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Food systems transformation in fragile contexts, a practitioner's perspective

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1. Introduction

After two decades of progress, food and nutrition security (FNS) has started to deteriorate again (von Grebmer et al., 2022). In 2021, 828 million people were undernourished, and around three billion people could not afford a healthy diet (FAO et al., 2022). The vicious combination of increasing conflict, climate variability and extremes, economic effects of Covid-19, and global food price hikes amidst Russia's war in Ukraine, creates a grim outlook for FNS worldwide (FAO et al., 2022; WFP and FAO, 2022), and particularly for people in fragile contexts (von Grebmer et al., 2022).

A transformation of the global food system (the entire range of actors and their interlinked value-adding activities involved in food production along with the broader economic, societal and physical environments in which these activities are embedded (FAO, 2018) is needed to achieve zero hunger and improve nutrition while managing trade-offs with biodiversity, climate change, and Sustainable Development Goals (Willett and Rockström, 2019; Rockström et al., 2020).

Contexts are classified as fragile through a combination of exposure to risks and shocks and insufficient coping capacities to manage, absorb, and mitigate those risks, e.g., by a state or system (OECD, 2022). Fragility can also be identified on a village or individual level (Baliki et al., 2022). There is a growing consensus that food systems transformation [i.e., toward sustainable and resilient food systems that generate food security and healthy diets for all (WHH, 2022)], must address the challenges of populations in fragile contexts as a principal objective (Queiroz et al., 2021). The reasons for this are three-fold. Firstly, the recent failures of food systems are most harshly felt by people in fragile contexts, as they are more prone to facing conflict and climate shocks, volatile government structures, and unsustainable coping capacities (FAO et al., 2022; WFP and FAO, 2022). Out of 44 countries that face serious or alarming levels of hunger according to the Global Hunger Index, 40 are classified as fragile (OECD, 2022; von Grebmer et al., 2022; see Supplementary Figure 1). Secondly, many of the biosphere's important carbon stocks and biodiversity hotspots are located in fragile settings (Barrett et al., 2011; Karsenty and Ongolo, 2012; Seto et al., 2012). Fragile settings in South America, Sub-Sahara Africa, and South-East Asia account for approximately 34.9%, of total carbon stock from above and below-ground biomass in these regions (Saatchi et al., 2011; OECD, 2022). Thirdly, biodiversity hotspots in fragile contexts are at an elevated risk of being diminished further as a result of food insecurity coping mechanisms. Out of ten countries and seven biodiversity hotspots identified as biodiversity-food security conflict hotspots (Zhao et al., 2022), nine countries and four biodiversity hotspots are located in fragile settings (OECD, 2022; see Supplementary Figure 2). To improve the sustainability and climate resilience of food systems, transformation processes must integrate FNS, biodiversity and climate, and anti-fragility objectives.

Food systems transformation in fragile contexts remains insufficiently considered in development, academic and political discourses. With a few notable exceptions (see Pingali et al., 2005; Townsend et al., 2021; Baliki et al., 2022; von Grebmer et al., 2022) the available literature on food systems transformation treats fragility as either a negative effect of unsustainable intensification (e.g., Rockström et al., 2020), or ignores it entirely. However, there is also evidence that food systems are affected by the climate crisis, which in turn trigger conflicts (Läderach et al., 2021). Politically, a consensus arose from the United Nations Food Systems Summit in 2021 that FNS should be linked to concepts of resilience in protracted crises, and that the Humanitarian-Development-Peace Nexus should be prioritized in fragile contexts. However, no fragility-related commitments were reached, and no tangible solutions were developed to address and reduce fragility as part of food systems transformation. A much stronger policy focus on the challenges of people living in fragile contexts is needed if food systems transformation is to be successful (Baliki et al., 2022).

This opinion paper calls for a much stronger focus of food systems transformation agendas on fragility. It includes our views on how to contribute to immediate FNS and long-term sustainability and resilience goals from a practitioner's perspective. We illustrate this through country examples of (i.) interventions and approaches that we know work well, as well as (ii.) those that are less backed up by evidence yet and therefore require more research.

2. Food systems challenges in fragile contexts

One of the most widely used methodologies for assessing fragility is the Multidimensional Fragility Framework (MFF; OECD, 2022). MFF assesses fragility mostly at a national state level and is based on 57 indicators across seven dimensions of fragility: economic, environmental, human, political, security, society, and health. Yet, other scholars have also conceptualized fragility through human security, economic inclusion, and social cohesion at the micro (village and individual) level (Baliki et al., 2022).

A trend toward increased fragility can be observed throughout all dimensions over recent years (OECD, 2022). Food systems in fragile contexts frequently face various challenges related to their risk exposure profiles and coping capacities. Common risk exposure-related challenges include disasters, conflict, and food supply disruptions (Guha-Sapir et al., 2022; OECD, 2022). In addition to destroying agricultural produce, assets, and infrastructure, disasters can cause involuntary migration, labor shortages, and the abandonment of agricultural areas, thus hampering the availability and accessibility of food. Conflict also poses a major challenge to food systems in fragile contexts as it is increasingly caused by, and contributing to, climate extremes, environmental degradation, and natural resource shortages (Läderach et al., 2021). Conflict also reduces household resilience to food security shocks (Brück et al., 2019). Lastly, as most fragile contexts rely on food imports, people living in them are more vulnerable to non-accessibility due to global supply chain disruptions and price hikes (OECD, 2022), which have substantially increased in the past years.

Coping capacity-related food systems challenges in fragile settings are manifold and context-specific. Communities and households in fragile settings are also often forced to rely on unsustainable coping strategies, such as the sale of productive assets or deforestation, thus jeopardizing their long-term resilience, and climate and biodiversity objectives (SEADS, 2022). Low institutional capacity may hamper the ability of national, regional, and local governments to secure the human right to food (OECD, 2022).

3. Emerging practices for food systems transformation in fragile contexts

While the need to consider fragility in food systems transformation is evident, the question of how to do so has not yet been much explored. Based on our experience, we suggest a two-pronged approach. Firstly, the immediate FNS needs of acutely food-insecure populations must be addressed in a way that prevents a local system collapse. Secondly, these immediate interventions need to be complemented with structural and systemic change processes that facilitate the achievement of sustainability, resilience, and anti-fragility goals in a way that contributes to improved FNS.

This section is structured in two subsections. First, we provide examples of system-sensitive interventions that have been proven to work well in fragile settings. Second, we illustrate how to complement these with a two-pronged approach drawing on our work in Mali, which requires more research to yield robust evidence and recommendations.

In fragile contexts, where decentralized food supply chains play a crucial role in achieving healthy diets, vegetable gardens are exceptionally important. Home gardens in refugee camps, schools or communities contribute to FNS, livelihood diversification, and diversified vegetable consumption at home and in schools (Millican et al., 2019; Schreinemachers et al., 2020). Furthermore, short-cycle crops bring intermediate benefits (SEADS, 2022) that ideally are multi-purpose in use, nutritious, give good yields under low input conditions and influence of a-/biotic stressors.

Another tool to bridge the gap between immediate humanitarian needs and local food system support are cash and voucher assistance (CVA) programs. Cash transfers can be at low costs, are fast and easy to handle, increase purchasing power of recipients, allow flexible expenses, and support local markets (Peppiatt et al., 2001; Gentilini, 2016). Evidence from fragile contexts such as Ethiopia, Iraq and Syria shows that cash transfers and agricultural asset transfer can improve food security, dietary diversity, and a range of other outcomes (Phadera et al., 2020; UNICEF et al., 2020; Weiffen et al., 2022). Still, some evidence from Congo suggests that cash transfers did not improve FNS (Aker, 2017).

In Mali, more than 50% of the population lives in extreme poverty, and it ranks 15 in the list of most fragile countries. Recently, staple food prices and food insecurity increased dramatically (de Roo et al., 2020). Moreover, conflict and climate extremes directly reduce the ability of agro-pastoralists to exercise livelihood activities (Läderach et al., 2021). The increasingly

variable seasonal weather cycles push traditional herders and farmers of different ethnic groups toward the edge of their communal resilience and result in increased conflict and internal displacement (OECD SWAC, 2020). Here, WHH implements a two-pronged approach where social protection that responds to immediate humanitarian needs is coupled with longer-term food system transformation in a way that addresses the Humanitarian-Development-Peace Nexus and fragility. Social protection through CVA is provided to the most vulnerable people. These temporary interventions are accompanied by economic recovery measures that support vulnerable population to regain their livelihoods e.g., restoration of agro-pastoral assets and provision of farming and vegetable gardening to boost own food production. Moreover, we facilitate multi-stakeholder dialogues to build trust, strengthen social cohesion, and to find structural solutions to reduce pressure on natural resources such as collective usage agreements, improvements of water availability for agriculture and livestock, and the construction of natural pathways that protect agricultural fields during livestock movements.

Such food system interventions and their effects on peace and fragility outcomes are still insufficiently explored through empirical studies and monitoring and evaluation methods but require careful consideration as they are increasingly applied. Other countries where we currently use the two-pronged approach include e.g., Lebanon, Iraq, Syria, Yemen, South-Sudan, Democratic Republic of Congo, Pakistan, Madagascar and Haiti.

4. Conclusion and policy recommendations

Localized efforts to address the challenges of people in fragile contexts must be complemented by larger-scale food systems transformation processes. Governments, funders, practitioners, and academics should address food systems challenges in fragile contexts as a primary policy objective and focus on the areas and dimensions that are most fragile (cf. Baliki et al., 2022).

To do that, multi-stakeholder approaches are needed and require careful facilitation and research. Our experience has taught us that while the specific solutions to advance food systems transformation in fragile contexts are highly context-specific, a two-pronged approach should be followed. The immediate FNS challenges must be addressed in a way that prevents a local system collapse, and these interventions must be accompanied by systemic transformation processes that reduce fragility to contribute to improved sustainability, resilience, and FNS. Our policy recommendations include:

1. Research organizations, humanitarian and development organizations, and affected food system actors should work together to develop, implement and evaluate Theories of Change for food systems transformation in fragile settings. The focus should be on understanding better how food systems are shaped by fragility and vice versa, and which combination of key levers alongside the two-pronged approach seem the most promising to deliver FNS in a sustainable and resilient fashion in fragile settings. The transdisciplinary development of theories of change could serve as an anchor for the development of more context-specific evidence syntheses and gap maps.
2. The request for more research and evidence on which interventions matter and work in the short, medium and long-term, requires not only that more but also that the "right" funding is available. Currently, too few funding opportunities promote integrated research and implementation projects that allow for more experimentation as well as transdisciplinary and transformational research to explore food system transformation pathways.
3. Research funders should consider requiring the involvement non-governmental and research partners from fragile contexts in research about fragile contexts. This might help to set feasible and context-specific agendas for decision-makers in the Global North.
4. Decision-makers should consider that food system transformation toward sustainable and resilient FNS in fragile settings requires long timeframes of eight years or more.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsufs.2023.1107411/full#supplementary-material

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