FOOD SECURITY AND THE FUTURE OF FOOD SYSTEMS

Key Questions for Finland's Development Policy

Analysis by the Development Policy Committee (DPC),
June 2021

DEVELOPMENT
POLICY COMMITTEE

Contents

This analysis of the Development Policy Committee (DCP) opens up current food security issues that are critical to global development and their diverse interrelationships. The publication focuses on themes where Finland has influence and responsibility internationally, particularly in relation to the poorest countries and people and groups living in the most vulnerable situations. Our aim is to strengthen this dimension in national, particularly parliamentary, debate, decision-making and the implementation of sustainable development. We also examine the role of food security in development cooperation and humanitarian aid, and as a challenge for various policy areas.

The UN Food Systems Summit, to be held this year, highlights the topical and urgent nature of this issue. The dialogue between different operators has also been lively in Finland and the Nordic countries. The purpose of the dialogue is to jointly highlight solutions that have already been identified and new ones, plus strategies and actions to bring food systems into line with sustainable development[1]. Indeed, the final chapter of this publication focuses on the solutions and recommendations that we drew up to promote the development policy objectives mentioned above. The publication is the second part in a three-themed series in which DCP examines the emerging challenges of biodiversity, food security and climate change as well as the interlinkages between and among these phenomena.

The publication was created by an expert group consisting of the following Development Policy Committee members: Marikki Stocchetti/Secretary General of the Development Policy Committee, Anna Santala/Ministry of Agriculture and Forestry, Anne Tarvainen/WWF, Elina Korhonen/Family Federation of Finland, Emilia Nordlund/VTT Technical Research Centre of Finland, Emilia Runeberg/Fingo, Juha Ruippo/Central Union of Agricultural Producers and Forest Owners MTK, Kaisa Korhonen/Unipid, Kaisa Lähdepuro/Ministry of Social Affairs and Health, Marjaana Kokkonen/Ministry of the Environment, Sanna-Liisa Taivalmaa/Ministry for Foreign Affairs, Sirpa Sarlio/Ministry of Social Affairs and Health, Toni Jokinen/Finnish Red Cross. Jaana Vormisto, PhD (FIANT Consulting Oy), with the support of the Secretariat of the Development Policy Committee, has served as the facilitator and main editor of the group. The group thanks the following external specialists: Kaisa Korhonen, PhD (e2 Research), Ville Lähde, PhD (BIOS), and research fellow Mika Jalava (Aalto University) for the important perspectives and comments they have made in contribution to the discussion.

Summary

This analysis by the Development Policy Committee (DPC) addresses current food security issues and their multiple interlinkages, which are central to global development. We focus on themes on which Finland can exert an influence and bear responsibility internationally, especially in relation to the poorest countries and people and groups in the most vulnerable situations. Our aim is to strengthen this dimension in national decision-making, parliamentary debate, and in conducting of sustainable development. We also discuss the role of food security in development cooperation and humanitarian aid, and as a challenging subject in different policy areas. Lastly, we make recommendations on how Finland can contribute and play a role in increasing the sustainability of global food security and food systems.

The analysis and recommendations have been prepared by a group of experts drawn from the DPC's affiliates. This publication is the second in a three-part series that examines the emerging challenges of biodiversity, food security and climate change and the interlinkages between and among these concerns.

World food systems need to ensure food security and healthy diets for a growing population without undermining the ecological conditions for food production and by reducing vulnerability to food crises. Globally, food production in terms of calories has roughly kept pace with population growth, but nearly 700 million people still do not have enough to eat. An estimated two billion people in the world did not have regular access to safe, nutritious and sufficient food in 2019. Vulnerable groups are at greater risk of experiencing food insecurity, which is exacerbated by disasters, conflicts and other crises.

Food production relies on the surrounding natural environment. Nevertheless, current food production poses a serious threat to biodiversity conservation, ecosystem preservation and climate stability. Globally, food production is the single largest contributor to environmental degradation and to exceeding planetary sustainability limits. It also contributes to climate change, as greenhouse gas emissions from food production account for 21–37% of all anthropogenic emissions. In turn, climate change undermines food security and nutrition in many ways, for example by impacting farmers' livelihoods and food quality.

Many people's jobs and livelihoods are linked to different stages of the food chain, but their food security and livelihoods are fairly vulnerable. The Covid-19 pandemic has further exacerbated the situation. Climate change has already affected the food security of many, for example through the intensification and increase in extreme weather events. Long-term conflicts have also contributed to many people's food insecurity. Population growth, urbanisation and migration from rural areas pose their own challenges to food systems and food security.

Local food systems are increasingly linked to the global food system through increased trade and the global division of labour. But the global linkages between local and regional food systems are highly unequal and the benefits of national trade and division of labour are unevenly distributed. So far, there are no system-level governance mechanisms. Unsustainability is also reflected in regional and local systems. Changes in food systems therefore need to take place at multiple levels, as systemic change requires changes both locally and globally.

Climate change has already affected the food security of many, for example through the intensification and increase in extreme weather events.

Food systems can be managed and directed by international agreements. We hope that Finland will play an active role, for example at the UN World Summit on Food Systems, so that the outcome will promote sustainable change and close the inequality gap between food systems. Finland must also commit to implementing the Summit's Action plan at national and international level. Finland must take an active role in international organisations and negotiation processes in order to strengthen the role of agriculture in adapting to and mitigating climate change and to ensure that the importance of biodiversity for food security is more strongly recognised and taken into account. Finland can and should also profile itself as a "food security diplomat", highlighting the linkages between food security issues and new approaches to strengthening food security.

According to the new Report on Development Policy, Finland's goal is to strengthen the ability of people in developing countries to produce and obtain safe, healthy and nutritious food. This should also be reflected in funding. But Finland's development cooperation funding for the food security, agriculture and rural development sectors has clearly declined in recent years. The promotion of sustainable food systems and food security must be reflected not only in development policy making but also in funding. This means having a credible and definite plan to increase development funding to the level recommended by the UN and, by extension, to increase funding for the food security, agriculture and rural development sectors.

The DPC publication contains more detailed recommendations to strengthen food security and the sustainability of food systems through Finland's international advocacy, coherent realisation of sustainable development and development cooperation.

1. Food security and food systems – why are these acute topics?

We face a major challenge: the world's food systems should guarantee food security and good nutrition for the growing population without undermining the ecological conditions for food production and reducing vulnerability to food crises. Food production refers to agricultural production (agriculture and livestock farming) and other primary production, such as fish farming and fishing. Although global food production, measured in calories, has roughly kept pace with population growth, nearly 700 million people still lack sufficient food[2]. Additionally, nearly two billion people eat nutritionally poor-quality food, overweight is a global problem, and poor nutrition increases the risk of people developing not only communicable diseases but also non-communicable diseases[3].

Food production depends on the services provided by the surrounding natural environment and its ecosystems. These services, in which biodiversity plays a key role, include such things as the regulation of nutrients and water circulation or pollination by insects. At the same time, today's food production seriously threatens the conservation of biodiversity, the balance and resilience of ecosystems and climate stability. Globally, food production is the single largest factor affecting environmental degradation and exceeding planetary sustainability limits[4].

Current food production also contributes to climate change, as the combined greenhouse gas emissions from agricultural production, changes to production-related land use and the other stages of the food chain (such as processing and transport) account for 21–37% of all greenhouse gas emissions caused by humans[5]. Climate change in turn undermines food security and nutrition in many ways, for example by influencing farmers' livelihoods and food quality. It has a direct impact on food production, but it also has negative impacts on ecosystems and biodiversity. Climate change is linked, for instance through extreme weather events, to disasters but also to conflicts.

The ongoing Covid-19 pandemic has also shown that such shocks further increase the vulnerability of food systems. The pandemic has affected the health and livelihoods of millions of people, thus undermining their access to food and scope to obtain it. In 2020, some 155 million people in 55 countries faced a food crisis. This is almost 20 million more than in the year before. The Covid-19 pandemic and its consequences explain part of the increase, but the most important factor increasing food crises remained conflicts. The impacts of conflicts and the Covid-19 pandemic especially affect fragile societies and people already most vulnerable[6].

In addition to food production, the food system and the food security generated through it include food processing, transport, trade, consumption and factors that influence and steer them. The dependence of many of the poorest countries on imported food has increased and local food production has suffered. Import dependence increases vulnerability to crises and to price fluctuations in particular. Food crises have become more frequent and longer-lasting[7].

Food insecurity is most prevalent in regions with the world's fastest rates of population growth. The growing population, alongside climate change and various conflicts, increases the pressure on the use of natural resources and the expansion of agricultural land. Moreover, the pressure to produce sufficient quantities of nutritious food is also increasing due to changing age structures, urbanisation and rising income levels[8].

Food insecurity is linked to local hierarchies, national administration, national and global markets, laws and practices. It is also linked very much to unequal and interrelated local, national and global economies. These matters shape how people use natural resources, how dependent they are on them, and how changes in resources affect them. Low resilience to food crises, for instance, stems from social inequalities, unequal access to resources, poverty, poor infrastructure, lack of opportunities for

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involvement and lack of social security systems. This leaves people with few means of coping during other crises or upheavals, such as drought[9].

For these reasons, we urgently need radical and global systemic change. Changing food systems requires a multi-faceted approach, as they have several dimensions. They are also dynamically connected, so changes made to some parts of the food system will be reflected in others. Without major changes, the Sustainable Development Goals, the Paris Agreement on Climate Change and the targets of other environmental agreements will not be reached. Moreover, future generations will inherit a planet that is badly degraded and in which a large proportion of people increasingly suffer from malnutrition and preventable diseases. Malnutrition refers to a situation where there is a shortage of certain nutrients, or the amount of food consumed is inadequate[10].

Food as a human right

Adequate nutrition is one of the basic prerequisites for a decent life, as the right to food is already defined in the 1948 Declaration of Human Rights and is still defined in subsequent human rights conventions, such as the International Covenant on Economic, Social and Cultural Rights (ICESCR). According to the committee in charge of the control of ICESCR, the right to adequate food is realised when every woman, man and child, alone or together with others, has a physical and economic possibility to obtain sufficient food or the means to obtain it. Furthermore, according to the committee, the right to food means:

- the availability and quality of food that is sufficient to satisfy the nutritional needs of individuals safely (without harmful substances) and in a culturally acceptable manner;
- the supply of food that is sustainable and does not interfere with the enjoyment of other rights.

Key standards in the right to food include adequacy, availability and accessibility, to which stability and sustainability are also related.

Sources for the Food as a Human Rights box[11]

Food is closely interlinked to the Sustainable Development Goals

The 2030 Agenda and its Sustainable Development Goals guide the promotion of sustainable development in all countries. The focus of SDG 2 is on eliminating hunger, achieving food security, improving nutrition and promoting sustainable agriculture[12].

The Sustainable Development Goal 2 sub-objectives emphasise

- eliminating hunger by 2030,
- sufficiently safe and nutritional food for all,
- eliminating all forms of malnutrition,
- doubling agricultural productivity and small producers' incomes by 2030,
- ensuring sustainable food production systems and implementing farming practices that increase productivity, protect the environment and help prevent threats caused by climate change,
- conserving the genetic diversity of species.

According to the latest joint assessment of UN agencies, almost 690 million people (8.9% of the global population) suffer from malnutrition, meaning they do not receive the energy they need from food. Despite the decline in the number of malnourished people in recent decades, malnutrition has been on the rise since 2014[13]. For example, in 2020, the number of people in urgent need of food aid increased by 20 million[14].

It is also estimated that about two billion people do not have regular access to enough safe and nutritious food, meaning they also suffer from food insecurity and, in particular, poor nutrition. We are therefore not on the path to achieving the second SDG, but on the contrary the number of malnourished people will increase in the future if the current trend continues (at which the number of malnourished people is estimated to increase to 840 million by 2030)[15].

In its review of last November[16], the World Food Programme (WFP) estimated that more than 270 million people in the regions where it operates are either acutely food insecure or at risk of becoming so. This is because the Covid-19 pandemic has

exacerbated the situation in regions already affected by conflict, socio-economic recession, natural disasters, climate change and pests. The Resilient Food Systems report of the Global Environment Facility (GEF) Trust Fund and the International Fund for Agricultural Development (IFAD)[17] also states that the pandemic has revealed how such external shocks, together with existing challenges (such as soil degradation, unproductive agricultural practices, precarious livelihoods and the climate change), contribute in the long term to the vulnerability of small producers' production systems.

The objectives of sustainable development are interlinked. This means that to eliminate hunger, achieve food security, improve nutrition and promote sustainable agriculture, many of the other goals must also be promoted. The multiple interdependencies between the goals (synergies and trade-off) have been analysed to some extent[18]. The achievement of the second SDG is strongly linked, for example, to the achievement of the third SDG (health and well-being), the fourth SDG (good education), the seventh SDG (affordable and clean energy) and the eighth SDG (decent work and economic growth).

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Food security is a multidimensional concept

The concept of food security is multidimensional, and its different dimensions have been emphasised variously over the years. Initially, there was a strong emphasis on food availability, as hunger was primarily attributed to lack of food and price volatility at the global level. The concept has been updated as research and understanding of the causes of hunger increase, and today, most define the concept as follows: food security is realised when all people at all times have physical, social and economic

Food security is based on four pillars

As defined, food security has four main pillars. The first relates to the **quantity and availability of food**, meaning that everyone should have enough nutritious food that is also culturally acceptable and safe. The implementation of this pillar depends, for example, on food production, storage and imports.

The second pillar concerns **access to food**, meaning the physical, social and economic opportunities of people to obtain sufficient food. Everyone, including people belonging to vulnerable groups, should have the opportunity to obtain sufficient amounts of food. The opportunities to acquire sufficient amounts of food depend on features such as income levels and the distribution of income, social security, market operations and food prices.

As a third pillar, **the continuity and stability of supply** provides stability and predictability to social and ecological conditions in food security. Nutritional food should be available in sufficient amounts, and it should also be accessible regardless of seasonal fluctuations or crises (such as extreme weather events, conflict, economic or other crises). Stability and predictability also mean that the foundation of each of the four pillars of food security must be sound.

The fourth pillar, the **utilisation or usability of food**, refers to the quality of food and the availability and ability to obtain and make good use of the necessary nutrients. Utilisation is influenced by factors such as eating habits, cooking, health, the distribution of food within the family, and dietary diversity. Additionally, factors external to food such as clean water, hygiene and sanitation as well as health care also affect the utilisation of food.

opportunities to receive sufficient amounts of safe and nutritious food that meets their needs and preferences and enables them to lead an active and healthy life[19].

To be sustainable, food security must be built on an ecologically, socially and economically sustainable basis (see Figure 1). The High Level Panel of Experts for the Committee on World Food Security has therefore proposed sustainability as a new pillar alongside the previous four. Sustainability would mean food system practices that would ensure that current food security needs are met without jeopardising the food security of future generations. In addition, the expert panel proposes adding a pillar related to the capacity and scope of choice of individuals or groups to the concept of food security (agency)[20].

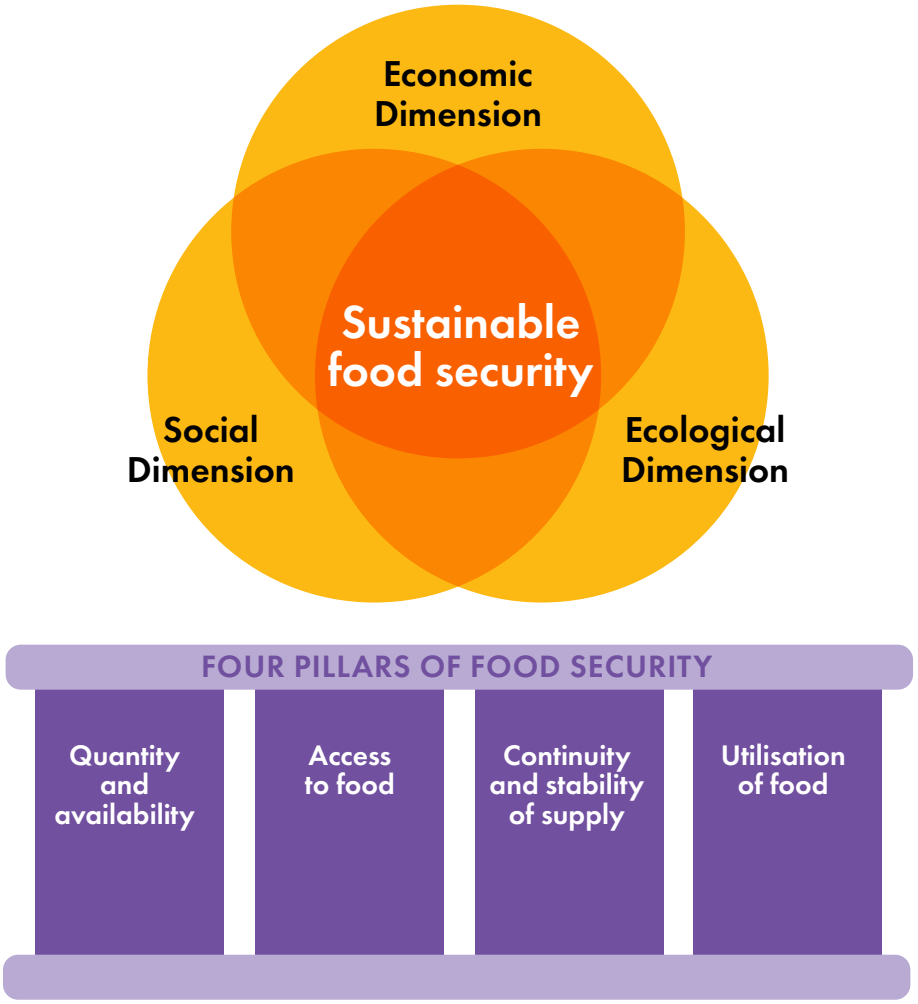

FIGURE 1. Food security is based on the quantity and availability of food, access to food, continuity and stability of supply as well as on food utilization or usability. To be sustainable, food security must be built on ecologically, socially and economically sustainable base. Image source: Adapted from Policy Brief VI for the Winland project[21]

Food security must have a functional food system

Food systems are often discussed in the context of food security. A food system refers to a broad entity whose functioning generates food security. A food system comprises a food chain and its operational environment.

A food chain describes the passage of food from food producers through processing, distribution, trade and catering services to food consumers. It also takes into account the inputs needed in food production and the waste generated in the chain. In addition to the chain, the food system also includes interactive relationships with the operational environment, meaning the interactions, the drivers of control and change, and the system's various outputs (see Figure 2).

The drivers of control and change concern such things as political stability, agricultural and food policy, international trade, health, education, infrastructure, environmental issues, social and cultural factors, and technology and science. The production, processing, distribution, manufacture and consumption of food produce different outputs, including food security and good nutrition, but also business, employment, health and well-being. The outputs also include different by-products and waste, but also different emissions such as nutrient and greenhouse gas emissions as well as different impacts on the environment and ecosystems, including the loss of biodiversity[22].

The circular economy is also related to the food system. The potential and interventions of the circular economy depend on what food is produced and how. At different stages of the food chain, it is possible to reduce the amount of loss and waste generated, reuse food, utilise by-products and food waste, and recycle nutrients[23].

Food systems may be viewed at different levels. A local or regional food system is more limited than that at national level (e.g. the municipal or provincial level). Local, regional and national systems are interconnected, and the global food system in turn integrates national systems within the global network[24]. The food systems in the EU and Africa, for instance, are part of an interconnected global network. However, the global linkage of local and regional food systems is highly unequal, and the benefits of national trade and division of labour are not evenly distributed. So, the nature and structure of food systems vary radically worldwide, affecting their ability to function in a global system.

The great majority of the global population live in regions that are somewhat dependent on imports of food and various inputs.

Today's food systems are also characterised by the fact that many local and regional food systems are increasingly interconnected and to the global system[25]. The great majority of the global population live in regions that are somewhat dependent on imports of food and various inputs (e.g. fertilisers, feed, agricultural chemicals)[26]. The volume of these imports has increased enormously. Consequently, local and regional food systems are less and less determined by local natural conditions, and their degree of self-sufficiency is decreasing. On the one hand, this has protected against shocks, such as crop failures, as alternative procurement channels are available. On the other, vulnerability has increased, as global connections can rapidly spread shocks, and there are fewer buffers to prevent this happening. Trade inequality has added to the deterioration of many local food systems when local production is unable to compete with imports[27].

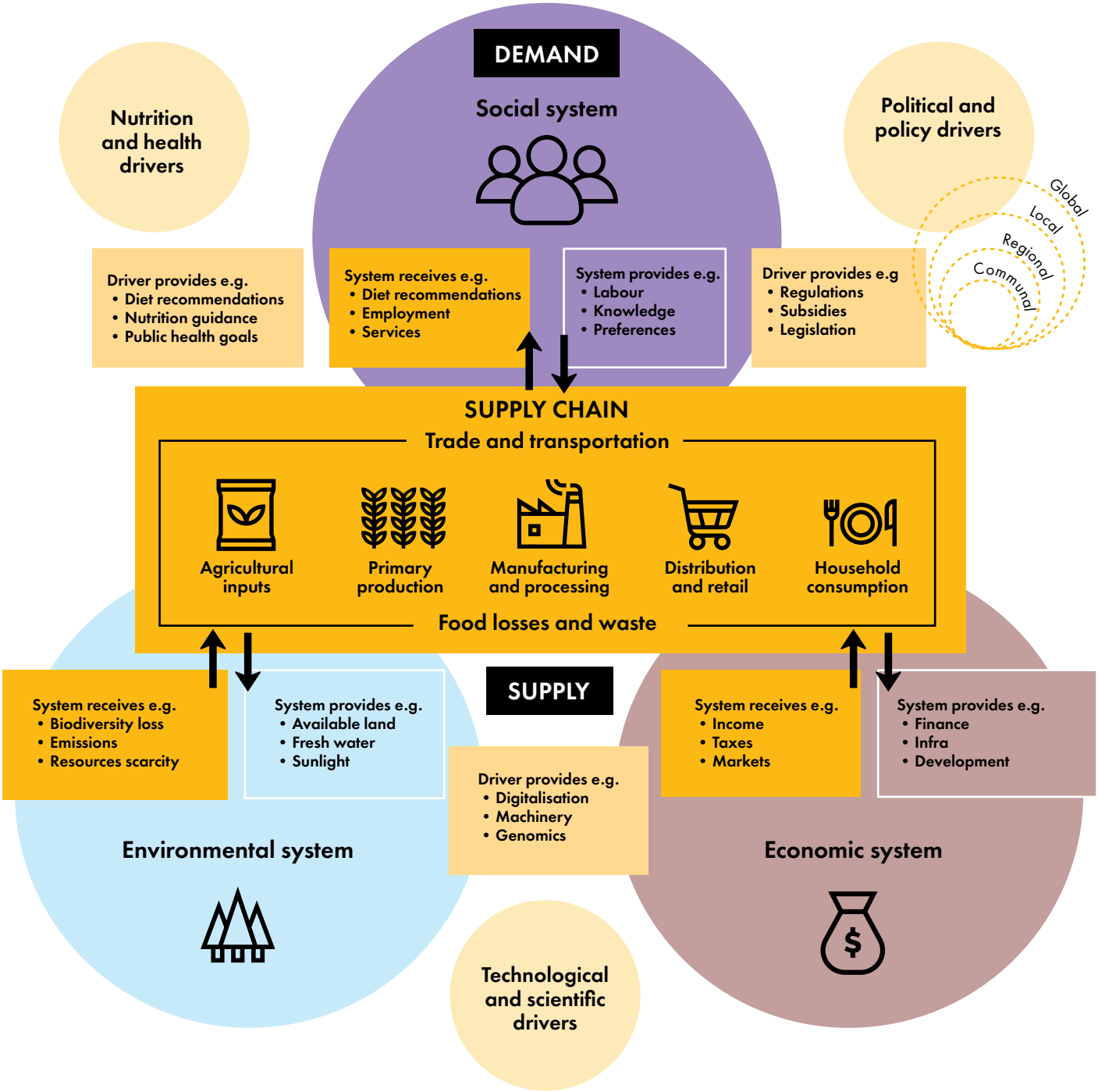

FIGURE 2. Simplified view of the food system. The food system includes the food chain as well as its operating environment, i.e. the interactions within the chain, drivers of control and change, as well as the various outputs of the system. Food systems can be considered at different levels, such as community, regional, local, or global. Image source: Lehikoinen[28]

2. Who are food insecure and why?

According to the latest estimate, in 2019, there were 690 million people worldwide suffering from chronic undernourishment. The vast majority of those suffering from chronic undernourishment are in Asia (381 million, 8.1% of the population), but there are around 250 million of them in African countries, accounting for a higher proportion of the region's population (19.1%). In addition, the number of people suffering from chronic undernourishment in Africa is growing most rapidly. The prevalence of undernourishment is assessed by country, based on the amount of food energy or calories obtained. It does not examine the nutritional content of the food energy obtained, meaning how nutritious and healthy the food is[29].

The latest global report[30] also estimated that a total of 2 billion people, or 25.9% of the global population, regularly did not receive sufficient amounts of nutritious food in 2019, meaning that they were suffering from moderate or serious food insecurity.

Food insecurity often undermines the nutritional quality of food, leading to various forms of malnutrition, such as undernutrition, meaning the insufficient intake of nutritional energy. There is also the problem of the deficiency of nutrients obtained or excessive nutrient energy in relation to energy needs (overweight and obesity). It is estimated that almost one in three people in the world suffers from some form of malnutrition. In 2019, for example, at least 340 million children were suffering from mineral deficiency. Globally, more than a fifth of children under 5 suffer from stunting[31].

It also seems that the number of people suffering from various forms of malnutrition is increasing worldwide. For example, the number of overweight children under 5 has increased in recent years, amounting to 38.3 million in 2019. About a quarter of overweight children were in Africa and 45% in Asia[32].

It is important to understand that the different forms of malnutrition mentioned above (not only undernourishment but also mineral deficiency and overweight) may occur in the same country, in the same family and even in the same individual[33]. For example, a family's mother may be obese and suffer from mineral deficiency, and the family's

children may suffer from stunting. Women's undernutrition and malnutrition have an impact not only on their own health but also on their children's health and development, and the consequences get transferred from one generation to another. For example, the child of a malnourished mother may suffer from stunting and their cognitive development is impaired, and when she becomes a mother herself, she has a baby with a low birth weight. Such double or triple burdens exist in many countries but increasingly those afflicted are the poorest of all[34].

Food insecurity is the greatest risk for vulnerable groups

People belonging to vulnerable groups are at greater risk of experiencing food insecurity. Women and girls are more likely to experience more food insecurity than men, within both communities and households[35]. By region, the largest gender differences are in Latin America[36]. Women suffer not only from calorie deficiency but also from nutrient deficiencies. For instance, one in three women of child-bearing age is estimated to suffer from iron-deficiency anaemia[37]. If girls marry young (child marriages), they will experience more anaemia and malnutrition than those marrying later. The children of those marrying young are also often underweight, suffering from poor nutritional status, and experience stunting[38].

Indigenous peoples often also experience food insecurity[39]. For example, according to a study carried out in Brazil, indigenous children are more likely to suffer from stunting due to undernutrition than other children. The prevalence of undernutrition, in turn, was related to other socio-economic factors, such as income, consumer products purchased by households, education and sanitation[40].

For people with disabilities, disability can be both a cause and a consequence of food insecurity. Disability-related stigma may result in babies not being breast-fed or children with disabilities being given less food or less nutritious food[41].

It has also been found that the risk of food insecurity for the poorest, the least educated, the unemployed, those with health problems and those living in rural areas is higher than for others[42]. Refugees or those on the move (including internally displaced people) due to disasters, conflicts and suchlike also often suffer from food insecurity[43].

Women and girls are more likely to experience more food insecurity than men, within both communities and households.

The majority of the world's food insecure people are small farmers, fishermen or those otherwise working in food production[44]. Farms of less than two hectares account for an estimated 84% of all farms. Based on global calculations, these small farms would only occupy one quarter of all agricultural land, but they would account for 30–34% of global food production. Small farms represent the majority of agricultural production systems in sub-Saharan Africa, South Asia and South-East Asia[45]. Despite food production, small farmers themselves suffer from undernourishment, because the small size and low productivity of their fields do not necessarily guarantee sufficient food and income for the entire year[46].

Although the contribution of agriculture as a source of employment has decreased over the last two decades, agriculture continues to play an important role in the Global South. In Africa and Asia in particular, agriculture and food processing as well as retailing are important sources of employment and livelihood. Despite the important role of agricultural workers in providing food and nutrition, many of them and their families suffer from poverty and food insecurity[47].

Food security is undermined by many factors

Food insecurity is caused by many different factors that are often strongly interlinked. They can, additionally, be not only the causes of food insecurity but also their consequences. In order to improve food security, we need to understand how different factors affect the situations of both society and individuals in different contexts.

In some areas, food production is weak, and the lack of food is clearly a problem. There are areas in Africa, for instance, where it is important to increase food production. And yet the world as a whole produces more than enough food for the current population. On the other hand, in areas affected by hunger and malnutrition, food is also produced for export, which means that food insecurity is not necessarily due to a shortage of food[48].

The poorest have to compromise on the quantity and quality of food

Nutritious and healthy food remains beyond reach for the poorest especially because it is too expensive for them. For people living in extreme poverty (income under USD 1.90 a day), a significant proportion of income is spent on food[49]. The majority, four out of five, of those suffering from extreme poverty live in rural areas, and in recent years, their number has increased. In sub-Saharan Africa and South Asia, where urbanisation has generally been slower, the percentage of poor people living in rural areas is particularly high: 83% in sub-Saharan Africa and 89% in South Asia. Rural

poverty is strongly linked to employment and income opportunities in the agricultural sector, where extreme poverty is more common than in other sectors[50]. It is estimated that a quarter of those working in the agricultural sector live in extreme poverty[51].

Those suffering from poverty must compromise not only on the quantity of food, but also on its quality, namely its nutritional content and safety. Poverty is not just a matter of low disposable income; it is influenced by many other factors, such as social inequalities, vulnerability, the ability of people to defend their rights and lack of education, health services and sanitation[52].

The disadvantaged position of small farmers has an impact on food security

The limited availability of land, water, inputs and advice services undermines small farmers' food security. They also have limited information about markets, prices, weather conditions, improved technologies and risk management tools. The availability of land for small farmers has also been affected by the fact that after the 2008 food crisis investors bought or leased large land areas in Africa, Asia and Latin America. They also began to engage in large-scale export farming[53].

Often, small farmers are not able to use new and more productive farming methods, because of the cost of inputs for production or because they are not suitable for local conditions[54]. For example, legislation relating to patents undermines the ownership and use of seeds by small farmers. Their use is important in terms of versatile and nutritious food, but they also improve farmers' ability to adapt to climate change. Weak market infrastructure and the concentration of local markets also undermine market access for small farmers. The shortcomings or absence of social protection and weak bargaining power in economic and political relations are also reasons for the poor food security of small farmers[55].

Women and minorities face many kinds of discrimination in agriculture

In the Global South, a major employer of rural women is agriculture, with women accounting for 42% of the agricultural workforce[56]. Despite their key role in agricultural production in the Global South, women face a wide range of discrimination. They may not be able to access, manage, own and inherit land. And if they have land, it is often smaller than men's. Women also often have difficulties in obtaining the inputs needed for production, such as seeds and fertilisers, labour force and funding. Women also receive fewer extension services, and they participate less in the activities of various organisations, such as cooperatives, and in decision-making[57]. Women's work in

agriculture is concentrated on small farms and small enterprises, and they often carry out unpaid tasks on household farms. Work is also often seasonal or part-time. The potential pay is low, and women are paid less than men for the same work[58].

People with disabilities or people belonging to ethnic or other minorities may also have poor or non-existent means of support because of discriminatory policies and practices, which affects their food security[59].

The Covid-19 pandemic has already exacerbated the extreme poverty and food insecurity of people in the agricultural sector. In general, the pandemic has impaired the supply of food for millions of people and their access to food as their livelihoods have become harder. The most vulnerable are informal workers, migrant workers and other vulnerable groups, since most of them are not covered by social protection and do not have access to quality healthcare[60].

Catastrophes and conflicts lead to food crises

Disasters, conflicts and other crises increase food insecurity. In Southern Africa (10 countries), almost 45 million people are reported to be acutely food insecure, particularly due to drought, floods and also the pandemic[61]. Refugees also suffer from food insecurity. Refugees, including internal displaced people, have increased as a result of protracted conflicts and disasters. In Africa, 63% of the population were affected by food crises in 2020 compared with 54% the previous year. The increase is explained by conflicts, such as in the Democratic Republic of Congo, and the related displacement of people, the Covid-19 pandemic and its economic consequences, and extreme weather events including prolonged drought and recurrent floods[62].

Refugees also suffer from food insecurity. Refugees, including internal displaced people, have increased as a result of protracted conflicts and disasters.

The links between disasters, conflicts, displacement and food insecurity are manifold. Many conflicts are fought in rural areas and destroy agricultural assets such as land, livestock and infrastructure. Other factors, such as drought or other climate-related extreme events, may also be associated with conflicts. They further exacerbate people's food insecurity and undermine their means of support[63].

Climate change hampers food production in many areas

Climate change is strongly linked to the above-mentioned disasters and conflicts, which in turn increases food insecurity. Agricultural production is particularly vulnerable to climate change and its effects. Rising temperatures, changes in rainfall and the increase in extreme weather events are already impacting agricultural production. Changing and extreme weather conditions particularly affect small farmers, who need to adapt their farming techniquews or find new sources of livelihood if crops or other production fail or deteriorate. Many of the negative effects of climate change affect regions that already suffer from poverty and food insecurity[64]. Information from indigenous and local communities indicates that climate change affects food security particularly in dry areas, especially in Africa, and in mountainous regions in Asia and South America[65]. A recent study finds that changes in rainfall, drought and global warming threaten food production particularly in South-East Asia and the Sahel region. The capacity of these regions to adapt to changing growth conditions is already low[66].

Agricultural production also depends on many environmental factors, such as soil structure and fertility, pollination and pest control, all of which depend on natural biodiversity. Food production and agriculture refer in particular to agrobiodiversity, namely the genetic diversity of cereals and varieties, livestock breeds and natural products used as food, as well as soil organisms, pollinators and other organisms that sustain their production[67]. Maintaining and preserving this diversity is crucial for food security and nutrition, but also particularly for small farmers' ability to adapt to the impacts of climate change[68]. Genetic diversity can also be used to breed nutritious species and varieties that are adapted to different conditions[69].

3. What are the key challenges faced by our global food system?

Current food production exceeds planetary limits

Over the decades and centuries, agriculture and forestry have expanded and become more productive. Commercial production has also expanded. These changes have supported food availability and consumption by a growing human population. On the other hand, the efficiency of agricultural production has had to intensify to maintain profitability, as the prices obtained from products have fallen with increased international competition[70]. And these changes have had negative impacts on the climate, soil, biodiversity, freshwater resources and marine environments[71], for example from deforestation caused by food production.

In many areas agriculture uses too much land area, water and fertilisers. Currently, due to agriculture, many so-called planetary boundaries are exceeded both globally and regionally. Planetary boundaries are threshold values set for natural processes that are important for living conditions on the planet, and exceeding them threatens the stability of the living conditions. In order to feed a growing population in an environmentally sustainable manner, the study found that thresholds concerning changes in land use, biodiversity, freshwater use and nutrients, and the nitrogen cycle are especially important. Currently, almost half of global food production relies on exceeding these environmental risk limits[72].

Agriculture depletes biodiversity

Agriculture currently occupies 50% of the planet's habitable surface area. Livestock farming uses three quarters of this, for grazing and feed production[73]. Although livestock farming accounts for a large proportion of land use, its contribution to proteins

and calories is far smaller. According to the study, meat, dairy products, eggs and aquaculture together produce 37% of protein and 18% of calories[74]. At the same time, it is important to take into account local and regional conditions and realities. The livelihood of people in some regions and the supply of protein depend on livestock farming[75].

Large-scale land use for agriculture has resulted in the loss of forests, savannah and other grasslands as well as wetlands to farmland or pasture. The loss of habitats has led to a loss of biodiversity. For example, 80% of all endangered bird and mammal species in the world are at risk of disappearing due to the agriculture-induced loss of habitat[76]. In particular, the loss of tropical forests and their conversion to agricultural use results in species coming more into contact with humans and into competition with each other, including new opportunities for the emergence of zoonotic diseases[77].

Today's global food production is strongly dependent not only on land use but also on the use of water and energy as well as other inputs for production, such as fertilisers and pesticides. In addition, cultivation practices are often based on frequent tillage and monocultures. These factors have contributed to the decline in biodiversity and also to the decline in underground biodiversity. Greenhouse gas emissions from agriculture are also linked to biodiversity loss. These emissions accelerate climate change, which in turn further weakens habitats and causes species loss[78].

These factors have been identified as threats to, for instance, the diversity, abundance and well-being of pollinators and the pollination they offer. Negative impacts on pollinators is highly relevant to food production, as more than three quarters of key food plant groups depend on pollinators in terms of the volume and/or quality of the crop. Further, many plant species dependent on pollinators are important for healthy and nutritious food. They produce fruit, vegetables, seeds, nuts and oil, which in turn provide a large proportion of the micronutrients, vitamins and minerals needed[79].

Cultivation has major impacts on soil and water resources

Agricultural land use also impacts soil. An estimated quarter of the land area suffers from soil degradation due to human activity, and agriculture plays a main role in this. Soil erosion in agricultural areas is estimated to be some 10–20 times higher in no-tilled land areas and more than 100 times higher in conventionally tilled land areas compared to the formation of new soil[80]. Intensive land use and unsustainable farming practices can also lead to loss of soil fertility, salinisation or desertification[81].

Agriculture also needs fresh water and uses 70% of all fresh water consumed in the world. About a quarter of the world's arable land is irrigated, and this sector produces about half of global agricultural products. The growing and urbanising population as well as industry and energy production compete for water with agriculture.

The poor availability of water resources affects agricultural production, human health and thus also food security and nutrition.

The changing human diet, such as the increasing consumption of meat and dairy products, also increases the use of water resources, as more water is needed to produce livestock products than to produce crop products. Fertilisers used in agriculture (including manure) also cause the eutrophication of waters due to nutrient emissions. Global freshwater resources and their quality are declining. The poor availability of water resources affects agricultural production, human health and thus also food security and nutrition[82].

Fishing and aquaculture are also important for food security. Fish and crustaceans constitute a very important source of protein and nutrients, particularly in South-East Asia, sub-Saharan Africa and small island states. Fishing and aquaculture also provide millions of people with important livelihoods in the countries of the Global South. Unsustainable production practices, including overfishing, in both fisheries and aquaculture, and climate change damage fish stocks, aquatic and marine ecosystems and their biodiversity. These have an impact on the current food security of the people in these regions, but also on future production opportunities and food security[83].

Climate change is an additional challenge for food security

Agriculture and food production also contribute to climate change and its progression through greenhouse gas emissions. Emissions are caused particularly by changes in land use. Methane emissions from food production, especially livestock farming, are also significant. Ruminants – cattle, sheep and goats – account for roughly half of all agricultural greenhouse gas emissions. Other significant sources of agricultural emissions include manure and fertilisers as well as rice cultivation[84]. Agriculture, forestry and land use accounted for about 23% of all man-made carbon dioxide, nitrogen oxide and methane emissions between 2007 and 2016. Agricultural emissions are also increased by the fact that some 25–30% of the food produced is wasted (including both food loss and food wastage)[85].

Climate change has already had an impact on food security due to increased heat, changed precipitation and an increase in extreme weather events. Some cultivated species, such as maize and wheat, have suffered in many areas in the Global South. Climate change has also been found to slow down animal growth and productivity in Africa. Climate change has multiple impacts on agricultural pests and diseases[86].

Climate change also affects food security by reducing biodiversity, accelerating the degradation of soil quality and desertification in many areas. Soil degradation is particularly prevalent in low-lying coastal areas, river deltas and drylands. In 2015, some 500 million people lived in areas affected by desertification. The deterioration of biodiversity and soil degradation have a negative impact, particularly on the food security of population groups whose livelihoods depend directly on natural resources and who have limited possibilities of adaptation (such as women and young people)[87].

The stability of food supply is projected to decrease as the number and intensity of extreme weather events that disrupt food chains increase. The risks and changes caused by climate change will depend on the level of warming and on how the population, consumption, production, technological development and land use develop. Increased demand for food, feed and water, high resource consumption and production and limited agricultural improvements increase the risk of water shortages in dry areas, soil degradation and food security deterioration[88].

According to a recently published study, the rapid and uncontrolled increase in greenhouse gases may lead to a situation where about a third of global food and livestock production is located outside the safe climatic space. Here, rainfall, drought and temperature change so that food crop cultivation and livestock farming will not have the time nor capacity to adapt to rapidly changing conditions[89].

Extreme events caused by climate change, such as drought and floods, have many direct impacts on the environment and people. Climate change also multiplies the consequences of many processes, such as habitat loss, which are already inherently negative. This will increase the food insecurity of already vulnerable people and households. Women and girls are particularly vulnerable, being often responsible for collecting and producing food and for providing water and firewood for cooking. With climate change, these tasks are becoming more difficult. At the same time, women's knowledge and understanding of how to adapt to changing conditions are needed, but this has not yet been used very much. Limited rights to land, financial resources, lack of education and technology and limited participation in decision-making are barriers to women's action and participation in combating climate change and other environmental challenges and improving food security[90].

Changes in global trade, economy and markets shape the food system

Food systems have changed rapidly in recent decades, as food chains have become longer and more global, increasing the distance between food producers and consumers. Today, about a quarter of the food produced globally is sold on international markets. This means that the food security of a large and increasing number of people depends on international markets[91].

The positive and negative effects of trade on food security are not necessarily straightforward and are subject to intense debate. Some people consider that trade has increased opportunities for work and income, thereby improving access to food[92]. Trade can also increase the quantity and range of food available and promote a more balanced diet. Competition with foreign products can trigger productivity gains through increased investment, research and development and technological expansion[93].

Others criticise the liberalisation of trade, which has been seen as problematic especially for small farmers in the Global South. In a recent study, the liberalisation of trade has been found to have affected food security of the majority of households in low-income countries, while in high-income countries, the effects were limited to the food security of the poorest households[94]. The availability of food may decrease as some of the produce previously available domestically is directed to the international market due to higher prices. In the importing countries, domestic producers who are unable to compete strongly with subsidised imports and the quality and volume of large supermarket chains are forced to limit their production or will even disappear from the market[95]. This, in turn, reduces the number of domestic deliveries and has significant multiplier effects on rural households and the national economies[96] Local production cannot develop, because there is no accumulated profit for investment in expansion, diversification or the further processing of basic goods and increasing their economic value[97].

The least developed countries were previously exporters of food. For example, Africa was a net exporter of food until the 1980s. The situation changed with the economic growth of the 2000s and the rapid growth of the population, which increased the domestic demand for food. The transformation of African countries from food exporters into food importers has also been seen as a result of the decline in commodity prices, poor agricultural structures and low investment in agricultural development[98].

Today, about a quarter of the food produced globally is sold on international markets.

Dependence on imported food increases food insecurity

Population growth, rising living standards and insufficient local resources increase the need for food imports. But food insecurity also occurs in areas where food and food waste are generated, and while other agricultural products are exported to other countries. Import dependency is therefore also linked to changes in economic and productive power relations[99]. Dependence on imported food has raised concerns about the vulnerability of these countries[100].

In addition to trade growth, regional specialisation, or the global division of labour, has increased. This can lead to increased food production through improved efficiency[101]. Conversely, specialisation means that exports are concentrated in certain countries, and net importers are increasingly dependent on certain countries. This is likely to undermine the adaptability and resilience of the food system. From an economic point of view, the division of labour may be effective, but it increases global inequalities and is also a source of instability[102].

International trade and the industrialisation of food processing have increased the importance of a number of limited products, such as maize, soy and palm oil. They are used in a processed form, as food ingredients, animal feed and biofuels. Growing global markets and supply chains in the food industry have also been affected by international trade tensions, particularly between China and the USA[103].

The Covid-19 pandemic has also had an impact on food trade. Some countries have restricted their food exports, which has pushed up world food prices. This has negative effects, particularly on countries and regions that are dependent on food imports. The disruption of logistical chains in the food industry and the lack of timely access to labour and raw materials has hampered food trade. Some countries, on the other hand, have lost their food export markets as a result of the blockades associated with the pandemic, resulting in a loss of income and thus in increased food insecurity[104].

The gradual concentration of food chains in recent decades has increased the influence of large companies in food systems. For example, there has been concentration in production inputs, where the majority of the seed and agricultural chemical markets are dominated by four companies through mergers between companies. Similarly, there has been a concentration in global cereal trade and the food processing industry, and the market is dominated by a few large companies. This type of concentration or "supermarketization" has also taken place in retail trade in both poor and rich countries[105].

Some research has been done on the drawbacks and benefits of the concentration of food chains to food security and nutrition. The concentration of production inputs and trade in products may lead to higher prices, which may limit farmers' choices regarding production inputs and markets and their ability to act[106]. The concentration of food processing and retail trade may affect prices and increase the volume of highly

processed foodstuffs, limiting people's possibilities of making choices[107]. On the other hand, concentration may improve food safety and storage and processing processes. But a centralised market also means that potential problems spread rapidly through the chain. For example, the meat processing industry is highly concentrated, and large-scale infection outbreaks during the pandemic required the closure of plants. This illustrates how problems can spread quickly and widely through food systems[108].

Demographic change and urbanisation challenge the global food system

Demographic change affects food production and consumption in many ways. These impacts should be taken into account when assessing policy options related to food security. Although global population growth is slowing down as a result of change in population structure, the population is still growing. By 2050, the population is projected to have increased by two billion, mainly in Africa. Population growth will increase food demand, especially in sub-Saharan Africa and South Asia. In addition to the population size, the amount of food production and ensuring equal access to food are influenced by consumer choices and the opportunities to reduce food waste and food wastage[109].

In the light of empirical studies, the provision of family planning services is strongly linked to achieving food security. According to the United Nations Population Fund (UNFPA), there are currently 232 million married women in the world who would like to use modern contraception but do not have access to it[110]. The Covid-19 pandemic has increased the problems of access to contraception. According to the World Health Organisation (WHO), there are 74 million unplanned pregnancies in low-income and middle-income countries every year[111]. This has a huge impact on demographic trends. Furthermore, the poorest women in particular often lack access to comprehensive health services and information. This means that they have to struggle to ensure sufficient and nutritious food for their children. Sexual and reproductive health is often seen as a separate entity in national policy programmes. However, according to studies, food security is most effectively achieved by combining high-quality sexual and reproductive health services with programmes related to the promotion of food security[112].

Food demand is also affected by population age structure and urbanisation. Africa and Asia are urbanising more rapidly than other regions. By 2050, the number of people aged 15 to 24 will increase from 1 to 1.2 billion in low-income countries, while the population in high-income countries will age rapidly. The different food and consumption needs of different age groups and the different living conditions and jobs of the rural and urban population affect the demand for different types of food and the minimum diet requirements[113].

The consumption of highly processed food has been found to have increased in

According to one study, almost two-thirds of households were exposed to malnutrition in the urban areas of southern Africa.

lower-income countries, especially in urban areas. While urbanisation has changed people's diets and food trade has increased, the availability of energy-intensive foods (meaning food with a high level of sugar and fat) has increased in both rich and poor countries. This has been found to increase overweight and obesity. Non-communicable diseases such as heart disease, type 2 diabetes and certain cancers have also increased[114].

In general, urban dwellers suffer slightly less from undernourishment than those living in rural areas. But the situation in the least developed countries the opposite can also be true. More information is needed on food security in urban areas, because, for instance, little is known about the extent of food security in cities in southern Africa. According to one study, almost two-thirds of households were exposed to undernourishment in the urban areas of southern Africa[115].

The decline in rural population affects food production

Urbanisation and rural depopulation are major trends that affect agricultural production systems in many ways. For example, they reduce the workforce in food production, change the division of labour between the sexes and favour practices that require less work (such as increasing the use of pesticides). On the other hand, remittances from those who have moved to urban areas can be used in rural areas by investing in more productive agriculture and by diversifying rural diets. The food security of people living in cities depends largely on trade, economy and employment, as their own workforce no longer produces the food[116].

The changing population distribution in Africa (particularly the growing youth population) is increasingly dissimilar to the traditional smallholder families. The change in population distribution, combined with urbanisation and widening inequality (some of the most disadvantaged are workers in possession of no land or people with no work capacity), underscores the need to pay attention to these people[117].

Food systems also offer employment opportunities for young people, especially in sub-Saharan Africa and South Asia, where the needs related to access to food, its

availability and quality are also the greatest[118]. In sub-Saharan Africa, population growth also increases the workforce, though, particularly in Africa, rural migration has been found to shape the economy and its structures and to contribute to the decline in the agricultural sector's role as a provider of income and jobs compared to other sectors[119]. On the other hand, in growing urban areas people's diets are also changing. As a result, food chains – food production, processing, distribution and services – will also change. New food chains will also need labour, thus offering job opportunities[120]. The development of local value chains is thus identified as an important theme in the Task Force for Rural Africa report, which is paving the way to cooperation between the European Union and the African Union[121].

Young people's interest in agriculture and the jobs it offers has also been found to be decreasing. The average age of farmers is rising, although recent studies indicate that this trend has stalled in low-income countries. Many young people are looking for alternatives to physical agricultural work or other low-paid jobs in the food system. On the other hand, they perform various tasks related to the food system, on and off-farm, in rural and urban areas, for instance in food sales, processing and transport. Young people are still underrepresented in the management of agriculture and food systems, which limits their ability to influence policy processes[122].

Weak governance hinders the development of the food system

The public sector uses various means to control the operation of food systems locally and nationally. The aim is to influence livelihoods, nutrition, health, food safety or the state of the environment. Control mechanisms include policies, regulations, taxation and various subsidies, land use planning, research and development funding and competition policy[123]. In a world of global trade, binding international agreements, such as the World Trade Organisation (WTO) agreements and regional free trade agreements, also affect the steering instruments available to individual countries or regions, particularly prohibitive agricultural duties, agricultural subsidies, investments and procurements.The use of these instruments varies from country to country: the poorest countries have had little chance of using agricultural subsidies or influencing agreements governing agricultural trade compared to the European Union, its Member States or the United States[124]. Many poor countries also have increased production costs through various agricultural levies and taxes[125].

Ensuring food security and nutrition and developing food systems often suffer from disjointed governance. Governance is often fragmented into different organisations and departments, which in turn leads to poor coordination and coherence in food security and nutrition policies and their implementation. In food security, the focus has been largely on quantity rather than quality. Quality, in this context, means taking

health and nutrition perspectives into account at all stages from food production to consumption, as well as, for example, the resilience of food production and distribution networks and the sustainability of food systems[126].

Governance problems are multiplied in the poorest and most fragile countries. Land ownership policies (how to ensure adequate and secure land ownership and access rights) are particularly important for food security of small farmers, indigenous peoples and the poorest. The position of women is particularly weak in terms of land ownership and access rights. Safeguarding the availability of other natural resources such as fish, game, and fruit from lakes, seas and forests is also important for food security[127]. The pandemic has been identified as threatening the land rights of small farmers and indigenous peoples, as governments and businesses in many countries are pushing for new laws or coercive measures through restrictions and thus reduced transparency to gain control of land to carry out mining activities, massive infrastructure projects or agriculture-related business. These "land grabs" threaten people's livelihoods and the availability of food[128].

Public support has decreased, private investment increased

Public spending on food and agriculture has fallen in almost all regions since the 1980s. In sub-Saharan Africa, where the lack of food security is greatest, public investment in the agricultural sector has fallen sharply despite commitments to increase the share of agricultural expenditure to at least 10% of the state budget (Maputo Declaration on Agriculture and Food Security 2003 and Malabo Declaration 2014). Reduced public interest in food and agriculture is also reflected in development aid priorities. In the mid-1980s, donor support for the agricultural sector in the Global South was almost 25% of all aid, but in 2017 it was only 5%[129].

As public support declines, private sector investment in the agricultural sector has increased. Funders and investors have increasingly invested in food and agricultural businesses and also acquired agricultural land, including in the Global South. There is no consensus on the positive and negative effects of these measures on food security. But the results of studies and reports show increasingly that these investments increase food price fluctuations. Rising food prices will reduce the quantity and quality of food, particularly for the poorest households, which spend a large part of their income on food[130].

In recent decades, there has also been a significant shift in agricultural production and land use thanks to economic incentives. Some areas that previously produced food for people have shifted to produce animal feed or have focused on the production of wood or biofuels. This has significantly affected food security, but also forest loss and the environment. Biofuel production has continued to increase, albeit slightly less

so in recent years due to lower prices. In the future, biofuel production will probably focus more on agricultural residues, wood and other waste, competing less with food production. National policies, incentives for farmers and fuel-related regulations will influence the production of biofuels. Greater meat consumption has increased the use of cereal-based feeds for animal nutrition, reducing the direct use of cereals for human consumption. In 2010, 34% of global cereal production was used for animal feed, and this share is projected to increase to 50% by 2050. Fish is also used as animal feed[131].

The impact of agricultural and food production incentives on diet and nutrition is hard to assess, but we can generally say that subsidies and taxes are increasingly concentrated on broader economic and political objectives. They do not necessarily directly include nutrition objectives. But taxes and subsidy policies can influence things like consumption. Many economic incentives favour the consumption of food that is highly processed and energy-rich but nutritionally poor. Such food is cheaper than less energy-dense and nutritionally better food. This price policy could be changed, for example through taxation, which could lead to a change in consumption[132].

The share of companies' investments has increased, for example, in research and development on agriculture, which also targets this sector in the Global South. This has had a number of consequences, as research and development has focused particularly on commercial products rather than, say, crops that would be important for food security. Research and development has also given multinational companies more influence on national policies while limiting the opportunities available to farmers[133].

Greater meat consumption has increased the use of cereal-based feeds for animal nutrition, reducing the direct use of cereals for human consumption.

Coherence between policy areas is essential

Food security and nutrition are therefore influenced by a number of factors, such as economic inequalities, climate change and environmental degradation, or trade policy rules and opportunities to influence them. Food production also affects such things as environmental sustainability. These links or the complexity of food systems are not sufficiently taken into account in sectorally fragmented policy-making at a national or

international level. In fact, the 2030 Agenda for Sustainable Development calls for coherence (SDG-17) and understanding of the linkages between the goals.

In development policy, the idea of reducing poverty and inequality and promoting sustainable development, precisely by increasing coherence between policy areas, is not new. NGOs have been arguing for decades that, in addition to the quality and effectiveness of development cooperation, all donor countries should pay attention to and support the development efforts of the poorest countries in all policy areas, not simply in development cooperation. In the 1990s, this coherence approach began to strike a chord in the EU Member States, and it has been enshrined in EU treaties since 1992. Thus, as a member of the European Union, Finland has an obligation to examine measures affecting developing countries both within development cooperation and more broadly across the whole of government. The policy coherence for development was established in Finnish debate and policy in the early 2000s. Its core idea is to ensure that other policy areas work in the same direction as development objectives, or at least not against them. This commitment has been monitored by both the EU and the OECD. The aim should be to make decisions that support the promotion of global development goals of poverty eradication and sustainable development[134]. Since 2015, the 2030 Agenda and its goals have formed a common guideline for the consistent promotion of sustainable development. The OECD has prepared new recommendations for this, which Finland should also follow.

Although the need for policy coherence has been identified, translating it into practice is a huge challenge. The challenges relate both to the lack of common criteria and to conflicts of interest. For example, researchers have identified a lack of common, globally agreed scientific goals for a healthy diet and sustainable food production. Among other things, this shortcoming has prevented large-scale and coordinated efforts to change the global food system[135].

For decades, the OECD has been monitoring the negative effects of agricultural and fisheries policies in industrialised countries on the economies of developing countries[136]. In particular, the EU's common fisheries and agricultural policies have been highlighted as examples of fields which have significantly contributed to the damage caused to developing countries, particularly in Africa. In the OECD studies, the EU production subsidies which have been particularly used in the past have enabled the sale of agricultural products that compete with local production to emerging markets below production costs. The subsidy policy for fisheries has mostly led to overcapacity in the sector, overfishing and illegal, unreported and unregulated fishing. It has also favoured the largest operators[137].

New EU strategies emphasise sustainable food production

The European Union's Farm to Fork Strategy, adopted in 2020, emphasises a fair, health-promoting and environmentally friendly food system. The Farm to Fork Strategy and the Biodiversity Strategy are part of the EU's Green Deal. The goals are to ensure healthy, affordable and sustainably produced food, to ensure a reasonable income throughout the food chain and to increase organic farming. At the same time, we can combat climate change and protect the environment and biodiversity. The strategy also includes promoting the global transition to sustainable food systems with all EU trading partners in bilateral, multilateral and regional fora. This includes cooperation with Africa, and relations with neighbouring countries and other partners, taking into account different challenges around the world. The strategy lists various areas for international cooperation, such as climate change adaptation and mitigation, protection of biodiversity and the sustainable use of biodiversity. Cooperation themes also include inclusive and fair value chains, nutrition and healthy diets, prevention of food crises and response to them, preparation for resilience and risks, and much more[138].

The EU's common agricultural policy (CAP) has many objectives, but it also plays an important role in implementing these strategies and the Green Deal. Over the past 25 years, CAP has undergone a number of reforms that have increased its market orientation and eliminated market-distorting measures. It has been put under pressure to change by, among other things, the rules of the World Trade Organisation (WTO) and particularly, in recent years, climate and environmental factors and the Sustainable Development Goals. According to an impact assessment carried out by the European Commission, the CAP and the trade policy for agricultural products are increasingly in line with development policy. For example, export refunds have been completely abolished, and most of the agricultural subsidies have been detached from production. The least developed countries (LDCs) have been able to export almost all their products free of customs duties and without quotas into the EU for a few decades. The transitional periods for sugar and rice also expired in 2009. The EU is the world's largest importer of

The goals are to ensure healthy, affordable and sustainably produced food, to ensure a reasonable income throughout the food chain and to increase organic farming.

agricultural products from the LDCs. The Commission also underlines the importance of Economic Partnership Agreements (EPA) with the ACP countries of Africa, the Caribbean and the Pacific. The EU has also provided developing countries with so-called Generalized system of preferences (GSP). On the other hand, to benefit from access to the EU market, products must meet strict quality standards and rules of origin[139].

The new agricultural policy under preparation (coming into force in 2023 after the transitional period) is a broad set of objectives, economic, environmental and social, which should be compatible. During the negotiations, the CAP proposal has been criticised, among other things, for the fact that its climate and environmental measures are not sufficient to achieve the objectives of the Green Deal and the Farm to Fork Strategy. Conversely, the CAP proposal has been criticised for its excessive focus on environmental sustainability. At the same time, social and economic sustainability has been forgotten. The debate on climate and environmental measures in the new agricultural policy has therefore been divided[140]. However, as negotiations are ongoing, the final content of the future agricultural policy is not yet known, and the measures to be taken by Member States will be specified in connection with the adoption of the new CAP strategy plans.

4. Finland's development policy has reduced the importance of food security

Food and nutrition security are the objectives of development policy...

In the new development policy report (27 May 2021), food and nutrition security is under the development policy priority Climate change, biodiversity and the sustainable management and use of natural resources. Finland aims to strengthen the opportunities for people in developing countries to produce and obtain safe, healthy and nutritious food. The aim is also to support the ability of food producers to connect with food value chains and markets. This will strengthen food systems in developing countries, improve food and nutrition security and increase income opportunities. A solution to land governance issues is also part of this whole. The report also states that Finland aims to ensure that food systems in developing countries are climate- and environmentally friendly and economically and socially sustainable. The work also takes into account the interdependencies between food, water, forests and energy.[141]

The previously published Theories of Change and Aggregate Indicators for Finland's Development Policy 2020 publication contain a target (outcome-level) under the fourth focus area, aiming at better opportunities for all people to produce and obtain sufficient amounts of safe and nutritious food[142]. In the Global South, Finland supports the organisation of small farmers and sustainable agricultural production in particular, as well as the development of land governance and food value chains, which also create jobs in rural areas. Improving rural women's access to agricultural training, production inputs and information is key to achieving the objectives[143]. In addition, the aim of Finland's policy influence in food security is to improve the coherence between the EU's agricultural and development policies[144].

Finland's new strategy for Africa states that Finland will continue cooperation to promote food security and land rights in Africa nationally and through international organisations and initiatives. The emphasis will be on the One Health approach that combines human, animal and environmental health. According to the strategy, Finnish companies can contribute to enabling African economies to move towards cleaner and more sustainable solutions and respond to the challenges posed by climate change and biodiversity reduction. These include the adequacy of clean water, the management of natural resources, food security and sustainable forestry. The development of agriculture and food security is not directly discussed in the strategy for Africa, even though the strategy emphasises combining Finnish expertise and the green economic growth of African countries and promoting sustainable structural change that creates jobs[145].

... but the funding of food security in development cooperation has decreased considerably

Funding for the food security, agricultural and rural development sectors has clearly decreased in recent years (Figure 3). In 2014, funding to these sectors was EUR 36.1 million, and the share of all development cooperation in Finland was 2.9%. In 2018, the funding had decreased to EUR 11.7 million (1.4% of ODA funding), and in 2020, the share was EUR 9.9 million (preliminary information). The year 2019 is an exception to the declining financial trend, as a loan granted to the International Fund for Agricultural Development (IFAD) (EUR 33 million) was then paid.[146].

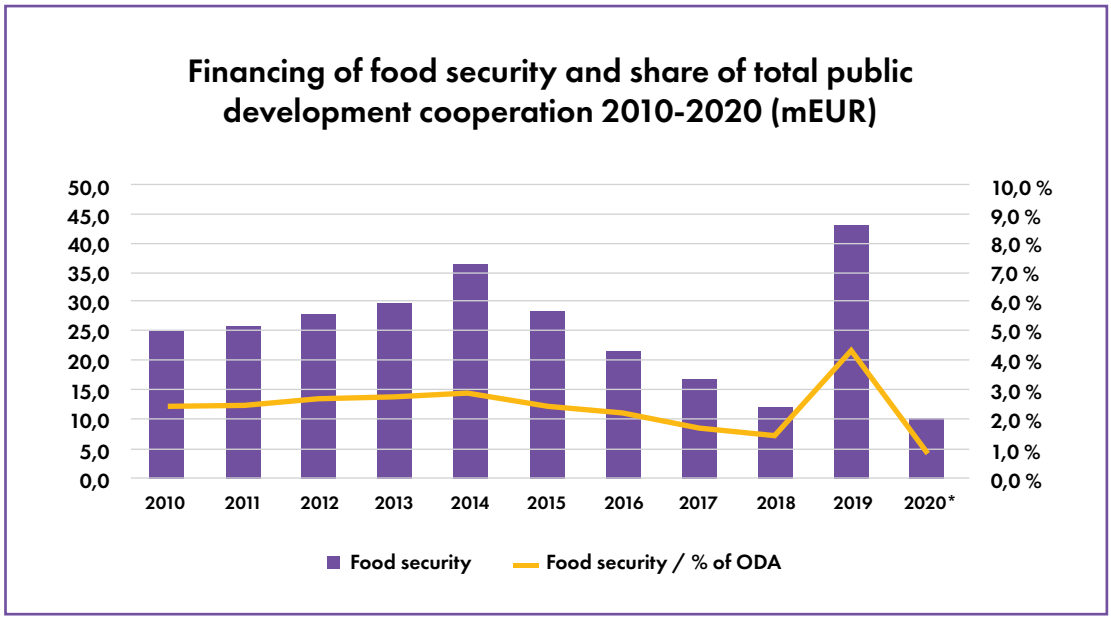

FIGURE 3. Food security funding and share of total external development cooperation 2010–2020.

Funding for the food security, agricultural and rural development sectors has decreased, especially in Finland's bilateral development cooperation. At the same time, the share of bilateral cooperation has significantly decreased in recent years. However, food security and agriculture are part of the work of multilateral organisations, which Finland supports by general funding. Development cooperation in other sectors, such as forestry, water and energy, also indirectly improves food security. Action to mitigate and adapt to climate change also supports this objective[147].

Finland's support for the agricultural and food security sector is channelled through various funding instruments. Support has been and is provided directly through bilateral and multilateral projects and programmes implemented by NGOs (e.g. to Ethiopia, Vietnam, Kyrgyzstan, Tanzania and Mozambique) or indirectly through basic funding from multilateral organisations (e.g. FAO, IFAD, WFP, World Bank, African Development Bank, GEF, GCF and NDF)[148]. However, it should be noted that, for example, Finland's support to the FAO currently covers only the membership fee and does not include project funding.

Finnpartnership's business partnership support has supported the agricultural, food and fisheries sector by a total of EUR 0.91 million between 2018 and 2020. Also, Finnfund's financial investments have provided loans to the agricultural sector in several countries[149]. Sustainable agriculture is one of Finnfund's main fields of activity. Finnfund invests in the entire agricultural value chain to improve the productivity of basic production, especially in sub-Saharan Africa. Finnfund has invested about EUR 61 million in agricultural enterprises and agricultural funds[150].

Every year, Finland provides significant humanitarian food aid. In 2020, this amounted to EUR 21.5 million (18.7% of the total humanitarian aid) and was channelled, for example, through the World Food Programme (WFP) and Finnish NGOs. The annual variation in humanitarian food aid is shown in Figure 4[151].

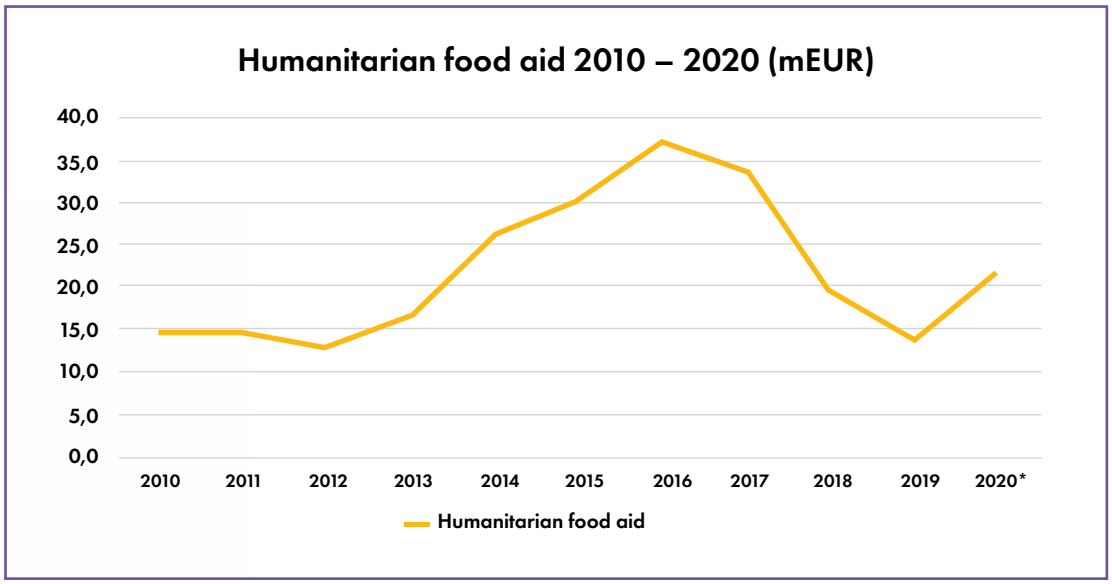

FIGURE 4. Humanitarian food aid 2010–2020.

Coherence in policy areas would reinforce food security in the poorest countries

Finland's new development policy report (27 May 2021) broadly states that development policy refers to Finland's consistent activities in all sectors of international cooperation and national policy that influence the position of developing countries[152] This is a welcome policy, but it requires strong commitment, operators and a knowledge base in order to be implemented throughout central government.

A broad-based working group led by the Ministry for Foreign Affairs already examined in 2013 how policy coherence and cross-border administrative cooperation can be used to reinforce food security in developing countries[153]. This food security pilot was carried out as part of the implementation of the development policy action plan at the time. The action plan was committed to assessing and promoting the coherence of agricultural policies, fisheries and environmental policies, and trade and development policies affecting food security. The food security pilot was based on a coherence toolkit developed by the OECD. The working group produced analysis and recommendations to policy makers as well as development proposals for the OECD. The key message was that people in developing countries will have access to enough food when OECD member states, such as various administrative branches and stakeholders in Finland, cooperate and influence policies in consultation with each other.

The pilot was seen as a successful example of the participation of different stakeholders and building a common understanding of what coherence means for food security. The implementation was to be monitored twice a year with the help of a food security group consisting of ministries, research institutes and organisations for a period of several years. The group also stressed the need to invest more in promoting food security in development cooperation and development policy. The lessons learned and approaches adopted from the food security pilot were recommended for replication in other coherence themes mentioned in the development policy programme. But the recommendations were only partially implemented. After a promising start, the implementation of the operating method in central government remained incomplete. At the same time, the sudden cuts to development cooperation also hit food security work. In addition, the Ministry for Foreign Affairs abolished the position of a coherence officer. But the cross-sectoral working model of the group, which brings together different operators, served as an important model for Finland's current Agenda 2030 work. The pilot case shows how challenging it is to coordinate the contents of different policy areas and decision-making, especially if there are conflicting interests and there is not enough information to back up decision-making.

The future of food security and food systems: how can Finland promote a more sustainable future?

5. Solutions on a food system level and recommendations for key challenges

Currently, the food system does not guarantee food security for everyone, and ecological sustainability is exceeded in many ways. An unsustainable food system undermines biodiversity and accelerates climate change. And climate change has a direct impact on many people's food security, for example through the intensification and spread of extreme weather events. Long-term conflicts have weakened many people's food security and nutritional status. Population growth, urbanisation and migration from rural areas bring their own challenges to food systems and food security. Many people's jobs and livelihoods are linked to different stages of the food chain, but their food security and livelihoods are highly vulnerable. This vulnerability has increased with the Covid-19 pandemic.

Local food systems are also increasingly connected to the global food system through increased trade and the global division of labour. However, the global linkages between local food systems are very unequal, and the benefits of international trade and division of labour are not evenly distributed. So far, there are no system-level steering mechanisms. The unsustainability is also reflected in regional and local systems. Changes in food systems therefore need to be made at many levels, as systemic change require changes at both the local and global levels.

An unsustainable food system undermines biodiversity and accelerates climate change.

Management and control of food systems at international treaty level

- Finland must actively influence the UN food system summit, so that its outcome can stimulate sustainable change and close the inequalities between local, regional and global food systems. Finland must also commit to implementing the action agenda of the summit nationally and internationally.
- Finland should take an active role in international organisations and negotiation processes to strengthen the role of agriculture in adapting to and mitigating climate change, and to increase multilateral awareness and consideration of the importance of biodiversity for food security. Finland can and must also be profiled as a "food security diplomat" and emphasise the links between themes related to food security and new approaches to reinforcing food security.
- Finland must be involved in and support ambitious initiatives that promote the so-called climate-sustainable development line, taking into account the impacts of food production and consumption and structures maintaining an unsustainable system in Finland and globally.
- Finland's work to promote equality and non-discrimination must also be extended to promote equality between different actors in food systems. It is particularly important that Finland reinforces gender equality and the right of the most vulnerable people to food. Women's access to various resources, such as land, loans, education, extension services, new technologies and decision-making must be reinforced. Changes in food systems should also ensure that women's workload does not increase and that their participation in decision-making is not undermined.
- Taking food security into account as the cause and consequence of conflicts and systematically improving food security must be part of Finland's "food security diplomacy" and an organic part of Finland's conflict prevention and mediation. Secure access to food is a prerequisite for social peace, and in crisis situations, non-politicised distribution of food is a necessity.
- Finland's EU policy and its coordination must more robustly take into account that many EU policy areas, such as common agricultural and fisheries policies and trade policies, have a significant impact not only on Europe but also on the food systems, food security, deforestation and the state of the environment and biodiversity of neighbouring regions (including Africa) and the entire world.
- Finland must strengthen its efforts to have an impact on food security in the EU. The EU's *Team-Europe* initiative has an important role to play in reinforcing the sustainability and food security of regional systems, including its efforts through the development of agricultural livelihoods, health care and social security. More than a fifth of Finland's development funding is channelled through the EU. This opportunity should be used to a greater extent.

Finnish governments over several parliamentary terms

- Food security and changes in food systems require a government-level mechanism to assess decisions affecting global food security from the perspective of policy coherence that supports sustainable development. Particular attention must be paid to issues affecting the poorest countries and the most vulnerable groups. The Commission on Sustainable Development and its working committee could offer a forum for cross-administrative review as part of Finland's implementation of sustainable development.
- Finland should undertake to develop its own food production and consumption to take planetary boundaries into account as part of the change and the equal development of global food systems. This is important for Finland to be able to contribute consistently to the objectives of 2030 Agenda.
- It is important that Finland emphasises the interdependence between food, the sustainable management of water resources, sustainable forestry and the energy economy. Integrated action will create synergies and coherence. Attention should be paid to the importance of sustainable forestry for water management and the protection of groundwater, the prevention of erosion, the maintenance of biodiversity and the stabilisation of the economic and social structures of rural communities. Forestry is inextricably linked to the functioning and resilience of food systems.
- Finland must promote the *One Health* approach in its activities and through its partnerships. By promoting this approach, Finland would extensively support cooperation between the food and agricultural, environmental and human health sectors in order to prevent health threats and reinforce the sustainable food system.
- Partnerships related to food security and food systems must be used in the implementation of the Finland's Africa Strategy. In particular, its *trade, investment and green growth for jobs* focus on agricultural development, business and innovation are areas of particular importance for the employment of the growing numbers of young people.

It is important that Finland emphasises the interdependence between food, the sustainable management of water resources, sustainable forestry and the energy economy.

Finland's development policy, development cooperation and development funding

- In its development policy and development cooperation, Finland must
    - increase the importance of concrete food security and nutrition work carried out through different channels.
    - promote a just transition in the change of food systems and the creation of decent and environmentally sustainable jobs.
    - improve the food security and livelihoods for small farmers and their economic potential through environmentally sustainable solutions by supporting agricultural research and extension services suitable for local conditions. Their rights can also be promoted by developing land governance rights and value chains that facilitate market access. It is also important to support farmers' risk management, for example through funding and warning systems.
    - emphasise the importance of the nutritional value of food, its quality and safety alongside the quantity. In this context, quality means taking health and nutrition perspectives into account at all stages from food production to consumption, as well as, for example, the resilience of food production and distribution networks and the sustainability of food systems.
    - support dietary change measures to ensure nutritionally healthy and safe food while taking into account local and regional conditions, including ecological sustainability. High-quality sexual and reproductive health services must be linked to food programmes and nutritional security programmes, which effectively promote the achievement of food security and sustainable development. It is also essential to reinforce the comprehensive sexuality education in schools, which also contains information on the right type of nutrition.
    - promote the availability and quality of school meals, improving learning outcomes and the nutrition and health of pupils. School meals also promote girls' school attendance and facilitate women's employment. This will also affect their food security.
- In addition to development policies, the promotion of sustainable food systems and food security must be reflected in funding. Finland must, without delay, create a credible and concrete plan to raise development cooperation funds to the level recommended by the UN, thereby increasing funding allocated for the food security, agriculture and rural development sectors.
- Targeted funding must include existing mechanisms, such as investments, loans, donor financing and humanitarian aid, as well as new types of funding models, and key projects that enable both support for value chains and proactive funding even before a risk becomes a disaster. In development cooperation, Finland should seamlessly combine the reinforcement of institutional capacity and grassroots

measures, for example by increasing the funding of both the Institutional Cooperation Instrument (ICI) and organisations. Cooperation should also be developed between Finnfund, Finnpartnership and other development actors.

- Finland must direct climate and biodiversity funding towards climate change adaptation and preserving biodiversity in connection with agricultural and other primary production. At the same time, it must be ensured that the production supports climate and biodiversity objectives. Finland must also ensure that the regional planning of agricultural production is taken into account when supporting the agricultural sector. It must take into account the areas needed to protect and maintain the environment and biodiversity and the fact that forests are not cleared for production.
- Finland must develop innovative funding mechanisms and models to provide producers with the necessary know-how, investments and risk management mechanisms for climate change mitigation and adaptation. The sustainability of investments and the assessment of environmental and climate impacts must be carried out at the landscape level.
- Finland must invest in research and development projects that support the development of food security and the transfer of knowledge, for example between the EU and Africa. In addition, Finland must support the development of innovations and the use of new and advanced technologies in the implementation of food and nutrition security programmes.
- Food security must also be at the heart of reinforcing cooperation between development cooperation, humanitarian work and peace work, or the so-called triple nexus. The number of people in need of food aid is increasing as a result of overlapping conflicts and crises and, in the short term, the economic consequences of the Covid-19 pandemic. In addition, the progress of climate change and the destruction of the environment will bring extensive and complex crises with direct or indirect impacts on food security. The implementation of food-security diplomacy requires taking into account the importance of food security in conflict prevention and resolution, emphasising the role of local operators, reinforcing a human rights-based approach and ensuring sufficient and flexible funding. Finland must continue to ensure sufficient and rapidly deployable humanitarian funding for responding to food crises. At the same time, preparedness for preventive action must be reinforced.

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