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Best practices in addressing the major drivers of food security and nutrition to transform food systems

Background paper for *The State of Food Security
and Nutrition in the World 2021*

FAO AGRICULTURAL DEVELOPMENT ECONOMICS TECHNICAL STUDY



Best practices in addressing the major drivers of food security and nutrition to transform food systems

Background paper for *The State of Food Security and Nutrition in the World 2021*

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Preface

After decreasing for nearly a decade, hunger is once again on the rise. The major drivers of food insecurity and malnutrition – especially in low- and middle-income countries – are conflict, climate variability and extremes, and economic downturns, whose frequency and intensity have increased in the past ten years. The effect of these drivers is amplified by poverty and inequality, which are structural causes of food insecurity and malnutrition. More than half of the world's low- and middle-income countries experienced an increase in prevalence of undernourishment (PoU) between 2010 and 2018 because of one or more of these drivers. Countries experiencing multiple drivers at the same time had the highest increases in the PoU – twelve times greater than countries affected by a single driver – and the highest percentages of the population unable to afford a healthy diet and suffering from moderate or severe food insecurity.

The situation worsened further due to the containment measures occasioned by the COVID-19 pandemic. The measures restricted trade and the movement of goods and services, with a negative effect on the availability and prices of foods. This has increased the urgency of transforming food systems to ensure food security, improved nutrition and affordable healthy diets for all. In response, the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP), the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) decided to focus the theme of *The State of Food Security and Nutrition in the World 2021* on possible transformative pathways that countries can pursue to achieve these objectives. This is a background study for *The State of Food Security and Nutrition in the World 2021*. It presents best practices, drawn from a series of case studies collected through an internal call directed to FAO and partner agencies, and an external call launched through the Global Forum on Food Security and Nutrition (FSN Forum). The case studies provide examples of policy instruments designed to transform food systems, to enable them to become more resilient to the drivers behind rising levels of food insecurity and malnutrition, and to improve people's access to affordable healthy diets. These examples can help countries formulate context-specific portfolios of policies, investments and laws that integrate different sectors – environmental, health, social protection, among others – to move from siloed approaches to integrated food systems solutions.

Acknowledgements

This technical study was prepared to provide background analysis in support of *The State of Food Security and Nutrition in the World 2021*. The policy experiences described here were collected through two mechanisms: an internal call for colleagues from the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP), the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) to submit relevant policy experiences from their field work; and an external call launched jointly with the Global Forum on Food Security and Nutrition (FSN Forum) directed to practitioners and stakeholders around the world. Therefore, first and foremost, we would like to thank all contributors of best practices, whose collaboration was essential for the development of this study.

The authors would like to thank Mauricio Rosales, Svetlana Livinets and Elise Polak (Agrifood Economics Division [ESA], FAO) who facilitated and coordinated the external call for best practices. The authors are also grateful to the members of *The State of Food Security and Nutrition in the World 2021* writing team for their feedback and insights.

The authors also thank Ruth Raymond for copyediting the study and Daniela Verona (ESA, FAO) for editorial support and publishing coordination.

Abbreviations and acronyms

AFN	Agriculture for Nutrition
ANDZOA	National Agency for the Development of Oasis Zones and Argan
CA	conservation agriculture
CdR	<i>Caisses de Résilience</i>
CFW+	cash for work plus
CPG	cocoa producer groups
FAO	Food and Agriculture Organization of the United Nations
FEED	Fortifying Equality Economic and Diversification
FFS	farmer field schools
FNDE	Brazilian Fund for Education Development
FNS	farmer nutrition schools
FSN Forum	Global Forum on Food Security and Nutrition
FSIN	Food Security Information Network
GAFSF	Global Agriculture and Food Security Programme
GEP	good environmental practices
GHG	greenhouse gas
GISAMAC	Intersectoral Group of Health, Food, Environment and Competitiveness
IAEA	International Atomic Energy Agency
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IPC	Integrated Phase Classification
ISAL	internal savings and lending
LFSP	Livelihoods and Food Security Programme
LISA	low input and sustainable agriculture
LNP	Life and Nature Project
NCD	non-communicable diseases
NFNSP	National Food and Nutrition Security Policy
NIP	National Investment Plan for Food and Nutrition Security and Sustainable Agriculture
MAC	Climate Adaptation Model
MPP	Mountain Partnership Products
OCIFS	Oneida Community Integrated Food Systems
PINPEP	Programme of Forestry Incentives for Small-scale Possessors of Forest or Agroforestry Land

PoU	prevalence of undernourishment
PROCEM	National Fruit Fly Control and Eradication Programme
PSNP	Productive Safety Net Programme
SCPP	Sustainable Cocoa Production Programme
SDGs	Sustainable Development Goals
SENASA	Argentinean National Plant Protection Organization
SGBV	sex- and gender-based violence
SIT	sterile insect technique
SME	small- and medium-scale enterprise
TPs	transformation pathways
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNICEF	United Nations Children’s Fund
VCC	virtual call centre
VSLA	village savings and loans association
WFP	World Food Programme
WHO	World Health Organization
WITS	World Integrated Trade Solution
WUA	water user association
WWTP	wastewater treatment plant

Executive summary

Global progress in reducing hunger during the 2000s stalled in 2010, and leading to an increase in undernourishment in several countries starting in 2014. The 2017, 2018 and 2019 editions of *The State of Food Security and Nutrition in the World* analysed the three main drivers challenging food security and nutrition around the world: conflict, climate extremes and variability, and economic slowdowns and downturns. Countries are often affected by multiple drivers that undermine the chances of achieving the Zero Hunger target by 2030. In addition, poverty and inequality have compounded the effects of the drivers on food security and nutrition. Furthermore, the high cost and unaffordability of a healthy diet is another main global challenge, as shown in the 2020 edition of *The State of Food Security and Nutrition in the World*. Cost and lack of affordability are internal drivers that influence economic access to nutritious foods, and have negative impacts on food security and nutrition.

Such complex problems require policy solutions that employ coherent and multisectoral approaches help countries withstand the drivers of food insecurity and malnutrition. To that end, this study recommends the creation of packages or “bundles” of policy, legal and investment solutions that, when implemented coherently, can achieve larger goals than any single solution. These portfolios are context-specific: their design depends on the drivers affecting each national or subnational territory.

Countries need to undertake an in-depth situation analysis, including an assessment of the main drivers of food and nutrition insecurity in food systems. This will allow policymakers to determine the portfolio of policies, investments and legislation that is best suited to their circumstances. The design of the portfolios follows six transformative pathways that have been drawn from evidence collected from the previous four *The State of Food Security and Nutrition in the World* reports. The pathways are: 1) integrating humanitarian, development and peacebuilding policies in conflict areas; 2) scaling up climate resilience across food systems; 3) strengthening resilience of the most vulnerable people to economic adversity; 4) intervening across food supply chains to lower the cost of nutritious foods; 5) tackling poverty and structural inequalities and ensuring that interventions are pro-poor and inclusive; and 6) strengthening food environments and changing consumer behaviour to promote dietary patterns with positive impacts on health and the environment.

Each transformative pathway includes a range of policy approaches. The objective of this study is to examine success stories and best practices around the six pathways to identify practical examples of policy formulation, implementation and impacts.

Many of the best practices submitted for the study related to multiple objectives across several transformative pathways despite representing single policies. For example, policies related to scaling up climate resilience were often integrated with components related to strengthening economic resilience or addressing poverty and inequality. These policies were often seen to have impacts beyond the food system, such as on the environment. Similarly, experiences in conflict-affected areas that relate to integrating humanitarian, development and peacebuilding policies often integrate scaling up climate resilience elements in their policy design. Best practices identified with strengthening resilience to economic adversity were submitted by countries facing economic shocks, including the consequences of the COVID-19 pandemic, and, in several cases, these included components linked with food supply chain interventions to lower the cost of nutritious foods or tackling poverty and structural inequalities. Many of the best practices were linked to the social protection system.

Accelerators are another important element of the policy portfolio. These are cross-cutting policy components that can influence the implementation of the portfolio. Accelerators include good governance and effective institutions, which are key factors in ensuring coherence and efficacy in policy implementation. Technology, data and innovation are also essential to speeding up the transformative effects of the portfolios. Examples of these accelerators were found among the collected best practices. They are analysed in the study as key components of policy instruments.

A detailed analysis of these policy experiences has led to the conclusion that there are numerous best practices that are effectively building resilience against the drivers of food insecurity and malnutrition around the world. Although most of them are still not implemented in the context of a portfolio of policies, they follow a multisectoral approach and provide a good basis for the formulation of such portfolios. Including these approaches in a portfolio of policies, investments and legislation could provide win-win solutions for countries aiming to transform their food systems and eradicate hunger and malnutrition by 2030.

1 Introduction

Over the past ten years, the frequency and intensity of conflict, climate variability and extremes, and economic slowdowns and downturns have increased significantly. The higher occurrence of these major drivers, further exacerbated by the COVID-19 pandemic, has led to a rise in global hunger, increased food insecurity and undermined progress in reducing all forms of malnutrition, particularly in low- and middle-income countries (FAO *et al.*, 2018, 2019). Addressing such complex situations, in which multiple and distinct drivers obstruct the achievement of major development objectives, requires policy solutions and investments that go beyond the usual sector-based, fragmented measures, which have characterized the policy agenda in the last decades (Cejudo and Michel, 2017).

As a viable strategy to comprehensively address the current food security and nutrition situation, *The State of Food Security and Nutrition in the World 2021* proposes the formulation of coherent portfolios of policies, legislation and investments based on the identification of six transformative pathways: 1) integrating humanitarian, development and peacebuilding policies in conflict areas; 2) scaling-up climate resilience across food systems; 3) strengthening resilience of the most vulnerable to economic adversity; 4) intervening across the food supply chains to lower the cost of nutritious foods; 5) tackling poverty and structural inequalities, ensuring interventions are pro-poor and inclusive; and 6) strengthening food environments and changing consumer behaviour to promote dietary patterns with positive impacts on health and the environment. The portfolios are designed to build resilience to the major drivers of food insecurity, transforming food systems towards ensuring food security, improved nutrition and affordable healthy diets.

Two open calls were launched to collect comprehensive, illustrative examples of existing policy portfolios and/or investments as best practices that could be linked to the six transformative pathways. Of the 136 cases received, almost all presented investments and/or interventions aimed at addressing key drivers impacting on food security and nutrition. However, at the highest policy level, cross-sectoral designs were often weak or poorly documented. Only two cases made reference to multisectoral policy portfolios, raising questions about their wider application in policy agendas. On a positive note, most of the best practices showed a certain degree of multisectoral approaches and a desire for greater coherence at the programme or project level, as many examples were linked to more than one transformative pathway.

Based on information submitted by experts worldwide following the calls for best practices, this study presents selected programmes and projects, identifies their objectives and impacts, and highlights the most innovative elements that can serve as a basis for scaling-up these single policy tools into coherent, multisectoral solutions towards ending hunger, food insecurity and malnutrition. These cases represent a first step toward the greater challenge of moving from sectorial policy solutions to integrated policy portfolios, whose formulation and successful implementation presents many challenges at different levels – organizational, financial, administrative and political.



2 Background

KEY MESSAGES

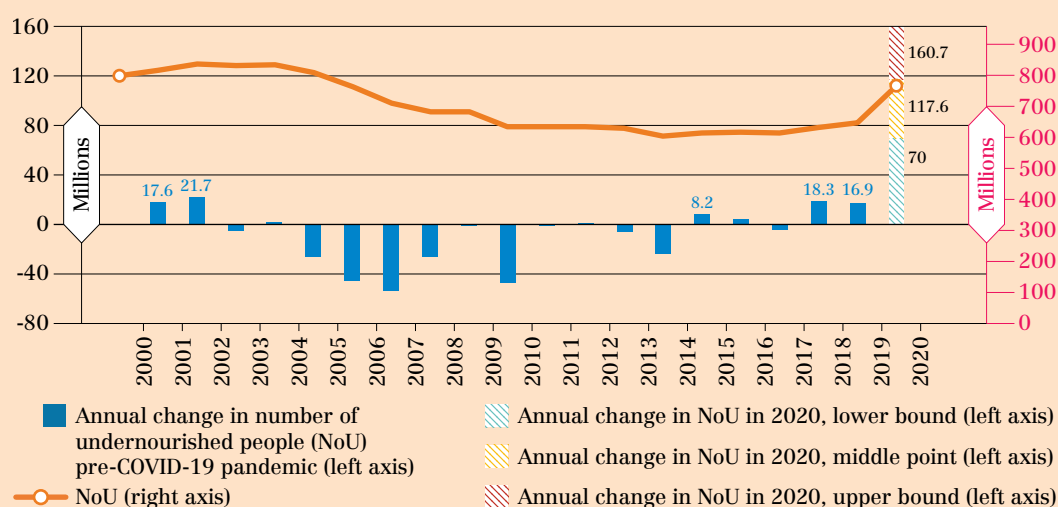
- ◆ After a decade of efforts to reduce hunger, undernourishment is once again on the rise: between 720 and 811 million people experienced hunger in 2020, a situation exacerbated by the outbreak of the COVID-19 pandemic.
- ◆ Conflicts, climate variability and extremes, and economic downturns – the major drivers of hunger and malnutrition – are becoming more frequent and intense, and are affecting a growing number of countries.
- ◆ Persistent inequality and poverty further aggravate the impact of the drivers of food insecurity. In 2020, the COVID-19 pandemic containment measures plunged most countries into economic recession, while poverty and income inequality increased for the first time in two decades, thus adding another burden on food security.
- ◆ Even before the COVID-19 pandemic – between 2017 and 2019 – the prevalence of undernourishment (PoU) in low- and middle-income countries grew quickly (by 4 percent) for people affected by at least one of the three drivers of hunger, while it decreased by 3 percent for those not affected.
- ◆ Countries experiencing two or three major drivers of food insecurity at the same time reported the highest increase in hunger before and after the onset of the COVID-19 pandemic.

2.1 World hunger is on the rise

Between 2000 and 2010, the world made significant strides in reducing hunger, food insecurity and malnutrition despite a rapidly growing global population. During that time, world hunger, as measured by the PoU, fell by 20 percent, from 839 to 600 million people (see Figure 1). In the following decade, childhood stunting decreased globally, from 26.7 percent in 2010 to 22 percent in 2020 (FAO *et al.*, 2021; de Onis, Blössner and Borghi, 2012). In 2015, encouraged by these achievements, countries pledged to redouble their efforts to end hunger and all forms of malnutrition all around the world under the 2030 Agenda for Sustainable Development as defined in the Sustainable Development Goals (SDGs).

However, unforeseen forces had already begun to challenge and undermine global achievements in securing food security and nutrition for all (see Section 2.2). Between 2010 and 2014, the downward trend in global hunger stalled and then reversed its course starting in 2014 (see Figure 1). Between 2014 and 2019, the number of hungry or undernourished people grew by 44 million, from 606 to 650 million. The greatest increase in decades occurred during 2020, when between 720 and 811 million people around the world experienced hunger. This represents an increase of as many as 161 million people more than in 2019, considering the upper bound of the range.

FIGURE 1 The COVID-19 pandemic contributed to the largest single-year increase in global hunger in decades



Note: NoU: number of undernourished.

Source: Authors' elaboration based on FAO. 2021. FAOSTAT. In: FAO. Rome. Cited 16 July 2021. www.fao.org/faostat

2.2 Drivers behind the rise in hunger

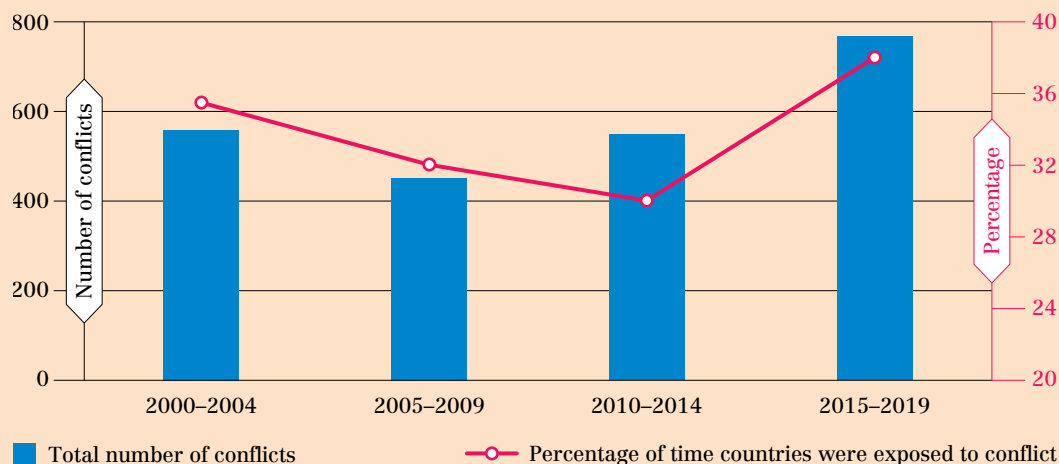
The reversal in hunger trends and diminished progress in addressing malnutrition were largely driven by the increasing frequency and intensity of conflicts, climate variability and extremes, and economic slowdowns and downturns, especially in low- and middle-income countries where hunger, food insecurity and malnutrition are endemic. Not only has there been a marked increase in the number of conflicts per year, but countries are experiencing conflicts over longer periods of time (see Figure 2a). More countries have been exposed to climate extremes, increasing from 76 percent of affected countries in 2000–2004 to 98 percent in 2015–2020. Furthermore, countries have also experienced more intense, multiple types of climate extremes occurring simultaneously, including droughts, floods, typhoons and heat spells (see Figure 2b).

For many countries with a high burden of hunger, economic growth has been poor and uneven, resulting in high unemployment, fewer job opportunities and lower wages and income and increasing the challenge for many people to access food. This was especially the case in countries in sub-Saharan Africa, Latin America, and Western Asia. The percentage of countries in these regions experiencing economic downturns increased from 25 percent in 2014 to 38 percent in 2019. As a result, they experienced a severe reduction in their GDP per capita growth compared with other regions over this period (see Figure 2c). In 2020, the COVID-19 pandemic containment measures plunged most countries into economic recession, with per capita income contracting in more countries than at any time since the great recession in 2008.

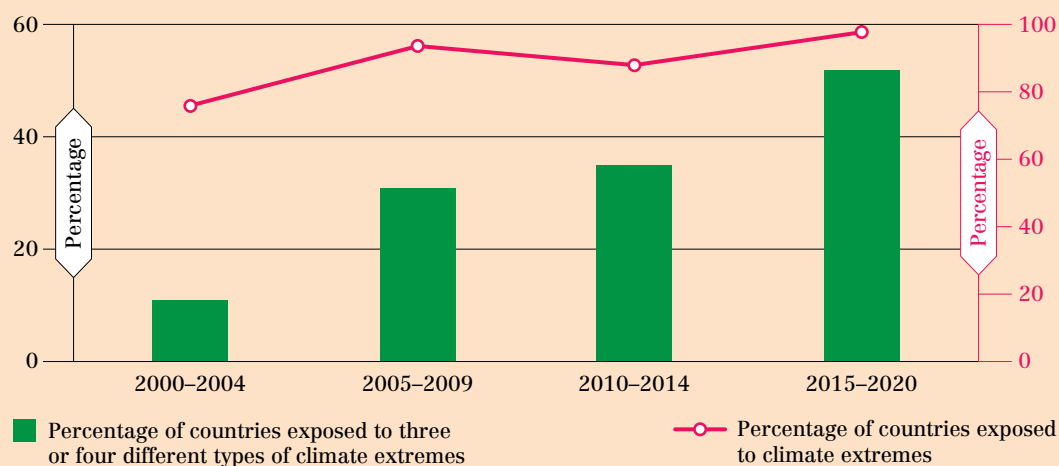
The negative impact of these drivers on food insecurity and malnutrition is amplified by income inequality (FAO *et al.*, 2019; Holleman and Conti, 2020). While poverty has progressively declined over the past 20 years, income inequality (as measured by the Gini index) has remained high and persistent, especially in low- and middle-income countries. In 2020, for the first time in more than two decades, poverty and income inequality increased because of COVID-19 pandemic and the measures put in place to contain the pandemic (see Figure 2d).

FIGURE 2 Low- and middle-income countries face increasing frequency and intensity of drivers

A. CONFLICT (2000–2019)



B. CLIMATE EXTREMES (2000–2020)



C) ECONOMIC DOWNTURNS (2011–2021)

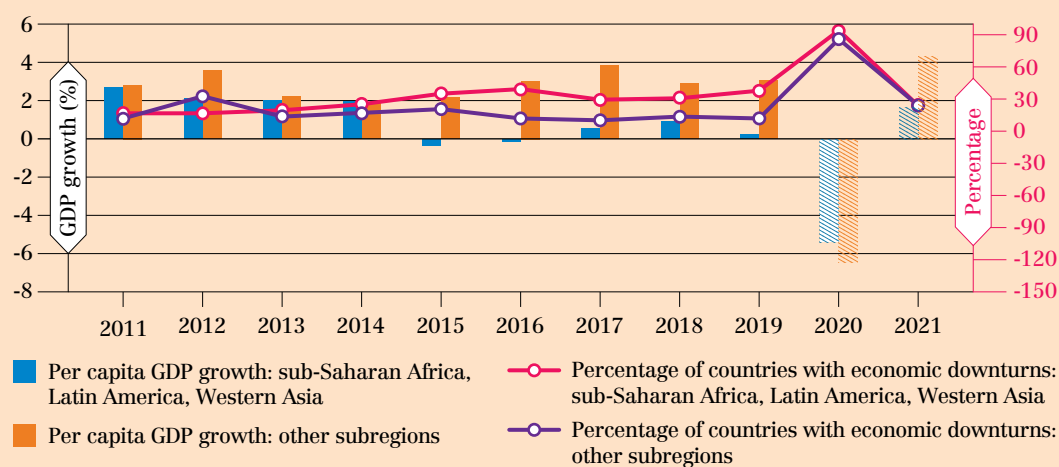
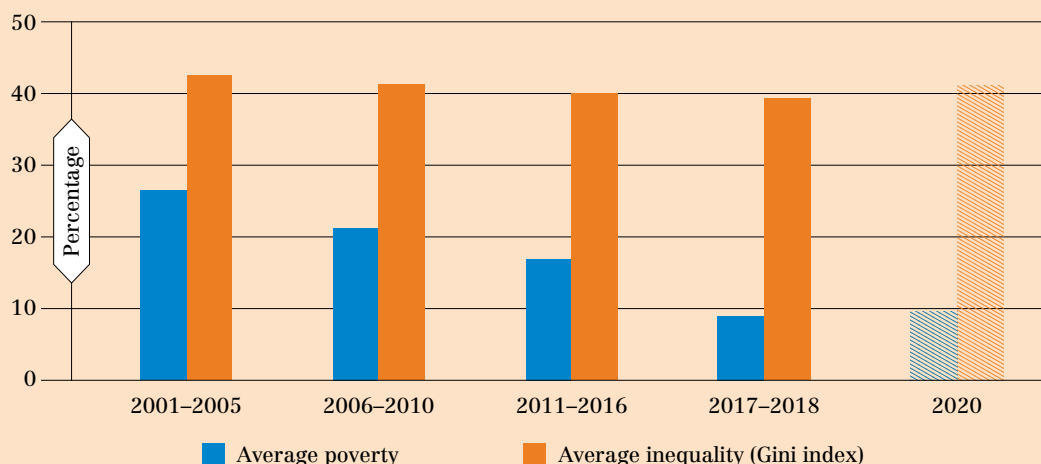


FIGURE 2 (cont.) Low- and middle-income countries face increasing frequency and intensity of drivers

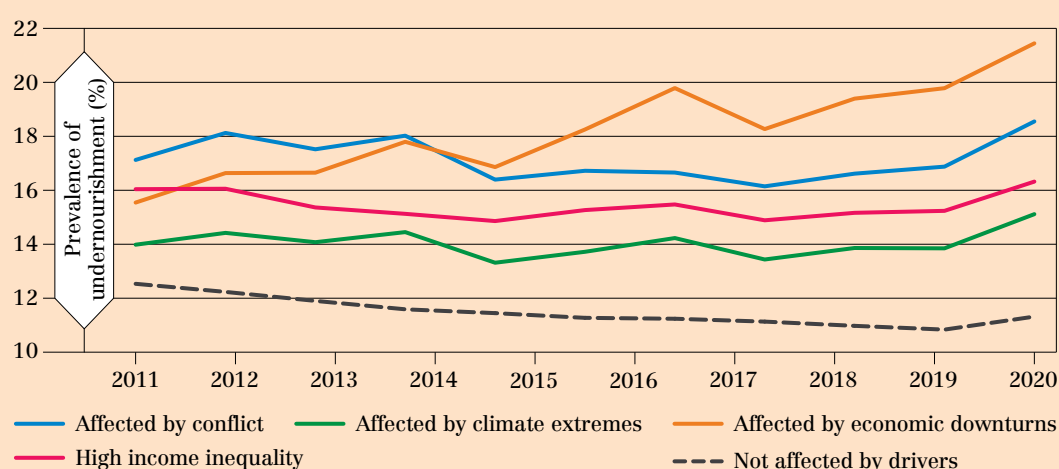
D) TRENDS IN POVERTY AND INCOME INEQUALITY IN LOW- AND MIDDLE-INCOME COUNTRIES



Sources: Authors' elaboration based on data on conflict, climate and annual GDP per capita (Figures 2a-2c) and poverty and income inequality (Figure 2d). Violent conflict data based on: Uppsala University. 2021. *UCDP (Uppsala Conflict Data Programme)*. Uppsala, Sweden. Cited 10 June 2021. ucdp.uu.se. For years 2000–2005, drought information provided by the University of Cape Town (UCT) using data from the ECMWF (European Centre for Medium-Range Weather Forecasts). 2021. Datasets. In: *ECMWF*. Reading, UK. Cited 10 June 2021. www.ecmwf.int/en/forecasts/datasets. For years 2006–2020, drought information provided by EU-JRC using data from the European Commission. 2021. ASAP (Anomaly Hotspots of Agricultural Production). In: *ASAP*. Brussels. Cited 10 June 2021. mars.jrc.ec.europa.eu/asap. Flood data provided by UCT using Climate Hazards Center of the University of California – Santa Barbara. 2021. CHIRPS: rainfall estimates from rain gauge and satellite observations. In: *CHIRPS*. Santa Barbara, USA. Cited 10 June 2021. www.chc.ucsb.edu/data/chirps. Updated heat spell data provided by UCT using data from the ECMWF. 2021. Datasets. In: *ECMWF*. Reading, UK. Cited 10 June 2021. www.ecmwf.int/en/forecasts/datasets. Updated storm data based on CRED (Centre for Research on the Epidemiology of Disasters). 2021. *EM-DAT: the International Disasters Database*. Brussels. Cited 10 June 2021. public.emdat.be. Annual per capita GDP based on IMF (International Monetary Fund). 2021. *World Economic Outlook Database – April 2021*. In: *IMF*. Washington, DC. Cited 10 June 2021. www.imf.org/en/Publications/WEO/weo-database/2021/April. Poverty and income inequality data based on World Bank. 2021. *World Development Indicators*. Washington, DC. Cited 10 June 2021. datatopics.worldbank.org/world-development-indicators

Over the past decade, the PoU increased in low- and middle-income countries affected by these major drivers, while it decreased in countries not affected by the drivers (see Figure 3). The increase in the PoU has been especially pronounced since 2017, although in countries affected by economic downturns, an uptick had already started by 2014. Between 2017 and 2019, the PoU increased by 4 percent in countries affected by one or more of these major drivers, while it decreased by 3 percent in countries not so affected. The only exception to this trend occurred in 2020 – the start of the COVID-19 pandemic – when all countries experienced an increase in PoU.

◆ **FIGURE 3** Hunger is more prevalent and has increased more in countries affected by conflict, climate extremes and economic downturns



Sources: Authors' elaboration based on FAO. 2021. FAOSTAT. In: *FAO*. Rome. Cited 16 July 2021. www.fao.org/faostat (for PoU). World Bank. 2021. World Development Indicators. In: *World Bank*. Washington, DC. Cited 10 June 2021. datatopics.worldbank.org/world-development-indicators (for the Gini index of income inequality). See sources cited in Figure 2 for data on drivers (conflict, climate extremes and economic downturns).

It is important to look beyond hunger since millions of people are challenged by more moderate forms of food insecurity, facing uncertainties about their ability to obtain food or forced to compromise on the quality and quantity of the food they consume. Even moderate forms of food insecurity are directly linked to malnutrition, including overweight and obesity. The Food and Agriculture Organization of the United Nations (FAO) estimates that around 927.6 million people were severely food insecure in 2020 and more than 2.37 billion people were severely or moderately food insecure (FAO *et al.*, 2021). Food must be nutritious and not just sufficient in quantity; hence, we must pay more attention to the quality of diets. Diet quality is a critical link between food security and nutrition, and unhealthy diets are a leading cause of non-communicable diseases (NCDs). FAO analysis shows that in 2019 even the lowest cost healthy diet was unaffordable for more than 3 billion people in the world (FAO *et al.*, 2021). The analysis of drivers shows that the greatest percentage of the population that experienced moderate or severe food insecurity and could not afford a healthy diet was in countries affected by economic downturns, followed by countries affected by conflict and by climate extremes (see Figure 4).

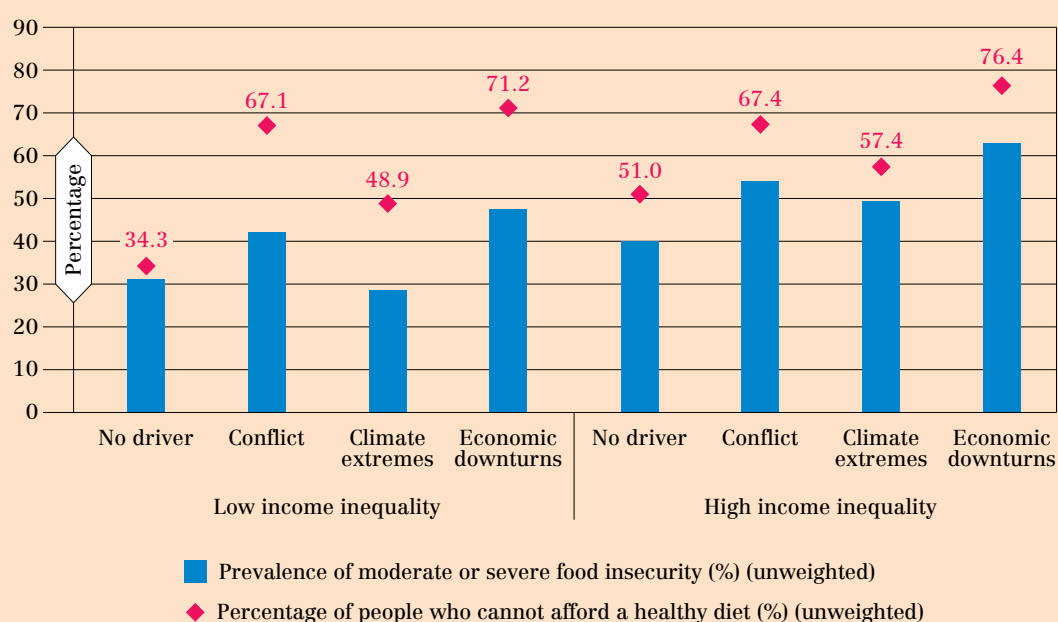
The pervasiveness of undernourishment and malnutrition, as measured by the prevalence of stunted children, is higher when the occurrence of drivers coincides with high levels of income inequality. The same is true whether for moderate or severe food insecurity: countries affected by high income inequality and climate extremes show higher levels of food insecurity (by 21 percentage points) than do countries with the same driver but low inequality, followed by countries affected by a mix of high inequality and economic downturn (16 percentage points higher), and by high inequality and conflict (12 percentage points higher) (see Figure 4).

Seventy percent of low- and middle-income countries are affected by at least one of the three drivers and 41 percent also suffer from high income inequality, which worsens their impact. Most undernourished people, including stunted children, live in low- and middle-income countries affected by multiple drivers. When countries were affected by multiple drivers (the simultaneous occurrence of two or three drivers), they consistently experienced

the highest PoU increases, both during 2017–2019 (pre-COVID-19 pandemic) and during 2019–2020 (the onset of the pandemic). The PoU increase before COVID-19 pandemic was 12 times larger for countries affected by multiple drivers than for those affected by only a single driver.

Between 2017 and 2019, before the onset of the COVID-19 pandemic, these countries registered the highest increases in undernourishment – twelve times higher than countries affected by only a single driver. They also recorded the highest percentage of the population that could not afford a healthy diet (68 percent), which is on average higher than the percentage reported in countries affected by a single driver or not affected by any driver.

◆ **FIGURE 4** Countries affected by economic downturns record the highest percentage of people that are food insecure and cannot afford healthy diets; when combined with high income inequality, the percentage is even higher



Sources: Authors' elaboration based on FAO data for affordability of a healthy diet. FAO. 2021. FAOSTAT. In: *FAO*. Rome. Cited 16 July 2021. www.fao.org/faostat (for the prevalence of moderate or severe food insecurity). World Bank. 2021. World Development Indicators. In: *World Bank*. Washington, DC. Cited 10 June 2021. datatopics.worldbank.org/world-development-indicators (for the Gini index of income inequality). See sources cited in Figure 2 for data on drivers (conflict, climate extremes and economic downturns).

3 What needs to be done?

Building comprehensive solutions to complex problems

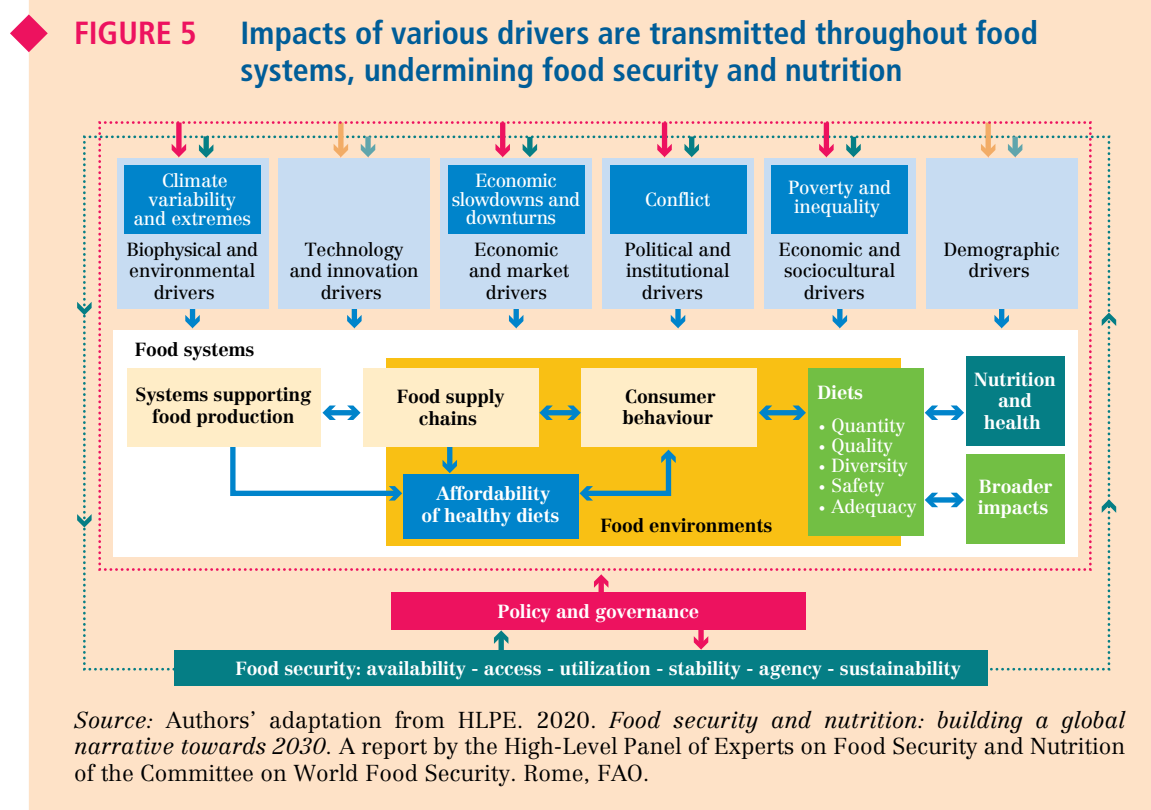
KEY MESSAGES

- ◆ Given food systems are affected by more than one driver, and also impact on food security and nutrition outcomes in multiple ways, comprehensive portfolios of context-specific policies, investments and legislation need to be formulated to maximize their combined effects on food systems transformation.

Building portfolios of policies, investments and laws are the key to moving from siloed approaches to integrated food systems solutions. These portfolios integrate single policy tools into a coherent design involving different sectors, at different administrative levels.
- ◆ The portfolios can be designed to address six possible transformative pathways (TP) for food systems transformation. These pathways build resilience to the major drivers of food insecurity and malnutrition – conflict, climate extremes or economic shocks – help reduce poverty and inequality and promote healthier food environments.
- ◆ Policy portfolios need to include accelerators for effective implementation, including good governance and effective institutions, new technologies, data and innovation. Coherence and complementarity among food and related systems (agrifood, health, environmental, and social protection systems) should also be ensured.

The increasing frequency and intensity of the major drivers of hunger present a formidable challenge to food security and nutrition in many countries. Worse still, these major drivers are likely to continue well into the future and, in the case of climate extremes, are expected to increase in frequency and intensity.

The drivers of hunger often interact, creating multiple, compounding impacts on the different components of food systems worldwide. The complexity of these relationships and their effects must be understood and effectively addressed to transform food systems. As can be seen in Figure 5, climate variability and extremes, economic slowdowns and downturns and conflict can affect all aspects of food systems and negatively impact food security and nutrition. Poverty and inequality are also external drivers, which tend to magnify the effects of the other drivers on food security and nutrition. The non-affordability of healthy diets is an internal driver that impedes economic access to nutritious foods and can undermine food security and nutrition. In addition, drivers can affect food security and nutrition through interconnected and circular impacts on, for example, health and environmental systems. A systemic approach is needed to account for interactions between different systems that cannot be ignored in formulating policy responses.



The need to move beyond disaggregation and fragmentation in dealing with complex public problems has become increasingly clear. Broad new solutions are needed to address the negative effects of major drivers on food security. The challenges presented by these drivers calls for a food systems approach that is supported by policies, laws and investments. “Bundles” or “packages” of policy tools – designed to address multiple goals – can be created by integrating approaches from different sectors (e.g. economic, environmental, health) and administrative levels (e.g. national, regional and local) (Howlett and del Rio, 2015). This enables the development of coherent policy portfolios through “the process where policymakers design a set of policies in a way that, if properly implemented, they can potentially achieve a larger goal” (Cejudo and Michel, 2017). Since each country faces a different food security and nutrition situation and is affected by different drivers (and to different degrees), these portfolios must be based on detailed understanding of specific country contexts. The key elements that should be considered in the development of the portfolios are presented in Figure 6.

The first step that countries should take in building a portfolio is an in-depth situation analysis, including an assessment of the drivers that negatively affect food security and nutrition. This will allow policymakers to determine the most appropriate policies, laws and investments for their circumstances. These have been drawn from best practices along six possible transformative pathways, which have been identified based on exhaustive evidence from the four previous *The State of Food Security and Nutrition in the World* reports. The six transformative pathways (TPs) are as follows:

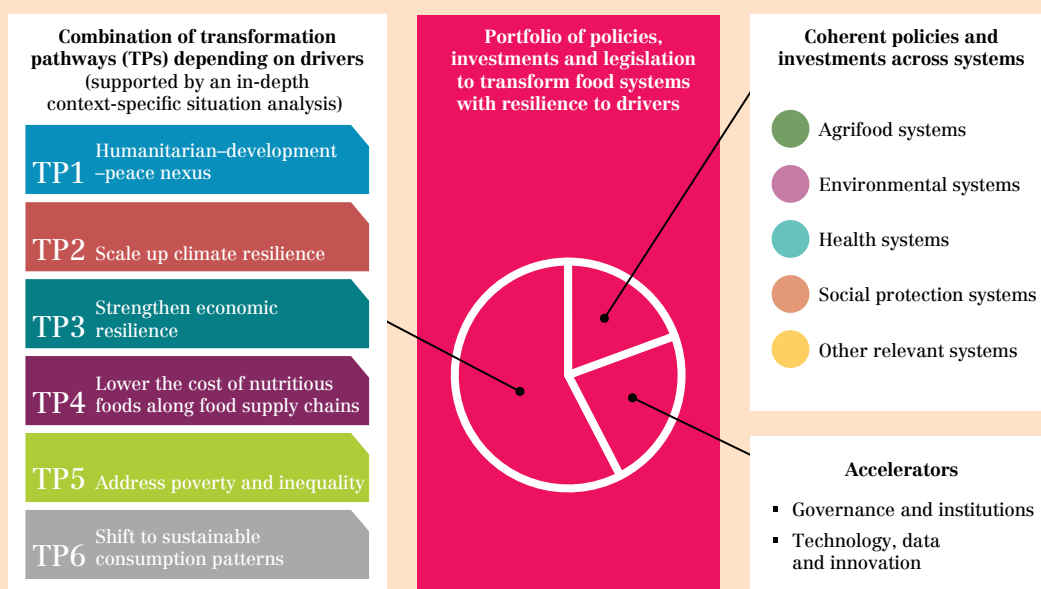
1. **Integrating humanitarian, development and peacebuilding policies in conflict-affected areas**, which calls for policies, investments and legislation oriented to mitigate the impact of conflict as a driver of the food security and nutrition.
2. **Scaling up climate resilience across food systems**, which requires policies focused on building resilience to climate extremes and variability.

3. **Strengthening resilience of the most vulnerable to economic adversity**, which includes policies to diminish the negative effects of economic slowdowns and downturns on food security and nutrition.
4. **Intervening along food supply chains to lower the cost of nutritious foods**, which calls for policy options to reduce the cost of a healthy diet.
5. **Tackling poverty and structural inequalities and ensuring interventions are pro-poor and inclusive**, which focuses on reducing poverty and inequality, and their role in magnifying the effects of other drivers on food security and nutrition.
6. **Strengthening food environments and changing consumer behaviour to promote dietary patterns with positive impacts on human health and the environment**, which focuses on creating the conditions needed for consumers to adopt healthy diets.

The formulation of portfolios should include accelerators to support more effective implementation. Good governance and effective institutions are key factors in ensuring coherence in policy implementation, while new technologies, data and innovation are essential to speeding up the transformation of food systems.

A final important factor is the need to guarantee coherence among the portfolio's components, not only from a food systems perspective, but also with regard to other systems, including agrifood, health, environmental, or social protection. Ensuring complementarity with these systems should result in more rapid and effective food systems transformation. At the same time, some policies, investments, or laws that are designed to benefit food systems could have unknown or even negative effects on other systems, which might reduce the positive effects of the structural transformation on food security and nutrition.

◆ **FIGURE 6** Key elements of a portfolio of policies, investments and legislation



Source: Authors' elaboration.



4 Methodology for collecting country case studies and best practices

KEY MESSAGES

- ◆ Success stories or best practices provide illustrative examples of country experiences that can be linked to the six transformative pathways. These experiences inform the development of context-specific policy tools, which can be integrated into portfolios of policies, investments and laws for building resilience to one or more drivers of food insecurity and malnutrition.
- ◆ The best practices included in this study were collected through an internal call to FAO and partner agencies (IFAD, WFP, WHO and UNICEF) and an external call from the FSN Forum to all members of the forum and stakeholders around the world.
- ◆ The submissions had to meet three criteria to be included in *The State of Food Security and Nutrition in the World 2021*: relevance to the theme of food systems transformation; focus on building resilience to the major drivers of food insecurity and malnutrition as well as to poverty and inequality; capacity to reach vulnerable populations most exposed to the drivers.

Ninety-five of the 136 submissions resulting from the two calls fulfilled the three criteria and were included as best practices in the 2021 edition of the report.

The main aim of this study is to demonstrate how success stories and/or best practices from around the world can help identify relevant policy, investment and legal options for countries aiming to transform their food systems. Food systems policies, backed by relevant legislation and adequate financing, should address the key drivers of food insecurity and malnutrition (e.g. conflict, climate extremes, and/or economic downturns) and the underlying causes (poverty and inequality). It is noted that many definitions of the term “success story” can be found in the context of policy analysis, making its use a bit ambiguous (Blake *et al.*, 2021). For the purposes of this study, success stories or best practices are defined as policy experiences whose components serve as possible ingredients in the formulation of context-specific policy tools that are oriented towards building resilience to one or more of the drivers of food insecurity and malnutrition. Component refers to activities and actions that are at the core of a programme or project.

Several best practices were reviewed in the past four editions of *The State of Food Security and Nutrition in the World*. The main challenge for the 2021 report was to include novel, illustrative examples of policies that can be linked to the six transformative pathways (see Figure 6). The best practices included in the latest report were collected through a

wide internal and external search over the period February – April 2021, which had two main components:

- ◆ An internal call for concrete examples of how to move from siloed solutions to integrated food systems solutions, directed to FAO and partner agencies (IFAD, WFP, WHO and UNICEF).
- ◆ An external call launched through the FSN Forum, directed to its members, which include different stakeholders from around the world, entitled “Call for best practices in transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition”. The call was supported by a high-level seminar, “Transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition,” which provided innovative ideas and success stories around the drivers of food security and nutrition (see the submission forms at Annex 2).

The decision to collect best practices through open calls was based on two arguments. First, the results of policies, programmes and projects are not always captured in journals or other publications only. Often, dissemination of the analysis of their formulation, implementation and impact is often limited to implementing governments, non-governmental organizations (NGOs) and development agencies. To ensure that those experiences were not lost, the study identified two key sources of information: the five United Nations agencies that publish *The State of Food Security and Nutrition in the World*, including their regional, subregional and national offices, which work closely with governments and communities; and the FSN Forum, the most important global policy dialogue and knowledge-sharing network in the field of food security and nutrition, which brings together more than 19 000 people from over 190 countries and territories (FAO, 2020a).

The State of Food Security and Nutrition in the World 2021 underlines the importance of coherent cross-sectoral portfolios of policies integrated across different transformative pathways and designed to address the various drivers affecting food security and nutrition in a particular context. Yet only limited examples of multisectoral policy efforts could be obtained through the submissions and literature searches, raising the question of whether such portfolios currently exist in national policy agendas.

Two main findings emerged. As noted above, very few experiences of comprehensive policy portfolios were submitted, raising concerns about the likely existence of fragmented policy agendas. On the other hand, many best practices were linked to more than one transformative pathway, thus demonstrating the existence of multisectoral approaches and some degree of coherence at the programme or project level. Such practices provide a good starting point for countries wishing to scale up their policy portfolios.

In total, 136 success stories or best practices were submitted covering 64 countries and 18 cross-country cases. The submissions were assessed in terms of their relevance to the thematic focus of *The State of Food Security and Nutrition in the World 2021* and to one or more of the identified transformative pathways. The presence of one or more accelerators was also identified, as well as additional evidence of measurable results and/or impact on food security and/or nutrition (see Table 1).

♦ **TABLE 1** **Criteria for the assessment of success stories and best practices submitted for *The State of Food Security and Nutrition in the World 2021***

Criteria	Assessment questions
Relevance	Is the story/practice/experience oriented towards the transformation of food systems? If yes, to which components of the system?
Major drivers	Is the story/practice/experience oriented to building resilience to: i) one or more of the major drivers of food insecurity; ii) the underlying causes of food insecurity and malnutrition; iii) lowering the cost of healthy diets; and/or iv) transforming food environments?
Scope	Is the story/practice/experience directed to a population that is vulnerable to the major drivers of food insecurity and malnutrition?
Accelerators	Are there components of the story/practice/experience that can be identified as accelerators of food systems transformation?
Impact	Is there any measurable evidence of the results and/or impact of the story/practice/experience? If so, does it confirm the success of the story/practice/experience?

Source: Authors' elaboration.

All submissions had to fulfil the first three criteria to be included in the report as best practices, while the last two were considered in the assessment process. Ninety-five of the 136 submitted cases fulfilled at least the first three criteria and were included in *The State of Food Security and Nutrition in the World 2021*. Many of these are analysed in the following chapter. A list of all 136 submissions is attached at Annex 1.



5 Lessons learned from country case studies and best practices

KEY MESSAGES

- ◆ Investments stemming from climate funds, where the budget for interventions is channelled directly to communities, effectively improve local food value chains, and increase the resilience of vulnerable populations to climate and economic shocks.
- ◆ Extension tools have proven helpful along all transformative pathways since they improve agricultural practices and market linkages in communities, as well as knowledge about nutrition, hygiene, maternal and child care, and food preservation techniques.
- ◆ Consistent financial resources are needed in conflict settings, not only to ensure food security in the short term but also to tackle the root causes of crises and to guarantee the functioning of food value chains in the long term.
- ◆ Cash transfers combined with nutrition education in fragile or conflict settings, especially in areas that are affected by climate extremes, have positive impacts on maternal and child dietary diversity and nutrition and decrease the probability of children being diagnosed with moderate or severe acute malnutrition.
- ◆ The use of digital technology employed during the COVID-19 pandemic improved the efficiency of food value chains, and promoted transparency and linkages among value chain actors, while social protection measures directly targeted to children's households during school closure improved access to nutritious foods for children and their families.

The best practices submitted for this study relate to specific subnational contexts. They take place in areas that are affected by one or a mix of drivers and inhabited by people who are vulnerable to inequality and/or poverty. The goal of these practices is to improve food systems by employing policy tools along the transformative pathways described in Chapter 3 (see Figure 7). Each of the six pathways integrates several policy tools, which can be combined, depending on the country context, to create coherent policy portfolios for transforming food systems. Although few policy portfolios were submitted in response to the call for best practices, many of the cases documented cross-sectoral actions and objectives across multiple transformative pathways. These can be considered examples of successfully integrating programmes across multiple policy areas.

Most practices have components related to building climate resilience (TP2) and resilience to economic shocks (TP3). A thorough examination revealed the existence of multipurpose policies where these components were intertwined with objectives across other transformative pathways. For example, community-driven interventions to build climate resilience (TP2), were able to improve food security and nutrition and access to credit and

to empower the most vulnerable groups. Countries that suffer from climate extremes and variability as well as ongoing conflict or protracted crises require solutions that address the impacts of these drivers across TP1 and TP2, since they put countries at a very high risk of both acute and chronic undernourishment and malnutrition. Best practices related to building economic resilience (TP3) revealed many innovative approaches to mitigating the economic consequences of lockdowns and other containment measures prompted by the pandemic. Other practices related TP3 related to rural populations disproportionately affected by economic slowdowns and downturns (FAO *et al.*, 2019).

FIGURE 7 The six transformation pathways and a selection of key policy areas

TP1 Humanitarian–development–peace nexus POLICY AREAS <ol style="list-style-type: none"> 1. Peacebuilding linked with livelihood support 2. Food production and social protection 3. Functioning of food supply chains 4. Post-conflict policies 	Lower the cost of nutritious foods along TP4 food supply chains POLICY AREAS <ol style="list-style-type: none"> 1. Productivity and diversity of agriculture 2. Food value chains efficiency 3. Adequate environment for nutritious foods production 4. Food fortification and biofortification
TP2 Scale up climate resilience POLICY AREAS <ol style="list-style-type: none"> 1. Climate adaptation 2. Risk monitoring and early warning systems 3. Access and management of natural resources 	TP5 Address poverty and inequality POLICY AREAS <ol style="list-style-type: none"> 1. Empowerment of vulnerable populations 2. Reduction of gender inequalities 3. Equality in access to resources and services
TP3 Strengthen economic resilience POLICY AREAS <ol style="list-style-type: none"> 1. Agrifood productivity and market linkages 2. Mitigation of high food prices effects 3. Boost job creation 4. Social protection schemes 	TP6 Shift to sustainable consumption patterns POLICY AREAS <ol style="list-style-type: none"> 1. Healthy public food procurement and nutrition-oriented trade standards 2. Taxation/subsidizing of foods 3. Food marketing legislation and food labelling rules 4. Industry regulation and reformulation of food products

Source: Authors' elaboration.

This chapter presents examples of best practices that may assist the formulation of cross-sectoral portfolios of policies. These practices are implemented in countries that are affected by: i) climate extremes; ii) climate extremes in conflict or post-conflict settings; iii) and economic slowdowns and downturns, with a special focus on the COVID-19 pandemic. Our examination of the practices shows that TP4, TP5 and TP6 cut across most of the policies primarily identified under TP2 and TP3.

In Section 5.1, we present best practices that were designed to build climate resilience (TP2) by fostering crop production and improving food security and nutrition. These also have components oriented to enhancing people's capacities and economic resilience (TP3), improving access to more nutritious food (TP4), and reducing poverty and inequalities (TP5). In Section 5.2, we describe practices implemented in areas carrying the double burden of climate extremes and conflict (TP2 and TP1 respectively). In Section 5.3, best practices for building economic resilience (TP3) are presented with two main elements of focus: policy experiences during the COVID-19 pandemic and efforts to increase economic resilience in rural areas.

5.1 Building resilience to climate extremes and variability, including policy measures for food systems transformation

This section presents several best practice cases where the primary goal of building resilience to climate extremes and variability (TP2) is accompanied by complementary objectives along additional transformative pathways. Here, increasing economic resilience (TP3), improving access to more diverse diets (TP4) and reducing poverty and inequality (TP5) are considered complementary goals to climate resilience.

In **Cambodia**, the Life and Nature Project (LNP), which ran from 2016 to 2020 (FAO, 2016a), promoted an integrated approach whereby infrastructure, food production, women's empowerment and social protection were combined in a target watershed. The project was implemented in four pilot zones that were vulnerable to localized floods, extreme weather events and crop failures. The project was developed in consultation with government officials at provincial, district and commune levels (FAO, 2021a).

The frequent occurrence of severe floods and droughts is a significant threat to agriculture and food security in Cambodia. Agriculture is dominated by rice production, which heavily relies on water from the Mekong River and monsoon rainfall. Seventy percent of rice production losses are due to flooding and 20 percent to drought. Increased deforestation and agricultural encroachment in the upper reaches of watersheds reduces temperature regulation, water quality and retention, and erosion control.

Inequality persists in Cambodia, which ranks 144 out of 189 countries in the Gender Inequality Index (UNDP, 2020). It is estimated that 70 percent of employed women earn lower wages than men, on average taking home 30 percent less for commensurate work (FAO, 2021a). The LNP project has a very strong women-oriented participatory design, together with a social protection mechanism, the “cash for work plus” (CFW+) modality. Through CFW+, funding was channelled directly to the communities to undertake infrastructure construction, reforestation and paddy field-levelling activities. CFW+ also serves as a backup strategy when employment and income opportunities are scarce (e.g. during the dry season and before harvest).

The LNP project works in policy areas associated with three transformative pathways. The main component of the project links to the social protection schemes of TP3, while its orientation (infrastructure, reforestation, etc.) boosts climate adaptation, a policy area of TP2. In addition, targeting women allows the programme to reduce gender inequalities (TP5). An important lesson from the project is that budgets should be channelled to the extent possible to communities through a context-specific CFW+ modality. This approach improved the resilience of rural communities to impacts of climate change while conserving ecosystem functions to support agricultural activities. The rehabilitation of natural resources was achieved by implementing in-stream structures (check dams) as well as fostering slope stability through a range of interventions and practices, such as reforestation, zoning, climate smart agriculture, and land levelling, thus increasing freshwater storage, groundwater recharge and soil and ecosystem health. Ten thousand hectares of community forests have been put under protection since 2017. Almost 243 hectares of degraded natural forest have been reforested and access to water has been improved on 420 hectares of agricultural land, increasing smallholder farmers' yields. More than a thousand farmers have benefited from agricultural training on climate-smart agricultural practices. By promoting and facilitating improved local vegetable and chicken production – with women's groups playing an important role in the production of nutritious foods in home gardens for consumption and sale – LNP enhanced availability and access to more nutritious food (productivity and diversity of agriculture, a policy area of TP4).

The LNP project provides evidence to support “win-win” opportunities for climate finance investments to realize multiple outcomes in vulnerable watersheds. A good example

of a rurally targeted initiative that channels funding directly into the pockets of the very poor, this social protection initiative is integrated within climate finance investment planning to improve irrigation infrastructures, agricultural activities and the resilience of the most vulnerable groups to major drivers. It shows how a coherent systemic approach towards transforming food systems can work.

Investments stemming from climate funds supported a cross-sectoral approach in **Guatemala** to strengthen local value chains and increase the resilience of vulnerable populations to economic and climate shocks. The Dry Corridor of Central America, a tropical dry forest region that encompasses parts of Guatemala, is particularly vulnerable to increasingly irregular rainfall, suffering from both severe droughts and floods. The *El Niño* phenomenon typically affects the area, with prolonged and recurrent periods of drought causing losses of basic grains. These climatic events have created severe food insecurity crises, with a worrisome acute malnutrition situation. Guatemala is the Central American country with the highest prevalence of stunting, which affected almost 43 percent of children in 2020, well above the regional average of 16.6 percent. The *Ch'orti'* region, where the indigenous *Maya-Ch'orti'* population lives, is particularly vulnerable to drought. The impacts of climate change and unemployment are the two main challenges for families and communities living in this area. Ecosystem deterioration, due to the excessive felling of trees, poor agricultural practices and intensive use of pesticides, has eradicated native species of plants, degraded soils, and reduced crop production and incomes.

Implemented by the Commonwealth *Copanch'orti'* and supported by the Inter-American Development Bank (IDB), the Climate Adaptation Model (MAC) undertook a series of activities to support climate adaptation efforts by people in the area. MAC illustrates how access to climate funds is possible through the contribution of state institutions to the positioning of the MAC, enabling families from the *Ch'orti'* region to call on the Guatemalan Programme of Forestry Incentives for Small-scale Possessors of Forest or Agroforestry Land (PINPEP) to finance conservation, production and recovery of forest resources.

Meeting the objective of climate adaptation (TP2) leads to increased food production and environmental conservation, and also has favourable impacts on local value chains and marketing linkages (TP3). Starting with scaling up climate resilience, the development of a multipurpose policy tool within MAC created benefits for both the agrifood and the environmental systems. MAC focused on three microwatersheds shared by four municipalities in the *Copanch'orti'* community where it promoted the empowerment of local actors to adopt better climate adaptation practices, including sustainable agricultural and forestry production mechanisms, to improve productivity, availability and access to quality food, and the marketing of cereal production.

The protection and conservation of forest cover in the watersheds was carried out through the PINPEP programme, aiming to improve the management of hydrographic basins and recovery of strategic areas for water production and gradually improving soil quality and agricultural productivity. In collaboration with universities, ancestral practices of the community were also recovered, for example, genetic material from the Creole hen *Peluca* (nearly extinct) promoted production and consumption of eggs and chicken reproduction.¹ Food security improved, particularly for girls between six months and five years of age, accompanied by a drastic reduction in child stunting (by 51 percent). Overall, 6 000 Indigenous families received support from MAC activities, and approximately USD 3.2 million annually were generated from the production of chickens, eggs, basic grains and forest species. The programme enabled the creation of productive and profitable value chains, the selection

¹ Each family received a poultry start-up package following completion of training on raising poultry and the establishment of poultry houses and forage plant areas. The beneficiary families undertook to provide the same package to another family thus creating a virtuous circle within the communities.

of local forest species with commercial potential, and defined areas with facilitated logistics for extraction, transportation and processing. At the same time, it promoted the empowerment of women, allowing them to generate income, develop leadership skills, make decisions in their community and increase their knowledge of agricultural and forestry production.

Cross-sectoral community development projects were also key to a positive experience in the **Lao People's Democratic Republic**, where the Agriculture for Nutrition Programme (AFN) (GIZ, 2014) was implemented in 400 villages of four northern provinces that are particularly vulnerable to droughts. Flood and drought events occur frequently in the country, although northern areas are prone to recurring droughts while the central and southern provinces along the Mekong River are more affected by flooding. Lao People's Democratic Republic depends primarily on natural resources for its development, including water resources for the generation of hydropower and rainfed rice cultivation; rice is the main staple food accounting for 72 percent of the total cultivated area. Given its dependence on natural resources, the country remains very vulnerable to the negative effects of climate change (GAFSP, 2021a). Undernutrition in the country remains stubbornly high, with 30 percent of children under the age of five suffering from stunting; this figure reaches 61 percent in some provinces. Diversity in diets is also low, with rural households consuming an average of only three out of nine major food groups.

The AFN programme is a multistakeholder partnership aimed at improving climate adaptation (TP2) and reducing extreme poverty and malnutrition by strengthening public services and promoting climate-resilient irrigation and water management using community approaches. The programme focuses on women's empowerment (TP5) to reduce inequalities within households, since women are disproportionately affected by food insecurity and undernutrition. Furthermore, AFN establishes agriculture-based and community-driven nutrition interventions and creates sustainable and inclusive market-driven partnerships to boost market linkages (TP3). The AFN assisted in the selection of target areas based on high rates of poverty and extreme poverty; these were located in mostly mountainous regions where people practice small-scale agriculture using traditional farming techniques. Activities included establishing nutrition-sensitive agricultural production infrastructure, particularly micro-irrigation systems; creating farmer nutrition schools (FNS) targeting pregnant and nursing women and mothers with children under two years of age; establishing home gardens; and financing investments to support the availability and use of nutritious food in female-led households.

The project developed interesting agricultural and nutrition extension tools by combining farmer field schools (FFS)² and FNS with the promotion of market linkages. FFS promote capacity building on improved agricultural practices, while FNS encourage social behaviour change and the exchange of knowledge among women and communities. This is done through practical learning sessions focused on household nutrition, dietary diversity, basic hygiene, food preservation and processing techniques, as well raising fish, keeping small livestock and menu planning with nutritious foods, including food grown in household gardens. After the FNS beneficiaries complete the learning sessions, they are eligible for a grant which they can use to invest in gardens and to purchase basic farming inputs and small livestock, such as chicken, ducks or fish (WFP, 2020). This extension strategy has shown encouraging trends: i) 72 percent of respondents state their children are healthier than before; ii) 83 percent state that they eat more diverse food; iii) 93 percent state that

² The FFS approach was developed by FAO and partners nearly 25 years ago in Southeast Asia. In a typical FFS, a group of 20–25 farmers meets once a week in a local field setting under the guidance of a trained facilitator. The farmers observe and compare two plots over the course of an entire cropping season, one of which follows conventional local methods while the other is used to experiment with “best practices”. This approach promotes farm-based experimentation, group organization and decision-making, increasing the likelihood that farmers will adopt improved practices (FAO, 2021b).

they eat better food/healthier diets; and (iv) 64 percent state that they can purchase more nutritious food than previously.

As of December 2020, the project had reached almost two hundred thousand people (73 percent of which were women). AFN's capacity building activities strengthened women's knowledge of nutrition and agriculture. At the same time, the programme helped participants to obtain grants to start home gardens in remote areas where off-farm opportunities rarely exist. Thanks to the gardens, recipients can feed their families and sell excess production as an additional source of income.

Another integrated programme that combines climate resilience interventions with a strong focus on women's empowerment has been carried out in **Zimbabwe**. Since 2014, the FAO-managed Livelihoods and Food Security Programme (LFSP)³ has been implemented in the fragile socioeconomic and political context of Zimbabwe, integrating five thematic components to address food insecurity and raise incomes for smallholder farmers: extension and advisory services, market development, nutrition and biofortification,⁴ rural finance and policy support, with gender mainstreamed across all components. In recent years, political instability and unbalanced productivity growth led to a deindustrialization trend and the resulting closure of many companies (Mazikana, 2017). Furthermore, structural macroeconomic deficiencies (high inflation, constrained fiscal space, high unemployment, etc.) contributed to a sustained recession in 2019 and 2020 where per capita GDP contracted by 9 percent for two consecutive years. Food prices increased rapidly at the end of 2018, contributing to an alarming 98 percent of the population not being able to afford a healthy diet in 2019. The country is also prone to unpredictable rainfall and recurrent drought. In the past five years, the country has been hit hard by excessive rainfall from cyclones, as well as *El Niño*-induced droughts in 2016 and 2018. This climate variability poses a challenge for rural farmers (67 percent of the population), who rely on rainfed subsistence agriculture.

In 2018, as a response to protracted climate and macroeconomic shocks, the LFSP introduced a low input and sustainable agriculture (LISA) approach⁵ as an enhancement of conservation agriculture (CA) and other climate smart technologies. This integrated approach aims to promote climate adaptation (TP2) and increase the productivity of cereals and legumes as well as nutritious crops, including biofortified varieties of vitamin A maize, high iron and zinc beans and orange-fleshed sweet potatoes (which align with the food fortification and biofortification policy area of TP4). During the 2019–2020 agricultural season, using the LISA approach, the programme adopted and piloted the *Pfumvudza* plot. This is a conservation agriculture intervention that is designed to meet food security for an average household of six members over a one-year period by ensuring the efficient use of resources on a small, manageable area of land. Over 53 000 farming households received training on the *Pfumvudza* plot concept; 9 281 of these applied the concept to the maize crop at their family farms.

Evidence gathered from an assessment the programme showed a strong positive cost-benefit ratio arising from an improved productivity for maize from 1 to 6 tonnes/ha (TP3). Farmers that applied all recommended practices⁶ achieved an average of 7.8 tonnes of maize per hectare, guaranteeing household cereal security for 33 weeks for a family of six.

³ The programme is funded by the Foreign, Commonwealth and Development Office (FCDO) of the United Kingdom of Great Britain and Northern Ireland.

⁴ Biofortification uses conventional selective breeding methods to enhance the nutritional value of crops. It primarily targets crops that are consumed by the majority of poor and vulnerable people to introduce micronutrients that are mostly lacking in their diets.

⁵ "Low-input" requires reducing purchased off-farm inputs such as synthetic chemical fertilizers and pesticides or livestock growth stimulants, in favour of sustainable practices that include rotations, crop and livestock diversification, soil and water conservation practices, mechanical cultivation, and biological pest controls.

⁶ Recommended practices include full mulch cover, suggested fertilizer application levels, timely crop planting, pest and disease management, and optimal crop spacing.

Taking a food system approach, this practice would ensure the availability of major staples and pulses over an entire year. The approach has been adopted by the government to be scaled up nationally during the 2020/21 agricultural season, in support of climate proofing smallholder agriculture; productivity gains and bumper harvests are expected.

The LFSP programme successfully integrated climate resilience interventions with building the capacity of local farmer institutions to mobilize finance for investment in productivity enhancement, thus reversing the chronic lack of access to credit for small-scale subsistence farmers. In total, 4 603 local internal savings and lending (ISALs) groups were created, attracting almost 45 000 members, 74 percent of which were women. This model offers a solution to households with financial challenges and labour shortages, including female-headed households, by enabling the production of diverse crops in smaller plots to meet household nutritional requirements and earn additional income from the sale of cash crops. The ISAL component opens opportunities for savings and investment for business start-ups and to cope with unexpected emergencies.

The final two cases presented in this section describe best practices designed to improve the efficiency of local food value chains of cocoa (in **Indonesia**) and of date palm, argan and saffron (in **Morocco**). In 2010, the Moroccan government created the *Agence Nationale por le Développement des Zones Oasiennes et de l'Arganier* (National Agency for the Development of Oasis Zones and Argan or ANDZOA). The agency was responsible for drawing up a global development programme for the oasis areas and for the argan value chain. This geographic area faces challenges related to extreme weather conditions, poverty, water scarcity, desertification and soil erosion. At the same time, the oasis and argan zones have a rate of human development that is well below the national average, with 14 percent poverty (compared to 9.5 percent in the whole country), an infant mortality rate of 49 percent (compared to the national average of 42 percent), and lower than average access to drinking water and electricity. The oasis and argan zones cover an immense area, representing nearly 40 percent of the national territory, with a diversity of natural ecosystems (coastal, mountainous, forested areas, plains, oasis zones and desert) (ANDZOA, 2021).

Food supply chains targeted by ANDZOA policies and investments (USD 9.34 billion have been invested over the past ten years) include date palm, argan and saffron. ANDZOA investments not only encouraged private agricultural investments but also supported storage (with investments in storage facilities) and distribution, as well as processing, packaging and marketing. The structure of the date palm value chain has improved significantly over the last decade due to the establishment of ten private laboratories for multiplying date palm plants; the construction of ten storage facilities; the organization of producers into cooperatives and cooperatives into economic interest groups, which are responsible for managing the storage facilities. Investments in food systems were complemented by investments in infrastructure and access to basic services (roads, water, health and education services), thus filling an infrastructural gap in this vulnerable area (TP5).

The strategy for developing oasis areas and argan forest zones addressed environmental, social, and economic challenges. First, the programme tackled vulnerability to climate change, which manifests itself through a progressive decrease in water availability accompanied by increased desertification and biodiversity erosion. These factors are aggravated by significant pressure from human activities such as overgrazing, expansion of agricultural land and poor water management. Planting trees has directly contributed to protecting soils against erosion, the fight against silting up of irrigation canals, the maintenance of biodiversity and climate change mitigation (climate adaptation and access to natural resources are policy areas of TP2). Second, the programme addressed the underlying causes of poverty in areas with extremely low human development and poor living conditions (empowerment of vulnerable populations, a policy area of TP5). Third, it improved agricultural production practices and

intervened at all phases of the supply chain to add value to high end products (dates, saffron, rosebush, henna, argan), and created a tourism industry that respects the conservation of ecosystems (boosting agrifood productivity and market linkages, a policy area of TP3).

Over three million date palm trees have been planted, 146 000 hectares of argan forest rehabilitated, and 3 392 hectares of argan trees planted by the project thus far. Date production grew from an average of 90 000 tons annually in 2003–2007 to 143 000 tonnes in 2019 thanks to new plantations, the adoption of appropriate agricultural practices and efficient management of production factors (specifically new extension services, such as the compulsory use of *in vitro* plants, subsidies for drip irrigation, digital technologies to optimize water and fertilizer use). Increased value-added was achieved throughout the value chain from production to storage and marketing, with a notable increase in date exports amounting to more than one thousand tonnes in 2019, compared to an average of 82 tonnes in the period 2003–2007 (World Bank, 2019). Restructuring the value chains at each stage had a positive effect on farmers' incomes, which increased by 33 percent between 2010 and 2020 (TP3). Overall, the poverty rate fell from 13.4 percent in 2007 to 6.8 percent at the end of 2019, and net job creation between 2009 and 2018 amounted to 92 624 new jobs.

While Indonesia is the third biggest cocoa producer in the world, the cocoa value chain faced several challenges related to low quality and poor yields of smallholder cocoa production. Extreme climate events, including more frequent droughts, heat waves and floods, and greater occurrence of multiple hazards (Ministry of Foreign Affairs of the Netherlands, 2018) were underlying causes, as were the increased levels of pests and fungal diseases, which were capable of destroying up to 50 percent of cocoa trees, leading to low yields and high food insecurity for smallholder cocoa producers (SCPP, 2013). The Indonesian Government was conscious of the loss of income in cocoa production (worth over USD 1 billion per annum) in a sector that is dominated by small-scale producers. These farmers began to pull out of cocoa production due to low yields and prices that did not sufficiently reward them for their efforts.

In 2012, a large public-private partnership – the Sustainable Cocoa Production Programme (SCPP) – was created, expanding in 2016 to a four-year country-wide programme. SCPP was supported and implemented by a multistakeholder partnership, including local governments from ten provinces (representing 57 major cocoa-producing districts),⁷ international and local civil society and non-governmental organizations, as well as a network of buyers of cocoa, both Indonesian and international, and several international donors.

The SCPP programme treated the entire food system, with primary attention given to upstream activities in order to introduce suitable environmental practices in cocoa production, productivity gains and good nutrition practices to increase the incomes and wellbeing of Indonesia's cocoa farmers. In addition, the programme facilitated the certification of smallholder cocoa farmers, based on international sustainability standards, to achieve premium prices, the creation of traceability systems, and the improvement of primary processing, while creating important market linkages. Starting with enhancing cocoa productivity, the programme became more holistic over time, integrating a wider range of objectives such as fostering access to finance and improving financial literacy, as well as the establishment and support for farmer organizations. The overarching aim of the SCPP was to address rural poverty by increasing the incomes of Indonesia's cocoa farmers, with the longer-term goal of strengthening the supply chain and delivering better livelihoods and employment for rural populations (policy areas under TP3 and TP5). To achieve this goal, a crucial role was given to capacity building in areas relevant to small cocoa farmers, such as improved agricultural practices, environmental sustainability as well as increasing awareness of financial practices and nutrition.

⁷ Aceh, North Sumatra, West Sumatra, Lampung, East Nusa Tenggara, Southeast Sulawesi, South Sulawesi, West Sulawesi, Central Sulawesi and Gorontalo.

The impact of the SCPP's efforts to transform cocoa food value chains was measured in six domains. First, 153 400 farmers were trained in good agricultural practices (GAP), 93 percent of the original target; 79 100 were certified by third party voluntary standards, and more than six thousand cocoa producer groups (CPG) were established and supported. Second, improved farmer productivity increased average yield by 43 percent, leading to an additional 21 160 MT of cocoa supply from Indonesia. Third, farmer profitability improved, with an estimated additional income of USD 42 million per year: a per capita increase in income for project farmers from USD 470 to USD 1 245 per year, including the aggregate extra earnings from premium payments from certified cocoa of nearly USD 1 million (TP3). Fourth, environmental sustainability was promoted through capacity building on good environmental practices (GEP) around climate adaptation (TP2). In total, 110 282 farmers were trained, 20 percent of whom were women. As 147 870 hectares of cocoa production are being maintained with these improved practices, this has resulted in a 33 percent reduction in greenhouse gas (GHG) emissions from 1.11 tCO₂/mt to 0.74 tCO₂/mt, thus having a positive impact on the environment. Fifth, the farmers trained in good financial practices (GFP) were 92 percent of total project target, while farmers trained in good nutritional practices (GNP) reached 73 percent of the project target with the majority being women. Sixth, the key role played by technology is summarized by the CocoaTrace™ platform, an SCPP innovation that has transformed the buyer–supplier relationship and created complete transparency for all actors in the CocoaTrace system. It has improved traceability and certification on both sides of the value chain: for buyers who can track cocoa deliveries from SCPP farmers, and for farmer organizations who can monitor members' production capacity and income gains from certification (Heinz, 2019).

5.2 Transforming food systems in fragile contexts: climate resilience and peacebuilding in areas affected by conflict

Some countries experience structural or contextual threats, whose consequences include serious disruption of food systems and the destruction of economic and social infrastructure. This is inevitably the case in countries that face the double burden of climate extremes and variability and conflict. Multisectoral policies are fundamental in such fragile environments, which usually require consistent financial resources to address complex challenges in several domains.

The *Caisses de Résilience* (CdR) is an innovative community-centred approach that has been successfully implemented in 20 countries, mainly in sub-Saharan Africa, to strengthen the livelihoods of households living under chronic and acute food insecurity conditions. CdR supports programme interventions in three dimensions: productive and technical (i.e. sustainable agricultural practices), economic and financial (i.e. access to credit), and social (i.e. strengthening social cohesion through farmers' groups and women's associations) (FAO, 2016b).

The simultaneous consideration of these dimensions is crucial when countries face the consequences of protracted conflicts, food and humanitarian crises, climate events or a combination of these. In such cases, it is not sufficient to address urgent hunger needs alone; it is also necessary to tackle the drivers and root causes of food crises to create economic and social conditions that lead to the sustainability of food systems in the long term. Putting in place a CdR under a given project requires a minimum of two years for good practices to become sustainable and then continue beyond the timeframe of the project. Given adequate resources, a programme can address the three dimensions simultaneously, while in cases of limited budget availability, they can be addressed individually as become available.

Burundi, one of the poorest countries in the world, continues to struggle to recover from a 12-year civil war, the consequences of which are reflected in continued levels of

food insecurity. Around 1.6 million people face crisis or worse conditions, falling in the Integrated Phase Classification (IPC) 3 or above, and almost 98 percent of the population is unable to afford a healthy diet (FSIN and Global Network Against Food Crisis, 2021). In line with the CdR approach, Burundi's first objective was to improve sustainable access to diversified agriculture-based livelihoods, developing a more efficient food system that relies on local resources and is economically, socially, and environmentally sustainable. More than fifteen hundred beneficiary households participated in the project across three targeted provinces (Bubanza, Cankuzo and Ruyigi), with multiple positive impacts on the food system. Food security outcomes translated into more diverse and healthy food available for consumption and marketing and higher farmer revenues.

The project prioritized the rehabilitation of local food value chains and food production (TP1). New farming practices helped to increase and diversify production; these included tree planting programmes and anti-erosion actions to improved resilience to climate shocks and overuse (TP2). Such interventions were crucial in Burundi, where a decline in soil fertility and increased soil erosion – due to severe land pressure on hilly and fragile landscapes – are major concerns. The country established a hundred FFS, benefiting 3 000 households. More than 375 000 kg of seeds and 3 600 goats were distributed to 1 200 FFS member households. The project used a village savings and loans association scheme (VSLA)⁸ to enable group members to save small amounts of money on a weekly basis and provide them with access to short term loans, two to four times per year; the funds are invested in profitable activities such as trading raw or transformed food products at the retail level. Total savings plus the interest earned on loans are shared among members on an annual basis, in proportion to their savings. In this way, each member receives a substantial amount of money (five to ten times the amount of an average loan), which can be used for long-term, transformative investments. Some of the benefits from short-term profitable activities (e.g. trading in local markets) or from increased yields are invested to strengthen economic resilience at the community level.

The project restored infrastructure in the three provinces, including 628 km of rural roads, tracks and 90 km of keylines on productive land and 11.5 km of a rainwater drainage canals. Nutritional education helped to improve consumption patterns and encourage more diversified and healthier diets, including foods grown for their nutritional value (e.g. mushrooms, amaranth and honey (promoting agricultural diversity, part of TP4). The project helped to empower female participants by establishing granaries to cover household food needs during the lean season (TP5). It also supported group discussions on social or environmental issues that are considered a priority for the community. Among those, women's status and rights and gender-based violence were key social issues tackled by CdR groups in Burundi.

A similar approach to policymaking comes from **South Sudan**, where a consortium of NGOs pursued objectives across four transformative pathways through the Global Affairs Canada-funded Fortifying Equality Economic and Diversification project (FEED) (Bunch *et al.*, 2020). Increasing poverty (76 percent of the population is poor) and food insecurity and the deterioration of dietary quality have been driven by communal conflict and a civil war, which has displaced people and contributed to insufficient crop production, livelihood disruptions and persistent macroeconomic deterioration since 2013. Food security is further threatened by the increasing occurrence of floods and droughts and the long-term effects

⁸ The VSLA methodology requires that all group members meet every week or every other week (absence are discouraged with fines). These regular meetings empower the groups, build trust and develop business and entrepreneurial skills, which complement the skills developed under the technical component of the project. A hundred VSLAs were established, comprising the 3 000 FFS member households; together, they mobilized a total of BIF 40 870 255 (GBP 300 894) to loan to the member households.

of climate change (like aridification). Average annual temperatures across South Sudan have increased by more than 0.4 °C every decade in the past 30 years and are projected to increase between 1 °C and 1.5 °C by 2060, creating a warmer and drier climate and causing even more human displacement (Yaw Tchier and Tarif, 2021).

To make matters worse, deep-rooted cultural norms shape gender-based discriminatory behaviour, such as the widespread pursuit of early marriages for girls from impoverished households aiming to raise funds from bride payments to improve their food security. Furthermore, food taboos, such as prohibiting pregnant women from eating fish or certain types of meat or girls from drinking milk during the first year of menstruation, negatively impact their food security. Latest estimates found that 28 percent of female-headed households report a poor food consumption score – more than twice that of their male counterparts (13 percent) (FAO, 2021c). Men are the sole decision-makers on land and its uses, related livestock and agricultural equipment. Gender disparity in agricultural inputs and services is thus very pronounced: only 10 percent of women have access to extension services and 24 percent have access to formal credit, compared to 89 percent of men. This translates into women having little control over agricultural resources and limited participation in income-generating activities (World Vision, 2020).

Within this complex context, World Vision led a consortium of NGOs, together with Oxfam and CARE, to implement the FEED project over a three-year period, with the goal of boosting agricultural productivity by integrating innovative and sustainable agricultural practices with a gender equality focus. The objective was to assist communities in three counties of Eastern Equatoria (Torit, Magwi and Ikotos), which are outside of active conflict zones, to meet basic food security needs and reduce vulnerability.

Although South Sudan has favourable conditions for agricultural production, only 4 percent of potentially 70 percent of productive land is currently under cultivation. The agricultural sector suffers from low productivity due to outdated farming practices, lack of adequate equipment and production inputs, limited capital and access to credit facilities, and limited access to water for irrigation. FEED worked closely with local leaders and governmental officials to foster peace in the communities, provided agricultural inputs (tools, equipment, appropriate seeds) and livestock, and developed market outlets for community produce (peacebuilding linked with livelihood support under TP1). FEED addressed a widespread lack of knowledge on post-harvest activities with training on income generating activities and increased access to financial services. The project also linked farmers for collective production, bulking and marketing through the establishment of producer and marketing groups (TP3). Producer groups were trained on cooperative registration, group governance and business management. Training on marketing and market linkages aimed to link cooperatives to business institutions, such as hotels and restaurants. FEED also assisted farmers to engage with input suppliers, transporters, wholesalers, processors and retailers, and the Ministry of Agriculture to exploit business opportunities.

FEED established farmer field schools (FSS) to deliver training on a wide variety of additional topics, ranging from innovative agricultural practices, seed conservation, post-harvest management and the establishment of improved storage facilities constructed with local materials, to gender equality and sex and gender-based violence (SGBV) prevention. The project succeeded in improving diet quality by strengthening pathways to food production and agricultural income, helping more than 109 000 people to improve their ability to earn an income through agriculture or fishing. At the end of the project, 71 percent of households had achieved minimum diet diversity, compared to 31 percent at the baseline. The highest transformational change occurred in gender power dynamics. There was an increase in the proportion of women in positions of leadership in community groups, and women-led producer groups won greater opportunities for female farmers through collective bargaining

power (TP5). Women gained equal access to agricultural services, significant increases in control of livelihood assets, and increases in profitable income-generating activities.

Cash transfers are another policy intervention often used in conflict or post-conflict areas to address the complexity of challenges in these contexts. Humanitarian responses to protracted food emergencies associated with conflict must ensure that aid recipients, especially children and pregnant women, receive not only an adequate kilocalorie intake but also a nutritious diet to avoid the long-term consequences of malnutrition. Cash transfers combined with nutritional education have proven to have significant positive impacts on maternal and child nutrition in conflict settings, and to significantly decrease the probability of children being diagnosed with moderate or severe acute malnutrition (Kurdi *et al.*, 2019). Over the past 20 years, **Somalia** has suffered from violence and political instability as well as environmental and climate extremes. Drought events in 2017–2018, followed by heavy rains and flooding in the southern part of the country, led to large-scale food insecurity that affected more than six million people, including over 900 000 children under the age of five who are likely to be acutely malnourished. These combined factors compromised agricultural activities and created widespread poverty and persistently high levels of food insecurity and malnutrition in pastoralist and farming communities.

In response, FAO adopted a nutrition-sensitive “Cash+” approach in 2018, mainly funded by the World Bank and supported by the Cash+ livestock and the Cash+ agriculture projects.⁹ The “+” in FAO’s Cash+ programming ensures that households not only have cash readily available, but also the inputs, assets, training and support they need for farming, herding, and fishing, and to diversify their livelihoods. This approach aims to strengthen resilience to climate variability and extremes (especially drought) in a context that is highly threatened by persistent conflict and acute food insecurity. In Somalia, the programme targeted food-insecure districts classified as being “serious” or “critical” (IPC Phases 3 and 4). Villages with high rates of child malnutrition were prioritized through consultations with government authorities and community members, and selected beneficiaries included female-headed households, households with pregnant women and with children under five years of age.

The Cash+ packages in Somalia targeted households affected by the 2016–2017 drought. The packages allowed families to access food during the “lean” months, before the harvest or while animals were taken away to better grazing areas. Pastoralists and farmers received cash and agricultural or livestock inputs to help restore food production and ensure their access to foods with a high nutritional content (TP1 and TP3). The cash and inputs were provided in conjunction with equipment to improve the processing, storage and preservation of nutrient-rich fruits and vegetables. This helped households to retain the nutritional value and safety of their food items, reducing food insecurity and post-harvest losses, and guaranteeing access to nutritious and safe food throughout the lean season (TP2 and TP4). The project offered nutrition education on topics such as cooking for better diets, hygienic food handling, infant and young child feeding practices; the training focused on the most vulnerable families, such as female- and child-headed households, households with pregnant women and with children under five years of age that were at high risk of malnutrition (TP5) (FAO, 2020b). Village-level “nutrition champions” led nutrition training on storage modalities, ways to maximize the nutritional value of food items and the safe and hygienic preparation of food.

The implementation of projects in countries facing multiple causes of poverty and food insecurity can take various forms, depending on the financial resources available for interventions. While the best practices described in this section favour an integrated

⁹ The Cash+ livestock projects and the Cash+ agriculture project were funded by the Office of US Foreign Disaster Assistance (OFDA) and by the US Agency for International Development (USAID) respectively.

approach, there might be cases where limited funds require addressing the specific needs of a particular area. This was the case in **Yemen**, where the civil conflict is entering its seventh year, with catastrophic economic consequences for households. The country faces the worst humanitarian crisis in the world, with 16 million people suffering from acute food insecurity (IPC Phase 3 or above) (IPC, 2021) and 37 percent of children experiencing stunting. The situation is aggravated by the torrential rains and widespread flooding that hit the country during 2021, damaging infrastructure and destroying homes and shelters (FSIN and Global Network Against Food Crisis, 2021). A dangerous disruption of infrastructure compromised the Sana'a City wastewater treatment plant (WWTP), which is located upstream from the agriculture area in the Bani Al-Harith district, where farmers are mostly involved in vegetable cultivation for markets in the nearby capital city. Inadequate capacity to handle the volume of incoming wastewater and its organic load, coupled with power outages due to the protracted conflict, restricted the WWTP – whose outflow canal runs for 20–25 km alongside the Bani Al-Harith District – to producing 14 million m³ of poorly treated wastewater annually. Although this poorly treated water did not meet health or irrigation cleanliness standards, farmers facing acute water scarcity were obliged to use this water for irrigation, which resulted in serious outbreaks of cholera in 2018.

In response to the cholera outbreak, the Yemen Ministry of Agriculture, together with FAO and the Government of Japan, launched a project to provide farmers with access to clean, treated water for cultivation and modern irrigation systems to increase crop productivity. With the very specific goals of promoting the production of safe food and higher crop productivity in conflict-affected areas (TP1), the project introduced supplemental water infrastructure to allow farmer households to access and manage clean water for drinking and agriculture (TP2). In turn, positive health externalities were also achieved to halt the spread of the worrisome cholera outbreak in the area.

The project constructed four small-scale WWTPs downstream from the main treatment plant to supply farmers with safe irrigation water meeting quality standards. The new treatment plants use the power of gravity to cycle water through the various stages of cleaning, with the result that the facilities are both cost-effective and easy to manage. Fifteen hectares of modern irrigation systems were connected to the new WWTPs and 60 hectares of drip irrigation system were connected to shallow groundwater wells. The project used a participatory approach and trained water user associations (WUAs) to maintain the new wastewater units and the modern irrigation system.

The intervention produced multiple benefits. It provided clean water for vegetable production and for drinking. It enhanced water use efficiency for 240 households by proving water-saving drip irrigation systems and a supply of nearly 2 million m³ of clean water annually, reducing groundwater abstraction and soil degradation. It improved crop productivity and increased farmer's incomes by 25 percent. It also helped to reduce local conflicts over water use since it was implemented and managed by a recognized WUA. The project ensured that 3 000 tonnes of vegetables could be produced annually in Bani Al-Harith District without risk of cholera contamination, benefiting local farmers and communities as well as the 33 000 people in Sana'a City that consume the vegetables.

Palestine is characterized by a fragile security situation, with restrictions on people's mobility and the movement of goods that have negative consequences for their access to natural resources and markets (FAO, 2020c). This, combined with very limited fiscal, monetary and trade opportunities, have debilitated national productive sectors, including industry and agriculture (United Nations Country Team – Occupied Palestinian Territory, 2016). The Palestinian agrifood system is dominated by small- and medium-scale producers, who face constant fluctuations in agricultural prices, seriously affecting their competitiveness.

There are major challenges involved in shifting the Palestinian agrifood system from its current form – characterized by traditional crops, intensive use of inputs and resources, poor market-demand, high vulnerability to climatic shocks and market fluctuations – to a more economically and environmentally feasible and sustainable production system, with greater market demand and crop diversification, more effective use of inputs and resources, and the inclusion of small-scale women-led businesses and women’s cooperatives. To this end, the Palestinian National Authority formulated the country’s first national policy for the achievement of SDG2:¹⁰ the National Food and Nutrition Security Policy (NFNSP) for 2030, complemented by a National Investment Plan for Food and Nutrition Security and Sustainable Agriculture (NIP). The NIP includes actions to reform the governance of the agrifood system, as well as to unlock bottlenecks to efficiently using the limited public budget and promoting viable policy options that meet the needs of stakeholders.

The NIP has eight main objectives, which can be linked to most of the pathways for food system transformation: 1) nutrition-specific investments (TP1, TP3 and TP4); 2) socioeconomic inclusion of poor and vulnerable people (TP3 and TP5); 3) sustainable and inclusive agrifood value chain development (TP2 and TP3); 4) sustainable natural resources management in the context of climate change (TP2); 5) ensuring consumer protection and food safety (TP6); and 6) territorial and co-responsibility approaches to promotion (TP1).

A key element in formulating the NIP was the creation of a multisectoral platform, which allowed the government to identify and incorporate best practices in different sectoral investments, both public and involving international cooperation. These best practices included lessons learned from the “Market-Oriented and Sustainable High-Value Crops Sector Development in the West Bank and Gaza Strip” project, financed by the Government of Netherlands and implemented by Palestinian NGOs in coordination with the Ministry of Agriculture. This initiative improved the agricultural knowledge of beneficiaries and strengthened post-production and market capacities and linkages, through training activities and technology transfer, resulting in a 12 percent increase in productivity, 15 percent reduction in production costs and an overall 10 percent increase in targeted agribusinesses. The project figured in the design of the third objective (sustainable and inclusive agrifood value chain development) of the NIP.

¹⁰ SDG 2 calls for zero hunger by 2030.

BOX 1 The role of accelerators in the formulation and implementation of policy portfolios: some country examples

The establishment of policy portfolios is not the only step required to transform food systems. As previously noted, two other elements are also critical: i) coherent policies that link food, health, environmental and social protection systems; and ii) so-called accelerators that maximize the benefits and minimize the negative consequences of transformation. While the need for coherence with other systems is highlighted in the various best practices detailed in this document, the analysis of accelerators requires greater attention. Accelerators have been grouped in two categories, as illustrated below.

Argentina is a major exporter of cherries. Ninety-three percent of cherry production is concentrated in Mendoza and some provinces in Patagonia (Ministerio de Agricultura Ganadería y Pesca de la República Argentina, 2019); 91 percent of the producers are smallholders (average farm size is 1.5 hectares). The main production zones have been affected by the presence of the Mediterranean fruit fly (medfly) since the 1990s. The use of traditional chemical products has been costly (an average of USD 2.4 million per year) and ineffective, since 10 to 30 percent of production was lost even after treatment. With support from the FAO/IAEA (International Atomic Energy Agency) Centre, Argentina's *Servicio Nacional de Sanidad y Calidad Agroalimentaria* (Argentinean National Plant Protection Organization – SENASA) implemented the *Programa Nacional de Control y Erradicación de Mosca de los Frutos* (National Fruit Fly Control and Eradication Programme – PROCEM), based on the sterile insect technique (SIT). PROCEM used irradiation techniques to sterilize male flies over several generations, gradually reducing the insect population until its total eradication. The SIT allowed Argentina to declare all its cherry production provinces free of medfly between 1999 and 2006. In this case, the use of technology served as a key accelerator, as part of one group of accelerators: **technology, data and innovation**.

Governance and institutions comprise another group of accelerators. Its role can be seen in two best practice stories from **Mexico** and the **United States of America**. In Mexico, the creation of the *Grupo Intersectorial de Salud, Alimentación, Medio Ambiente y Competitividad* (Intersectoral Group of Health, Food, Environment and Competitiveness – GISAMAC) provided the country, for the first time, with an initiative aimed at harmonizing and articulating policies related to the production, processing, distribution, marketing, sale, preparation and consumption of food with a systemic perspective. GISAMAC successfully brought together public institutions to enable the approval of the front-of-package nutritional warning labelling in 2020. In the United States of America, the Oneida indigenous nation established the Oneida Community Integrated Food Systems (OCIFS), an institution that coordinated five different Oneida institutions, aligning their work to promote traditional food products. The OCIFS initiative supported the local economy, provided jobs and coordinated measures such as nutrition education projects, the inclusion of local nutritious foods in school menus, and the creation of food outlets for selling locally-produced traditional foods.

5.3 Building resilience to economic shocks, while including other policy measures for food systems transformation

Economic shocks owing to economic slowdowns and downturns are key drivers of the current food security and nutrition challenges facing the world today. Their importance has grown since 2020, due to the impact of the COVID-19 pandemic and related containment measures on the world's economic performance. As the world faces an economic downturn that surpasses the 2009 financial crisis (World Bank, 2021), policies that build resilience to economic shocks have become more crucial.

Various policy approaches to addressing the COVID-19 pandemic provide useful insights that can be adopted by other countries in future. Although **Bangladesh** still experienced a positive GDP growth rate during 2020, the slowdown in its economic performance was considerable: almost 6 percentage points less than the growth rate in 2019 (World Bank, 2021). The lockdown and other containment measures placed food supply chains at risk, particularly affecting the informal agricultural sector in rural areas (Mostafa, 2020). Farmers faced production losses, especially of the perishable products that are a critical part of healthy diets: fruits, vegetables and fish. The farmers found their own solution to keeping food supply chains alive, assisted by farmers' organizations (FOs). This included the creation of virtual call centres (VCCs) to effectively link farmers to markets, as sellers – by facilitating contacts with upstream actors of the food value chain – and as buyers of productive inputs.

The initiative allowed farmers to sell more than 52 million tonnes of food (valued at almost USD 500 000) from its implementation in April 2020 until February 2021 (GAFSP, 2021b). The use of digital technology (TP3) to increase food chain efficiency enabled project success, as national investments in the country's digitalization process. The VCCs included innovative elements, such as the use of mobile money to allow transactions to be made without cash, respecting the COVID-19 pandemic containment measures (GAFSP, 2021b; Mostafa, 2020).

Another critical success factor were the FOs, created with support from the Global Agriculture and Food Security Programme (GAFSP)'s "Missing Middle Initiative" project, which aims to strengthen smallholder farmers' organizations and improve their access to financial resources and complementary services (GAFSP, 2016). The empowerment of FOs proved to be key in quickly organizing and implementing the VCCs (TP5 policy area, empowering vulnerable populations). In fact, the virtuous combination of using data and technology and empowering farmers provide a good example of how to build economic resilience in rural areas.

Ecuador also fought the consequences of the pandemic. The country faced one of the worst COVID-19 outbreaks during 2020 (Woods, 2021) and it heavily impacted the economy. The country closed the year with a reduction of almost 8 percent in GDP, two percentage points more than the Latin America and the Caribbean region as a whole (World Bank, 2021). Food supply chains struggled to function efficiently due to lockdown restrictions, risking consumer access to food and farmer incomes. This was particularly apparent in Quito, Ecuador's capital, where access to fresh and nutritious foods in the most vulnerable neighbourhoods was highly compromised.

The city government worked with Heifer International to establish short supply chains between Quito and the surrounding farming zones, thus strengthening market linkages and providing marketing alternatives to farmers affected by the lockdown (TP3). Urban dwellers benefited from the increased efficiency of food value chains (TP4), which enabled them to access fresh and nutritious food at low cost. The initiative built on a Heifer International programme, "The Future of Food," whose objective is to promote the sustainable production

of nutritious food, while increasing farmers' incomes (Woods, 2021). Collaboration between the government and civil society supported a distribution system in which community organizations played a key role in keeping the food supply chain alive throughout the pandemic by distributing low-cost food baskets in the most vulnerable neighbourhoods of Quito. Freshly-harvested food arrived each week at distribution centres and were further distributed to consumer homes, allowing them to maintain their consumption of nutritious and fresh food during lockdown.

After the first lockdown restrictions began to lift, food was sold on open markets, maintaining a focus on fresh food produced in rural areas near Quito at low prices. In 2021, the cities of Cuenca, Santa Elena and Machala replicated the model, ultimately reaching some 10 000 urban households and providing USD 700 000 of income to farmers on a monthly basis (Woods, 2021).

As a supplement to local markets, social protection programmes are an important source of nutritious foods for the most vulnerable people. In **Brazil**, the school feeding programme plays a critical role in providing access to food for vulnerable populations as well as promoting healthy diets by including nutritious and fresh foods into school menus (da Conceição Rocha *et al.*, 2021; Lourenço *et al.*, 2021).

Brazil experienced a wave of the COVID-19 pandemic that resulted in one of the highest death rates in the world: a total of almost 580 000 people. It is the second most affected country globally behind the United States of America in absolute numbers of cases and deaths. The pandemic caused an economic downturn, with a 4 percent decline in GDP in 2020 (World Bank, 2021). Even before the crisis struck, Brazil's recovery from the 2015–16 recession had been fragile, making the fiscal situation very vulnerable. Preventative measures triggered by the pandemic, such as mobility restrictions, closures or limited operating hours of food markets and price increases for perishable, often more nutritious foods, provoked changes in dietary patterns. Forty-nine percent of survey respondents in Brazil reported that their food habits had changed during quarantine and social isolation periods. Fourteen percent of the Brazilian population, or 30 million, did not have access to healthy diets in 2019.

The mandatory lockdowns precipitated by the pandemic led to school closures and threatened access to school feeding programmes for children. In response, the *Fundo Nacional de Desenvolvimento da Educação* (Brazilian Fund for Education Development – FNDE) authorized the direct distribution of food baskets to households; these included fresh and nutritious foods purchased from local smallholder farmers. The programme began a month after schools closed with the enactment of Law 13.987/2020, which updated the school feeding legal framework (Law 11947/2009) by authorizing, in emergency situations, the distribution of food by the FNDE to children's households (Bicalho and Lima, 2020). More than 40 million children received in-kind food transfers during this period, although some municipalities opted to provide cash transfers. Despite the logistic and financing challenges that many local governments faced, the distribution of food baskets containing fresh foods bought directly from local farmers was an innovative way to maintain the functions of the school feeding programme, which has played a key role in ensuring the right to food (Bittencourt Reis *et al.*, 2020). This adaptation of an existing social protection scheme to face an unprecedented adverse economic situation links to policy area TP3, boosting social protection schemes, as well as policy area of TP6, healthy public food procurement.

COVID-19 pandemic has certainly been the most challenging economic shock facing the world in many years. However, in many countries, economic slowdowns and downturns affected food security and nutrition well before 2020. The impact of this driver is unique to each country since there are differences in resilience and capacity to recover. For example, the effect of economic slowdowns and downturns can be especially harmful for people in rural areas in low-income countries, including smallholders (FAO *et al.*, 2019). In

Ethiopia, where GDP growth rates were previously well above the sub-Saharan Africa average, a significant economic slowdown has been observed since 2017, with average GDP growth during 2018–20 falling significantly below rates observed in the country since 2004. Agriculture represented on average 39 percent of GDP over the 2004 – 2020 period. The slowdown is expected to have important negative effects in rural areas, which were home to 78.3 percent of the national population in 2020 (World Bank, 2021).

An example of how Ethiopia faced the consequences of the economic slowdown can be seen in the experience of the “Fresh Food Voucher” project, led by the World Food Programme (WFP) in collaboration with the Ethiopian Government. The initiative was implemented in the Amhara region, where it focused on rural households (which represent 88 percent of the total population of those districts). Its main component was a food voucher delivered to pregnant and lactating women, as well as households with children under two years of age (TP3 and TP5) (Hirvonen, Baye and Abate, 2019). An interesting characteristic of project design was that the transfer required the purchase of nutritious foods: only fruits, vegetables and certain kind of animal-sourced foods were allowed. As such, the transfer specifically aimed to ensure a healthy diet for the entire household. Market prices, the size of the home and additional income received from the Productive Safety Net Programme (PSNP)¹¹ were considered in the application of the transfer. The programme took advantage of digital innovations, using a popular mobile banking application to deposit the transfers. The application allowed beneficiaries to spend the voucher directly in food markets (Hirvonen, Baye and Abate, 2019).

The project included other components to maximize the impact of the transfers on dietary quality and diversity. Area retailers were trained and assisted to address supply chain inefficiencies and improve the availability, quality and lower prices of nutritious foods, while nutrition education training and communication promoted a change in dietary habits (Frölich *et al.*, 2021). This approach benefited both consumers and retailers: the dietary diversity of target groups increased from 3 to 31.7 percent in the case of mothers, and 22 to 45 percent in the case of children, while retailers saw their profits increase by 40 percent and, since they could rely on a predictable demand, were able to plan and invest accordingly.

Cameroon has experienced an economic slowdown since 2018, a situation that worsened in 2020 when GDP grew by only 0.27 percent. Almost 45 percent of the total population lives in rural areas and the agricultural sector employs a similar proportion (World Bank, 2021). Young people in rural areas have few opportunities, due to limited access to knowledge and livelihoods, making them a highly vulnerable segment of the population. The government has identified agropastoralism as a key area for development, with the aim of reducing rural poverty and achieving food security. The sector has faced many challenges in recent years: declining output per capita as result of limited increases in the cultivated area and a stagnation in crop yields has made this economic activity unattractive to young rural people. Many have migrated to urban areas, where they are often hired for low-income and informal jobs (IFAD, 2014).

Since 2014, in collaboration with IFAD, the Youth Agropastoral Entrepreneurship Promotion Programme has supported agropastoral activities led by rural youth between 18 and 35 years of age. The programme provides them with technical assistance, enhances their access to financial resources and promotes an institutional and legal environment to support the development of agropastoral businesses (IFAD, 2014). The initiative can be linked to strengthening agrifood productivity and market linkages (TP3) but also, given its focus on youth, to the policy area of TP5 related to empowering vulnerable populations.

¹¹ PSNP is Ethiopia’s most important social protection programme.

The programme has successfully increased the attractiveness of agropastoral activities and private sector linkages to young entrepreneurs, while facilitating access to financial resources and technology for new small- and medium-scale enterprises (SMEs) in the agropastoral sector. Some lessons learned at the early stages of the project led to interesting, good practices. For example, adapting training and technical assistance to different educational levels resulted in better adoption of improved practices and techniques by the targeted young people. Furthermore, the promotion of networks to incubate marketing linkages between different agropastoral projects proved to be extremely useful.

Mountain populations in rural areas are highly vulnerable to food insecurity and its main drivers: conflict, climate extremes and variability, and economic shocks. It is estimated that in 2017, 346 million people in rural mountain areas experienced food insecurity, 53 percent of the total rural mountain population (Romeo *et al.*, 2020). The Mountain Partnership Products (MPP) initiative is a project led by FAO and the Italian Agency for Development Cooperation that aims strengthen local value chains to build the economic resilience of vulnerable producers in rural mountain areas. The initiative is currently underway in **Nepal** and in seven other countries. The MPP initiative provides technical and financial support to smallholder producers in rural mountain zones, promoting the development of economic activities based on mountain products such as organic food, or textiles, among others (FAO, 2015).

An innovative component of the initiative is its focus on improving access to markets under fair trade conditions using certification and marketing schemes. The “Global Mountain Participatory Guarantee System” (PGS), established by the MPP initiative, is an internationally-recognized assurance scheme that provides low-cost certification of quality in organic products produced by smallholder farmers. The introduction of an “MPP label” has helped rural mountain producers to reach national markets. For example, a mix of beans (*jumla* beans) produced by MPP beneficiaries are sold in national supermarkets, increasing production and sales by 25 percent over four years (Makino, Geringer and Manuelli, 2020). The initiative has provided significant aid to Nepalese farmers, who, since 201, have grappled with an economic slowdown, which became a downturn in 2020 (World Bank, 2021). This practice links to the TP3 policy area related to strengthening agrifood productivity and market linkages.



6 Conclusions

The move from sectoral siloed solutions to coherent multisectoral policy approaches is a key characteristic of the portfolios of policies, investments and legislation that enable the transformation of food systems. Based on a review of best practices in transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition, there is broad evidence that certain investments and interventions can counteract these drivers and help transform food systems along six transformative pathways (TPs). However, many of these success stories lack clear documentation of links with food security, health, nutrition, environmental, social protection and other policies, raising concerns about fragmented policy agendas.

Based on our analysis, the choice of policy tools should reflect their transformative effects on food systems as well as their links to other systems that also affect the performance of food systems (FAO *et al.*, 2021). Such multisectoral portfolios are better able to address the complexity of the main drivers affecting current food security and nutrition, including their influence on human capacity and resilience, and the unequal distribution of income, productive factors and public services.

While the best practices documented in this report do not provide many examples of coherent policy portfolios, they do reveal single policy tools that were able to achieve multiple objectives across several transformative pathways. These practices provide insights on moving towards transformative, coherent portfolios of policies. For example, practices associated with a particular transformative pathway, such as scaling-up climate resilience (TP2), are often closely linked to transformative pathways such as strengthening economic resilience (TP3) or addressing poverty and inequality (TP5). Moreover, these policy measures have been shown to have transformative effects on non-food systems as well. This kind of coherence, among sectors (or pathways) as well as systems, is crucial. For example, environmental systems can affect the productivity of food systems by providing the necessary conditions for the development of agriculture and fisheries, while food systems can affect environmental systems through their impact on biodiversity, GHG emissions, and food losses and waste. Effective policy portfolios require considering these linkages, as well as possible trade-offs, and ways to minimize such trade-offs. The best practices described in this document can help enhance the transformation of food systems, while also promoting “win-win solutions”. Policymakers should take advantage of such experiences when designing coherent portfolios of policies, often under unique circumstances.



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Annexes

Annex 1. List of case studies and best practices

◆ **TABLE A1** Title and location of case studies

No.	Title of the case study	Location
1	Technological innovation and risk reduction in vegetables: increasing resilience, farmer incomes and additional supplies of vegetables for internal markets	Myanmar
2	Good environmental practices in Robusta coffee; raising incomes/building resilience	Viet Nam
3	Sustainable cocoa production in Indonesia: lifting incomes, preparing for the future	Indonesia
4	ASEAN response to COVID-19 pandemic: strengthening the SE Asian food supply chain	ASEAN region
5	The Fall Armyworm ASEAN Action Plan: ighting pests to preserve farm income	ASEAN region
6	Smallholder farmer organizations in Bangladesh keep the supply chain going during the pandemic through a network of virtual call centres	Bangladesh
7	Moving from sectoral towards integrated and sustainable policies and investments through the creation of the National Agency for the Development of Oasis Areas and Argan (ANDZOA)	Morocco
8	A multisectoral action-oriented approach to policy and investment for food system transformation: FAO's support to the formulation and roll-out of the National Investment Plan for SDG2 (2020–23)	Palestine
9	Mapping territorial markets in the United Republic of Tanzania	United Republic of Tanzania
10	Leveraging SMEs for nutrition-sensitive food systems	Ghana, Kenya, Viet Nam, Mexico
11	Overcoming bottlenecks to implementing homegrown school feeding (HGSF) programmes	Ethiopia
12	Nutrition-sensitive interventions/support to communities	Somalia
13	Ghana's use of compositional standards to tackle rising imports of very high fat meat products	Ghana
14	Protecting children from the harmful impact of food marketing – policy elements of good practice	Chile, India, Philippines, Türkiye
15	Promoting competence of national food safety laboratories to safeguard consumers while boosting trade	Botswana



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
16	Mountain Partnership Products (MPP) initiative	Bolivia (Plurinational State of), India, Kyrgyzstan, Mongolia, Nepal, Panama, Peru, Philippines
17	An integrated risk management approach to building resilience of smallholder farmers to climate change in Zambia	Zambia
18	Central Sahel food crisis response and recovery: increasing access and supply of nutritious foods through strengthening local food systems	Burkina Faso, Mali, Niger
19	A quadruple win: Ethiopia's fresh food voucher	Ethiopia
20	Improving nutrition and food security in the Gulf Cooperation Council (GCC) States by developing fish farming in the desert	Gulf Cooperation Council (GCC) States
21	Promoting research, technology and innovation for sustainable food systems	United Arab Emirates, Saudi Arabia
22	Suriname Agriculture Market Access Project (SAMAP): investments in food safety and value chains reshape national food system	Suriname
23	Building sustainable and resilient food systems through multistakeholder collaboration.	Uganda
24	Scaling investments for water, energy and food security: the case of Kenya's Upper Tana–Nairobi Water Fund	Kenya
25	<i>Panamá Solidario</i>	Panama
26	Saving lives through early action. Food security and social cohesion in La Guajira, on the front line of the migration and extreme drought crisis	Colombia
27	Programa de Abastecimiento Institucional (PAI) de Costa Rica, a public initiative that energizes local food production systems	Costa Rica
28	Transforming food systems through farmer field schools and care groups	Malawi
29	How urban microgardening is contributing to the fight for food and nutrition security	Senegal
30	Consumer awareness to drive demand for nutritious food – development of food based dietary guidelines	Botswana
31	Innovative production techniques to boost household income and nutrition – date palm cultivation – innovative new techniques	Eritrea
32	Effective nutrition education	Nigeria
33	Producing and eating diverse foods	Madagascar



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
34	FAO supports schools and farmers committed to eradicating malnutrition	Gambia
35	Effectively fighting chronic malnutrition in Rwanda through agriculture	Rwanda
36	Processing to prevent food loss and boost nutrition in Zambia	Zambia
37	Biofertilizer and intercropping technologies: facilitating agroecological transition	Benin
38	Sterile Insect Technology (SIT): helping establish pest-free areas in Argentina and facilitating trading paths for exporting fruit	Argentina
39	Enrichment of home gardens for nutritional and income resilience: a Sri Lankan “best practice”	Sri Lanka
40	Rice fortification for the fight against anaemia	Peru
41	Young Tanzanian agripreneur thrives in the nutritional food business	United Republic of Tanzania
42	Milk bars boost nutrition and incomes	South Sudan
43	Institutionalizing the farmer field schools methodology in institutions of higher learning in Eastern Africa	Ethiopia, Kenya, Uganda
44	<i>Mejora de la SAN y reducción de la pobreza en comunidades indígenas de Panamá, con un enfoque inclusivo y participativo, mediante la aplicación del CLPI</i>	Panama
45	Boosting the introduction of nutritional African leafy vegetables (ALVs) in school meals through a biodiversity conservation policy	Kenya
46	1 million cisterns for the Sahel	Burkina Faso, Chad, Gambia, Mali, Niger, Senegal
47	Protecting pork industry in Viet Nam: capacity development to control outbreak of African swine fever	Viet Nam
48	Viet Nam: irradiation to secure food trade	Viet Nam
49	Zimbabwe Livelihoods and Food Security Programme (LFSP)	Zimbabwe
50	An integrated watershed approach to strengthening climate resilience in vulnerable agricultural communities in Cambodia	Cambodia
51	<i>Caisse de Résilience</i> (CdR) approach	Burundi
52	<i>Sistema de Información Automatizado de Homo-geneidad de Tierra</i> (SIAHT)	Venezuela (Bolivarian Republic of)
53	Empowering rural women in the agriculture value chain	Ghana



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
54	Comprehensive “technical assistance” mentoring for building up a cadre of youth agripreneurs	Malawi
55	Landscape restoration for addressing food and nutritional security in the fragile ecology of Bundelkhand region	India
56	Phosphorus and zinc fertilization improve zinc biofortification in grains and straw of coarse vs fine rice genotypes	Pakistan
57	National measures to minimize risk and enhance benefits of increased trade and investment: lessons from national use of fiscal policies	Fiji, Peru, Tonga
58	Mexico's Intersectoral Group of Health, Food, Environment and Competitiveness (GISAMAC)	Mexico
59	Gender and women's empowerment in nutrition-sensitive agriculture: new evidence and implications for programming	Bangladesh, Mali, India, Ethiopia, Burkina Faso, Cambodia, Nepal, Philippines, Uganda, Nigeria, Mozambique
60	Strengthening pluralistic and market-oriented service systems to enhance capacities for business and market orientation: the farm business school approach and the cooperative business school approach.	Afghanistan Cambodia, Philippines, Viet Nam, Nepal, Sri Lanka, Pakistan, Oman, Iraq, Lebanon, Ethiopia, Kenya, Uganda, Malawi, Eswatini, Lesotho, Botswana, Nigeria, Sierra Leone
61	Support to food systems and diets through nutrition-sensitive Cash+	Somalia
62	<i>Territorios Dulces Agroalimentarios en el departamento de Antioquia- Colombia y su aporte a la seguridad alimentaria. El caso de la producción panelera</i>	Colombia
63	<i>#SuperFoodsAmazonicos y su oportunidad en los deshidratados</i>	Peru
64	<i>Agricultura urbana y resiliencia alimentaria de Quito</i>	Ecuador
65	Information practice	Switzerland
66	Empowering rural women in the agriculture value chain: leveraging traditional knowledge on natural resources management for food security	Ghana
67	Strengthening the domestic fish value chain to invest in protein-based and nutritious-effective school meals for a better learning of school children	Sao Tome and Principe
68	Enhancing Jamaica's Shock Responsive Social Protection Mechanisms in support of vulnerable Groups including children	Jamaica



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
69	Rural transformation in Burundi	Burundi
70	<i>Renforcer la sécurité alimentaire au Cameroun grâce à la promotion de l'entrepreneuriat agropastoral chez les jeunes</i>	Cameroon
71	National Agricultural Land and Water Management Development Project (NEMA)	Gambia
72	Coastal Community Development Project	Indonesia
73	The Outer Island Food and Water Project (OIFWP)	Kiribati
74	Family Farming Development Program (ProDAF)	Niger
75	Climate Change Adaptation and Agribusiness Support Programme (CASP)	Nigeria
76	Livestock and Pasture Development Project	Tajikistan
77	Towards a coordinated and accelerated action for the eradication of hunger and malnutrition in Africa (AUDA-NEPAD Nutrition and Food Systems Strategic Programme)	Africa (regional initiative)
78	Regulating school gardens: contributing to sustainable school food and nutrition	Kyrgyzstan
79	<i>Accentuation de la place des produits forestiers non ligneux dans les habitudes alimentaires des populations rurales et urbaines</i>	Burkina Faso
80	Nutrigardens for food and livelihood security in arid zones	India
81	Promoting systemic changes in small-scale rice farming systems in Lao PDR to improve food and nutrition security	Lao People's Democratic Republic
82	Introducing good governance across food value chains	Pakistan
83	Farming system for nutrition approach to address malnutrition	India
84	Agriculture for Nutrition Programme (AFN)	Lao People's Democratic Republic
85	The Bhavishya Shakti Mobile Teaching Kitchen (MTK) as a nutrition education model to tackle food insecurity and malnutrition in marginalized communities	India
86	The Oneida Nation's Integrated Approach to Food Sovereignty (OCIFS)	United States of America
87	Innovative models and enabling the environment for anchoring iron beans in Rwandan food systems	Rwanda
88	Postharvest management in sub-Saharan Africa (PHM-SSA)	Benin, Mozambique
89	European Food Banks Federation (FEBA): competences, adaptation and creativity to feed the future	Europe (regional initiative)
90	A multipronged approach to scaling conservation agriculture and food security	Ethiopia



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
91	<i>Développement de la chaîne de valeur du manioc pour renforcer la sécurité alimentaire et nutritionnelle</i>	Congo
92	Aquaponics kits to grow organic and raise fish while preserving water and soil	Cameroon
93	<i>Plan de Seguridad Alimentaria</i>	Chile
94	The Biodiversity for Food and Nutrition Project: a holistic approach to food system transformation	Brazil, Kenya, Sri Lanka, Türkiye
95	<i>Piloto Inclusión de la gastronomía en el Programa de Alimentación Escolar (IGPAE): la alternativa para lograr el derecho a una alimentación saludable, rica y sin desperdicios</i>	Colombia
96	Linking smallholder dairy producers to a sustainable school food and nutrition programme	Albania
97	Transforming food systems through landscape restoration in drylands of Ethiopia	Ethiopia
98	Ensuring food and nutrition security in Maharashtra through multilayer farming	India
99	<i>Le « Système Horti-Aquacole de Valorisation des Eaux Souterraines » (SHAVES) comme innovation agricole d'adaptation au changement climatique</i>	Burkina Faso
100	School food and nutrition programme linked to the agricultural sector	Tajikistan
101	Odisha Millet Mission: making healthy diets successful and accessible through the public distribution system	India
102	Whole of island approaches – building diversity and resilience of Emae food production systems	Vanuatu
103	Enhancing resilience and food security and nutrition through sustainable seed systems in the Pacific Island countries and territories	Pacific region (regional initiative)
104	Transforming food systems in South Sudan through gender equality	South Sudan
105	Improving the nutritional status of the Malagasy, especially the most vulnerable	Madagascar
106	Quality diets for better health	Ethiopia
107	<i>Hortas Cariocas Programme (Cariocas Vegetable Gardens Programme)</i>	Brazil
108	<i>Redes alimentarias alternativas (RAA): sustentabilidad y paz</i>	Colombia
109	Women-led, nutrifood enterprises: making India's tribal communities healthy, resilient and self-sustainable	India
110	Participatory agroecology initiative: soils, food and healthy communities in Malawi	Malawi, United Republic of Tanzania



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
111	Delicious food for all, ProVeg Germany	Germany
112	The role of local innovation in improving food and nutrition security	Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya
113	Social contract pilot “Cash+” in Kyrgyzstan	Kyrgyzstan
114	Barikà (MA’): from mistreatment to self-employment and social inclusion within a green fair healthy model	Italy
115	Agroecology reaches low-income urban families: lessons on food system transformation in Ecuador	Ecuador
116	Digitalization in a local food system: emphasis on Finnish Lapland	Finland
117	Improved food and nutrition security through multisectoral action on all levels	Benin, Burkina Faso, Cambodia Ethiopia India, Kenya, Malawi, Mali, Madagascar Togo, Yemen, Zambia
118	Supporting school-aged children and smallholder farmers during COVID-19 pandemic: a reflection on Brazil’s school-based responses	Brazil
119	Nutritious and affordable meals for all (UNILEVER)	Nigeria, Kenya, Philippines, Indonesia
120	<i>Lactancia materna, la apuesta para una mejor nutrición infantil</i>	Colombia
121	<i>El fortalecimiento de la agro-biodiversidad clave en la sostenibilidad de los sistemas alimentarios de México</i>	Mexico
122	The Land for Life Programme: transforming lives and landscapes with the Inga Tree model of organic, regenerative agroforestry	Honduras
123	<i>Modelo de Adaptación Climática Territorial (MAC)</i>	Guatemala
124	CINI Nutrimix – an affordable indigenous nutritional solution to bring about food system transformation	India
125	Local food plants for healthy, sustainable and affordable diets	Uganda, Zambia, Zimbabwe, Peru, Guatemala, Lao People’s Democratic Republic, Nepal
126	Strengthening food systems by supporting growth and resilience of small- and medium-sized agrifood enterprises	Kenya, Mozambique Rwanda
127	Problems of food security and nutrition in Northern Nigeria	Nigeria
128	Sustainable eating practices: multidisciplinary approaches to improving meals in schools and communities	Tajikistan



TABLE A1 (cont.) Title and location of case studies

No.	Title of the case study	Location
129	<i>Proyecto de Planeación Universitaria: alimento, vida y hábitat</i>	Colombia
130	Revival of small millet-based traditional foods in Himachal Pradesh for healthy diets	India
131	School feeding programme with smart foods	India
132	Strengthening resilient and self-sufficient vegetable production systems through mainstreaming home gardening in Kerala, India	India
133	Evidence-based policy process of food fortification to prevent micronutrient deficiencies in a high-income country: Israel	Israel
134	Community-based Forestry Development Project in Southern States (DECOFOS)	Mexico
135	Building back better from crisis conditions in Yemen: the introduction of water treatment technology and improved irrigation technology under emergency conditions	Yemen
136	Preserving biodiversity to strengthen the Indigenous Peoples' food system of the Tikuna, Cocama and Yagua peoples in the Colombian Amazon	Colombia

Source: Authors' elaboration based on the cases submitted in the calls for best practices in transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition.

Annex 2. Templates used in the process to collect success stories/best practices

A. Template used in the internal call directed to FAO and *The State of Food Security and Nutrition in the World* partner agencies (IFAD, UNICEF, WFP and WHO)

- 1) Name/title of success story/good practice:
- 2) Context/location: See Table 1 below for more guidance on the criteria for context, including:
 - a. national income level;
 - b. administrative level, and whether rural or urban;
 - c. type of food system (two sets of typologies provided in Table 1).
- 3) Components of the food system targeted by the policies and/investments, i.e. food production level, food processing, transportation, marketing and/or the food environment, consumer behaviour. Please reference the food components as described in the food system diagram in Figure 1, and summarized in Table 1, row d.
- 4) What are the combined goals of the portfolio of policies and/or investments?
 - a. Strengthened resilience to one or more of the three shocks and stresses: conflict, climate variability and extremes, and/or economic slowdowns and downturns.
 - b. Addressing the underlying structural causes of hunger and malnutrition: poverty and inequality (in terms of income, productive capacity, education and health) and with a gender lens.
 - c. Sustainably transforming food systems to lower the cost of nutritious foods, and improve the affordability of healthy diets, including food production, food supply chains, food environments and consumer demand and political economy, with reduced environmental impact globally.
- 5) Does the best practice or success story include policies and/or investments outside the food system, from other systems such as health and social protection systems? If so, what are they?
- 6) Are there win-win solutions, or triple-win solutions from the portfolio of policy and/or investment packages? Were there any trade-offs? and how were these managed or not?
- 7) Who are the key actors? Please list all relevant public and private sector actors, including government institutions, private sector actors, including farmers organizations, civil society/NGOs, and other actors (e.g. food processors, marketeers, consumer orgs) that have made a specific contribution to the documented success story/good practice (Table 1, row e).
- 8) Full description of the best practice and success story that illustrates the policies and/or investments.
- 9) Cost estimate of the policies and/or investments documented.
- 10) Impact of the portfolio of policies and/or investments (a) on the food system (see Figure 1) and (b) on food security and nutrition outcomes: Please summarize key impacts, including statements on how this initiative has helped reduce inequality and/or made healthy diets more affordable.
- 11) Summary: Highlights of why this is a best practice and/or success story of moving from silo towards portfolios of integrated food systems solutions for ensuring healthy diets for all while addressing drivers (conflict, climate, and/or economic downturns) and tackling underlying causes (poverty and inequality) with policy coherence.

B. Template used in the call for best practices in transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition of the FSN Forum

Call for best practices in transforming food systems for affordable healthy diets and addressing key drivers of food insecurity and malnutrition

Template for submissions (maximum 2 000 words in total)

The interagency writing team¹ of the 2021 edition of *The State of Food Security and Nutrition in the World* invites you to share illustrative examples of best practices and lessons learned on what it takes – in very practical and innovative ways – to transform food systems² for better access to nutritious foods and affordable healthy diets.

When describing your example (case study) of a best practice and/or lessons learned, we invite you to include the following:

- ◆ a description of the **food systems context** (which food system component, rural versus urban, etc.);
- ◆ a **multidisciplinary approach** guided by complementary policies, investments or interventions;
- ◆ how the policies, investments or interventions address two or more **key drivers of food insecurity and malnutrition** (including conflict, climate variability and extremes, economic slowdowns and downturns, poverty and inequality, economic and health implications of COVID-19 pandemic);
- ◆ a clear description of how the best practices (and lessons learned) have led (or are expected to lead) to the **transformation of food systems**;
- ◆ *how* the transformative changes introduced helped **raise the affordability of healthy diets** (e.g. in raising people's purchasing power and/or reducing the cost of nutritious foods).

The fields provided below will guide you through these key points. Please use this submission form to share your example of **best practices and lessons learned in food systems transformation**. You can upload the completed submission form to: www.fao.org/fsnforum/activities/discussions/SOFI_transforming_food_systems or send it via email to fsn-moderator@fao.org.

Submissions are welcome in all six United Nations languages (English, French, Spanish, Russian, Arabic and Chinese). The call is open until **31 March 2021**.

Proponent (name/institution)

Title for the example (case study) presented

¹ The interagency writing team includes technical experts from FAO, IFAD, UNICEF, WHO and WFP.

² Food systems comprise everything and everybody involved in producing, storing, packing, processing, distributing, consuming, and disposing of food, including the social, political, economic, and environmental systems which influence and are influenced by those activities. Parsons, K. & Hawkes, C. 2018. *Connecting food systems for co-benefits: how can food systems combine diet-related health with environmental and economic policy goals?* Copenhagen, WHO. See also the food systems diagram in: HLPE. 2020. *Food security and nutrition: building a global narrative towards 2030*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.

Country context/location (national/subnational; urban/rural)

Food security and nutrition (FSN) context and underlying drivers affecting FSN (i.e. conflict, climate variability and extremes, economic slowdowns and downturns, COVID-19 pandemic or measures to contain it, and/or persistent poverty and inequality)

Type of food system / key characteristics of the food system component considered (please describe the challenges, inter-linkages and complementarities among the food system's components)

Combined goals of the policies, investments and/or interventions described (a, b and/or c)

- a) strengthened resilience to external shocks and stresses (e.g. climate, conflict, economic, COVID-19 pandemic)
- b) address underlying structural causes of hunger and malnutrition (e.g. poverty, inequality)
- c) sustainably transforming food systems to lower the cost of nutritious foods and/or improve affordability of healthy diets

Key characteristics of supporting policies, investments and/or interventions

Key actors and stakeholders involved in the development and implementation of the example provided (please also describe to what extent a multi-stakeholder and participatory approach has been adopted)

Are there important linkages of interventions in the food system with other systems? (e.g. health systems, environmental systems and/or social protection systems)

Highlight key innovative and/or transformative changes in the specific food system as a result of the policies, investments and/or actions leading to improved FSN (please note that “transformative change” refers to innovative, proactive changes away from “business as usual”)

Highlight challenges faced (trade-offs, and how these were managed) **and/or efficiencies gained as a result of the best practice presented** (e.g. win-win situations)

Key lessons that can be learned from your case (both positive and negative) **and whether these could be applicable in other contexts with similar characteristics**

Summary of key messages

After decreasing for nearly a decade, hunger is once again on the rise. The major drivers behind this reversal – especially in low- and middle-income countries – are conflict, climate extremes and variability, and economic downturns. This crisis – exacerbated by the economic shocks stemming from the COVID-19 pandemic containment measures – underlines the urgent need to transform food systems for food security, improved nutrition and affordable healthy diets. This prompted FAO, the International Fund for Agricultural Development (IFAD), the United Nations Children’s Fund (UNICEF), the World Food Programme (WFP) and the World Health Organization (WHO) to focus the theme of *The State of Food Security and Nutrition in the World 2021* on possible transformative pathways and portfolios of policies to achieve these objectives. This paper analyses 136 case studies received from a call for best practices in transforming food systems to improve the affordability of healthy diets and build resilience to the major drivers of food security and nutrition. These can help countries formulate context-specific portfolios of policies, investments and laws that integrate different sectors – environmental, health and social protection, among others – to move from siloed approaches to integrated food systems solutions.

The FAO Agricultural Development Economics Technical Study series collects technical papers addressing policy-oriented assessments of economic and social aspects of food security and nutrition, sustainable agriculture and rural development.

The series is available at www.fao.org/economic/esa/technical-studies

FOR FURTHER INFORMATION

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