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Transforming agri-food systems

Legislative interventions
for improved nutrition
and sustainability

Preliminary version for
public consultation



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Foreword

Transforming Our World: The 2030 Agenda for Sustainable Development (2030 Agenda) and its Sustainable Development Goals (SDGs) adopted by the United Nations (UN) in 2015, has set targets for achieving zero hunger and transforming the agri-food system, amongst many other universal goals. The Food and Agriculture Organization of the United Nations (FAO) is actively working towards the achievement of food security and nutrition (FSN) and supporting the necessary transformation of agri-food systems in collaboration with other UN agencies and partners at international and national levels. While it has been supporting countries in the development of legal frameworks for FSN from a human rights-based approach for many years, FAO considers that from a agri-food systems perspective, more targeted work is needed. This Legal Paper contributes to furthering the knowledge on legislative entry points for improved nutrition and sustainable agri-food systems, taking due account of the broader enabling environment for nutrition and health.

This study, realized under the 2017 Memorandum of Understanding between FAO and Laval University in Canada, is meant to help bridge this knowledge gap. To do so, it highlights the main functions of the law supporting sustainable agri-food systems that promote healthy diets and improve nutrition.

The interaction between the law, sustainable agri-food systems and healthy diets relies on international as well as national legal instruments. Because the implementation of human rights are fundamental for the transition towards improved nutrition and sustainability in agri-food systems, the main international human rights texts are analysed. National legislative entry points are grouped under framework instruments that drive coherent changes across agri-food systems and under sectorial legal interventions, acting as operational tools for improving nutrition sustainability in agri-food systems.

This study illustrates the importance of a agri-food systems approach to guide countries in their legal interventions to improve nutrition and sustainability in agri-food systems. It provides examples of legal instruments as well as challenges to overcome. As a contribution to the discussion under the 2021 UN Food Systems Summit, it should be a valuable resource to law- and policy-makers.

Certain fundamental documents underpin this study. They include notably: Nutrition and food systems and Food security and nutrition: building a global narrative towards 2030, both by the High Level Panel of Experts (HLPE) of the Committee on World Food Security (CFS) and the Voluntary Guidelines on Food Systems and Nutrition (VGFSyN) by the CFS; Sustainable Healthy Diets by FAO and the World Health Organization (WHO); The State of Food Security and Nutrition in the World 2020 by FAO; the Global Nutrition Report – Action on equity to end malnutrition by Development Initiatives Poverty Research Ltd.; the Decade of Action on Nutrition (2016-2025) issued under UN Resolution 70/259; A Child Rights-Based Approach to Food Marketing: A Guide for Policy Makers and Food Systems for Children and Adolescents – Working Together to Secure Nutritious Diets published by the United Nations Children’s Fund (UNICEF); and Transforming our world: The 2030 Agenda for Sustainable Development issued under UN Resolution 70/1.

This Legal Paper is being published as a preliminary paper to coincide with the fertile ground of the 2021 UN Food Systems Summit. Knowledge and discussions about various aspects of

agri-food systems are increasing each day and the field is evolving speedily. It was therefore considered appropriate to issue a preliminary paper and to publish the findings of FAO and Laval University in the hope of gathering new insights and feedback during and after the Summit.

Suggestions for the final version of the study, including examples of legislative interventions that have proven to be transformative and lead to better sustainability and nutrition can be sent to Legislativestudycomments@fao.org.

Acronyms and abbreviations

2030 Agenda	2030 Agenda for Sustainable Development
BCAP Code	United Kingdom – UK Code of Broadcast Advertising
CBD	Convention on Biological Diversity
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CERD	International Convention on the Elimination of All Forms of Racial Discrimination
CESCR	Committee on Economic, Social and Cultural Rights
CFS	Committee on World Food Security
CGRFA	Commission on Genetic Resources for Food and Agriculture
CIFOR	Centre for International Forestry Research
CNRS	Centre national de la recherche scientifique
CRC	Convention on the Rights of the Child
CRPD	United Nations Convention on the Rights of Persons with Disabilities
EC	European Commission
ECOSOC	United Nations Economic and Social Council
EFSA	European Food Safety Authority
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FLW	Food Loss and Waste
FSN	Food Security and Nutrition
FSS	Food Systems Summit
GAIN	Global Alliance for Improved Nutrition
GHG	Greenhouse gas
GI	Geographical Indication
GMO	Genetically Modified Organism
GPAFSN	Global Panel on Agriculture and Food Security and Nutrition

GPP	Green Public Procurement
HFSS	High in fat, sugar and salt (content)
HGSF	Home Grown School Feeding
HLPE	High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICN2	Second International Conference on Nutrition
ICPRMW	International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families
IDLO	International Development Law Organization
IFOAM	International Federation of Organic Agriculture Movements
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IPES-Food	International Panel of Experts on Sustainable Food Systems
ISO	International Organization for Standardization
ISPM	International Standards for Phytosanitary Measures
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LMIC	Low- and middle-income country
NCD	Non Communicable Disease
NFNSP	National Food and Nutrition Security Policy
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
OIE	World Organization for Animal Health
ORU-FOGAR	United Regions Organization / Forum of Regional Governments and Global
PGRFA	Plant Genetic Resources for Food and Agriculture
PGS	Participatory Guarantee System
Right to Food Guidelines	Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of the national food security

SCBD	Secretariat of the Convention on Biological Diversity
SDG	Sustainable Development Goal
SFNE	School-based food and nutrition education
TRIPS	WTO Agreement on Trade-Related Aspects of Intellectual Property Rights
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNDROP	United Nations Declaration on the Rights of Peasants and other People Working in Rural Areas
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
UNIATF	United Nations Interagency Task Force on Non-communicable Diseases
UNICEF	United Nations Children's Fund
VGFSyN	Voluntary Guidelines on Food Systems and Nutrition
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
WBG	World Bank Group
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization

1. Introduction

Over the last few years, many international organizations, scientists and researchers coming from different disciplines, as well as special rapporteurs on the right to food and on human rights and the environment, have emphasized that moving towards economically, socially and environmentally sustainable food systems is one of the most effective ways to fight food insecurity as well as serious human health and environmental problems (FAO *et al.*, 2017).

There is also a growing recognition of the need to address FSN, global health and environmental issues, notably through a food systems framework in order to deal with the complexity of these issues and their challenges (HLPE, 2017a). An agri-food systems approach recognizes the interdependence of agri-food systems with other systems, such as economic and commercial systems, ecological systems, social systems and health systems (HLPE, 2020a).

In the context of the 2030 Agenda and its SDGs adopted in 2015 by the UN, the second goal is to end hunger, achieve food security and improve nutrition, and promote sustainable agriculture (SDG 2). This action plan for people, the planet and prosperity, based on the general concept of sustainable development, directly addresses the transition towards sustainable agri-food systems by declaring that by 2030, states should

ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change (extreme weather, drought, flooding and other disasters) and that progressively improve land and soil quality (Target 2.4).¹

Giving the interrelated nature of the SDGs, progress on SDG 2, for instance, has a direct bearing on the progress of SDG3, on health, and vice versa. SDG 6, on access to clean water and sanitation, is necessary for food production as well as good nutrition and health. SDG 12, on responsible production and consumption, is necessary to achieve FSN in a sustainable manner. SDG 14, on fisheries, and SDG 15, on terrestrial biodiversity, also have direct relevance for SDG 2 as both aquatic and terrestrial ecosystems support food production (HLPE, 2020a).

Current agri-food systems have tremendous adverse impacts on human and planetary health. Failure to achieve food security and improve nutrition for all also has dramatic effects. The *State of Food Security and Nutrition in the World 2020* confirms that malnutrition, in all its forms (undernutrition, micronutrient-related malnutrition and being overweight, obesity and diet-related NCDs) shows an upward trend in the last years (FAO *et al.*, 2020). Population's nutritional status is influenced by its diet. Indeed, malnutrition and NCDs are caused by unhealthy and poor diets. An enormous public health challenge is raised by diet-related NCDs. Worldwide, 11 million deaths are attributable to NCDs annually (Afshin *et al.*, 2019). Obesity and being overweight are the main risk factors for NCDs. In 2016, 1.9 billion adults were overweight or obese, while WHO estimated that in 2020, 39 million children under 5 were overweight or obese (WHO, 2021a).

¹ The SDG's are in line with other international agendas and other nutritional and health objectives, such as the *UN Decade of Action on Nutrition* (2016), the *Second International Conference on Nutrition (ICN2) Framework for Action* (2014), the *Global Target Nutrition 2025 – Resolution WHA65.6* (2012), as well as the *Scaling Up Nutrition (SUN) Movement* (2010).

Almost 690 million people in the world have been undernourished in 2019 (FAO *et al.*, 2020) and the COVID-19 pandemic has worsened the world food insecurity. According to FAO's Director-General, Qu Dongyu, the situation is dire:

The number of hungry people in the world increased by 10 million in 2019. The pandemic continues to deliver a severe blow with another 132 million of chronically hungry people in the world by the end of 2020.In addition, 155 million people in 55 countries manifested crisis-level acute food insecurity. ...When looking into other forms of malnutrition, child stunting remains unacceptably high. Overweight and obesity continue to increase in rich and poor countries alike. The number of people living with obesity exceeded that of people in hunger in 2012 and more than three billion people in the world cannot afford even the cheapest healthy diets (FAO, 2021a).

Moreover, food production and consumption patterns not only affects human health, but also has major impacts on the environment and climate change as well as on the loss of agricultural and food diversity. For instance, the agri-food system "underpinning the world's current dietary patterns is responsible for around 21–37 percent of total greenhouse gas (GHG) emissions, which reveals it to be a major driver of climate change" (FAO *et al.*, 2020). In 2019, the Intergovernmental Panel on Climate Change (IPCC) emphasized that agriculture is the dominant sector driving land degradation due to unsustainable land management practices, contributing to GHGs emissions and reduced carbon uptake rates (IPCC, 2019). As the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA) urgently reminds us, the loss of agricultural and food diversity is also accelerating at a rapid pace. For instance, of the 382 000 species of existing vascular plants, only about 6 000 are grown for food (FAO, 2019a). Many scientists believe that the limits of the Earth's ecosystems in relation to biodiversity and climate have already been exceeded (Steffen, 2015).

Thus, the need to improve sustainability and nutrition is intrinsically linked to the transition of agri-food systems (Willett *et al.*, 2019; Swinburn *et al.*, 2011). This reflection on the transition towards sustainable agri-food systems and their interconnections with diets is complex since not all healthy diets are sustainable, and not all diets designed for sustainability are healthy (FAO and WHO, 2019; SCBD, 2020).

In this context, on 16 October 2019, the UN's Secretary-General António Guterres convened a Food Systems Summit to be held in 2021 as part of the Decade of Action to achieve the SDGs and rethink food systems so that they can actively contribute to ending hunger, reducing diet-related diseases, and contribute to the fight against climate change.

This agri-food systems transition is of an even greater necessity as COVID-19 pandemic has exacerbated a long-standing food security crisis and underscored various negative impacts of our current agri-food systems (HLPE; 2020b; Kerr, 2020). Measures to control the spread of the disease have resulted in an economic downturn which has exacerbated nutritional problems. The COVID-19 pandemic has negatively impacted the ability of individuals to acquire sufficient food and maintain adequate nutrition (HLPE, 2020a; 2020b). For instance, the COVID-19 pandemic has led to an increase in consumption of ultra-processed foods due to the lack of availability of fresh fruit and vegetables (Gray, 2020). The COVID-19 pandemic also exacerbated inequalities, as the most vulnerable and marginalized groups, including food related workers, have been hard hit by job and income losses as well as food prices rising (HLPE, 2020a; 2020b).

FAO works in partnership, with other UN agencies and partners at the international and national levels to accelerate policies, legislation and actions across agri-food systems to improve sustainability and enable healthy diets at the scale needed to achieve the SDGs, while also striving to improve social, economic and environmental outcomes (FAO, 2021b). As the UN specialized agency for food and agriculture working across all elements of agri-food systems, FAO has a leadership role in the transition of agri-food systems that enhance sustainability and enable healthy diets.

On 12 February 2021, the Committee on World Food Security (CFS), which is the foremost inclusive international and intergovernmental platform for countries and all relevant stakeholders working together to ensure food security and nutrition for all, endorsed the *Voluntary Guidelines on Food Systems and Nutrition* (VGFSyN) which aim to support countries to eradicate hunger and malnutrition in all its forms by utilizing a “sustainable food systems and nutrition” lens. This study aims to support the implementation of these Guidelines.

While food systems are a prominent term in the global discussions about these issues, FAO prefers the term agri-food systems, which includes also non-food products from agriculture, fisheries and forests. This term is used unless reference is made to specific sources or processes that use food systems.

1.1. Law and agri-food systems

The law (international, regional and national) impacts agri-food systems in multiple ways, positively or negatively. Used correctly, with consistency and in line with the objective to improve sustainability and nutrition, the law can be an important transformative tool to drive the transition towards sustainable agri-food systems and healthy diets.

However, the law remains scarcely used and barely studied as a means to achieve this transition. In the context of this complex and worthwhile reflection on agri-food systems transition, there is a lack of knowledge on legislative entry points in agri-food systems that take due account of the environment conducive to better nutrition, enhanced sustainability and improved health.

This study aims to help fill this gap by highlighting the main functions the law can play in the transition towards sustainable agri-food systems while providing an overview of selected legislative interventions in agri-food systems for improved nutrition and sustainability.

There is an abundance of doctrines addressing the different purposes and functions of the law. This study does not provide a philosophical analysis. However, in many countries, the purpose of the law is to define an operative general social equilibrium, recognized as binding and enforced by a controlling authority (administrative procedures, courts) (Gostin et al., 2019; Meerbeeck, 2016; Fabre-Magnan, 2018). National and regional particularities as well as various historical, cultural and religious backgrounds must be kept in mind while reflecting on the purposes and functions of the law in sustainable agri-food systems.

In this study, the term “the law” includes national legislations (constitutions, laws and their respective regulations). It also contains international and regional instruments that generally frame and delineate national legislations. Finally, it includes standards that are generally considered as non-binding instruments, whether international or national, for e.g. *Codex Alimentarius*, *International Standards for Phytosanitary Measures (ISPMs)*, *World Organization for Animal Health (OIE)*, and *International Organization for Standardization (ISO)*.

To achieve sustainable agri-food systems and healthy diets, the law should fulfil at least three functions:

1. The law should **set out the fundamental principles and rights** on which these systems should be built. In the international legal order, human rights reflect a common understanding of an ultimate aspiration and goal that states have set for the international community and for themselves. Their promotion and protection are considered as a priority objective of the UN (Vienna Declaration, 1993). International human rights instruments translate into legal terms the social consensus on which the food security concept and the SDGs are based, including Target 2.4 directly aiming at the transition to sustainable agri-food systems. Human rights can therefore be seen as foundational to sustainable agri-food systems and healthy diets.
2. The law should act **as a guiding framework instrument** that coordinates and drives changes across the agri-food systems to improve sustainability and healthy diets. To that end, constitutions, as supreme laws of the states, and then framework laws should set the objectives, principles, rights and obligations, and frame sectoral legislations in order to achieve sustainable agri-food systems and healthy diets. Supported by mechanisms ensuring their implementation (funding, secretariat, etc.), these binding legal instruments, along with a sound policy framework (non-binding), are key in organizing and implementing a coherent effort of different ministries, other public institutions and stakeholders.
3. The law should act as an **operational tool within and across different sectors** to improve sustainability and healthy diets (Parent and Desjardins, 2015). If driven by a clear guiding framework, sectoral laws may regulate actors and activities of agri-food systems by bringing about changes in specific aspects of the agri-food systems. The law should impact the conduct and activities of actors of agri-food systems (individuals, private actors and governments) on very specific issues to induce positive changes by creating subsidies, incentives, responsibilities, rights and obligations towards sustainable agri-food systems and healthy diets. These sectoral laws are required to encourage and even impose certain behaviours that contribute to this transition, and prohibit and sanction those that undermine this goal.

The law is elaborated at different levels: international, regional and national levels, but also at subnational levels, including local and indigenous authorities.

In agri-food systems, as in other areas, international, regional and national legislations are intrinsically linked: they feed one another and are both likely to significantly impact agri-food systems in a positive or negative manner. These intervention levels play an important role in the regulation of agri-food systems for improved nutrition and sustainability. Without an enabling international and regional framework, the ability of the states to develop clear national guiding frameworks to support sustainable agri-food systems could be affected.

1.2. Taking an agri-food systems approach to achieve food security, improve nutrition and enhance sustainability

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (*Rome Declaration on World Food Security, 1996; Declaration of the World Summit on Food Security, 2009*).

The HLPE acknowledges in its 2020 report that the concept of food security has evolved to recognize the centrality of agency and sustainability, along with the four other dimensions of availability, access, utilization and stability (see Table 1) (HLPE, 2020a).

Table 1: The six dimensions of food security	
Availability	Having a quantity and quality of food sufficient to satisfy the dietary needs of individuals, free from adverse substances and acceptable within a given culture, supplied through domestic production or imports.
Access (economic, social and physical)	Having personal or household financial means to acquire food for an adequate diet at a level to ensure that satisfaction of other basic needs are not threatened or compromised; and that adequate food is accessible to everyone, including vulnerable individuals and groups.
Utilization	Having an adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met.
Stability	Having the ability to ensure food security in the event of sudden shocks (e.g. an economic, health, conflict or climatic crisis) or cyclical events (e.g. seasonal food insecurity).
Agency	Individuals or groups having the capacity to act independently to make choices about what they eat, the foods they produce, how that food is produced, processed, and distributed, and to engage in policy processes that shape systems. The protection of agency requires socio-political systems that uphold governance structures that enable the achievement of FSN for all.
Sustainability	Food system practices that contribute to long-term regeneration of natural, social and economic systems, ensuring the food needs of the present generations are met without compromising the food needs of future generations.

Source: HLPE, 2020a, p. 28, Box 1.

According to the HLPE report, sustainability refers to

the long-term ability of food systems to provide food security and nutrition in a way that does not compromise the economic, social and environmental bases that generate food security and nutrition for future generations.

Furthermore, Agency refers to the

the capacity of individuals or groups to make their own decisions about what foods they eat, what foods they produce, how that food is produced, processed and distributed within food systems, and their ability to engage in processes that shape food system policies and governance (HLPE, 2020a).

The well-being of all people is at the heart of this concept, as is economic, social and physical access to healthy and culturally appropriate food. The concept also underpins the necessary sustainability of food security. The food security being sought is not only punctual to respond to a food crisis situation but is rather considered to generate food security today and for future generations. Food security needs to be conceptualized as being economically, socially and environmentally sustainable. In line with the sustainable development concept, the food security concept is also complemented by other concepts such as healthy diets and the One Health approach (see Glossary).

Sustainable agri-food systems embody qualities that support the six dimensions of food security. These qualities are: **productive and prosperous** (to ensure the availability of sufficient food); **equitable and inclusive** (to ensure access for all people to food and to livelihoods within that system); **respectful and empowering** (to ensure agency for all people and groups to make choices and exercise voice in shaping that system); **resilient** (to ensure stability in the face of shocks and crises); **regenerative** (to ensure sustainability in all its dimensions), and **healthy and nutritious** (to ensure nutrient uptake and utilization). In practice, just as the six dimensions of food security are interrelated, these qualities of sustainable agri-food systems are also deeply interconnected. When agri-food systems embody these qualities in an integrated, holistic way, they are more likely to support the realization of the right to adequate food and to meet the goals of the 2030 Agenda, especially SDG 2 (HLPE, 2020a).

An effective operationalization of the holistic concept of food security relies on a transdisciplinary approach rather than on disciplinary interventions conducted in silos (Duhaime and Godmaire, 2000; Ingram, 2011). Moreover, international organizations, such as FAO, have adopted an agri-food systems approach to achieve SDGs set out in the 2030 Agenda. In 2014, the *Rome Declaration on Nutrition* and its companion *Framework for Action* endorse an agri-food systems approach in order to prevent all forms of malnutrition and improve diets and nutrition through sustainable agri-food systems (FAO and WHO, 2014). It notably aims to propose the creation of an enabling environment for effective action and for strengthening sustainable agri-food systems.

This study adheres to the HLPE definition of a sustainable food system which is:

a food system that ensures food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition of future generations are not compromised (HLPE, 2017a, p. 23).

A sustainable food system

gathers all the elements (e.g. environment, people, inputs, processes, infrastructures, institutions) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes (HLPE, 2017a, p. 11).

An agri-food systems approach considers the food system holistically, taking into account all drivers and their final outcomes, as well as all elements, sectors and stakeholders and their interactions and impacts on each other. This approach also recognizes the fact that agri-food systems are numerous and diverse (Malassis and Gherzi, 1996). They have different sizes, scopes and functions, from very local to global. Nevertheless, they are interconnected, and their sum constitutes what is known as the “global food system” (Rastoin and Guersi, 2010).

By embracing a food systems approach, the study presents legal instruments that address sustainability and nutrition as well as other related aspects of food security, such as equity. This approach also offers the opportunity to go beyond the traditional rhetoric opposing the global food system and more territorialized agri-food systems, in order to trigger an effective transition of all agri-food systems so that they become powerful drivers for food security and human and planetary health, in accordance with the SDGs.

As stated in the *Rome Declaration on World Food Security* in 1996, to achieve food security

each nation must adopt a strategy consistent with its resources and capacities to achieve its individual goals and, at the same time, cooperate regionally and internationally in order to organize collective solutions to global issues of food security. In a world of increasingly interlinked institutions, societies and economies, coordinated efforts and shared responsibilities are essential.

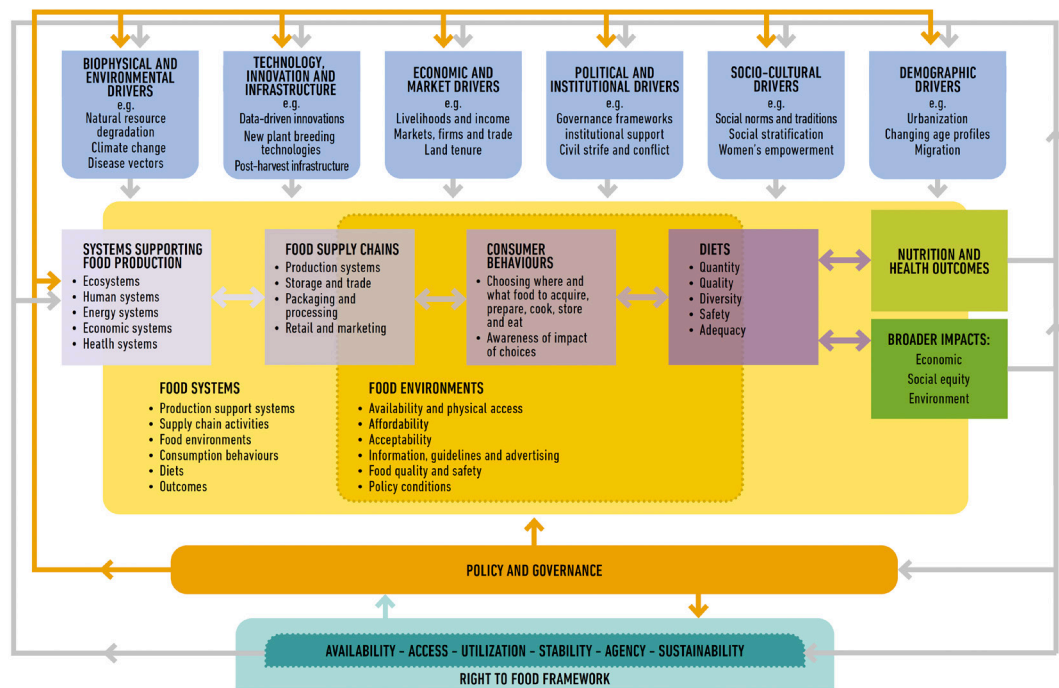
1.3. Objectives of the study

This study has four purposes:

1. Highlight the nexus between human rights and sustainable agri-food systems and healthy diets, and provide an overview of the importance human rights play in the transition towards more sustainable and nutrition-driven solutions.
2. Provide an overview and analysis of some national guiding framework instruments inducing the transition towards sustainable agri-food systems and healthy diets and provide some samples of national sectorial legislative interventions for enhanced nutrition and sustainability of agri-food systems.
3. Build a common understanding of the importance and the key roles that the law should play in the transition towards sustainable agri-food systems and healthy diets.
4. Gather further inputs, insights and contributions as part of the reflection on the role that legislation plays in the transition towards agri-food systems for improved nutrition and sustainability.

To that end, international human rights instruments and national legislative instruments from various countries were consulted. A few subnational regulations were also studied. This study is structured around the three core constituent elements of the HLPE conceptual framework of agri-food systems (HLPE conceptual framework): “food supply chains”, “food environments” and “consumer behaviour” (HLPE, 2017a) and around the seven focus areas of the 2021 *Voluntary Guidelines on Food Systems and Nutrition* (VGFSyN).

Figure 1:
HLPE Conceptual framework of agri-food systems for diets and nutrition



Source: HLPE, 2020a, p. 13.

The HLPE Sustainable Food System Framework clearly illustrates the intricacy of interactions within an agri-food system and the complexity of links between agri-food systems and their final nutrition, health, economic, social and environmental outcomes. The three core constituent elements of sustainable agri-food systems are influenced by innovation, technology and infrastructure as well as biophysical, environmental, political and institutional, economic and market, socio-cultural and demographic drivers (HLPE, 2020a). Some aspects of these drivers are also captured in this study through certain legislative entry points.

To provide some examples of legislative interventions that address nutrition and sustainability of agri-food systems and follow the key functions that the law can have, the study is divided into five main sections.

Following this general introduction (Section 1), Section 2 addresses the first function of the law noted above. Respecting, protecting, promoting and fulfilling human rights is fundamental for the transition towards sustainable agri-food systems and healthy diets. It presents the ways in which human rights are linked to sustainable agri-food systems. It is structured around the

seven focus areas for improving diets and nutrition, identified by the CFS stakeholders during the VGFSyN consultation process.

Section 3 addresses the second and the third functions of the law noted above. It presents how constitutions and framework laws can form a legally binding framework for enhanced nutrition and sustainability of agri-food systems. Policy frameworks, although non legally binding, are also discussed as relevant instruments contributing to legislative coherence towards this transition.

Section 4 discusses the law as an operational tool to implement sustainable agri-food systems and healthy diets, carrying out specific legislative interventions and leading to concrete changes. It highlights national legislations across the three core constituent elements of the HLPE's conceptual framework: "food supply chains", "food environments" and "consumer behaviour". Though not exhaustive, this study provides a broad overview of some legislative interventions coming from a wide range of countries and instruments.

This study ends in Section 5 with conclusions relating to the three main functions of the law in sustainable agri-food systems and presents the challenges that need to be met if the law is to be a real vector of social and institutional change towards enhanced sustainability of agri-food systems and improved nutrition.

2. The nexus between human rights and agri-food systems

Human rights are foundational in the transition towards sustainable agri-food systems as they translate into legal terms the social consensus underlying the SDGs and the FSN concept. Their promotion and protection are one of the priority objectives of the UN (Vienna Declaration, 1993) and they are at the heart of sustainable development and are often described as the highest aspiration of humanity (UN, 2020a).

Current global agri-food systems fail in many ways to realize human rights: agricultural workers are amongst the poorest in the world, and their labour rights, health and safety are frequently at risk, production methods are leading to loss of biodiversity, deforestation soil erosion, salination, pollution and other violations of the right to health, while also failing to ensure the right to adequate food for all, exemplified in the rising numbers of people suffering from undernutrition, micronutrient deficiencies, overweight and obesity. Transforming agri-food systems towards more sustainability and improved food security and nutrition must be guided by human rights and be founded on human rights principles in the process (IPES-Food, 2017).

While fulfilling the first function of the law which is to lay the basis of sustainable agri-food systems, the right to adequate food, the right to a safe, clean, healthy and sustainable environment and the right to health, as well as other human rights, can act as beacons for the transition towards improved nutrition and sustainability in agri-food systems. Indeed, many human rights-based constituents are needed for improved nutrition and sustainability in agri-food systems such as a healthy environment, access to land and natural resources, fair and favourable working conditions, social protection, access to healthy food and safe drinking water, participation in decision-making, non-discrimination and nutrition education.

Since 2018, the *United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas* (UNDROP) enshrined in human rights, the obligation for states to develop sustainable and equitable agri-food systems that contribute to the promotion and protection of human rights (Article 15(5)) since these agri-food systems are more likely to support the realization of human rights, and to meet the goals of the 2030 Agenda, especially SDG 2 (HLPE, 2020a).

Section 2 aims to show the nexus between human rights and sustainable agri-food systems and the fact that the implementation of all human rights is a generator of solutions, while also being important drivers for the seven cross-cutting areas identified by the CFS in the VGFSyN as being relevant for improving nutrition and sustainability in agri-food systems. The headings in this section respect the seven focus areas as follows: i) transparent, democratic and accountable governance; ii) sustainable food supply chains to achieve healthy diets in the context of economic, social and environmental sustainability, and climate change; iii) equal and equitable access to healthy diets through sustainable agri-food systems; iv) food safety across sustainable agri-food systems; v) people-centred nutrition knowledge, education and information; vi) gender equality and women's empowerment across agri-food systems; and vii) resilient agri-food systems in humanitarian contexts.

It also builds upon guidelines and other policy products developed by FAO, CFS, WHO and other organizations, such as the *Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of the national food security (Right to Food Guidelines)*.

The Section focuses specifically on human rights instruments, binding (conventions, covenants) and non-binding (declarations), paying particular attention to those mentioned in the VGFSyN which include: the *Universal Declaration of Human Rights* (UDHR); the *International Covenant on Economic, Social and Cultural Rights* (ICESCR); the *United Nations Convention on the Rights of Persons with Disabilities* (CRPD); the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP); the *United Nations Declaration on the Rights of Peasants and other People Working in Rural Areas* (UNDROP); the *United Nations Declaration on the Right to Development*; and the International Labour Organization (ILO) *Declaration on Fundamental Principles and Rights at Work*.

Section 2 addresses only the human rights that are the most relevant to each of the seven focus areas of the VGFSyN, while equality, non-discrimination and women's empowerment underpin all focus areas. Although the right to adequate food, the right to health and the right to a safe, clean, healthy and sustainable environment underpin all stages of sustainable agri-food systems, other human rights are also central to this transition. The choice to give particular attention to a specific human right does not suggest that there is a hierarchy of rights. All human rights are relevant at all stages of a sustainable agri-food system. They are universal, indivisible, interdependent and must be treated globally in a fair and equal manner, on the same footing, and with the same emphasis to ensure an effective transition to sustainable food (Right to Food Guidelines, 2004; Vienna Declaration, 1993).

Box 1:

The right to adequate food and the right to health

The Committee on Economic, Social and Cultural Rights (CESCR) asserts in *General Comment No. 12* that the **right to adequate food** is realized when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement" (CESCR, 1999). The CESCR specifies that the core content of the right to adequate food implies on the one hand "the availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture" and on the other hand "the accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights" (CESCR, 1999).

The preamble of the *Constitution of the World Health Organization* (1946) defines health as "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The CESCR in *General Comment No. 14* interprets the **right to health**

as an inclusive right extending not only to timely and appropriate health care but also to the underlying determinants of health, such as access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including on sexual and reproductive health (CESCR, 2000).

Nutrition is a constituent element of the right to adequate food and the right to health, making them inextricably linked (OHCHR and FAO, 2010).

Sources: CESCR, 1999 and 2000; Constitution of the World Health Organization; OHCHR and FAO, 2010.

2.1. Transparent, democratic and accountable governance of food systems

As focus area one, good governance is considered to be an essential factor in the transition towards sustainable agri-food systems as it allows stakeholders, individuals and civil society to devise policies and legislations that address their specific needs in agri-food systems, and thus contribute to the realization of human rights which are intimately related. Accountability and transparency are key principles that characterize good governance and that should encompass the processes of decision-making and implementation of public policies (VGFSyN, 2021; Right to Food Guidelines, 2004).

However, the immense economic power of some stakeholders in the agri-food sector leads to power imbalances in the agri-food systems governance, in turn affecting political action and legislative innovations to improve nutrition and sustainability in agri-food systems (HLPE, 2017a). This generally results in market-driven solutions promoting the industrial agriculture model and unhealthy food, at the expense of alternative sustainable models. This also leads to the marginalization of peasants, small-scale agricultural producers and vulnerable consumers.

Therefore, sustainable agri-food systems' governance should identify and acknowledge conflicts of interest and power imbalances between stakeholders and establish mechanisms in order to address them in policy-making, law-making and in their implementation. Among the groups that are most affected by policies that favour the interests of those who hold economic power are generally women, Indigenous People, peasants, vulnerable consumers, agri-food workers and migrants, and it is precisely their voices that should be heard and included in decision-making processes on an equal basis (Fakhri, 2020; Elver, 2020). Good governance in agri-food systems should protect decision-making from the negative influences of market forces and powerful economic actors, by the establishment of mechanisms to regulate and manage conflicts of interest due to private sector involvement in policy and legislative processes (Elver, 2016).

In this regard, **human rights offer a universal framework for sustainable agri-food systems' governance**. The right to development, the right to participation and freedoms of expression, information, assembly and association are particularly important to ensure better consideration of the specific needs of individuals and civil society, better policy and legislative coherence and more intense coordination across sectors towards improved nutrition and sustainability in agri-food systems. These rights are generally protected by specific laws with concrete mechanisms to respect them, and therefore must be implemented and respected when informing decision-making processes regarding agri-food systems.

The **right to development** can be defined as the right for every person and all people "to participate in, contribute to, and enjoy economic, social, cultural and political development" as stated in the *Declaration on the Right to Development* (1986). According to this right, states have the duty to formulate appropriate national development policies that aim at the constant improvement of the well-being of the entire population, including vulnerable groups. Policies and measures promoting good health through agri-food systems contribute to the well-being of every citizen and provide economic, social and cultural development as well as equity.

The **right to participation** is a component of **the right to development**. In order to implement the right to development, states should encourage the participation of all individuals in

the development process and pay particular attention to women, Indigenous Peoples and peasants. Their right to be associated and participate at all levels of decision-making in the elaboration of development policies which concern them, such as those leading towards sustainable agri-food systems, are stipulated in specific human rights instruments.

For instance, the 1979 *Convention on the Elimination of All Forms of Discrimination against Women* (CEDAW) enshrines “the right for women to participate, on equal terms with men, in the formulation of policies and the implementation thereof and ensures the participation of women living in rural areas” (Articles 7, 14). Under the *Indigenous and Tribal Peoples Convention (1989)* and the *United Nations Declaration on the Rights of Indigenous Peoples (2007)*, Indigenous Peoples must participate and cooperate in all decisions affecting them, such as decisions related to their health and education and decisions aiming at the protection and the preservation of natural resources as well as the environment in their territories (Article 7; Articles 18, 23, 32). Under the *Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities* (hereafter Declaration on the Rights of Minorities), persons belonging to these minorities have the right to participate effectively in decisions concerning the minority to which they belong to or the regions in which they live (Article 2(3)).

Box 2:

United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas

The *United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas* (UNDROP) addresses governance of agri-food systems. It highlights the importance of consultation and cooperation between states and peasants and other people working in rural areas before taking decisions that might affect the latter, and taking into consideration existing power imbalances. States should consult and cooperate with peasants before adopting and implementing legislation and policies as well as international agreements that may affect their rights (Article 2(3)). Furthermore, the UNDROP protects the active, free, effective, meaningful and informed participation of peasants and peasants’ organizations in decision-making processes (Article 2(3), Article 10(1)(2)).

With regard to agri-food systems more specifically, the UNDROP recognizes their right to define food and agriculture systems that include the right to participate in decision-making processes concerning food and agricultural policy (Article 15(4)). States have the obligation to formulate, in partnership with peasants, the policies on the right to adequate food, food security, food sovereignty and agri-food systems (Article 15(5)). The UNDROP also protects the participation in the following areas related to agri-food systems: system of evaluation and certification of the quality of their products (Article 11(3)); safety and health measures (Article 14(1)); climate change adaptation and mitigation policies (Article 18(3)); decision on plant genetic resources for food and agriculture; as well as research and development (Article 19(1)(c)(7)). Finally, the UNDROP establishes that states should elaborate, interpret and apply international agreements and standards in a manner consistent with human rights (Article 2 (4)), and establish specific mechanisms to ensure the coherence of agricultural, economic, social, cultural and development policies with peasants’ rights (Article 15(5)).

Sources: UNDROP, UNGA A/C.3/73/L.30, 2018.

The effective participation of citizen and stakeholder in decision-making towards sustainable agri-food systems and healthy diets depends largely on the information received. Thus, **freedom of expression** and **freedom of information** are prerequisites for the right to participation, that is at the heart of good governance. The UDHR asserts everyone’s right to

freedom of opinion and expression (Article 19). This right includes the right for peasants and other people working in rural areas to seek, receive and impart information about factors that may affect the production, processing, marketing and distribution of agricultural products, as noted in Article 11 of the UNDROP. It also states in Article 11(2) that “States shall take appropriate measures to ensure that information is relevant, transparent, timely and adequate.

Freedoms of peaceful assembly and association also contribute to the establishment of good governance by safeguarding the right to assembly and participate in activities to protect the interests of participants, including food and agricultural interests (UDHR, Article 20(1); UNDROP, Article 8).

Effective and non-discriminatory access to independent and impartial tribunals and to just and fair procedures for the resolution of disputes and conflicts (UDHR) is directly linked to good governance. The effective enjoyment of human rights implies the possibility of effective remedy for their violation.

Box 3:

Transnational corporations, other business enterprises and human rights

It has been demonstrated that, in some cases, food supply chains and agro-industrial activities affect human rights, particularly of vulnerable people, Indigenous Peoples and local populations (Working Group on the issue of human rights and transnational corporations and other business enterprises, 2016; Elver, 2020).

In order to promote responsible business around the world and manage the negative impact of corporate activities on human rights, the UN has developed the *Guiding principles on business and human rights* (2011) which address the respect, protection and fulfilment of human rights in the context of transnational corporations and other business enterprises. The 31 guiding principles are divided into three pillars, which are: 1) the obligation of states to protect human rights when third parties violate human rights; 2) the responsibility of companies to respect human rights, including the duty of due diligence; and 3) the need for appropriate and effective remedies, both judicial and non-judicial, for human rights abuses. It also emphasizes the importance of paying particular attention to the specific rights, needs and difficulties of individuals from vulnerable and marginalized groups.

These principles, if implemented, can contribute to the transition towards sustainable agri-food systems since they encourage the transformation of practices and activities within food supply chains in accordance with human rights, including holding enterprises accountable for human rights violations.

In 2018, the *United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas* (UNDROP) established the responsibility and the obligation of states to ensure that non-state actors are in a position to regulate, respect and strengthen the rights of peasants and other people working in rural areas (Article 2(5)), and protect them against environmental damage by non-state actors (Article 18(5)). A draft Treaty on Business and Human Rights is also being discussed with the aim of regulating this topic in a legally binding instrument.

Sources: Working Group on the issue of human rights and transnational corporations and other business enterprises, 2016; Elver, 2020; Guiding principles on business and human rights, 2011; UNDROP, 2018.

2.2. Sustainable food supply chains to achieve healthy diets in the context of economic, social and environmental sustainability and climate change

Food security and improved nutrition should not only be considered as an outcome of sustainable agri-food systems but also as an enabling condition of sustainability across all the three core constituent elements of agri-food systems.

Food supply chains, as the first core constituent element of agri-food systems, comprise “the activities and actors that take food from production to consumption and to the disposal of its waste” (HLPE, 2017a; Hawkes and Ruel, 2012). Every stage of the food supply chain (production, storage and distribution, processing and packaging, retail and markets) are interconnected, impact on the others and shape positively or negatively diets, nutrition and health, and the economic, environmental and social outcomes of agri-food systems – also identified as focus area two by the CFS in the VGFSyN.

Current food supply chains contribute to climate change, biodiversity loss, water and soil pollution, and the promotion of unhealthy foods with negative effects on nutrition and health. For instance, agriculture accounts for about one-third of human greenhouse gas emissions, including over 40 percent of methane (Smith *et al.*, 2007). The VGFSyN aim precisely at promoting nutrition across food supply chains for improved nutrition and sustainable production and consumption. The Guidelines invite countries to reflect on the transition of agri-food systems with regard to the concept of sustainable development as well as a One Health approach. They highlight the need to “simultaneously take into account the economic, environmental, and social dimensions of sustainability and the health of individuals, animals, plants and ecosystems in a One Health Approach”.

Their recommendations surrounding these issues include: prioritizing climate adaptation and mitigation across sustainable food supply chains; promoting sustainable use and management of natural resources in food production; promoting nutrition within agriculture and food production; improving food storage, processing, transformation and reformulation; improving nutrition and health of farm and agri-food system workers; and empowering youth across agri-food systems.

Several human rights can serve as a cornerstone for this transition. The **right to a safe, clean, healthy and sustainable environment**, the **right to adequate food** and the **right to health** are at the centre of sustainable food supply chains to improve nutrition and meet environmental challenges, such as those posed by pollution and climate change.

According to **the right to adequate food**, consumers, alone or in community with others, should have physical social and economic access at all times to sufficient, adequate, safe and culturally acceptable food that is produced and consumed sustainably, preserving access to food for future generations (De Schutter, 2014a and 2015). In addition, **the fundamental right to be free from hunger** requires the improvement of

methods of production, conservation and distribution of food ... by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources (ICESCR, Article 11(2)(a)).

The fulfilment of these rights underpins safe and sustainable food supply chains and the capacity for everyone to participate in the economic activities on which the food supply chains depend. The UNDROP declares that the right to produce food is included within the right to adequate food and to be free from hunger (Article 15(1)). It even recognizes the right to have access to healthy, sufficient, and adequate food that is sustainably produced, ecologically sound and culturally appropriate (Article 15(2), 15(4)).

The **right to a safe, clean, healthy and sustainable environment** is also a prerequisite to a nutrition driven solution and improved sustainability in food supply chains, in a One Health approach. Indeed, human rights and the environment are interdependent since a healthy environment is of fundamental importance to the full enjoyment of a vast range of human rights, notably the right to life, water, adequate food and the highest attainable standard of physical and mental health. Environmental degradation jeopardizes the enjoyment of these rights which mainly impacts vulnerable groups such as Indigenous Peoples and peasants (Boyd, 2020; Knox, 2018).

The right to a safe, clean, healthy and sustainable environment notably requires to preserve the environment and protect human health in urban and rural areas (Knox, 2018). As for the other human rights, its effective implementation depends on procedural elements, namely, access to information, public participation, as well as access to justice and effective remedies in environmental matters. Its implementation is also linked to substantive elements such as the availability of clean air, a safe climate, water without health risks, adequate sanitation, healthy and sustainably produced food, non-toxic environments, and healthy biodiversity and ecosystems (Boyd, 2019).

The right to a safe, clean, healthy and sustainable environment underpins sustainable and resilient agricultural and industrial practices, such as adaptation to climate change and mitigation of its effects, sustainable use and management of natural resources (water, land, soils, forests, etc.) and biological diversity, preservation of ecosystems and their services, reduction of environmental contamination (fertilizers, pesticides, antibiotics, waste, Genetically Modified Organisms [GMOs], etc.), as well as sustainable food practices and reduction of food loss and waste (FLW) (Boyd, 2019).

Some human rights instruments make direct reference to the right to a safe, clean, healthy and sustainable environment. The UNDROP makes direct reference to the right to a safe, clean, healthy and sustainable environment in Article 18(2). The Declaration also requires that states must comply with their international commitments and recognizes peasants' right to use traditional knowledge and practices to contribute to climate change adaptation and mitigation (Article 18(3)). In addition, the *Framework Principles on Human Rights and the Environment* from 2018 promote and facilitate the implementation of human rights in order to preserve the environment and achieve a safe, clean, healthy and sustainable environment (Knox, 2018).

As stated in Article 17(1) of the UDHR, the **right to property** alone or in association with others is central to the capacity to participate in the economic activities within the food supply chains, including in the production systems. The UNDROP references many fundamental human rights like the **right to land and natural resources**, meaning the right to have access to and use land and natural resources in a sustainable manner (Articles 5, 17); the **right to water** (safe water) and to irrigation technology, sanitization, technologies for the reuse of treated wastewater, and for water collection and storage for farming (Article 21(2),(3)); the **right to seeds** and the **right to the means of production**, including agricultural credit and loans, access to markets,

marketing facilities, means of transport, facilities for processing, and appropriate technology, to name a few (Articles 16(1), 16(2)(3), 19(1), 19(5)).

Access to land and other natural resources determines people's access to livelihoods and food. Yet some activities, notably land appropriation, disrupt the access of land and other natural resources to peasants, farmers and Indigenous Peoples (Fakhri, 2020; Elver, 2020). Lack of land tenure security is at the root of the vulnerability of many groups that depend on it for their subsistence and livelihoods. In this regard, the protection of the collective rights of Indigenous Peoples is of vital importance, since in the absence of such effective protection, the migration of these groups to urban areas is a first step towards poverty and food insecurity. It is worth noting that protection of land tenure and access to livelihoods has become even more important during the COVID-19 pandemic where access to food and mobility has been affected by the emergency measures taken in its response.

Thus, in order to increase sustainable food production it is of vital importance to protect the land tenure of peasants, farmers, women and Indigenous Peoples, and improve the living standards of agricultural workers and peasants, by ensuring legal protection of land tenure and adopting specific measures to facilitate access to a means of production (ILO, 2020; Elver, 2018, 2020; Fakhri, 2020). Sustainable food supply chains underpin favourable work conditions for all. The **right to work, freedom of association** and the **right to form and join trade unions** therefore become important beacons of equality and equity in sustainable agri-food systems (UDHR, Article 23; International Covenant on Civil and Political Rights [ICCPR], Article 22(1)). The **right to work** underpins the capacity for everyone to participate in the economic activities of the food supply chains. This right implies, among other things, just and favourable work conditions and the protection against unemployment, closely related to the right to social security. This right also includes the right to equal pay for equal work without discrimination (International Convention on the Elimination of All Forms of Racial Discrimination [CERD], Article 5(e)(i)). In Article 13 of the UNDROP, both states and agribusinesses must provide workers with just and favourable conditions of work and states must establish a labour inspection system to monitor working conditions in the agri-food sector. In addition, this right prohibits forced, bonded or compulsory labour and requires states to adopt measures against economic exploitation, contemporary forms of slavery and forced labour, in particular of fishermen, fish workers, forest workers, migrants and children.

2.3. Equal and equitable access to healthy diets through sustainable food systems

Agri-food systems should contribute to the development of healthy and sustainable food environments. Thus, legislative interventions shaping agri-food systems should ensure equal and equitable access to sufficient, affordable, safe and nutritious foods that meet consumers dietary needs, that are culturally acceptable and sustainably produced (Right to Food Guidelines, 2004).

Human rights provide a universal framework for achieving these goals, notably regarding marginalized and vulnerable people, including women, children, Indigenous Peoples, peasants, migrants and refugees, by developing specific measures that seek to respond to the needs of these groups in order to re-adjust existing disparities that may be causing the exclusion and marginalization of these groups, and to provide them with equal opportunities (VGFsyN, 2021; HLPE, 2017a; Right to Food Guidelines, 2004).

The **right to equality and non-discrimination** is a fundamental element of human rights. All persons are born free and equal in dignity and rights and should be treated equally, without discrimination, made notably on the basis of race, religion, colour, sex, or political opinion, or other status (ICESCR, Article 2(2)). Agri-food systems can potentially be at the origin of discrimination and inequalities related to physical, social and economic access to healthy food. Some international human rights instruments address this right regarding specific vulnerable groups such as Indigenous Peoples through the UNDRIP, peasants and other workers in rural areas through the UNDROP, women through the CEDAW, children through the *Convention on the Rights of the Child* (CRC), persons with disabilities through the CRPD, migrant workers and their families through the *International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families* (ICPRMW) and refugees through the *Convention Relating to the Status of Refugees*.

The principle of equity and justice is also fundamental to the transition towards sustainable agri-food systems, as it embodies the idea that, in order to achieve equality between people, it is necessary to recognize the differences between them, in particular with marginalized and vulnerable people, and to adopt specific measures to promote equitable access for all to healthy diets. Individuals and groups facing discrimination and inequalities, such as marginalized and vulnerable people, are more likely to suffer from food insecurity. In other words, equality and non-discrimination does not prevent states from adopting specific measures in order to respond to a particular situation of general interest, like measures granting differential treatment to marginalized and vulnerable people in order to ensure their access to healthy diets (CESCR, 2009).

Identified as focus area three, equal and equitable access to healthy diets through sustainable agri-food systems also relies on the **realization of the right to an adequate standard of living**, the **right to adequate food** and the **right of everyone to be free from hunger** (ICESCR, 1999). As specified more clearly in 2018 in the UNDROP, the right to adequate food includes the right to produce food and to adequate nutrition, both guaranteeing the possibility of enjoying the highest degree of physical, emotional and intellectual development (Article 15(1)). This Declaration, although non-binding, calls upon equal and equitable sustainable agri-food systems and healthy diets, that also preserve access to food for future generations (Article 15(2), Article 15(4)).

2.4. Food safety across sustainable food systems

The fourth focus area of the VGFSyN highlights the foundational importance of food safety in all parts of sustainable agri-food systems for improved nutrition. Food safety, which refers to “the absence, or presence at acceptable levels, of microbiological, chemical, or physical hazards in food to minimize risks to the health of the final consumer” (FAO, 2020a; FAO and WHO, 2003), is central to the achievement of food security and the highest level of physical and mental health for every consumer.

To that end, the VGFSyN specifies the need to strengthen global and national cooperation on food safety, including by using *Codex Alimentarius* standards, guidelines and recommendations (see Box 12). It also calls for government, actors of food supply chains and other relevant stakeholders to be responsible and accountable, as well as to implement a One Health approach to food safety recognizing the interconnection between food safety and human, plant, animal and environmental health).

From a human rights perspective, the achievement of these objectives is mainly linked to the right to adequate food, the right to safe and clean drinking water and sanitation, the right to health and the right to life.

The right to adequate food underpins food safety in sustainable agri-food systems. The implementation of the right to adequate food implies, among other things, that states take measures to ensure that all food, whether locally produced or imported, is safe. It also implies that states cooperate with all stakeholders, including consumer organizations, in addressing food safety issues, and consider their participation in national and international fora where policies on food safety are discussed (Right to Food Guidelines, 2004).

Above all, food safety is based on safe and clean drinking water. *The human right to water and sanitation (UNGA Resolution 64/292)* explicitly recognizes **the right to safe and clean drinking water and sanitation** (Article 21). Indeed, most food borne diseases are caused by poor quality water used for consumption, food production, processing and preparation which directly leads to food and nutrition insecurity (HLPE, 2015). This right is derived from the right to an adequate standard of living and inextricably related to the **right to the highest attainable standard of physical and mental health**, as well as **the right to life and human dignity**.

The **right to health** is understood as the “right to the enjoyment of the highest attainable standard of physical and mental health” in Article 12 of the ICESCR, and is coherent with the One Health approach. Food safety in all parts of sustainable agri-food systems contributes to ensure the right to health and ultimately the right to life. The realization of the **right to life** is particularly dependent on food safety in agri-food systems, as WHO estimates that almost 1 in 10 people in the world fall ill each year from a foodborne disease and 420 000 people die from it every year (WHO, 2020a). The right to life is also enshrined in a number of international legal texts, including those related to specific groups such as Indigenous Peoples and peasants who have been granted the rights to life, and physical and mental integrity, such as the UNDRIP and the UNDROP.

2.5. People-centred nutrition knowledge, education and information

The VGFSyN recognize the importance of considering, maintaining and protecting the diversity of food cultures, social norms, relations and traditions that contribute to healthy diets through sustainable agri-food systems. The transition to sustainable agri-food systems must be made with respect for the healthy aspects of traditional diets and knowledge.

The VGFSyN also emphasize under focus area five, the critical need to promote healthy diets through supporting people to improve their knowledge, motivations, skills and practices; empowering key actors across food systems; and improving the environments in which people access food in their daily lives.

Human rights can be effective legislative entry points ensuring access to transparent and credible information and most importantly to effective learning and empowerment opportunities on healthy diets and sustainable agri-food systems, encouraging local food knowledge and culture, including ancestral and traditional knowledge and promoting the integration of effective food and nutrition learning in education systems.

Regarding Indigenous Peoples, the states must recognize and respect their institutions and their distinct juridical systems, including their legislations and they must allow them to participate in the development, adoption and implementation of national legislations affecting them. The three functions of law must be interpreted in the light of the right to self-determination and autonomy of Indigenous Peoples (see Box 4).

Box 4:
Indigenous Peoples and sustainable agri-food systems

Indigenous Peoples are entitled to the right to self-determination and autonomy as per the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) of 2007. This notably includes, the right to freely determine their economic, social and cultural development as well as the right to autonomy and self-government in matters relating to their internal and local affairs. For Indigenous Peoples, this right to self-determination and autonomy translates as the exercise of control over their lives and through the participation in all decision-making that may affect them, in accordance with their own cultural patterns and structures of authority (Tauli-Corpuz, 2019). Indigenous Peoples should be able to control their traditional agri-food systems, according to their way of life, culture, knowledge and values on the way food is sourced, produced and consumed.

The right to self-determination and autonomy are fundamental elements for achieving sustainable food security and implementing sustainable development activities on Indigenous Peoples' territories (ECOSOC, 2018). The implementation of the right to self-determination and autonomy is a prerequisite for safeguarding and maintaining their traditional and subsistence activities, such as hunting, fishing, trapping and gathering, as well as traditional agri-food systems and traditional diets.

States should also recognize the distinct juridical systems of Indigenous Peoples and their informal law and customs, including the traditions, practices and knowledge, and procedures of Indigenous Peoples, as complementary to formal law in the transition towards sustainable agri-food systems for improved nutrition.

Sources: UNDRIP, 2007; Tauli-Corpuz, 2019; and ECOSOC, 2018.

Indigenous Peoples' agri-food systems and indigenous knowledge contain valuable lessons in the transformation of agri-food systems towards more sustainability and better health and nutrition. This has been demonstrated by FAO, Alliance of Bioversity International and CIAT (2021).

Many human rights instruments broadly recognize the **right to education**, including in food and nutrition, as in Article 13 of the ICESCR. In the CERD, the Declaration on the Rights of Minorities and in the CRC, specific provisions on the right to education concerning minorities, children and racial discrimination call for the prohibition and elimination of racial discrimination in the enjoyment of the right to education and they encourage states to promote knowledge of the history, traditions, language and culture of the minorities and ensure that the education provided is in accordance with the individuals own language and cultural identity.

Under the right to education, states should take appropriate measures to eliminate any stereotyped conception of the roles of men and women in education and information, including those related to FSN (CEDAW, Article 10(c)(h)). Women, Indigenous Peoples and peasants, have the right to all levels and forms of education without discrimination (UNDROP, Article 4(2)(d); UNDRIP, Article 14).

In relation to the right to food, under the UNDROP, states shall also ensure that all segments of society, in particular parents and children, have “access to nutritional education and are supported in the use of basic knowledge on child nutrition” (Article 15(3)).

Cultural rights are also relevant to the VGFSyN fifth focus area. Cultural rights encourage local and ancestral food knowledge and culture as these rights include the right “to take part in cultural life”; the right “to enjoy the benefits of scientific progress and its applications”, as well as “the right in community with the other members of their group, to enjoy their own culture” (ICESCR, Article 15; ICCPR, Article 27).

According to Article 4(1) of the 1989 *Indigenous and Tribal Peoples Convention* and Article 31 of the UNDRIP, states must adopt special measures to safeguard the culture of Indigenous Peoples and persons belonging to minorities and recognize and protect the social, cultural, religious and spiritual values and practices of these peoples and minorities, including food knowledge and culture.

Legislation is a powerful tool for preserving culture and reinforcing nutritional education by establishing a differentiated treatment according to culture and especially according to respect for the right to self-determination in the case of Indigenous Peoples. Legislation underpinned by a human rights-based approach can establish mechanisms for participation and decision-making in which these aspects can be considered and foster and promote inclusive models that value the culture of specific territories and groups. This is particularly relevant in the case of Indigenous Peoples and the need to respect their cultural heritage and self-determination when implementing social programmes in which food is provided. School-based programmes to improve nutrition are particularly important in this regard, as they must be implemented in compliance with international instruments that protect the collective rights of Indigenous Peoples. For this purpose, from a human rights-based approach, legislation can establish consultation and participation procedures, and also define inclusive models where indigenous producers’ associations can be targeted and integrated into relevant social programmes so that their sustainable practices can be recognized in large-scale public policies.

Peasants also have the right, to individually and/or collectively, in association with others or as a community, express their local customs and culture and states shall take measures to recognize and protect their traditional knowledge. In addition, states shall ensure that peasants enjoy access at all times to adequate food that is produced and consumed respecting their cultures (UNDROP, Articles 26, 15).

The right to information is also relevant to information about food and healthy diets. The UDHR recognizes everyone’s right to information through the “freedom of opinion and expression ... and to seek, receive and impart information ... (Article 19).

2.6. Gender equality and women’s empowerment across food systems

Gender equality, women’s empowerment and nutrition are directly linked together. Women play a fundamental role in maintaining food security in all parts of agri-food systems, from being agricultural producers, farm managers, processors, traders, wage workers, entrepreneurs as well as maintaining household food security. At the same time, women face discrimination in agri-food systems. For instance, prevailing sociocultural norms often affect their ability to exercise autonomous decision-making, their access to productive resources and do not recognize they

are unequally burdened with responsibilities for unpaid care and domestic work. They often face significantly higher levels of food insecurity and worse nutrition outcomes. Addressing gender equality and empowering women in agri-food systems is essential for women's well-being, but it is also crucial in the transition towards sustainable agri-food systems considering the central role women play (HLPE, 2017a).

Ensuring **gender equality and protecting women against discrimination** are at the heart of many human rights instruments, and an integral part of the right to equality and non-discrimination, (see Section 2.3). These instruments provide that states must ensure the equal right of men and women, including indigenous and peasant women, to the enjoyment of all civil, political, economic, social and cultural rights (ICCPR, Article 3; UNDRIP, Article 3). States must eliminate discrimination against women especially by embodying the principle of equality and by amending or repealing laws, regulations, customs, or practices that discriminate against women, in all sectors (CEDAW, Articles 2, 3).

Particularly relevant in agri-food systems, the CEDAW specifies that states shall change "the social and cultural patterns of conduct of men and women" in order to eliminate

prejudices and customary and all other practices which are based on the idea of the inferiority or the superiority of either of the sexes or on stereotyped roles for men and women (Article 5(a)).

States should take into account the particular problems faced by rural women and the significant roles they play in achieving food security for their families and communities which include "their work in the non-monetized sectors of the economy" (Article 14(1)).

Sustainable agri-food systems and healthy diets underlie the implementation of the **right to adequate food** and the **right to health** for women (see Sections 2.2 and 2.4), including adequate healthcare facilities, information, counselling and services in family planning. This has a direct impact on children's rights related to nutrition through agri-food systems (Garde *et al.*, 2018). Indeed, the realization of women's rights helps the fight against children's malnutrition by providing adequate nutritious food to women and by ensuring that women have appropriate services in connection with pregnancy, confinement and the post-natal period, granting free services where necessary, as well as adequate nutrition during pregnancy and lactation (CEDAW, Article 12(2)).

The implementation of the **right to decent work** for women is also essential to achieve sustainable agri-food systems and healthy diets, so they can enjoy working conditions not inferior to those enjoyed by men, including equal remuneration and the protection of health and safety in working conditions. The recognition of the **right to social security**, including retirement, unemployment, sickness, invalidity and old-age benefits or for any other loss of working capacity, as well as the right to paid leave and the right to paid maternity leave is also essential in realizing gender equality and women's empowerment in agri-food systems (CEDAW, Article 11).

2.7. Resilient food systems in humanitarian contexts

Food insecurity is directly linked to armed conflict and protracted crises (Fakhri, 2020). The transition towards sustainable agri-food systems can contribute to reduce humanitarian crises. To be sustainable and nutrition-driven, agri-food systems must be able to protect people's food

security even in humanitarian crises by improving, among other things, the quality of food and nutrition assistance (HLPE, 2017a; VGFSyN, 2021).

Humanitarian contexts may be caused by conflicts, including armed conflicts, or disasters, including climate change, natural disasters, epidemics or pandemics compromising human rights. As mentioned in the VGFSyN, a human rights-based approach lays the grounds to ensure the resilience and sustainability of agri-food systems in humanitarian crises, and contributes to linking nutrition with humanitarian interventions, so that these interventions be designed with a long-term strategy for sustainable development.

International human rights law and international humanitarian law offer protection to several categories of people in humanitarian crises and contribute to prevent hunger, famine and malnutrition. Although it is possible to derogate or restrain from some civil and political rights in certain circumstances, human rights remain applicable in humanitarian contexts (HRC, 2001). The **right to food**, the **right to water**, the **right to health** and the **right to life** continue to apply in humanitarian contexts.

International humanitarian law applies in specific situations of international or non-international armed conflicts, and it is not subject to progressive realization. It must therefore be implemented immediately. International humanitarian instruments² protect food-stuffs, agricultural areas, crops, livestock, drinking water installations, supplies, and irrigation works, in times of armed conflicts. They prohibit to attack, destroy, remove or render useless these objects that are indispensable to the survival of civilians. They also prohibit starvation of civilian population as a method of warfare. Furthermore, war should not cause widespread, long-term, and severe damages to the natural environment. They compel states to ensure, *inter alia*, civilians' access to food even in times of conflicts and the free passage of all consignments of essential food and medical supplies without any distinction or discrimination, as noted in the *Geneva Convention Relative to the Protection of Civilian Persons in Time of War* (1949).

Sustainability and resilience of agri-food systems implies that these systems must be able to protect and support marginalized and vulnerable groups even in times of humanitarian crises. Measures to strengthen the resilience of peasants' livelihoods against natural disasters and other disruptions should be adopted. Furthermore, following a natural disaster or armed conflict, peasants must have the right to return to their land and to have access to the natural resources used in their activities, including agricultural activities (UNDROP, Articles 16, 17).

Food aid and humanitarian assistance can result in the disruption of local markets (Fakhri, 2020), and thus the sustainability and resilience of agri-food systems. Overall, the VGFSyN stress that food aid, in times of peace, as well as in times of conflict, should be considered from a sustainability perspective and contribute to strengthening farmers' ability to rebuild and adapt and provide recovery measures empowering stakeholders to regain their autonomy (HLPE, 2017a). This complies with the right to adequate food.

Table 2 illustrates the interconnections between each of the seven focus areas of the VGFSyN and the human rights presented here in Section 2 of this study. However, it should be noted that all human rights are universal, indivisible, interdependent and interrelated, and must be treated globally in a fair and equal manner, on the same footing and with the same emphasis, to ensure an effective transition to sustainable agri-food systems for improved nutrition.

² For example, the *Protocol Additional to the Geneva Conventions of 1949, and relating to the Protection of Victims of International Armed Conflicts* (Protocol I), ... and *Protocol II Relating to the Protection of Victims of Non-International Armed Conflicts*.

Table 2: Main human rights underlying each of the seven focus areas of the VGFSyN	Transparent, democratic and accountable governance of agri-food systems	Sustainable food supply chains to achieve healthy diets	Equal and equitable access to healthy diets through sustainable agri-food systems	Food safety across sustainable agri-food systems	People-centred nutrition knowledge education and information	Gender equality and women's empowerment across agri- food systems	Resilient agri-food systems in humanitarian contexts
Right to equality and non-discrimination	✓	✓	✓	✓	✓	✓	✓
Right to development	✓					✓	
Right to participation	✓					✓	
Freedoms of expression and information	✓				✓	✓	
Freedoms of assembly and association	✓	✓				✓	
Right to an adequate standard of living			✓				
Right to adequate food	✓	✓	✓	✓	✓	✓	✓
Right to be free from hunger			✓			✓	✓
Right to property		✓				✓	
Right to land and other natural resources		✓				✓	
Right to seeds		✓				✓	
Right to the means of production		✓				✓	
Environmental rights		✓				✓	
Right to decent work		✓				✓	
Right to adequate training		✓				✓	
Right to social security			✓			✓	
Right to housing			✓			✓	
Right to health	✓	✓	✓	✓	✓	✓	
Right to water and sanitation		✓	✓	✓		✓	
Right to housing			✓	✓		✓	
Right to health					✓	✓	✓
Right to water and sanitation					✓	✓	✓
Right to life			✓	✓		✓	✓
Right to education					✓	✓	
Cultural rights					✓	✓	

3. Frameworks to guide regulatory coherence towards sustainable agri-food systems

There are numerous potential entry points for the law to contribute to the transition towards sustainable agri-food systems. Section 3 provides examples of national measures that are directly related to improving nutrition and sustainability. Although not exhaustive, it demonstrates the entry points that are already partly invested by the law of several countries to contribute to this transition. However, it should be noted that as part of a broader analysis of agri-food systems' transition, other legal entry points less directly related to the aim of improving sustainability and nutrition, should be addressed. Labour law, competition law, trade law, urban and rural development and intellectual property are among these other legal entry points that could contribute to more equality and equity in agri-food systems.

While Section 2 focussed on the first function of the law for improved nutrition and sustainability in agri-food systems, Section 3 focusses on the last two functions of the law, as follows:

1. To lay the basis of these systems, by identifying the fundamental common principles and rights on which they should be built;
2. To provide a clear guiding legislative framework; and
3. To act as an operational tool for sustainable agri-food systems.

The transition towards sustainable agri-food systems requires a coherent regulatory approach. Overarching policies, constitutional protections and framework laws are key instruments for providing a framework for the elaboration and/or amendment of legislations for improved nutrition and sustainability in agri-food systems. They are often multisectoral, and when supported by effective institutional structures, they frame sectoral legislations and regulate different actors towards this transformation. These instruments often include both nutrition-specific and nutrition-sensitive interventions – the former of which “address the immediate determinants of nutrition”, while the latter “address the underlying causes of undernutrition” (Ruel and Alderman, 2013).

To this end, Section 3 addresses the law as a binding framework towards improved nutrition and sustainability in sustainable agri-food systems. Policy frameworks are discussed in Section 3.1 and although not legally binding, they guide legislative coherence. It also presents main considerations and common elements found in policy frameworks that enhance sustainability and nutrition in agri-food systems. Constitutions and framework laws, as legally binding instruments, are discussed in Sections 3.2 and 3.3, respectively.

The Section also discusses the law as an operational tool to implement this transition, carrying out specific sectoral interventions that lead to concrete changes. It presents selected national sectoral legislations that provide specific solutions that can operationalize the transition towards improved nutrition and sustainability in food. Some of these national legislations encompass more than one of the three core constituent elements of the food system and embrace the interconnection of these elements, i.e. food supply chains, food environments and consumer behaviour.

3.1. Overarching policies

Policies are important tools in the transition towards improved nutrition and sustainability in agri-food systems. Although policies are not legal instruments and cannot create binding rights and obligations, they can be developed under a legislation (e.g. Brazilian *Decree establishing the National Policy on Agroecology and Organic Production of 2012*) and they can frame the elaboration of sectoral laws and regulations that can operationalize sustainable agri-food systems.

Policy	Law
An instrument that sets out the goals of government and the planned activities and methods to achieve those objectives	A mandatory framework that sets standards principles, institutional responsibilities, rights and entitlements, procedures, and sanctions
Adopted by the government through the President or its ministries	Adopted by the legislature
Not judicially enforceable	Enforceable
Do not include specific accountability mechanisms	Sanctions and remedies are foreseen in case of breaches

Source: Cruz, 2020, p. 22.

Sectoral and multisectoral policies can guide countries to achieve greater legislative coherence to improve nutrition and sustainability in agri-food systems. In the policies analysed in this study, the interventions address the three core elements of food systems and several take into account a food systems' approach. The findings presented are backed up by a non-exhaustive list of commonalities found in the policies' content and scope.

Policies can set up an institutional framework with measurable targets. They contain principles as well as general and specific objectives that are related to FSN. Some of them take into account the multidimensional approach of nutrition and healthy diets across agri-food systems and many provide a framework for key areas of interventions, legal and non-legal, in multiple sectors.

Policies are generally timebound with leading institutions or entities that follow, evaluate, adapt or revise interventions. However, without being overly prescriptive, policies can be implemented by a number of enforceable laws and regulations related notably to how food is produced, processed, marketed, and how affordable and accessible it is to consumers.

Regional policies can guide countries' actions in setting their own policies and national legal instruments related to sustainable agri-food systems. Other integrated regional economic areas

such as the European Union, organize institutional frameworks to plan future interventions *inter alia* by revising legislations or adopting new policy initiatives and legislations.

Selected regional and national policies illustrating the above-mentioned considerations are given in the Policy example boxes.

Policies:

Regional examples

The World Health Organization (WHO) *Strategy on nutrition for the Eastern Mediterranean Region 2020–2030* (2019) establishes a regional framework to support Member States' nutrition actions to achieve food security, end all forms of malnutrition and improve nutrition throughout the life cycle. The Strategy supports the transition towards sustainable food systems as it provides a framework of actions based on the six key action areas of the *United Nations Decade of Action on Nutrition (2016-2025)*, as follows: 1) sustainable, resilient food systems for healthy diets; 2) aligned health systems providing universal coverage of essential nutrition actions; 3) social protection and nutrition education; 4) trade and investment for improved nutrition; 5) safe and supportive environments for nutrition at all ages; and 6) strengthened governance and accountability for nutrition. The Strategy aims to support Member States to operationalize a national nutrition strategy and plan of action in order to achieve global and regional targets by 2030. The Strategy adopts principles enshrined in five approaches: life-course approach; health-in-all-policies approach and integrated multisectoral action; involving whole of society addressing determinants of health; and anchored in a human rights approach; and knowledge sharing and exchange of experience.

The European Union's *Farm to Fork Strategy* (2020) adopts a food systems approach. The Strategy intends to ensure that food systems are environmentally friendly; ensure food security and nutrition, and public health, so everyone has access to sufficient, nutritious and sustainable food while meeting dietary needs and food preferences; and preserve affordability of food while generating fairer economic returns, fostering competitiveness of the European Union (EU) supply sector and promoting fair trade. The Strategy provides a diversity of initiatives and actions, regulatory and non-regulatory, that shall be undertaken by the EC in order to accelerate and facilitate the transition. It also includes specific targets to be reached for 2030 regarding pesticides, fertilizers, antimicrobial resistance and organic farming. The EC shall propose a legislative framework for sustainable food systems before the end of 2023 in order to implement the Strategy, and which aims to promote policy coherence at EU and Member State levels, to integrate sustainability into all food-related policies as well as strengthen the resilience of food systems. The Strategy proposes initiatives and actions targeting food chains. It also aims to facilitate the availability and affordability of healthy and sustainable food and to establish a favourable food environment which supports consumers to choose healthy and sustainable diets.

Source: *Strategy on nutrition for the Eastern Mediterranean Region 2020–2030*, WHO, 2019; and *Farm to Fork Strategy*, EU, 2020.

Policies:**National examples**

This renewed version of the *National Food and Nutrition Security Policy* (NFNSP), aimed at guiding investments and other interventions as well as achieving food and nutrition security for all, is based on a food systems approach. The food systems approach facilitates the identification and prioritization of multisectoral interventions for synergistic impact. Its overall framework is organized around the five pillars identified in the 2016 *Second Country Investment Plan for Nutrition-Sensitive Food Systems (2016-20)*, which are: 1) diversified and sustainable agriculture, fisheries and livestock for healthy diets; 2) efficient and nutrition-sensitive post-harvest transformation and value addition; 3) improved dietary diversity, consumption and utilization; 4) enhanced access to social protection and safety nets and increased resilience; and 5) strengthened enabling environment and cross-cutting programmes for achieving food and nutrition security. Both of these policy plans target vulnerable groups (including women, children, disabled and displaced persons). The governance put in place by the NFNSP gives the Food Planning and Monitoring Committee the mandate of providing overall leadership and oversight in planning, coordination and monitoring in all aspects of food and nutrition security. Member ministries of this Committee take responsibility for ensuring that development programmes under each of the ministries follow the policy priorities and strategies indicated in the Policy. For cross-sectoral programmes, implementation is based on cross-ministerial bodies with active participation of local governments, civil society, and the private sector. The implementation of the NFNSP broadly follows this governance structure. Regulations take an important role in this Policy as they are considered essential to ensure the supply of safe and quality food and improve market conduct and performance. Compliance programmes are also important to ensure that such regulations are effective. The Policy supports updating of existing regulations and developing new ones where needed.

The Nigerian *Agricultural Sector Food Security and Nutrition Strategy 2016-2025* aims to combat malnutrition. Its overall objective is to improve the food and nutrition security of all Nigerians while empowering women and promoting resilience of the most vulnerable through sustainable agricultural livelihoods. The Strategy recognizes that nutrition is a multisectoral issue, which needs to be addressed simultaneously by multiple sectors, and particularly by the agricultural sector. The Strategy differentiates between “nutrition-specific” and “nutrition-sensitive” interventions. One half of the priority areas (i.e. enhanced food value chains; diversified food production targeting women; improved food safety along value chains; resilience and social protection nets for vulnerable groups) incorporate nutrition-specific investments in the agriculture sector and food systems. The other half (i.e. nutrition research and information systems; improved institutional capacity and human resources; nutrition education, behaviour change communication and advocacy; monitoring and evaluation) focuses on nutrition-sensitive actions. It specifically targets, as beneficiaries, women, children and internally displaced people. A national structure for cross-sectoral activities (the National Committee on Food and Nutrition) and a sectoral structure within the Ministry of Agriculture and Rural Development (the Inter Ministerial Agriculture Nutrition Working Group) coordinate the interventions. A system is in place to evaluate the extent to which the Strategy is accomplishing its overall goal, as well as the specific objectives.

Madagascar's *National Plan of Action for Nutrition-III* aims to ensure the right to adequate nutrition in order to improve the survival of children and allow maximum development of their physical and intellectual potential and to promote the health and well-being of the target population, through the synergy of multisectoral interventions. The Plan has three strategic areas of intervention: 1) nutrition-specific; 2) nutrition-sensitive; and 3) governance. The first strategic area targets vulnerable people, especially young children, mothers and teenage girls. The second strategic area plans diverse interventions such as strengthening household food security (e.g. diversifying production, creating community gardens), providing social safety nets, managing non-communicable diseases and ensuring water sanitation and hygiene activities. The third strategic intervention aims to strengthen the policy and regulatory framework as well as intra- and inter-sectoral coordination. The Permanent Office of the National Nutrition Council in Madagascar, in collaboration with several ministries, is in charge of the implementation of the Plan. Indicators, including legislative indicators are foreseen and progress is evaluated each year, at mid-term and at the end. The Plan also provides two specific transversal interventions to increase good nutritional practices through communication and to strengthen the resilience of the Malagasy population in terms of nutrition and food security in times of disaster.

Policy content and scope vary from one country to another. Each country addresses issues according to its specific context and situation as well as political, economic and cultural systems, by making choices and trade-offs.

A variety of policy areas, often overlapping, are important to agri-food systems, such as:

- **Improving availability of and access to nutritious foods and reducing availability of and access to low nutrition value foods** through policies for food fortification, reformulation of food products (reduction of sodium, elimination of trans fats, etc.), taxing of sugar sweetened beverages, subsidizing nutritious foods, and shaping public food procurement with guidelines in schools and public institutions. Some policies also aim at diversifying food production.
- **Enabling people to improve their food practices and choices** through labelling policies (back-of-pack or front-of-pack nutrition declaration), implementation of national food-based dietary guidelines, and food and nutrition education interventions. Policies also encompass the training of professionals working in the field of nutrition in certain environments (e.g. business, restaurants).
- **Protection of vulnerable groups and social protection** including the strengthening of access to nutrition-sensitive social protection and safety nets of vulnerable groups (e.g. women, children, low-income families) by facilitating access to healthy diets and essential services. More precisely, improving the nutritional status of women, including during pregnancy and breastfeeding, and preventing all forms of discrimination against women regarding nutrition are to be considered in policies. Policies also address the nutritional status of children through school feeding and food programmes, including the control of marketing and advertising intended for children in order to reduce childhood overweight and obesity.

- **Sustainability including food loss and waste** to ensure sustainability throughout the food chains and the reduction of food loss and food waste. Policies also address sustainability in agriculture, fisheries and livestock as well as biodiversity conservation. They also consider environmental and climate interventions including adaptation and mitigation measures in order to reduce their impact and promote sustainable practices.
- **Innovation, technology and infrastructure** including the improvement of physical infrastructures in nutrition and access to nutrition services. Research and innovation are also important considerations.
- Policies consider the enabling environment essential for the success of the design and implementation of policies, in doing so they tend to cover:
- **Multisectoral coordination and cooperation** including the establishment or strengthening of cross-government and multisectoral structures and mechanisms during the development and implementation of nutrition-oriented policies to ensure better coherence and promote cooperation.
- **Governance** and accountability, ensured by coherent, transparent, inclusive and participatory mechanisms (see Box 5). They also address the means by which policies are implemented and followed up.

These commonalities do not preclude that they are the only issues to be addressed in policies, on the contrary, policies can go much further and innovate beyond this selected list. For instance, additional topics related to nutrition are taken into account in some policies such as: water and sanitation; trade and investment; health facilities and services; chemicals; seeds; animal welfare; and organic agriculture.

In addition to the constitutions and framework laws, policies are important tools to adopt an agri-food systems approach for improved nutrition and healthy diets and to identify key areas of intervention across different sectors and by different actors in the move towards sustainable agri-food systems. Policies can also address nutrition through a multisectoral, multi-level, multi-stakeholder approach. The non-binding nature of policies remains a limiting factor, and for their implementation and enforcement, implementing legislation may need to be adopted.

Box 5: Participative and inclusive governance in sustainable food systems policies

A recent report by the Organisation for Economic Co-operation and Development (OECD), *Making Better Policies for Food Systems*, indicates that the participation of all stakeholders in the entire policy process (from consultation and discussion all the way to monitoring and every step in between) allows not only to overcome disagreements over facts, but also to deal with diverging interests and values (OECD, 2021). The involvement of all stakeholders at all levels (local, regional, and national) is paramount to the success of the policies' implementation. To this end, and as recommended by FAO notably through the PANTHER framework,ⁱ states must foster the informed and active participation of vulnerable groups or their representatives (FAO, 2011). Moreover, in *Transforming our world: The 2030 Agenda for Sustainable Development*, states are encouraged to work toward a new "networked and inclusive" governance (UN, 2015)

A more regional and territorial participatory governance for food and nutrition is also emerging worldwide where the community and local stakeholders are involved in the development of food-related policies, standards and legislation from the beginning of the process. Participatory governance has resulted in the development of territorial food systems in Canada such as the Healthy Community Food System (Waterloo) in 2007, and the Montreal Food System (Système Alimentaire Montréalais (Montréal) in 2018. These initiatives, not always based upon national laws, are implemented by legal measures adopted by infra-state bodies such as states, regions, provinces and local authorities (cities, indigenous communities).

Several key initiatives from subnational governments advocate at an international level for a participatory and regional governance approach to food security and nutrition, including food systems. These initiatives include the *Dakar Declaration* (2010), the *Medellin Declaration* (2012) and the *Declaration of Cuenca* (2018) of the United Regions Organization - Forum of Regional Governments and Global Associations of Regions (ORU-FOGAR). More recently, the *Glasgow Food and Climate Declaration* (2020) officially launched in December 2020 aims to recognize and strengthen the role of subnational governments in the implementation of integrated food policies to accelerate the transition towards sustainable food systems in order to, inter alia, reduce greenhouse gases, and to ensure coordination of food systems policies and actions through the establishment of cross-sectoral, multi-stakeholder and multi-level governance mechanisms.

i. The first letter of each word forms the acronym: participation, accountability, non-discrimination, transparency, human dignity, empowerment and rule of law.

Sources: OECD, 2021; FAO, 2011; UN, 2015; Canada 2007, 2018; Dakar, 2010; Medellin, 2012; Cuenca, 2018; Glasgow, 2020.

3.2. Constitutions

Constitutions offer the highest form of legal protection. It is the fundamental law, written or customary, of a state that establishes the character of a government and that enshrines the basic principles to which the state and society must conform. Every administrative and governmental act as well as every legal intervention must comply with its dispositions.

As a legal instrument, it can therefore compel the transition towards improved nutrition and sustainability in agri-food systems.

Constitutions in many countries directly address FSN issues (nutrition-specific) or tackle underlying causes of food insecurity (nutrition-sensitive), including adverse environmental effects of agri-food systems (e.g. land and natural degradation, pollution, climate change). They include relevant legally binding provisions for framing and orientating the transition towards improved nutrition and sustainability in food systems through the three core constituent elements of food systems.

Introducing human rights in the constitution is the strongest means to protect these rights, since all laws and regulations of the country must be consistent with constitutional provisions. Enshrined rights provide collective, individual and justiciable rights. As seen in Section 2, human rights are interconnected to core elements of sustainable agri-food systems. The right to adequate food, the right to a safe, clean, healthy and sustainable environment, as well as the right to water, the right to health, the right to social security and the freedom of association are embedded in many constitutions (Knuth and Vidar, 2011).

Some states have chosen to explicitly enshrine the right to adequate food in the highest standard of their legal order (FAO, 2009, 2019b). In 2020, thirty-one states have explicitly enshrined the right to adequate food in their constitutions.³ Many states legally recognize the right to a safe, clean, healthy and sustainable environment. In 2019, this latter right has constitutional protection in one hundred and ten states (Boyd, 2019). The constitutional recognition of these rights drives legislators and courts to ensure the respect, protection and fulfilment of the right to adequate food and the right to a safe, clean, healthy and sustainable environment, and thereby, drives the transition towards sustainable agri-food systems.

Constitutions:

National examples

The *Constitution of Nepal* (2015) recognizes the right to adequate food, the right to be free from hunger and the right to food sovereignty (Article 36). It also recognizes the right for every citizen to live in a clean and healthy environment (Article 30).

The *Constitution of the Arab Republic of Egypt* (2014) sanctions the right to healthy, sufficient amounts of food and clean water (Article 79). It also protects the right to every person to a sound, healthy environment (Article 46).

The *Constitution of the Plurinational State of Bolivia* (2009) recognizes the right to everyone to water and food (Article 16). Additionally, it set ups the obligation of the state to guarantee food security, by means of healthy, adequate and sufficient food (Article 16). It addresses Indigenous Peoples' rights by affirming that the nations and rural native Indigenous Peoples enjoy the right to "live in a healthy environment, with appropriate management and exploitation of the ecosystems" (Article 30(iii)). The Constitution recognizes non-human species as a subject of rights. It recognizes the right of "other living things", along with individuals and collectives of present and future generations, to a healthy, protected, and balanced environment (Article 33).

³ Belarus, the Plurinational State of Bolivia, Brazil, Colombia, Costa Rica, Cuba, the Democratic Republic of the Congo, the Dominican Republic, Ecuador, Egypt, Fiji, Guatemala, Guyana, Haiti, Honduras, India, Kenya, Malawi, Maldives, Mexico, Nepal, Nicaragua, Niger, Panama, Paraguay, the Philippines, the Republic of Moldova, South Africa, Suriname, Ukraine and Zimbabwe.

The *Constitution of the Republic of Ecuador* (2008) recognizes the right to safe and permanent access to clean water (Article 66) and to healthy, sufficient and nutritional food, “preferably produced locally and in keeping with their various identities and cultural traditions” (Article 13). It also recognizes the right to live “in a healthy and ecologically balanced environment that guarantees sustainability and the good way of living” (Article 14), and the right to live in a healthy environment “ecologically balanced, pollution-free and in harmony with nature” (Article 66(27)). Furthermore, the Constitution recognizes nature as a subject of rights. It states that “Nature” or “Pacha Mama” has the right “to integral respect for its existence and for the maintenance and regeneration of its life cycles, structures, functions and evolutionary processes” (Article 71) and has the right “to be restored” (Article 72).

In addition, the recognition that nature and non-human species are the subject of rights also contributes to reduce and manage adverse environmental impacts, including those of the food systems (Box 6).

Some constitutions specifically protect the rights of Indigenous Peoples, including those rights related to traditional knowledge, biodiversity and the environment impacting sustainable agri-food systems.

For instance, the *Constitution of the Ecuador* (2008) recognizes and guarantees the right of Indigenous Peoples and nations to keep and promote their sustainable practices of managing biodiversity and their natural environment (Article 8). It recognizes the right to

uphold, protect and develop collective knowledge; their science, technologies and ancestral wisdom; the genetic resources that contain biological diversity and agricultural biodiversity; their medicine and traditional medical practices, with the inclusion of the right to restore, promote, and protect rituals and holy places, as well as plants, animals, minerals and ecosystems in their territories; and knowledge about the resources and properties of fauna and flora (Article 12).

The *Constitution of the Plurinational State of Bolivia* (2009) also protects similar rights of Indigenous Peoples (see national examples).

Many constitutions introduce **overarching objectives and directive principles**, intended to promote the elaboration and the implementation of state policies and legislation to ensure the transition towards sustainable agri-food systems and healthy diets. Directive principles are statements of principle that are intended to guide and orientate government policies and legislations, particularly in the socio-economic or environmental field. In this sense, they are not considered binding and do not confer individual or justiciable rights (Knuth and Vidar, 2011), unlike the acknowledgement of the right to adequate food.

National constitutions occasionally integrate the right to adequate food by recognizing it as a directive principle or an objective within the constitutional order (FAO, 2009; Knuth and Vidar, 2011). The same applies to the right to a safe, clean, healthy and sustainable environment. Therefore, the directive principles guide the transition towards sustainable agri-food systems without being binding.

Box 6: Creating legal rights for nature

Legal rights for nature underpin the idea that humanity's well-being is inextricably linked to the well-being of the Earth (UN, 2017). Legal rights for nature, through both judicial and legislative channels, have been used in some countries as a mechanism to address economic, cultural and environmental problems related to ecosystems, notably to water governance, in an innovative way (O'Donnell and Talbot-Jones, 2018). Effective legal rights for nature may overcome the fact that many elements of nature are not captured by existing anthropocentric paradigms, such as natural capital or ecosystem services (O'Donnell and Talbot-Jones, 2018; Sólón, 2018). Such recognition would ensure a more sustainable use of natural resources and a better prevention of pollution of ecosystems and thus a more effective preservation and conservation of nature and ecosystems. This implies changing the perception of nature from a property under the law to a legal personhood with inherent rights as healthy, natural ecosystems (UN, 2017).

In 2010, various organizations and individuals developed a *Proposal Universal Declaration of the Rights of Mother Earth* during the People's World Conference on Climate Change and the Rights of Mother Earth, held in Cochabamba, Bolivia (Plurinational State of). The Declaration is the main international text for the recognition of the Rights of Nature. It aims to promote an Earth-centred vision and recognizes Mother Earth as a living being and a "unique, indivisible, self-regulating community of interrelated beings." To this end, it provides for rights to Mother Earth and obligations of human beings towards Mother Earth. Experts recommend to create new legal mechanisms that guarantee the rights of nature in every phase of legal protection, including in the elaboration and the implementation of the laws and regulations (UN, 2017). Recognizing, promoting, respecting, protecting and guaranteeing the rights of nature would contribute to achieving the Sustainable Development Goals (SDGs) and implement human rights (UN, 2017).

In New Zealand, the Parliament has adopted the *Te Awa Tupua (Whanganui River Claims Settlement) Act* (2017) which recognizes the Whanganui River as a legal person. The Act recognizes the Whanganui iwi's unique ancestral relationship with the Whanganui River and that the River is an indivisible and living whole, incorporating all its physical and metaphysical elements (Section 12). By giving the legal personality to the River and its catchment, the Act recognizes it has all the rights, powers, duties and responsibilities of a legal person (Articles 13, 14).

Research demonstrated that to ensure that the legal rights of nature are implemented, upheld and enforced, a strong, independent and participatory governance framework is often needed. In this regard, the *Te Awa Tupua Act* establishes the office of Te Pou Tupua as the "human face" of the River. Its functions are to act and speak for and on behalf of Te Awa Tupua and to promote and protect the health and well-being of Te Awa Tupua (Section 19). This office consists of a representative of the iwi and a representative of the state as the River's guardians (Section 20). An advisory group named Te Karewao was also established to provide advice and support to Te Pou Tupua (Section 27). Te Kōpuka, a strategy group for Te Awa Tupua was also created. It comprises representatives of persons and organizations with interests in the well-being of the River, including iwi, relevant local authorities, departments of state, commercial and recreational users and environmental groups. The purpose of the Te Kōpuka is to act collaboratively to advance the health and well-being of Te Awa Tupua, notably by developing and approving, reviewing, and monitoring the implementation of the strategy *Te Heke Ngahuru* (Section 29).

Sources: UN, 2017; O'Donnell and Talbot-Jones, 2018; Sólón, 2018; New Zealand, 2017.

Some of these directive principles and objectives target FSN. Other directive principles and objectives target the environment or address more precisely some elements of food supply chains, the food environments and consumer behaviour elements that support the transition towards sustainable agri-food systems.

Constitutions:**National examples of directive principles**

The *Constitution of India* (1950) establishes that the Indian state shall “regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties” (Article 47).

The *Constitution of the Republic of Malawi* (1994) refers explicitly to the obligation for the state to adopt and implement policies and legislation aimed at, *inter alia*, achieving adequate nutrition for all in order to promote good health and self-sufficiency (Article 13(b)) and to prevent environmental degradation, ensure the sustainable development of natural resources and conserve and enhance biological diversity with respect to the rights of future generations (Article 13(d)).

The *Political Constitution of the Republic of Guatemala* (1985) is the only constitution to explicitly mention food systems in its provisions. In order to achieve an effective national food system, the Constitution states that specialized institutions of the state shall coordinate their actions among themselves or with international organs dedicated to health (Article 99). In addition, state shall control the quality of food products (Article 96) and ensure that the food and the nutrition of the population meet the minimum health requirements.

The *Constitution of the Arab Republic of Egypt* (2014) establishes that the State shall protect and increase land under cultivation, and incriminate encroachments thereon (Article 29), and protect fisheries, protect and support fishermen, and empower them to carry out their work without causing damages to eco-systems (Article 30). Regarding natural resources and environment, the State shall, *inter alia*, preserve and protect the environment and natural resources, ensure their sound exploitation, and prevent their depletion (Article 32, Article 46).

The *Federal Constitution of the Swiss Confederation* (1999) provides that the Confederation shall ensure that the agricultural sector makes an essential contribution towards: “the reliable provision of the population with foodstuffs” and “the conservation of natural resources and the upkeep of the countryside” (Article 104(1)(a)(b)). Additionally, it specifies that the Confederation shall create the conditions required for safeguarding the basis for agricultural land and production, and “food production that is adapted to local conditions and which uses natural resources efficiently”, “using food in a way that conserves natural resources” (Article 104(a)). In addition, the Confederation shall protect the genetic diversity of animal and plant species when legislating on the use of reproductive material from animals, plants and other organisms (Article 120).

Constitutions are the most powerful legal instruments to frame legislation and regulation in order to induce an efficient transition towards improved nutrition and sustainability in agri-food systems. This might be done by enshrining human rights such as the right to adequate food, by recognizing the legal personality of nature and non-human species, or by determining that food security, environmental protection and other sustainable agri-food system elements are introduced as guiding principles and objectives. However, while some constitutional provisions tackle specific elements of agri-food systems, they rarely engage in an agri-food systems approach. This might represent an opportunity for states to improve coherence in legislative interventions.

3.3. Framework laws

Framework laws provide another legal tool to frame the elaboration of more sectoral laws and regulations with a common objective. They set out general principles to address cross-sectoral issues, bringing together under one legal instrument different sectoral disciplines, leaving “to governing authorities the task of enacting the further legislation and other specific measures, as may be required” (Knuth and Vidar, 2011). “Framework law” is the general term for this type of legal instrument. However, this term does not always appear in the legislation titles (e.g. organic law, planning law or orientation law).

Framework laws can be useful legal instruments in the move towards sustainable agri-food systems because they can coordinate multisectoral or sectoral efforts towards this common goal. Indeed, framework laws

set out the obligations of government authorities, establish the necessary institutional mechanisms and give the legal basis for subsidiary legislation and other necessary measures to be taken by the competent authorities (IPU and FAO, 2021).

In addition to providing guidance to the competent authorities, framework legislation can also be used to recognize general rights, obligations, and responsibilities for all actors across agri-food systems, such as by recognizing the right to adequate food and water, as well as to a healthy environment. They can also facilitate institutional coordination and stipulate participatory processes to ensure engagement with key stakeholders. Finally, they can introduce monitoring mechanisms that support sectoral legislation compliance with the general principles stated in the framework law.

Framework laws provide a degree of freedom and autonomy for specific laws and regulations to be elaborated in accordance with the transition towards sustainable agri-food systems, including considering cultural and territorial specificities. They are easier to adopt than a constitutional reform and they offer flexibility.

Within this legislative overview, no framework law dealing directly with sustainable food systems or agri-food systems has been identified. However, the European Commission (EC) shall propose a legislative framework for sustainable food systems before the end of 2023, in order to implement the *Farm to Fork Strategy*. This framework law will aim to promote policy coherence at European Union (EU) and Member State levels. It shall establish definitions, general principles and requirements for sustainable food systems and foods and addresses the responsibilities of all actors in the food system (EU, 2020).

Many framework laws are elaborated for the implementation of the right to adequate food and food security. The *Right to Food Guidelines* are at the heart of the elaboration of numerous framework laws on the right to adequate food (FAO, 2019b, 2019c). These laws’ objectives are intrinsically linked to those related to the transition towards sustainable agri-food systems.

Commemorating the Tenth Anniversary of the *Right to Food Guidelines*, FAO noted:

Over the last decade a number of countries have adopted food security framework laws that establish institutional framework and guidance for the governance of their food security systems and also recognize the right to food and/or take a human rights-based approach. These include the Argentine Republic (2003), the

Federative Republic of Brazil (2010), the Republic of Ecuador (2009, amended 2010), the Republic of Guatemala (2005), the Republic of Honduras (2011), the Republic of Indonesia (2012), the United Mexican States (2004, 2013), the Republic of Nicaragua (2009), Turkmenistan (2000) and the Bolivarian Republic of Venezuela (2008, law amended 2009) (Vidar, Kim and Cruz, 2014, p. 5).

Framework laws on food security and nutrition do not necessarily take an agri-food systems approach. Nevertheless, countries that have such laws could adapt the mechanisms to do so and to consider transformative changes to the agri-food system for more sustainability.

Framework laws:
National examples

The Republic of Cabo Verde adopted the *Law approving the principles, norms and procedures that guarantee the recognition and effective exercise of the Human Right to Adequate Food and defining the guiding principles of the Food and Nutrition Security policy* in 2018, which recognizes to all individuals individually and/or collectively, the right to adequate food, by guaranteeing permanent and stable access to adequate, healthy, nutritious and safe food, always adapting to its food and cultural needs and preferences. Among other objectives, this law aims to define the basis of the Food and Nutrition Security policy, through the establishment of guiding principles, planning instruments and enforcement structures, and to recognize Food Sovereignty as an inalienable right to develop policies related to food and agriculture.

In 2006, the Brazilian *Law (No. 11.346) creating the National System for Food and Nutrition Security* established a framework for the elaboration and the implementation, with the participation of civil society, of policies, programmes and actions for ensuring the human right to adequate food. It created the National System for Food and Nutrition Security incorporating the definitions, principles, guidelines, objectives, and composition of this system. This Law is at the origin of several texts in Brazil implementing the right to adequate food, including the *Federal Decree (No. 7.272 of 2010) regulating Law No. 11.346 for the elaboration of a national plan for Food Security and Nutrition*.

A good example of participatory governance that led to the elaboration of a national framework, is that of Costa Rica's *Proyecto de Ley Marco del Derecho Humano a la Alimentación y de la Seguridad Alimentaria y Nutricional (Expediente legislativo No. 20.076)*. The process of collaborative and participatory elaboration of this draft "framework law" on the Human Right to Food and Food and Nutritional Security is noteworthy. It was led by the Comisión Institucional de Seguridad Alimentaria y Nutricional of the University of Costa Rica, and involved other universities, various organizations from the Costa Rica government, the parliament, local governments, the Ombudsman, civil society and FAO. It has allowed for the interests of the populations most affected by food insecurity and malnutrition to be considered throughout the process.

Framework laws also promote sustainable development in the various spheres of government activity. The Republic of Korea's *Framework Act on Low Carbon, Green Growth of 2010* aims to "pursue the harmonized development of the economy and environment" (Article 1). This Act also calls on the government to adopt measures promoting an environment-friendly agriculture and fisheries and the expansion of carbon sinks (Article 55). In doing so, the Government shall *inter alia* establish and implement measures that can raise self-sufficiency in food through the improvement of new varieties that can cope with climate change positively (Article 55), and facilitate eco-tourism by preserving, restoring, and using habitats of flora and fauna (Article 56).

Framework laws can also be developed and adopted at the regional level. In the EU legal system, directives are binding instruments of a legislative nature and of general application that are adopted by the EU institutions in application of the European treaties, as stated in the *Treaty on*

the Functioning of the European Union, (Article 288). Directives are binding upon each Member State to which they are addressed as to the result to be achieved within a specified period but leaves to the Member States the choice of form and methods for achieving that result. Directives are not directly applicable and must be transposed into national law by a legislative instrument in order to be applicable. To that end, directives establish a legal framework for the approximation of the laws of the Member States.

Some regional organizations propose models of framework laws for countries that are viable for the transition towards improved nutrition and sustainability in agri-food systems.

Framework laws:

Regional examples

The Pan-African Parliament's *Model Law on Food Security and Nutrition in Africa* (2020) serves as a model for countries to develop national or sub-national legislation. The Model Law takes a multi-sectoral approach to FSN and takes into account different elements that may be governed by one or more laws such as the definition of rights and entitlements, duties and responsibilities, enabling environment, and governance structures and accountability mechanisms. It addresses issues such as: the right to adequate food; access to productive resources, agricultural inputs and services; nutrition; food market and trade; food safety; food labelling, marketing and advertising; food fortification and diversification; national food reserve; school food and nutrition; and minimum wage.

The African Union's (AUs) *African Model Legislation for the Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources* (2000) serves as a model for AU Member States to ensure the conservation and sustainable use of biological resources, including agricultural genetic resources, in order to assure that these resources are utilized to strengthen food security.

The Latin American and Caribbean Parliament (Parlatino) adopted the *Framework Law on the Right to Food and Food Sovereignty* in 2012, that helps Member States in the elaboration of national framework laws. More recently, in 2021, the Parlatino adopted the *Model Law on Climate Change and Food Security and Nutrition*, which addresses the issue of climate change and deals with its adverse effects on agriculture and FSN.

States have different options when considering framework laws related to agri-food systems. Those who have adopted framework laws without addressing agri-food systems directly may want to review them with an agri-food systems approach. States may also wish to develop completely new framework laws that directly address sustainable agri-food systems, particularly if the existing framework laws lack legislation that establishes sufficient coordination mechanisms.

3.3.1. Proposed content of framework law on transforming agri-food systems

Framework laws for sustainable agri-food systems should instil a transformative approach across different regulatory areas to ensure coherence without fixating on the technical content, in order to avoid fragmentation.

Based on FAO's experience of supporting food security and nutrition and right to food framework laws, as well as on the experience with the VGFSyN and discussions about agri-food

systems approaches, the FAO Development Law Service proposes preliminary content for such a law, as follows:

1. **Definitions.** Key terms that may need defining for the purpose of the law include sustainability, agri-food systems and agri-food system approaches.
2. **Objectives.** Objectives relating to the aim of transforming agri-food systems to make them more sustainable and to improve nutritional outcomes helps to crystallize the direction a country wishes to take.
3. **Human rights.** While a number of human rights are important to the process, the law could single out key rights that should be respected, protected and fulfilled in the process, notably, the right to adequate food, the right to a safe, clean, healthy and sustainable environment, the right to health, women's rights, and rights related to work.
4. **General principles.** These should apply across legal areas and guide the work towards transforming agri-food systems and achieving the SDGs.
5. **Roles and responsibilities.** The requirements for private and public actors in agri-food systems should be defined in a general way, acknowledging the crucial role of private actors, from farmers and processors to market operators, large- and small-scale, as well as the role of the state in facilitating change, levelling the playing field and imposing mandatory requirements for the food supply and food environments.
6. **Institutional coordination mechanism** for the involvement of all relevant ministries and public entities. The authority of the mechanism needs to coordinate in a clear manner, including clear communication of the modalities for participation of the various entities. In addition, the mechanism needs to be adequately resourced in order to fulfil its role and be held accountable, for instance, through progress reporting to parliament.
7. **Participation mechanisms.** These mechanisms are required to ensure engagement with stakeholders, including vulnerable and marginalized groups, farmers and private sector entities or their representatives.
8. **Monitoring.** Provisions on methodologies to determine progress and measure its achievements are crucial.
9. **Compliance and enforcement.** While control mechanisms and enforcement will primarily be realized through sectoral legislations, some general provisions at the framework law level are useful.

The principles to include in a framework law on agri-food systems merit special consideration because they will guide the implementation of the framework law and sectoral laws. While there are many possible ways of setting out such principles, the FAO Development Law Service proposes that the framework law uses the principles of the VGFSyN (see Box 7) as its base.

Box 7: Principles of the Voluntary Guidelines on Food Systems and Nutrition

The list of principles are set out in the *Voluntary Guidelines on Food Systems and Nutrition* (VGFSyN), as follows:

48. These principles draw on the need to ensure human dignity, equality, non-discrimination, participation, accountability, transparency, empowerment, and the rule of law in order to contribute to the progressive realization of the right to adequate food in the context of national food security.

- a) Systemic, multisectoral, science- and evidence-based approach. Promote a systemic, multisectoral, and science and evidence-based approach that considers food systems in their totality and varied cultural dimensions, appropriately integrates indigenous and traditional forms of knowledge, seeks to maximize outcomes across all sustainable development dimensions, and looks at the multidimensional causes of malnutrition in all its forms.
- b) Coherent, coordinated, context-specific and inclusive policies. Contribute to the formulation and implementation of coherent, coordinated, context-specific and inclusive policies and related responsible investment through coordinated actions among different actors and across all relevant sectors at international, regional, national, subnational, and local levels.
- c) Accountability, transparency and participation. Support efforts in strengthening governance, including accountability mechanisms, fostering citizen and stakeholder participation in national debates on food security and nutrition and on food systems, and transparent and inclusive decision-making processes, which are based on transparent rules of engagement including safeguards for the identification and management of potential conflicts of interest.
- d) Healthy and prosperous people, healthy planet. Promote policies and actions that enhance the livelihoods, health, and well-being of the population, as well as sustainable food production and responsible consumption of safe, diverse and nutritious foods to enable healthy diets and to protect and promote sustainable use of natural resources, biodiversity and ecosystems, and support mitigation and adaptation to climate change, as appropriate.
- e) Gender equality and women's empowerment. Promote equitable access to sufficient, safe and nutritious foods that meet dietary needs and food preferences for an active and healthy life independent of social or demographic factors such as race, gender, income or geographic region. Promote gender equality and women's and girls' empowerment, and respect, protect and fulfil their rights in the context of food security and nutrition, creating the conditions for women's involvement in decision-making as well as their participation in all economic, political and social sectors and strong engagement in shaping sustainable food systems that improve nutrition, recognizing their critical role in care, education, agriculture, health promotion and food production and consumption. This may entail targeted strategies to support women in their existing roles in areas such as care, education, agriculture, health promotion and food preparation, production, consumption and preservation of indigenous, traditional and local knowledge. However, it also requires changes in business as usual to actively engage men and boys to promote nutrition as a joint household responsibility.
- f) Youth empowerment and engagement. Promote strategies, policies and investments aiming at strengthening education and capacity building programmes for youth, enabling their autonomy, decision-making and empowerment, increasing their access to decent work opportunities including in rural areas, living wages and social protection, and innovative practices as well protecting them from hazardous and inappropriate work, as ways to stimulate their roles as change agents towards sustainable food systems for current and future generations.

Source: VGFSyN, 2021, paragraph 48.

Up to now, as part of the legal developments of the right to food, emphasis has been placed on the PANTHER principles (Box 8), which are human rights principles that should accompany actions towards the realization of the right to food. These principles remain valid and are not contradictory to the principles set out in the VGSFyN. In FAO's experience, the final principles chosen will be context specific and reflect national-level discussions and priorities. It is important that these principles are conducive to the sustainability of agri-food systems and the realization of human rights.

Box 8:
The PANTHER principles

The PANTHER principles are recommended by FAO in food security and nutrition, and right to food framework laws, as follows:

- Participation
- Accountability
- Non-discrimination
- Transparency
- Human dignity
- Empowerment
- Rule of law

Source: FAO, 2009, p. 29.

While framework laws have in many cases proven useful, it should be noted that unless coordination mechanisms enjoy political support, sufficient funding, and the ability to monitor and make recommendation on sectoral issues, framework laws will not be particularly effective in transforming agri-food systems. In that sense, the enactment of such legislation should be seen as a first step in a long process.

4. National legislative interventions in agri-food systems for improved nutrition and sustainability: an overview

The third main function of the law in sustainable agri-food systems is to serve as an operational tool to increase the focus on sustainability, nutrition and healthy diets through specific sectoral laws and regulations. These legislative interventions are useful in favouring and imposing certain behaviours that contribute to the transition to sustainable approaches and in prohibiting and sanctioning those that undermine this goal.

Sectoral laws and regulations regulate the responsibilities, rights and obligations of the actors of agri-food systems, regulate the activities of those systems, as well as their political, economic, social, cultural and institutional environment. They are aligned with the general principles, rights and legal obligations stated in constitutions and framework laws (Sections 3.2 and 3.3), but are more specifically targeted.

In addition to laws and regulations that directly concentrate on the nutritional aspects of FSN, it is useful to adopt several specific legislative interventions for the transition towards sustainable agri-food systems which can better address the underlying causes of food insecurity.

This section presents selected national legislative interventions that contribute to improving nutrition and sustainability in agri-food systems. The interventions are grouped under the three core constituent elements of agri-food systems as follows: Section 4.1 focuses on food supply chains, while Section 4.2 jointly addresses food environments and consumer behaviour.

Several legal interventions are relevant to more than one of the core constituent elements. Some are cross-cutting but appear under only one element so that they are not repeated. For instance, food safety is addressed in “food supply chains” while it has major impacts on “food environments”, and certifications are presented in “food environments” while they are also related to the requirements of specific types of production methods in “food supply chains”.

4.1. Legal entry points in food supply chains

Legislation that is related to food supply chains may influence diets and FSN in both positive and negative ways. Considering the nature of the food supply chain, which encompasses all activities and actors that move food from production to consumption, the nutritional value of food may be diminished, maintained, or enhanced because of the interventions and decisions made at a precise stage along the supply chain, such as production, processing, packaging, storage, distribution, retailing, and marketing (FAO, 2014; FAO and WHO, 2019; HLPE, 2017a). The decisions made by public and private groups of actors along the supply chain are influenced by economic, political, socio-cultural and environmental drivers and may, themselves, impact the use, availability, access and stability of the food produced. Food supply chains may be used as a point of leverage to improve nutrition, notably by fostering the nutrition awareness of the actors, increasing access to nutrient-rich foods, and reducing the utilization of substances whose consumption is associated with diet-related NCDs (GBD, 2017).

Nutrition is rarely at the centre of legislative interventions in the different stages of agri-food supply chains (production systems, storage and distribution, processing and packaging and, retail and markets) (HLPE, 2017a; Fanzo *et al.*, 2017). While some of the national legislative entry points will have the effect of increasing or preserving the nutritional value of foods (e.g. food fortification, good production and processing practices, and the prohibition/control of highly processed foods) or preserving traditional food and diets, others will address the underlying causes of food insecurity and malnutrition throughout the supply chain, for instance by limiting the loss of the nutritional value of food (e.g. reducing contamination, limiting food losses and ensuring food safety across the agri-food supply chains) (HLPE, 2017a).

Some entry points also refer to the resilience of agri-food systems. With environmental issues, climate change and zoonosis crises such as COVID-19, resilience is a key characteristic needed for agri-food systems to ensure FSN. Nutrition and resilience are closely linked since a healthy population combined with resilient agri-food systems are better able to withstand external shocks (IPCC, 2014; IPES-Food, 2017; HLPE, 2020a).

This study shows that many countries have adopted legal instruments regarding the preservation of biodiversity, natural resources, wild plants and animals, traditional knowledge, as well as climate change. National regulations contributing to the sustainability and resilience of agricultural production systems also include those related to the prevention of pollution caused by, *inter alia*, the use of inputs in agricultural and agri-food production systems, and the prevention of food loss and waste. Animal welfare is also at the heart of certain national regulations. Internationally adopted standards such as the *Codex Alimentarius*, can provide guidance for countries when developing relevant legislations.

The final edition of this study will extend its scope to include support to smallholder farmers and short supply chains, including legislation to support family farming.

4.1.1. Biodiversity and natural resources

Biodiversity and natural resources are essential to nutrition and improved sustainability in agri-food systems. As stated by the WHO:

biodiversity at every level – from genetic, through species to ecosystem levels – is a fundamental requirement for dietary quality and food security. It is the basic source of variety in essential foods, nutrients, vitamins and minerals, as well as medicines, and underpins life-sustaining ecosystem services, such as pollination and soil quality and fertility, that are essential to food production, quality, quantity and safety (WHO, 2020b).

Natural resources (e.g. water, land, soil, forests) are also essential in food production systems. For instance, healthy and fertile soils as well as clean and safe water from healthy functioning ecosystems provide the foundation for sustainable production systems that improve nutrition and promote healthy diets (FAO *et al.*, 2020; HLPE, 2017a; Right to Food Guidelines, 2004). Therefore, legislation aimed at protecting either biodiversity or natural resources ensures the foundation on which FSN relies.

National biodiversity legislations are generally framed to reflect commitments under the *Convention on Biological Diversity* (CBD) (1992) and its Protocols. Some countries have developed laws, programmes, policies or action plans to protect, conserve and sustainably use their biodiversity, including agricultural biodiversity and genetic resources for food and agriculture (e.g. plant, animal and microbial resources), and share equitably and fairly the benefits arising out of the utilization of genetic resources. Many countries are also implementing, at a national level, their commitments under the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA) of 2001, as well as decisions and voluntary guidelines adopted by the Commission on Genetic Resources for Food and Agriculture (CGRFA), such as the *Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition*, 2015; *Voluntary Guidelines for the Conservation and Sustainable Use of Crop Wild Relatives and Wild Food Plants*, 2017; and *Voluntary Guidelines for the Conservation and Sustainable Use of Farmers' Varieties/Landraces*, 2019).

a) Biodiversity

Agri-food production systems are dependent on biodiversity as well as ecosystems and their services such as pollination (FAO, 2019a). Biodiversity helps to protect crops from losses due to weather or disease, thus enhancing the sustainability and resilience of agricultural production systems and therefore food systems (HLPE, 2017a). Biodiversity can also serve as a safety-net to vulnerable households during times of crisis, present income opportunities to the rural poor, and sustain productive agricultural ecosystems. Biodiversity contributes directly to food security, nutrition and wellbeing by providing a variety of plant and animal foods from domesticated and wild sources.

A diversity of plant and animal resources underpin human diets and provide the basic components of nutrition (e.g. energy, protein, fats, minerals, vitamins and bioactive “non-nutrients” such as antioxidant phytochemicals). Plant and animal species used in human diets include notably: leafy vegetables, fruits, roots, tubers and nuts, fish, mollusks, crustaceans, insects and bushmeat. While cultural preferences must always be respected, a diversity of foods from plants and animals remains the best means to achieve a balanced diet. Thus, the conservation and the sustainable use of biodiversity and ecosystems contribute to improved sustainability, resilience and nutrition in agri-food systems.⁴ Preserving and promoting indigenous species is also instrumental to grant culturally accepted and varied diets.

⁴ Given the importance of biodiversity for food security and nutrition, the Conference of the Parties (COP) to the CBD decided in 2006 to establish a cross-cutting initiative on biodiversity for food and nutrition. This international initiative aims to promote and improve the sustainable use of biodiversity in programmes contributing to food security and nutrition (CBD, 2006).

Biodiversity:**National examples**

The Norwegian *Nature Conservation Act (No. 100 of 2008)* establishes a general legal framework for nature protection. The general objective of this Act is to protect biological, geological and landscape diversity and ecological processes through conservation and sustainable use (Article 1). It is a cross-sectoral Act that applies to all sectors and activities that affects nature, for instance agricultural activities. The Act, based on an ecosystem approach, aims to maintain the diversity of habitat types within their natural range and its species diversity as well as its ecological processes, and to maintain ecosystem structure, functioning and productivity (Article 4). It also aims to maintain species and their genetic diversity and manage the genetic diversity of domesticated species in such a way that it helps to secure the future resource base (Article 5). The Act recognizes the general duty of care for any person who “shall act with care and take all reasonable steps to avoid causing damage to biological, geological and landscape diversity” (Article 6). It also recognizes principles for sustainable use of biodiversity, such as: precautionary principle (Article 9); ecosystem approach and cumulative environmental effects (Article 10); user-pays principles (Article 11).

The South African *National Environmental Management: Biodiversity Act (No. 10 of 2004)* ensures the conservation of biological diversity and provides a framework for the use of indigenous biological resources, which are meant to be used in a sustainable manner (Article 2). The Act recognizes the duty of the state to protect South Africa’s biodiversity and manage its genetic resources (Article 3). It also establishes the South African National Biodiversity Institute who oversees monitoring the status of biodiversity, the conservation of threatened species, the status of invasive species and of undertaking research on indigenous biodiversity (Article 11). The Institute is also in charge of monitoring the impacts of genetically modified organisms on the biological diversity of species used for agriculture (Article 11(b)). The Act provides for the elaboration of a biodiversity framework (Article 38) to establish an integrated, coordinated and uniform approach to biodiversity management (Article 39).

The Bolivian *Framework Law of Mother Earth and Integral Development for Living Well (2012)* goes further in environmental preservation in specifically protecting the rights of “Mother Earth” as a collective subject of public interest. Precisely regarding food and agriculture, the law aims to “develop actions to protect the genetic heritage of agrobiodiversity, prohibit the introduction, production, use, release into the environment and commercialization of genetically modified seeds and of those that threaten genetic heritage, biodiversity, the health of life systems and human health” (Article 24(1)).

b) Conservation of genetic resources

Genetic resources and their diversity are the basis of a healthy diet. The nutritional value of each cultivar is different, but some genetic resources are rarely, and sometimes never used, although they have traditionally provided important nutritional values (FAO, 2010). Out of the 7 000 edible plant species existing, less than ten represent the majority of what is grown now (HLPE, 2017a; Khoury *et al.*, 2014). The diversity of (animal and plant) genetic resources for food and agriculture, through farmer selection, or methods using biotechnologies, is essential to ensure a better resilience of production systems in response to external shocks, such as climate change (DuVal *et al.* 2019). Some low- and middle-income countries can ensure better food security by diversifying and using underutilized local species or crops (FAO, 2019a).

At the core of FSN, genetic resources need to be conserved and used in a sustainable manner. Moreover, loss of its diversity, among species and within species, reduces options for the production systems to respond to future challenges and reduce their resilience. Given its

importance, countries adopt international policy instruments that address this complex issue in the FAO CGRFA. These are then transposed or acted upon at national and even regional levels (for instance, the European Union with the ITPGRFA mentioned in regional examples).

Without strong legal protections for genetic resources, local communities may not always be able to ensure their continuous access to the genetic resources they've been traditionally relying on. Therefore, countries are adopting measures to protect local communities' customary use of genetic resources (including plants) and their community knowledge, in order to promote the biodiversity and sustainability of those resources and to conserve community practices and traditions.

Conservation of genetic resources:

National examples

Ethiopia's *Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation (2006)* aims to protect and enhance the customary use of genetic resources by local communities to promote the conservation and sustainable use of biodiversity resources. It recognizes and protects the right of local communities to: regulate the access to their community knowledge; use their genetic resources and community knowledge; and share from the benefit arising out of the utilization of their genetic resources and community knowledge (Article 6). The Proclamation specifies that no restrictions may be imposed on the traditional system of local communities regarding the use and exchange of genetic resources and community knowledge (Article 8(2)). The Proclamation also deals with the conditions of access to genetic resources and community knowledge, as well as exploration of genetic resources.

Switzerland's *Ordinance on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (2015)* implements the ITPGRFA by creating a legal framework to conserve and promote the sustainable use of plant genetic resources for food and agriculture (PGRFA) and regulates the management of the national gene bank of PGRFA and the sharing of benefits arising from their utilization. Swiss regulations also promote the sustainable use of neglected or orphaned crops, and facilitate their market access. The *Ordinance on seeds and plants of field crops and fodder plants (2010)*, authorizes the simplified release of "Niche Varieties", which are other varieties that do not have to meet the requirements for registration in the catalogue of varieties (Article 2(7)) and for such seed to be certified (Article 29).

Conservation of genetic resources:

Regional examples

The European Union has adopted several directives in order to preserve PGRFA, for example, *Directive 2010/60/EU* on the marketing of fodder plant seed mixtures and *Directive 2008/62/EC* providing derogations on the acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions, and threatened by genetic erosion. The European Union creates derogations for certain PGRFA that can be grown and marketed even when they do not comply with the general requirements as regards the acceptance of varieties and the marketing of seeds. More precisely, it creates derogations for substantive requirements and procedures for conservation varieties and varieties developed for growing under particular conditions in order to ensure *in situ* conservation and sustainable use of these PGRFA. The European Union also authorizes the diffusion of plant propagating material of biological heterogeneous material without complying with the registration requirements and certification categories established by European regulation, in order to achieve a high level of biodiversity by offering the possibility of using diverse plant genetic material.

The recognition, implementation and protection of farmers' rights is a prerequisite for adequate conservation of biodiversity for improved nutrition and sustainability in agri-food systems. However, there is a perceived conflict between plant variety protection laws and farmers' rights, where the latter have been created to balance the interests of farmers in order to save, use and exchange seeds, with the breeders' interest to continuously invest and innovate to create new plant varieties. Yet, both can and should coexist.

Box 9:

Farmers' Rights as enshrined in the International Treaty on Plant Genetic Resources for Food and Agriculture

Farmers' Rights are recognized by the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and contribute to the conservation, development, and sustainable use of plant genetic resources for food and agriculture (PGRFA). The implementation of Farmers' Rights promotes the development of local varieties of domesticated plant species with a relatively high capacity for genetic variation and contribute to the sustainability and resilience of agricultural production systems (Fakhri, 2020; De Schutter, 2009). The implementation of Farmers' Rights is under the responsibility of national governments, therefore, states should develop and implement national Farmers' Rights laws to support the conservation and sustainable use of PGRFA.

Preamble of the ITPGRFA "Affirming that the past, present and future contributions of farmers in all regions of the world, particularly those in centres of origin and diversity, in conserving, improving and making available these resources, is the basis of Farmers' Rights.

Affirming also that the rights recognized in this Treaty to save, use, exchange and sell farm-saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefits arising from, the use of plant genetic resources for food and agriculture, are fundamental to the realization of Farmers' Rights, as well as the promotion of Farmers' Rights at national and international levels."

Farmers' rights – Article 9

9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The Contracting Parties agree that the responsibility for realizing Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:

- a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and
- c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 *Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate."*

Source : ITPGRFA, 2001; Fakhri, 2020; De Schutter, 2009.

Conservation of genetic resources and farmers' rights:**National examples**

India's *Protection of Plant Varieties and Farmers' Rights Act (2001)* protects and encourages the development and cultivation of new plant varieties, establishing a system that protects both breeders' and farmers' varieties. It defines a farmers' variety as a variety which "has been traditionally cultivated and evolved by the farmers in their fields" or "is a wild relative or land race of a variety about which the farmers possess the common knowledge" (Article 2(I)). The Act authorizes any farmer, group of farmers or farming communities to apply for registration of their variety in the National Plant Variety Register and to benefit from a plant breeders' right on their variety (Article 39(1)(i)). Regarding benefit-sharing, if the genetic material of farmers' varieties has been used in the development of a registered variety, farmers have the right to claim benefit-sharing for that registered variety. This also applies to villages or local communities who have contributed significantly to the development of a registered variety, and may be able to obtain compensation (Article 26). The Act also recognizes and protects the right of farmers to save, use, sow, re-sow, exchange, share or sell their farm products, including seeds of a protected variety in order to, *inter alia*, promote the conservation, improvement and make available plant genetic resources for the development of new varieties (Article 39(1)(iv)).

c) Wild plants and animals

Wild plants and animals can provide wild foods which constitute an important part of the global food diet since one billion people are estimated to depend on wild foods (Bharucha and Pretty, 2010; Burlingame, 2000). Indeed, wild foods provide dietary diversity by "giving people access to a wider variety of foods". They are also an important source of added nutrients to diets. For instance, the consumption of insects, which is prevalent in some parts of the world, provide key macro- and micronutrients including protein, calcium, iron, zinc and the B vitamin series" (HLPE, 2017a). The consumption of wild foods also takes on an important cultural component, particularly for indigenous communities. Finally, wild foods, being most of the time free, certainly provide economic value and improve physical, economical and social accessibility to nutritive food for the poorest households (Bharucha and Pretty, 2010).

However, consumption of wild foods has declined, the most frequently cited reasons being: "declining availability of wild foods and forest foods due to overharvesting and land clearing for agriculture; difficulties in regaining or securing access to land and land tenure; local populations' perceptions about wild foods as being "food for the poor"; loss of traditional knowledge; high work load to collect, process and prepare traditional foods; and weak integration in market economies and globalization" (HLPE, 2017a).

Therefore, sustainable agri-food systems must acknowledge the importance of wild plants and animals and their cultural importance, while promoting sustainable access to this food. The regulation surrounding the consumption of wild meat provides a good example, although this topic is sometimes neglected at the regional and national level (CIFOR, 2019; Golden *et al.*, 2011). The need for sustainable management practices along the wild meat commodity chain is essential to prevent decline in wildlife species populations, ensure the health of the provisioning ecosystems and the support of local knowledge systems that sustain these food chains (FAO, 2020b; Bharucha and Pretty, 2010). In order to avoid significant impacts on human well-being in rural communities where wild meat is mostly used and critical for local livelihoods, this requires legislative and policy interventions by governments to integrate and

harmonize the needs of different communities (i.e. encourage sustainable hunting to meet the need for wild meat in rural areas, provide alternatives to reduce urban demand for wild meat) (FAO, 2020b).

Wild plant and animals:

National examples

In Canada (Québec), the *Act respecting the conservation and development of wildlife* (2020) has the main objective of conserving wildlife and its habitat, as well as its development. The Act entrenches the principle of sustainable development and the recognition of every person's right to hunt, fish and trap in accordance with the law (Article 1.3). It provides certain exemptions regarding the activities pursued by Native people for food, ritual or social purposes, or to further facilitate wildlife resource development and management by Native people (Articles 24.1, 24.2). Regarding fishing in particular, the Act provides that a fishing management plan be established every year, with the purpose to optimize the social and economic benefits related to wildlife harvesting, while ensuring the conservation of animal species (Article 62).

Another example of legislation protecting traditional practices is the *Congo's Law on the Forest Code* (2020), that provides indigenous communities with a right to fish and hunt for their local need in food (Article 59). The Law recognizes a right of use for local communities and/or indigenous populations in the exploitation of non-timber forest products for domestic needs (Article 21). Such exploitation is otherwise taxed if done for a commercial purpose (Article 110).

Collecting plant or fungal materials, such as berries and nuts, not deliberately cultivated for human use is regulated in some ways in national laws (Synk *et al.*, 2017). The United Kingdom of Great Britain and Northern Ireland, in its *Theft Act (1968)* renders it legal to forage wild foods (i.e. mushrooms, flowers, fruit or foliage from a plant) as long as it is for a personal use, and not for a commercial purpose (Article 4(3)). That being said, the *Wildlife and Countryside Act 1981*, forbids the uprooting of wild plants (Article 13). Thus, British legislation appears to allow foraging as long as it does not irreversibly destroy the plant, thereby reconciling the possibility of consuming wild foods, along with the objective of protecting wildlife.

A balanced approach to wildlife management is particularly important in light of the role of consumption, hunting and trade of wild animals in FSN and traditional medicine, on the one hand, and the transmission of zoonotic diseases, on the other (FAO, 2020b). In February of 2020, a ban on wildlife consumption was imposed in China, to protect public health with *The Decision of the Standing Committee of the National People's Congress on comprehensively prohibiting the illegal trade of wildlife, eliminating the bad habits of wildlife consumption, and protecting the health and safety of the people* (2020). This prohibition is a direct reaction to the COVID-19 outbreak. Indeed, among other factors, the destruction of habitats and ecosystems, and their subsequent impact on biodiversity (and the loss of it), have been frequently linked to infectious diseases such as zoonosis and vector-borne diseases. The WHO, jointly with the Secretariat of the Convention on Biological Diversity (SCBD), have suggested that managing ecosystems, for example "by avoiding ecosystem degradation, preventing invasive alien species, and limiting controlling human-wildlife contact" is a way to reduce the risks of infectious diseases and may be a way to ensure a balanced approach to wildlife management (WHO and SCBD, 2015).

National laws and regulations that promote the protection of ecosystems and habitats with sustainable management practices regarding the access to wild foods contribute to improved nutrition and sustainability in agri-food systems.

d) Soil and land

Soils are an essential and non-renewable natural resource hosting goods and services vital to ecosystems and human life. Healthy soil is essential for healthy food. Soil degradation has several direct and indirect effects on FSN, including declining crop yields and reduced micronutrients in food (Lal, 2009). More broadly, sustainable land management that reduces vulnerability to soil erosion and nutrient loss is central to sustainable agri-food systems (IPCC, 2019).

Soil and land are therefore important legislative entry points in sustainable agri-food systems and can be regulated by imposing different types of sustainability requirements. Legislations can control pollution, including soil pollution, in order to avoid soil contamination by pollutants, such as heavy metals and organic pollutants. Legislations can also impose sustainability through good agricultural practices, such as crop rotation, growing green manure crops and cover crops, crop residue retention, and maintenance of ground cover through improved grazing management (IPCC, 2019). In addition, specific legislations in connection with the use of fertilizers and pesticides can preserve soil fertility and health (see Section 4.1.3). Legislations, through spatial planning, can also be used to guide agricultural production to take place in specific areas potentially more suitable for agri-food production.

At the international level, the fight against desertification and land degradation, as well as the sustainable management of land and drylands ecosystems is the subject of a legally binding international agreement, namely the *United Nations Convention to Combat Desertification* (UNCCD) of 1994. The UNCCD aims to combat desertification and mitigate the effects of drought with a view to achieving sustainable development in affected areas and requires parties to develop national action programmes to combat desertification.

FAO has developed the *Voluntary Guidelines for Sustainable Soil Management* (2017), in line with the revised *World Soil Charter* (2015), to promote principles for sustainable soil management. In this respect, they provide guidance for all stakeholders on how to translate the principles into practice, including farming, pastoralism, forestry or natural resources management. These Guidelines are closely linked to SDG 2.4 which aims at implementing resilient agricultural practices that gradually improve the quality of land and soil, and SDG 15.3 which aims at combating desertification, restoring degraded soil and striving to achieve a land degradation neutrality.

Regarding land tenure issues, FAO has also developed the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* (2012) to assist countries in establishing responsible governance of land, fisheries and forest tenure in order to promote secure tenure rights and equitable access to land, fisheries and forests as a means of supporting food security and sustainable development. Tenure security has a positive impact on food security and nutrition and sustainable land management, as it encourages sustainable practices of land, fisheries and forests. Improved women's land rights are positively correlated with family nutrition outcomes (HLPE, 2011; HLPE, 2017a).

Soil and land:

National examples

The *Law of the People's Republic of China on Prevention and Control of Desertification* (2001) aims to “prevent land desertification, rehabilitate desertified land, maintain eco-safety, and promote sustainable economic and social development” (Article 1). The Law sets out seven principles that must be observed which includes the principle of duty “to combine efforts to improve ecological environment with efforts to help farmers and herdsmen to extricate themselves from poverty and become prosperous” (Article 3(5)). Local governments are responsible to take effective measures to prevent land desertification, rehabilitate desertified land, maintain and improve the ecological quality in their respective administrative areas (Article 4). Units and individuals that use land have the obligation to prevent the land from being desertified and those that use desertified land have the obligation to rehabilitate the land (Article 6). Local governments are also responsible, *inter alia*, to guide and train farmers and herdsmen to change their practices for land degradation and desertification of grasslands and protect grassland vegetation (Article 18).

In South Africa, the *Conservation of Agricultural Resources Act* (1983) provides for the conservation of natural agricultural resources by maintaining the production potential of land and combating erosion and the weakening of water sources (Article 3). It empowers the Minister of Agriculture to prescribe vast control measures relating to the use and protection of cultivated or virgin land, to the irrigation of land, to the protection of water sources, to the restoration of eroded soils and to the prevention of the salinization of land (Article 6). The Act provides for the subsequent elaboration of schemes to grant subsidies to help land users about soil conservation, irrigation, weed control, invasive plant species and flood disasters (Article 8 and 9).

In Canada (Québec), the *Act respecting the preservation of agricultural land and agricultural activities* (1978) aims to secure a lasting territorial basis for the practice of agriculture, and to promote, in keeping with the concept of sustainable development, the preservation and development of agricultural activities and enterprises in the agricultural zones established by the regime. It also identifies part of the Québec territory as a designated agricultural region in which only agricultural activities may be carried out.

In France, the “local urban plan”, a strategic and operational document provided by the *Town Planning Code* (1954), sets out which specific areas are reserved for farming, and establishes the urban planning rules for these areas in order to preserve agricultural land. France’s legislation also provides for the possibility of establishing “protected agricultural zones” (*Town Planning Code; Rural and Maritime Fisheries Code*).

e) Water

Water is essential in many stages of the agri-food supply chains, especially for agriculture, food production and transformation (HLPE, 2015). In addition, safe drinking water is an indispensable resource for health and nutrition. Therefore, FSN requires the sustainable and responsible management and use of water (surface water and groundwater) along the agri-food chains, grounded in legislation.

One of the key legal entry points to sustainable and responsible management and use of water can come through implementation of the human right to water in sectoral legislation. Access to safe drinking water, sanitation and water for personal and domestic use are aspects of the right to water, as is the access to water for food and agriculture. Thus, access to water for food and agriculture should be prioritized over other uses after the satisfaction of water needs for drinking water, sanitation, personal and domestic uses (Morgera *et al.*, 2020).

Water:

National examples

Algeria's *Water Law* (2005) aims to ensure that water is supplied in a sufficient quality and quantity to provide for the needs of the population, agriculture and industry (Article 2), and implements the right to water and water resources to fulfil the fundamental needs of the population in equity (Article 3). It devotes a whole chapter to the protection of water sources, as well as the fight against erosion and flood prevention (Articles 30 and ff).

Madagascar's *Water Code Law* (1999) also provides extensive regulations for the qualitative protection of water (i.e. pollution prevention, waste management, sanitation, conservation of water resources and environmental protection).

Burkina Faso's *Law on the Orientation Law Relating to Water Management* (2001) recognizes that sustainable water management is a national imperative (Article 1), and *inter alia*, establishes a water action plan (Article 17), as along with water development and management plans that set the guidelines for sustainable water management (Article 21). It also sets up a regime of authorization or declaration for the use of water resources (Article 24) and protects water withdrawals for human consumption by placing protective perimeters around the withdrawal point to protect water quality (Article 33). In addition, the Law prohibits agricultural practices and techniques that may have a negative impact on the hydrological cycle or water quality (Article 37) and certain activities may require an impact assessment of their effects on water and aquatic ecosystems (Article 29). The Law protects aquatic ecosystems, including wetlands, by regulating and prohibiting activities likely to affect the balance of these ecosystems or their biological diversity, such as the spreading of agricultural pesticides, the discharge of effluents or toxic substances (Article 41). According to this Law, every person must participate in the effort to ensure water management and those who make interventions in order to preserve or restore water quality or to ensure the conservation of aquatic ecosystems must bear the burden of these interventions or contribute to their financing (Article 47).

In the Republic of Korea, the *Drinking Water Management Act* (2007) aims to contribute to the improvement of public health by efficiently managing the quality and hygiene of drinking water (Article 1).

In Nepal, the *Water Tariff Fixation Commission Act* (2006) provides for the establishment of the Water Tariff Fixation Commission to protect the interests of consumers by fixing the tariffs of the water supply and sanitation services and by providing qualitative and reliable services.

f) Forests

Forests provide many health and nutritional benefits both directly and indirectly, and their sustainable management must be considered in sustainable agri-food systems. As mentioned in a recent FAO report *Forests for Human Health and Well-being*, a major proportion of the people who live in tropical forests and savannahs in low- and middle-income countries depend on forest goods and services.

Forests provide food and livelihood and income-earning opportunities that contribute to food security and nutrition ... They are a source of wood fuel, used to cook food and sterilize water. Furthermore, they are key to the spiritual and mental health of many groups of people, particularly Indigenous Peoples, whose cultures are tightly intertwined with the environment in which they live (FAO, 2020b).

More than providing livelihoods, it has also been established that some non-wood forest products (also called wild collected products) are particularly rich in nutrients (e.g. vitamin A, iron) such as nuts, honey, green leafy vegetables, fruits, roots and tubers. The lack of availability of those products can affect the nutrition balance of poor people (Maheshwar and Rao, 2015). Thus, non-wood forest products can be significant in terms of nutritional interest.

However, agricultural activities, both commercial and local subsistence, are the main driver of deforestation and forest degradation (FAO, 2020b). Therefore, legislation that ensures sustainable forest management, including protection against deforestation and forest degradation, and thereby their nutrient content, is an essential legal entry point in sustainable agri-food systems. Laws may also need to grant access and use rights, so that local populations can enjoy both wood and non-wood forest products important for their FSN.

Many laws aim at a sustainable management of forests by creating protected areas or natural reserves and by limiting their exploitation through permits while recognizing the rights of access and use of indigenous populations.

Forest:

National examples

The Burkina Faso's *Law establishing the Forestry Code in Burkina Faso (2011)* recognizes that forests, fauna and fishery resources constitute natural resources and are therefore integral parts of the national heritage (Article 4). It states that a government-issued operating permit is required for the removal of trees and for the harvesting of any wood or non-wood forest products (Article 61).

Rwanda's *National Forest Policy 2018* and its implementing laws is one of the most inspiring and innovative forest sustainable management frameworks because it has a strong institutional base, through the Rwanda Natural Resources Authority, private sector participation and participatory forest management. In conformity with the *Law establishing Rwanda Natural Resources Authority (2011)* and the *Law Determining the Management and Utilisation of Forests in Rwanda (2013)*, the purpose of conservation and protection of forests consist in the following: 1) to minimize adverse effects on forests resulting from various activities; 2) to give particular attention to the areas of the country faced with special environmental problems; 3) to protect native plants and animals; 4) to protect biodiversity; 5) to add value to and exploit forest resources; and 6) to increase the national economy (Article 19).

The Law states that the government shall prepare a ten-year forest management plan as well as an inventory of forests (Articles 11, 33), reviewed every five years and whenever needed. Each year, the Minister in charge of forests shall determine the national afforestation and forest management programme (Article 15), including the plantation of agroforestry trees in land reserved for crops and livestock (Article 17), and the plantation of trees in urban areas and on roadsides for protection and "beautification" purposes (Article 18).

Furthermore, the minister in charge of forests may decide to suspend the harvesting of forests in a given area or prohibit the collection of any forest products to improve forest management, to allow forests in that area to regenerate, to conserve the environment, the biodiversity and other natural resources, especially in fragile ecosystems or to prevent the clearing of a forest in violation of laws (Article 23). In 2019, Rwanda estimated that it had reached its 2020 target of increasing forest cover to 30 percent of the total land area (Nkurunziza, 2019).

The United States of America, through the 2008 amendment of the 1900 *Lacey Act*, has become the first country to place a criminally enforceable ban on illegally harvested timber. The amended Act bans trading import, export, transport, selling, receiving, acquiring, or the purchase of plants or plant products harvested in violation of law, treaty, or regulation of the United States or in violation of any Indian tribal law (Section 3372(a) (1)). It also requires declarations about the scientific name, value, quantity, and country of harvest origin of timber and other plants, plants products, fish or wildlife.

4.1.2. Climate change and variability

As mentioned by the Global Panel on Agriculture and Food Security and Nutrition (GPAFSN),

Food systems and the planet's natural resources are closely linked. Ensuring that both are nurtured in ways that support sustainable, healthy diets is a key principle. Food systems – from supply to demand – must support both human and planetary health, and actions to protect natural resources and mitigate climate change must also support the goal of sustainable food systems (GPAFSN, 2020).

Moreover, “climate change is expected to further aggravate seasonality through increased drought frequency, disruption of food production by floods and tropical storms, increasing and more variable temperatures, and more erratic rainfall” (FAO *et al.*, 2020). It also exacerbates some already critical situations, such as those experienced by rural communities suffering from poverty and food insecurity during certain seasons. The resilience and adaptation of production systems and in particular some Low and middle income countries (LMICs) to climate change is also affected (FAO, 2016a).

National climate change regulations are generally elaborated in conformity with states' international commitments under the *United Nations Framework Convention on Climate Change*, which establishes the global legal framework for combating climate change.

There are a variety of ways in which legislation can be used to support climate change adaptation and mitigation efforts in the food and agriculture sector, while remaining sensitive to food security and nutrition and one of them is to integrate climate objectives into sectoral laws notably on agriculture, forestry, fisheries and aquaculture sectors (FAO, 2020c).

Several laws also address the particular problem of agricultural disasters resulting from extreme events through insurances programmes. Other laws address problems related with the increased amount of carbon dioxide due to climate change, which directly affects the nutritional quality of several crops, particularly wheat, rice, potatoes, soy, and peas by reducing the amount of protein, iron and zinc in these crops (Fanzo *et al.*, 2018).

Climate change:

National examples

The Republic of Korea's *Act on the Prevention of and Countermeasures against Agricultural and Fishery Disasters* (1990) contributes to "the improvement of productivity and the stabilization of business management in agriculture and fisheries by preventing agricultural and fisheries produce from being damaged by disasters and preparing countermeasures against the aftermath of such disasters." Also the *Act on Encouragement of Purchase of Environment-friendly Products* (2004) also aims to promote sustainable development and encourage the purchase of products with a low environmental impact (Article 1). The Act provides that public institutions shall purchase green products when available (Articles 3, 6).

Turkey's *Law on agriculture insurance* (2005) provides for disaster insurance to compensate producers' losses due to extreme events (i.e. drought, hail, frost, floods, ground water floods, storms, cyclones, earthquakes, landslides, fires, pests and animal diseases).

Canada's *Greenhouse Gas Pollution Pricing Act* (2018) was adopted as part of the implementation of the *Paris Agreement*. It aims to mitigate climate change through a pan-Canadian application of pricing mechanisms. It is one current example of legislation that aims to overcome hidden costs caused by pollution by taxing the emission of carbon dioxide when it surpasses a certain level, according to the "polluter pays" principle. This "carbon tax" is applicable to a broad set of greenhouse gas emission sources, including some farming activities.

4.1.3. Sustainable production systems

As mentioned by the HLPE in *Food Security and Nutrition: Building a Global Narrative towards 2030*, it is imperative to integrate the sustainability component into agricultural and food production systems when dealing with increased climate events and natural resources degradation, in order to support healthy and sufficient food production for the future generations. The achievement of this objective requires that we question the complex interaction of food production systems and the ecosystems that support them. More sustainable agricultural practices include notably agroecology and sustainable intensification and climate smart agriculture (HLPE, 2020a).

a) Sustainability in production systems, including fisheries and aquaculture

The agricultural activities in production systems, including their impact on water quality, are often carried out within a general legal framework of environmental protection. For instance, environmental law prohibits or frames certain agricultural practices. Thus, environmental law, including regulation of chemicals (e.g. pesticides and fertilizers), is an important tool to prevent the pollution of land, water, air and the environment in general, and contributes to the improved sustainability of agri-food systems for better nutrition and healthy diets.

Sustainable production systems, including fisheries and aquaculture, are the cornerstone of sustainable agri-food systems and many countries have enacted legislations to improve them. While very context specific, both the principle of the ecosystem approach and the protection of biodiversity tend to be driving forces between these legislative interventions. These interventions can include laws relating to sustainable agriculture in general, as well as specific legislations on sustainable pastoralism, responsible fisheries, agroecology and organic production.

Sustainable production systems:

National examples

Indonesia's *Law on the Sustainable Agriculture Cultivation System* (2019) implements a System which aims to increase agricultural products' diversity in order to meet the needs of food, clothing, shelter, health, domestic industries, and enlarge exports, among other objectives. This System considers the capacity of ecosystems, mitigation and adaptation to climate change, and environmental sustainability, in order to realize an advanced, efficient, resilient, and sustainable agriculture system.

In the Republic of Korea, the *Act on the Promotion of Environment-friendly Agriculture and Fisheries and the Management of and Support for Organic Foods* (2012) aims to develop sustainable agriculture and fisheries while reducing pollution caused by these activities. It is a cross-cutting law that deals with many stages of the agri-food chain and aims at protecting the food environment.

The *Law on the orientation of pastoralism in Burkina Faso* (2003) establishes "the principles and modalities of a sustainable, peaceful and integrated development of pastoral, agropastoral and silvopastoral activities" (Article 1). The Law relies on the three principles for solution-oriented pathways for sustainable agricultural development towards FSN: improve resource efficiency, strengthen resilience and secure equity/responsibility (HLPE, 2016). It also details the role and responsibilities of the state and local authorities, as well as the role and responsibilities of pastors related to sustainable pastoral development. The state and local authorities, in cooperation with neighbouring states, must guarantee pastoralists the right of access to pastoral areas, the right to equitable use of natural resources, and the mobility of herds (Article 5). They also take the necessary measures to improve the productive performance and quality of pastoral livestock by securing pastoral activities and preserving animal health. They ensure the identification, protection and development of pastoral areas and ensure the preservation of traditional pastoral areas and the pastoral vocation (Article 8).

Since 1995, the FAO's *Code of Conduct for Responsible Fisheries* is a reference framework for national regulators when legislating fisheries. It sets out "international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity." The Code aims to promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities (Article 2(f)). It establishes, as a general principle, that

the harvesting, handling, processing and distribution of fish and fishery products should be carried out in a manner which will maintain the nutritional value, quality and safety of the products, reduce waste and minimize negative impacts on the environment (Article 6).

FAO promotes an ecosystem approach to fisheries as a way of implementing the Code of Conduct.

FAO has set up a database on agroecology with many examples on how agroecology may contribute to a transition to agri-food systems that are environmentally sustainable, economically fair, viable, and socially equitable. As explained by HLPE,

there are multiple understandings of agroecology, including: the scientific application of ecological principles to food systems, practices aimed at improving agroecosystems, and social movements that support regenerative, locally grounded, and socially just small-scale diverse farming systems (HLPE, 2020a).

Agroecology enhances the preservation and the regeneration of agro-biodiversity while improving dietary diversity (Pimbert and Lemke, 2018).

Agroecology, ecosystem approaches and organic farming: National examples

Brazil, through its *Decree establishing the National Policy on Agroecology and Organic Production* (2012) has introduced the *National Plan on Agroecology and Organic Production*. This National Policy aims at “integrating, articulating and adjusting policies, programs and actions that induce agroecological transition and organic and agroecology-based production, contributing to sustainable development and quality of life for the population, by means of the sustainable use of natural resources and the supply and consumption of healthy foodstuffs” (Article 1). Furthermore, Brazil has established two other legislations to promote agroecology and agrarian reform through the *(Rio Grande do Sul) Law creating the State Policy on Agroecology and Organic Production* (2014) and the *(Maranhão) Law establishing the State Policy and Program on the Technical Assistance and Rural Extension for Family Farming and Agrarian Reform* (2016). The objective of Brazil's *Law on Sustainable Development Policy on Fisheries and Aquaculture* (2009) is to promote the sustainable development of fisheries and aquaculture as a source of food and employment while preserving aquatic resources and ecosystems.

The *Law for the Promotion of Agroecological Production* (2014) of the province of Misiones in Argentina aims at promoting the development of agroecological production systems in the territory through regulation, promotion and incentives (Article 1). For the purpose of this Law, agroecological production is defined by sustainable agricultural practices that respect the natural and social diversity of local ecosystems without the use of chemical inputs (Section 2).

In France, the *Future law for agriculture, food and forestry* (2014) implements the concept of agroecology and introduces it into public policies. It requires that public policies aim “at promoting and sustaining agro-ecological production systems, including organic production, which combine economic and social performance, particularly through a high level of social, environmental and health protection” (Article 1. II).

In India, the *Sikkim Agricultural, Horticultural Input And Livestock Feed Regulatory Act* (2014) aims to “regulate the import, sale, distribution and use of inorganic Agricultural, Horticultural Inputs and Livestock Feed to prevent risk to human beings or animals and environment and to make the State of Sikkim an Organic State and for matters connected therewith.”

Box 10: Organic agriculture, sustainable agri-food systems and healthy diets

Organic agriculture contributes to the transition towards sustainable agri-food systems, and more broadly to planetary health, as it is a holistic production management system which “promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity” (Codex Alimentarius, GL 32-1999).

Instead of using artificial products such as additives, pesticides and genetically modified organisms throughout the production cycle, organic farmers rely on methods that use natural inputs and modern ecological science to preserve and nourish ecosystems while enhancing product quality and security (Morgera *et al.*, 2012).

Organic production methods ensure the health of agricultural workers who are not in contact with chemical inputs. Organic products may also enhance human health by promoting and protecting biodiversity and food diversity while ensuring a diet free of pesticides and other chemical substances.

Source: Codex Alimentarius, 1999; Morgera *et al.*, 2012.

The final edition of this study will extend its scope to include economic and social sustainability in production, including but not limited to support to family farming.

b) Pesticides

The use of pesticides needs to be carefully managed to support sustainable agricultural production for safe diets and public health in sustainable agri-food systems. In this regard, pesticides should be regulated in implementation of the joint FAO/WHO *International Code of Conduct on Pesticide Management* (2013), and its *Guidelines on Pesticide Legislation* (2020), and should be applied following the Integrated Pest Management approach.

Largely used in today’s agricultural production to protect crops against insects, weeds, fungi and other pests, pesticides, by their nature, are potentially toxic to other organisms, including humans. Some of them might have adverse effects on the ecosystem and can accumulate in the food chain, in soil and water. Chemical contamination can lead to acute poisoning or long-term diseases, such as cancer and adverse effects on reproduction. According to WHO, they are among the leading causes of death by self-poisoning, and this burden is felt disproportionately in low- and middle-income countries (WHO, 2020c). Direct exposure of farmers and agricultural workers to pesticides and the presence of pesticide residues in the environment and food have a negative impact on human and environmental health, hindering the transition to sustainable agri-food systems.

Therefore, laws and regulations are effective instruments to ensure pesticides are used safely and disposed of properly in a sustainable agri-food system.

The *International Code of Conduct on Pesticide Management* is a voluntary framework endorsed by many states, supported by civil society organizations and pesticide industry associations. It is in phase with legally binding instruments such as the *Rotterdam Convention on the Prior*

Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998), the *Stockholm Convention on Persistent Organic Pollutants* (2001) and the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes* (1989), but also the *ILO Convention concerning Safety in the Use of Chemicals at Work* (1990) which protects workers from the harmful effects of chemicals. In accordance with the *Code of Conduct*, the *FAO and WHO Guidance on Pesticide Legislation* (2020) also provides guidance to governments in their efforts towards effective pesticide legislation. The guidelines present elements of a national pesticide law.

Many countries have adopted legislation based on the *Code of Conduct* and the guidelines with a lifecycle approach to pesticides, restraining the use of non-authorized pesticides and addressing the import, export, storage, transport, disposal, and labelling of authorized and registered pesticides. They also establish a licensing mechanism and governance bodies.

Notably, the first countries to adopt laws restraining the use of certain pesticides and regulate the use and management of registered pesticides in accordance with the Code and the guidelines were: Sri Lanka's *Control of Pesticides Act* (1980); the Republic of Korea's *Agrochemicals Control Act* (1995); the United States of America's *Federal Insecticide, Fungicide, and Rodenticide Act* (1996); and Canada's *Pest Control Products Act* (2002). Other laws refer more specifically to the protection of pollinators restricting the use of pesticides containing neonicotinoids.

Pesticides:

National examples

In France, several legal provisions regulate uses or practices concerning phytopharmaceutical products in order to prevent risks to the environment and human health. The *Law for the reconquest of biodiversity, nature and landscapes* (2016) prohibits the use of plant protection products containing active substances of the neonicotinoid family and seeds treated with these products (Article 125).

In relation to human health, France and Quebec now recognize Parkinson's disease as an occupational disease and explicitly establish a causal link between this pathology and the use of pesticides. To this end, France's *Decree on compensation for victims of pesticides* (2020) determines the methods of organization and operation of the compensation fund for people exposed to pesticides as a result of their professional activity, including children exposed during the prenatal period due to the professional activity of one of their parents.

In the United States of America, in Connecticut, *An Act Concerning Pollinator Health* (2016) restricts the use of neonicotinoid pesticides, and in Maryland, the *Pollinator Protection Act of 2016* limits the sale and the use of neonicotinoid pesticides.

Pesticides:

Regional examples

In the European Union, legislations address the approval of active substances and the sustainable use of pesticides. The *Regulation concerning the placing of plant protection products on the market* (2009) establishes rules on the safety of pesticides, including on the authorization of the sale, use and control of plant protection products in order to protect the environment and human and animal health. For an active substance to be approved in the European Union it must meet all the approval criteria set out in the Regulation. Additionally, the *Directive establishing a framework for Community action to achieve the sustainable use of pesticides* (2009) creates a framework for using pesticides in a sustainable manner and reducing the risks they pose on human health and the environment. To this end, it encourages the use of integrated pest management and other approaches or techniques, such as non-chemical alternatives.

Other inputs, beyond pesticides, are regulated from a sustainable development perspective. This is notably the case for fertilizers, which are the subject of an *International Code of Conduct for the Sustainable Use and Management of Fertilizers* (2019) proposed by FAO. Many national and regional legislations regulate fertilizers, for e.g. the European Union's *Council Directive concerning the protection of waters against pollution caused by nitrates from agricultural sources* (1991) and its *Regulation relating to fertilizers* (2003), and Canada's *Fertilizers Regulations* (1979).

c) Subsidies and incentives for sustainable production systems

Government grants, subsidies and incentives can be important tools to promote and support the transition towards more sustainable agriculture across all stages of agri-food supply chains. While these undoubtedly have a role to play, such instruments should be used with care, not to create distortions and counterproductive incentives in the market.

Subsidies:

National examples

Switzerland's *Federal Act on Agriculture* (1998) provides that farmers can receive direct payments as compensation for the public services they provide (Article 70). An agricultural business owner may be granted compensation for public services provided, including services relating to the cultivated landscape (Article 71), to biodiversity (Article 73), and to the production system used, which is particularly respectful of the environment and of animals (Article 75). These contributions are of varying amounts and depend on several criteria, including the scope of the service provided.

The European Union has put in place different subventions and incentives to make agriculture and rural development more sustainable and promote the transition to sustainable agricultural practices.

Subsidies:**Regional examples**

The *Regulation (EU) No. 1306/2013* addresses the principle of cross-compliance of aid that is a set of rules that farmers must respect to receive payments. Notably, farmers have to comply with rules related to the environment, climate change and good agricultural land conditions, public, animal and plant health, as well as animal welfare.

Specific payments are also provided through *Regulation (EU) No. 1307/2013* which sets up “green payments” to financially support farmers to adopt specific agricultural practices that are mandatory and beneficial for the environment and the climate, and through *Regulation (EU) No. 1305/2013* which sets up “agri-environment-climate payments” which financially support farmers who voluntarily go beyond mandatory environmental and climate standards.

4.1.4. Indigenous Peoples and traditional knowledge

More than 476 million Indigenous Peoples live in some 90 countries around the world (ILO, 2019). Although Indigenous Peoples represent less than 6 percent of the world’s population, they are custodians of 80 percent of the world’s biodiversity. It has been shown that biodiversity is best managed and conserved when it is under the responsibility of Indigenous Peoples (UN, 2020b).

Traditional food systems of Indigenous Peoples are generally diversified, as well as “based on local plant and animal species and traditional food for health and well-being” (FAO, 2013). However, Indigenous Peoples are among the most vulnerable to different forms of malnutrition and face serious problems of food insecurity because of marginalization, extreme poverty, environmental and ecosystem degradation; or else decline in their traditional food sources (HLPE, 2017a). Indigenous Peoples’ food practices are disrupted when they are denied access to their land, waterways and other resources (Fakhri, 2020). In addition, when the presence of processed and commercial food items increases, it can result in a decrease in diet quality for Indigenous Peoples (FAO, 2013a).

The protection of knowledge systems associated with biodiversity and local traditional foods of Indigenous Peoples is essential to combat their malnutrition and preserve their local food systems (HLPE, 2017a). Indigenous Peoples’ traditional knowledge and its protection is essential for the transition towards improved nutrition and sustainability in agri-food systems.

As previously mentioned, at the international scale, Indigenous Peoples’ rights are officially recognized through the UNDRIP since 2007. Its preamble recognizes that respect for indigenous knowledge, cultures and traditional practices contribute to sustainable development and proper management of the environment.

Indigenous Peoples and traditional knowledge:

National examples

The Bolivian *Law that elevates the 46 Articles of the United Nations Declaration on the Human Rights of Indigenous Peoples to the rank of Law of the Republic* (2007) formally transposes the UNDRIP into legislation at national level. In doing so, Indigenous Peoples in the country have the right to maintain, control, protect and develop their traditional knowledge, including their genetic resources, seeds, medicines, and knowledge of the properties of fauna and flora (Article 31).

The Bolivian *Framework Law of Mother Earth and Integral Development for Living Well* (2012) also addresses the rights of Indigenous Peoples, and affirms that the concept of “Vivir Bien” must be realized in a way that is complementary, compatible and interdependent with the collective and individual rights of indigenous agricultural nations and peoples, intercultural and Afro-Bolivian communities (Article 9). It specifies that in the concept of “Vivir Bien”, the knowledge, and the evaluation of the knowledge of indigenous and peasant nations is one of its values for the construction of a just, equitable and solidarity-based society (Article 6(7)).

The Law recognizes the responsibility of the state to promote the right to food and health with food sovereignty and security through the sustainable management of the biodiversity of indigenous nations and the respect, reevaluation and reaffirmation of their knowledge in the context of cultural diversity (Article 13(10)). It also recognizes the responsibility of the state to promote the maintenance of the regenerative capacities of Mother Earth through the establishment of necessary conditions for the use and exploitation of Mother Earth’s components within the framework of sustainable living systems, taking into account the knowledge of each indigenous peasant, intercultural and Afro-Bolivian nation and people (Article 16(1)).

Using Indigenous Peoples’ traditional knowledge to help combat climate change, the Law establishes that the foundations and orientations of “Vivir Bien” includes promoting the recovery and application of practices, technologies, knowledge and ancestral knowledge of indigenous nations, in order to develop effective response measures to the impacts of climate change (Article 32(3)).

Norway’s *Law on the management of biodiversity, known as the Nature Conservation Act* (2008), provides that the management of nature, by official decisions that affect biodiversity, shall be based on scientific knowledge and that the authorities shall take into consideration traditional knowledge that is based on many generations of experience. The Act emphasizes that this knowledge is acquired through the use of and interaction with the natural environment and promotes the conservation and sustainable use of biodiversity (Article 8). Furthermore, when decisions are made under the Act they take into account the Sámi Peoples’ interests because Sámi culture is natural resources based (Article 14).

4.1.5. Food loss and waste

In the 2030 Agenda, SDG 12.3 seeks to “halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses”.

Food loss and waste (FLW) has recently been an area of concern that pertains to all different components of the agri-food supply chain. Reducing FLW can prevent and reduce malnutrition by improving micronutrient supplies, can enhance sustainable nutrition by reducing the environmental pressure caused by the agri-food sector, and make the agri-food supply chain more efficient by distributing food surpluses (FAO, 2019e; Ritchie, Reay and Higgins, 2018).

Between the post-harvest and retail stages of the chain alone, up to 14 percent of food produced globally undergoes quantitative food loss (FAO, 2019e), while 17 percent of total global food production may be wasted at the retail, food-service and consumer stages (UNEP, 2021).

This study identifies several FLW legislations and policies related to aspects of distribution and storage, and other key areas across the agri-food chain. In general, there are two approaches that countries have chosen when regulating for FLW. First, as in many examples below, countries can target a specific problem related to FLW and create a specific response for it. Second, as is becoming more common, countries can choose to adopt a more comprehensive response, adopting an agri-food systems approach and creating legislation targeting reduction of FLW across the entire agri-food supply chain. Both approaches have their place in the regulatory toolboxes: a targeted solution allows for a more specific answer to a concrete problem, while an agri-food systems approach would make it easier to limit the negative externalities of FLW, such as the heavy toll it takes on the environment.

Some national laws have narrower scopes and are aimed at improving distribution and storage infrastructure in order to increase the availability of micronutrients by reducing food losses, like in Argentina and Peru.

Food donations and redistribution programmes can increase access to nutritious food and improve diets of those who suffer from food insecurity (FAO, 2019e). Whether through the obligation of producers and supermarkets to donate food still fit for human consumption, even if they have passed their “best before” dates, or through tax benefits for food donations, several countries have recently implemented legislation directly related to FLW (Muñoz Ureña, 2021).

Food loss and waste: National examples

In 2019, Colombia adopted the *Law creating the policy to prevent the loss and waste of food and other provisions*, which is a comprehensive FLW law that establishes a national overarching policy on FLW prevention in different stages of the food supply chain, with proper institutional arrangements, data collection and monitoring. The Law recognizes that preventing and reducing FLWs requires the involvement of all the actors of the food system and prioritizes human consumption as the main goal (Article 1). It also highlights the need for FLW reduction activities to contribute to the overall realization of the right to food and sustainable food systems.

Argentina, through its *Creation of the National Plan for the Reduction of Food Losses and Waste* (2018), provides that public policies to reduce FLW must promote improvements in infrastructure, especially transport and marketing (Muñoz Ureña, 2021).

In Peru, the *Law that promotes the reduction and prevention of food losses and waste* (2019) aims to “reduce and prevent food losses and waste, at all stages of the food chain, from primary production up to human consumption” (Article 1).

France’s *Environmental Code* (2000) goes as far as prohibiting food distributors and food service operators from deliberately making their unsold food products unfit for human consumption and requires them to donate their unsold food products (Article L541-15-5). To this end, these actors must conclude an agreement with authorized food aid associations (Article L541-15-6).

In Italy in 2016, the *Provisions concerning the donation and distribution of food and pharmaceutical products for the purpose of social solidarity and for the limitation of waste* (2016) was adopted. This law pursues the aim of “reducing waste for each of the stages of production, transformation, distribution and administration of food, pharmaceutical and other products.” Amongst its main objectives are: to encourage the recovery and donation of food surpluses for purposes of social solidarity, allocating them as a priority human use; to contribute to the limitation of negative impacts on the environment and natural resources through actions aimed at a reduction of waste generation and promote reuse and recycling in order to extend the life cycle of products; to reduce the amount of biodegradable waste sent for disposal in landfills; and to contribute to research and information activities and awareness of consumers and institutions on the subjects of this law, with particular reference to younger generations.

Reducing FLW would allow for better healthy and sustainable agri-food systems by reducing pressure on natural resources and lowering the greenhouse gases emitted by the agri-food sector (Muñoz Ureña, 2021). Some countries have approached FLW from the perspective that it also entails the waste of all the resources that have been used for its production, such as natural resources (e.g. water, soil), energy resources, and the time and resources that have been used to produce, distribute or conserve it (Muñoz Ureña, 2021).

Finally, a major potential source of FLW is the confusion of consumers over the meaning of various expiry dates (best before *v.* use by) related to labelling. Therefore, it would be important for national legislation to align their labelling requirements with the relevant *Codex Alimentarius – General Standard for the Labelling of Prepackaged Foods* (1985) and clarify when the expiry date is connected to the quality of the product and when it is connected to the safety of the product.

In June 2021, the FAO Conference endorsed the *Voluntary Code of Conduct for Food Loss and Waste Reduction*, following negotiations of the FAO Committee on Agriculture. This marks a significant step towards consensus on a set of actions that states and other stakeholders can undertake. (FAO, 2021c).

4.1.6. Animal welfare and sustainable livestock production

FAO recognizes that good animal welfare may “improve productivity and avoid harmful side effects on human health and nutrition” (FAO, 2020d). More precisely, the European Food Safety Authority mentions that stress and poor animal welfare practices may lead to increased susceptibility to transmissible diseases among animals and represent dangers for consumers through common food-borne infections such as *Salmonella*, *Campylobacter* and *E. coli*. In fact, research has demonstrated that “stressed animals during transport and slaughter often release more pathogens” (UNEP, 2019). Animal welfare increases animal health and thus food quality, while preserving biodiversity. In addition, many cultural and religious beliefs promote animal welfare.

There are many international standards to guide national legislative interventions for animal welfare. For instance, the OIE sets the science-based standards for animal and veterinary public health. In the OIE *Terrestrial Animal Health Code* (2019), guiding principles are provided for animal welfare regarding transport, slaughter, the use of animals in research and education, and animal welfare in production systems. In addition, the OIE *Aquatic Animal Health Code*

(2019) provides standards for the improvement of aquatic animal health worldwide and makes recommendations regarding the welfare of farmed fish.

There is much diversity on how animal welfare is addressed in national sectoral legislations. Some focus on specific aspects of animal welfare such as anti-cruelty legislations, others provide more general coverage (Vapnek and Chapman, 2010). Some constitutions provide the basis for further legislation in order to protect animals.

Animal welfare: National examples

The *Federal Constitution of the Swiss Confederation* (1999) states that the Confederation shall legislate on the protection of animals, notably on the keeping and care of animals, experiments on animals and procedures carried out on living animals, the use of animals, the trade in animals and the transport of animals, the killing of animals (Section 80). To this end, Switzerland's *Animal Welfare Act* (2005) and the *Animal Welfare Ordinance* (2008) establish anti-cruelty protection and standards of care for animals. The scope of the Act covers all vertebrates as well as cephalopods and decapods. It provides for particularly extensive protection of the dignity and welfare of animals (Article 1). Any person who handles, keeps, or looks after animals must take account of their needs as much as possible, ensure their well-being as far as the intended purpose permits, feed and care for them properly and provide them with the activities and freedom of movement needed for their well-being, as well as shelter where necessary (Articles 4 and 6(1)). No person may inflict pain, suffering or harm on an animal, induce anxiety in an animal or disregard its dignity in any other way without justification. It is forbidden to mishandle, neglect or unnecessarily overwork animals (Article 4). The Ordinance in its 2018 revision is the first to state that decapods, such as lobsters must be "stunned" at the time of their death (Article 178).

Canada's *Health of Animals Regulations* (2006) and its amendments (2021) strive to improve animal welfare by proscribing the transport of unfit animals and the modes of transportation that may cause suffering to animals, for example due to inadequate ventilation or exposition to meteorological conditions and toxic substances (Articles 139-146). Furthermore, the regulations provide for the specific transportation methods that must be followed in accordance with the age and the species of livestock (Articles 141-143). Finally, they ensure that every animal is handled with care and are given appropriate feed, water, and rest (Articles 144 and 152). Acting in contravention to the provisions of the regulations may lead to criminal charges and administrative monetary penalties.

Induced by the COVID-19 pandemic, Italy enacted the *Law containing urgent measures in the field of health, support for work and the economy, as well as social policies related to the epidemiological emergency from COVID-19* (2020) that introduced a voluntary national system of quality for animal welfare, which includes a set of animal health and welfare standards (Article 224-bis). The system's objectives are: 1) to ensure an increasing level of quality food and economic, social and environmental sustainability of production processes in the livestock sector; 2) to improve animal welfare and sanitary conditions; and 3) to reduce emissions into the environment. To set up this system, decrees shall define, among other things, the rules of production; the distinctive mark to identify compliant products; procedures for harmonization and coordination of the certification systems; and monitoring and control measures. A regulated technical-scientific body is also created to define the system's management regime and methods. The membership in the system is voluntary; members undertake to apply the relevant regulations and are subject to the required controls.

4.1.7. Food safety and quality

Food safety and quality are essential elements of sustainable agri-food systems since they contribute directly to people's enhanced nutrition and health, by preventing and reducing the burden of diseases associated with food. Consumers are increasingly concerned about food safety which refers to "the absence, or presence at acceptable levels, of microbiological, chemical, or physical hazards in food to minimize risks to the health of the final consumer" (FAO, 2020a; FAO and WHO, 2003).

Box 11: Food safety and quality

Food safety refers to the absence, or presence at acceptable levels, of microbiological, chemical or physical hazards in food to minimize risks to the health of the final consumer.

Food quality includes all attributes that influence a product's value to the consumer. It includes internal factors such as nutritional quality and safety aspects, and such external factors as appearance (size, shape, colour, gloss and consistency), texture and flavour. There may be negative attributes such as spoilage, discolouration, off-odours and positive attributes such as the origin, colour, flavour, texture and processing method of the food. A re-emerging area of concern for food safety regulators is fraudulent and deceptive practices that deceive the consumer for the purposes of economic gain (e.g., addition of water to milk and use of colourings to disguise lower quality food).

Source: FAO, 2020a; FAO and WHO 2003.

Following the standards of the *Codex Alimentarius*, food safety legislation should cover all stages of the agri-food supply chain, from production to consumption. A few examples of legislative entry points to address food safety and quality in sustainable agri-food systems are: regulating cold chains; hygiene; street food and itinerant food vendors; requirements for food handlers and operators; novel food; preventing food fraud; and fixing permitted food additives or maximum levels of contaminants and residues of drugs or pesticides.

National regulations are mostly harmonized worldwide based on internationally adopted standards. By virtue of Article 3 and Annex A of the *Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)* from the World Trade Organization (WTO), the standards approved by the *Codex Alimentarius* are the international reference standards for food safety and quality. The Codex provides guidance on the requirements of foods and on their general labelling so that they are safe and ensure the protection of health for humans, animals and plant life (Box 12).

Box 12: International standards for food safety and quality

The *Codex Alimentarius*, which was created in 1961 under the joint FAO/WHO Food Standards Programme, is the preeminent international food-standard-setting body for food safety. The Codex

includes standards for all the principal foods, whether processed, semi-processed or raw, for distribution to the consumer ... The Codex Alimentarius includes provisions in respect of food hygiene, food additives, residues of pesticides and veterinary drugs, contaminants, labelling and presentation, methods of analysis and sampling, and import and export inspection and certification (Secretariat of the Codex Alimentarius Commission, 2015).

These international standards, although non-mandatory, usually trickle down into national food safety regulations, driven by agreements promoting international trade in agricultural and food products.

The *Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)* (1994) from the World Trade Organization (WTO) refers to Codex standards as the international reference standards for food safety. The SPS Agreement, while reaffirming that Members have the right to take SPS measures necessary for the protection of human, animal or plant life or health, states that these measures should be applied only to the extent necessary to protect human, animal or plant life or health, that they should be based on scientific principles and they are not to be maintained without sufficient scientific evidence (Article 2).

With the intent to harmonize SPS measures as much as possible around the world, the SPS Agreement expressly mentions Codex standards and provides that national measures which conform to international standards, guidelines or recommendations will be deemed to be necessary to protect human, animal or plant life or health, and presumed to be consistent with the relevant provisions of the Agreement (Article 3).

The SPS Agreement provides a powerful incentive for countries to elaborate their regulations based on international reference standards. The use of international standardization as a tool to support the development of food safety regulations unquestionably facilitates trade in a globalized economy.

As a result, international standards of the Codex have become the benchmark for food safety regulations around the world. The prevalence of these standards was already highlighted in 1985 by *Resolution 39/248 of the United Nations General Assembly* which adopted the UN's guidelines on consumers protection. This Resolution stated that:

When formulating national policies and plans with regards to food, Governments should ... support and, as far as possible, adopt standards from ... the Codex Alimentarius or, in their absence, other generally accepted international food standards.

Due to this central importance of international standards in food safety and quality regulations worldwide, implementation of the *Codex Alimentarius* is an essential driver towards sustainable agri-food systems.

Source: Codex Alimentarius (1961).

As a general rule, food that is unsafe or does not meet the safety and quality standards must not be placed on the market and the potential long-term effects of food should be taken into consideration. To this end, food business operators must comply with various food safety and quality regulations, some of which deal with the hygiene in food processing or the irradiation of foodstuffs (biological safety). Other regulations deal with the composition of food products, the use of flavourings, additives, enzymes, vitamins, minerals or other substances, or else the use of extraction solvents in the manufacture of food products (food improvement agents).

Several countries set up a specific framework for food safety and quality regulation. They also create specific agencies to ensure the enforcement of its food safety and quality regulations, so as to protect public health from risks that may arise in connection with the consumption of food (including risks caused by the way in which it is produced or supplied) and likewise to protect the interests of consumers in relation to food.

Food safety and quality legislations usually address the need for governments to regulate and monitor the residues of pesticides and veterinary medicines in food products and set maximum limits, including regulating the presence of contaminants or hormones.

Food safety and quality:

National examples

In Switzerland the *Federal Act on Foodstuffs and Utility Articles* (2014), ensures the quality and safety of food for domestic and international sales.

In Viet Nam, the *Law on Food Safety* (2010) defines the rights and obligations of organizations and individuals in assuring food safety and quality. It specifies the rights and obligations of the food producers (Article 7), food traders (Article 8) and food consumers (Article 9). For example, the Law identifies the right of consumers “to be provided with truthful information on food safety, and appropriate instructions for food use, transportation, storage, preservation, selection and use” and the obligation “to promptly provide information on risks of food to become unsafe upon detecting these risks, and report food poisonings and food-borne diseases ...” (Article 9).

In South Africa, regarding pesticides residue in particular, the *Regulations governing the maximum limits for pesticide residues that may be present in foodstuffs* (1994) identifies the maximum residue limit (mg/kg) for a very detailed list of foodstuffs (Annex).

Canada enacted the *Pesticide Residue Compensation Act* (1985) that allows the government to pay compensation to a farmer for any loss suffered as a result of the presence of pesticide residue in or on any agricultural products.

Food safety and quality:

Regional examples

In the European Union, *Regulation (EC) No. 396/2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin* addresses this issue by establishing maximum limits not to be exceeded for different foodstuffs. The *Regulation (EC) No. 178/2002* lays down the general principles and requirements of food law, establishing the European Food Safety Authority and lays down procedures in the matters of food safety. In addition, *Regulation (EC) No. 1831/2003* addresses the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms. The European Union also deals with the use of materials and objects that come into contact with food products under *Regulation (EC) No. 1935/2004* and provides regulations on food packaging, labelling and advertising (see Section 4.2.2 and 4.2.3 on labels and certifications).

Smallholders, family farmers, peasants and indigenous communities might find difficulty in complying with food safety requirements. Sometimes the standards themselves simply do not apply to their reality. This is the case for the Inuit populations of Northern Quebec who hunt caribou and who may wish to market it on a small scale. Because of the climate and the great distances covered during this hunt, they cannot respect the sanitary conditions imposed by the Canadian food safety and quality regulations (Parent and Desjardins, 2015). Therefore, local conditions and capacities must be taken into consideration in the development of food safety standards. Appropriate food safety standards, adapted to the capacities of local populations without compromising on the safety of the food, can be instrumental to suit sustainable agri-food systems for improved nutrition and sustainability.

Consequently, food safety and quality regulations impact all parts of agri-food systems. Food availability and food access (economically, physically and socially) are linked to the ability of the farmers, processors and other stakeholders to produce and sell safe and good quality food (FAO, 2020a).

Future versions of this study will consider other regulatory areas that are instrumental for agri-food chains, such as contracts in agriculture, agricultural insurance systems, access to finance and credit, and producers' associations.

4.2. Legal entry points for improving food environments and consumer behaviour

A food environment can be described as “the physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food” (HLPE, 2017a). Though historically, food environments were local or regional, mostly consisting of the foods produced and purchased by local communities, they have become increasingly interconnected, enabling the sale of convenient, energy-rich and nutrient-poor foods associated with the increase of obesity and non-communicable diseases (HLPE, 2017a; FAO and WHO, 2014; Willet *et al.*, 2019). Improving food environments may thus allow consumers to identify, select, purchase and consume more nutritious and varied foods to improve diets and help address malnutrition (FAO, 2016b).

Considering the interconnection and complexity of food environments, their improvement relies on multiple interventions, including in the realms of access and affordability; food promotion, advertising and information; food safety and quality (which was already discussed above).

This section presents examples of current national regulations that address different aspects of food environments and consumer behaviour, including to some extent sub-national legal instruments (states, provinces, regions and local authorities).

This section first addresses legal instruments that aim to improve healthy food availability and accessibility. Food promotion, advertising and information are then presented, with a focus on labelling, certifications and nutrition education.

4.2.1. Economic, social and physical access to healthy foods

Economic, social and physical access of nutritious and diverse types of foods influence consumers' selection and purchases. Nonetheless, the availability and proximity of nutritious foods in a given food environment do not guarantee their consumption; they also need to be affordable, desirable, and socio culturally acceptable (HLPE, 2017a). The following section presents different legal interventions that may influence the physical (proximity) and economic (affordability) access to healthy and nutritious foods by presenting some legislative entry points relating to local food markets, urban agriculture and home gardens, food deserts and food swamps, food prohibition, food procurement, fiscal incentives such as taxes, minimum prices, food assistance and subsidies and, finally, to food supply in emergency situations.

a) Local food and markets

Local food and markets help strengthening sustainable food systems in many ways. They notably create healthy and sustainable food environments, providing fresh products transported on shorter distances and promoting food diversity (Liveable cities and HealthBridge, 2018). They provide smallholders and family farmers with market access, gives them a better return for their produce, even increasing commercial opportunities for them (HLPE, 2013; UN-HABITAT, 2019). Studies shows they even enhance social equity and democracy for all members of the community (Feenstraw, 1997).

Local food and markets:

National examples

In the United States of America, the *Iowa Farmers' Market Nutrition Program Act* (Iowa Administrative Code Chapter 50) establishes the Women, Infants, and Children Farmers' Market Nutrition Program (FMNP) and the Senior Farmers' Market Nutrition Program (SFMNP) (*No. IAC 3/14/18*). These programs provide fresh, nutritious, unprepared food (fruits, vegetables, fresh herbs) from farmers' markets to women, infants and children "who are nutritionally at risk" and low-income seniors. They also aim to increase domestic consumption of agricultural products and develop farmers' markets, roadside stands and community supported agriculture programs.

In Indonesia, the *Food Act (No. 18/2012)* supports local food production, local food markets as well as the consumption of local food. Its preamble recognizes the State's obligation, both on the national and local levels, to achieve the equal availability, affordability and fulfilment of food consumption that is sufficient, safe, excellent, and nutritionally balanced by utilizing local resources, institutions, and Indonesian culture. The Law, based on food sovereignty, self-sufficiency and security (Article 3), regulate the organization of food and aims to *inter alia*: increase production of food in a self-sufficient manner; provide diverse food; achieve food sufficiency level; facilitate or improve food access for the people; and protect and develop the rich resources of national food (Article 4). The Law establishes food planning, which is an instrument to develop food organization towards food sovereignty, food self-sufficiency and food security (Article 6), while observing local culture and food potential (Article 7). Food planning is implemented by Government and/or Regional Government with involvement of the people and is realized through food plans at national, provincial and regency/city level (Article 8 and Article 9).

The realization of food availability is notably implemented by food diversification based on local potential resources (Article 41). Food diversification is performed through several means that promote local food, namely: "the optimization of local food", "technology and incentive system development for local food processing business", "introducing new type of food, including local food that has not been used"; "strengthening of micro, small and medium businesses in the food sector" or "development of food industry based on local food" (Article 42). The government and/or regional government have the responsibility to realize diversification of food consumption and improve nutrition through means that promote local food, such as: "promotion on diversification of food consumption"; "improve skills in the development of local food process"; "developing and disseminating of appropriate technologies for processing of local food", and "increased food consumption of products from local livestock, fish, vegetable, fruit and tuber" (Article 61, Article 63). They also have the responsibility for conducting mentoring for parties involved in food marketing, including by promoting to increase the use of local food products (Article 50).

The *Nepal's Right to Food and Food Sovereignty Act, 2075 (No. 13 of 2018)* provides for that the government of Nepal, provincial governments and local level (municipalities) shall adopt measures to "promote local agro and livestock products and markets", "ensure easy access of consumers to local agro and livestock products" or else "create an environment for selling their products by the farmers to the consumers from agro markets, agricultural farms or farmlands", in order to promote the local agro-crops and livestock products (Article 16(a)). The Act establishes at each local level, at the level of the municipalities, a "*Food Coordination Committee*" responsible for facilitate food supplies and distribution system in the Local Level" (Article 36).

The final edition of this study may include a reference to street food regulation.

b) Urban agriculture and home gardens

Urban agriculture and home gardens may enhance physical access to nutritious food and food security. They can contribute to households' food security while improving the nutritional quality and diversity of the diet, especially for disadvantaged populations that rely heavily on staple foods (FAO, 2019c; Masset *et al.*, 2012; Zezza and Tasciotti, 2010). There are, however, potential negative impacts including health risks, due to the high level of pollutants in urban areas if these enter in the food chain (bioaccumulation), and implications for the environment that needs to be addressed in legislations (Ferreira *et al.* 2018).

In the Republic of Korea, the government implemented the *Act on Development and Support of Urban Agriculture (No. 11096 of 2011)* to develop the agricultural knowledge of urban residents

and harmoniously develop cities and rural communities. In Kenya, the *Nairobi City County Urban Agriculture Promotion and Regulation Act* establishes a regulatory framework in support of urban agriculture within the county (2015). The Act aims, inter alia, to contribute to food security through the development of agriculture by empowering the people and institutions through allowing and facilitating agricultural activities for subsistence and commercial purposes, to support and guide the development of urban agriculture, and to regulate access to land and water for use in urban agriculture. In order to supervise the application of this Act, the Nairobi City County Urban Agriculture Promotion Advisory Board has been created.

c) Food deserts and food swamps

Food deserts and food swamps are defined by the HLPE respectively as “geographic areas where residents’ access to food is restricted or non-existent due to the absence or low density of “food entry points” within a practical travelling distance” and “areas where there is an overabundance of “unhealthy” foods but little access to “healthy” foods” (HLPE, 2017a).

Zoning regulations are often used to address the issue of food swamps notably by imposing a minimum distance for fast food outlets and convenience stores from schools and other venues where children spend their time. For instance, in Canada, zoning by-laws were modified in some cities to prohibit drive-through service bordering a residential zone (RCA08-08-0001, Article 4.2.14).

Food deserts and food swamps:

National examples

Establishing Supplemental Nutrition Assistance Program (SNAP), as to provide healthier food choices to lower income families, is also an important legal tool to that end. In the United States of America, the *Food and Nutrition Act of 2008* provides that states may establish SNAP, formerly known as Food Stamp Programme, under which eligible low incomes households are provided with an opportunity to obtain a more nutritionally adequate diet through the issuance of a card allotment to buy eligible food from authorized retail food stores (Article 4(a)). The New York Supplemental Nutrition Assistance is an example of such a State programme.

d) Food ban

Eliminating or reducing unhealthy food ingredients, such as industrially-produced trans-fatty acids or salt, in processed food products, is a nutrition and health intervention (WHO, 2015c; HLPE, 2017a). For instance, banning trans-fat, which implies limiting the amount of this ingredient, have positive effects on public health due to the reduction of risk of cardiovascular diseases and is considered as the most effective option to decrease the consumption of this ingredient (Restrepo *et al.*, 2016; Spruk *et al.*, 2020)

To address the increasing intake of trans fat, WHO has developed the REPLACE action package which aims to limit industrially-produced trans-fat from national food supplies, with the objective to eliminate globally by 2023 (WHO, 2018d). It proposes, notably, to enact regulatory actions to eliminate industrially produced trans fats and enforce compliance with regulations (WHO, 2018d).

Several countries, or sub-national governments, have passed legislation to eliminate or reduce the amount of industrially-produced trans fatty acids in food products (WHO, 2015c; HLPE, 2017a). For instance, Denmark adopted the *Executive Order No. 160 of 11 March 2003 on the Content of Trans Fatty Acids in Oils and Fats etc*, that makes it the first country to ban food products that have industrially-produced trans fats, including in imported foods, over 2 grams per 100 grams of fat or oil. Trans-fat that naturally occurs in foods are not covered by this Executive Order. Inspired by Denmark, the EC adopted in 2019 the *Regulation (EU) 2019/649* to set the same legal limits of the amount industrially produced trans-fat in food products intended for consumers and the supply to retail.

e) Taxes, minimum prices

Current agri-food systems have been successful at producing low-cost food. However, this affordable food is often high-sugar, high-fat or otherwise harmful to human health or to the environment. Considering only the cost from a consumer point of view, healthy diets remain costly and unaffordable for most people (FAO *et al.*, 2020).

Research has suggested that consumers' food intakes may be influenced by fiscal incentives which make nutritious foods cheaper and unhealthy foods more expensive, by the implementation of taxes and subsidies (HLPE, 2017a; Thow, Downs and Jan, 2014). While impacting food consumption at the individual and household level, these fiscal interventions may generate additional revenue and shape markets by providing incentives for the food industry to improve the nutritional quality of their products (WHO, 2015b).

Taxation to influence food intake and obesity has proven to be a popular addition to countries' fiscal policies, particularly with respect to sugar-sweetened beverages. As of January 2020, more than fifty of these taxes were in effect worldwide (WBG, 2020). Similar taxes on unhealthy ingredients/foods have been implemented by several states such as Denmark, Finland, France, Mauritius and the Philippines (WHO, 2015b).

Taxes on unhealthy ingredients/foods:

National examples

Mexico's *Law of Special Tax on Production and Services* (1980) implements an excise tax on the production and importation of non-essential energy-dense foods and on sweetened non-alcoholic beverages. Subsequent research has concluded that the tax has been "effective in reducing taxed food purchases and has generated substantial revenue that could be used to finance policies for the prevention and treatment of obesity" (Hernandez *et al.*, 2019; Colchero *et al.*, 2017).

Ecuador levies a special tax on sugar-sweetened beverages and energy drinks which contain more than 25 grams of sugar per litre, according to Articles 75 and 82 within the provisions of the *Internal Tax Regime Law* (2004).

In 2011, Hungary adopted the *Act on Public Health Product Tax* that creates a tax on non-staple food products that contain unhealthy ingredients (e.g. sugar, fat, sweetener) exceeding a certain threshold level for each ingredient (Zámbó *et al.*, 2020). The objectives of this Act are “to promote healthier eating habits by increasing the availability of healthy choices; to encourage reformulation [of the taxed foodstuffs]; and to increase revenues for public health” (Preamble; Zámbó *et al.*, 2020). These extra revenues are then used to support the healthcare system, including addressing non-communicable diseases in Hungary (WHO, 2015c).

f) Food procurement

A healthy controlled food environment in public institutions (e.g. hospitals, day-care centres, schools, prisons, army facilities) allows and encourages this institution’s community (e.g. children, adolescents, families, teachers) to make better food choices that promote improved health and safe diets (FAO, 2019d). This subsection focuses mainly on public food procurement, although the same principles are relevant to private food procurement.

The adoption of sustainable public procurement acts, which include the selection process and award criteria that are not purely economic in nature to achieve environmental and social objectives, is an important legal entry point into sustainable food systems (Swensson, 2018; De Schutter, 2014b, 2015). It should be noted that few developing countries are parties to the *WTO Agreement on Government Procurement* (2012) and that European Union countries and the United States of America exclude food for human consumption from the Agreement and the Agreement itself contains some flexibilities. The *Model Law on Public Procurement* (2011) adopted by the United Nations Commission on International Trade Law (UNCITRAL), provides guidance to countries, and also recognizes the possibility of using public procurement for sustainable goals.

A regulatory framework is needed so public food procurement can be a lever to promote sustainable food systems. Public food procurement may provide an opportunity to support smallholders and family farmers, organics and sustainably produced food, biodiversity and local food systems (Swensson and Tartanac, 2020). Furthermore, sustainable public procurement practices are anchored in the SDGs (Target 12.7), which recognizes it as a key instrument to drive more sustainable modes of consumption and production patterns.

Legal interventions for the public procurement of food for schools are key instruments in promoting locally produced food from smallholder producers, while at the same time promoting healthy diets. Studies in Brazil, Kenya and Ghana showed that properly designed school feeding increases the variety and quantity of healthy food in schools (Swensson and Tartanac, 2020). Further discussion about food and nutrition in schools is found in Section 4.2.4.

**Food procurement:
National examples**

Denmark was one of the first countries to implement two European Union procurement directives from 2014 with the *Danish Public Procurement Act* (2015). Denmark's public procurements are generally based on ten principles that include substantive supplier requirements regarding human rights, labour rights, including minimum wages and environmental protection (Andrecka, 2017). For instance, the use of public food procurement in Denmark as an instrument to promote the production and consumption of organic products was very successful (Andrecka, 2017).

In France, the *Law for the balance of commercial relations in the agricultural and food sector and healthy, sustainable and accessible food to all* (2018) establishes several measures concerning the food supply of public and private collective restaurants, excluding enterprises (Article 24) and sets specific targets. The Law imposes, by 2022, a rate of 50 percent of quality and sustainable products (e.g. geographical indication (GI)), including at least 20 percent of organic products, in the composition of the meals served for collective restaurants providing a public service (day-care, school, universities, health, social and medico-social establishments, prisons, etc.). To support this objective, the Law creates a consultative body concerned with the supply of public collective catering, namely the National Council for Collective Catering (*Conseil national de la restauration collective*). Under this Law, the government proposes tools for the actors of these restaurants regarding decision-making, structure of food supply chains, formulation of public contracts and training of the staff. In this regard, the Council has developed a practical guide to sustainable and quality procurement that presents the modalities of application of this objective.

**Food procurement:
Regional examples**

In 2014, the European Union adopted two directives seeking to ensure greater inclusion of common societal goals in the public procurement process such as environmental protection, social responsibility, combating climate change and public health (*Directive 2014/24/EU on public procurement* and *Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors*). According to these, public procurement should be used strategically as a "market-based instrument to achieve smart, sustainable and inclusive growth while ensuring the most efficient use of public funds." Directives includes the possibility for contracting authorities to use environmental and social criteria in public procurement procedures, including the possibility to refer to specific labels (e.g. organic labels, quality labels). Therefore, contracting authorities may take environmental or social criteria into account when determining the most economically advantageous tender in the award of a public contract.

The European Union has published a technical report entitled *EU GPP criteria for Food procurement, Catering services and vending machines* in order to support public authorities in the consideration of Green Public Procurement (GPP) criteria in the public procurement of food (Boyano, et al. 2019).⁵ A GPP is defined as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their lifecycle when compared to goods, services and works with the same primary function that would otherwise be procured" (EC, 2008).

⁵ For some GPP Good practice related to food and catering services see: https://ec.europa.eu/environment/gpp/case_group_en.htm

g) Food assistance

National food assistance programmes are one way to prevent malnutrition while reducing poverty, as the two issues are closely linked (Lentz and Barrett, 2013). In a sustainable agri-food system, these programmes need to be equitable and sustainable as many people are dependent on food assistance. This section does not include the examples of surplus donation programmes that were discussed earlier under FLW. This section presents food assistance programmes and subsidies that aim to support the poor and vulnerable populations. In some cases, states or provinces adopted specific laws concerning food donation, which is also a tool to address food waste.

Food assistance:

National examples

India's *National Food Security Act* (2013) aims to guarantee food and nutritional security by ensuring access to adequate quantity and quality food at affordable prices (Preamble). To this end, the Act provides for the monthly subsidization of food grains to eligible households according to their income relative to the poverty threshold (Article 3). It further asserts the entitlement of children under the age of fourteen and lactating or pregnant mothers to maternity benefits and meals free of charge so as to meet their nutritional needs (Articles 4, 5, 6).

In 2003, Brazil adopted the *Law instituting the National Program of Food Access* that aims to fight hunger and promote food and nutritional security (Article 1(1)). The families benefiting from this program receive a card in order to receive food, or directly receive food products (Article 2(2)).

In Canada, several subnational laws such as the *Civil Code of Quebec* (1991) and the *New Brunswick Charitable Donation Food Act* (2011), provide that a person who makes a charitable donation of food or items relating to personal hygiene is not liable for damages arising as a result of the donation unless the damages is a result of a gross negligence from the donator.

h) Emergency situations

Emergency food supply laws have been adopted by some countries to propose mechanisms to ensure food supply in case of war, crisis, natural disasters or other extraordinary circumstances (e.g. Switzerland and the Netherlands). Some of them have been updated in the context of the COVID-19 pandemic. These laws are important to ensure the resilience of sustainable agri-food systems in case of humanitarian contexts caused by conflicts, climate change, natural disasters, epidemics or pandemics. Some countries have implemented laws to prevent food and water shortages in time of crises.

As a result of the COVID-19 pandemic, several governments have implemented measures in order to fight its adverse impacts. In that context, FAO suggested that measures should be taken to protect health, including the health of workers, support smallholder farmers, and to keep the food value chain alive by focusing on key logistics bottlenecks (FAO, 2020e). Indeed, some governments have legislated in order to protect the population from disruptions in food supply chains due to sanitary measures and the spread of the virus in manufacturing plants.

Emergency situations:

National examples

In the Netherlands, the *Emergency Food Supply Act* (1962) ensures an emergency food supply mechanism in the event of war or other extraordinary circumstances. Another intervention of the same year, the *Act containing rules relative to prevention of hoarding goods in exceptional circumstances* (1962) provides the possibility for the government to prevent the excessive purchase and storage of foodstuffs, in times of war, insurrection, natural calamities or other crises.

Brazil's *Law authorizing the Government to use public food stocks in fighting hunger and poverty* (1995), authorizes the government to use public food stocks to assist the population affected by an emergency or natural disaster. At the regional level, the State of Rio de Janeiro in Brazil has adopted the *Law No. 8.841* (2020) which authorizes the Executive Branch, in situations of officially recognized emergency or calamity, to implement a policy of emergency purchase of agricultural products from small-scale farmers.

Burkina Faso's *Law establishing a guiding law relating to the prevention and management of risks, humanitarian crises and disasters* (2014) aims to prevent and manage risks, humanitarian crises and disasters in the country, regardless of their nature, origin and scale (Article 1), by providing humanitarian assistance, which includes food assistance for any person who is a victim of such a crisis or disaster (Article 5).

The United Kingdom of Great Britain and Northern Ireland's *Coronavirus Act 2020* provides that if any government authority in the United Kingdom requires information necessary to ensure that a supply chain is not disrupted or is not at risk of being disrupted, it may order any person in the supply chain or closely connected to it to inform the government (Articles 25-29). Other adopted measures concern emergency food assistance and social protection programmes and the support of the smallholder farmers (FAO, 2020e).

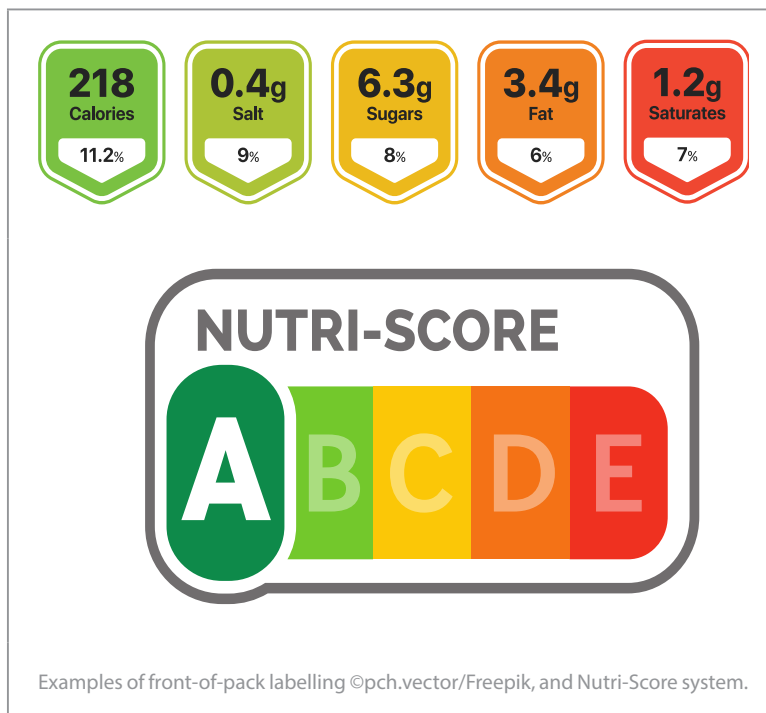
i) Nutrition facts tables

There are a significant amount of national legislations regulating mandatory nutrition facts tables on food products packaging, for e.g. the European Union's *Regulation on the provision of food information to consumers* (2011), *Canada's Food and Drug Regulations* (1978); and the United Kingdom's *Food Information Regulations*(2014). It is neither necessary nor possible to present these laws in an exhaustive manner but, on a general level, nutrition facts tables oblige information to consumers on serving size, content of calories, and core nutrients including fat, saturated fat (including trans fat), cholesterol, sodium, sugars, protein, vitamins, calcium, and iron, among other things. Although very useful and important, the information contained in these tables is not within every consumer's reach. In fact, research has concluded that nutrient-specific labels containing numeric information and suggesting daily intake percentages or grams are not as effective as the utilization of front-of-package symbols which do not require the same degree of nutritional literacy (HLPE, 2017a). In addition, some legislations strictly restrict the use of nutrition and health claims on food products, for e.g. the European Union's *Regulation on nutrition and health claims made on foods* (2006); *Canada's Food and Drugs Act* (1985); United Kingdom's (Northern Ireland) *Nutrition and Health Claims Regulations* (2007).

j) Front-of-pack labelling

Several countries are trying to simplify nutrition labelling by implementing FoP labelling to make nutrition information more straightforward. With FoP labelling consumers' choices towards healthier food could be easier. Several approaches and systems on FoP labelling have already been developed by different countries, with different efficiency levels (Temple, 2020). A recent paper by Jones *et al.* (2019) examined thirty-one regulations on FoP labelling that were endorsed by governments up to 2019. The regulations establish rules for the mandatory or voluntary use of these labels by the actors of the food sector. Jones *et al.* noted that, despite a strong and continuing interest in FoP labelling, there is limited guidance for policymakers elaborating regulations necessary for effective implementation. In this regard, the Codex Alimentarius Commission, which is the central body of the Joint FAO/WHO Food Standards Programme is developing guidelines on FoP nutrition labelling to provide global consistency in facilitating consumer understanding of the nutritional value of foods, while reducing the risk of impediments to trade that may arise from the proliferation of different systems. The WHO has also developed the *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets* to support countries in order to develop, implement, monitor and evaluate an appropriate FoP labelling system (WHO, 2019).

Selected FoP nutrition labelling schemes currently in use and their key features are presented in the national examples, like that of the traffic lights system which consists of colour-coded labels that help consumers to better identify nutritional values for healthier food choices or similarly through the use of logos, battery icons or stop signs.



Front-of-pack labelling: National examples

In 2017, France introduced a nutrition labelling system, known as the “Nutri-score”. This system was set up by the *Order setting the form of presentation complementary to the nutritional declaration recommended by the State in application of articles L. 3232-8 and R. 3232-7 of the public health code* (2017). It principally aims to make it easier for consumers to obtain nutritional information on FoP labelling to guide them towards food products of better nutritional quality and to reduce diet-related NCDs. More specifically, this labelling system assigns food products a rating using five-letters and colour-scaling based on their nutritional quality. It takes the form of a logo similar to a traffic light. At the present time, the use of the Nutri-Score logo on the packaging of food products in France is voluntary.

In Sri Lanka, the *Food (Color Coding for Sugar, Salt and Fat) Regulations* (2019), makes it compulsory to label solid and semi-solid food products containing sugar, salt or fat. A traffic light type logo (green, yellow or red colour) must be affixed on the retail container depending on the content of these ingredients. The Regulations define the characteristics of this logo for each ingredient in the listed columns.

In Israel, the *Protection of Public Health (Food) (Nutritional Labeling) Regulations* (2017) sets up a specific and compulsory labelling system for food products above a certain level of sodium, sugars and saturated fatty acids. This labelling is materialized by the affixing of a round red label on the front of the packaging of the food products concerned, inside which the words “high sugar level”, “high sodium level”, and “high saturated fat level” must appear. Instructions for these labels are given by the *Major formatting instructions for labels compliant with the Regulations for the Protection of Public Health (Food Nutritional Labelling)*. Moreover, Israel authorizes the use of voluntary labelling by affixing a green label on the front of the packaging of food products for which their composition is in accordance with the *Nutritional recommendations of the Ministry of Health* (2019), in order to help consumers make healthier food choices.

Italy’s *Decree – Form of presentation and conditions of use of the optional nutritional logo complementary to the nutrition declaration* (2020) implements another voluntary FoP labelling system, this time in the form of battery icons called “NutriInform Battery”. The labelling indicates the energy, fat, saturated fat, sugar and salt content of a single serving of food. It is materialized by the symbol of several batteries within which is indicated the percentage of energy and nutrients provided by the food serving compared to the recommended daily intake.

In Latin America, Chile’s *Law of Food Labeling and Advertising* (2012) introduces a mandatory FoP labelling system for food products high in calories, fat, sugar, salt or other ingredients. This system aims to guide consumers towards healthier eating behaviours. Special labelling is provided for the food products that exceed certain predetermined limits in order to highlight their nutritional characteristics. This system is implemented by the *Decree 13 modification to Supreme Decree n° 977 of 1996, Food Sanitary Regulation* (2015). The latter determines which food products shall be labelled as well as the information to be indicated on the label, such as content, form, size, messages, signage or other characteristics. The label takes the form of one or more octagonal symbols on a black background, with a white border (“stop sign”) affixed to the packaging and in which is written “high in” followed by “saturated fats”, “sodium”, “sugars” or “calories”, depending on the nutritional composition of the food product.

Peru, through the *Supreme Decree on the Manual of Advertising Warnings* (2018), which is within the framework of other provisions also relating to the promotion of healthy eating for children and adolescents, and Uruguay, through the *Decree concerning food labeling* (2018), requiring the use of FoP labels on food products containing excess amounts of certain compounds as specified in the Decree, both introduced a mandatory FoP labelling system materialized by a black and white octagonal label, like Chile’s.

4.2.2. Special quality schemes and certifications

Certification is a voluntary process whereby an independent public or private third party assesses the specific quality, origin, special know-how or the environmental performance related to a food product and production against a set of requirements predetermined by a public or a private certification organization. The certification process can also be managed by entities considered as hybrids since they are private companies designated by a state to manage the certification of a product. These certification standards are often influenced by international standards and guidelines notably from the *Codex Alimentarius*, the International Organization for Standardization (ISO) and the International Federation of Organic Agriculture Movements (IFOAM). The quality of the certification process itself is assured by compliance with such standards. For instance, compliance with ISO/IEC 17011 and ISO/IEC 17065 standards are usually a national requirement for accreditation bodies accrediting conformity assessment bodies.

As mentioned, the certification process is voluntary. Nevertheless, food certification, and associated labelling, are a way of informing consumers of the products' compliance with standard requirements and can be useful to improve nutrition and sustainability in agri-food systems. Certifications allow consumers to differentiate certified food products from other products and influence consumer behaviour (selling point), as they guarantee a certain quality and compliance with minimum requirements of specific production methods.

These types of certifications are interesting tools to identify agricultural and food products from sustainable agri-food systems and encourage consumer behavioural change towards healthier diets. As they are a differentiation and information tool for consumers, certified products are also a commercial tool, potentially conferring a competitive advantage for the products that display them.

Certification provides an economic benefit to farmers and companies that adopt sustainable, healthy and socially responsible practices, and therefore, may also become an economic incentive for the industry to adopt sustainable practices. On the other hand, getting certified may be expensive, potentially placing it out of reach of the least well-off producers and processors.

a) Organic certification

IFOAM and *Codex Alimentarius* provide the international framework for organic certification. IFOAM is an international non-governmental organization, which provides an umbrella for all organic agriculture organizations. The IFOAM *Standard for Organic Production and Processing* is the international benchmark for private certification bodies to assess organic production and processing facilities (Morgera *et al.*, 2012). The Codex Alimentarius Commission adopted the *Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods* (1999) which play a very important role in the international trade of organic products and the harmonization of national standards and laws with a view to facilitating trade and preventing misleading claims.

The certification process through a third party, as discussed above, may be too costly for smallholders and local or regional marketplaces. Thus, the IFOAM advocates that the recognition of and support to Participatory Guarantee Systems (PGS) is imperative to “enable the uptake of organic agriculture and sustainable farming and food systems” (IFOAM, 2018). The Federation defines PGSs as locally focused quality assurance systems, “certifying producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange” (IFOAM, 2008).

Also referred to as *participatory certification*, PGS rely on the fact that stakeholders, including consumers and producers, agree on the conditions of their local food systems and the way these are verified (IFOAM, 2018). They may be specifically relevant in the context of local sustainable food systems as they are an alternative to third party certification for food production that is not intended for international trade. Indeed, by nature, they promote short supply chains.

There are many ways for states or subnational governments to support PGS initiatives (IFOAM, 2019). Legislative support is one of them. A *Participatory Guarantee Systems Toolkit* has been published to help build local food systems addressing solidarity-based initiative such as PGS and community-supported agriculture (IFOAM, 2019).⁶

Several countries have put in place a system to frame the production, processing, labelling and marketing of organic products based on these international guidelines or European regulations.

Organic certification: Regional and national examples

As of June 1991, the European Union adopted *Regulation No. 2092/91 on organic production and labelling of organic products*. Following this, Europe made the choice of a binding regulation for organic agriculture under *Regulation No. 2018/848* and still maintains this approach (2018).

Turkey implemented a mandatory system inspired by the European Union regulations under *Law on organic farming* (2004), as is set forth in their *Regulation on the principles of organic farming and their implementation* (2010).

Madagascar adopted the *Law on Organic Agriculture* (2020) that put in place a certification system. As it is the case with other national binding instruments, the use of terms referring to organic agriculture in labelling, advertising or commercial documents is only possible if a given product meets the predetermined conditions of organic production.

India through its *Food Safety and Standards (Organic Foods) Regulations* (2017) supports PGS and recognizes the government-led PGS and the third-party certification programme as the two possible options for conformity verification in the country.

The Municipality of Bella Vista in Argentina also recognized the public value of PGS in *Ordinance No. 919-09* (2009) and approved by municipal decree the creation of a PGS Committee to promote PGS.

⁶ For more examples of interventions that support PGS, see IFOAM, 2018.

b) Other environmental certification for food

Most ecolabels, which are marks that identify products that meet specific environmental performances, do not apply to foodstuffs. Nevertheless, some of them may apply to farms and industries.

Environmental certification: National examples

France has adopted an environmental certification called “High Environmental Value” (*Exploitation de haute valeur environnementale*) through the *Law on the national commitment to the environment* (2010). According to Section L.611-6 of the *Rural and Maritime Fisheries Code* (2010), farms that use sustainable production methods may be certified with regard to several levels of environmental requirements. The highest level is based on environmental performance indicators and it entitles the farm to the “High Environmental Value” certification. These certification processes contribute to the valorization of the agro-ecological approach put forward by the French government.

c) Food quality labels and collective trademarks

There are a wide range of other certification processes and trademarks that can be useful to highlight products or know-how from sustainable agri-food systems that improve nutrition and promote healthy diets (Vandecastelaere *et al.*, 2010).

Geographical Indications (GIs) are one example. GIs have a potential to improve nutrition and contribute to healthy diets notably by promoting sustainability and traditional foods, diets and food systems. Traditional foods are known to play a role in improving people’s nutritional status^{2021d}. The nutritional characteristics of these foods can be attributed to their particular ingredients and production procedures linked to their specificities and geographical origins (FAO, 2021d). As such, GIs can be relevant legislative interventions to improve nutrition and sustainability in agri-food systems.

The GIs are signs used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin and represent an opportunity for a group of smallholders to protect collectively intellectual property attached to their product name. In 2009, the European Union added wines under their regulations for GI certifications.

The GIs are defined in the *WTO Agreement on Trade-Related Aspects of Intellectual Property Rights* (1994) and also included in the *Geneva Act of the Lisbon Agreement on Appellations of Origin and Geographical Indications* (2015). Parties to these Agreements have to protect this form of intellectual property through their national legislations. Some countries use a *sui generis* system, while others include protection under their trademark law. The *Agreement Revising the Bangui Agreement on the Creation of an African Intellectual Property Organization* (1999) protects GIs through a *sui generis system* (Annex IV), and states that

Geographical indications shall be protected as such if they have been registered by the Organization or are to be treated as having been registered by virtue of an international convention to which the member States are party (Annex VI).

Food quality labels and trademarks:

National examples

In Canada, the Province of Quebec is the only province implementing GIs through the *Act respecting reserved designations and added-value claims* (2006). This Act more broadly aims “to protect the authenticity of products, and of terms used to identify and promote them, through product certification based on origin or on special characteristics associated with a method of production of specificity” (Article 1). Thus, it also protects Designation of Origin and other quality designations.

In France, the “Label Rouge” logo is a collective trademark under Article R.641-7 of the *Rural and Maritime Fisheries Code* (2010), designating products which by their terms of production or manufacture have a higher level of quality compared to other similar products usually marketed. The recognition of a “Label Rouge” is pronounced by a joint ministerial order of the ministers in charge of agriculture and consumer affairs which also approves the specifications and control measures (Article R.641-6). The monitoring of compliance with these requirements is ensured by an independent accredited certification body.

Morocco's *Law on distinctive signs of origin and quality of foodstuffs and agricultural and fishery products* (2008) makes clear linkages between GIs and other distinctive signs and sustainable food systems by stating the following objectives: 1) preserve diversity and cultural heritage, 2) contribute to rural development; 3) improve quality and farmers revenues; and 4) strengthen consumer information (Article 1).

d) Recent innovations in agri-food quality and origin labels and signs

Food quality labels and signs can be further used and elaborated to improve nutrition and sustainability in agri-food systems.

In 2020, Italy, established a voluntary quality certification system on animal welfare under *Law No. 77*, which was previously mentioned in urgent measures in light of the COVID-19 pandemic. The system aims to ensure an increasing level of food quality and economic, social and environmental sustainability of production processes in the livestock sector, to improve animal welfare and health conditions and to reduce emissions into the environment.

This agri-food systems approach already seems to have inspired several countries that are considering or have already created new signs and labels directly based on the nexus between human health and environmental health.

The final edition of this study may include a reference to fair trade, as well as to other existing sustainable agri-food certification schemes, such as for turtle- and dolphin-friendly catch schemes or integrated pest management certification/labels.

4.2.3. Nutrition of vulnerable groups

Sustainable agri-food systems must ensure FSN and facilitate healthy and sustainable food choices for all, including the most vulnerable groups. Among the latter, children's FSN is particularly important as the effect of malnutrition extends into adulthood, resulting in poor

school performance, long lasting health effects of diet related NCDs and reduced economic productivity and incomes (UNICEF, 2019; Magni *et al.*, 2017; Sotos-Prieto *et al.*, 2017). Nearly 151 million children worldwide under five years of age are stunted , and at the same time, 38 million children under five years of age and 337 million children and adolescents 5-19 years of age are overweight (UNICEF, 2019; UNICEF, WHO and World Bank Group, 2018).

According to the UNICEF, “Actors across the food systems, including food producers and suppliers, typically do not account for the nutritional needs of children and adolescents when determining what foods to grow, produce to distribute and sell” (UNICEF, 2019). The need to take children and adolescents into account at all stages of sustainable agri-food systems is of particular importance so that they can benefit from healthy diets adapted to their nutritional needs.

Indeed, children and adolescents have the right to adequate food and their nutritional needs and their vulnerability towards advertising and promotion of unhealthy foods needs to be addressed through legal instruments supporting a sustainable agri-food systems approach (UNICEF, 2019).

The UNICEF’s *Innocenti Framework on Food systems for Children and Adolescents* is useful in developing new legal tools to fight the “triple burden of malnutrition” affecting children and adolescents: undernutrition, hidden hunger and overweight and to improve their FSN through agri-food systems (UNICEF, 2019).

Some specific legislative entry points supporting sustainable agri-food systems with regard to the FSN of children and adolescents are already included in national regulations. This is the case with labelling and advertising to children, food fortification and school feeding that are addressed below.

Nutrition of vulnerable groups: National examples

In Madagascar, the *Law on the Health Code* (2011) (No. 2011-002) ensures the best interests of the child in society on multiple physical and moral spheres, including protection against malnutrition and the right to nutritious food and drinking water (Article 265).

a) Food fortification

Food fortification is a nutrition intervention whereby a supply of additional vitamins and minerals are added to the diet in order to combat micronutrient deficiencies and improve the health status of populations. WHO and FAO have developed several guidelines on food fortification to help states to achieve the SDGs, especially SDG 2 and SDG 3 on health and well-being at all ages, and the global targets set in the WHO *Comprehensive implementation plan on maternal, infant and young child nutrition* (2012). Some of the guidelines are: WHO and FAO *Guidelines on food fortification with micronutrients* (2006); WHO *Guideline on fortification of maize flour and corn meal with vitamins and minerals* (2016); and WHO *Guideline on fortification of rice with vitamins and minerals as a public health strategy* (2018). Codex has also provided guidance

to competent national and/or regional authorities responsible for developing guidelines and legal texts through the establishment of the *Codex Alimentarius – General Principles for the Addition of Essential Nutrients to Foods* (1987), a set of principles that serve as a basis for the rational and safe addition of essential nutrients to foods.

Although food fortification is not limited to children, it is particularly important for pregnant women and children. Children tend to be among those most at risk of developing micronutrient deficiencies with health consequences (WHO and FAO, 2006). Regarding children, international standards, such as the Codex Alimentarius's *Code of Hygienic Practice for Powdered Formulae for Infants and Young Children* (2008) and WHO and UNICEF's *International Code of Marketing of Breast-milk Substitutes* (1981), may help states elaborate national legal instruments concerning food fortification.

Food fortification: Regional and National examples

The European Union *Regulation on food intended for infants and young children, food for special medical purposes, and total diet replacement for weight control* (2013) contains specific rules on the labelling, presentation and advertising of infant formula and follow-on formula in order to not discourage breastfeeding according to these international standards (Article 10(1)).

The Canadian *Food and Drug Regulations* (as amended in 2021) for human milk fortifiers, set the legal framework for food fortification and provides for the mandatory fortification of certain foodstuffs (e.g. skim milk, flour).

In South Africa, Section 15(1) of the *Foodstuffs, Cosmetic and Disinfectants Act* (1972) empowers the minister of health to regulate the use or presence of sweetener, sodium, trans fat, solvents, food preservatives, food fortification and harmful residues in foodstuffs. The *Regulations Relating to Foodstuffs for Infants and Young Children* (2013) establish specific norms regarding the labelling of foodstuffs intended for young children, prohibiting nutritional claims (Article 2(4a)). They further ensure that health professionals and establishments do not participate in misleading promotional practices (Article 2 and 7-11).

b) Labelling and advertising to children

Labelling and advertising aimed towards children is at the heart of an important field of research related to the transition towards healthy food environments (Garde, Curtis and De Schutter, 2020; UNICEF, 2019). Promotion of unhealthy foods, through packaging, labelling, printed and digital media, has an impact on children's diets and health as it influences their preferences, nutrition knowledge and consumption patterns to the benefit of foods high in saturated fat, trans-fatty acids, free sugars and salt ((HLPE, 2017a); UNSCN, 2016; Swinburn *et al.*, 2011).

Consequently, the *Rome Declaration on Nutrition* (2014) and its outcome document *Framework for Action* (2014) highlight the importance of legislative interventions to avoid the inappropriate marketing and publicity of foods and non-alcoholic beverages to children.

Several governments have adopted legislation regarding the labelling of food products that are intended for or preferred by children. For many years, countries such as Canada have

regulated, in general terms, the advertising and marketing of products before, during and after children's television programmes. The following are examples of legislative interventions that regulate the marketing of unhealthy food that target children.

Labelling and advertising to children:

National examples

In Canada, the *Quebec Consumer Protection Act* (1978) was one of the first to legislate against the marketing targeted at children under the age of 13, including banning food and beverage marketing directly to children. The United Kingdom became the first European country, and one of the first in the world, in 2007 to introduce legally binding regulations to ban advertisements for products high in fat, sugar and salt (HFSS) in and around television programmes aimed at children under 16 years of age (WHO, 2018b). These scheduling restrictions are found in the *Ofcom Broadcasting Code*, which is required under the *Communications Act* (2003) and the *Broadcasting Act* (1996) to draw up a code covering standards in programmes for television and radio. The Advertising Standards Authority, the United Kingdom's independent regulator of advertising, also provides for a *UK Code of Broadcast Advertising (BCAP Code)*, to be applied alongside the Ofcom Code. It also provides rules regarding the broadcasting of food and soft drinks products advertising to children. For example, it bans the use of techniques that are particularly effective with young children, including using promotional offers (e.g. free toys), nutritional and health claims or licensed characters and celebrities (Garde, Davies and Landon, 2017; BCAP, 2010).

The Republic of Korea's *Special Act on Safety Control of Children's Dietary Life* (2008) provides that the Minister of Drug and Food Safety may recommend the manufacturers, processors, or importers of foods to determine grades (high, medium, low) based on the amount of nutritious ingredients (e.g. saturated fat, sugar, sodium) contained in children's favourite foods and to label products using colour codes and shapes so that children can easily recognize them (Article 12).

c) Food in and around schools

There are different ways in which legislative interventions can help shape food environments in and around certain public institutions, such as schools, to be more supportive of improved nutrition and healthier eating habits (FAO, 2019d).

In addition to education, health and nutrition-related benefits, "school feeding programmes, when linked to smallholder agriculture, can promote further social, economic and environmental benefits"; and be an entry point for agri-food systems transformation. One principal example is the Home Grown School Feeding (HGSF) model which is designed to provide children in schools with safe, diverse and nutritious food, partially sourced locally from smallholders (FAO and WFP, 2018). The HGSF model can be a good incentive to those along the supply chain in order to "align their values accordingly, accelerating a transition towards more sustainable food production and consumption patterns" (Swensson and Tartanac, 2020).

According to the *State of Food and Agriculture 2021*

Adopting a multi-sector approach (integrating education, agriculture, social protection and public procurement objectives and systems) these programmes provide not only educational and food security gains for children, but also livelihood gains for smallholder farmers and local communities.

Studies indicate that school feeding programmes create 1 700 jobs for every 100 000 children fed. In poor rural economies, these investments catalyse local economies, revitalizing money supply in the market (FAO, forthcoming).

An holistic approach to legislating for school food and nutrition is promoted by FAO. The legal framework should not only establish an entitlement to school feeding, but create linkages to other regulatory aspects, such as public procurement, food safety, and nutrition standards (Cruz, 2020).

For example, some governments develop and set nutrition standards to ensure adequacy and nutrition quality of foods and meals in schools and other public institutions. These standards can also be complemented with restrictions on the sale and advertising of specific foods, including HFSS foods. Several countries have adopted legal instruments to ban certain foods, including HFSS foods or to limit the amounts of sugar, fat and salt contained in food and drinks sold in schools and pre-schools.

Food in and around schools: National examples

In addition to prohibiting the sale of certain foods, the Brazilian *Law establishing the School Feeding Program in primary schools of Brazil* (2009) provides the guidelines for satisfying the right for children attending basic educational institutions to have access to school meals. These guidelines contain provisions for healthy and adequate food, including the use of a variety of food, safe, respect for culture, traditions, and the promotion of healthy eating habits, contributing to the growth and development of students and improving school performance in accordance with age and health (Article 2). In addition, the Law links the School Feeding Program to local and family farming agriculture production, mandating that at least 30 percent of funds for food purchase should be used for the procurement of food from local producers and family farmers. This is one of the key characteristic of this program and an example followed by many other programs in the world. The Program is stated to have two groups of beneficiaries: the food producers and the food consumers, and one of its objectives is specifically the promotion of sustainable development, adopting a systematic approach.

In Costa Rica, the *Regulation for the operation and administration of the soda service in public educational centers* (2012) aims to “protect the health of the educational community and, at the same time, promote the development and maintenance of healthy eating habits” as part of the entire training process in public educational centres, all on the basis of public interest.

The Republic of Korea’s *Special Act on Safety Control of Children’s Dietary Life’s* (2008) designates and manages green food zones established within 200 meters of schools to protect children by providing an environment conducive to the sale of safe and healthy food (Article 5). In addition, the heads of cities, counties or districts may designate a store that meets the requirements for safe and sanitary facilities and does not sell high-calorie, nutrient-poor foods as an “exemplary store” and authorize the store to use an official logo for labelling or advertising (Article 7).

In France, the *Law for the Balance of Commercial Relations in the Agricultural and Food Sector and Healthy, Sustainable and Accessible Food to All* (2018) requires that 50 percent of food purchased by collective catering (including “school canteens” but not only) must meet various criteria related to environmental concerns, organic certification, designations of origin, signs and/or quality certifications. Regarding school meals, France’s *Decree relating to the nutritional quality of meals served as part of school catering* (2011) sets specific standards for the variety of products and nutritional quality of the food offered in school cafeterias. This approach also ensures equitable access for all children to healthy food. There are five other decrees specifying the nutritional rules for food service sectors in France, including a decree for establishments providing food for children under six years of age (*Decree n° 2012-145*).

4.2.4. Traditional diet and culture

Social norms, cultures and traditions shape consumers’ preferences and may have a significant impact on FSN, mostly positive but sometimes negative. Food is intrinsically linked to the construction of individual identity and social relationships (Fischler, 1988). The increasing demand and sale of pre-packaged, processed, energy-rich and nutrient-poor foods leads to poor-quality food environments as imported staple food becomes widely available to the detriment of traditional alternatives (HLPE, 2020a). As stated in the *Rome Declaration on Nutrition* (2014), the lack of access to adequate food that conforms with the beliefs, cultures and traditions of individuals has been recognized as one of the factors leading to malnutrition.

Sustainable agri-food systems for nutrition must take into account important cultural aspects and contexts. They should promote food culture, including food heritage in a culturally appropriate diet (HLPE, 2017a). In recent years, agriculture, food and nutrition have become increasingly important in efforts to conserve and protect cultural heritage and cultural diversity.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) *Convention for the Safeguarding of the Intangible Cultural Heritage* (2003) is particularly relevant in the promotion and protection of traditional food diets. The Convention aims to safeguard intangible cultural heritage, including traditional practices and knowledge. In this regard, their *Operational Directives for the Implementation of the Convention for the Safeguarding of the Intangible Cultural Heritage* (2018) addresses the diversity of agricultural and food knowledge and practices, as intangible cultural heritage, in relation with FSN. In order to ensure visibility of intangible cultural heritage and raise awareness of the importance of this heritage, the Convention maintains, at international level, a “list of the intangible cultural heritage of humanity.” Several elements of food culture are recognized in the list, which has the effect of promoting traditional food practices and knowledge. Some of the list entries are the French gastronomic meal, traditional Mexican cuisine, traditional dietary cultures of Japanese “Washoku”, and the Mediterranean diet. Also, the culture of Arabian and Turkish coffee, as well as a number of culinary traditions are also included in the list. In some parts of the world, like in India, the practice of vegetarianism is linked to religion or cultural practices.

Traditional diet and culture: National examples

In the Republic of Korea, the *Support of Diet Education Act* (2009) aims *inter alia* to promote improvement in people's dietary living and the inheritance and development of a traditional diet culture (Article 1).

In Nepal, the *Right to Food and Food Sovereignty Act* (2018) addresses the importance of local traditional food. According to this Act, locally produced traditional foods should be prioritized and distributed through the adoption of food and nutrition provisions (Article 11). Furthermore, the state, including provincial and local levels, shall adopt measures to "promote traditional agromarkets and marketplaces" and "protect local knowledge and traditional food culture related to agroproducts in order to promote the local agrocrops and livestock products" (Article 16).

In 2005, Japan enacted the *Basic Law on Food Education* (2005) for several reasons, including the loss of traditional food culture. It acknowledges Japan's dependence on foreign food and the fact that Japanese food, which is rich in regional diversity, taste and culture, is in danger of disappearing. The Law also underscores the need to contribute to the revitalization of local communities, the heritage and development of a rich food culture (Preamble). In addition to promoting food education in Article 1, the law aims to protect "traditional Japanese food culture".

More specifically, the Law provides that food education shall promote the revitalization of agricultural, mountain and fishing villages and the improvement of Japan's food self-sufficiency by paying attention to Japan's traditional food culture, food habits that make the most of regional characteristics, and promoting exchanges between food producers and consumers (Article 7). The national and local governments shall adopt measures to promote the heritage of traditional and regional food cultures, such as the information and dissemination of knowledge on these issues (Article 24). The *Dietary guidelines for Japanese* (2016), revised in light of this law, includes the importance of taking advantage of Japanese dietary culture and local food products while preserving local dishes.

In India, many consumers are vegetarian according to the concept of non-violence defined by the Indian philosophy through Ahimsa (non-injury). Since 2011, the India *Food Safety and Standards Regulations* makes it mandatory to identify non-vegetarian food and vegetarian food by a specific symbol and a colour code (Section 2.2.2 (4)). The symbols of non-vegetarian and vegetarian food consist respectively in a brown filled circle inside a square and in a green filled circle inside a square. The area of display and size of the symbols are determined in the regulation.

The final edition of this study may include legislative examples on Indigenous Peoples' rights and the cultural dimension of food. The Ecuador Law on School Feeding may serve as an example.

4.2.5. Food and nutrition education

Effective nutrition education improves people's knowledge, attitudes, skills and practices, which coupled with interventions to improve food environments can bring positive dietary outcomes (HLPE, 2020a; Rome Declaration on Nutrition, 2014). Food and nutrition education can contribute to the fight against malnutrition by empowering consumers to be active within their food environments, stimulating critical analysis of food choices and developing

people's real-life useful skills and capacities (HLPE, 2017a). Food and nutrition education can be implemented through various settings, including health centres, workplaces, schools, universities and communities, and should ideally be guided by national food-based dietary guidelines (ICN2, 2014). There are various ways in which national legislative interventions are introduced to improve the scope, reach and quality of food and nutrition education.

School-based food and nutrition education (SFNE) aims at developing and fostering children's capacities to engage in and maintain healthier and more sustainable food practices (Cruz, 2020; FAO, 2020f). Increasingly school meal programmes, have become important avenues for the implementation of food and nutrition learning opportunities and activities and several countries have adopted laws that compel schools to integrate SFNE into their formal school curriculum.

Food and nutrition education: National examples

Japan treats elements of the food environment using the Japanese expression "Shokuiku", meaning food education (Adachi, 2008; Takeda, Fanwell and Dixon, 2016). To this end, the *Basic Law on Food Education* (2005) provides administration of the "Shokuiku" policy and campaign and aims to promote the citizens' physical and mental health by helping them to develop the ability to make appropriate decisions about their diet and keep healthy dietary habits throughout their lifetime (Article 2). Several guides, policies and plans have resulted from this Law, including *Policies for the Promotion of Shokuiku – fiscal year 2018, A Guide to Shokuiku* (2019), and the *Japanese Food Guide Spinning Top* (2005), which apply or explain the principles of "Shokuiku".

Turkey's *Regulation on the National Nutrition Council* (2019) states that one of the objectives in creating the National Nutrition Council is to promote healthy nutrition throughout the country by adopting nutrition-related policies and strategies and to raise awareness of behavioural changes towards healthy habits.

In France, the *Education Code* (2000) entrenches the obligation for educational establishments to promote health and to ensure that information and education to food are provided (Articles L121, L312).

In the Republic of Korea, the *School Meals Act* (2006) in addition to providing for nutritious school meals, provides obligations incumbent on schools to establish healthy eating habits among young people.

5. Findings and the way forward

Transforming agri-food systems for better nutrition and enhanced sustainability is necessary to achieve food security and planetary health, while contributing significantly to the achievement of the SDGs.

The law plays a decisive role and can be one of the most significant drivers in the transition towards sustainable agri-food systems. To do so, a forceful coherent legislative framework – at international, regional and national levels – is required to ensure that this goal is translated into sectoral legislations across the three core constituent elements of the HLPE conceptual framework: “food supply chains”, “food environments” and “consumer behaviour” (HLPE, 2017).

This study has explored the nexus between human rights and sustainable agri-food systems. It has highlighted the central role of and the importance of implementing human rights, including the right to adequate food, the right to health and the right to a safe, clean, healthy and sustainable environment, in supporting the transition towards sustainable agri-food systems. It has argued that the law, through human rights, lays down the fundamental common principles and rights on which this transition should be built.

Overarching policies, constitutions and framework laws can act as instruments of coordination, inducing changes across agri-food systems, to improve sustainability and nutrition and frame sectoral legislations with the clear objective of achieving sustainable agri-food systems.

Finally, this study has identified a number of sectoral entry points to transform agri-food systems. Sectoral legislation can act as an operational tool for improved nutrition and sustainability in agri-food systems by bringing about changes in different activities, sectors and actors’ behaviour. Various examples show that some national legislative instruments already do so to some extent.

However, agri-food systems are not at the heart of the legislative interventions examined. Legislative interventions should be specifically designed and developed with an agri-food systems approach to enhance nutrition and economic, social and environmental sustainability.

Moreover, without an enabling international and regional environment, the ability of states to develop clear national guiding frameworks to support sustainable agri-food systems could be affected.

a) Human rights are fundamental to improving sustainability and nutrition in agri-food systems

In the international legal order, human rights reflect the common understanding of fundamental principles and rights on which sustainable agri-food systems should be built: their promotion and protection is one of the priority objectives of the United Nations.

Agri-food systems should respect, protect promote and fulfil human rights. National legislation should implement the right to adequate food, the right to health, and the right to a safe, clean, healthy and sustainable environment, as flagship rights in moving toward sustainable agri-food systems. Other human rights – notably gender equality, rights at work and procedural

rights – are also crucial as they target different aspects of agri-food systems, making them more sustainable and nutrition sensitive. Furthermore, all human rights are indivisible, interrelated and interdependent and cannot be approached in isolation. Each human right requires the implementation of other human rights to be fully implemented.

b) Constitutions, as fundamental laws, should address food security, nutrition and sustainability of agri-food systems

A country's constitution, as the utmost legal instrument, should play a fundamental role in achieving sustainable agri-food systems by framing policies and legislative interventions to address food security and to enhance nutrition in a sustainable manner.

Constitutions should enshrine human rights, including the right to adequate food and the right to a safe, clean, healthy and sustainable environment. Moreover, they should contain directive principles and/or objectives (of state policy and legislation) with a focus on food security, nutrition and sustainable agri-food systems.

c) National framework instruments should drive legislative interventions towards sustainable agri-food systems

National framework instruments, including overarching policies and framework laws are essential instruments to induce the transition towards sustainable agri-food systems. They coordinate multisectoral or sectoral efforts and provide the necessary guidance to ensure that national legislation at the different stages of the agri-food systems contribute to the achievement of food security and improved nutrition and sustainability.

Framework laws complement constitutional provisions by creating institutional frameworks and mechanisms and guiding the transformative process. While there are currently no framework laws on sustainable agri-food systems, there are a number of framework laws on food security and nutrition or on the right to adequate food which can serve as a basis for further development, and the experiences can be adapted to taking an agri-food systems approach.

Framework laws set out general principles to address cross-sectoral issues, bringing together under one legal instrument different sectoral disciplines, leaving to governing authorities the duty of enacting the legislation and other specific measures.

FAO recommends that framework laws on agri-food systems include the following elements: 1) definitions; 2) objectives; 3) human rights; 4) general principles that should apply across legal areas; 5) roles and responsibilities for private and public actors in food systems; and an institutional coordination mechanism for the involvement of all relevant ministries and entities (with proper resources and accountability); 6) participation mechanisms to ensure engagement with stakeholders, including vulnerable and marginalized groups; 7) monitoring; and 8) compliance and enforcement tools, notably through sectoral legislation.

Substantive principles may include: 1) protection of the right to adequate food, the right to health, and workers' rights; 2) protection of the right to a safe, clean, healthy and sustainable environment; 3) promotion of healthy diets; 4) harmonization with international reference standards; and 5) sustainable production and conservation of natural and genetic resources by privileging ecologically friendly production and sustainable approaches.

Principles to guide implementation of the framework law and sectoral legislation aiming to transform the agri-food system could be derived from the VGFSyN, aiming to achieve human dignity, equality, non-discrimination, participation, accountability, transparency, empowerment, and the rule of law:

- a) systemic, multisectoral, science- and evidence-based approach;
- b) coherent, coordinated, context-specific and inclusive policies;
- c) accountability, transparency and participation;
- d) healthy and prosperous people, healthy planet;
- e) gender equality and women's empowerment; and
- f) youth empowerment and engagement.

States have different options when considering framework laws related to agri-food systems. Those who have adopted framework laws without addressing agri-food systems directly may wish to review them with an agri-food systems approach. They may also develop new framework laws that directly address sustainable agri-food systems should they find that there is a gap to be filled.

Policies, although not binding, are also important instruments to guide the elaboration of sectoral laws and regulations in order to achieve greater legislative coherence to improve nutrition and sustainability in agri-food systems. They provide a framework for action and help to identify legal and non-legal interventions in different sectors. Both, policies and legislation can be effective to embody an agri-food systems approach and instil the transformation of agri-food systems through coherent sectoral laws and regulations.

d) Sectoral laws are tools to operationalize sustainability and nutrition considerations throughout agri-food systems

There are numerous potential entry points for national sectorial legislations to operationalize the transition towards sustainable food systems across the three core constituent elements of the HLPE conceptual framework of food systems, namely food supply chains, food environments and consumer behaviour (HLPE, 2017a).

This study has identified a number of such entry points. There could be a number of other entry points and further work is needed to identify those that may be most effective.

Achieving sustainable agri-food systems requires that sectoral legislations further enhance sustainability and nutrition in all stages of the core constituent elements of the agri-food systems, notably in the agri-food supply chains.

Legislation could provide better incentives and in certain situations also compel all the actors of the supply chains to adopt sustainable practices that include nutrition and environmental considerations and empower them to do so. Sustainable management of biodiversity, natural resources and inputs should be regulated keeping in mind nutrition considerations. The promotion and protection of all types of sustainable agri-food systems, including family farming, as well as local communities and Indigenous Peoples' agri-food systems, plays an important role in the transition towards better sustainability and nutrition.

A number of countries have adopted measures to make the food environment more conducive to access to healthy diets. However, more needs to be done to affect the affordability of food that can contribute to healthy diets. This is a skewed world, where fresh food is less affordable than processed food, and consumers struggle with the lack of knowledge, understanding, and time to prepare food at home that fulfils the nutritional needs of all members in the household. At the same time, agricultural workers do not enjoy adequate labour rights protection, wages or health and safety conditions. Independent farmers often struggle to ensure their own food security.

It can be concluded that currently a sustainable agri-food system objective is not clearly stated or implemented in national legal frameworks. Although some sectoral laws contribute to sustainable agri-food systems objectives, they are generally developed in silos and sometimes lack coherence.

e) Considerations for the way forward

Additional legal work and research on the transition towards sustainable agri-food systems is required. More reflection is needed to develop innovating legal instruments to further induce this transformation at the international, regional, national and local levels and pinpoint areas of law and provisions that could be truly transformative.

In order for national framework laws, policies and sectoral legislations to be elaborated and implemented successfully, an enabling environment is required, at the international, regional and national levels. At the national level, the enabling environment includes political commitment (e.g. legal measures, structure, accountability, monitoring and evaluation), adequate financing and coordination between different sectors, ministries and levels of governments, as well as participatory governance.

The international framework should be strengthened to enable states to achieve the objectives of transforming agri-food systems.

The ongoing WTO reform, including the *Agreement on Agriculture* (1995), presents an opportunity for creating an effective legal space for states to adopt measures to support sustainable agri-food systems. Further research should be conducted to explore legal mechanisms for improving the contribution of WTO agreements to the achievement of the SDGs, since trade is a key driver for food security and agri-food systems. It is essential to go beyond the traditional rhetoric opposing the global agri-food system and more territorialized agri-food systems in order to trigger an effective transition of all agri-food systems so that they become powerful drivers for food security and human and planetary health, in accordance with the SDGs. The WTO reform would benefit from an enhanced collaboration between WTO and FAO, given FAO's expertise in capacity building in agricultural trade and FAO's support to countries in their transition towards more sustainable agri-food systems (FAO, 2021e).

In terms of the coexistence of different legal regimes, it is necessary to explore further how customary and indigenous law norms can inform and strengthen statutory law to ensure the sustainability of agri-food systems, and how statutory law can ensure respect for and protection of the collective rights and traditional practices of Indigenous Peoples, where there is still much work to be done to give legal recognition and value to the great contribution of Indigenous Peoples to sustainability.

From a practical point of view in terms of legislative drafting, there are areas that require further attention in order to improve legislative coherence. One of these areas is the need to strengthen capacities and tools in doing *ex ante* analysis of the impact that laws and regulations have on nutrition and sustainability (economic, environmental and social). It is of great importance that legislators equip themselves with tools to conduct regulatory impact assessments that seek to understand how legislative interventions affect equity in access to food and sustainability. *Ex post* legislative impact assessments are also necessary to understand the impact that legislation has had with respect to the objectives initially set. Coordinated and multidisciplinary work is necessary to draw lessons learned and take them into consideration when legislating for sustainable agri-food systems. This is not a simple task, but a necessary one.

This study has presented legal interventions related to environmental sustainability that can realign production systems so that they support healthy diets in sustainable ways. In a subsequent phase, it is hoped that the scope of the study will broaden to identify more legislative entry points that include elements on family farming and interventions related to detailed consideration of social and economic sustainability.

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Glossary

Agri-food systems cover the journey of food (for example, cereals, vegetables, fish, fruits and livestock) from farm to table – including when it is grown, harvested, processed, packaged, transported, distributed, traded, bought, prepared, eaten and disposed of. It also encompasses non-food products (for example forestry, animal rearing, use of feedstock, biomass to produce biofuels, and fibres) that also constitute livelihoods and all of the people as well as the activities, investments and choices that play a part in getting us these food and agricultural products (FAO, 2021f).

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

Food environment is a place where food is acquired or consumed. As such, the food environment represents the nexus of interactions between the individual and those aspects of the food system that are related to food production, processing, labelling, marketing, transportation and retail, and food disposal and waste (HLPE, 2017a).

Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retail, food service providers and consumers.

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Food security dimensions refers to the six dimensions of food security:

1. **Availability** – This dimension addresses whether or not food is actually or potentially physically present, including aspects of production, food reserves, markets and transportation, and wild foods.
2. **Access** – If food is actually or potentially physically present, the next question is whether or not households and individuals have sufficient access to that food.
3. **Utilization** – If food is available and households have adequate access to it, the next question is whether or not households are maximizing the consumption of adequate nutrition and energy. Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, dietary diversity and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals.
4. **Stability** – If the dimensions of availability, access and utilization are sufficiently met, stability is the condition in which the whole system is stable, thus ensuring that households are food secure at all times. Stability issues can refer to short-term instability (which can lead to acute food

insecurity) or medium- to long-term instability (which can lead to chronic food insecurity). Climatic, economic, social and political factors can all be a source of instability.

5. **Sustainability** – refers to the long-term ability of food systems to provide food security and nutrition in a way that does not compromise the economic, social and environmental bases that generate food security and nutrition for future generations.
6. **Agency** – refers to the to the capacity of individuals or groups to make their own decisions about what foods they eat, what foods they produce, how that food is produced, processed and distributed within food systems, and their ability to engage in processes that shape food system policies and governance.

(HLPE, 2020a)

Qualitative food waste is the same but results from actions by retailers, food services and consumers.

Food supply chains encompasses the entire range of actors and their interlinked activities adding social, cultural and economic value involved in the production, aggregation, processing, distribution, labelling, marketing, consumption and disposal of food products. These actors work across the “supply” side of a food system.

Food systems refer to the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products. Food systems comprise all food products that originate from crop and livestock production, forestry, fisheries and aquaculture, as well as the broader economic, societal and natural environments in which these diverse production systems are embedded (HLPE, 2017a).

Food waste is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers.

Healthy diet consists of a balanced, diverse and appropriate selection of foods eaten over a period of time. A healthy diet protects against malnutrition in all its forms, including diet-related non-communicable diseases (NCDs), and meets the needs for macronutrients (proteins, fats and carbohydrates, including dietary fibre) and essential micronutrients (vitamins, minerals and trace elements) specific to the person’s gender, age, physical activity level and physiological state.

Integrated Pest Management means the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human and animal health and/or the environment. This approach emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms (FAO and WHO, 2020).

Malnutrition refers to deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients. The term addresses four broad groups of conditions: 1) undernutrition, which is

indicated by wasting (low weight for height), stunting (low height for age) and underweight (low weight for age); 2) micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; 3) overweight and obesity; and 4) diet-related NCDs.

Non-communicable diseases include heart disease, stroke, cancer, diabetes and chronic lung disease and are collectively responsible for almost 70 per cent of all deaths worldwide. One of the major risk factors of NCDs is unhealthy diets. These include diets high in fats (especially saturated fats and trans fats), sugars and salt and low in fruits and vegetables and other sources of dietary fibre such as whole grains.

Nutrition-sensitive actions are actions designed to address the underlying determinants of nutrition (which include household food security, care for mothers and children, and primary healthcare and sanitation) but not necessarily having nutrition as the predominant goal (Ruel and Alderman, 2013). Examples are promotion of food security and agriculture, home, school or community gardening, food diversification, school feeding programmes, taxation and price policies, implementation of legislation on marketing of unhealthy foods and beverages to children, labelling of food products and provision of safe water.

Nutrition-specific actions are actions designed to address the immediate determinants of nutrition having nutrition as the predominant goal. Examples are breastfeeding promotion and/or counselling, promotion of fruit and vegetable intake, promotion of healthy diets, promotion of reduced salt intake, obesity prevention, nutrition counselling, nutrition education and food distribution/supplementation (Ruel and Alderman, 2013). **One Health** is an approach to address a health threat at the human-animal environment interface based on collaboration, communication, and coordination across all relevant sectors and disciplines, with the ultimate goal of achieving optimal health outcomes for both people and animals; a One Health approach is applicable at the subnational, national, regional, and global level (WHO *et al.*, 2019).

Planetary health is described as the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems – political, economic, and social – that shape the future of humanity and the Earth's natural systems that define the safe environmental limits within which humanity can flourish (Whitmee *et al.*, 2015).

Quantitative food loss and waste is the decrease in the mass of food destined for human consumption as it is removed from the food supply chain. As such, quantitative food loss refers to the decrease in the mass of food destined for human consumption from decisions and actions by food suppliers in the chain. Quantitative food waste is the physical decrease in food mass resulting from decisions and actions by retailers, food services and consumers.

Qualitative food loss and waste refers to the decrease in food attributes that reduces its value in terms of intended use. It can result in reduced nutritional value (e.g. smaller amounts of vitamin C in bruised fruits) and/or the economic value of food because of non-compliance with quality standards. A reduction in quality may result in unsafe food, presenting risks to consumer health. Qualitative food loss refers to the decrease in food attributes that reduces the value of food in terms of its intended use – it results from decisions and actions by food suppliers in the chain. **Sustainable food system** is a food system that ensures food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition of future generations are not compromised (HLPE, 2017a).

Transforming Our World: The 2030 Agenda for Sustainable Development and its Sustainable Development Goals adopted by the United Nations in 2015, has set targets for achieving zero hunger and transforming the food system, amongst many other universal goals. The Food and Agriculture Organization of the United Nations is actively working towards the achievement of food security and nutrition and supporting the necessary transformation of food systems in collaboration with other UN agencies and partners at international and national levels.

This Legal Paper contributes to furthering the knowledge on legislative entry points for improved nutrition and sustainable food systems, from human rights law and constitutional provisions to framework laws and the myriad sectoral laws that shape the food systems.

The study is being published to coincide with the 2021 Food Systems Summit. Knowledge and discussions about various aspects of food systems are increasing each day and the field is evolving speedily. It was therefore considered appropriate to issue a preliminary paper and to publish the preliminary results in the hope of gathering new insights and feedback during and after the Summit.

Comments and suggestions can be sent to the Development Law Service at Legislativestudycomments@fao.org.