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**Sustainable and nutrition-sensitive
food systems for healthy diets
and prevention of malnutrition
in Europe and Central Asia**

Sustainable and nutrition-sensitive food systems for healthy diets and prevention of malnutrition in Europe and Central Asia

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Preparation of this document

The nature of food insecurity and malnutrition have considerably changed in the ECA region during recent decades. In three main sections, this book addresses the role of food systems in the transition of diets and the prevention of malnutrition in the ECA region. **Part I** provides an introduction and executive summary of the book and shares key points for policy actions that can help bring about sustainable and nutrition-sensitive food systems for healthy diets and the prevention of malnutrition. **Part II** shares normative studies and a regional-level review, and **Part III** shares case studies from selected ECA countries.

Sustainable and nutrition-sensitive food systems for healthy diets and prevention of malnutrition in Europe and Central Asia was produced under the direction and guidance of editors **Cheng Fang** and **Mirjana Gurinović**, who jointly developed and decided on the outline and content of the publication and coordinated the preparation of the book.

Several studies reported in this book were carried out by the FAO Regional Office for Europe and Central Asia for a regional project on food system analysis titled “Programme support for the role of food systems in the transition of diets and prevention of malnutrition in the ECA region.” Under this project, a workshop titled “Awareness raising on the food system approach to address malnutrition” was held 27 October 2020 in Belgrade, Serbia.¹ During the workshop, drafted papers were presented and awareness-raising activities carried out to promote a better understanding of the food system approach in the prevention of malnutrition in the region. The event served as a platform for multistakeholder engagement and dialogue, including the sharing of methodologies, tools and lessons learned to strengthen beneficiary countries’ evidence base for addressing nutrition-related challenges from the food system perspective.

¹ For more information on this workshop, which was held online, see <https://www.capnutra.org/events/>.

Chapter 1

Challenges and opportunities to support food systems transformations for healthy and sustainable diets in central and southeastern Europe

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Abstract

The FAO/WHO ICN2 Rome Declaration on Nutrition and its Framework for Action, the 2030 Agenda for Sustainable Development and its SDGs, the United Nations Decade of Action on Nutrition 2016–2025 and other important related events and documents have engaged many countries worldwide in prioritizing nutrition and addressing malnutrition in all its forms by undertaking policy measures and projects to transform food systems to promote healthy diets. Policy implementation in countries across Europe and Central Asia indicates significant improvements in food systems. Encouragement and guidance for countries to focus on further food system transformations is necessary.

The objective of this review is to assess, evaluate and recommend priorities in policy development that are most relevant to sustainable food systems in the countries of central and southeastern Europe for healthy diets. A review of the current state of various food system elements was conducted in 2018 using a comprehensive online survey distributed to 17 countries in central and southeastern Europe, of which 15 responded. Country representatives were from various institutions in the agrifood–nutrition–health sector. A review of food system elements in the selected countries has revealed various challenges in food systems.

Conclusions and recommendations were made by an expert panel and formalized in the Belgrade Declaration. These recommendations proposed a number of specific actions related to governance and public health nutrition, the food supply chain and food environment, consumer behaviour, research, education, training of (future) professionals, networking, and the sharing of knowledge and experiences for establishing collaborations among capacity development networks.

Keywords: *Sustainable food systems; central and southeastern European countries; Belgrade Declaration; Healthy diets; Malnutrition prevention, Sustainable Development Goals (SDGs)*

Introduction

Low-quality diets are the primary risk factor for NCDs, as reported by the Global Burden of Disease study in 2019. Six of the top 11 risk factors driving the increase of NCDs are related to diet and are a main contributor to high DALY (disability-adjusted life years) values in the ECA region, especially in eastern European countries, which have experienced a rapid rise in income levels in the past two decades (GBD 2019 Risk Factors Collaborators, 2020). Low-quality diets contribute to all forms of malnutrition. The *Europe and Central Asia Regional Overview of Food Security and Nutrition* highlights key characteristics of malnutrition in the region, where many countries continue to experience relatively high prevalence of stunting among children younger than 5, anaemia among women of reproductive age, and obesity among adolescents and adults. The triple burden of malnutrition – undernutrition, overweight and obesity – and micronutrient deficiencies are present to varying degrees in all countries of the ECA region (FAO, 2015, 2019; Mazzocchi *et al.*, 2014).

Given the complexity of dietary behaviour and the wide range of drivers that influence diets, improving diets requires the active collaboration of a variety of actors throughout the food system, supported by dedicated policies targeting multiple food system sectors (EAT-Lancet Commission, 2019a). Major steps in international policy regarding nutrition have been taken since the FAO & WHO ICN2, which resulted in the Rome Declaration on Nutrition (FAO/WHO, 2014a), the Framework for Action (FAO/WHO, 2014b), the 2030 Agenda for Sustainable Development, the SDGs (UN, 2015), and the United Nations Decade of Action on Nutrition 2016–2025 (UN General Assembly, 2016). As a result of this important conference, many countries around the globe have repositioned nutrition as a priority on their policy agendas. Governments confirmed their commitments to addressing malnutrition in all its forms by taking action to transform food systems and promote healthy diets (Amoroso, 2018). The aforementioned policy processes have placed nutrition firmly at the heart of the sustainable development agenda, recognizing that transformation towards sustainable food systems has a fundamental role to play in promoting healthy diets and fighting malnutrition. Monitoring policy implementation in ECA countries indicates significant improvements in the food and drink environment. It is still necessary to encourage Member Nations to focus on food systems transformations (Breda *et al.*, 2020; WHO, 2018a).

Food system transitions provide a huge opportunity for the improvements of diets. According to the definition of the High-Level Panel of Experts (HLPE), a food system “gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socioeconomic and environmental outcomes” (HLPE, 2017). The HLPE’s conceptual framework for food systems contains three core elements:

1. **food supply chains** that include production systems, storage and distribution, processing and packaging, and retail and markets;
2. **food environments** that include availability and physical access (proximity), economic access (affordability), promotion, advertising and information, and food quality and safety; and
3. **consumer behaviour** that reflects choices and decisions made by consumers at the household or individual level on what food to acquire, store, prepare, cook and eat, and on the allocation of food within the household.

The conceptual framework identifies six main categories of drivers of food systems changes: biophysical and environmental, innovation, technology and infrastructure, political and economic, sociocultural, and demographic.

Sustainable food systems emphasize the role of diets as a core link between food systems and their health and nutrition outcomes. Food supply chains, food environments and consumer behaviour are key drivers for better nutrition and health. Sustainable food systems are economic, social and environmental bases that generate food security and nutrition for future generations.

The FAO/WHO International Symposium on Sustainable Food Systems for Healthy Diets and Improved Nutrition held in December 2016 in Rome, Italy, provided multiple actors with an opportunity to share practical solutions and successful country experiences in implementing sustainable food systems for healthy diets. It also served as a forum to update the global community on the actions countries have taken to comply with ICN2 commitments (FAO & WHO, 2017).

To increase comprehension of the food system perspective and its application in practice, the FAO/WHO jointly organized, in cooperation with UNICEF and United Nations World Food Programme (WFP), the Regional Symposium on Sustainable Food Systems for Healthy Diets in Europe and Central Asia, held 4–5 December 2017 in Budapest, Hungary (FAO Regional Office for Europe and Central Asia, 2017), <https://www.fao.org/europe/events/detail-events/en/c/1034293/>. The main objectives of the symposium were to:

1. support countries in their efforts to enhance the implementation of the ICN2 FfA for achieving the SDG targets and nutrition-related national priorities;
2. engage all relevant stakeholders more actively in the process launched by ICN2 and by the United Nations Decade of Action on Nutrition; and
3. facilitate the transformation of food systems to provide healthy diets and improved nutrition in a multisectoral, collaborative and coherent manner.

The important takeaways from the symposium are focused on nutrition governance, partnerships, and cooperation and capacity development in the region. These measures are seen as key steering forces in transforming food systems.

BOX 1-1. Key messages from the 2017 Regional Symposium on Sustainable Food Systems for Healthy Diets in Europe and Central Asia

The symposium discussed sustainable food systems along four thematic areas:

1. **nutrition-sensitive agriculture and food systems**
2. **food demand and food environments**
3. **improving nutrition of children**
4. **governance, leadership, and accountability for nutrition.**

A. Key messages for governments

Governments, as major actors responsible for driving changes to food systems, should formulate country-specific SMART (specific, measurable, achievable, relevant and time-bound) commitments for action towards the eradication and prevention of all forms of malnutrition at the country level, including improvements in diets through sustainable and resilient food systems for meeting the SDGs and national commitments to ICN2. Governments should define and formulate specific policies that include educating consumers on healthy

diets and on shifts in investment priorities to ensure that diverse, nutritious and safe foods that meet local requirements based on cultural preferences and taste are available and affordable to all in a sustainable manner.

Governments should ensure, wherever possible, that actions to address malnutrition in all its forms serve “double duty,” meaning that they contribute simultaneously to the prevention of both undernutrition and overweight/obesity.

Governments should involve non-state actors, the private sector (producers, processors, professional associations, etc.), civil society, academics and consumers in policy dialogues on issues related to agriculture, food and nutrition in capacity development, awareness raising and advocacy.

Governments should take action to ensure that adequate capacities of national statistical services are developed for the monitoring of SDG indicators and to strengthen data collection and analysis for evidence-based policymaking, including food consumption and nutrition data, surveillance of child growth and the nutritional status of the population, food composition data of commonly available local foods, data on food contaminants, etc.

B. Key messages for non-state actors

Non-state actors can effectively contribute to the positive transformation of the food sector and to the development of sustainable food systems. In particular:

- **The private sector should ensure the diverse and affordable supply of nutritious and safe food.**
- **The research sector should undertake more (independent) research to support the transformation of (local) food systems and explore options for supporting and enhancing biodiversity and ecosystem services. Findings should be communicated to the public, academics, researchers and consumers, ensuring the mutual interaction of the science community and society for scientific breakthroughs and food chain innovations.**
- **Education initiatives should support and create an enabling environment for effective action on nutrition, boost the development of leadership skills among nutrition professionals, and facilitate collaboration among different stakeholders.**

C. Key messages on nutrition governance and capacity development in the region

The symposium also urged good governance, leadership and accountability for nutrition. To that end, it was requested that governments:

- **establish high-level national cooperation mechanisms for nutrition-related planning, coordination and accountability;**
- **create platforms for multisectoral consultations and expert advice, knowledge-sharing, decision-making and prioritization in food security, nutrition and food systems;**
- **identify nutrition targets and indicators during the SDG nationalization process;**
- **involve the food and agriculture sector in nutrition governance; and**
- **increase resource allocation for nutrition in each relevant ministry.**

Source: FAO. 2018. Thirty-first Session: Outcome of the Regional Symposium on “Sustainable Food Systems for Healthy Diets in Europe and Central Asia”, Voronezh, Russian Federation, 16-18 May 2018. <https://www.fao.org/3/mw166en/mw166en.pdf>

Strong nutrition governance at the national level, with the involvement of multisectoral stakeholders, is of great importance for sustainable food system transformations.

The symposium provided a platform for multisectoral interaction and the sharing of good practices involving representatives from the food and agriculture, health, education and social protection sectors. Stakeholders exchanged knowledge, views, practical solutions, good experiences and lessons learned from the implementation of policy options. They also shared strategies for improving the nutritional status and health of all groups of the population.

The technical recommendations from the symposium informed policymakers and decision-makers at the Thirty-first Session of the FAO Regional Conference for Europe, held in May 2018 in Voronezh, Russian Federation (FAO/WHO, 2018). To support countries and other stakeholders in translating the ICN2 voluntary policy recommendations into concrete and SMART country-specific commitments for action on nutrition, FAO and the WHO developed a Strengthening Nutrition Action guide that includes actionable approaches for the 60 recommended policies and actions summarized in the ICN2 FfA (FAO & WHO, 2018; FAO/WHO, 2014b). Recently, a food policy special issue highlighted various good practices and food policy discussions related to the transformation of current food systems towards social, environmental and economic sustainability in the ECA region (Dupouy and Gurinović, 2020).

To draw more attention to the food system approach for healthy diets in the ECA region and disseminate key messages from the aforementioned symposium, the Network for Capacity Development in Nutrition in central and southeastern Europe³ (CAPNUTRA⁴) organized a three-day symposium on sustainable food systems for healthy diets for countries of central and southeastern Europe, with integrated training on collecting food consumption data and strengthening the thematic regional networking from 15–17 October 2018 in Belgrade, Serbia,⁵ in close collaboration with and with support from the FAO Regional Office for Europe and Central Asia.⁶

The symposium was attended by 42 participants from 26 countries, representing a wide range of stakeholders, government officials, research and academic institutions, FAO, UNICEF and the EFSA. Twenty-six oral presentations were given, and 20 posters were presented. The symposium materials are available at the CAPNUTRA website.⁷

³ Central and southeastern European countries included: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Estonia, Hungary, North Macedonia, Republic of Moldova, Montenegro, Latvia, Lithuania, Poland, Romania, Serbia, Slovakia and Slovenia.

⁴ More information on the Network for Capacity Development in Nutrition in central and southeastern Europe (CAPNUTRA) is available at <http://www.capnutra.org/>.

⁵ Information about CAPNUTRA events is available at <https://www.capnutra.org/events/>.

⁶ The FAO Regional Office for Europe and Central Asia is online at <http://www.fao.org/europe/en/>.

⁷ Information about CAPNUTRA events is available at <http://www.capnutra.org/events/>.

The main thematic areas of the symposium were:

1. governance, leadership and accountability for nutrition
2. public health and the food system: food, nutrition and health research infrastructure
3. food supply, food demand and food environment
4. improving the nutrition of vulnerable groups
5. nutrition education and food systems
6. capacity development and training in the harmonization of food consumption collection and dietary intake survey in central and southeastern Europe
7. networking and establishing collaboration among subregional capacity development networks

During the symposium, experts highlighted the major challenges in these seven thematic areas of food systems for healthy diets and nutrition (Global Panel, 2018; Global Panel on Agriculture and Food Systems for Nutrition, 2016; HLPE, 2014, 2017). An overview of the identified status of various elements of food systems in central and southeastern Europe was presented. Participants discussed the importance of building capacity for sustainable food systems to advance public health nutrition in the central and southeastern Europe region by linking existing regional networks and further developing the research infrastructure (Van 't Veer, Poppe and Fresco, 2017). Participants emphasized that nutrition governance at the national level, with the involvement of governmental bodies, various sectors and stakeholders, is crucial for sustainable food system transformations and healthier diets (FAO/WHO, 2014a).

The transformation of current food systems should improve availability, affordability and sustainability and boost the uptake of nutritious and safe foods, which would result in healthier diets and help reduce all forms of malnutrition and diet-related NCDs. The synergetic approach to tackling multiple forms of malnutrition at the same time uses “double duty” policy measures (Branca *et al.*, 2019; Hawkes *et al.*, 2020). UNICEF's Innocenti Framework on Food Systems for Children and Adolescents proposes the main measures needed for food systems to be able to deliver nutritious, safe, accessible, affordable and sustainable diets to children and adolescents.

Major elements include four areas of improvement: food supply chains; external food environments; personal food environments; and the behaviours of caregivers, children and adolescents. A set of underlying structural factors that impact the functionality of food systems are demographic drivers (urbanization, population growth, migration), political and economic drivers (leadership, policies, trade), innovation and technological drivers (technology, infrastructure, investment), biophysical and environmental drivers (climate change, natural resources management), and social and cultural drivers (norms, traditions, and underlying social dynamics) (UNICEF Office of Research Innocenti, 2018). The EAT-Lancet Commission presents an integrated global framework that considers planetary boundaries and safe operating space for food systems, taking prosperity and healthy diets for future generations into account. For the first time, the Commission provided quantitative scientific targets for healthy diets and sustainable food production. The global adoption of healthy diets from sustainable food systems would safeguard our planet and improve the health of billions of people, now and in the future (EAT-Lancet Commission, 2019b).

Currently, food systems in the European Union, the region and around the world are affected by major challenges, including climate change, migration, a growing world population, urbanization, resource scarcity, the triple burden of malnutrition, aging populations and food poverty. These challenges have been worsened by the COVID-19 pandemic, which has posed a serious threat to the food supply and food security all over the world (HLPE, 2020). Research and innovation are crucial for developing high-impact solutions to future-proof our food systems (den Boer *et al.*, 2021; Directorate-General for Research and Innovation of the European Commission *et al.*, 2022). The Standing Committee on Agricultural Research

(SCAR) Food Systems Strategic Working Group (SWG) has revealed that in the past five years, agriculture, food production and food safety have benefited the most from research and innovation support, while food innovation and nutritional aspects linked to health have not experienced the same attention. The interconnectedness of food system elements needs to be included in various national research programmes to accommodate nutritional and health aspects and look beyond sectoral approaches by linking food system elements that simultaneously address multiple SDG objectives.

Possible solutions to fill current research and innovation gaps could be found by promoting existing working platforms to collaborate with various sectors and stakeholders, including the public. This type of “systems thinking” provides stronger and prolonged influence and co-ownership of outcomes. To see future progress in strengthening food and nutrition security, we also need to create adequate targets and indicators for monitoring – indicators that cover the whole food system and reflect overall outcomes. Measuring progress will demonstrate momentum towards future-proofing European food systems in a sustainable, resilient, responsible, diverse, competitive and inclusive manner (Directorate-General for Research and Innovation of the European Commission *et al.*, 2022).

Zurek *et al.* (Zurek *et al.*, 2018) have presented an integrated approach for assessing food systems and possible innovations, divided into five steps, based on a conceptual framework for the European Union food system. The initiative to establish food, nutrition and health research infrastructure⁸ (FNH-RI, 2019) is presented as an important facilitator to advancing the scientific, evidence-based evidence relevant to the seven thematic areas presented at the symposium and to a citizen-centred transformation of food systems.

This chapter provides an overview of the situation and various elements of food systems in central and southeastern Europe, addressing the main challenges and places for intervention in order to fortify specific food systems elements and provide key policy recommendations for food systems development in the region.

⁸ For more information about FNH-RI, visit <https://fnhri.eu/>.

Regional overview, analysis and identification of the status of various food systems elements in central and southeastern European countries

This regional overview was prepared based on the 15-country inventory conducted by CAPNUTRA, with central and southeastern Europe member state institutions,⁹ prior to the FAO symposium held in Belgrade, Serbia, in 2018. The generic needs, constraints and challenges based on the status of food system elements and horizontal assessments in individual countries are presented to identify priorities for the transformation to sustainable food systems and to provide key policy recommendations that can be used as a basis for regional initiatives.

To identify and evaluate the status of various food system elements in countries and regions, CAPNUTRA and the FAO Regional Office for Europe and Central Asia jointly designed and distributed a questionnaire based on a detailed literature review (FAO & WHO, 2018; HLPE, 2017) and expert consultation. The aim was to collect relevant and updated information on the needs, constraints and challenges in food systems and their contribution to healthy diets in central and southeastern Europe. The final assemblage of questions covered eight selected areas relevant to sustainable food systems:

1. governance, leadership and accountability for food security and nutrition;
2. food, nutrition and health research infrastructure;
3. software tools for food consumption data collection, dietary intake assessment and nutrition planning;
4. capacity in nutrition and nutritional education for professionals;
5. food-based dietary guidelines;
6. food demand and food environment;
7. nutrition of a targeted vulnerable group (children); and
8. sustainable, resilient food systems for healthy diets.

BOX 1-2. Adequate research infrastructure in food, nutrition and health is essential for nutrition epidemiology, innovative nutritional research, dietary exposure, food safety risk assessment, and effective public health nutrition strategies to address diet-related diseases, malnutrition and foodborne diseases.*

Research infrastructure provides a platform for interdisciplinary and multi-national collaboration to facilitate world-class research.**

Research infrastructure includes the associated human resources, comprehensive equipment or research instrumentation, and knowledge-containing resources such as collections, archives and data banks,*** which can be divided into two types:

- a) hard research infrastructures: major buildings, equipment and instruments, and knowledge-containing resources (e.g. e-platforms and data banks)
- b) soft research infrastructures: unique data management, interpretation and handling capacities, harmonization of data and procedures, training staff, professional networks, and knowledge transfer.

* **Source:** Gurinović, M., Milešević, J., Novaković, R., Kadvan, A., Djekić-Ivanković, M., Šatalić, Z., Korošec, M., Spiroski, I., Ranić, M., Dupouy, E. and Oshaug, A., 2016. Improving nutrition surveillance and public health research in Central and Eastern Europe/Balkan Countries using the Balkan Food Platform and dietary tools. *Food chemistry*, 193, pp.173-180. <https://doi.org/10.1016/j.foodchem.2015.03.103>

** EC, 2013

*** ESFRI, 2010

⁹ The responses in the questionnaire reflect the individual views of the national representatives and not of the organizations in which the persons are working.

Data collection was conducted through a self-administered survey distributed online. An online survey approach was selected because this platform can rapidly distribute questionnaires and reduce the cost of analysis facilitation. Experts in the field of nutrition from 17 participating countries were invited to respond to the survey. The countries invited were Albania (coded as AL, using the ISO Country Alpha-2 Code), Bosnia and Herzegovina (BA), Bulgaria (BG), Croatia (HR), Czechia (CZ), Hungary (HU), North Macedonia (MK), Montenegro (ME), Republic of Moldova (MD), Latvia (LV), Lithuania (LT), Estonia (EE), Poland (PL), Romania (RO), Serbia (RS), Slovakia (SK) and Slovenia (SI).

Regional overview and analysis of countries' food systems elements and status

Fifteen of the 17 invited countries in central and southeastern Europe participated in the survey. Data from Slovakia and Croatia were not provided until the submission of the report. The status of food system elements derived from the evaluation of responses to the questionnaire was used as a backbone for the Belgrade Declaration, strengthening regional capacities for sustainable food systems transitions for healthy diets and nutrition in central and southeastern Europe. A detailed summary of the status of food systems elements in central and southeastern Europe can be found in the Table 1-0-3 at the end of the chapter.

Governance, leadership and accountability for food security and nutrition

Nutrition governance, strategic planning and budget allocation in the countries of central and southeastern Europe

Recommendation 1 (FAO/WHO, 2014b) from the ICN2 FfA highlighted an increase in allocations for nutrition spending in national budgets¹⁰ and found that improving nutritional outcomes within existing spending on agriculture and food is a prerequisite for building a sustainable food system (HLPE, 2017). However, the majority of countries from central and southeastern Europe (nine of the 15) reported that they still do not have any budget allocated for this purpose. In six countries (Bulgaria, Lithuania, Poland, Republic of Moldova, Romania and Slovenia), a part of the overall annual budget is allocated for the implementation of the national nutrition strategy, policy and action plans. The share of the budget allocated for nutrition ranged from 0.01 percent (Republic of Moldova) to 0.18 percent (Slovenia), while data from other countries are missing.

Emphasized at the Regional Symposium on Sustainable Food Systems for Healthy Diets in Europe and Central Asia was that each country in the region should establish an authoritative body for nutrition and food systems measures – preferably including members from multiple sectors (FAO/WHO, 2018). Eight countries reported that there are national multisectoral and multistakeholder coordination mechanisms that address countries' existing food security and nutrition challenges. National nutrition committees have been established in six countries (Republic of Moldova, Bulgaria, Romania, Slovenia, Latvia, Czechia), while nine countries still do not have a similar governmental body. Despite the lack of official national nutrition committees, the majority of countries participating in the survey (87 percent) have different types of strategic documents regarding nutrition (nutrition strategies, national food and nutrition action plan, etc.) created by different ministries. Reported strategies and plans are either integrated into national health plans or are

¹⁰ ICN2 FfA Recommendation No.1: Enhance political commitment and social participation for improving nutrition at the country level through political dialogue and advocacy. FAO/WHO (2018) Strengthening Nutrition Action: A resource guide for countries based on the policy recommendations of the Second International Conference on Nutrition (ICN2) gives example of SMART commitment related to budget allocations, e.g. "As of 2019 onwards, the Ministry of Finance will ensure that XX percent of the public sector government budget will be allocated yearly to nationwide programs for enhancing food security and improving nutrition."

developed to specifically focus on nutrition. This is the case in Slovenia, which has implemented a national programme on food and physical activity for nutrition for 2015–2025. Procedures and practices to monitor and evaluate the implementation of policies, strategies and programmes exist in 11 countries (73 percent), while national nutrition plans with country-specific SMART commitments have been developed in just four of the 15 participating countries. Because making SMART commitments is the responsibility of national governments, the initiation and establishment of functional nutrition committees will take some time and might not be fully accomplished until the end of the Decade of Action for Nutrition.

Capacity development in monitoring and surveillance: nutrition data collection for evidence-based policymaking

The data management of nutrition and health indicators is essential for comparing development in central and southeastern Europe. These indicators include monitoring the dietary intake and nutritional status of the population, evaluation of the impacts of interventions, and providing information for political decision-making. The current collection of nutrition data for evidence-based policy is evaluated by screening the available data related to anthropometric measurements, biomarkers of nutrient intake, and food consumption. Anthropometric data on child growth is collected in all countries (**Table 1-0-1**). However, collection frequency and data collection/monitoring systems are diverse and are not yet regulated or harmonized. The data reported here have been collected by different institutions or within various projects or initiatives.

Table 1-0-1. Review of the collection of anthropometric data on child growth monitoring and frequency of data collection in central and southeastern Europe

Country	Anthropometric data on child growth monitoring	Frequency of data collection
AL	√	Not periodically
BA	√	Every four years
BG	√	Every five years
CZ	√	Not periodically
EE	√	Not periodically
HU	√	Annually/biannually
LT	√	Annually
LV	√	Biannually
MD	√	Annually/every five years
MNE	√	Not periodically
NMK	√	Annually
PL	√	Not reported
RO	√	Annually
RS	√	Annually
SI	√	Annually

Source: Data extracted from the survey of this study in 2018

Anthropometric data for adult populations exist in all countries of central and southeastern Europe (**Table 1-0-2**). Data on biomarkers of nutrient intake in adult populations are available in nine countries for different nutrients and different population groups. These data were collected from small survey samples for different research projects.

Table 1-0-2. Review of the collection of anthropometric data on adult population and frequency of data collection in central and southeastern Europe

Country	Data on nutritional status of adult population [Anthropometric data]	Data on nutritional status of adult population [Biomarkers of nutrient intake]	Frequency of data collection
AL	√	√	Not periodically
BA	√	X	Every two years
BG	√	X	Every five years
CZ	√	√	Irregularly
EE	√	X	Every two years/every seven years
HU	√	X	Every five years
LT	√	√	Every five years
LV	√	√	Irregularly
MD	√	√	Every five years
MNE7	√	√	Irregularly
NMK	√	X	Every six years
PL	√	√	Every five years
RO	√	√	Annually
RS	√	X	Every five years
SI	√	√	Every four years

Source: Data extracted from the survey of this study in 2018

A monitoring and surveillance system for nutrition data collection has been established in seven countries (Lithuania, Estonia, Hungary, Bulgaria, Romania, Slovenia, Czechia). Four of these countries collect data every five years. Romania and Czechia collect data continuously – i.e. (bi)annually. Other countries are at different stages of the establishment of monitoring and surveillance systems.

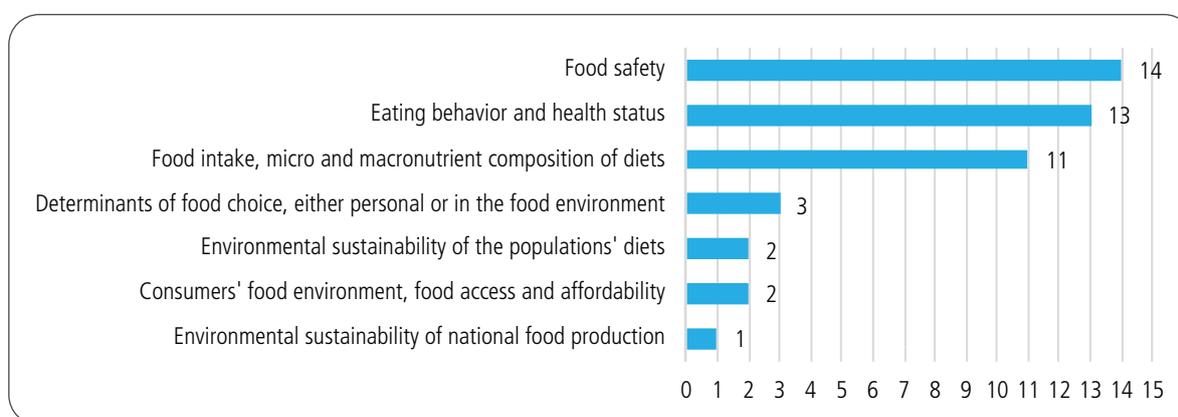
Food, nutrition and health research infrastructure

Adequate research infrastructures in food, nutrition and health are essential for nutrition epidemiology, innovative nutritional research, dietary exposure, food safety risk assessment, and effective public health nutrition strategies to address diet-related diseases, malnutrition and food-borne diseases (Brown *et al.*, 2017; Gurinović *et al.*, 2016b; Snoek *et al.*, 2018). Governments are encouraged to “support scientific research and innovation towards safer foods and healthier diets and develop and support food, nutrition, and health research infrastructure capable of creating an up-to-date, trustworthy base of evidence for policies” (FAO/WHO, 2018). So far, seven countries in central and southeastern Europe (Lithuania, Estonia, Hungary, Bulgaria, Slovenia, Serbia and Czechia) have reported that they have established some kind of information systems related to food and nutrition that provide data on food systems and nutrition policymaking. In most cases, information is derived from food consumption surveys, household budget surveys and food production and expenditures. Food balance sheets collected by FAO are freely available at FAOSTAT (2021).

Aggregated food consumption data are the basis for improving the accuracy of European Union-wide exposure assessments and support diligent nutrition surveillance and diet- and health-related studies. Since 2005, the EFSA has worked in close cooperation with food- and nutrition-related institutions towards harmonizing dietary survey methodologies and building a common European Union food consumption

database. The most important step in this process has been the development of the EFSA Comprehensive European Food Consumption Database, which compiles existing national dietary information from Member Nations. In 2011, EFSA launched the What's on the Menu in Europe? (EU Menu) project with the aim of providing financial and technical support to carry out national dietary surveys in the European Union. So far, ten central and southeastern European countries have undertaken the EFSA EU Menu project. In 2012, Latvia and Estonia started the project. In 2014, Hungary, Slovenia and Romania joined. Poland joined in 2015; Serbia, Montenegro, Bosnia and Herzegovina and North Macedonia in 2016; and in 2017, Montenegro joined for children aged 0–9 years (Gurinović *et al.*, 2022; Ioannidou, Horváth and Arcella, 2020). The most prioritized research areas on the national research infrastructure level in most of the countries are food safety, eating behaviour and health status, food intake, and micro- and macronutrient composition of diets (Figure 1-1).

Figure 1-1. Number of central and southeastern European countries that performed surveys in specific research areas (prioritized areas: food safety, eating behaviour and health status and food intake, micro and macronutrient composition of diets)



Source: Data extracted from the survey of this study in 2018

One of the essential elements related to the food, nutrition and health research infrastructure is the food composition database. Currently, eleven of the 15 central and southeastern European countries have food composition databases, while Montenegro, North Macedonia and Bosnia and Herzegovina are using and adapting the regional food composition database for central and southeastern European countries developed by CAPNUTRA (Gurinović *et al.*, 2016a). Seven of the 15 countries followed European Food Information Resource (EuroFIR) standards in structuring their food composition databases. All food composition databases are available in English and in the country's mother tongue, with the exception of Romania and Hungary, which have food composition databases only in their mother tongues. All food composition databases are available online, with the exception of the Hungarian database, which is available in electronic form with restricted access. Three prominent sources of food composition data are food labels, which are found in 11 food composition databases; laboratory analysis, found in nine food composition databases; and literature, found in seven food composition databases. Twelve food composition databases possess borrowed data.

National dietary reference values¹¹ for nutrients are established in nine of the 15 respondent countries. Albania, Bosnia and Herzegovina, Republic of Moldova, Serbia, Montenegro and Czechia have not established national dietary reference values.

¹¹ "Dietary reference values" is an umbrella term for the complete set of nutrient reference values, including population reference intakes, average requirements, adequate intakes and reference intake ranges for macronutrients. These values indicate the amount of a nutrient that must be consumed on a regular basis to maintain health in an otherwise healthy individual (or population). Source: EFSA, 2019 doi:10.2903/sp.efsa.2017.e15121

Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning

The collection and assessment of food consumption data and the evaluation of food and nutrient intakes require harmonized and standardized data collection, specific methods and protocols, and the application of nutritional assessment tools, which facilitate the compatibility of the results (Gurinović, M., Zeković, M., Milešević, J., Nikolić M., Glibetić, 2016). The process of harmonizing food consumption data collection on the national and regional level in Balkan countries has been initiated with EFSA EU Menu project support and was made possible by the existing Balkan Food Platform, which was developed by CAPNUTRA (Gurinović *et al.*, 2016b). This platform is a home of the Diet Assess and Plan (DAP) assessment tool (Gurinović *et al.*, 2018), a major component for standardized food consumption data collection and analysis. Serbia, Montenegro, Bosnia and Herzegovina and North Macedonia are using DAP for EFSA EU Menu dietary surveys. Beside these, other central and southeastern European countries have their own software solutions for food consumption and nutrient intake surveys, with the exception of Albania and Republic of Moldova.

All reported software solutions can be used to analyse data collected from 24-hour dietary recall/food diary surveys and the Food Frequency Questionnaire (FFQ)/Food Propensity Questionnaire (FPQ), with the exception of Slovenia, which has the capacity only for food diary collection. Lithuania, Hungary, Bulgaria and Czechia have developed PC-based software, while Estonia, Slovenia, Latvia and Serbia have web-based solutions. Bosnia and Herzegovina, Montenegro and North Macedonia are actively using web-based software developed by CAPNUTRA for their nutritional and food consumption research. Poland has developed a smartphone app to collect data for food diary/food consumption surveys.

Capacity in nutrition and nutritional education for professionals

Continuous and innovative education empowers food and nutrition professionals to create an environment in which effective action on nutrition can take place. It can boost the development of leadership, influence skills among nutrition professionals, and facilitate collaboration among different stakeholders (FAO/WHO, 2018). All central and southeastern European countries that participated in this inventory reported available university-level education and training programmes in food and nutrition. However, the number of nutrition professionals/licensed nutritionists is unknown due to the lack of regulations that define the level of education necessary to get the qualification of nutritionist. One of the important nutrition policy indicators is the number of trained nutrition professionals per 100 000 people.¹² Estonia, Hungary, Bulgaria, Romania, Slovenia, Poland and Serbia have established academic-level education and training programmes in food and nutrition. Postgraduate programmes for master's and doctorate degrees in nutrition have been established in Lithuania, Estonia, Hungary, Romania, Slovenia and Serbia. North Macedonia and Czechia have established doctorate programmes in public health and preventive medicine, respectively. These programmes could be related to nutrition, but the degree earned is not in nutrition/human nutrition but is instead classified as medicine or (food) technology. Previous data about nutrition education programmes in central and southeastern Europe identified gaps and opportunities for further capacity building at different levels of the public health nutrition workforce, including on-the-job training with distance learning as well as in-service training (Gurinović *et al.*, 2014).

¹² For information about the Nutrition Landscape Information System (NLiS), visit <https://apps.who.int/nutrition/landscape/report.aspx>.

Food-based dietary guidelines

Science-based food-based dietary guidelines (FBDGs) are guidelines for sustainable nutrition and the prevention of malnutrition in all its forms. By involving governments and other stakeholders as major responsible actors, the FBDG are among the main drivers in the transition towards sustainable food systems (Branca *et al.*, 2019; Hawkes *et al.*, 2020). The development of FBDGs can contribute to the achievement of the SDGs for healthy diets (UN, 2015) and create safe and supportive food environments for healthy nutrition at all ages (Hawkes *et al.*, 2020). Such an environment should provide food security in which “all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 1996). In central and southeastern Europe, national FBDGs are present in the majority of countries, while Serbia, and Montenegro are still developing their guidelines. More than half of FBDGs present in central and southeastern Europe were established more than five years ago. This is important, as sustainability aspects are only captured in the novel FBDGs of several developed countries. In many countries with FBDGs, the sustainability aspects of the guidelines are on paper but are not widely acknowledged or implemented. Updating existent FBDGs in all central and southeastern European countries to include sustainability aspects should be an objective for further work (FAO, 2020a; Herforth *et al.*, 2019). FBDGs are represented as pyramids in the majority of participating countries. Updating the graphics of FBDGs is also an important objective of future work, as the graphical presentation of recommended portion sizes can be imperative to the population’s understanding of what these guidelines mean (Herforth *et al.*, 2019).

Food demand and food environment

Food labelling regulations

In the context of sustainable food systems, food labelling plays a pivotal role in promoting sustainable consumption and production patterns, in accordance with the objectives of SDG 12 (United Nations Statistics Division, 2016). Food labels influence consumer choices, regarding not just nutrition but also other various elements of sustainability, such as recycling, food origin, carbon footprint, etc. Food labelling regulations are established and implemented in all countries of central and southeastern Europe. Bulgaria, Czechia, Estonia, Latvia, Lithuania, Romania and Slovenia have indicated that they have established national food labelling policies that are aligned with European Union Regulation No. 1169/2011 of the European Parliament and of the Council.

Surveys on consumers’ use of nutrition labels are not common in countries of central and southeastern Europe; only Lithuania and Poland have conducted national consumer surveys to assess the use of nutrition labelling that guide healthy food choices. Designing and distributing similar surveys in other central and southeastern European countries would help authoritative bodies design methods and programmes to educate consumers on healthy food choices. Promotion and endorsement of policies for front-of-package labels, for example, could be effective, as these policy measures are already in place in some European countries (Breda *et al.*, 2020).

Policies that limit specific nutrient components in the food supply

Food policies that limit specific nutrient components in foods are established in Bosnia and Herzegovina, Bulgaria, Hungary, Latvia, Lithuania, Republic of Moldova, Montenegro and Slovenia. Lithuania and Republic of Moldova have policies that limit trans-fatty acids, saturated fatty acids, salt and added sugars. Bulgaria limits saturated fatty acids, salt and free sugars. Latvia and Slovenia limit trans-fatty acids and salt,

while Bosnia and Herzegovina and Montenegro have regulated salt content. The other seven countries do not have policies that address and limit harmful nutrient components. This situation was observed in previous policy reviews from 2013 for countries in the region (Lachat *et al.*, 2013). Since the 2013 review, there has been minimal progress in limiting specific nutrient components in these countries.

In particular, industrially produced trans fats, more than any other nutrient, seriously increase the risk of coronary heart disease. Heart disease is the leading cause of death in Europe (European Commission, 2015). Their content is particularly high in certain processed foods, such as bakery products, cakes and biscuits, convenience food and deep-fried products. These foods are commonplace in markets in central and southeastern European countries (Stender, 2020). There is an urgent need for establishing legislation that would limit or eliminate industrially produced trans fats, as this has been shown to be the most effective measure in improving public health and consumer protection in countries such as Denmark, Hungary, Latvia, the United States of America and others (WHO, 2020). In 2019, the European Union Commission adopted a regulation that strictly limits the amount of industrially produced trans fats to a maximum of 2 percent of total fat in foods for the final consumer; this came into effect in 2021. The WHO has provided the REPLACE action package, which can serve as a guide to countries that are in the process of or are completing the elimination of industrially produced trans fats from the food supply (WHO, 2018b).

Similar approaches can apply to other detrimental nutrients: First, set reduction targets through legislation. Second, engage the whole food sector and other stakeholders towards reduction. Third, set up a vigilant monitoring system to follow the progress of reformulations (Breda *et al.*, 2020).

Legislation on foods high in fat, sugar and salt

Only Hungary, Latvia and Montenegro reported on having legislations concerning foods high in fat, sugar and salt, whereas the other 12 countries reported that they did not have this legislation.

Restricting the marketing to children of non-alcoholic beverages and foods high in fat, sugar and salt

In May 2010, at the Sixty-third World Health Assembly, WHO Member Nations endorsed a set of recommendations for the marketing of foods and non-alcoholic beverages to children, Resolution WHA63.14. This was a call to action in an effort to reduce exposure to the harmful influences of food marketing to children through relevant legislative measures that will limit and/or restrict inappropriate marketing and publicity of foods and non-alcoholic beverages (WHO, 2010). The ICN2 FfA recommends (in Recommendation 15) the exploration of regulatory and voluntary instruments such as marketing, publicity, labelling policies, and economic incentives or penalties to promote healthy diets (FAO/WHO, 2014b). National mandatory policies to restrict the advertising of foods high in fat, sugar and salt to children in various media platforms are in place in Hungary, Lithuania, Republic of Moldova, Poland and Slovenia. In Bulgaria, Czechia and Romania, these activities are voluntary. Other countries do not have similar policies, regulations or voluntary activities. In a recent review of similar policies across Europe, the situation was found to be somewhat similar. Various measures to limit the marketing of foods high in fat, sugar and salt to children are mostly voluntarily. Advertising and marketing on television and radio is restricted, either mandatorily or voluntarily, in almost 50 percent of reviewed countries, while other channels (e.g. advertising in store/streets, social media, advergames, apps, etc.) are significantly less regulated (Breda *et al.*, 2020). The implementation of regulatory instruments could contribute to achieving SDG 2 (Zero Hunger) and SDG 3 (Good health and well-being).

Food fortification legislation

Thirteen countries have established food fortification legislation, with Hungary and Latvia as the exceptions. All 15 countries have mandatory iodine fortification. Czechia, Republic of Moldova, Poland, Serbia and Slovenia have voluntary fortification of other nutrients as well. Adding vitamins and minerals to food is permitted in the European Union through regulation 1925/2006 (European Commission, 2006). Republic of Moldova has legislation requiring the addition of iron and folic acid to at least one kind of commonly consumed wheat flour. Some other countries in central and southeastern Europe are also considering the adoption of mandatory flour fortification (FFI, 2013).

Nutrition of selected vulnerable group (children)

One of the commitments communicated at the ICN2 was to “develop policies, programmes and initiatives for ensuring healthy diets throughout an individual’s lifetime, starting from the early stages of life to adulthood, including people with special nutritional needs, before and during pregnancy, and in particular, during the first 1,000 days of life, promoting, protecting and supporting exclusive breastfeeding during the first six months and continued breastfeeding until two years of age and beyond, with appropriate complementary feeding, healthy eating with families and at school during childhood, as well as other specialized feeding” (FAO/WHO, 2014a). In central and southeastern Europe, policies and practices for improving the nutrition of children, including breastfeeding and complementary feeding, are established in all of the 15 respondent countries. Legislation and regulation related to the International Code of Marketing of Breast-milk Substitutes exist in the majority of the countries of central and southeastern Europe, with the exception of Bosnia and Herzegovina, Czechia and Poland. National food and nutrition action plans and policies targeting kindergarten and school-age children (aged 3–18 years) are established in all countries of central and southeastern Europe, except for Estonia.

Mandatory national nutrition standards for school meals are available and in use in 12 of the 15 respondent countries. Albania, Bosnia and Herzegovina and Montenegro do not have school meal standards. Nutrition education, mandatory at the national level in primary and/or secondary school curriculum, does not exist in Albania, Bosnia and Herzegovina, Latvia, Romania and Serbia. Public procurement for school food is not implemented at the national level in Albania, Bosnia and Herzegovina, Estonia, Romania and Serbia.

Sustainable, resilient food systems for healthy diets

Food systems for nutrition

Recommendations 9 and 10 from the ICN2 FfA and HLPE (FAO/WHO, 2014b; HLPE, 2017) indicate that various comprehensive actions and strategies are implemented in all countries of central and southeastern Europe to support the sustainability and resilience of food systems and healthy diets. Countries of central and southeastern Europe reported on established national measures, strategies or action plans to expand local agro-industry and value chain development, enhance nutrition sensitivity, and facilitate investments in small- or medium-scale agribusiness. Eleven countries reported establishing national measures, strategies or action plans that aim to promote the diversification of crops, including underutilized traditional crops, higher fruits and vegetables yields, production of animal products, and application of sustainable food production and natural resource management practices. Bosnia and Herzegovina has adopted new strategic plans for agriculture and rural development. North Macedonia focuses on agrifood policies regarding improvements in the quality of fruits and vegetables produced, such as grapes, and has set up initiatives for the production of organic soil fertilizers. Slovenia adopted the Rural Development Programme 2014–2020 and joined European

Union and national food quality schemes. Since 2008, Latvia also has had programmes to facilitate the production, treatment and processing of local products and has created networks to distribute these products to broader retailers. Albania, Bulgaria, Hungary and Lithuania did not report details on these strategies.

It is likely that these agrifood policies are more focused on developing rural businesses and production practices and do not account for – or at least not to an adequate extent – sustainability, land use, biodiversity and nutritional needs. Better connection with updated FBDGs, life-cycle assessment databases (Nexus, 2017), and nutritional surveys should educate policymakers about better adaptation of agrifood policies and implementation (FAO, IFAD, UNICEF, 2022).

Antimicrobial resistance for food safety and nutrition

All countries of central and southeastern Europe have taken action to raise awareness among stakeholders on the problems of antimicrobial resistance and have created regulations regarding the distribution and use of antimicrobials in animal production. Bosnia and Herzegovina, Bulgaria, Montenegro, Poland and Czechia do not have established surveillance mechanisms in place for the detection and monitoring of antimicrobial resistance in humans, food-producing animals or the environment, while other central and southeastern European countries already have established such mechanisms.

Food safety for nutrition

The joint FAO/WHO Codex Alimentarius Commission develops and updates international food standards, guidelines and recommendations that serve as a single reference point for the international harmonization of food safety measures. All countries in central and southeastern Europe have established surveillance systems for food-borne diseases in humans as well as surveillance and monitoring systems for food-borne hazards across the food supply chain. Estimates on the magnitude of national food-borne diseases do not exist in Estonia, Slovenia or Poland. Effective national food control systems exist in all countries of central and southeastern Europe; this is based on ICN2 FfA Recommendation 53 to “develop, establish, enforce and strengthen, as appropriate, food control systems, including reviewing and modernizing national food safety legislation and regulations to ensure that food producers and suppliers throughout the food chain operate responsibly” (FAO & WHO, 2018; FAO/WHO, 2014b). Codex Contact Points have been established in all respondent countries; this is based on ICN FfA Recommendation 54 to actively take part in the work of the Codex Alimentarius Commission on nutrition and food safety, and implement, as appropriate, internationally adopted standards at the national level” (FAO & WHO, 2018; FAO/WHO, 2014b).

Food loss and waste prevention and reduction for nutrition

Food loss, according to the United Nations Environment Programme definition, refers to “food that gets spilled, spoiled or otherwise lost, or incurs reduction of quality and value during its process in the food supply chain before it reaches its final product stage. Food loss typically takes place at production, postharvest, processing, and distribution stages in the food supply chain” (UN Environment Programme, 2021). Food waste, according to UNEP, refers to “food that completes the food supply chain up to a final product, of good quality and fit for consumption, but still doesn’t get consumed because it is discarded, whether or not after it is left to spoil or expire. Food waste typically (but not exclusively) takes place at retail and consumption stages in the food supply chain” (UN Environment Programme, 2021). According to the most recent estimates, 88 million tonnes of food waste are generated in the European Union each year, with associated costs estimated at EUR 143 billion (Stenmarck *et al.*, 2016). These losses fundamentally affect the availability and affordability of nutritious foods and represent a major food

system dysfunction (Global Panel, 2018). While 20 percent of food produced in the European Union is being lost or wasted, every second day, around 33 million people cannot afford a meal of adequate nutritional quality (European Union, 2014). Many nutrients are wasted when retailers discard “unsellable” perishable products or when consumers discard uneaten food.

Reducing food loss and waste is seen as a way to contribute towards environmental sustainability by easing the dependency on natural resources and decreasing greenhouse gas emissions. Food production accounts for approximately 6 percent of total European Union greenhouse gas emissions (European Union, 2014). Food loss and waste is a global issue and is one of the roots for SDG 12 (responsible consumption and production), which sets a specific target to halve food loss and waste by 2030, and SDG 2 (eradicate hunger) (FAO, 2016). Actions to prevent and reduce food loss and waste also correspond with Recommendation 11 from the ICN2 FfA (FAO & WHO, 2018; FAO/WHO, 2014b).

The review of central and southeastern Europe shows that eight countries have policies in place aiming to reduce and prevent food loss and waste in the primary production, handling and storage, processing, distribution and consumption stages of agricultural, livestock, fisheries and forestry food supply chains. Albania, Bosnia and Herzegovina, Bulgaria, Estonia, Montenegro, North Macedonia and Poland are still in need of these policies and programmes. Similar results were reported on the European Union level, where many countries have no or incomplete policies and programmes to address food loss and waste issues at all food system stages (Stenmarck *et al.*, 2016).

Belgrade Declaration for strengthening regional capacities on sustainable food systems for healthy diets and nutrition in central and southeastern Europe

Based on the plenary presentations from external experts, country presentations, survey results and discussions at the Belgrade Symposium on Sustainable Food Systems for Healthy Diets in central and southeastern European countries, the experts at the FAO-CAPNUTRA meeting declared:

With respect to the development of policies and research:

- In line with international frameworks, the ICN2, the 2030 Agenda for Sustainable Development, the United Nations Decade on Nutrition and the key messages from the FAO/WHO Regional Symposium on Sustainable Food Systems for Healthy Diets in Europe and Central Asia, the experts adopt a food systems approach, envisioning consumers’ dietary patterns as the link between public health and the food environment.
- In central and southeastern Europe, CAPNUTRA is an excellent network for capacity development, sharing knowledge and experiences, and building collaborations in policy and research for diet, nutrition and food systems (Gurinovic *et al.*, 2020).
- Governments, as major actors, are responsible for driving changes to food systems at the country level and should formulate country-specific SMART commitments for action towards the eradication and prevention of all forms of malnutrition, starting from birth and lasting throughout an individual’s lifetime, including improvements in diets through sustainable and resilient food systems in order to meet the national commitments to ICN2 and the SDGs.
- Governments should define and formulate specific food system and nutrition policies that include measures for educating consumers on healthy diets and nutrition. These policies should also be supported by a shift in investment priorities to ensure that diverse, nutritious and safe foods that meet local requirements based on cultural preferences and taste are available and affordable to all in a sustainable manner.

- Policies need to be aligned with international frameworks, following the recommendations included in the FAO/WHO resource guide *Strengthening Nutrition Action*, a source guide for countries based on the policy recommendations of the ICN2 (FAO & WHO, 2018).
- Technical support and capacity development from the United Nations specialized agencies are needed for further implementation of the ICN2 FfA policy recommendations and SMART commitments in the central and southeastern Europe region.

Specific action points to improve policies and capacity building in food and nutrition in central and southeastern Europe

In line with the agreed vision of a consumer-centred food systems approach, the experts also proposed a number of specific actions with respect to governance and public health nutrition; food supply chain and food environment; consumer behaviour; research, education and training of (future) professionals; and networking and sharing knowledge and experiences for establishing collaboration among capacity development networks.

Actions proposed for governance and public health nutrition:

- Each country in the region should establish inter-sector, multistakeholder mechanisms for food security and nutrition as a part of a national coordination structure for nutrition and food system actions, preferably including members from multiple sectors such as agriculture, health, research, academia, education, trade, environment and social protection, for enhancing food security and improving nutrition (*Related to ICN2 FfA Recommendation 3*) (FAO/WHO, 2014b).
- Programming and public financing for nutrition and food systems is essential to enhancing the knowledge and skill capacity of the main policymakers on food and nutrition policy. Forces should be joined to persuade governments to allocate some of their annual budgets to nationwide programmes for strengthening nutrition governance, enhancing food security and improving nutrition (*Related to ICN2 FfA recommendations 1, 3, 6 and 7*) (FAO/WHO, 2014b).
- There is a continuous need to further develop and implement standardized monitoring systems and nutrition and health surveys, aligned with ongoing initiatives (Key message 17) (FAO/WHO, 2018), and to support initiatives for establishing a surveillance system for nutrition data collection for evidence-based policymaking. Recommendation 58 of the ICN2 FfA (FAO/WHO, 2014b) urges countries to improve and harmonize the monitoring and evaluation of nutritional data. The collection of such dietary intake data is essential for evidence-based policymaking related to leveraging the potential of nutrition-sensitive agriculture and food systems for healthy diets.
- Governments should establish the monitoring of SDG indicators and strengthen data collection and analysis for evidence-based policymaking, including food consumption and nutrition data, data monitoring of child growth and nutritional status of the population, food composition data of commonly available local foods, and data on food contaminants, etc. (Key message 17) (FAO/WHO, 2018).
- The initiative to establish a food, nutrition and health research infrastructure is strongly advised (FNH-RI, 2019). This would facilitate access to relevant data by the research community in public health nutrition. This also would support and motivate national authorities to prioritize evidence-based policies, research and innovation in order to advance dietary quality and health through behaviour changes, public health institutions, and the food supply chain (Directorate-General for Research and Innovation of the European Commission *et al.*, 2022).

Actions proposed for the food supply chain and food environment:

- Food system legislative regulations, norms and standards should be adopted in order to facilitate healthy diets and ensure healthy food environments for all age groups, starting from birth.
- Non-state actors, the private sector (producers, processors, professional associations, etc.), civil society members, academics and consumers should be involved in policy dialogues on issues related to agriculture, food and nutrition. The private sector should ensure the diverse and affordable supply of nutritious and safe food.
- National nutrition-related policies, with targets and guidelines, should be designed and established by evidence-based expert opinions. These will entail the reduction of saturated fats, free sugars and/or salt and industrially produced trans fats, with special attention paid to specific categories of food and specific population groups (e.g. children, adults, pregnant and lactating women, elderly people). National policies and/or programmes that influence food reformulation should take into account individual needs, cultural context, locally available foods and dietary customs of the target populations.
- Initiatives should be taken and support should be provided to countries that do not already have policies in place to establish mandatory restrictions to the advertising of foods high in fat, sugar and salt for all age groups, particularly for children.
- Initiatives should be taken and support should be provided to countries that are missing systems for establishing surveillance mechanisms for the detection and monitoring of antimicrobial resistance in humans, food-producing animals and the environment.
- Initiatives should be taken and suggestions should be given on the design of policies and programmes for the reduction and prevention of food loss and waste in countries that have not established policies to address these issues.
- Environmental sustainability should be incorporated in the development of FBDGs and should include key indicators relevant to planetary boundaries, such as greenhouse gas emissions, land use, energy use, water use, etc. Environmental aspects should be incorporated in the food procurement procedures of private companies, public organizations, restaurants and catering facilities.

Actions proposed with respect to consumer behaviour:

- Food systems must be reformed to improve yields and access to foods that comprise healthy diets and to empower consumers to increase their consumption of those foods, including nutrient-rich, underutilized foods and traditional recipes for diet diversity and higher nutrient intake. Initiative should be taken to develop FBDGs (*ICN2 FfA Recommendation 13*) (FAO/WHO, 2014b) and to disseminate and implement these within educational programmes and public health initiatives.
- Initiatives should be taken to develop school programmes and implement mandatory nutrition education at the national level in primary and/or secondary school curricula in countries where it was not already implemented.
- Mandatory national nutrition standards for school meals should exist. Initiatives should be taken to design nutrition-sensitive public procurement schemes from local producers, if feasible, for meals provided by schools.

- Practices that protect, promote and support breastfeeding should be implemented. Legislation on the marketing of breast milk substitutes should be implemented. Legislation that prohibits the marketing and sale of foods high in fat, sugar and salt and beverages in settings where children gather (e.g. nurseries, primary and secondary schools, school grounds, sports facilities, preschool centres and playgrounds) should be implemented.
- Awareness should be raised regarding all topics related to the selected vulnerable groups, such as children.

Actions proposed for research and education and training of (future) professionals

- Development of the nutrition and food systems curriculum: Initiatives should be taken towards empowering capacity development in nutrition and food systems, promoting networking and collaboration, and up-to-date and adequate training for all personnel, according to contemporary and visionary understandings of nutrition and food systems. Modules on sustainable food systems for healthy diets and improved nutrition should be integrated into extensional services and delivered to all actors involved in all elements of food systems (Key messages No. 20) (FAO/WHO, 2018).
- Universities and educational institutions should be supported to create doctorate programmes, curricula and education and training modules that focus on nutrition and food systems.
- Involvement of CAPNUTRA in the emerging plans to develop a food, nutrition and health research infrastructure in Europe is an opportunity to intertwine top-level European research on diet, nutrition and food systems with the building of capacity among early-career researchers that enhances knowledge-sharing and collaboration with stakeholders in policy and research in the central and southeastern Europe region.

Actions proposed with respect to strengthening the professional scientific community, capacity development and networking

- Following ICN2 FfA Recommendation 6 to promote intercountry collaboration and Key message 21 (FAO/WHO, 2018), the symposium stressed the need for networking and the sharing of knowledge and experiences for establishing close collaborations among capacity development networks.
- Capacity development on methodologies and the planning of joint activities should be fostered among CAPNUTRA, the Regional Nutrition Capacity Development and Partnership Platform for Central Asia and Caucasus, and the Eurasian Food Security and Nutrition Network within the Eurasian Centre for Food Security, related to various thematic areas of food systems.
- For top-level capacity building, it is necessary that there be innovative research and access among the public health and nutrition community to scientific, evidence-based information on all aspects of the food systems, nutrition and health.
- As an already well-recognized capacity building network situated in the central and southeastern Europe region, CAPNUTRA (Gurinović *et al.*, 2020) is advised to take a proactive role, formalizing its organizational leadership in upcoming public health nutrition and sustainable food systems, nutrition and health research infrastructure initiatives among the central and southeastern European countries of the European Union, the Caucasus/Eurasia region, and the wider research community.

Conclusions

The status of food system elements in the countries of central and southeastern Europe reveals various challenges in food systems and gives opportunities to support their transformation towards more sustainable food systems, which can result healthier diets across the region. The availability of internationally comparable data on nutrition outcomes is still limited, and those data are disaggregated. This hinders assessments and comparisons of nutritional indicators across cultures, countries/regions and time. Therefore, it is essential to invest more in food and nutrition research infrastructure, creating harmonized methodologies for nutritional assessment at global, regional and country levels. In the same vein, capacity development in nutrition research – particularly human resource development and organizational, institutional and legal framework development – is necessary to achieve proposed targets [38].

Food system transformations are at the heart of the 2030 Agenda for Sustainable Development and will support the achievement of many goals, specifically SDG 2 and many other SDGs related to nutrition. The COVID-19 pandemic has shown the vulnerabilities of food systems, the lack of resilience and adaptability to disruptions, and the crucial role that the interdependence of food systems plays in national economies and societies (FAO, 2020b).

Due to the complex nature of malnutrition, improving nutrition requires government support and collaboration from various sectors, including agriculture, health, education, trade, environment and social protection. Policymakers need to ensure that all parts of food systems work together to deliver high-quality diets and to implement actions suggested by the ICN2 FfA policy recommendations, key messages from the Regional Symposium on Sustainable Food Systems for Healthy Diets in Europe and Central Asia, and the Belgrade Declaration for strengthening regional capacities on sustainable food systems for healthy diets and nutrition in central and southeastern Europe. This means thinking well beyond agriculture to also consider the many processes and activities involved in food production, such as processing, storage, transportation, trade and retailing as key links between food systems and their nutritional, environmental and social outcomes. Food supply chains, food environments and consumer behaviour are the key components of better nutrition and overall health. To achieve the SDG targets, actions from various sectors, including governments and non-state actors, are needed. Technical support and capacity development from United Nations specialized agencies also is required. Active participation in the European Commission's research projects and cooperation with other European partners and networks to enhance nutritional training, information exchange, knowledge transfer and regional capacity development in food, nutrition and public health research can stimulate and contribute to food systems transformation in the region (European Commission, 2017). Further direction of this transformation should lean on European processes – guided by the recent Farm to Fork strategy – for fair, healthy and environmentally friendly food systems. The FOOD 2030 initiative to build a more coherent European Union research and innovation policy places sustainable food systems at its core.

The analyses of the statuses of certain food systems elements in central and southeastern Europe will contribute to the comprehensive situation and policy analysis of the region and are needed as a basis for planning effective policy responses and further monitoring of the progress in food systems transformation. Further direction is needed on the monitoring of food system elements and on the definition of appropriate indicators and factors, covering the whole food system. It is necessary to develop and establish the continual monitoring and harmonization of food systems data collection, with indicators that measure the state of various food system components. The extension within the scope of

this work could be based on the recently proposed comprehensive Food System Dashboard tool (Fanzo *et al.*, 2020).

The symposium outcome document, the Belgrade Declaration for strengthening regional capacities on sustainable food systems for healthy diets and nutrition in central and southeastern Europe, needs promotion, dissemination and implementation. This entails the establishment of nutrition governance and the engagement of stakeholders – at national, regional and European levels – following international frameworks, recommendations and strategies, with essential support from United Nations specialized agencies, the European Commission and other international authorities.

Table 1-0-3. Summary of central and southeastern Europe Country food system elements

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets	
Albania	Available national strategic documents for nutrition	NO information system to provide data for food systems and nutrition policymaking	NO software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition	Available FBDG, but not implemented	Available food labeling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available	
									strategies for SME development in the agrifood sector
	NO national coordination mechanism that addresses the country's food security and nutrition challenges	NO DRVs, FCDB		NO PhD in nutrition		Available policies for reducing TFA, SFA, S&S	Available legislation/ regulations on International Code of Marketing of Breast-milk Substitutes		NO policies for diversification of agriculture, sustainable food production and natural resource management practice
	NO budget allocation for nutrition	NO responsible institution for FCDB or software				NO restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten		
									NO policy on reduction of food loss and waste
	NO government SMART commitments						NO tax on HFSS foods	NO national nutrition standards for school meals, public procurements for schools at national level, mandatory nutrition education in schools	
							Available FF legislation, mandatory for iodine		Established effective national food control system with surveillance
	NO national nutrition committee								
									Available policies and programmes for AMR, implemented in practice
	Available anthropometric data for Ch&Ad								
NO monitoring and surveillance system- nutrition data collection									

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Bosnia and Herzegovina	Available national strategic documents for nutrition	NO information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FB DG,* but not implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding*	Available strategies for SME development in the agrifood sector***
	NO national coordination mechanism that addresses the country's food security and nutrition challenges,	NO DRVs, FCDB**				Available policies for reducing salt	Available legislation/ regulations on International Code of Marketing of Breast-milk Substitutes	Available policies for the diversification of agriculture, sustainable food production and natural resource management practices*
	NO budget allocation for nutrition	Assigned institution responsible for FCDB or software				NO restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten*	NO policy on the reduction of food loss and waste
	NO government SMART commitments						NO national nutrition standards for school meals, public procurements for schools at national level, mandatory nutrition education at schools*	Established effective national food control system with surveillance
	NO national nutrition committee						NO tax on HFSS foods	Available policies and programmes for AMR,* not implemented in practice
	Available anthropometric data for Ch&Ad*					Available FF legislation, mandatory for iodine, voluntary for iron, folic acid, vitamin D, A and others		
	Available monitoring and surveillance system- nutrition data collection							

* Only in Bosnia and Herzegovina, Federation of Bosnia and Herzegovina Entity

** Balkan regional FCDB in use

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Bulgaria	Available national strategic documents for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector
	Existent national nutrition committee	Available DRVs, FCDB				Available policies for reducing TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	NO policies for diversification of agriculture, sustainable food production and natural resource management practices
	National coordination mechanism that addresses the country's food security and nutrition challenges	Assigned institution responsible for FCDB or software				Existent restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten and public procurement for schools, national nutrition standards for school meals, public procurements for schools at national level	NO policy on the reduction of food loss and waste
	Government SMART commitments					NO tax on HFSS foods	NO mandatory nutrition education at schools	Established effective national food control system with surveillance
	Available anthropometric data for Ch&Ad					Available FF legislation, mandatory for iodine		Available policies and programmes for AMR, distribution and use antimicrobials controlled, but surveillance not in place

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets		
Czechia	NO budget allocation for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition	Available FB DG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector,		
									policies for diversification of agriculture, sustainable food production and natural resource management practices	
	Available national strategic documents for nutrition,	NO DRVs						Available Policies for reducing TFA, SFA, S&S	Available food and nutrition policies for kindergarten and public procurement for schools, national nutrition standards for school meals, public procurements for schools at national level, mandatory nutrition education at schools	
										Available policy on reduction of food loss and waste
	Existent national nutrition committee	Available FCDB						Existent restrictions on advertising and marketing of HFSS foods to children		
		Assigned institution responsible for FCDB or software								Established effective national food control system with surveillance
	National coordination mechanism that addresses the country's food security and nutrition challenges							NO tax on HFSS foods		
										Available policies and programmes for AMR, distribution and use of antimicrobials controlled, but surveillance not in place
	NO government SMART commitments							Available FF legislation, mandatory for iodine, voluntary for vitamin D		
	Available anthropometric data for Ch&Ad									

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Estonia	NO budget allocation for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector
	NO national nutrition committee	Available DRVs, FCDB				NO restrictions on advertising and marketing of HFSS foods to children	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	Policies for diversification of agriculture, sustainable food production and natural resource management practices
	National coordination mechanism that addresses the country's food security and nutrition challenges	Assigned institution responsible for FCDB or software				NO tax on HFSS	Available public procurement for schools, national nutrition standards for school meals, mandatory nutrition education at schools	NO policy on reduction food loss and waste
	Available national strategic documents for nutrition					Available FF legislation, mandatory for iodine, voluntary for iron, folic acid, vitamin D, A, and others	NO food and nutrition policies for kindergarten and public procurements for schools at national level	Established effective national food control system with surveillance
	Government SMART commitments							Available policies and programmes for AMR, distribution and use antimicrobials controlled, but NO procedures and practice to monitor and evaluate the implementation of policies, strategies and programmes
	Available anthropometric data for Ch&Ad							

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Hungary	NO budget allocation for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector
	NO national nutrition committee	Available DRVs, FCDB				Available policies for reducing TFA, SFA, S&S	Available legislation/ regulations on International Code of Marketing of Breastmilk Substitutes	Available policy on reduction food loss and waste
								Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges	Assigned institution responsible for FCDB or software				Existent restrictions on advertising and marketing of HFSS foods to children and tax on HFSS	Available food and nutrition policies for kindergarten, public procurements for schools at national level, national nutrition standards for school meals, mandatory nutrition education at schools	
								Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	Available national strategic documents for nutrition					NO FF regulation		
								Existent procedures and practices to monitor and evaluate the implementation of policies, strategies and programmes
	Available national strategic documents for nutrition							
	NO government SMART commitments							
	Available anthropometric data for Ch&Ad							

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets		
Latvia	NO budget allocation for nutrition	NO information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector,		
										policies for diversification of agriculture, sustainable food production and natural resource management practices
	Existent national nutrition committee	Available DRVs, FCDB,						Available policies for reducing TFA, salt	Available legislation/ regulations on International Code of Marketing of Breast-milk Substitutes	
										Available policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software						NO restrictions on advertising and marketing of HFSS foods to children and tax on HFSS	Available food and nutrition policies for kindergarten, public procurements for schools at national level, national nutrition standards for school meals	
										Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges							Existent tax on HFSS		
										Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments							NO FF regulation		
										Existent procedures and practice to monitor and evaluate the implementation of policies, strategies and programmes
	Available anthropometric data for Ch&Ad									

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Lithuania	Allocated budget for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector
	NO national nutrition committee	Available DRVs, FCDB				Available policies for reducing TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	NO policies for diversification of agriculture, sustainable food production and natural resource management practices
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				Existing restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, public procurements for schools at national level, national nutrition standards for school meals, mandatory nutrition education at schools	Available policy on reduction food loss and waste
	NO national coordination mechanism that addresses the country's food security and nutrition challenges					NO tax on HFSS		Established effective national food control system with surveillance
	Available government SMART commitments					Available FF legislation, mandatory for iodine		Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	Available anthropometric data for Ch&Ad							Existing procedures and practices to monitor and evaluate the implementation of policies, strategies and programmes
Republic of Moldova	Allocated budget for nutrition	NO information system to provide data for food systems and nutrition policymaking	NO software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	Existing national nutrition committee	NO DRVs, FCDB				Available policies for reducing TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	Available policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				Existing restriction for advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, public procurements for schools at national level, national nutrition standards for school meals, mandatory nutrition education at schools	Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges					Available FF legislation, mandatory for iodine, voluntary for iron, folic acid		Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments							Existing procedures and practice to monitor and evaluate the implementation of policies
	Available anthropometric data for Ch&Ad							

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Montenegro	NO budget allocation for nutrition	NO information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition	NO FBDG	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	NO national nutrition committee	NO DRVs, FCDB**				Available policies for reducing salt	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	NO policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				NO restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, mandatory nutrition education at schools, public procurements for schools at national level	Established effective national food control system with surveillance
	NO national coordination mechanism that addresses the country's food security and nutrition challenges					Existent tax on HFSS	NO national nutrition standards for school meals	Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments					Available FF legislation, mandatory for iodine		Existent procedures and practices to monitor and evaluate the implementation of policies
	Available anthropometric data for Ch&Ad							
North Macedonia	NO budget allocation for nutrition	NO information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	NO national nutrition committee	Available DRVs, FCDB				Available policies for reducing TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	NO policy on the reduction of food loss and waste
	NO national strategic documents for nutrition	Assigned institution responsible for FCDB or software				NO restrictions on advertising and marketing of HFSS foods to children or tax on HFSS	Available food and nutrition policies for kindergarten, national nutrition standards for school meals, mandatory nutrition education at schools, public procurements for schools at national level	Established effective national food control system with surveillance
	NO national coordination mechanism that addresses the country's food security and nutrition challenges					Available FF legislation, mandatory for iodine		Available policies and programmes for AMR, distribution and use of antimicrobials controlled
								NO procedures and practices to monitor and evaluate the implementation of policies
	NO government SMART commitments							
	Available anthropometric data for Ch&Ad							

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Poland	Allocated budget for nutrition	NO information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	NO food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	NO national nutrition committee	Available DRVs, FCDB				Available policies for reducing salt	NO legislation/regulations on International Code of Marketing of Breast-milk Substitutes	NO policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				Existing restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, national nutrition standards for school meals, mandatory nutrition education at schools, public procurements for schools at national level	Established effective national food control system with surveillance
	NO national coordination mechanism that addresses the country's food security and nutrition challenges					NO tax on HFSS		Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments					Available FF legislation, mandatory for iodine, folic acid, vitamin D, A		NO procedures and practices to monitor and evaluate the implementation of policies
	Available anthropometric data for Ch&Ad							
Romania	Allocated budget for nutrition	Available information system to provide data for food systems and nutrition policymaking	NO software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	Existing national nutrition committee	Available DRVs, FCDB				NO policies for reduction of TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	Available policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				Existing restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, national nutrition standards for school meals	Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges					NO tax on HFSS	NO mandatory nutrition education at schools, public procurements for schools at national level	Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments					Available FF legislation, mandatory for iodine		Existing procedures and practices to monitor and evaluate the implementation of policies
	Available anthropometric data for Ch&Ad							

Country	Governance, leadership and accountability for food security and nutrition	Food, nutrition and health research infrastructure	Software: nutritional tools for food consumption data collection, dietary intake assessment and nutrition planning	Capacity in nutrition and nutritional education for professionals	Food-based dietary guidelines	Food demand and food environment	Nutrition of targeted vulnerable group (children)	Sustainable, resilient food systems for healthy diets
Serbia	NO budget allocation for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	NO FBDG	Available food labelling regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
	NO national nutrition committee	NO DRVs				Available policies for reduction of TFA, SFA, S&S	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	Available policy on the reduction of food loss and waste
	Available national strategic documents for nutrition	Available FCDB				NO restrictions on advertising and marketing of HFSS foods to children	Available food and nutrition policies for kindergarten, national nutrition standards for school meals	Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges	Assigned institution responsible for FCDB or software				NO tax on HFSS	NO mandatory nutrition education at schools, public procurements for schools at national level	Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	NO government SMART commitments					Available FF legislation, mandatory for iodine, voluntary on iron, folic acid, vitamin D, A		
	Available anthropometric data for Ch&Ad							
Slovenia	Allocated budget for nutrition	Available information system to provide data for food systems and nutrition policymaking	Available software for consumption and nutrient intake surveys	Available university-level education and training in food and nutrition, including PhD	Available FBDG, implemented	Available food Labelling Regulations	Available policies and practices for nutrition of children, breastfeeding and complementary feeding	Available strategies for SME development in the agrifood sector, policies for diversification of agriculture, sustainable food production and natural resource management practices
						Available Policies for reduction of TFA, SFA, S&S		
	Existent national nutrition committee	Available DRVs, FCDB				Exist restriction for advertising and marketing of HFSS foods to children	Available legislation/regulations on International Code of Marketing of Breast-milk Substitutes	Available policy on the reduction of food loss and waste
						NO tax on HFSS		
	Available national strategic documents for nutrition	Assigned institution responsible for FCDB or software				Available FF legislation, mandatory for iodine, voluntary for Folic acid, vitamin D, A	Available food and nutrition policies for kindergarten, national nutrition standards for school meals, mandatory nutrition education at schools, public procurements for schools at national level	Established effective national food control system with surveillance
	Available national coordination mechanism that addresses the country's food security and nutrition challenges							Available policies and programmes for AMR, distribution and use of antimicrobials controlled
	Available government SMART commitments							
Available anthropometric data for Ch&Ad								

Source: Data extracted from the survey conducted for this study in 2018

Abbreviations:

- | | | |
|--|--|---|
| Ch & Ad Children and Adults | TFA Trans fatty acids | F&N Food and nutrition |
| SMART specific, measurable, achievable, relevant and time-bound | SFA Saturated fatty acids | SME Small and medium enterprises |
| DRVs Dietary Recommended Values | S&S Salt and sugar | AMR Antimicrobial resistance |
| FCDB Food composition database | FF Food fortification | FLW Food loss and waste |
| FBDG Food based dietary guidelines | A&M Advertising and marketing | |
| | HFSS High fat, sugar and salt | |

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