



# One size doesn't fit all: regional differences in priorities for food system transformation

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Received: 31 March 2021 / Accepted: 21 September 2021  
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## Abstract

The growing attention for food systems in policy debates has highlighted the systemic linkages between desired food system outcomes. There is an increased recognition that systemic changes are required to improve access to healthy, sustainable diets. While there is abundant academic analysis on the global need for food system transformation, regional differences in food system transformation priorities have received limited scholarly attention. This article aims to address this gap by analysing the results of a regional consultation study about respondents' perceptions of the needs and modalities for food systems transformation. Data collection consisted of an online survey among 621 agri-food professionals and in-depth interviews among 33 food system experts from different regions across the world. The study shows how different stakeholders across the world prioritise food system drivers, food system challenges and food system transformation strategies. Region, organisational background, countries' level of food system transformation, political and socio-economic structure are critical factors in determining such priorities. The study highlights relevant food system differences and priorities between food system actors. These differences have important policy implications for the agendas of stakeholders in their regional priorities in food systems transformation. While there is much agreement across regions on the key drivers of different food system challenges, which food system challenge is considered most urgent and which food system transformation strategy deserves most priority, differs greatly between regions. This article shows the importance of including regional and local perspectives in policy debates on the directions food system transformations should take and the need to identify such differences methodically.

**Keywords** Food system transformation · Regional priorities · Stakeholder differentiation · Local perspectives · Inclusive food systems

## 1 Introduction

Over the past two decades, the concept of food systems has increasingly taken centre stage in debates about the relation between food security, health and the environment

(Ericksen, 2008; Ingram, 2011; HLPE, 2014, 2017; UNEP, 2016; van Berkum et al., 2018). Leading organisations are now calling for the need to transform our food systems in order to go beyond safeguarding food and nutrition security, and instead simultaneously addressing triple outcomes of healthy diets, sustainable food production and economic opportunity for all (FAO, 2020; IFAD, 2021; IFPRI, 2021; OECD, 2021a; WEF, 2020).

While the need for more integrated approaches to food and nutrition security becomes increasingly clear and the urgency of transforming the fabric of current food systems to achieve better outcomes more and more apparent, much of the thinking on food systems transformation primarily takes place at a global scale with limited attention for regional differences (Table 1).

As a result, problem definitions, analysis, pathways for system change, and recommendations for solutions mostly consider the global scale (Barrett et al., 2020; EAT Lancet, 2019; FOLU, 2019; GLOPAN, 2020; Pereira et al., 2014; Reardon et al., 2019; WWF,

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This article belongs to the Topical Collection: *Food System Transformations for Healthier Diets, Inclusive Livelihoods and Sustainable Environment*

Guest Editors: Romina E Cavatassi, Leslie Lipper, Ruerd Ruben, Eric Smaling, Paul Winters

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**Table 1** Regional distribution of studies on food system transformation

	Single food system	Multiple food systems
Global	Barrett et al., 2020; Béné, 2020; FAO, 2020; FOLU, 2019; Garnett, 2014; Hebinck et al., 2019; IFPRI, 2021; Leeuwis et al., 2021; Materia et al., 2021; McCullough et al., 2008; Pereira et al., 2020; Reardon et al., 2019; Savary et al., 2020; Webb et al., 2020; WEF, 2020 (15 studies)	
Regional (supra-national)	Gill et al., 2018 (European Union); Hinrichs & Lyson, 2009 (North America); OECD, 2021b; De Steenhuijsen et al., 2021 (West Africa); Pingali, 2006 (Asia); Popkin & Reardon, 2018 (Latin America); Tschirley et al., 2014 (Africa); Tschirley et al., 2014 (East and Southern Africa); WWF, 2018 (Europe) (9 studies)	De Bruin et al., 2021 (West Africa, East Africa); Garbero et al. 2021 (Five IFAD world regions) (2 studies)
National	Bhunoo & Poppy, 2020 (United Kingdom); Mergenthaler et al., 2009 (Vietnam); Song et al., 2019 (China) (3 studies)	Guijt et al., 2021 (Costa Rica, Rwanda, Ireland) (1 study)
Regional (sub-national)	Friend et al., 2019 (Mekong region) (1 study)	Rivera et al., 2020 (15 rural regions in the EU) (1 study)
Local (city, village)	Battersby, 2017 (Cape Town); DVRPC, 2010 (Philadelphia) (2 studies)	Vincente-Vincente, 2021 (Vienna and Bristol) (1 study)

*This table is not based on a systematic review but provides an overview on the main publications this study reviewed across scales*

2018). In other words: while the vast majority of publications and reports on food system transformation address the global food system, the evidence base on what is required at a regional or national scales to transform food systems remains scarce.

While an increasing amount of studies does focus on the required food system transformation in one region (Friend et al., 2019; Gill et al., 2018; Popkin & Reardon, 2018; Tschirley et al., 2014), country (Bhunoo & Poppy, 2020; Mergenthaler et al., 2009; Song et al., 2019) or city (Battersby, 2017; DVRPC, 2010) there is only a small group of studies which compare food system transformation needs and strategies between different regions (De Bruin et al., 2021; Guijt et al., 2021; Rivera et al., 2020; Vicente-Vincente, 2021) often focusing on a limited number of only 2 or 3 regions.

This article addresses this gap in comparative regional analyses by comparing food system transformation between global regions. The work is based on a quantitative survey among agri-food professionals from five different regions in the world. Our findings are then complemented and triangulated with in-depth interviews with regional food system experts.

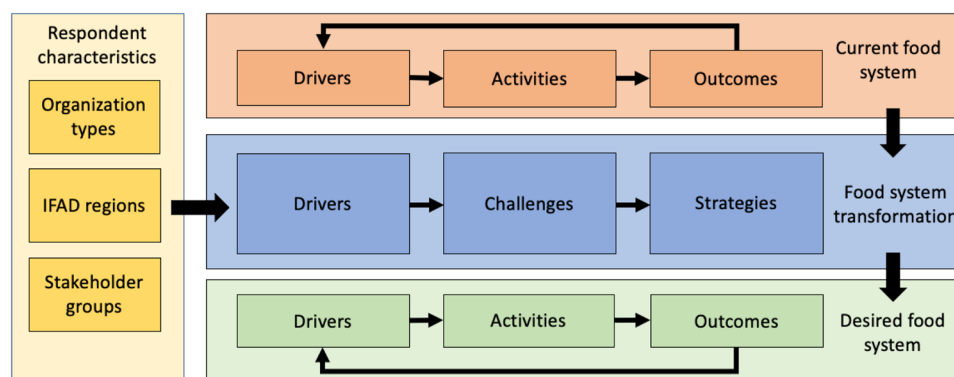
This article addresses the following research question: ‘*What are regional priorities for food system transformation?*’ It aims to unravel how agri-food professionals and food system experts prioritize the most important food system challenges in the region where they operate, what they see as important drivers of these challenges, and which strategies they would prioritize in order to address these food system challenges (see Fig. 1).

After describing the methods used in this study, we highlight the study results, showing regional differences in prioritised food system challenges, food system drivers and food system strategies. In the discussion section, key findings of this work are summarised and situated in the wider literature around food system transformation.

## 2 Methods

This regional consultation study was carried out by the authors in preparation for the International Fund for Agricultural Development (IFAD) Rural Development Report on food system transformation (IFAD,

**Fig. 1** Conceptual framework with drivers, challenges and strategies of food system transformation



2021). While many of the results of this study have been integrated in this Rural Development Report, they are described in more detail in a separate IFAD publication (Dengerink, 2021),

For this study, we followed a parallel mixed method design (McEvoy et al., 2006; Creswell, 2014). In this design, qualitative and quantitative data collection and analysis are collected in parallel. Results are then merged and synergised (Creswell, 2016; Demir & Pismek, 2018). Data were collected through an online survey and interviews carried out among a wide range of agri-food professionals from five IFAD global regions: Asia and the Pacific; East and Southern Africa; West and Central Africa; Near East; North Africa; Europe and Central Asia; Latin America and the Caribbean. This regional differentiation was chosen to ensure findings would be relevant to the operational structure of IFAD. The interviewed agri-food professionals work for governments, the private sector, the civil society, and research organisations. Table 2 provides an overview of the respondents from the quantitative and qualitative data collection.

The largest component of the data collection is an online survey sent out to agri-food professionals in networks of different types of organizations active on food system transformation: IFAD (multilateral organization); Wageningen University & Research (knowledge organization); Netherlands Food Partnership (government organization); World Business Council for Sustainable Development (private sector) and Oxfam (civil society). The regional and professional representation in the sample selection allows this study to explore differences in food systems challenges, drivers and priorities for interventions. In total, 621 respondents filled in our online survey. Asia and Africa are best represented in this sample, reflecting their larger populations. The largest share of respondents (45%) works in government, whereas fewer respondents work in civil society organisations, research organisations, and the private sector.

To complement the quantitative survey, 33 qualitative in-depth interviews (Chikweche et al., 2012) were carried out with regional food systems experts. Stratified purposeful sampling (Guest, 2014) was used to select these respondents from the networks of IFAD, bringing in regional experts from civil society and government, and Wageningen University & Research, bringing in food system experts from knowledge organizations and the private sector. Care was taken to include a similar number of respondents from all IFAD regions and different organisation types (Table 1). Qualitative data from interviews was analysed through coding in Atlas.ti (Frieze, 2019) to extract the most important regional messages on food system transformation. Findings from both methods were then integrated to answer the main question for this study.

**Table 2** Overview of respondents in the online survey and in-depth interviews

Organisation type IFAD regions	Online survey (Agri-food professionals)					In-depth interviews (Regional food system experts)				
	Government	Private sector	Civil Society	Research	TOTAL	Government	Private sector	Civil Society	Research	IFAD experts
Asia and the Pacific	89	9	47	46	191	0	2	1	2	2
East and Southern Africa	55	13	41	37	146	1	2	2	0	2
Latin America and the Caribbean	10	1	10	9	30	2	0	0	1	3
Near East, North Africa, Europe & Central Asia	52	7	7	14	80	2	1	1	1	2
West and Central Africa	47	5	22	24	98	1	1	1	1	2
Other	29	7	25	15	76					
TOTAL	282	42	152	145	621	6	6	5	5	11
										33

**Table 3** Most prioritized food system transformation challenges, drivers and strategies, by IFAD region

	Challenge	Driver	Strategy
Asia and the Pacific	1. Nutritional quality	1. Market dynamics	1. Raising productivity
	2. Living income	2. Policies & regulations	2. Poverty reduction
	3. Sustainability	3. The environment	3. Reducing food waste
East and Southern Africa	1. Availability of food	1. The environment	1. Raising productivity
	2. Affordability of food	2. Market dynamics	2. Poverty reduction
	3. Living income	3. Access to finance	3. Private sector support
West and Central Africa	1. Living income	1. Market dynamics	1. Raising productivity
	2. Affordability of food	2. The environment	2. Poverty reduction
	3. Availability of food	3. Policies & regulations	3. Reducing food waste
Near East, North Africa, Europe and Central Asia	1. Food safety	1. Market dynamics	1. Raising productivity
	2. Living income	2. The environment	2. Poverty reduction
	3. Nutritional quality	3. Policies & regulations	3. Reducing food waste
Latin America and the Caribbean	1. Sustainability	1. Market dynamics	1. Poverty reduction
	2. Living income	2. Power imbalances	2. Raising productivity
	3. Food safety	3. Policies & regulations	3. Balancing power

### 3 Results

The results of this study are presented in three sections outlining the (1) challenges, (2) drivers and (3) strategies in food systems across regions. Table 3 provides an overview of the results, showing the most prioritized food system challenges, drivers and strategies across the five IFAD world regions.

#### 3.1 Regional comparison of prioritised food system challenges and most impacted groups

##### 3.1.1 Priorities in most urgent food system challenges

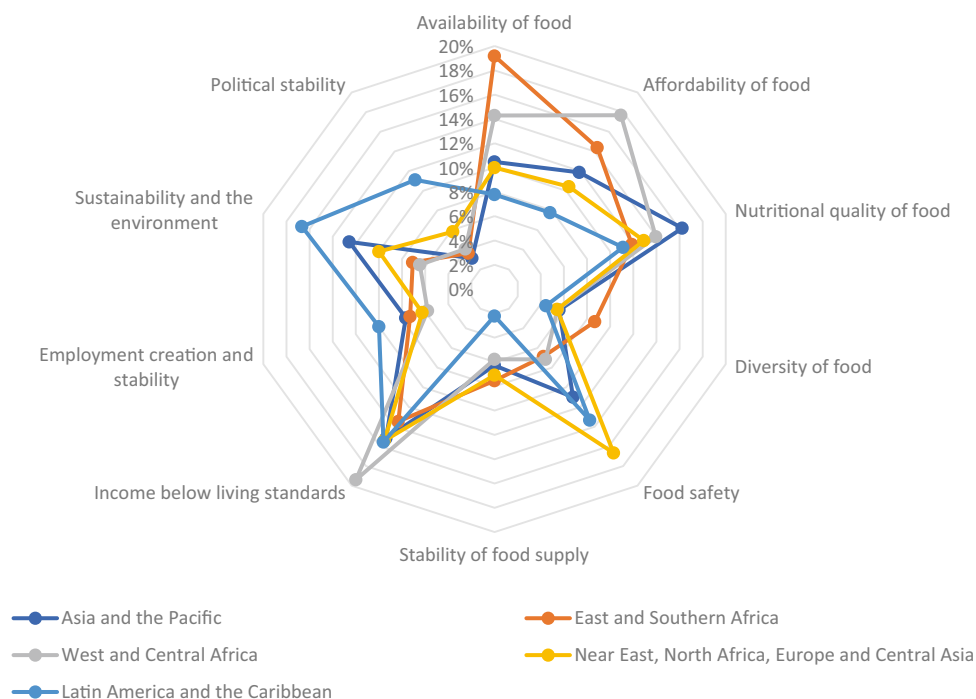
Food availability and affordability, nutrition, living income, food safety, and sustainability are considered the most important food system challenges by the online survey respondents, as shown in Fig. 2. While these issues are omnipresent across world regions, each region reports another food system challenge to be most urgent in that region. For instance, the nutritional quality of food is especially prominent in Asia and the Pacific; food availability is viewed as the most urgent food system challenge in East and Southern Africa; income

below living standards is considered a more pressing issue in West and Central Africa; food safety is viewed as most important in the Near East and North Africa, while sustainability and the environment is reported as the most urgent food system challenge in Latin America and the Caribbean. A respondent from Latin America and the Caribbean region puts it as follows: *‘The intensification generates money but generates a lot of sustainability problems. This way, it is not possible to continue. The soybean sector, livestock, rice sector, they are all very intensive and generate problems with methane, with soil erosion, water contamination. Now the trade-off is: perhaps we need to obtain less money but in a more sustainable way. We need to implement a more sustainable agri-food system.’*

##### 3.1.2 Most affected groups by food system challenges

In-depth interviews with regional food system experts indicated that women, smallholder farmers and the poor are the most affected groups by food system challenges, as shown in Fig. 3. In the in-depth interviews, a small majority of respondents (54%) indicate women are most affected by food

**Fig. 2** Share of survey respondents prioritising different food system challenges by IFAD region

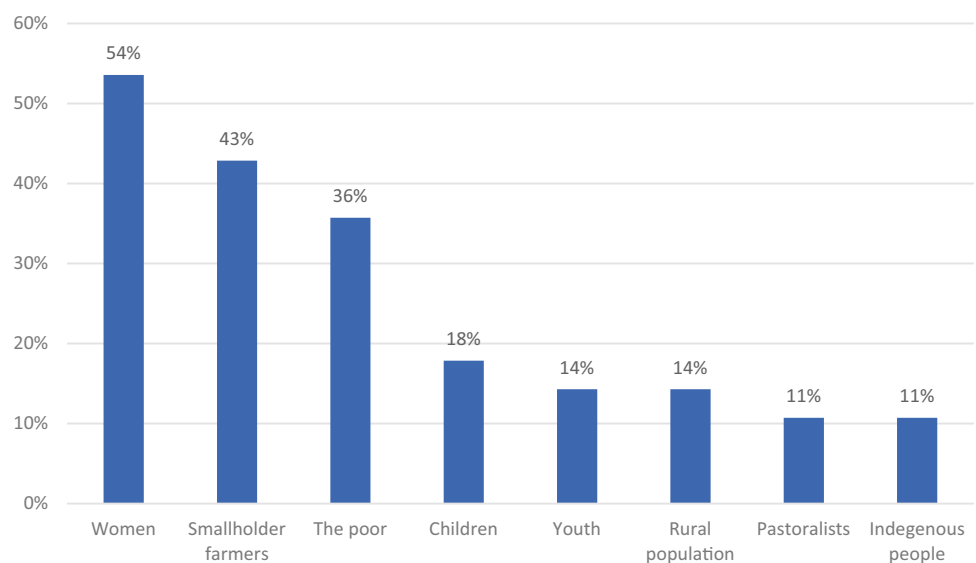


system challenges. Interviews highlight the importance of supporting the important role women and of youth in food systems. This was a recurring theme brought up by respondents. Across different regions, food system experts stress the disproportionately large workload that rural women have to face, being responsible for most of the household work, the manual labour on the farm and in many cases also the marketing of produce.

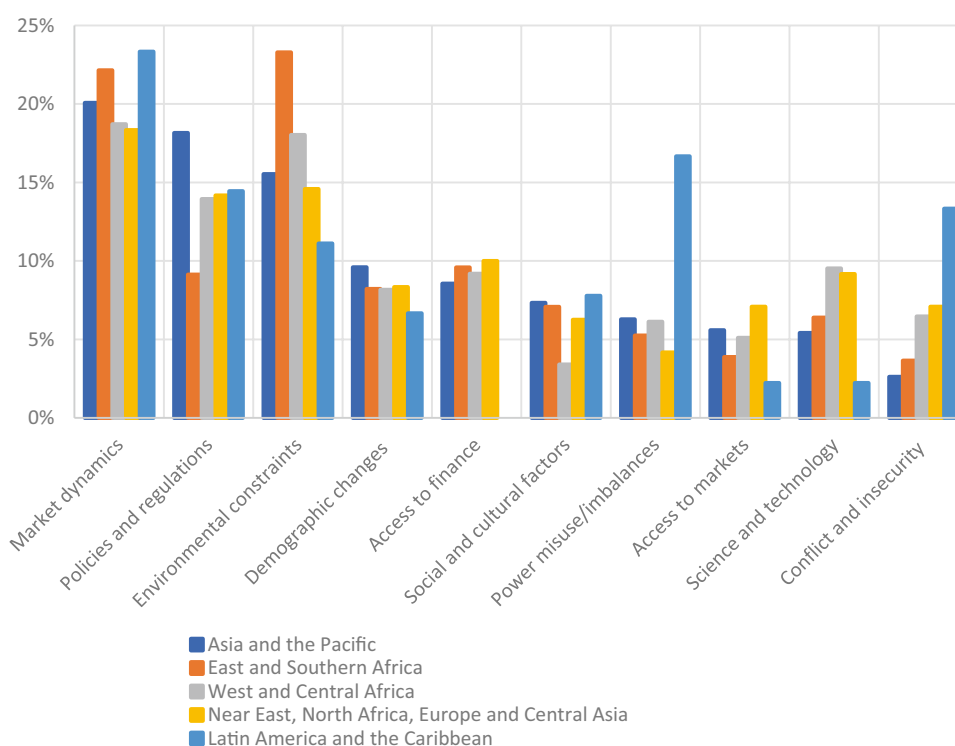
At the same time, regional food system experts indicate that women have limited access to land, knowledge, inputs and finance, stressing the need to make sure food

system interventions sufficiently benefit rural women. Many respondents also believe that smallholder farmers (43%), the poor (36%) and children (18%) are most affected by food system challenges. Lastly, smaller shares of respondents believe that youth, rural population, pastoralists, and indigenous people are the primary victims of current food system challenges. There seem to be little regional differences in the groups affected by food system challenges. Across regions, food system experts tend to agree that women, smallholder farmers and the poor are the most affected groups by different food system challenges.

**Fig. 3** Share of interview respondents indicating certain groups to be most affected by food system challenges



**Fig. 4** Share of survey respondents prioritising different food system drivers by IFAD region



## 3.2 Regional comparison of the most important drivers of food system challenges

### 3.2.1 Perceptions of what the most important food system drivers are

When asked about the most important drivers of food system challenges, there was considerable overlap in prioritized challenges across regions, as shown in Fig. 4. In Asia and the Pacific, in West and Central Africa and the Near East, the three key drivers of food system challenges are (1) market dynamics, (2) policies and regulations and (3) environmental constraints. According to one respondent, *‘We need to establish systems that will help find the market for produce. We have to promote the concept of cooperatives, farm organisations, and agricultural clusters.’*

Respondents stressed the importance of better marketing of products. This is illustrated by the following remark of a civil society respondent from West and Central Africa: *‘It is key to get women to marketing training. They are producing a lot of vegetables, but the vegetables are not coming out (to the market). You can buy monoculture vegetables all over the Sahel. But the vegetables from the lady 10–15 kms away, I may not have on the shelf next to the street.’*

In East and Southern Africa, access to finance is considered slightly more important than policies and regulations,

while in Latin America and the Caribbean, access to finance has never been indicated as the main driver for food system challenges. In Latin America and the Caribbean, power misuse and imbalances and conflicts and security are much more important drivers of challenges than in the other regions covered by the study.

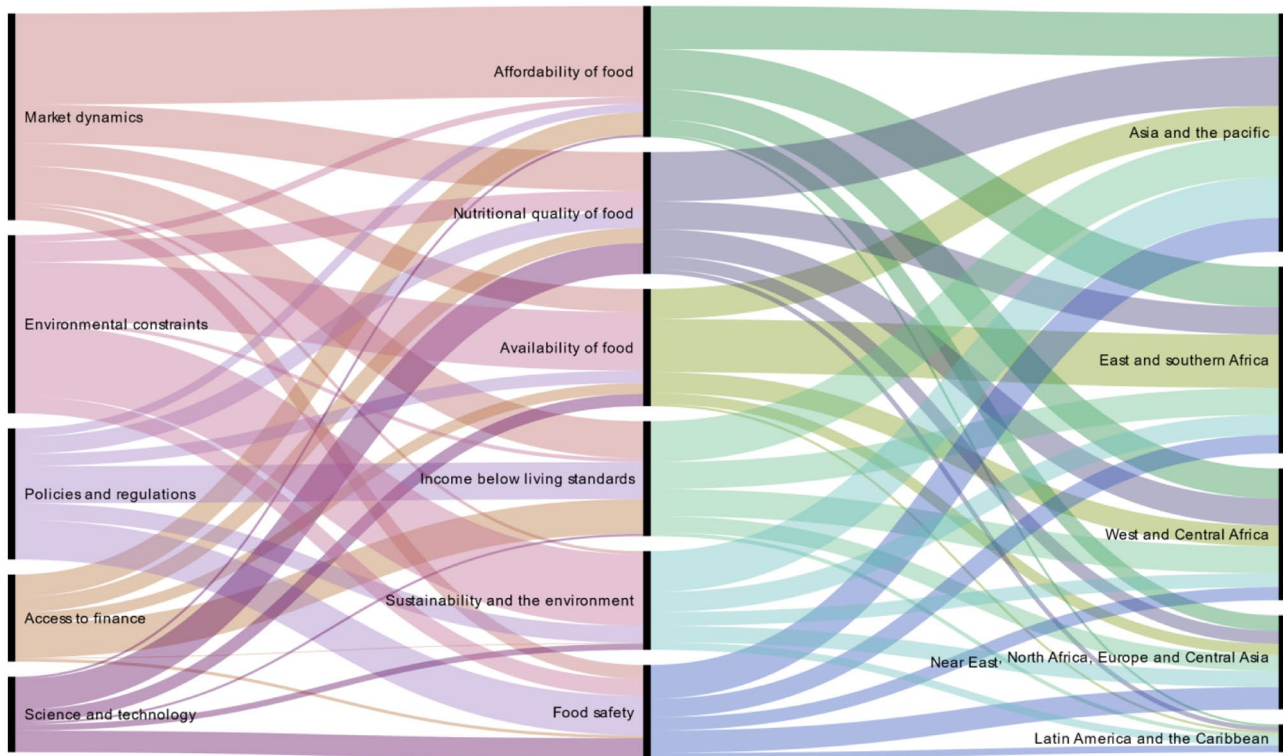
These results show that while market dynamics, policies, regulations and environmental constraints are seen as key drivers of food system challenges across regions, some drivers are more prominent in some regions. Marketing is more often mentioned as a food system driver in West and Central Africa. At the same time, access to finance is more prominent in Eastern and Southern Africa and power imbalances, conflict and security are relatively more present in Latin America and the Caribbean.

### 3.2.2 Linkages between food system challenges and their drivers

Figure 5 provides insight into how survey respondents linked prioritised food system challenges with their key drivers. Respondents in our regional survey consider market dynamics as the most critical driver for food affordability. Environmental constraints increase sustainability challenges, and therefore the availability of food.

Policies and regulations and access to finance are seen as the main drivers for low income levels, while policies and regulations are also important drivers for food safety. The





Note: flow diagram created through RAW graphs software: <https://rawgraphs.io>

**Fig. 5** Linkages between prioritised food system challenges and drivers, by IFAD region. Note: flow diagram created through RAW graphs software: <https://rawgraphs.io>

nutritional quality of food is mainly driven by science and technology and social and cultural factors. Power imbalances mainly contribute to food system challenges via a limitation of living income.

These results indicate that which drivers are seen as most important to address in a certain region much depends on the challenges that are considered most urgent in that region.

### 3.3 Regional comparison of most promising strategies for food system transformation

#### 3.3.1 Perceptions of most promising intervention areas for food system transformation

Among the online survey respondents, two areas are seen as most promising for food system transformation: (1) government policies and (2) improving markets and infrastructure. As shown in Fig. 6, government policies and regulations are seen as the most effective intervention area for food system transformation by four regions. Market access and infrastructure are only prioritised as the most effective intervention area in West and Central Africa. Research and technological innovations also rank high in East and Southern Africa and the Near East region to change the food system.

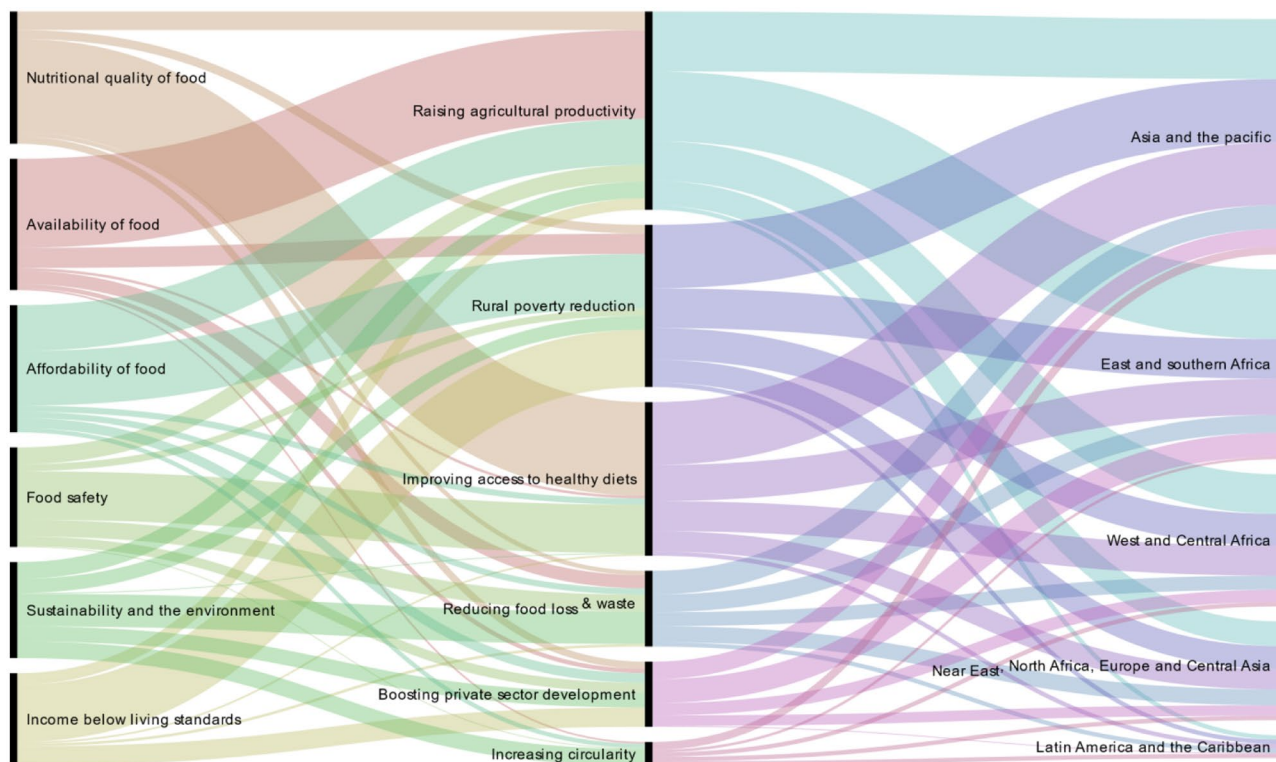
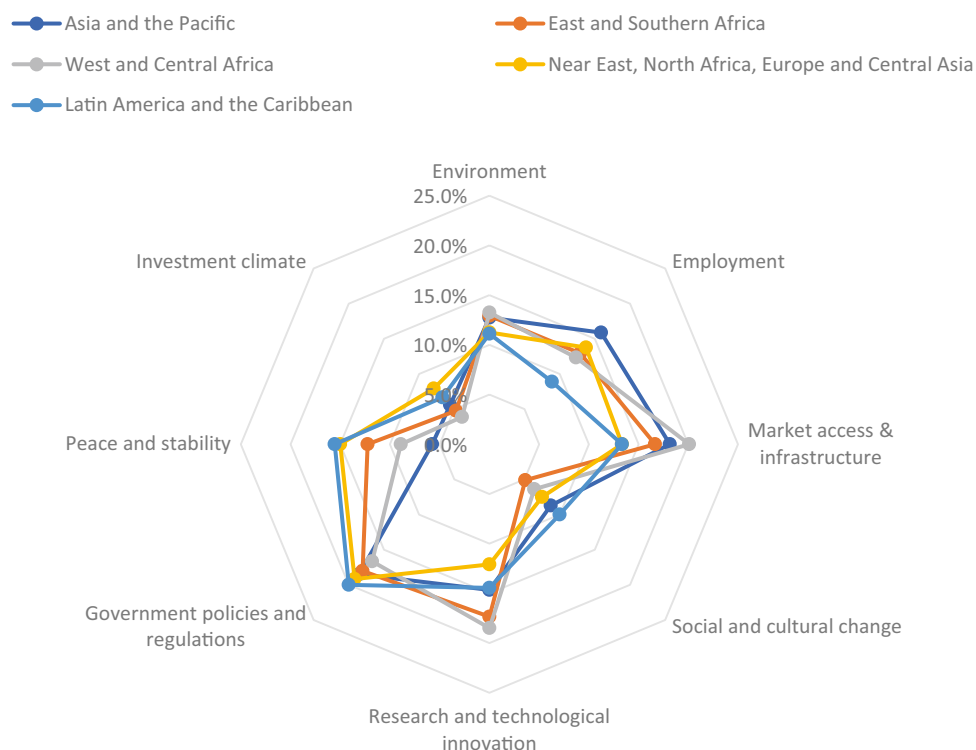
A civil society respondent from the East and Southern Africa region described this as follows: ‘When you look at the most important investments in rural areas, these are agro-processing machines. Post-harvest handling practices have been key to transform from subsistence to commercial agriculture.’ Respondents also stressed the need for public investment in the processing infrastructure of raw produce. An example of this was the following contribution by one of the respondents: ‘The government has an important role in agro-processing, such that farmers can work out the issue of food loss through processing their product in case no-one buys their raw products.’

While government policies, markets and infrastructure are seen as the most promising intervention areas for food system transformation in many regions, there are essential differences in the most preferred intervention area between regions.

#### 3.3.2 Perceptions of most promising food system strategies

What people consider to be the most effective food system transformation strategy depends on the challenge they consider more important (see Fig. 7). Raising agricultural

**Fig. 6** Share of survey respondents prioritising different intervention areas by IFAD region



Note: flow diagram created through RAW graphs software: <https://rawgraphs.io>

**Fig. 7** Linkages between prioritised food system challenges and strategies, by IFAD region. Note: flow diagram created through RAW graphs software: <https://rawgraphs.io>



productivity is regarded as the most effective strategy to solve the availability of food. Improving access to healthy diets is seen as the most critical strategy to address the nutritional quality of food.

Rural poverty reduction and creating non-farm employment are considered the most relevant strategies for addressing income levels below living standards. For sustainability and the environment, a wide range of strategies are perceived to be most effective in illustrating the complexity and interrelatedness of this issue with other food system elements. Boosting private sector development is seen as the most important strategy for employment generation.

There are clear regional differences in the perceptions of which strategies are most promising for transforming food systems. While improving access to healthy diets is given the most priority in Asia and the Pacific, rural poverty reduction ranks highest in the Near East, North Africa, Europe and Central Asia region. Raising agricultural productivity is seen as most promising in East and Southern Africa and West and Central Africa regions.

Which strategies are considered most important in different regions seems to be very much linked to which challenges are considered most relevant in those regions. In line with this, there are clear regional differences in which strategies are perceived to be most promising to transform food systems.

## 4 Discussion

In international policy debates on food and nutrition security, there is a growing call for the transformation of food systems (Barrett et al., 2020; FAO, 2020; FOLU, 2019; IFAD, 2021; IFPRI, 2021; OECD, 2021a; WEF, 2020). This article provides insights into regional differences in priorities for the direction of such a food system transformation based on data of 621 agri-food professionals and 33 food system experts from around the world. We compare these regional priorities with the food system challenges, drivers and strategies that feature most prominently in the recent literature on food system transformation.

Different regions prioritise different food system *challenges* as most important. While food availability has the highest priority in East and Southern Africa, income is considered a more pressing issue in West and Central Africa. In Asia and the Pacific, the nutritional quality of food ranks highest, while in Latin America, sustainability is seen as the most urgent food system challenge, and in the Near East, food safety is considered the most pressing food system challenge. Across regions, women, smallholders and low-income groups are seen as most affected by challenges in the food system.

These priorities in food system challenges provide a more diverse picture of the most urgent challenges than we see in recent literature on food system transformation (Barrett et al., 2020; FAO, 2020; FOLU, 2019; IFAD, 2021; IFPRI, 2021; WEF, 2020). While much of this recent literature is primarily focused on challenges around healthy diets, farmer income and improved sustainability of food systems, the regional food system actors in our study also prioritize food availability and food access as urgent priorities. Moreover, it shows how prioritized challenges are far from uniform and may vary by region.

Across regions, market dynamics, policies and regulations, and environmental constraints are seen as the most important *drivers* of food system challenges. Market dynamics are seen as the most critical driver for food system challenges around food affordability, while policies and regulations are seen as key drivers of food system challenges around income and food safety. Access to knowledge and technology, the impact of climate change and the distribution of environmental resources are seen as critical constraints to addressing food system challenges.

How regional food system actors prioritize drivers and constraints of food systems is very much in line with the recent literature on food system transformation. It points to the central role of government policies and market dynamics in determining the state of our food systems (FAO, 2020; FOLU, 2019; IFAD, 2021; IFPRI, 2021; OECD, 2021a; WEF, 2020). Similar to the literature on food systems, regional food system actors see the environment as a key driver of food system challenges.

What people consider to be the most effective food system transformation *strategy* depends on what they prioritise as the most important food system challenge but is highly similar across regions. While raising agricultural productivity is considered the most effective strategy to solve food availability, improving access to healthy diets is seen as the most critical strategy to address nutritional quality. Meanwhile, rural poverty reduction and creating non-farm employment are considered the most relevant strategies for addressing income levels below living standards. Overall, raising agricultural productivity, rural poverty reduction, and improving access to healthy diets are seen as the most promising strategies.

While agri-food professionals and food system experts in this study see a prominent role for increasing productivity and reducing poverty in food system transformation, the recent literature on food system transformation is more focused on strategies that improve access to healthy diets (FAO, 2020; IFAD, 2021), change consumer behaviour (Webb et al., 2020; WEF, 2020), combine technical and social innovation (Barrett et al., 2020; Pereira et al., 2020; Reardon et al., 2019), increase the resilience of food systems (Béné, 2020; De Steenhuijsen et al., 2021; Savary et al.,

2020) and provide more inclusive food system governance (Guijt et al., 2021; IFPRI, 2021; OECD, 2021a). These findings show that there is still a significant gap between what regional agri-food professionals prioritize as urgent strategies and what the global literature puts forward as promising intervention areas for food system transformation.

The results of this regional consultation show the importance of taking regional perspectives into account in discussing pathways for food system transformation. It complements the emerging literature on food system transformation at a regional scale (Friend et al., 2019; Gill et al., 2018; Popkin & Reardon, 2018; Tschirley et al., 2014) and introduces a comprehensive regional comparison to a growing body of comparative studies on food system transformation (De Bruin et al., 2021; Guijt et al., 2021; Rivera et al., 2020; Vincente-Vincente, 2021). Moreover, this study shows that to realise inclusive food system transformation, we need to consider what regional food system actors consider the most urgent food system challenges, their most likely drivers and most promising strategies.

**Acknowledgements** This article is based on a regional consultation study (Dengerink et al., 2021) carried out by Wageningen University & Research in preparation for the 2021 IFAD Rural Development Report (IFAD, 2021). We would like to thank the authors of the IFAD Rural Development Report 2021 for their support and valuable feedback in the creation of the regional consultation report.

## Declarations

**Conflict of interest** The authors declared they have no conflict of interests.

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