals and groups in greatest vulnerability.	• Access and benefit sharing (biodiversity) • Agro-biodiversity • Wild crop relatives • Land degradation • Critical forest biomes • Ecosystem restoration
Resources: **Padulosi, S., Phrang, R., & Rosado May, F. J.** 2019. *Supporting Nutrition Sensitive Agriculture through neglected and underutilized species: Operational framework*. Rome, Bioversity International and IFAD.			

Source: Authors' own elaboration.

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Table 4. Key opportunities within food supply chains to enhance nutrition sensitivity in GEF-8 project design

FOOD SUPPLY CHAINS

All 12 GEF projects reviewed focus on food production activities including diversification, homestead production and community gardens for own consumption and sale and sustainable food value chain development including market access for smallholder producers. Several GEF projects aim at improving storage, processing and packaging through capacity development or provision of material and equipment targeting SMEs, producers' organizations, cooperatives or community-based groups. By embedding nutrition into existing activities, these can continue to deliver environmental benefits while also improving nutritional outcomes.

Entry points within GEF programming	Key options to enhance nutrition sensitivity	Expected outcomes	Potential links with GEF programmatic areas of work (PAW)
Sustainable food value chains that support nutrition (vs value chains focusing on cash crops or non-food items) **Homestead production and community gardens** for own consumption and for sale **Farmer field schools and/or Agro-Pastoral Field School** for food and nutrition related education **Micro-entrepreneurs, SMEs and smallholder producers** as part of the delivery of nutritious food value chains	Select nutritious foods in the development of food value chains, including nutritious varieties/cultivars. Promote the inclusion of climate-resilient nutrient-rich crops, nutrient-enriched crops, NUS, and wild and local/native species (where feasible). Promote sustainable animal production practices in line with agroecological principles that enable food security and the inclusion of animal-source food in local diets, with a focus on children, girls and pregnant or lactating women, while preserving ecosystem services. Include nutrition and food safety education at farm level through farmer field schools and/or the Agro-Pastoral Field School. Engage with SMEs and aggregators (e.g. producers' organizations, cooperatives or community-based groups) to help them take advantage of good nutrition as a possible business opportunity including support to reduce food loss and increase food safety. Reduce food loss at farm gate by supporting smallholder farmers and producers with capacities and equipment to store and process nutritious foods to lower perishability and enhance nutritional value. Systematize the promotion of home gardens, kitchen gardens, community gardens and other homestead food production models in GEF projects (where feasible). Increase understanding of nutrition among producers and other actors along the food value chain.	Increased diversity of promoted foods and variety of crops/species through value chains that enable healthy diets in line with environmental, economic and sociocultural sustainability. Increased likelihood that targeted producers will have access to more diversified and healthy diets. Increased availability, safety and affordability of selected nutritious foods in domestic markets. Reduced loss of nutritious food at farm level as well as during food distribution and marketing through capacity development of SMEs and aggregators. Improved nutrition knowledge, food safety and hygiene, and care and feeding practices (water, sanitation and hygiene (WASH) and food safety being currently unexplored) among all actors engaged in the food supply chain, including smallholder farmers and producers, aggregators and SMEs.	• Agrobiodiversity • Wild crop relatives • Climate change • Critical forest biomes • Sustainable cities • Food systems (general) • Food systems (aquaculture-based) • Food systems (livestock-based)

Resources:

FAO. 2020. Sustainable food value chains for nutrition. In: *FAO eLearning Academy*. Rome. [Cited 11 May 2023]. https://elearning.fao.org/course/view.php?id=566

FAO. 2021. Small and medium enterprises and nutrition – making the business case. In: *FAO eLearning Academy*. Rome. [Cited 11 May 2023]. https://elearning.fao.org/course/view.php?id=725

FAO. 2022. Small and medium enterprises and nutrition - upgrading business models. In: *FAO eLearning Academy*. Rome. [Cited 11 May 2023]. https://elearning.fao.org/course/view.php?id=816

Source: Authors' own elaboration.

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Table 5. Key opportunities within food environments to enhance nutrition sensitivity in GEF-8 project design

FOOD ENVIRONMENTS

Only a few of the GEF projects reviewed include activities influencing physical and economic access to food (proximity and affordability), food promotion, advertising, and information on food quality and safety. Examples of actions in GEF projects include direct market access for farmers (e.g. farmers' markets, fairs) and links to public procurement for school feeding programmes. GEF-8 projects could reinforce their impact on GEB by better integrating food environments in their design to increase the availability and accessibility of sustainably produced foods, and reduce food waste at retail level.

Entry points within GEF programming	Key options to enhance nutrition sensitivity	Expected outcomes	Potential links with GEF programmatic areas of work (PAW)
Food retail environments (e.g. territorial markets and infrastructures) to identify how they can drive environmental and nutritional benefits **Public procurement**, such as school feeding programmes, to support sustainable production practices and enable healthy diets **Social protection programmes** (e.g. CASH+ or vouchers)	Engage with retail actors to improve the availability, affordability, safety, convenience and desirability of nutritious foods in local markets, including through food marketing and labelling. Support infrastructure to reduce food waste at retail level (e.g. cold storage, warehouses, sanitation). Assess the food retail environment, in particular territorial markets, to understand incentives for food retailers, food producers and consumers. Foster stronger linkages between the promoted food value chains and public food procurement mechanisms and/or social protection programmes (where feasible). Organize consumer oriented information campaigns to improve demand of and access to locally-produced safe, nutritious and diversified food as part of healthy diets.	Improved availability, affordability, accessibility and safety of nutritious, *fresh* foods in local markets. Improved availability, affordability, convenience, safety and desirability of diversified *minimally processed* nutritious foods in local markets. Through market linkages and/or public procurement, increased business opportunities and income for smallholder farmers and producers. Through public procurement, improved demand for and supply of nutritious, fresh foods along with safety and quality standards. Increased likelihood that targeted communities have more demand for and access to locally-produced safe, nutritious and diversified food as part of healthy diets.	• Agrobiodiversity • International waters • Sustainable cities • Food systems (general)

Resources:

FAO. 2022. *Territorial markets for nutrition – Unleashing the potential of territorial markets for food security, healthier diets, and better nutrition*. Rome. https://www.fao.org/documents/card/en/c/cc3067en

FAO, Alliance of Bioversity International and CIAT and Editora da UFRGS. 2021. *Public food procurement for sustainable food systems and healthy diets - Volume 1*. Rome. https://doi.org/10.4060/cb7960en

FAO. 2020. Home-grown school feeding. In: *FAO eLearning Academy*. Rome. [Cited 11 May 2023]. https://elearning.fao.org/course/view.php?id=529

Source: Authors' own elaboration.


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Table 6. Key opportunities within consumer behaviour to enhance nutrition sensitivity in GEF-8 project design

CONSUMER BEHAVIOUR

Only a few of the GEF projects reviewed incorporate actions to influence consumer behaviour at societal, household or individual levels, on what, where and how people procure, use and dispose of food and feed (considering gender, age and social factors), as well as actions to promote changes in their food environments. The Mexico GEF project provides examples of good practices to ensure that consumer education effectively leads to increased awareness of and demand for sustainably produced agrobiodiverse products.

Entry points within GEF programming	Key opportunities to enhance nutrition sensitivity	Expected outcomes	Potential links with GEF programmatic areas of work (PAW)
Nutrition education and consumer awareness to drive demand for sustainably produced nutritious food	Engage with local consumers through market researches to understand their needs and preferences in order to better link the demand to the supply of nutritious food. Integrate nutrition promotion and education in all activities targeted at producer households, including measures for processing, storage, preservation and handling of nutritious food to reduce food waste. Ensure that caregivers among the targeted producer households are adequately supported to better respond to the nutritional needs of vulnerable individuals during critical times of their development (e.g. early childhood, school age, adolescence, pregnancy and lactation, older age).	Improved consumer behaviour leading to a better understanding of the effects of diets on health and the environment, and a greater awareness of the proper storage and preparation of food necessary for a safe and healthy diet. Improvements in dietary quality of targeted producer households.	• Agrobiodiversity • Wild crop relatives • International waters • One Health • Sustainable cities • Food systems (general) • Food systems (aquaculture-based) • Food systems (livestock-based)

Resources:

FAO. 2023b. Education. In: *FAO Nutrition*. Rome. Cited 11 May 2023. https://www.fao.org/nutrition/education/healthy-eating-resources/en/

Source: Authors' own elaboration.

Box 3. Insights on the way forward from the interviews on country case studies in Malawi and Mali

Malawi: "There is a switch of thinking with GEF-8 programming. Now Impact Programmes bring in resilience and livelihoods, so there is space to include nutrition. We need to work bottom-up: If the countries have an interest in nutrition, we should pick it up, bring it in from the beginning, and align it with GEF focal areas. The link can easily be done. Biodiversity (through NUS for example) is obviously the lowest hanging fruit, but also climate change and land degradation neutrality, and land degradation in general. Even the Food Systems Impact Programme, traditionally focused on monoculture, is gradually changing. This kind of thinking is trickling through. Integration is the key: not nutrition alone, but we need to have an integrated approach, showing that through nutrition we can reach land degradation neutrality and all other co-benefits. What you want to include in the story is up to the agencies: We need to highlight FAO's comparative advantage, to provide technical backstopping. It has to be explained in a way that it is clear so that operational partners can fully embrace it. If aligned with the government priorities, and FAO country priorities, we have room to do it and we should definitively add nutrition to our concept notes, as it adds value!

We need technical know-how to have a baseline, as well as technical support, but this can be organized in a cost-effective way through economies of scale and clustering resources, such as through the Dryland Sustainable Landscapes Impact Program that works on many countries. Also, we should give support to ongoing projects, as there is currently a gap. We need the evidence of good practices; there is potential for exchange of good practices among countries and cross-pollination, also through Fork Farm Facilities, that could be used to give support to other projects. As part of our projects, we have the different REM (regional exchange mechanism) platforms to inform farmers and other stakeholders on several topics, one of which could be training in conjunction with nutrition."

Mali: "We need to help the GEF in understanding the importance of nutrition, and not only of food security as it is today. Nutrition needs to be presented as a means to achieve other objectives, such as increased resilience of targeted communities. NOW is the moment to mainstream nutrition. There is an evolution since GEF-7: nutrition is now recognized as helping deliver on other benefits. But we still need to change the focus: for example, the Food Systems Impact Programme still focuses on selected global commodities (coffee, soy, etc.), whereas the Climate Change Adaptation Strategy has picked up the nexus. How can we mainstream nutrition at zero cost? During the project design phase, we don't have time to develop the tools to have a baseline, so we need a readily available toolkit. If it is not measured, it won't be delivered! We need solid metrics, even in data and information scarcity contexts. In addition, we don't have nutrition experts, making a basic toolkit, as well as capacity building for project development teams, very important. It is therefore timely to identify which tools we need and what it entails in terms of human resources and cost to implement the tool. Having a GEF focal point in FAO Food and Nutrition Division (ESN) to turn to for technical assistance in the design phase, as well as having a specific section on nutrition in the project template,[a] could also be useful. Moreover, we can't expect the GEF to fund all activities in nutrition: We need support in identifying cofinancing institutions and initiatives that could support, for example, awareness-raising activities.

The agroecological approach is about intersections and transition, so it's perfect to integrate nutrition. Biodiversity, fisheries, international waters, sustainable land management, climate change and land degradation focal areas can all be linked with nutrition. Land degradation is the most integrated one and is more than one-half of the GEF portfolio. Receiving funds from many programmes, it is expected to deliver on many co-benefits. With GEF-8, the biodiversity focal area will have more focus on the landscape approach, so there is an opportunity to work on agrobiodiversity and diets, indigenous species and cultural heritage, and NUS. We need to turn the approach around and show how diets (demand) can impact supply, and that we need to work on both ends. Nutritious, biodiverse diets are a lever for conservation.

We need to make the case to include nutrition within the FAO-GEF partnership, also by restating FAO's comparative advantage. After all, it is our mandate! The STAP of the GEF could be a good entry point and organizing advocacy workshops targeting the GEF would surely help ministering nutrition in the next programming cycles."

Notes:

[a] Similar to that already existing on gender.

CONCLUSIONS

The GEF projects reviewed recognize that improved livelihoods, increased income, and enhanced food security and nutrition are major co-benefits and integral to achieving overall global environmental benefits. As highlighted in the review of the purposeful sample of GEF-6 and GEF-7 projects, nutritional considerations were already present but not in a systematic way. These projects, however, were initially selected because they had links with nutrition, and the portfolio as a whole could appear less optimistic in terms of the number and percentage of projects integrating nutritional considerations. Beyond the benefits of improved access to safe and nutritious foods as part of healthy diets, a nutrition-sensitive approach could minimize potential trade-offs across activities, create business opportunities, increasing income among communities in vulnerable situations, and ultimately supporting environmental protection.

To take full advantage of their potential, the design of GEF-8 projects should further integrate nutritional considerations and mainstream nutrition-sensitive activities already present in the GEF portfolio. Activities that have an impact on nutrition should be reviewed on the basis of lessons learned and available evidence, to ensure that their impact is beneficial to nutrition without doing any harm. The set of actions agreed upon to enhance the nutrition sensitivity of GEF programming will depend on the context, the capacity of implementing agencies and the available resources. The guidance note outlines incremental steps to ensure the highest uptake during the design phase of the new GEF-8 projects.


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Appendix 1. Review of GEF-6 and GEF-7 projects in FAO-GEF portfolio

Approach used to review GEF-6 and GEF-7 projects

Selection of projects for the review

While recognizing the existence in previous GEF programming cycles of successful examples of nutrition-sensitive projects,[6] the current review only focused on GEF-6 and GEF-7 projects. Following an initial screening carried out by the FAO-GEF Coordination Unit to identify projects that could be considered to have potential to be nutrition-sensitive,[7] and on the basis of the availability of finalized project documents, 12 projects were examined (Table A1.1).

Table A1.1. Reviewed GEF projects

COUNTRY	GEF PROJECT
Angola	Drylands Sustainable Landscapes Impact Programme (DSL IP)
Botswana	DSL IP
Namibia	DSL IP
United Republic of Tanzania	DSL IP
Malawi	DSL IP
Zimbabwe	DSL IP
Mali	Resilient, productive and sustainable landscapes in Mali's Kayes Region
Morocco	Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach
Mexico	Securing the Future of Global Agriculture in the face of climate change by conserving the Genetic Diversity of the Traditional Agroecosystems of Mexico
Indonesia	Strengthening sustainability in commodity and food systems, land restoration and land use governance through integrated landscape management for multiple benefits
Viet Nam	Integrated Sustainable Landscape Management in the Mekong Delta of Viet Nam
Lao People's Democratic Republic	Climate Change Adaptation in Wetlands Areas (CAWA)

Source: Authors' own elaboration.

[6] The "Mainstreaming biodiversity conservation and sustainable use for improved human nutrition and well-being" project (called Biodiversity for Food and Nutrition, or BFN) in GEF-4 is just one example.

[7] For the purposes of this report projects were considered to have the potential to be nutrition-sensitive if they embrace an approach through which improving diets and/or addressing one or several underlying determinants of nutrition (which include household food security, care for mothers and children and primary health care services and sanitation) is a significant dimension of a project while not being its principal objective.

It is important to note that the "live" nature of the GEF programming cycle means that new projects are regularly added to the GEF database and existing projects are regularly updated with new project documents. The desk review therefore only represents a snapshot in time of the projects accessible in the first quarter of 2022.

Review process

The review was organized in two phases: 1) an initial desk review of all selected project documents (ProDocs), followed by 2) interviews with people engaged in the design and implementation of GEF projects to identify best practices and lesson learned.

The desk review evaluated the selected projects to determine which activities that could support nutrition were integrated into the projects, and the results were mapped using an Excel sheet (see Appendix 2). The review was carried out by assessing the presence and prominence of activities to jointly support nutritional and environmental outcomes, from production to consumption, looking at six activity categories: nutrition and dietary situation analysis; gender, youth and communities in vulnerable situations (as these groups are often more exposed to high risks of food insecurity and malnutrition); and the different components of agrifood systems: ecosystems,[8] food supply chains,[9] food environments[10] and consumer behaviour.[11] The information was used to develop recommendations, highlighting opportunities and key options for interventions to improve the nutrition sensitivity of GEF projects.

Although the desk review provides insights into the overall activities being carried out in each project, the review of project documents can only provide an indication of the level of ambition at the design stage and does not provide any insights into the actual implementation of the project, nor clarify the assumptions made while prioritizing certain activities over others. To address this limitation, the review was supplemented by interviews with key informants to gain a deeper understanding of the projects that were identified in the document review as nutrition-sensitive.

Projects which featured interesting activities related to nutrition included those in Mali, Malawi, and Mexico. Interviewees included staff in the FAO-GEF Unit (Technical Funding Liaison Officers – FLO) for Mali and Malawi (for the latter, also the project's coordinator in the FAO Forestry Division), and the project Lead Technical Officer (FAO), FAO Assistant Programme Representative and project partners external to FAO for Mexico. Overarching interview questions can be found in Appendix 3.

[8] Ecosystems, which support food production (HLPE, 2020), provide fundamental services and "sustain the quality of the air, fresh water and soils on which humanity depends, distribute fresh water, regulate the climate, provide pollination and pest control and reduce the impact of natural hazards" (IPBES, 2019).

[9] Food supply chains encompass all activities that move food from production to consumption, including production, storage, distribution, processing, packaging, retailing and marketing (HLPE, 2017).

[10] The food environment is the physical, economic, political and sociocultural context in which each consumer engages with the agrifood system to acquire, prepare and consume food. The key elements of the food environment that influence food choices, food acceptability and diets are physical and economic access to food (proximity and affordability); food promotion, advertising, and information; and food quality and safety (HLPE, 2017).

[11] Consumer behaviour encompasses the actions and/or decisions made by consumers at societal, household or individual levels, on what, where and how they procure, use and dispose of food and feed (considering gender, age and social factors), and actions to promote changes in their food environments. Consumer behaviours are influenced by a complex myriad of factors ranging from personal beliefs to political structures (HLPE, 2017).

Box A1.1: Mali, Malawi and Mexico selected as country case studies

Mali, Malawi and Mexico were selected as country case studies because of the unique characteristics of their design as described below:

Mali's GEF project shows several interesting entry points to support healthy diets and improved nutrition. Two out of three value chains selected in the project (dairy, and fruits and vegetables) are interesting from a nutritional perspective, and nutrition education components are to be included in several training sessions held through agro-pastoral field schools (APFS). Furthermore, one of the project objectives is to increase household dietary diversity by 20 percent.

Malawi's GEF project links the ecosystems (i.e. sustainably managed landscapes and forests) and livelihoods on the one hand, and food security and nutrition on the other, especially with regards to diversification of agricultural production for own consumption and commercialization. In the first component of this GEF project, a nutrition and dietary situation analysis has been carried out as part of the Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP+) assessment, using two measurements: the Household Dietary Diversity Score (HDDS) and the Food Insecurity Experience Scale (FIES). The second component of the project foresees the development of green value chains, including nutrient-dense foods and NUS. In addition, farmer field schools (FFS) are planned and will include training on production, processing and marketing of products from vegetable gardens, alongside provision of post-harvesting and processing equipment and inputs. Finally, the project aims to support nutrition awareness (e.g. the importance of dietary diversification, hygiene, and nutrition for mothers, infants and young children) via radio messaging on stations in the targeted districts.

Mexico's GEF project links conservation and sustainable use of agrobiodiversity with consumers' behaviours by considering the importance of agrobiodiversity from a cultural point of view (traditional diets, religious celebrations, etc.). The project aims at increasing market access for producers and increasing consumption (by both producers and consumers) of selected agrobiodiverse products, through inter alia market incentives, increased marketing opportunities, and awareness-raising campaigns with a focus on nutritional and health values. The link between biodiversity and increased dietary diversity is explicitly mentioned and is an expected outcome of the project.

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Detailed results from the desk review and interviews

Following the structure of the review, the results below showcase first the presence of activities associated with nutrition and dietary situation analysis; then gender, youth and communities in vulnerable situations; and then activities within the different components of agrifood systems, i.e. ecosystems, food supply chains, food environments and consumer behaviour.

Nutrition and dietary situation analysis

The reviewed GEF projects did not include a systematic analysis of the nutrition and dietary situation. This analysis could have clarified the nutrition status of the population and the determinants of malnutrition, including the barriers faced by the individuals and groups in greatest vulnerability to accessing and consuming safe and nutritious foods as part of healthy diets.

Eight projects used **SHARP+ and TAPE tools** – previously modified to **integrate the HDDS and FIES** – to capture household-level dietary diversity and perceptions of food insecurity (see Table 2 Appendix).

The **mapping of territorial markets (MTM) tool** was applied in Mali and in Burkina Faso in association with TAPE, to better understand how agroecology products could be better valued in local food markets so as to increase the supply and demand of these foods (see Table 2 Appendix).

Missed opportunities to increase nutrition sensitivity in GEF programming

An **individual dietary diversity score**, such as the Minimum Dietary Diversity for Women (MDD-W) of Reproductive Age (Appendix Box 2), is better placed to measure a minimally acceptable level of dietary diversity, which is a key construct of diet quality.

"As we included HDDS as a proxy for nutrition in the SHARP+ tool, we thought it was important to consider it as a cross-cutting element and use it for monitoring purposes. The aim is to repeat the survey also at mid-term and at the end. Projects need to be integrated, comprehensive and SHARP+ is a good example of a tool that can facilitate this. We should not work in silos. Having a baseline is very important, and we should use it to carry out an impact assessment"

– from the interview on the Malawi project with Fritjof Boerstler and Paola Palestini.

"The GEF has limited indicators to measure resilience, so we used the HDDS, which is already part of the TAPE tool, and added 20 percent increase in dietary diversity as a target; we also looked at the cultural aspects (food values and habits) as part of the tool. One of the reasons was that if HDDS is not measured, it won't be delivered, especially as a co-benefit"

– from the interview on the Mali project with Maude Veyret-Picot and Pierre Begat

Box A1.2: Inclusion of an individual dietary diversity indicator as a better proxy for nutrition

Dietary diversity is measured through the Household Dietary Diversity Score (HDDS) as part of broader tools such as TAPE or SHARP+.

While the HDDS provides a measure of household access to a variety of foods, it does not measure individual food consumption. Therefore, HDDS can be adequate while individuals in the household may not be eating an adequate diet. Indeed, inequitable distribution of food within a household can lead to significant nutritional disparities within that same household. Several factors influence the distribution of food at household level, including gender differences arising from socially constructed relationships between men and women, birth order, age, and individual relationships with the household head.[a] Furthermore, the standard of what is considered sufficiently diverse versus not sufficiently diverse at the household level can be open to interpretation.[b]

HDDS could be used in conjunction with other indicators such as Minimum Dietary Diversity for Women (MDD-W) of Reproductive Age (aged 15–49). The MDD-W was developed by FAO and partners to fill the need for a simple, quick, low-cost food-based proxy indicator for both dietary diversity and minimally acceptable level of dietary adequacy for 11 micronutrients. MDD-W is a population-level indicator estimating the proportion of non-pregnant women aged 15–49 years who consumed 15 g or more from at least five out of the ten defined food groups across the previous 24 hours.[c]

Notes:

[a] **Quisumbing, A. & Smith, L.C.** 2007. *Intrahousehold allocation, gender relations, and food security in developing countries*. Ithaca, USA, Cornell University.

[b] **INDDEX (International Dietary Data Expansion) Project.** 2018. Household Dietary Diversity Score – HDDS. In: *Data4Diets: Building Blocks for Diet-related Food Security Analysis.* Boston, USA, Tufts University. Cited 20 May 2022. https://inddex.nutrition.tufts.edu/data4diets

[c] **FAO**. 2021. *Minimum dietary diversity for women*. Rome.

Table A1.2. Overview of FAO tools already used in the reviewed GEF projects which integrate environmental and nutritional considerations

RESOURCE	DESCRIPTION
SHARP+: Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists Available at: www.fao.org/in-action/sharp/en/	SHARP+ is both a learning tool as well as a monitoring and evaluation (M&E) tool. The tool supports farm system resilience assessment by covering socioeconomic, environmental and agronomic aspects of the farming system and the household. It also assesses dietary diversity through the HDDS. Thematic modules, and question within these, can be modified to contextualize the assessment.
TAPE: tool for agroecology performance evaluation Available at: www.fao.org/agroecology/tools-tape/en/	TAPE provides information to policymakers and other stakeholders on how agroecology can contribute to improved biodiversity conservation, natural resource management and nutrition. The tool establishes an interdisciplinary framework that allows for integrated data collection at the farm, household, community and national levels. It also assesses dietary diversity through the HDDS. The tool is flexible and can be used with other indicators and methodologies.
MTM: mapping of territorial markets Available at: www.fao.org/publications/card/en/c/CB9484EN/	This methodology for mapping territorial markets[a] consists of a set of guidelines and questionnaires for consumers and retailers, and uses a harmonized approach for collection and analysis that allows comparisons across contexts and over time. The aim of the methodology is to inform policy and market-level interventions that could lead to a market environment with better food offerings (from nutrition, safety and environmental perspectives), and ultimately to foster healthier food choices among consumers. The key aspects captured through the implementation of the methodology are: (i) inclusion of women retailers in markets; (ii) business environment; (iii) length of the supply chain; (iv) food diversity; and (v) contribution of the market to healthy and diversified diets.

Notes: [a] **FAO.** 2022a. *Mapping of territorial markets – Methodology and guidelines for participatory data collection*. Second edition. Rome.
Source: Authors' own elaboration.

Gender, youth and communities in vulnerable situations

The GEF has long recognized gender equality as a cross-cutting theme integral to its ability to achieve global environmental benefits. Indeed, **all projects integrate gender dimensions** through specific gender and women's empowerment activities, or through analyses that clearly explain the gender implications of each activity. In the Lao People's Democratic Republic, for example, the overall GEF project and its activities are summarized from a gender perspective, assessing the possible positive and negative implications of the suggested activities and providing strategies for optimizing the gender responsiveness of each activity and minimizing potential harm.

Similarly, youth play a prominent role in most of the projects reviewed. With the exception of the GEF project in the Lao People's Democratic Republic, **all projects have youth-oriented activities**. In Viet Nam, for example, the GEF project pays particular attention to supporting the participation of youth and women in the development of small or medium-sized specialized enterprises and farmers' organizations or cooperatives to obtain and manage productive inputs for sustainable production. In Mexico, to counter rural migration of youth, which is currently threatening intergenerational transmission among farmers, the GEF project has developed specific activities to involve youth, including helping with the implementation of the project itself.

Missed opportunities to increase nutrition sensitivity in GEF programming

While youth and gender are well-integrated and integral to GEF projects and activities, there is

much less focus on enhancing social inclusion of communities in vulnerable situations. Indeed, although mentioned in generic terms, **few projects have activities targeting the needs and rights of well-defined vulnerable groups**. The GEF project in Angola, for example, identifies vulnerable communities as those marginalized in the land-use decision process and underlines how these communities have been disproportionately affected by the COVID-19 pandemic, which exacerbated existing vulnerabilities such as food and livelihood insecurity. However, the project has no mechanisms set in place to ensure their full inclusion, or at least minimize risks of further exclusion.

In addition, there is wide difference among projects on who is considered vulnerable. Some, such as the GEF project in Namibia, appear to primarily focus on youth and women as vulnerable groups. Other projects, for example in the United Republic of Tanzania, also include Indigenous Peoples, and still others (for example in Indonesia) broadly include smallholders, sharecroppers, tenants, landless people, women, ethnic minorities, disabled persons, migrants and youth as vulnerable groups. The term "vulnerable" is often used generically, which may result in disempowering mechanisms, for example in relation to the role played by women and youth, or further exclusion of individuals and groups with specific vulnerabilities. A **better specification on who is considered vulnerable for each project would help to clarify the specific needs and entitlements of the different individuals and groups**. This would then help with the formulation of specific activities targeting these groups and ensure that the project is not causing any unintended harm. For example, an activity seeking to support training for women on rural enterprise development may not have the same approach if the aim is to ensure the full inclusion of indigenous women, women with disabilities, women heads of household, women with young children, and so on.

While there might be variation in "who" is vulnerable and "what" they are vulnerable to, depending on the focal area under which the projects fall, it is still recommended to seek harmonization and specification of these different groups to the extent possible.

Ecosystems

As expected, the focus of GEF projects is on ecosystems and the services that these provide to the populations that inhabit them. In particular, the food security and nutrition benefits are acknowledged and promoted. All projects have activities to preserve ecosystem services that support the production of food or feed.

The link between sustainably managed landscapes/forests on one hand, and livelihoods and food security and nutrition on the other, is clearly explained in most projects. In Angola, for example, the GEF project aims at maintaining or improving both ecosystem services for biodiversity conservation and agroecosystem services for food production and the livelihoods of forest-dependent people. A prime area of focus is the Miombo-Mopane woodlands, which provide **ecosystem services** including water, food and a variety of non-timber forest products (NTFPs) such as game and fruits and vegetables, as well as honey, edible mushrooms and various wild animal food sources (e.g. mopane worms). In this project, the aim is to provide benefits for both the environment and diets through enhanced biodiversity.

NUS are considered in seven projects and **wild, local and native species** in 10 out of 12. The GEF project in Zimbabwe, for example, plans to conduct a participatory mapping exercise of native crop varieties/cultivars, poultry breeds and NTFP tree species that are climate-resilient. Other activities include the establishment of woodlots of native species for fuelwood, timber, fodder and food (e.g. fruit trees) as well as community seed banks for farmers with a focus on climate-resilient NUS and participatory native breed selection for poultry. In Mexico, the GEF project targets 12 **native**

species with wild relatives still present in the territory – maize, beans, amaranth, chili peppers, squash, chayote, green tomatoes, cacao, avocado, nopal, agave and *quelites* (local, edible tender leaf vegetables) – selected for their importance for income generation, food security and nutrition.

Food supply chains

The food supply chain component is also well developed in GEF projects. Many projects aim at **diversifying production** for both own consumption and commercialization.

Ten projects have activities promoting **homestead production for own consumption**. By improving access to a diversity of fresh and nutritious foods, home gardens can contribute to food security, dietary diversity and better nutrition (FAO, 2017a). In Botswana, for example, the GEF project supports the development of community gardens as a means to ensure land restoration and climate change resilience, while also addressing food security. And in Mexico, the GEF project prioritizes consumption of agrobiodiverse products by the smallholder farmers, with any surplus then provided to the markets.

Nutrient-dense local cultivars are considered for value chain development in 7 of the 12 projects. In Malawi for example, the GEF project foresees the development of green supply chains, including pigeon pea, sorghum, baobab, moringa gum and Ziziphus Mauritania. In Angola, the GEF project targets a number of forest fruits (e.g. Aframomum Alboviolaceum, Strychnos Schumaniana, Plinia cauliflora), although these seem to be destined to be processed into only jams and industrial juices. In Zimbabwe, preselected supply chains of nutritional interest include baobab, free-range poultry production, millet, sorghum, groundnut, sour plums and wild melons. In Mali, the GEF project aims at strengthening dairy and fruit and vegetable value chains. In addition, it has integrated nutrition education in its APFS. Similarly, in Mexico the GEF project promotes research to highlight nutritional properties of biodiverse foods to raise awareness among both farmers and consumers.

Activities aimed at improving **storage and processing** through capacity development or provision of material and equipment targeting SMEs, producers' organizations, cooperatives or community-based groups are present in eight projects, thus reducing perishability, increasing quality and diversifying production. In Malawi for instance, storage and processing are promoted through FFS, including training on the production, processing and marketing of products from vegetable gardens.

"Although we could not look at the level of awareness of the importance of nutritious diets among the population, but recognizing that nutrition is an important element that cannot be overlooked, we decided to prioritize value chains which could have a positive impact on nutrition. With regards to the agro-pastoral field schools, it was an easy, cost-effective way of including nutrition education."

-– from the interview on the Mali project with Maude Veyret-Picot and Pierre Begat.

"Having an available database of systematized data on the nutritional composition by the National Nutrition Institute allowed us to make the link of nutrition with other issues (in this case agrobiodiversity), and then disseminate this information to a wider public, beyond the scientific community. Communication is key."

– from the interview on the Mexico project with Eduardo Benitez, Vicente Arriaga, Irene Ramos, Francisca Acevedo Gasman, Caroline Burgeff, Irma Hernández Velázquez, Luisa Daniela Esteva and Mahelet Lozada Aranda.

Missed opportunities to increase nutrition sensitivity in GEF programming

Biofortified staple crops, which can potentially improve and diversify micronutrient intake, are currently not considered in any of the 12 GEF projects. By integrating crop varieties developed to better tolerate drought or resist disease, GEF programming could support the production of crops with a high micronutrient content, helping to improve nutrient intakes while strengthening agricultural resilience.

Food loss is not systematically explored at farm gate with more attention given to support SMEs and aggregators (e.g. producers' organizations, cooperatives or community-based groups). Similarly, there appears to be no systematic consideration of **food safety** of perishable, nutritious foods along supply chains. By tackling food losses, the GEF could reduce the environmental footprint of agrifood systems by reducing pressure on natural resources, freeing up to several million hectares of land and reducing associated GHG emissions (Diagne, Nagano and Bernoux, 2023), while at the same time increasing the availability of food for consumption.

Promoting **short value chains** and **prioritizing engagement with local markets** rather than export markets would increase availability of nutritious foods for the local population. The implementation of the MTM tool can support the identification of food products that are more relevant for specific territories and for local consumers' diets, beyond producers' households.

Food environments

While ecosystem and supply chain components are well considered in all GEF projects, the food environment is only addressed in few projects.

Activities related to **public procurement** (e.g. school food and nutrition programmes) are present in 4 of the 12 projects reviewed and could be further mainstreamed in other GEF projects. In the United Republic of Tanzania, for example, the GEF project aims to establish linkages with school food programmes to address key constraints on farmers' willingness or ability to adopt new techniques, related to value chain and market access concerns. As the most updated evidence shows (Vargas, Swensson and Carter, 2020; Swensson and Tartanac, 2020), beyond the nutritional benefits for schoolchildren, school food programmes, when linked to local smallholders and agricultural development, are expected to create business opportunities for smallholders and increase income opportunities for local communities.

Similarly, activities related to **direct market access for smallholder farmers and small producers** (e.g. farmers' markets, fairs) and **improvement of market infrastructure** for nutritious food are present in 4 of the 12 projects analysed and could be further integrated in other GEF projects. In Mali, for example, the GEF project carried out the MTM tool to prioritize food products and supply chains that are better suited to the territory and to consumer preferences. Lack of credit services was identified as a major barrier for food retailers to supply safe, nutritious and diverse food. The analysis of territorial markets contributed to identify and address market infrastructure gaps, such as the lack of warehouses and cold storage for fruits and vegetables. In Mexico, the GEF project supports smallholder farmers in complying with nutritional labelling regulations for their products, highlighting the nutritional qualities and allowing the products to enter the market.

"It is important to have the necessary human resources and capacities in the project: We have a colleague specialized in food chemistry which made it possible to link food composition data available at national level with the smallholder producers in the field so that they could label their products. It is precisely these smallholder farmers that need support as they cannot conduct these analyses to enter the markets. We build capacities in order to overcome the great void that would otherwise be present between production and the market"

– from the interview on the Mexico project with Eduardo Benitez, Vicente Arriaga, Irene Ramos, Francisca Acevedo Gasman, Caroline Burgeff, Irma Hernández Velázquez, Luisa Daniela Esteva and Mahelet Lozada Aranda.

Missed opportunities to increase nutrition sensitivity in GEF programming

There are currently no activities to reduce **food waste** at retail level in any of the 12 GEF projects, which might be linked to limited development of storage facilities and cold chains. By tackling food waste at the retail level, the GEF could help mitigate the environmental impact of agrifood systems through better use of natural resources and reduced GHG emissions, while improving food security and nutrition.

Linkages with **social protection programmes** (such as CASH+[12] or vouchers as incentives to purchase nutritious foods) are also lacking. Social protection programmes can help improve nutrition, particularly among communities in vulnerable situations, and also improve the resilience of these groups to shocks and stresses. In addition, social protection programmes can be used to create demand for nutritious, locally produced foods, thereby supporting local agriculture and short supply chains and strengthening the resilience of communities, from producers to consumers.

Food safety at retail level does not appear to be considered in any of the 12 GEF projects.

Consumer behaviour

Like the food environment, consumer behaviours are only covered in few projects.

Activities related to nutrition education and/or consumer awareness are included in 3 of the 12 projects reviewed. In Malawi, for example, the GEF project aims to support the delivery of nutrition awareness messages (e.g. the importance of dietary diversification, hygiene and nutrition for mothers, infants and young children) through radio stations in the targeted districts. Nutrition education leads to a better understanding of the effects of diets on health and the environment and a greater awareness of proper storage, preparation and consumption of food conducive to safe and healthy diets (FAO, 2021a).

Activities linking demand to the supply of the nutritious food promoted by the project (e.g. market research on the meaning or value of the promoted food) are only present in the GEF project in Mexico. The project carried out market studies in intervention areas to map stakeholders, identify

[12] CASH+ interventions combine cash transfers with other complementary interventions (e.g. nutrition education, behavioural change communication, provision of seeds, training).

needs and understand consumer purchasing behaviours and preferences. Based on these results, communication materials were designed to convey and highlight the specific value of agrobiodiverse products in terms of nutrition, health and well-being and to change consumer habits while considering the particular characteristics (geographical, social and cultural) of each project area. Revalorization of agrobiodiversity is seen in fact as critical for sustainability and improved producer-consumer linkages.

We developed a great variety of communication material, including recipe books, posters, books (such as Surviving COVID-19: the forgotten solution. An agroecological focus, which links traditional agrobiodiversity diets to better health), podcasts, videos, expositions, intervention in television programmes, and social media campaigns"

– from the interview on the Mexico project with Eduardo Benitez, Vicente Arriaga, Irene Ramos, Francisca Acevedo Gasman, Caroline Burgeff, Irma Hernández Velázquez, Luisa Daniela Esteva and Mahelet Lozada Aranda.

Missed opportunities to increase nutrition sensitivity in GEF programming

There are currently no activities to reduce **food waste at consumer level** in any of the 12 GEF projects, although households have been found to be the most wasteful globally (UNEP, 2021). Although there are significant gaps on food waste in household data in low-income countries, there is growing evidence refuting the idea that food waste is predominantly a concern for high-income countries (UNEP, 2021; Bizikova *et al.,* 2023). The average food waste in high-income countries (79 kg/capita/year) is lower than in lower-middle-income countries (91 kg/capita/year), due to the lack of adequate storage and infrastructure, but also the lack of knowledge among households about food waste and safe food storage methods (UNEP, 2021). Reducing food waste at consumer level has the potential to significantly mitigate the impact of agrifood systems on the environment while improving nutritional outcomes by providing more available food in the short term and throughout the year (FAO, 2021a).

Nutrition education tailored to the needs of producers' households could be promoted in all GEF projects to ensure optimal use of available foods in different seasons, especially for those individuals with the greatest nutritional needs. In addition, as demonstrated by the project in Mexico, producing tailored messages for local consumers resulting from a mapping of stakeholders, their needs and preferences, can incentivize the demand for sustainably produced foods that are also safe and nutritious.

Appendix 2. Template used for the desk review

GENDER, YOUTH, AND COMMUNITIES IN VULNERABLE SITUATIONS
Activities targeting populations in vulnerable situations
Activities targeting women
Activities targeting youth

ECOSYSTEMS
Activities preserving ecosystem services supporting the production of food or feed
Activities promoting wild, local and native species
Activities promoting neglected and underutilized species

FOOD SUPPLY CHAINS
Activities promoting production and value chain development of nutrient-dense local cultivars
Activities promoting production of biofortified staples
Activities aimed at reducing food loss at farm gate through facilities, equipment, knowledge, skills
Activities promoting homestead production for own consumption
Activities linking producers/farmers to markets
Activities related to nutrition education for producers/farmers
Activities aimed at improving storage and processing for SMEs, cooperatives, community-based groups, etc.

EXPLICIT INTEGRATION OF NUTRITION
Nutrition included in project components
Nutrition included in core- or sub-indicators
Nutrition included in project outputs
Nutrition or diet consumption included in main activities
Link with nutrition outcomes explicit

FOOD ENVIRONMENTS
Activities related to market access (e.g. farmers' markets, fairs) and infrastructure for nutritious food
Activities aimed at reducing food waste at level of retailers and food service providers
Activities related to public procurement (e.g. school feeding)
Activities related to food labelling (e.g. Participatory Guarantee Systems, Geographical Indication)
Activities related to incentives for purchase of nutritious food (e.g. vouchers, price incentives)

CONSUMER BEHAVIOUR
Activities related to nutrition education / awareness raising among consumers
Activities aimed at increasing demand for nutritious foods promoted in the project (e.g. market research on meaning/value of those foods)
Activities aimed at reducing food waste at consumer level

Source: Authors' own elaboration.

Appendix 3. Guiding questions for the interviews with key informants

Why [name of country]?

[brief explanation of why the project has been selected for the interview]

Questions

- First, in your view, how does the project contribute to nutrition? Can you identify explicit links between the interventions and the desired nutrition goals (i.e. dietary diversity)? What are the assumptions behind these? How does the project contribute to increasing accessibility, affordability and consumption of safe and nutritious foods as part of sustainable healthy diets?
- What facilitated the introduction of nutrition? What has hindered it?
- Have nutritionists or other related professionals been hired to cover these aspects or have these been covered by staff with broader profiles?
- In terms of results, what tools/metrics are used to provide evidence of the impact on nutrition?
- Based on your experience, what would you consider replicating in other projects? In this case, following an adaptation to the context, which aspects do you think could be applicable and which would you leave out?
- In your opinion, why is nutrition covered only in a reduced number of GEF projects? Do you believe it is due to a lack of awareness, or knowledge? Are there misconceptions? Or is it a lack of skills/capacities with regards to nutrition and consumer behaviour?
- Do you think that nutrition and consumer behaviour are topics that could be relevant for other GEF projects? Or do you think that it depends on the specific challenges that the project aims to address? Are there GEF focal areas which are more easily "linkable" to nutrition (e.g. biodiversity conservation)? How can we link nutrition to the GEB targets?
- What barriers do you think should be overcome in order to integrate nutritional considerations into GEF projects beyond the goal of greater production for increased food availability and diversified income?
- How do you think that nutrition could one day be seen as a cross-cutting issue within the GEF where environmental protection and improved nutrition go hand in hand or are mutually reinforcing?
- What would be needed? Technical support and/or guidance?
- Based on your experience, what advice would you give other project designers to successfully make projects nutrition-sensitive? What mistakes should they avoid?
- In other words, what lessons have you learned?
- What topics do you think the guidance note to make future GEF-8 projects more nutrition-sensitive should absolutely cover?

- What kind of potential entry point to enhance nutrition outcomes do you think would be the easiest to introduce in GEF projects? These include, among others: sustainable land and forest management for the provision of food; targeting the vulnerable and using nutrition indicators to design and monitor results; promoting homestead production for own consumption; supply chain development for nutrient-dense commodities; improving market access and market infrastructure for nutritious foods; providing nutrition education; linking with public procurement schemes; and improving processing and storage of foods.

- Do you believe that having a specific section addressing nutrition in the ProDoc template, such as that already existing for gender equality and women's empowerment, could be useful? Or otherwise, a kind of nutrition-sensitive or at least a "do no harm" checklist?

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GLOSSARY

Term	Definition
Agrifood systems (FAO, IFAD, UNICEF, WFP and WHO, 2022)	Agrifood systems, a term increasingly used in the context of transforming food systems for sustainability and inclusivity, are broader (than just food systems) as they encompass both agricultural and food systems and focus on both food and non-food agricultural products, with clear overlaps. Agrifood systems encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products. They comprise all food products that originate from crop and livestock production, forestry, fisheries and aquaculture, as well as the broader economic, societal and natural environments in which these diverse production systems are embedded.
Biofortification (FAO, 2018)	The process of developing highly nutritious staple food crops through breeding and crop selection, or through genetic engineering (not explored in this paper).
Consumer behaviour (HLPE, 2017)	The actions and/or decisions taken by consumers at societal, household or individual levels, concerning what, where and how they procure, use and dispose of food and feed (considering gender, age and social factors), as well as actions to promote changes in their food environments. Consumer behaviour is influenced by a complex myriad of factors ranging from personal beliefs to political structures.
Food affordability (FAO, 2016a)	Price of a food item relative to cost of other food items and/or population income.
Food availability (FAO, 2014)	The amount of food physically available for consumption over a reference period.
Food environment (HLPE, 2017)	The physical, economic, political and sociocultural context in which each consumer engages with the agrifood system to acquire, prepare and consume food. The key elements of the food environment that influence food choices, food acceptability and diets are physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety.

Term	Definition
Food loss (FAO, 2019a)	Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retailers, food service providers and consumers.
Food safety (FAO, 2003)	Food safety refers to all hazards, whether chronic or acute, that may make food detrimental to the health of the consumer.
Food security (FAO, IFAD, UNICEF, WFP and WHO, 2020)	A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Based on this definition, four food security dimensions can be identified: food availability, economic and physical access to food, food utilization, and stability over time.
Food supply chain (HLPE, 2017)	The food supply chain encompasses all activities that move food from production to consumption, including production, storage, distribution, processing, packaging, retailing and marketing.
Food systems (FAO, IFAD, UNICEF, WFP and WHO, 2021; HLPE, 2017)	A descriptive concept, defined as the sum of all the diverse elements and activities that, together, lead to the production and consumption of food, and their interrelations. Food systems encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products. This includes all food products that originate from crop and livestock production, forestry, fisheries and aquaculture, as well as the broader economic, societal and natural environments in which these diverse production systems are embedded. Food systems generate food security outcomes and a range of other socioeconomic and environmental outcomes. There are three constituent elements: food supply chains, food environments and consumer behaviour. Agrifood systems, a term increasingly used in the context of transforming food systems for sustainability and inclusivity, are broader as they encompass both agricultural and food systems and focus on both food and non-food agricultural products, with clear overlaps.
Food systems approach (HLPE, 2014)	A way of thinking and doing that considers the food system in its totality, taking into account all elements, their relationships and related effects.
Food waste (FAO, 2019a)	Food waste refers to the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers.
Healthy diets (Neufeld, Hendriks and Hugas, 2023)	A healthy diet provides adequacy, without excess, of nutrients and health-promoting substances from nutritious foods, while avoiding the consumption of health-harming substances.

Term	Definition
Malnutrition (FAO, IFAD, UNICEF, WFP and WHO, 2021)	An abnormal physiological condition caused by inadequate, unbalanced or excessive intake of macronutrients and/or micronutrients. Malnutrition includes undernutrition (child stunting and wasting, and vitamin and mineral deficiencies) as well as overweight and obesity.
Neglected and underutilized species (Padulosi, Thompson and Rudebjer, 2013)	Agricultural species that are not among the major staple crops often come under the heading of neglected and underutilized species (NUS), and are sometimes called "orphan crops." They tend to be managed with traditional systems, which use informal seed sources and involve a strong gender element. Having long been neglected by mainstream agriculture for a variety of agronomic, genetic, economic, social and cultural reasons, today these crops are receiving increasing recognition because of their potential role in mitigating risk in agricultural production systems.
Nutrient-dense food (FAO, 2014)	Food with a high amount of nutrients with respect to its mass or volume.
Nutrition education (FAO, 2014)	Any combination of educational strategies, accompanied by and contributing to an enabling environment, which together facilitate voluntary adoption of food choices and other food- and nutrition-related behaviours conducive to health and well-being.
Nutrition sensitivity (FAO, 2014)	A concept designed to address the underlying determinants of nutrition (which include household food security, care for mothers and children, and primary health services and sanitation) but not necessarily as a predominant goal.
Sustainable healthy diets (FAO and WHO, 2019)	Dietary patterns that promote all dimensions of individuals' health and well-being; have low environmental pressure and impact; are accessible, affordable, safe and equitable; and are culturally acceptable. The aims of sustainable healthy diets are to achieve optimal growth and development of all individuals and support functioning and physical, mental and social well-being at all life stages for present and future generations; contribute to preventing all forms of malnutrition (i.e. undernutrition, micronutrient deficiency, overweight and obesity); reduce the risk of diet-related non-communicable diseases; and support the preservation of biodiversity and planetary health. Sustainable healthy diets must combine all the dimensions of sustainability (health and nutrition, environmental, sociocultural and economic aspects) to avoid unintended consequences.

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