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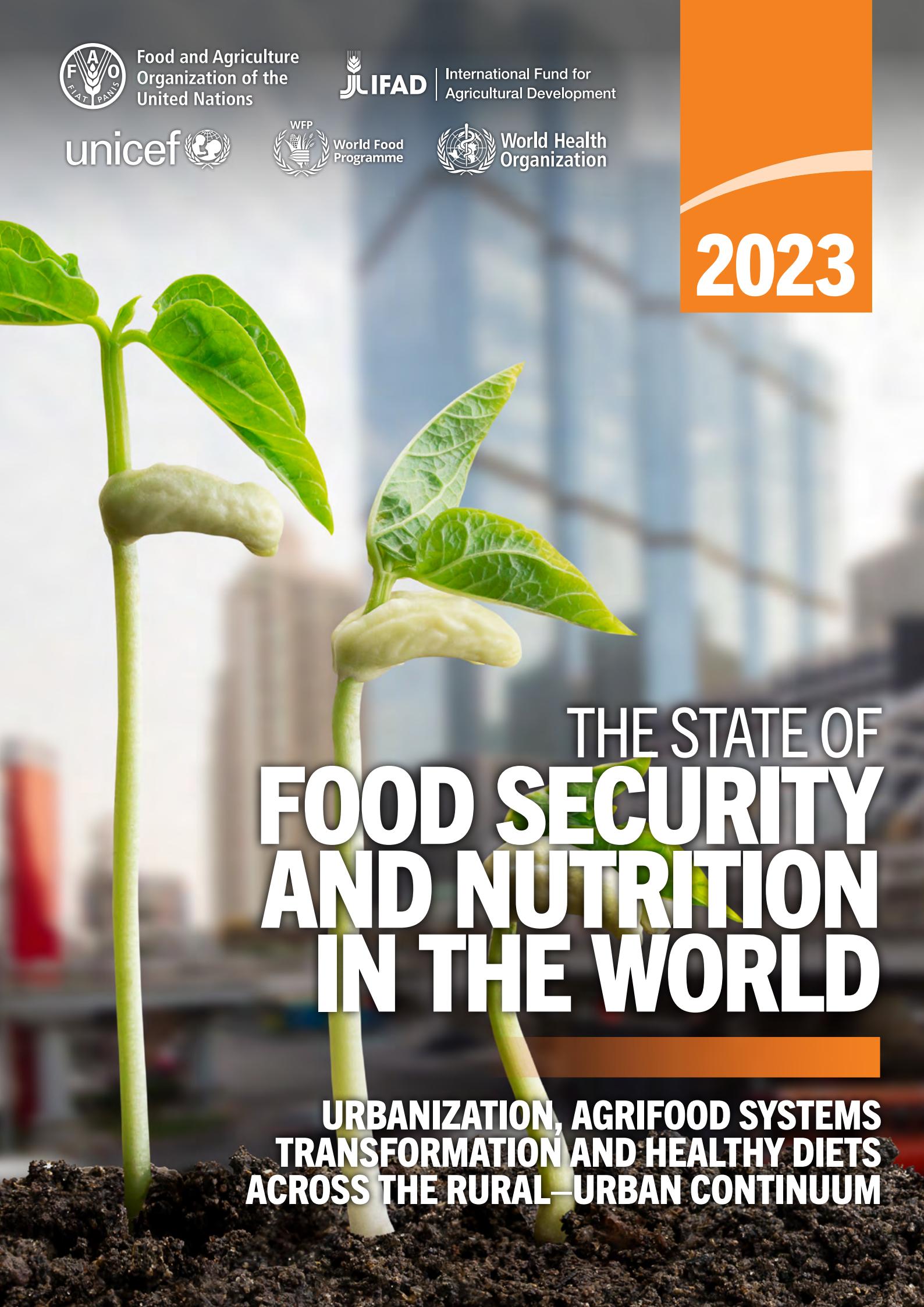


World Food
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2023



THE STATE OF **FOOD SECURITY AND NUTRITION IN THE WORLD**

**URBANIZATION, AGRIFOOD SYSTEMS
TRANSFORMATION AND HEALTHY DIETS
ACROSS THE RURAL–URBAN CONTINUUM**

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THAILAND. Green sprouts with a city backdrop – urban and peri-urban agriculture in action.

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Food and Agriculture Organization of the United Nations
International Fund for Agricultural Development | United Nations Children's Fund
United Nations World Food Programme | World Health Organization
Rome, 2023

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- 2 Untangling the rural–urban continuum
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- 5 The myth of rural subsistence farming in Africa
- 6 Food security across the rural–urban continuum: evidence from 21 rural development projects worldwide

FOREWORD

This report brings our organizations together again to reaffirm that, if we do not redouble and better target our efforts, our goal of ending hunger, food insecurity and malnutrition in all its forms by 2030 will remain out of reach. Although the world is recovering from the global pandemic, this is occurring unevenly across and within countries. On top of this, the world is grappling with the consequences of the ongoing war in Ukraine, which has shaken food and energy markets.

Agrifood systems remain highly vulnerable to shocks and disruptions arising from conflict, climate variability and extremes, and economic contraction. These factors, combined with growing inequities, keep challenging the capacity of agrifood systems to deliver nutritious, safe and affordable diets for all. These major drivers of food insecurity and malnutrition are our “new normal”. We have no option but to redouble our efforts to transform agrifood systems and leverage them towards reaching the Sustainable Development Goal 2 (SDG 2) targets.

Global hunger is still far above pre-pandemic levels. It is estimated that between 690 and 783 million people in the world faced hunger in 2022. This is 122 million more people than before the COVID-19 pandemic. Nonetheless, the increase in global hunger observed in the last two years has stalled and, in 2022, there were about 3.8 million fewer people suffering from hunger than in 2021. The economic recovery from the pandemic has contributed to this, but there is no doubt that the modest progress has been undermined by rising food and energy prices magnified by the war in Ukraine. There is no room for complacency, though, as hunger is still on the rise throughout Africa, Western Asia and the Caribbean.

No doubt, achieving the SDG target of Zero Hunger by 2030 poses a daunting challenge. Indeed, it is projected that almost 600 million people will still be facing hunger in 2030. This is 119 million more people than in a scenario in which neither the COVID-19 pandemic nor the war in Ukraine had occurred, and around 23 million people more than in a scenario where the war had not happened.

Unfortunately, our worries are not only due to hunger. In 2022, 2.4 billion people, comprising relatively more women and people living in rural areas, did not have access to nutritious, safe and sufficient food all year round. The persisting impact of the pandemic on people’s disposable income, the rising cost of a healthy diet and the overall rise in inflation also continued to leave billions without access to an affordable healthy diet. Millions of children under five years of age continue to suffer from stunting (148 million), wasting (45 million) and overweight (37 million). Despite progress in reducing child undernutrition – both stunting and wasting – the world is not on track to achieve the associated 2030 targets, and neither is any region on track to attain the 2030 target for low birthweight, so closely linked to the nutrition of women before and during pregnancy. Steady progress is only seen on levels of exclusive breastfeeding.

These numbers and trends may be a considerable disappointment for us, but for the children and people affected, they constitute an underlying fact of their lives, and this fuels our determination to keep finding solutions. Since 2017, when signs of increasing hunger first began to appear, our organizations, through this report, have provided in-depth analysis of the major drivers behind these concerning trends and evidence-based policy recommendations to address them.

FOREWORD

We have repeatedly highlighted that the intensification and interaction of conflict, climate extremes and economic slowdowns and downturns, combined with highly unaffordable nutritious foods and growing inequalities, are pushing us off track to meet the SDG 2 targets. While we must remain steadfast in taking bold targeted actions to build resilience against these adversities, other important megatrends must be considered.

Urbanization, for example, is one such megatrend that features as the theme of this year's report. By 2050, almost seven in ten people are projected to live in cities; but even today, this proportion is approximately 56 percent. Urbanization is shaping agrifood systems in ways we can only understand through a rural–urban continuum lens, encompassing everything from food production, food processing, and food distribution, marketing and procurement, to consumer behaviour. Due to population growth, small and intermediate cities and rural towns are increasingly bridging the space between rural areas and large metropolises. Hence, in our efforts to end hunger, food insecurity and malnutrition in an urbanizing world, we can no longer operate on the traditional assumption of a rural–urban divide.

As the world is urbanizing, food demand and supply are changing rapidly across the rural–urban continuum, challenging our traditional thinking. In some contexts, food purchases are no longer high only among urban households but also among rural households living far from an urban centre. Moreover, consumption of highly processed foods is also increasing in peri-urban and rural areas of some countries, whereas consumption of vegetables, fruits, and fats and oils is becoming more uniform across the rural–urban continuum. These important

changes are affecting people's food security and nutrition in ways that differ depending on where they live across this continuum.

To overcome the challenges and seize the opportunities that urbanization creates, our actions, policy interventions and investments will have to be informed by a clear understanding of how the rural–urban continuum and agrifood systems interact, and how, given such interaction, urbanization affects access to affordable healthy diets, and consequently food security and nutrition. The policy approach must go beyond rural or urban silos and administrative borders and will require strong and well-coordinated governance mechanisms and institutions.

The theme of this year's report is also timely and relevant for several other reasons. The policy recommendations can inform countries on what programmes, investments and actions can be effective and innovative for meeting the SDG 2 targets in the context of urbanization. They are also relevant for the achievement of other SDGs, including not only SDG 11 (Sustainable Cities and Communities), but also SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), SDG 10 (Reduced Inequalities) and SDG 12 (Responsible Consumption and Production).

Recent discussions at the United Nations General Assembly have raised the importance of achieving Sustainable Cities and Communities (SDG 11), as this is closely related to other important interconnected issues, including poverty eradication, climate action, migration, land degradation, economic prosperity and creation of peaceful societies. Nonetheless, the related links between urbanization and the affordability of healthy diets, and the resulting implications for food security and nutrition, have not been explored in these discussions, and we hope this report

helps bridge this important gap. The report's theme is also aligned with the New Urban Agenda, endorsed by the United Nations General Assembly in 2016, and represents a unique contribution to create awareness about the importance of improving access to affordable healthy diets as a critical component in pursuing sustainable urbanization.

Finally, we hope that this report informs other ongoing efforts, clearly those of the

coalitions of action established after the United Nations Food Systems Summit as we move towards the global stocktaking meeting to review progress in implementing the outcomes of the Summit on 24–26 July 2023, not least the Urban Food Systems Coalition, the Coalition of Action on Healthy Diets from Sustainable Food Systems for Children and All, the School Meals Coalition, and the Zero Hunger Coalition; as well as the Scaling Up Nutrition Movement. ■



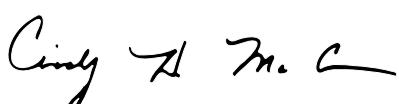
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METHODOLOGY

The State of Food Security and Nutrition in the World 2023 has been prepared by the FAO Agrifood Economics Division in collaboration with the Statistics Division of the Economic and Social Development stream and a team of technical experts from the Food and Agriculture Organization of the United Nations (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).

A senior advisory team consisting of designated senior managers of the five UN publishing partners guided the production of the report. Led by FAO, this team decided on the outline of the report and defined its thematic focus. Further, it gave oversight to the technical writing team composed of experts from each of the five co-publishing agencies. Background technical papers were prepared to support the research and data analysis undertaken by the members of the writing team.

The writing team produced a number of interim outputs, including an annotated outline, first draft and final draft of the report. These were reviewed, validated and cleared by the senior advisory team at each stage in the preparation process. The final report underwent a rigorous technical review by senior management and technical experts from different divisions and departments within each of the five UN agencies, both at headquarters and decentralized offices. Finally, the report underwent executive review and clearance by the heads of agency of the five co-publishing partners.

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Data inputs

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ABBREVIATIONS

| | | | |
|-----------------------------|---|----------------|---|
| AARR | average annual rate of reduction | FOP | front-of-package |
| ADER | average dietary energy requirement | GDP | gross domestic product |
| ARIMAX | Autoregressive Integrated Moving Average with External Explanatory Variable | GHS-POP | Global Human Settlement Population |
| BMI | body mass index | GIFT | Global Individual Food consumption data Tool |
| CEA | controlled environment agriculture | GRFC | Global Report on Food Crises |
| CoAHD | cost and affordability of a healthy diet | GWP | Gallup® World Poll |
| CONSIAL | Food System Council of Metropolitan Lima | HDB | Healthy Diet Basket |
| CPI | consumer price index | HICs | high-income countries |
| CV | coefficient of variation | ICP | International Comparison Program |
| CV r | CV due to energy requirements | IFAD | International Fund for Agricultural Development |
| CV y | CV due to income | IFPRI | International Food Policy Research Institute |
| DEC | dietary energy consumption | ILO | International Labour Organization |
| DEGURBA | Degree of Urbanization | IMF | International Monetary Fund |
| DES | dietary energy supply | IPC/CH | Integrated Food Security Phase Classification/Cadre Harmonisé |
| DHS | demographic and health survey | JME | Joint Child Malnutrition Estimates |
| EUROSTAT | Statistical Office of the European Union | LICs | low-income countries |
| FAO | Food and Agriculture Organization of the United Nations | LMICs | lower-middle-income countries |
| FBDGs | food-based dietary guidelines | LSMS | Living Standards Measurement Study |
| FBS | Food Balance Sheet | LUPPA | Urban Laboratory of Public Food Policies |
| FIES | Food Insecurity Experience Scale | MDER | minimum dietary energy requirement |
| FIES-SM | Food Insecurity Experience Scale Survey Module | MICs | middle-income countries |
| FI_{mod+sev} | prevalence of moderate or severe food insecurity | NCD | non-communicable disease |
| FI_{sev} | prevalence of severe food insecurity | NoU | number of undernourished |
| FLAG | food liaison advisory group | OECD | Organisation for Economic Co-operation and Development |

| | | | |
|----------------|---|-------------------|--|
| PAL | physical activity level | UMICs | upper-middle-income countries |
| pdf | probability density function | UN | United Nations |
| PEAC | Strategic Food Plan for Catalonia | UN-Habitat | United Nations Human Settlements Programme |
| PIP | Poverty and Inequality Platform | UNICEF | United Nations Children's Fund |
| 3PL | third-party logistics | UPA | urban and peri-urban agriculture |
| PoU | prevalence of undernourishment | URCA | Urban Rural Catchment Areas |
| PPP | purchasing power parity | URCAs | urban–rural catchment areas |
| R&D | research and development | WDI | world development indicators |
| RUFSAT | Rapid Urban Food Systems Appraisal Tool | WFP | World Food Programme |
| SD | standard deviation | WHA | World Health Assembly |
| SDGs | Sustainable Development Goals | WHO | World Health Organization |
| SICTs | small and intermediate cities and towns | WPP | World Population Prospects |
| SMEs | small and medium enterprises | WTO | World Trade Organization |

KEY MESSAGES

➔ Global hunger, measured by the prevalence of undernourishment (Sustainable Development Goal [SDG] Indicator 2.1.1), remained relatively unchanged from 2021 to 2022 but is still far above pre-COVID-19-pandemic levels, affecting around 9.2 percent of the world population in 2022 compared with 7.9 percent in 2019.

➔ It is estimated that between 691 and 783 million people in the world faced hunger in 2022. Considering the midrange (about 735 million), 122 million more people faced hunger in 2022 than in 2019, before the global pandemic.

➔ From 2021 to 2022, progress was made towards reducing hunger in Asia and in Latin America, but hunger is still on the rise in Western Asia, the Caribbean and all subregions of Africa.

➔ It is projected that almost 600 million people will be chronically undernourished in 2030. This is about 119 million more than in a scenario in which neither the pandemic nor the war in Ukraine had occurred, and around 23 million more than if the war in Ukraine had not happened. This points to the immense challenge of achieving the SDG target to eradicate hunger, particularly in Africa.

➔ The prevalence of moderate or severe food insecurity at the global level (SDG Indicator 2.1.2) remained unchanged for the second year in a row after increasing sharply from 2019 to 2020. About 29.6 percent of the global population – 2.4 billion people – were moderately or severely food insecure in 2022, of which about 900 million (11.3 percent of people in the world) were severely food insecure.

➔ Worldwide, food insecurity disproportionately affects women and people living in rural areas. Moderate or severe food insecurity affected 33.3 percent of adults living in rural areas in 2022 compared with 28.8 percent in peri-urban areas and 26.0 percent in urban areas. The gender gap in food insecurity at the global level, which had widened in the wake of the pandemic, narrowed from 3.8 percentage points in 2021 to 2.4 percentage points in 2022.

➔ More than 3.1 billion people in the world – or 42 percent – were unable to afford a healthy diet in 2021. While this represents an overall increase of 134 million people compared to 2019, before the pandemic, the number of people unable to afford a healthy diet actually fell by 52 million people from 2020 to 2021.

➔ Worldwide in 2022, an estimated 148.1 million children under five years of age (22.3 percent) were stunted, 45 million (6.8 percent) were wasted, and 37 million (5.6 percent) were overweight. The prevalence of stunting and wasting was higher in rural areas, while overweight was slightly more prevalent in urban areas.

➔ Steady progress has been made on increasing exclusive breastfeeding for the first six months of life and reducing stunting among children under five years of age, but the world is still not on track to achieve the 2030 targets. Child overweight and low birthweight have changed little, and the prevalence of wasting is more than double the 2030 target.

➔ Increasing urbanization, with almost seven in ten people projected to live in cities by 2050, is driving changes in agrifood systems across the rural–urban continuum. These changes represent both challenges and opportunities to ensure everyone has access to affordable healthy diets.

➔ Challenges include a greater availability of cheaper, convenience, pre-prepared and fast foods, often energy dense and high in fats, sugars and/or salt that can contribute to malnutrition; insufficient availability of vegetables and fruits to meet the daily requirements of healthy diets for everyone; exclusion of small farmers from formal value chains; and loss of lands and natural capital due to urban expansion.

➔ But urbanization also presents opportunities, as it results in longer, more formal and complex food value chains that expand income-generating activities in off-farm employment, especially for women and youth, and increase the variety of nutritious foods. Farmers often gain better access to agricultural inputs and services as urban areas grow closer to rural areas.

➔ Understanding the changes occurring throughout agrifood systems (i.e. from food production, food processing, and food distribution and procurement, to consumer behaviour) requires a rural–urban continuum lens, reflecting the growing connectivity and interlinkages across urban, peri-urban and rural areas.

➔ While already quite advanced in Asia and Latin America, changes in food demand and supply across the rural–urban continuum are accelerating in Africa, where the shares of the population that are food insecure and unable to afford a healthy diet are among the highest in the world. Here the expansive growth in off-farm employment and interconnected food markets and food supply chains is driving a diet transition across the rural–urban continuum.

➔ New evidence for 11 Western, Eastern and Southern African countries challenges the traditional thinking that food purchases make up a small share of rural households' food consumption in Africa. Food purchases are high among urban households in these countries, but they are also surprisingly high across the rural–urban continuum, even among rural households living far from an urban centre.

➔ New evidence also challenges the conventional thinking that purchase patterns between urban and rural areas differ markedly. In the 11 African countries studied, although consumption of processed foods, including highly processed foods, is higher in urban areas, it only declines gradually moving to peri-urban and rural areas. Moreover, consumption of vegetables, fruits, and fats and oils is fairly uniform across the rural–urban continuum relative to total food consumption.

➔ The affordability of a healthy diet is becoming more critical to households living in peri-urban and rural areas because they rely more on food purchases. In the 11 African countries studied, despite the lower cost of a healthy diet in these areas, affordability is still lower than in urban centres. Low-income households living in peri-urban and rural areas are especially disadvantaged, as they would need to more than double their food expenditure to secure a healthy diet.

➔ In many of these African countries studied, food security is not exclusively a rural problem, as moderate or severe food insecurity across urban areas (large, intermediate and small cities and towns) and peri-urban areas (less than 1 hour travel to large, intermediate and small cities) is similar to and sometimes even slightly higher than in rural areas.

➔ The prevalence of child overweight is at risk of increasing with the emerging problem of high consumption of highly processed foods and food away from home in urban centres, which is increasingly spreading into peri-urban and rural areas.

➔ Increasing access to affordable healthy diets and achieving food security and nutrition for all require a policy approach and legislation that leverage the increasing connectivity between rural and peri-urban areas and cities of various sizes.

➔ The closer linkages among agrifood systems segments create opportunities for win–win situations in terms of greater economic development and access to affordable healthy diets, which can be seized through investments in infrastructure, public goods and enhanced capacities that improve rural–urban connectivity. Such investments should support the essential role of small and medium enterprises in agrifood systems, particularly in small and intermediate cities and towns.

➔ Public investment in research and development needs to be increased to develop technologies and innovations for healthier food environments and for increasing the availability and affordability of nutritious foods. Technology can be particularly important to boost the capacity of urban and peri-urban agriculture to supply nutritious foods in cities and towns.

➔ Leveraging connectivity across the rural–urban continuum will require adequate governance mechanisms and institutions to coordinate coherent investment beyond sectoral and administrative boundaries. To this end, subnational governments can play a key role in designing and implementing policies beyond the traditional top-down approach. Approaches to agrifood systems governance should ensure policy coherence among local, regional and national settings through the engagement of relevant agrifood systems stakeholders at all levels.

EXECUTIVE SUMMARY

This year, the update to the global assessment of food security and nutrition reflects a particular moment in history. While the pandemic, the ensuing economic rebound, the war in Ukraine, and soaring prices of food, agricultural inputs and energy have all played out differently across regions with differing impacts, new estimates indicate hunger is no longer on the rise at the global level but is still far above pre-COVID-19-pandemic levels and far off track to achieve Sustainable Development Goal (SDG) 2.

As past editions of this report have highlighted, the intensification of the major drivers of food insecurity and malnutrition – conflict, climate extremes, economic slowdowns and downturns, and growing inequality – often occurring in combination, is challenging our efforts to achieve the SDGs. There is no question these threats will continue, requiring that we remain steadfast to build resilience against them. However, there are still important megatrends that must be fully understood when devising policies to meet the SDG 2 targets.

One such megatrend, and the focus of this year's report, is urbanization. As urbanization increases, rural and urban areas are becoming more intertwined, and the spatial distinction between them is becoming more fluid. The changing pattern of population agglomerations across this rural–urban continuum is driving changes throughout agrifood systems, creating both challenges and opportunities to ensure everyone has access to affordable healthy diets.

After presenting the latest updates of the food security and nutrition situation around the world, the report then examines the drivers, patterns and dynamics of urbanization through a rural–urban continuum lens and presents new analysis on how urbanization is changing food supply and demand across the rural–urban continuum. Complementing this, further analyses for selected countries explore differences in the cost and affordability of a healthy diet, and in food insecurity and different forms of malnutrition across the rural–urban continuum.

Building on these insights, the report identifies policies, investments and new technologies to address the challenges, and capitalize on the opportunities, that urbanization brings for ensuring access to affordable healthy diets for everyone, across the rural–urban continuum.

FOOD SECURITY AND NUTRITION AROUND THE WORLD

Food security indicators – latest updates and progress towards ending hunger and ensuring food security

The global assessment of the state of food security and nutrition in 2022 is a snapshot of the world still recovering from a global pandemic and now grappling with the consequences of the war in Ukraine, which has rattled food and energy markets. Encouraging signs of economic recovery from the pandemic and projections of a decline in poverty and hunger have been tempered by rising food and energy prices.

Global hunger in 2022, measured by the prevalence of undernourishment (SDG Indicator 2.1.1), remained far above pre-pandemic levels. The proportion of the world population facing chronic hunger in 2022 was about 9.2 percent, compared with 7.9 percent in 2019. After increasing sharply in 2020 in the midst of the global pandemic, and rising more slowly in 2021 to 9.3 percent, the prevalence of undernourishment ceased to increase from 2021 to 2022. It is estimated that hunger affected between 691 million and 783 million people in the world in 2022. Considering the projected midrange (about 735 million in 2022), 122 million more people faced hunger in 2022 than in 2019, before the pandemic.

The economic recovery from the pandemic helped to stem the rising tide of hunger at least at the global level. However, the positive effect could have been even larger without the countervailing winds caused by the global repercussions of the war in Ukraine and rising prices of food, agricultural inputs and energy, together with

other drivers of food insecurity such as conflicts and weather-related events.

The relative lack of change in hunger at the global level from 2021 to 2022 hides substantial differences at the regional level. Progress was made towards reducing hunger in most subregions in Asia and in Latin America, but hunger is still on the rise in Western Asia, the Caribbean and all subregions of Africa. The proportion of the population facing hunger is much larger in Africa compared with the other regions of the world – nearly 20 percent compared with 8.5 percent in Asia, 6.5 percent in Latin America and the Caribbean, and 7.0 percent in Oceania.

Updated projections show that almost 600 million people will be chronically undernourished in 2030, pointing to the immense challenge of achieving the SDG target to eradicate hunger. This is about 119 million more undernourished people than in a scenario in which neither the pandemic nor the war in Ukraine had occurred, and around 23 million more than in a scenario in which the war had not happened.

SDG Target 2.1 challenges the world not only to end hunger, but also to work to ensure access for all people to safe, nutritious and sufficient food all year round. SDG Indicator 2.1.2 – the prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) – tracks progress towards this ambitious goal.

New estimates of the prevalence of food insecurity based on the FIES confirm that for 2022 no progress was made on food insecurity at the global level. Following a sharp increase from 2019 to 2020, the global prevalence of moderate or severe food insecurity remained unchanged for the second year in a row, far above pre-COVID-19-pandemic levels. In 2022, an estimated 29.6 percent of the global population – 2.4 billion people – were moderately or severely food insecure, meaning they did not have access to adequate food. This is still 391 million more people than in 2019, before the pandemic.

The prevalence of moderate or severe food insecurity rose slightly in Africa and in Northern America and Europe, and decreased non-significantly in Asia from 2021 to 2022. The only region showing encouraging progress was Latin America and the Caribbean, mainly in South America, although the food security situation deteriorated in the Caribbean subregion.

A comparison of food insecurity in rural, peri-urban and urban populations at the global, regional and subregional levels using the Degree of Urbanization (DEGURBA) classification, a new international standard, shows that at the global level, food security improves as the degree of urbanization increases. Moderate or severe food insecurity affected 33.3 percent of adults living in rural areas in 2022 compared with 28.8 percent in peri-urban areas and 26.0 percent in urban areas.

Persistent gender inequalities are revealed by the new FIES data. Food insecurity is more prevalent among adult women than men in every region of the world, although the gap narrowed considerably at the global level from 2021 to 2022. In 2022, 27.8 percent of adult women were moderately or severely food insecure, compared with 25.4 percent of men, and the proportion of women facing severe food insecurity was 10.6 percent compared with 9.5 percent of men.

Cost and affordability of a healthy diet

The revised analysis presented in this year's report shows that almost 3.2 billion people worldwide could not afford a healthy diet in 2020, with a slight improvement in 2021 (a decrease of 52 million people). The cost of a healthy diet increased globally by 6.7 percent between 2019 and 2021, with a notable single-year increase of 4.3 percent in 2021. The cost increased by more than 5 percent between 2020 and 2021 in Africa, Asia, Latin America and the Caribbean, and Oceania, but only marginally in Northern America and Europe.

In many countries, the increase in the cost of a healthy diet occurred in combination with

EXECUTIVE SUMMARY

a decline in disposable income following the persisting effects of the pandemic. Lockdowns, economic downturns, and other pandemic-related disruptions in 2020 led to job losses and reduced incomes for many people, affecting low-income households the most as they spend a higher share of income on food.

A slight turnaround occurred in 2021, when the number of people unable to afford a healthy diet declined by 52 million compared to 2020, but this is still 134 million more people than in 2019 before the pandemic. Most of the people unable to afford a healthy diet in 2021 lived in Southern Asia, and in Eastern and Western Africa.

The state of nutrition: progress towards global nutrition targets

Nutrition is mentioned specifically in SDG 2 but is central to the achievement of all 17 SDGs. This section presents an assessment of progress towards global nutrition targets for stunting, wasting and overweight among children under five years of age, exclusive breastfeeding and low birthweight. Updated data were not available for anaemia in women aged 15 to 49 years and for adult obesity.

Stunting, the condition of being too short for one's age, undermines the physical and cognitive development of children. Stunting and other forms of undernutrition early in life may also predispose children to being overweight and developing non-communicable diseases (NCDs) later in life. Globally, the prevalence of stunting among children under five years of age has declined steadily, from an estimated 33.0 percent (204.2 million) in 2000 to 22.3 percent (148.1 million) in 2022.

Child wasting is a life-threatening condition caused by insufficient nutrient intake, poor nutrient absorption and/or frequent or prolonged illness. Affected children are dangerously thin, with weakened immunity and a higher risk of mortality. The prevalence of wasting among children under five years of age declined

from 8.7 percent in 2000 to 6.8 percent in 2022. The estimated number of children with wasting declined from 54.1 million in 2000 to 45.0 million in 2022.

Children who are overweight or obese face both immediate and potentially long-term health impacts, including a higher risk of NCDs later in life. Child overweight has been on the rise in many countries, hastened by increasingly inadequate levels of physical activity and increased access to highly processed foods. Globally, the prevalence of overweight among children under five years of age showed a non-significant increase from 5.3 percent (33.0 million) in 2000 to 5.6 percent (37.0 million) in 2022.

The latest estimate for low birthweight revealed that 14.7 percent of newborns (19.8 million) were born with low birthweight (less than 2 500 g) in 2020, a non-significant decline from the 16.6 percent (22.1 million) in 2000. Infants born weighing less than 2 500 g are approximately 20 times more likely to die than those with adequate birthweight, and those who survive face long-term development and health consequences.

Optimal breastfeeding practices, including exclusive breastfeeding for the first six months of life, are critical for child survival and the promotion of health and cognitive development. Globally, the prevalence of exclusive breastfeeding among infants under six months of age has risen from 37.0 percent (24.3 million) in 2012 to 47.7 percent (31.2 million) in 2021. Worldwide, over half of all infants under six months of age did not receive the protective benefits of exclusive breastfeeding.

Low- and lower-middle-income countries bear the greatest burden of stunting, wasting and low birthweight but also have the largest proportion of exclusively breastfed children. Most overweight children live in these country income groups. At the global level, the prevalence of stunting and wasting was higher in rural areas than in urban areas while overweight was more commonly found in urban areas.

The results from these analyses help to identify vulnerable population groups, contributing to evidence to inform decision-making and effective action through the appropriate targeting and design of policies and programmes. Sound nutrition is fundamental to the achievement of the Sustainable Development Goals and must be central in government policy and supported by key stakeholders, including civil society and the private sector.

URBANIZATION IS TRANSFORMING AGRIFOOD SYSTEMS AND AFFECTING ACCESS TO AFFORDABLE HEALTHY DIETS ACROSS THE RURAL–URBAN CONTINUUM

Drivers, patterns and dynamics of urbanization

Urbanization is the result of urban population growth, urban expansion (i.e. reclassification of rural areas to peri-urban or urban) and migration from rural to urban areas. This process is fast-changing, context specific and driven by intertwined factors.

Many parts of the world have rapidly urbanized, with the urban share of the world's population rising from 30 percent in 1950 to 57 percent in 2021. It is projected to reach 68 percent by 2050. In most regions, this has been largely driven by structural transformation, which entails an economic transformation from mainly agriculture to a more diversified national economy, in the process attracting rural people to urban areas.

While urbanization often goes hand in hand with economic growth and structural transformation, this does not hold for all countries and regions. Urbanization without economic growth can be linked to poor rural living conditions, including poverty, lack of employment or underemployment, lack of infrastructure, lack of access to services, and food insecurity.

Another factor that may contribute to urbanization is climate change and/or environmental degradation, which can affect rural-to-urban migration movements. Populations that depend on natural resources for their livelihoods can be compelled to migrate to urban areas in search of work, due to the effects of climate change and biodiversity loss. There is also an increasing occurrence of forced displacement from rural areas to urban areas, often as a result of disasters and/or conflict.

With urban expansion and improving road and communication infrastructure across larger parts of rural areas, the distinction between rural and urban areas is increasingly blurred. A large share of the new urban dwellers are expected to live in peri-urban areas, as well as in small cities and interconnected towns. Increasingly, rural and urban areas are less separate spaces in their own right, but rather two ends of a spectrum, connected via numerous linkages across a rural–urban continuum.

Almost half of the global population (47 percent) live in peri-urban areas (less than 1 hour to large, intermediate and small cities or towns) and rural areas (1 to 2 hours or more to an urban centre). Given the increasing connectivity of peri-urban and rural areas and the convergence of high food purchases in both, it is clear that peri-urban and rural markets are significant drivers of agrifood systems transformation.

The degree of connectivity between rural and urban areas shapes agrifood systems, and thus the availability of affordable healthy diets, and the livelihoods of urban and rural primary producers, processors and traders. Depending on where urban growth takes place, whether in large, intermediate and small cities or towns, there will be different effects on rural populations' access to services, markets and inputs. A rural–urban continuum framework is therefore critical to understand the links between urbanization and agrifood systems changes and how these changes are affecting the availability and affordability of healthy diets, and in turn, food security and nutrition.

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Urbanization affects agrifood systems, creating challenges and opportunities to ensure access to affordable healthy diets

Urbanization, combined with other contextual factors such as rising incomes, growing employment and changing lifestyles, is driving changes throughout agrifood systems across the rural–urban continuum. Increases in food demand in urban areas are occurring simultaneously with increases in the amount of food that agrifood systems have to produce, process and distribute, which, together with changes in consumer behaviour, are being seen across the rural–urban continuum. These changes may also lead to disparities across the rural–urban continuum, with both positive and negative effects on the availability and affordability of healthy diets, and in turn, on food security and nutrition outcomes.

One of the most important pathways through which urbanization is driving changes in agrifood systems is through a shift in **consumer behaviour and diets**. Higher average incomes, combined with changing lifestyles and employment, are driving a diet transition characterized by changes in the types and quantities of food consumed, with diets shifting beyond traditional grains into dairy, fish, meat, vegetables and fruits. There is a diffusion of food purchases in rural areas, more so than is commonly understood. The diet in these areas has shifted from mainly home-produced foods to increasingly market-purchased products.

However, urbanization has also contributed to the spread and consumption of processed and highly processed foods, which are increasingly cheaper and more readily available and marketed. Changes in the lifestyles and employment profiles of both women and men, as well as increasing commuting times, are resulting in greater demand for convenience, pre-prepared and fast foods. The diet transition is also occurring in rural areas, though lagged and to a lesser extent compared to urban and peri-urban areas.

Urbanization is also leading to changes in **midstream and downstream food supply chains**, which have become longer, more formal and more complex following rising consumer demand and increased regulation of agrifood systems. Importantly, growing midstream and downstream activities provide important off-farm employment opportunities, which can provide steady and liveable incomes, increasing the affordability of healthy diets.

Supply-side factors, coupled with an increase in demand for readily available foods, have contributed to a substantial expansion of supermarkets and hypermarkets that use modern food technology. While these markets can be linked to increased access to nutritious foods – through reduced waste, enhanced sanitation and reduced adverse effects of seasonality, for example – they have also been associated with increased supply of energy-dense and highly processed foods.

Urbanization, in particular, by increasing the connectivity of rural and urban areas, also affects agrifood systems through changes in **agricultural production**. While urbanization is often associated with a diversification of diets, the availability of vegetables and fruits, in particular, is insufficient to meet the daily dietary requirements in almost every region of the world.

As urban areas become better connected to rural areas, rural producers may also have better access to agricultural inputs and services, allowing for improved productivity that typically increases income levels. However, urban expansion can lead to land-use change. In some countries, farmers receive high compensation for selling their land, whereas in others, dispossession of agricultural land is not compensated, resulting in loss of livelihoods and potential issues around land rights.

Access to affordable healthy diets is generally better and food security and nutrition levels are higher in cities than in rural areas because of

the better availability of food, higher average purchasing power in urban areas, and better access to health care, education and other services that are essential for health and nutrition. However, this does not always hold true given the transformations underway in agrifood systems, the stark inequalities that exist within urban populations, and the increasingly spatial and functional connectivity between cities, towns and rural catchment areas.

THE INTERPLAY OF FOOD SUPPLY AND DEMAND AND THE COST AND AFFORDABILITY OF HEALTHY DIETS ACROSS THE RURAL–URBAN CONTINUUM

Understanding food supply and demand across the rural–urban continuum

Urbanization, combined with rising incomes, increases in the opportunity cost of time related to work, lifestyle changes and demographic shifts, is changing food demand. These factors together with many supply-side considerations, including food pricing, marketing and promotion, among others, in turn are changing agrifood systems, so there is a reinforcing compounding effect on the food produced, supplied and consumed.

Most notably, rapid urbanization is leading to rising and changing food demand, and shifts in patterns of food supply – especially in sub-Saharan Africa and Southern Asia, the two regions exhibiting the highest urbanization rates. Projections of overall food expenditure estimate an approximate 2.5-fold increase in sub-Saharan Africa and a 1.7-fold increase in Southern Asia by 2050.

Analysis of food demand, defined as household food consumption (at market value), across the rural–urban continuum in selected countries was conducted and revealed interesting patterns. This was made possible by applying the newly available geospatial Urban Rural Catchment Areas (URCA) dataset combined

with georeferenced data from nationally representative Living Standards Measurement Study (LSMS) surveys. For reasons of data availability, the surveys used covered the period 2018/19 for Benin, Burkina Faso, Côte d'Ivoire, Ethiopia, Guinea-Bissau, Mali, the Niger, Nigeria, Senegal and Togo, and 2019/20 for Malawi.

Given it is expected that diets become more diversified with higher levels of food consumption, income and employment, the 11 countries were classified into two groups according to their food budget (i.e. the market value of their total food consumption per capita per day): high-food-budget countries (average 2.3 PPP dollars per capita per day) and low-food-budget countries (average 1.6 PPP dollars per capita per day).

New empirical evidence from this analysis, challenges traditional thinking and reveals important food consumption patterns, including dietary convergence across the rural–urban continuum. For example, across the 11 countries, food purchases form the majority of total food consumption in value terms, including food for home consumption and food away from home.

While high shares of food purchases in urban areas are to be expected (78–97 percent), shares are surprisingly high even for rural households living 1 to 2 hours from a small city or town (56 percent on average) and for those living more than 2 hours travel to any urban centre (52 percent on average). The finding that in most of the countries analysed, the "majority" of household food consumption in rural households comes from purchases is a major deviation from the traditional image of rural subsistence households.

Own production never becomes the main source for food – not even in rural areas. In rural areas, the average share of own production represents only 37 percent and 33 percent of total consumption in high- and low-food-budget countries, respectively. Given that rural households in the 11 African countries do not produce the majority of the food value they

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consume, the affordability of healthy diets is equally critical across the rural–urban continuum.

While the diffusion of processed foods, including highly processed foods, is already advanced in Asia and Latin America, it is spreading quickly in Africa as well. In the 11 African countries studied, the analysis clearly shows a diffusion of purchases of processed foods across the rural–urban continuum. While highly processed foods are a small proportion of total purchases and their consumption is higher in urban areas, the results highlight the penetration of highly processed foods in rural areas, even those living 1 to 2 hours or more from a city or town. The econometric analysis indicates that higher levels of household income and more non-farm employment are associated with a higher consumption value share of highly processed foods in the 11 African countries.

In the 11 African countries, looking at household food composition in terms of the value shares of food consumption by food group, a diet transition is clearly occurring across the rural–urban continuum, with increases in the consumption of more expensive food items, like animal source foods and fruits. The econometric analysis indicates that animal source food consumption value shares are strongly driven by income across the rural–urban continuum, while the consumption value shares of fruits and vegetables are driven more by access and availability.

Cost and affordability of a healthy diet, and food security and nutrition across the rural–urban continuum

On average, across the 11 countries in Africa analysed, the cost of a healthy diet in urban centres is much higher (on average 1.2 times higher) than in peri-urban areas and it then decreases the smaller the city size and moving closer to rural areas. The higher cost of animal source foods, compared to the other food groups, drives up the cost of a healthy diet across the rural–urban continuum, especially in urban and remote rural areas.

The cost of a healthy diet exceeds average food expenditure for low- and middle-income households in both high- and low-food-budget countries in the 11 countries analysed.

Low-income households living in peri-urban and rural areas are especially disadvantaged, as they would need to more than double their current expenditure on food to secure a healthy diet.

Although the cost of a healthy diet in peri-urban areas is lower than in urban areas, this does not translate into a more affordable healthy diet in the former. On average, the percentage of the population unable to afford a healthy diet in peri-urban areas is 1.5 times higher than in urban centres and similar to rural areas.

An analysis of food insecurity based on the FIES for 9 of the 11 African countries shows that in many of these countries, the prevalence of moderate or severe food insecurity in urban and peri-urban areas is similar to that in rural areas, and in some cases, slightly higher, indicating that food insecurity is not exclusively a rural problem.

The prevalence of malnutrition across the ten URCA categories was only estimated for 3 of the 11 countries, due to data limitations. In the three countries (Benin, Nigeria and Senegal), generally the prevalence of stunting in children under five years of age gradually increases as cities become smaller and as one moves away from urban centres.

The prevalence of wasting in children under five years of age is lower than that of stunting in all three countries and exhibits less evident trends across the rural–urban continuum. Nevertheless, there are hints of increased wasting in some peri-urban and rural areas in Nigeria and Senegal. Similarly, the prevalence overweight among children is low in all countries and does not present a clear trend across the rural–urban continuum. However, it is worth noting there is a suggestion towards lower overweight in peri-urban areas and higher overweight in some rural areas compared to urban areas.

POLICIES AND SOLUTIONS TO LEVERAGE AGRIFOOD SYSTEMS TRANSFORMATION FOR HEALTHY DIETS ACROSS THE RURAL–URBAN CONTINUUM

The increased links across the rural–urban continuum coupled with closer interactions between the components of agrifood systems create a number of opportunities and challenges for the availability and affordability of healthy diets. Such interactions also create a number of policy and programme entry points to support agrifood systems transformation towards affordable healthy diets.

Policies and investments for healthy diets across the rural–urban continuum

Supporting healthier food outlets will be key for enabling access to healthy diets, as this has shown positive impacts on dietary quality. Policy incentives are necessary to encourage shops to stock and sell greater amounts of fresh and minimally processed foods, for instance, by improving their cold storage facilities, while the availability of healthier food outlets in particular areas across the rural–urban continuum can be improved through land-use planning and zoning regulations; tax credits or exemptions; and licensing agreements.

In urban and peri-urban settings, an estimated 2.5 billion people worldwide consume street foods every day, which are especially convenient for low-income workers and households who may not have the resources, facilities and/or time to prepare dishes at home. However, street foods do not always contribute to healthy diets. There are multiple infrastructure and regulatory gaps that need to be addressed to improve the nutritional quality and safety of these foods. These include ensuring a supply of water of acceptable quality for food preparation, clean places for preparation and consumption of food, sanitary facilities for workers, training for street vendors and consumer education.

Given that one-fourth of the global population live in peri-urban areas of small and intermediate cities and towns (SICTs), investing in these can have a more significant impact on healthy diets for their populations compared to the benefits that trickle down from growth in large cities. Addressing some of the challenges faced by SICTs can allow agrifood systems to be the driver of inclusive rural development, and create development opportunities for small and medium enterprises (SMEs).

The presence of processed foods in household diets across the whole rural–urban continuum constitutes a driving force for the expansion of the services provided by SMEs. Strengthening their efficiency and expansion can also contribute to gains in production of nutritious foods, and a parallel reduction in the cost of food for consumers.

Building rural infrastructure, including quality rural and feeder roads to connect remote farms and enterprises to main road networks, is essential for unlocking the productive potential of SICTs and their catchment areas. Other public investments to support linkages between (mainly small) farms and SMEs could include warehousing, cold storage, dependable electrification, access to digital tools and water supply.

Finally, considering that the availability of fruits and vegetables per capita per day is insufficient to meet the requirements of a healthy diet in most parts of the world, it is essential to boost the production of nutritious foods and, in general terms, support the diversification of food production.

Technology and innovation: a key enabler for agrifood systems transformation under urbanization

In an urbanizing world, the strategic deployment of technology and innovation can be a critical catalyst of agrifood systems transformation.

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Countries have varied needs and capacities, and while there is a plethora of technologies and innovations available, no single “silver bullet” technology or innovation will meet all needs in all contexts across the rural–urban continuum.

Whether these technologies and innovations are inclusive for all depends not only on their adoption and impact, but also on how research and development (R&D) is shaped. Between 1981 and 2016, there was a doubling of global public investment in agricultural R&D, with significant increases in larger middle-income countries (MICs); however, smaller lower-middle-income countries (LMICs) continue to have insufficient investment compared to other components of general services support such as infrastructure investments.

In urbanizing contexts, where consumers are increasingly exposed to highly processed foods, different technological and innovative food environment solutions can contribute to reducing their consumption. For instance, behavioural science is an essential innovation that enables governments, scientists and the public to work together to develop evidence-based approaches to increase access to affordable healthy diets, as well as empower consumers to choose healthy diets.

As already noted, urbanization is leading to a growing demand for packaged and pre-prepared foods. Innovations in food packaging can maintain the quality, safety and nutritional value of food products, meet consumer needs and preferences, reduce food loss and waste, and reduce the cost of nutritious foods, especially across longer distribution chains.

Finally, there are numerous technologies and innovations that can be leveraged for enhancing productivity in rural, urban and peri-urban areas, as well as for closing the productivity gap in LMICs, especially in the face of the climate crisis and the disappearance of natural resources. For example, vertical farming

requires only a small plot of land and can be carried out indoors, allowing for the cultivation of food in urban and industrial spaces, and leading to shorter supply chains.

Integrated planning and governance mechanisms across the rural–urban continuum

Transformative policies, technologies and innovations require adequate governance mechanisms that, while engaging multiple actors, can coherently address the challenges and leverage the opportunities created in agrifood systems under urbanization.

Due to the multisectoral nature of the challenges and opportunities that urbanization creates across the rural–urban continuum, subnational governments are important actors for formulating and implementing coherent policies that go beyond agrifood systems and outside normal administrative borders. These governments are in close contact with local stakeholders and can ensure that policies are adapted to local conditions by promoting advantages and addressing bottlenecks.

An important starting point towards streamlining governance across the rural–urban continuum is the development of locally based agreements between multiple administrative zones and multistakeholder platforms and networks. Among such mechanisms, food policy councils serve as advisory bodies to local or subnational governments, support policy design and implementation, promote stakeholder engagement, and facilitate monitoring and evaluation of progress in policy implementation, effectiveness, efficiency and impact.

The design and implementation of local agrifood systems policies, investments and legislation for addressing multiple agrifood systems challenges and opportunities requires working outside “silos” and bridging the gaps between policy areas in order to achieve systemic changes.

Policy coherence at national and subnational levels remains a key challenge in establishing the appropriate enabling environment. Therefore, these policies and investments will require strong multilevel governance across national and regional agrifood systems policies. The establishment of national networks engaging various levels of governments appears an important starting point to initiate such multilevel governance mechanisms.

CONCLUSION

Hunger at the global level did not worsen between 2021 and 2022, but there are many places in the world where hunger is on the rise – where people are still struggling to recover income losses in the wake of the COVID-19 pandemic, or have been hit by climbing food and energy prices, or whose lives and livelihoods have been disrupted by conflicts or extreme weather events. Progress on important indicators of child nutrition is to be celebrated, and some regions are on track to achieve some of the nutrition targets by 2030. However, rising overweight and obesity in many countries portends growing burdens of non-communicable diseases.

Urbanization has featured as the theme of this year's report. With almost seven in ten people projected to live in cities by 2050, this

megatrend is shaping agrifood systems and, as a consequence, their capacity to deliver affordable healthy diets for all and to help eradicate hunger, food insecurity and malnutrition.

A key conclusion is that the ways in which urbanization is shaping agrifood systems can only be understood through a rural–urban continuum lens; the simple concept of a rural–urban divide is no longer useful to understand the growing links across urban, peri-urban and rural areas. This growing connectivity across the rural–urban continuum is a key aspect today to understand the functioning of value chains. Only then can the challenges and the opportunities that urbanization creates for agrifood systems be clearly mapped onto appropriate policy, technology and investment solutions.

Implementing these solutions requires that the agrifood systems governance mechanisms and institutions cross sectoral and administrative boundaries and rely on subnational and local governments. Local governments in particular are fundamental actors in leveraging multilevel and multistakeholder mechanisms that, as shown with concrete examples in this report, have proved effective in implementing essential policies and solutions for making healthy diets available and affordable for all. ■



UZBEKISTAN
A woman street vendor
selling different
varieties of apples
along the road in the
rural Jizzakh region.
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Tashbekov