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Anticipatory Action: Enhancing Food Access during Socio-Economic Crisis

Lessons from Sindh, Pakistan

Giulia Azzarello, Rebecca Duewell, Mitsuki Ishii, Ajwah Malik

“We must ensure that short-term efforts to counter the current global food crisis also support the transition towards sustainable and resilient global food systems in the long-run.”

Michael Fakhri – UN Special Rapporteur on the Right to Food

Acknowledgments

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The ARP62 Team.

Authors: Giulia Azzarello, Rebecca Duewell, Mitsuki Ishii, Ajwah Malik
Supervisor: Denis Ruysschaert
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Management Summary

Introduction

The Province of Sindh, Pakistan, faces severe food insecurity exacerbated by climatic events like floods and socio-economic crises such as inflation and political instability. The 5F crisis (the increase in the price of food, fuel, finance, feed, and fertilizer) has particularly stressed the food access of the region, affecting agricultural productivity and household purchasing power. Anticipatory Action (AA) is one type of pre-shock disaster risk management approach that is used to improve food security of vulnerable populations in the event of shocks. It operates by protecting the assets and agency of farmers, fishers and herders, as well as the general population, so they can make it through a shock without reaching hunger and come out with their livelihoods intact. AA is generally adopted to anticipate climate shocks. In this report, we investigate the possibility of the adoption of AA mechanisms to tackle food insecurity, specifically food access, resulting from socio-economic crises. To do so, we focus on analyzing the dynamic between socio-economic shocks and food access in the province of Sindh, as well as already existing AA startegies. As such, Sindh is taken as a case study to gain a better understanding of real-life conditions.

Materials & Method

To complete our objective, we performed a literature review, interviews, and a descriptive analysis of the DIEM survey for Sindh (FAO, 2024). We conducted 13 semi-structured interviews with key informants representing the majority of the primary stakeholders involved in the emergency response to food crises in the Province of Sindh. In addition, we compared four rounds (2021-2024) of the DIEM survey by FAO in Sindh. To analyze the collected data, we use the method of “Deconstruction”, a philosophical approach based on Jacques Derrida's work, to help understand the relationship between an entity and meaning by analyzing the context and production of concepts. This method is applied to explore the interplay between socio-economic crises, food security, and AA in Sindh, particularly by examining the impact of structural factors and socio-economic crises on food access. Current interventions by various organizations are evaluated to identify their effectiveness and limitations. Insights from these analyses are then used to assess the feasibility of implementing AA to address socio-economic crises in Sindh.

Socio-Economic Crisis and Food Access in Sindh

We found that social, agricultural, political, and economic aspects determine the extent of the impact of shocks. More specifically, we found that the widespread poverty in rural areas of Sindh, the extent of the informal economy, the economic instability, the fragile state with weak institutions and weak coping capacities, the low resilience in the agri-food system due to outdated practices and under regulation, as well as the dominant middlemen, land tenant system and belonging to minorities negatively impact food access. In contrast, mutual assistance, deeply ingrained in Pakistani culture, functions as an informal safety net and plays a major role in ensuring access to food.

We identify that the impact of the 5F crisis on food access is twofold. First, its effect on the agricultural sector manifests in the food environment through a decrease in food affordability. Second, for households’ internal assets, the crisis decreases the household’s purchasing power by increasing

pressures on income and reducing overall earnings. The reduced purchasing power limits the ability to either buy food or sustain their own-use food production

Anticipatory Action

Anticipatory Action (AA) is a crucial strategy in mitigating the adverse effects of climate-related disasters on agri-food systems especially on vulnerable populations, and it holds promising potential for addressing other types of shocks, like socio-economic crises.

Effective implementation depends on robust predictors, coordinated multi-stakeholder action plans, and pre-secured funding. While AA can be more easily employed in rapid-onset crises, its application in socio-economic crises, which often develop gradually, presents some challenges. Nonetheless, integrating AA with national social protection schemes and leveraging local community efforts can provide a proactive approach to managing socio-economic shocks, thereby preventing deeper crises, and fostering long-term stability and resilience. IOs like FAO and WFP, as well as international and local NGOs already work with AA, although with slightly different approaches, especially regarding protocols activation. While cash distribution is the most adopted AA intervention, it could become problematic for addressing a socio-economic crisis, which could better be tackled with distribution of physical assets and investments in human capital.

Moreover, there is a high potential for government policies to be integrated into AA strategies. Although existing government policies are majorly aimed at providing relief post crisis, the latters could be adapted to be implemented before the crisis, and included in AA action plans. By doing so, the impact of crisis could be lessened, and resilience fostered within communities.

The challenges we identify with anticipatory action for socio-economic shocks and crises are the missing data, triggers and methods for predicting crises that could induce an AA protocol. We recognize that this is also the biggest challenge for creating AA protocols for socio-economic crises. Moreover, obtaining sufficient funding in time to take anticipatory measures is also a challenge. Last, the different understandings of the shocks between actors on the ground and international actors are the main drivers of confusion and tensions among the stakeholders, which leads to challenges in the coordination of practical actions and protocol activations

Recommendations

Recommendations on AA for socio-economic shocks in Sindh

1. Set clear triggers, actions and responsibilities of intervention implementation.
2. Foster effective communication and collaboration among actors.
3. Raise awareness of the potential effectiveness of AA for socio-economic crisis.
4. Prioritize physical assets rather than cash transfers.
5. Adopt flexible strategies, in combination with AA for climate shocks.

Specific for FAO

6. Promote the inclusion of local actors in the creation of the programs and in the planning.

Specific for Government

7. Further implement AA practices.
8. Address inclusion and exclusion errors by improving mechanisms to assess the eligibility criteria for protection schemes and increasing acknowledgement and regulation of the informal economy.
9. Enhance investment for proactive and diversified funding by enhancing investment.

Recommendations for Resilience Building

10. Emphasize training activities on skill acquisition and livelihood diversification to prepare the local population.
11. Promote local production for food sovereignty.

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Acronyms

5F	Food, Fuel, Fertilizer, Finance and Feed
AA	Anticipatory Action
ASEAN	Association of Southeast Asian Nations
BISP	Benazir Income Support Programme
CPI	Consumer Price Index
CSA	Climate-smart Agriculture
DIEM	Data in Emergencies
FIES	Food Insecurity Experience Scales
FAO	Food and Agriculture Organization of the United Nations
HLPE	High Level Panel of Experts
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICRC	International Committee of the Red Cross
IFRC	International Federation of Red Cross and Red Crescent Societies
IPC	Integrated Food Security Phase Classification
LMIC	Low and Middle-Income countries
PoU	Prevalence of Undernourishment
RAP	Regional Office for Asia and the Pacific
REAP	Risk-informed Early Action Partnership
UNCESCR	United Nations Committee on Economic, Social and Cultural Rights
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WFP	World Food Programme
NDMA	National Disaster Management Authority

Introduction

According to FAO (2006), food emergencies have been increasing in the past decades, going from an average of 15 per year to more than 30 since the 2000s. It is estimated that 9.2% of the global population is facing hunger, and over 3.1 billion people, about 40% of the population, do not have access to an affordable and healthy diet (FAO et al., 2023a). Global food insecurity has been especially aggravated due to the COVID-19 pandemic, which affected various aspects of the agri-food system, including agricultural production, income loss, trade, and inflation (FAO et al., 2023a). Furthermore, almost 600 million people are projected to be chronically undernourished in 2030 (FAO et al., 2023a).

Pakistan stands at the forefront of the food crisis today; in the 2019 Inform Risk Index it ranked 18th among the 191 countries with the highest disaster risk levels, primarily due to its high exposure to natural disasters and internal conflicts (*World Bank Climate Change Knowledge Portal*, n.d.). The IPC Acute Food Security Analysis (2023) shows that 29% of the analyzed population was experiencing acute food insecurity between April and October 2023. Rural districts, which include Balochistan, Sindh, and Khyber Pakhtunkhwa, are particularly vulnerable. In these regions, floods and droughts, political instability, and corrupted social hierarchies have fostered inaccessibility and poor management of resources (JICA et al., 2022). In addition, the country faces several economic challenges. In middle-income settings, access to food is intricately linked to socio-economic determinants such as income, education, social protection schemes, and support structures within the community (FAO et al., 2013). Consequently, Pakistan has been facing persistent food insecurity.

In particular, Sindh is impacted by the 5F crisis, which refers to the increased price of food, feed, fuel and fertilizer, and finance (IPC, 2022). Although food is generally available in markets, the purchasing power of households is considerably low, leading to issues of access. As such, the region is simultaneously suffering from socio-economic shocks - such as inflation, poverty and employment rate, which further increase vulnerability of the population - and climate shocks (IPC, 2024). The alarming situation calls for immediate, innovative, and fast-phased actions that will give agency back to the people. As such, Anticipatory Action (AA) has been increasingly adopted in the region. AA intends on shifting the focus “from response to livelihood protection”, providing “a chance to invest in resilience and the continuation of upward cycles of development” (FAO, 2021a, p. 16).

Building on the aforementioned, this study will investigate the internal and external factors that affect access to food in Pakistan, focusing on Sindh, to examine the effectiveness and possibility of applying AA, not only to counter climate shocks, but also socio-economic shocks. As such, a nuanced comprehension of how distinct socio-economic variables are affected is crucial for formulating effective AA strategies that tackle access to food. Sindh is chosen as the relevant region due to its complex intersection of climate risks and economic uncertainties, as well as to build on the planned project by the FAO Regional Office for Asia and the Pacific (FAO RAP, 2023) which aims to connect early warning systems with action to mitigate the impacts of socio-economic crisis in the target areas. Nonetheless, although our report takes Sindh as a case study to investigate the practical application of AA in-depth, the ultimate objective is to identify findings that could be applicable to other contexts.

The study will follow the research question (RQ):

> *Why do socio-economic crises affect food security, specifically access to food, in Sindh, Pakistan, and how could Anticipatory Action tackle this issue?*

The research question is further split into the following sub-questions, which are approached with a focus on the context of Sindh, Pakistan:

1. *How do socio-economic crises affect food access?*
2. *What interventions (within the framework of IOs, NGOs, and the government) support food access, and what are the limitations?*
    a. *How can the effects of socio-economic crises on food access be prevented or mitigated with Anticipatory Action?*

The paper starts with a description of the materials and methods we used to gather the relevant information and data, both quantitative and qualitative, as well as to conduct the analysis. Limitations of the research are also discussed in the section. Next, we present a comprehensive review of the concepts of agri-food systems, access to food, its link with socio-economic factors, and the situation in Sindh; this chapter aims at establishing and defining the key concepts on which the research builds on, to ensure common understanding. It is followed by the analysis, further divided in the following parts: an exploration of socio-economic crisis and its connection with food access in Sindh; an investigation of AA strategies, in general and specifically in Pakistan and Sindh, including other interventions by FAO, NGOs and the local government. The last section provides recommendations on how food access and other negative impacts of socio-economic shocks could be mitigated with the incorporation of AA strategies, combining insights provided by our interviewees and from our analysis. The section also contains suggested improvements of AA and other interventions. Recommendations are specific and targeted to each actor, to facilitate understanding and possible further implementation.

Materials & Method

Material

Data

To accomplish the stated objectives, we collect data from three different sources. First, we conducted a literature review of the main concepts connected to our research question. The literature review includes academic literature as well as reports by different organizations involved in food security. Second, we carried out 13 interviews with key informants with which we aim to cover the main stakeholder groups involved in response to food crises in Sindh, which are:

- **IOs** (such as FAO)
- **International NGOs** (such as the Welt Hunger Hilfe)
- **local NGOs** (such as Baistussalam Welfare Trust)
- **Academia**

As shown in Table 1, we categorized the key informants[1] based on their expertise, region and the type of organization they work for:

Table 1.

Overview of all interview partners

No.	Type	Region of Expertise	Areas of expertise
1.	International Organization	Asia-Pacific	1. Agri-Food Systems & Livelihoods
2.	International Organization	Pakistan (regional)	Agriculture and Economic Growth
3.	International Organization	Pakistan (regional)	Social Protection, Resilience, Cash Transfer
4.	International Organization	Pakistan (regional)	AA + Social Protection, Resilience, and Cash Transfer
5.	International Organization	Pakistan (regional)	AA + Social Protection, Resilience, and Cash Transfer
6.	International Organization	International	Design, implementation, and coordination of emergency responses in food security and livelihoods, resilience and climate change adaptation sectors
7.	NGO	International	AA, Resilience Building
8.	International Organization	International	AA

[1] key-informants are individuals with particular or expert knowledge about the region, its people, environment and issues or the topic in general

9.	NGO	Pakistan (regional)	Government interventions, cash and voucher assistance, natural disasters, social protection, Anticipatory Action, land tenancy, livestock support, and livelihood support.
10.	International Organization	International	Data analysis on food security, agriculture-based livelihoods, poverty, health inequalities, and malnutrition.
11.	International Organization	Asia-Pacific	AA
12.	Institute	IHEID	Household economy and livelihoods
13.	NGO	Sindh (local)	Local culture and Providing Welfare and Humanitarian Assistance to local people

Note. The table categorizes all interviewees by their area of expertise, region of expertise, and the type of organization they represent. In the subsequent report, we will refer to the area of expertise labeled "Pakistan" as regional and "Sindh" as local.

Third, we conducted a descriptive analysis of the data from the Data in Emergencies (DIEM) hub by FAO (FAO, 2024), which provides information on how different shocks affect the livelihoods and food security of agricultural populations. We use the data for Sindh, Pakistan, from August 2021 to January 2024. Table 2 presents the distribution of surveyed households per round, which we used for the analysis.

Table 2.

Overview of DIEM Data

Round	time of realization	Sindh
2	August 2021	1684
3	April 2022	2266
4	February / March 2023	3996
5	November 2023 to January 2024	3737

Note. The table gives an overview of the number of people participating in the survey conducted by FAO for their DIEM data collection. Source: Own table based on DIEM data (FAO, 2024).

Data Access

Interviews

We contacted different key informants based on recommendations from our contact points at the FAO Office in Pakistan, desk research, and referrals from the interviewees. Table 3 represents whom we reached out to and how many interviews we conducted:

Table 3.

Overview of Interviews

Stakeholder	reached out	conducted Interviews
FAO	15	8
International NGOs	9	3
local NGOs	5	1
Academia	2	1
Government	1	0

Note. The table shows the number of people we reached out to and the number of interviewees we successfully engaged with, categorized by each stakeholder group.

DIEM Survey

The DIEM data are openly accessible through the Data in Emergencies Hub's website after creating an account. On the website, rounds two to five are available for Pakistan. However, data from the first round are not obtainable anymore. We specifically used the data for Sindh.

Data Collection

Conducting Interviews

The interviews are semi-structured (predetermined questions with the flexibility to add or change questions based on the respondent's answers), covering the following three main topics:

1. Dynamics between socio-economic shocks, household's situation, and access to food
2. General interventions/programs that focus on increasing access to food
3. Already implemented AA and potential AA to tackle socio-economic crises

These three main topics represent each of the three sub-questions of the research questions for our project. The interviews were conducted online, either via Webex, Microsoft Teams, or Google Meet, or in written form (based on preference by the interviewee), recorded (with agreement by the interviewee), and transcribed with the help of the transcribing tool by Microsoft Office Word. Each transcription was controlled by a member of the research team.

Coding of the interviews

The data from the interviews are processed based on the reflexive thematic analysis method by Clarke and Braun (2021), through which we identify themes and patterns from the qualitative data while considering the researcher's perspectives and biases. We detect the relevant themes and patterns through coding, using an inductive approach where the analysis and theme development are located within and driven by the data without any preconceived theories or hypotheses guiding the process (Clarke & Braun, 2021, p. 18). The goal is to capture reality as expressed within the data set (theoretical framework) by coding the explicitly expressed meaning (coding on a semantic level) (Clarke & Braun, 2021, p. 16). For this process, we used the analysis software Atlas.ti.

Comparing the DIEM Survey Rounds

We compared the data of the four rounds of the DIEM survey and focused on the following categories of questions: income, shocks, and long-term coping strategies. The category includes a question on how the quality of the aid is received by the people. To visualize the comparison, we used RStudio. Between round 2 and round 3, the war in Ukraine started, and between round 3 and round 4, the extreme floods in 2022 affected Sindh. Comparing the data before and after the shocks may indicate how these events affect the people in Sindh. However, it is important to note that the effects of the different shocks overlap and are interlinked, making it difficult to attribute clear impacts to each individual shock. Another aspect that needs to be considered is that due to the survey being conducted at different points in the year, it can be difficult to compare the different rounds as the results may be biased by seasonal aspects of Sindh.

Method

Data Analysis: Deconstruction

Deconstruction is a loosely defined set of approaches to understand the relationship between text and meaning, based on the work of the philosopher Jacques Derrida (Lawlor, 2006). The term "text" is not limited to its usual sense of "written words" but can encompass any totality (Thomassen & others, 2010), which, in our case, are concepts. Deconstruction opens these concepts to the conditions of their context and production, including the circumstances and traditions from which they arose (Deconstruction | Internet Encyclopedia of Philosophy, n.d.). Applying deconstruction enabled us to uncover deep insights into the interplay between socio-economic crises, food security, and AA. The use of this approach was as follows:

1. We defined the key theoretical concepts and assumptions (agri-food system and food access).
2. For the first sub-question, we deconstructed the concept of food access in Sindh by setting it into the context of the current situation and identifying which structural factors limit it. We then deconstructed how each crisis impacts food access (food environment and household's internal assets) through the 5F crisis framework and analyzed the direct and indirect pathways through which these impacts occur.
3. For the second sub-question, we listed and categorized current interventions by IOs, NGOs, and the government. We deconstructed the concept of AA by setting it into the context of Sindh and the ecosystem of interventions that focus on increasing food access and evaluating their effectiveness. We identified limitations and areas for improvement or alternative approaches.
4. For the third sub-question, we used the insights gained from the previous sub-questions to analyze the feasibility, potential challenges, and limitations of implementing AA for socio-economic crises in Sindh.

Limitations

Our research faced several limitations that warrant consideration. Firstly, three out of the four researchers have never visited Pakistan and come from significantly different cultural contexts. This has impacted our ability to fully comprehend and interpret the cultural nuances relevant to our work. Moreover, the research project itself was constrained by several inherent limitations. Notably, the conceptual linkage between AA and socio-economic crises is novel. This novelty, coupled with time constraints for the project, hindered our ability to address all our research questions thoroughly. Moreover, our original plan was to concentrate on the three districts of Tharparkar, Dadu, and Umerkot. However, due to insufficient data, we decided to focus on the province of Sindh as a whole.

Another significant limitation of our study is the absence of fieldwork. We were unable to travel to Sindh to directly interview individuals impacted by the food access crisis, which lead to a lack of direct representation in our findings. We also faced challenges in finding and contacting local actors, specifically local NGOs and government representatives, who were not affiliated with international organizations. In total, only 13 out of 34 individuals contacted agreed to participate in the interview. Moreover, while conducting interviews, we observed a disconnection between local actors and international actors in terms of the goals and the definitions of concepts. Therefore, it was sometimes difficult to compare answers or draw cohesive conclusions from their answers.

Lastly, we initially planned to analyze data from the Pakistan Bureau of Statistics, specifically data from the Pakistan Social and Living Standards Measurement (PSLM/HIES) survey. However, the most recent dataset available was from 2020. Including this dataset in our report was too complicated for the scope of this work, given the differences in survey questions compared to the DIEM dataset, and the lack of clarity regarding sample populations. This discrepancy made comparisons and drawing consistent conclusions difficult, leading to possible biases and resulting in a confusing and less reliable analysis. Using single dataset provided clearer and more insightful findings.

As previously mentioned, the data from the first round of the DIEM was not available. Additionally, due to the resource and time constraints of the project, we were unable to conduct a deeper analysis of the DIEM data. Nevertheless, the DIEM dataset holds significant potential for future research.

Positionality

Born and raised in Pakistan, Ajwah Malik understands the complexity of the country's political and cultural dynamics, as well as the regional and local dynamics of the province, allowing for a nuanced understanding of the issues. The proximity and personal connection can, however, lead to emotional bias.

Giulia Azzarello is Italian, born and raised in Italy. Having not had any direct contact with Pakistan, she recognizes her potential lack in understanding of local issues, cultures and overall dynamics, which are influential in the way she approaches this research, and could lead to outsider biases.

As a Japanese citizen raised in Japan without connection to Pakistan, Mitsuki Ishii has an outsider perspective in this research. Her observations may be influenced by cultural biases and lack of personal connection to the region, potentially limiting her understanding of local nuances and dynamics.

Having been born and raised entirely in Switzerland, Rebecca Duewell recognizes that the cultural and political contexts in Pakistan are markedly different from those in Switzerland. This background may limit her understanding of Pakistan's cultural and political dynamics, potentially leading to gaps in her comprehension of the issues and a biased perspective on the role of the government in Pakistan.

Context

Agri-food Systems

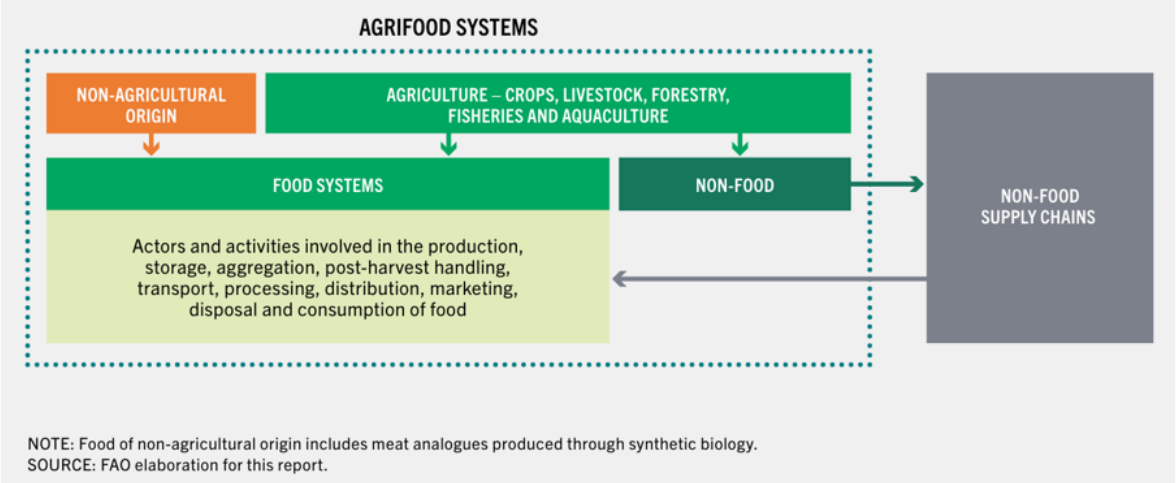
Food security and nutrition interventions should be approached within an agri-food system framework, guided by the underlying principle of the right to food (HLPE, 2020). Agri-food systems encompass:

> *"The entire range of actors and their interlinked value-adding activities in the primary production of food and non-food agricultural products, as well as in food storage, aggregation, post-harvest handling, transportation, processing, distribution, marketing, disposal, and consumption" (FAO, 2021b, p. 2).*

As shown in Figure 1, within the sphere of agri-food systems, food systems comprise the elements and activities from production to food consumption, including the socio-economic and environmental aspects (HLPE, 2020).

Figure 1.

Agri-food systems



Note. Agri-food System illustrated by FAO (2021b).

Food systems are interrelated to other systems and form complex interactions and linkages that act as feedback loops. The physical, economic, and socio-cultural conditions shape the food environment, influencing all the other elements. A food system framework enables understanding of the relationships among all the elements involved in food production, supply chains, food environments, and consumer behavior; these include human, energy, economic, health, and ecosystems (HLPE, 2020).

Change within food systems is driven by six elements: biophysical and environmental, technology and innovation, economic and market, political and institutional, socio-cultural, and demographic (HLPE, 2020).

The deep dependence of food systems on climatic, biological, and physical processes makes them extremely susceptible to potential shocks and stresses, which are also amplified for small-scale producers and the most vulnerable, food-insecure populations (FAO, 2021b). As such, it has become vital to build resilient agri-food systems, as the rapidly growing global population and environmental crisis are leading to an increased demand for food. But the ability of food systems to do so depends "not only on their capacities, but also on the social protection mechanisms" (FAO, 2021b, p. 4).

Food Access

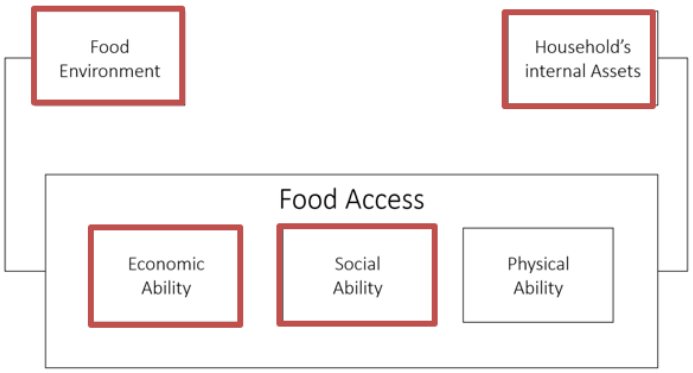
Food security consists of four dimensions: food availability, food access, utilization, and stability. As such, food security entails the availability of sufficient quantities of quality food, the access to enough entitlements for acquiring this food, and the possibility of utilizing it in a proper and safe way (thus meaning adequate access to also non-food inputs such as clean water and sanitation), and finally the guarantee of all the above at all times, without the risk of losing it in case of sudden shocks (economic or climatic) (FAO, 2006).

To address the ongoing food crisis in Sindh, our focus is on improving food access, as the region's issue lies not in food availability but in ensuring equitable access to food (IPC, 2024). Understanding the concept of food access is crucial, particularly the factors that determine access to sufficient and nutritious food, whether through own-use production or market purchases (FAO & WFP, n.d.).

We define food access as the ability to buy food or to sustain their own-use food production work[2]. Figure 2 represents the composition of food access, which is determined by the two components *"Food Environment"* and *"Household's internal Assets"*. The food environment defines the context in which a household must find access (HLPE, 2017), for example, food prices or food production input prices.

Figure 2.

Overview of Food Access



Note. The red framing indicates the components and levels of food access that are relevant to this report. Source: Own illustration.

[2] Own-use production work refers to activities performed to produce goods or provide services intended for final use by the producer, their household and/or family (ILO, 2016).

The second component of food access reflects the "ability of a household to produce or purchase the food needed by all house members" (Ecker & Breisinger, 2012, p. 10). This ability is mainly influenced by the household's financial assets, with income being the major contributing factor. Income includes wages from employment, support from social support systems (formal or informal[3]) or access to borrowing systems (Durao et al., 2020; Ecker & Breisinger, 2012).

Moreover, the two components of food access can be divided into physical, social, and economic access. According to FAO and WFP (2022) for the global Food Security Cluster, the three subcategories are described as follows:

- **Physical access:** The ability to directly access a location with food resources, including safe movement to the location.

- **Social access**: Ability to access food in an area without facing stigma or risking harm due to ethnicity, social stigma, gender, or other forms of discrimination.

- **Economic or financial access:** Ability to afford food items – considering factors such as food prices, income-generating activities, terms of trade, and purchasing power – without having to forego the purchase of other essential food and non-food items and services, such as health care.

In the report, we focus on the social and economic aspects of food access.

Crises and Food Access

Various external shocks can compromise access to food on macro and micro levels (Ecker & Breisinger, 2012). These shocks can manifest as crises such as natural disasters, conflicts, health crises, and socio-economic (e.g., 5F crisis) and often impact multiple relevant factors for food access due to the complexity and interactions within food systems. In this report, we examine closely the socio-economic crisis.

[3] Formal includes assistance from government social protection or from IOs / NGOs. Informal describes assistance from family or community.

5F Crisis in Pakistan

The "5F crisis" is a framework that encompasses interlinked crises affecting the following five key components: food, fuel, finance, feed, and fertilizer (FAO et al., 2023b; IPC, 2024). The crisis emerged in 2022 (FAO et al., 2023b), collectively impacting the agriculture sector in Pakistan, resulting in increased hunger and poverty (Ministry of Finance, 2023). Currently, the 5F crisis affects Pakistan as follows:

Food

Pakistan's dependence on imported foodstuffs such as edible oil, tea, pulses, and wheat has been increasing due to a decline in domestic production (Ministry of Finance, 2023). This dependency has worsened the trade deficit because of the rise in international food prices.

Fuel

The agricultural sector, heavily dependent on energy, faces challenges from increased international energy prices and the ongoing war in Ukraine, which have constrained farmers' productivity (Ministry of Finance, 2023). Consequently, the sharp rise in fuel prices has significantly impacted food costs.

Finance

Pakistan is grappling with severe socio-economic and political crises, which have caused significant depreciation of the country’s currency. The depreciated rupee, coupled with rising inflation, has exacerbated the country's trade deficit and further strained its economic stability. Policies aimed at reducing domestic subsidies and mitigating the effects of floods have been disrupted, threatening the substantial gains made in poverty reduction and food security for low-income households over the past decade (Ministry of Finance, 2023).

Feed

The poultry industry, which relies heavily on soybean imports for feed, has been affected by a shortage of soybeans, leading to a significant increase in poultry prices in 2023 (IPC, 2024).

Fertilizer

The surge in fuel prices has led to a 70% increase in fertilizer from 2023 to 2024. This rise not only hampers agricultural production but also reduces yields for certain crops. While the availability of certified or improved seeds could mitigate the high fertilizer costs, many vulnerable farmers lack access to these resources, facing difficulties as a result. The lack of access leads to the use of reduced or discontinued fertilizer, which could severely impact smallholder farmers' production (IPC, 2024).

Despite some resilience in the agricultural sector post-floods in 2023, Pakistan continues to struggle with the impacts of crises across the five key areas. These challenges have significantly affected food security in the country and are likely to alter consumer behavior (IPC, 2023).

Food Access in Sindh

As reported in the acute food insecurity analysis by IPC for March until November 2024 (IPC, 2024), rising costs for both food and non-food necessities are a result of both domestic and foreign forces, which exacerbate Pakistan's severe food insecurity and reduce household purchasing power (see Table 4). In February 2024, the Consumer Price Index inflation rate increased by an astounding 23% year over year, according to the Pakistan Bureau of Statistics. Local price increases are further fueled by currency devaluation and the country's reliance on imported goods, including petroleum, wheat, lentils, and edible oil (IPC, 2024). The weight of inflation is significant, as almost 50% of households spend more than 75% of their income on food alone (IPC, 2024).

Table 4.

Current Acute Food Insecurity Situation Overview (March – June 2024) in Pakistan

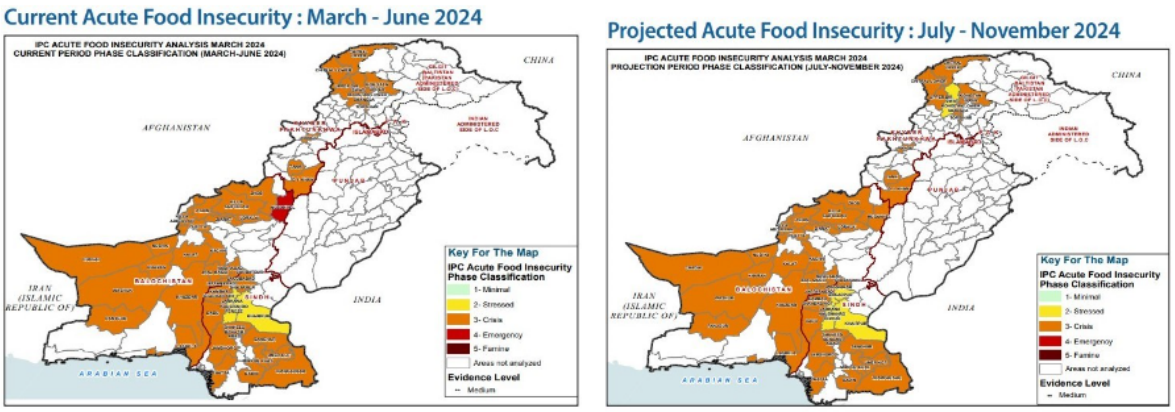
Description	Percentage of households
much higher than usual food prices	35%
much higher fuel and transportation prices	34%
sickness or death of a household member	25%
plant diseases or facing such issues	8%
loss of employment or work opportunity	8%

Note. The table describes the main factor limiting food security in Pakistan. Source: (IPC, 2024).

Another issue is the physical access to food markets, especially in isolated places where access is hampered by distance and high transit costs (IPC, 2024). 79% of Sindhi households have difficulty accessing food markets because of damaged access roads, expensive transit costs, remote locations, and lack of transportation. Figure 3 shows the current food insecurity situation in Pakistan and the IPC's projection for July until November (IPC, 2024). The IPC categorizes 21% of Sindh's population into Phases 3 and 4, marking them in crisis or in an emergency state.

Figure 3.

Map on current and projected food insecurity



Note. IPC's current food insecurity classification for Pakistan and its projection for the following five months. Source:

Agriculture and Livelihoods

The agricultural industry, which accounts for 37.4% of all jobs in the country and contributes 22.9% to the GDP, is extremely important in Pakistan (IPC, 2024). However, the industry faces significant challenges exacerbated by unusually heavy rains and flash floods, which particularly impact food production in districts affected by flooding. The majority of farmers cultivate crops at the subsistence level on modest landholdings (IPC, 2024). In terms of land cultivation during the 2023 monsoon season, 32% of farming households in the investigated areas managed more than five acres, compared to 12% of households that farmed up to one acre (IPC, 2024).

Only 22% of farming households in Sindh have enough cereal stores to last more than six months, indicating the continued scarcity of food. As a result, households mostly rely on markets to meet their food demands, but difficulties are posed in accessing capital due to the predicted increases in fuel prices (37%) for 2023. Overall, 51% of questioned households in Sindh experience challenges with crop production and marketing, such as increased expenses, difficulties in accessing markets, low demand, payment delays, and issues with competitive pricing (IPC, 2024).

Livestock

In rural areas, livestock are essential for both income and subsistence, but they face many obstacles: In 2022–2023, 21% of households attributed animal mortality to floods or heavy rainfall, while 32% attributed it to illness. Other factors include diseases, lack of feed, floods, and restricted access to drinking water. Given that 25% of households depend on regular livestock sales, distress sales of livestock are prevalent and are fueled by the need to satisfy basic necessities (10%), address poor animal health (8%), lack of feed (3%), and water problems (2%). Furthermore, almost two-fifths of households claim that pasture availability has decreased, which is worsened by dry seasons and insufficient rainfall (IPC, 2024).

In addition, 38% of families indicate that pasture conditions are getting worse, and this year's agricultural output has dropped by 35%. Serious risks are posed to the livelihoods and food security of agricultural households throughout the provinces from factors such as pest epidemics, plant diseases, restricted access to fertilizers and high-quality seeds, and loan availability (IPC, 2024).

Climate Shocks

Sindh, situated at the bottom of the Indus Basin and characterized by its low elevation, faces significant vulnerability to natural calamities (JICA et al., 2022). Two of the most impactful climatic shocks in the region are floods and heat waves, each bringing severe consequences for the local population and infrastructure.

Floods

Devastating floods have always plagued Sindh, with some of the most disastrous incidents occurring in recent years (JICA et al., 2022). For instance, heavy rains in August 2020 caused massive flooding, submerging most of Sindh, which resulted in numerous fatalities and extensive property devastation (WFP, 2023). The floods increased the danger of infectious diseases, created a shortage of clean water, and caused food shortages (Gavi, 2022). Significant losses were incurred by the agricultural sector, especially the sub-sectors of crops and animals (Ismail Khan, 2022). The lingering impacts of these floods continue to affect food access issues in Sindh, reducing its economic output and exacerbating poverty (IPC, 2024).

Heatwaves

Another significant climatic shock that affects Sindh is heatwaves, which are aggravated by elements such as urbanization, deforestation, and climate change. It has increased the risk of heat-related diseases and fatalities, as well as water shortages and lower crop yields and livestock output, which further strains food supplies (PDMA, n.d.).

Why is there still a need for urgent action?

The IPC report (2024) indicates that there was a little rise in crop area and productivity in the past five years. Nonetheless, a large number of households are subsistence farmers with fewer than five acres of land, and a number of circumstances prevented them from cultivating the entire land during the most recent crop season, as was previously mentioned. Additionally, it is noted that people lack sufficient food reserves and have inadequate money to buy food from the market. The report further demonstrates that there are still flood aftershocks that are negatively impacting livestock and crops.

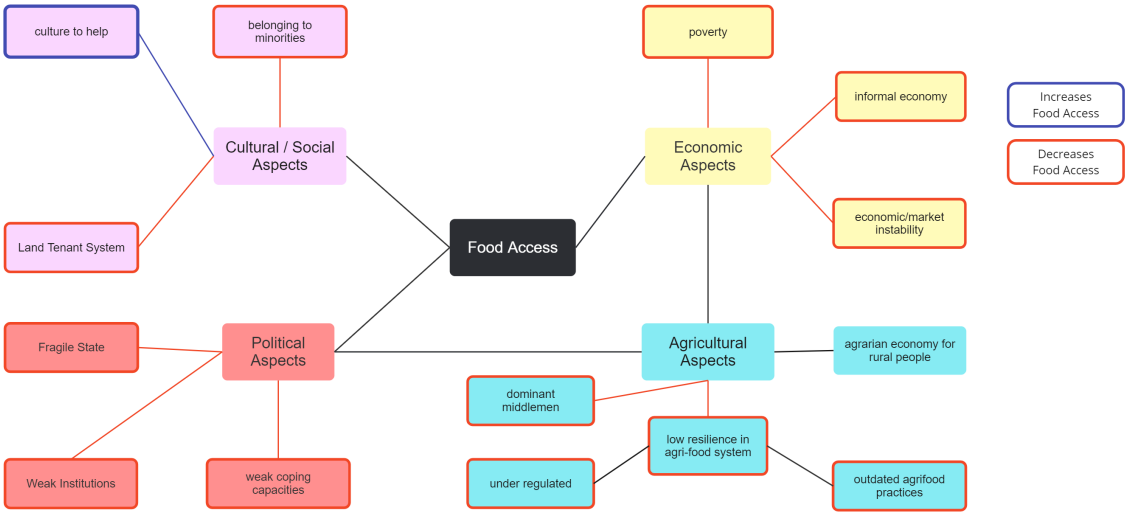
Socio-Economic Crisis and Food Access in Sindh

Structural Factors in Sindh that Determine the Impact of Crisis

A household's ability to purchase or produce food, as well as their resilience to shocks, is influenced by their socio-economic background and the systemic context in which they live. Based on interviews and literature review, we identified four structural dimensions that affect food access in Sindh and determine the extent of the impact of shocks (see Figure 4):

Figure 4.

Overview of structural factors that determine food access



Note. The structural factors can be categorized into four different aspects, whereas the agricultural aspect is directly connected to economic and political aspects. The red frames mark factors that negatively impact food access, and the blue frames indicate amplifying factors. Source: own illustration.

Economic Aspects

Several international, regional, and the local expert have highlighted that widespread poverty in rural areas significantly limits access to food and reduces resilience to economic shocks. Beyond agriculture, the informal sector is the main source of employment in rural Pakistan (Government of Pakistan et al., 2022). Participants of the informal economy are excluded from protection or regulation schemes by the government and do not pay taxes, reducing state revenue (ILO, 2024). In addition, our experts assess the economic situation and the markets as unstable, which is also concluded by the OECD's fragility framework analysis of Pakistan (OECD, 2022). Moreover, two of the regional experts underline that economic instability negatively impacts labor market opportunities. They argue that this is particularly an issue for individuals seeking supplementary or alternative income beyond agriculture.

Political Aspects

The OECD fragility framework analysis of Pakistan rates the political situation as highly fragile (OECD, 2022). They further note that Pakistan's weak coping capacities hinder its resilience to various risks. Three of the regional experts argue that weak institutions negatively impact governance and economic stability, hindering foreign investment.

Agricultural Aspects:

Agriculture is the backbone of Sindh's rural economy and serves as the primary income source for many households. However, three regional experts criticize that the agricultural sector suffers from under-regulation and outdated practices. They argue that these two factors contribute to low resilience in the agri-food system and, therefore, to reduced access during crises. The challenges in updating agricultural practices are evident in the implementation of Sindh's agricultural policy (see textbox below for more information). This is also affirmed by the report by the Pakistan Institute of Development Economics (Ahmed & Ali, 2024). The report further points out that the dominance of middlemen against farmers further impedes access to agricultural markets for producers.

Sindh Agricultural Policy

Pakistan's agricultural program is intended to tackle a number of issues, but a number of barriers frequently prevent it from being implemented. For example, while many federal and provincial policies—such as the National Food Security Policy and other agriculture, irrigation, and food policies—exist in Pakistan, they are frequently not put into practice, primarily because they are the result of foreign donors rather than government-led initiatives, one regional expert highlighted. For instance, the authorities in charge of these regulations frequently do not even know they exist.

The regional expert further argued, while the federal and provincial administrations, including Sindh's, have put policies in place to boost the agriculture industry, there has been uneven execution of these plans. For example, the Vision 2025 plan outlines lofty objectives, but it has been difficult to turn these into practical steps.

Last, the regional expert mentioned how the policy domain of agriculture must prioritize the mitigation of climate-related calamities. Improving disaster management and anticipatory action plans is essential to reducing the effects of these calamities on livestock, agricultural output, and food security. Input markets for labor, seeds, fertilizer, and water should all have bottlenecks that are addressed by effective policy execution. Agriculture's low labor productivity calls for focused measures.

Social Aspects

Two regional experts mention the marginalization of minorities, resulting in their reduced access to food. Furthermore, an article by the Minority Rights Group (Nasir, 2023) also raises the case that the Hindu community faces discrimination in receiving humanitarian aid. Additionally, three of the regional experts and the local expert stated that land tenure (Baradari System) is a significant issue, with elite landowners holding vast properties worked by tenant farmers, perpetuating a cycle of loans and debt that burdens households and limits food access (Giampaolo & Aggarwal, 2010; JICA et al., 2022).

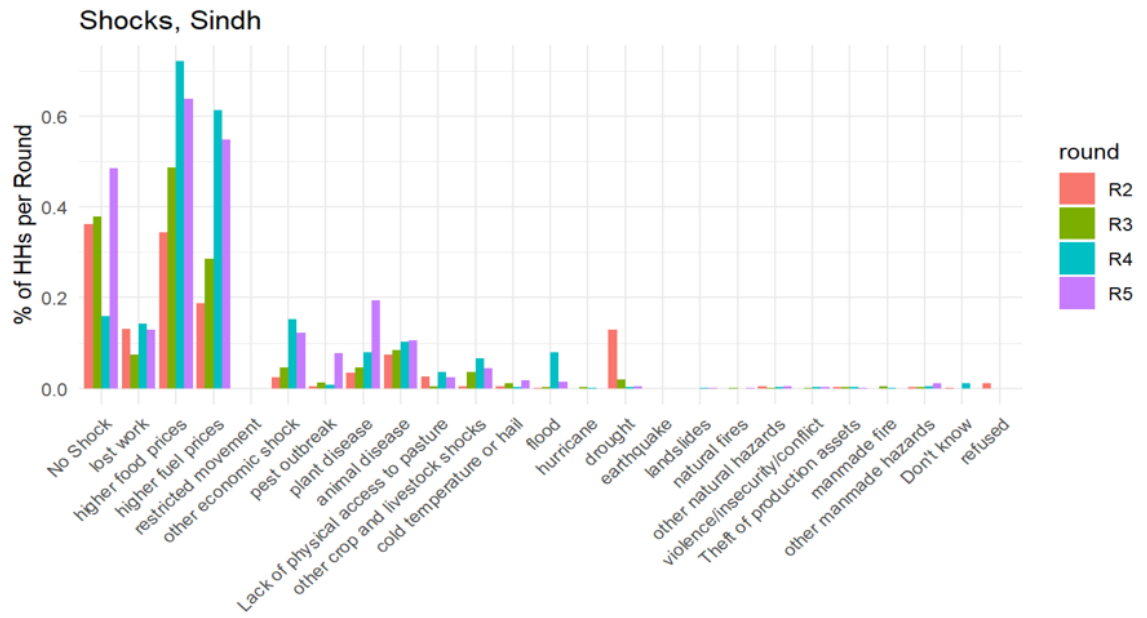
Another aspect emphasized by a regional expert is that in Pakistan, helping each other is deeply integrated into its culture. Another regional expert emphasizes that mutual assistance is deeply ingrained in Pakistani culture, functioning as an informal safety net that plays a major role in ensuring access to food.

Impacts of Socio-Economic Shocks on Food Access in Sindh

Based on interviews, literature, and analysis of the DIEM survey, we identified both external and internal crises and shocks affecting food access in Sindh. Figure 5 illustrates the shocks reported by households across different survey rounds. In rounds 2 and 3, over 60% of households reported experiencing shocks. By round 4, conducted six months after the massive floods in 2022, this percentage had risen to 80%. The situation improved in subsequent rounds, with 50% of households reporting shocks.

Figure 5.

Overview of Shocks experienced by people in Sindh

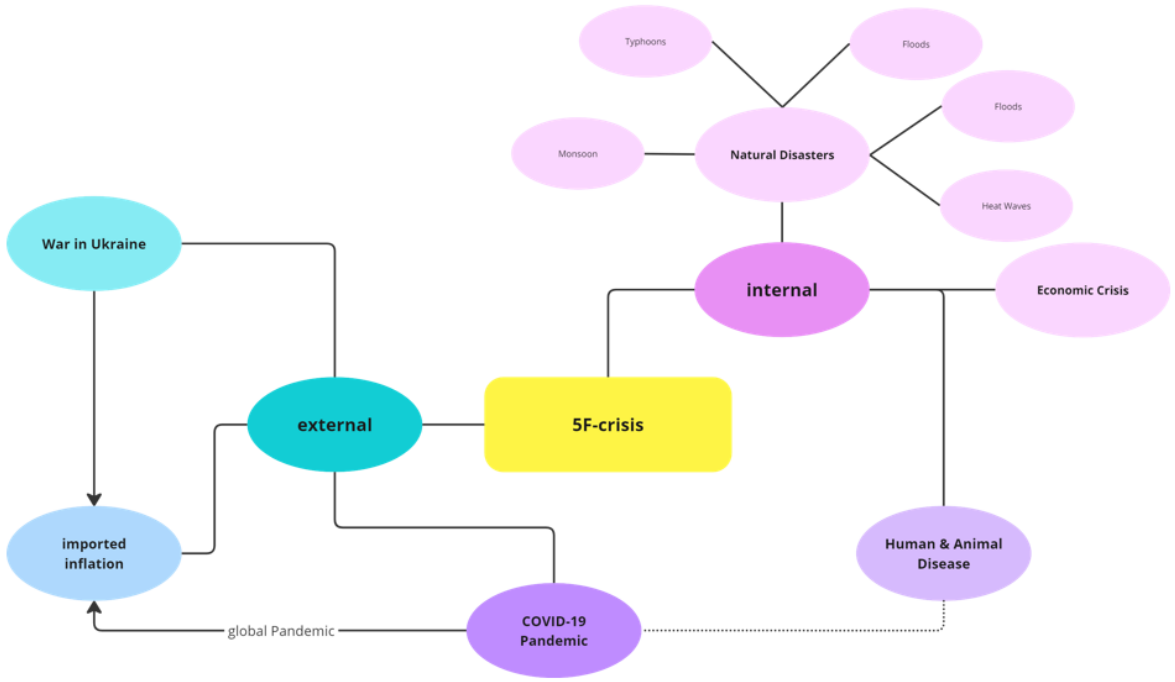


Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the categories of shocks experienced by these households. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

The map in Figure 6 highlights the crises identified through our analysis, and their interconnectedness. The crises themselves are not directly socio-economic, but socio-economic crises have emerged as side effects. Therefore, it is necessary to also discuss the impact of natural hazards, like natural disasters or human disease outbreaks, as they indirectly lead to other kind of crises.

Figure 6.

Overview of crises affecting access to food

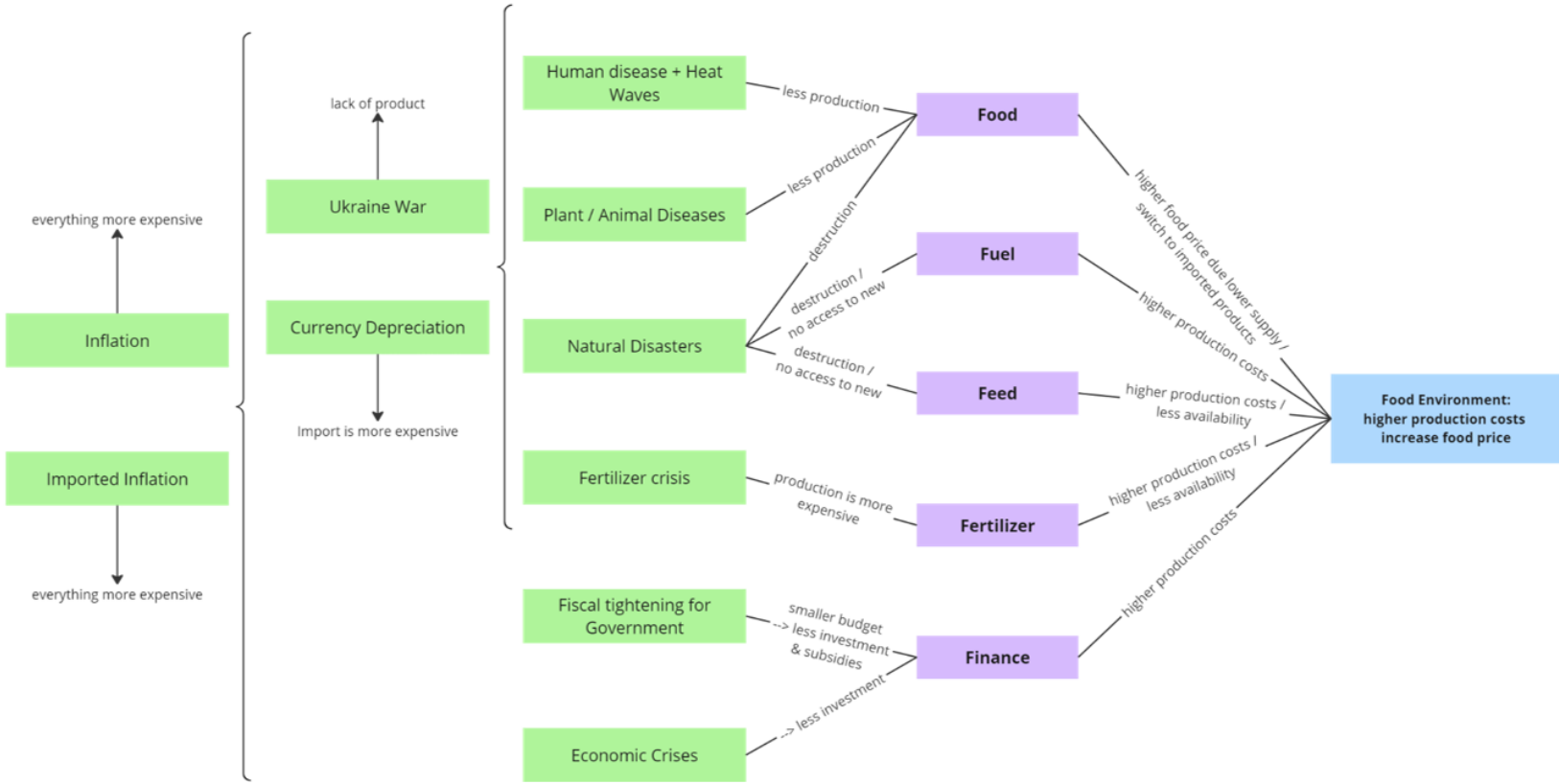


Note: The illustration depicts how both domestic and international crises impact people's ability to access food in Pakistan and how shocks and crises can be connected and reinforce each other. Source: Own illustration.

To analyze the crises, we use the 5F-crisis framework, focusing on how these affect food access in Sindh. We identify that the impact of the 5F crisis on food access is twofold. First, its effect on the agricultural sector manifests in the food environment through a decrease in food affordability (IPC, 2024; Ministry of Finance, 2023). Second, for households' internal assets, the crisis decreases the household's purchasing power by increasing pressures on income and reducing overall earnings. The reduced purchasing power limits the ability to buy food or sustain one's own-use food production. In Figures 7 and 8, we visualize how the different crises contribute to the 5F crisis and, subsequently, to the decline in food access.

Figure 7.

Overview of how different crises impact the food environment and consequently increase food prices.



Note. The illustration reflects the socio-economic crises and natural hazards (shown in green) impact on the five key components “food”, “fuel”, “feed”, “fertilizer” and “finance” (shown in purple), and ultimately on the food environment. There is no sequential order among the crises; each one directly affects at least one of the five key components. Source: Own illustration.

Impact of the 5F Crisis on the Food Environment: Diminishing Affordability

Two regional experts and an international expert have highlighted the impact of external shocks on Pakistan's economy. These shocks often manifest through the import of essential goods such as food, fuel, and fertilizer to meet local demand. This concern is supported by the literature (FAO et al., 2023b; IPC, 2024; Ministry of Finance, 2023). For example, the war in Ukraine has driven up the prices of fuel, fertilizer, and critical food items like wheat and soybeans, which are also used as animal (FAO et al., 2023b; IPC, 2024). However, a regional expert noted that Pakistan's fertilizer price increase is not primarily due to the international crisis but rather the dynamics within its own fertilizer industry.

Similarly to the impact of the war in Ukraine, the lingering disruptions in the supply chain caused by the COVID-19 pandemic have led to higher prices on the international market for the previously mentioned products (Ministry of Finance, 2023). A regional, an Asia-Pacific, and a local expert also confirmed this point, as well as emphasized that the heightened prices have been the most impactful consequence of the pandemic in Sindh. In addition to the increase in prices on the international market, the currency depreciation of the Pakistani Rupee led to higher prices for imported goods (Ministry of Finance, 2023), subsequently importing inflation.

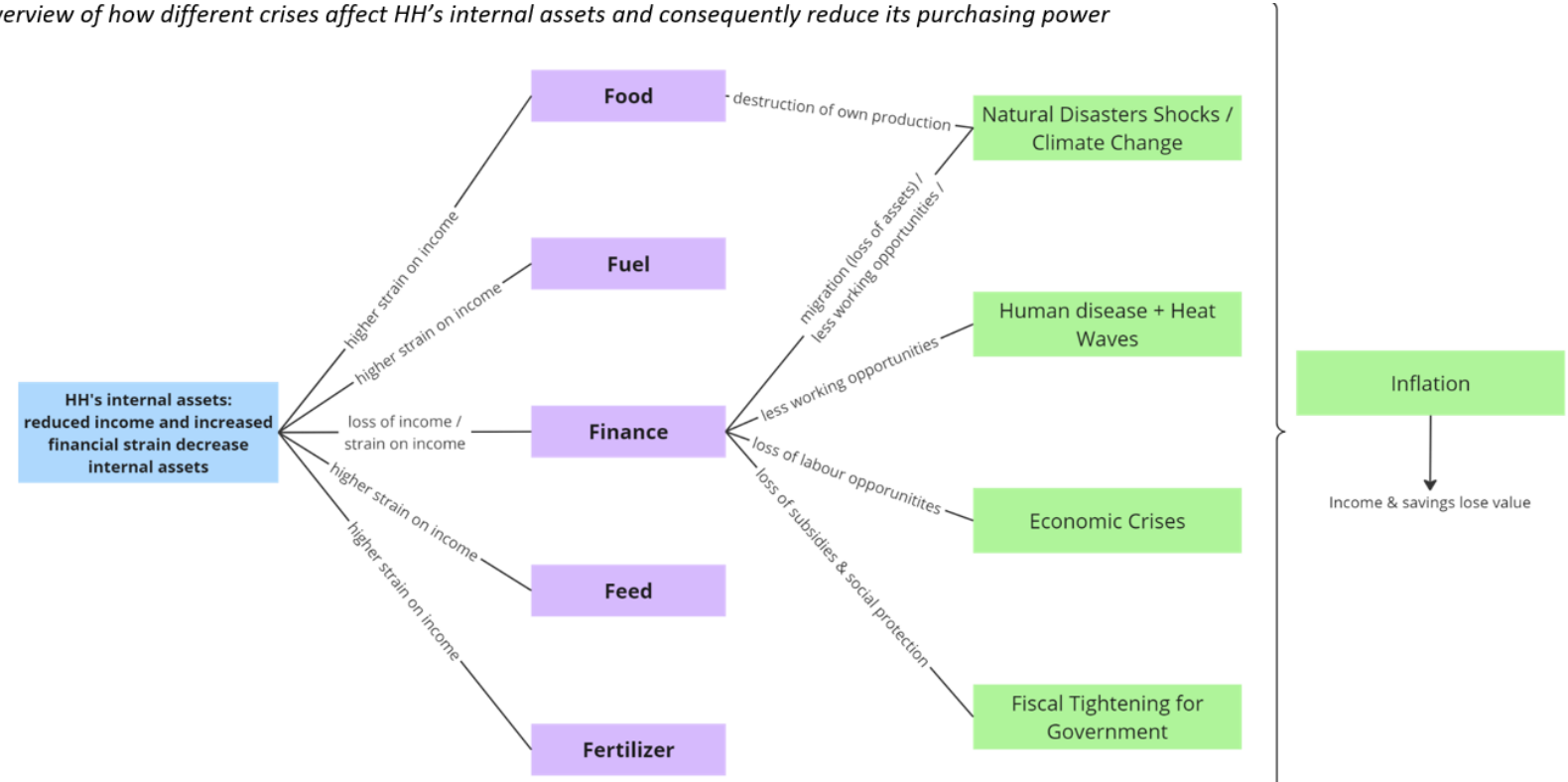
Furthermore, a regional expert pointed out that international lenders like the IMF have required the Pakistani government to implement fiscal tightening measures, which have reduced subsidies and limited funds for reconstruction efforts (see also Shahid (2023). This tightening of fiscal policy has led to a decrease in subsidies and limited resources for reconstruction. Moreover, the local expert raised the concern that fiscal tightening would lead to decreased investment in agriculture, hindering efforts to improve agricultural productivity and, eventually, affecting food prices.

Three regional experts, two international and one local expert, identify general inflation as a crucial driver for increasing food prices. This view is supported by recent literature (IPC, 2024; WFP, 2023). In addition, the local expert argued that the current economic crisis in Pakistan, marked by soaring inflation and significant government debt (Rana, 2023), is also discouraging private investment in the agricultural sector. This lack of investment hampers efforts to enhance agricultural productivity, adopt sustainable practices, and address long-term challenges.

Finally, to summarize the perspectives of four different regional experts and one Asia-pacific expert on natural hazards, animal or human disease outbreaks or natural disasters mainly affect the food environment by destroying agricultural assets needed for food production, impairing livestock and human health, and thereby reduce food production. This reduction in production either drives up food prices (Bukhari, 2022; Darmadi et al., 2022; Mangi & Dilawar, 2022), or forces reliance on more expensive imported foods.

Figure 8.

Overview of how different crises affect HH's internal assets and consequently reduce its purchasing power



Note. The illustration reflects the socio-economic crises and natural hazards (shown in green) impact on the five key components "food", "fuel", "feed", "fertilizer" and "finance" (shown in purple), and ultimately on the households' internal assets. There is no sequential order among the crises; each one directly affects at least one of the five key components. Source: Own illustration

Impact of the 5F Crisis on the household's internal assets: Decline in Purchasing Power

The aforementioned shocks and crises also affect a household's internal assets through the higher costs for essential goods, including agricultural inputs needed for own-use food production, leading to a higher strain on income. This potentially reduces the ability to access food through purchase or own production, an issue also highlighted by two regional and one local experts. The local expert further noted that the deteriorating economic situation has led to widespread job losses, wage reductions, and decreased demand for labor, all contributing to decline in income. This observation is also reported by the IPC report (2024) published in May 2024.

Furthermore, the IPC report (2024) reveals that currently, 47% of households in Sindh rely on debt to cover the costs of food and other necessities. This reliance is exacerbated by limited non-debt income, which prevents these households from repaying their existing debts, leading them to take on new debt to pay off old obligations or to afford basic needs. The results from the DIEM survey support these findings, indicating an increasing trend in the use of debt to supplement income (Figures A4 and A5). The use of debt was only highlighted by one regional expert.

A regional expert pointed out that fiscal tightening may also affect households by hampering the government's ability to spend on social protection or other systems, which could result in reduced financial assets. Additionally, general inflation - accelerated by shocks like the war in Ukraine, or by supply chain disruptions like the one resulted from the COVID-19 pandemic – has significantly driven up prices, thereby straining the household's financial assets and diminishing the value of savings (IPC, 2024). These consequences were also mentioned by four regional experts, as well as the local expert and an international expert.

Two of the regional experts and the local actor highlighted that people who are part of the informal economy are especially vulnerable, both because they are not covered by the social protection mechanism by the government, and due to their often lack of stable jobs.

Summarizing the perspectives of five regional experts, and the local actor, it is crucial to note that natural hazards not only directly impact households' self-sustained food production through the physical destruction of resources and means, but also have wider implications for labor opportunities and internal migration. However, the DIEM survey indicated that migration was not a significant response, with only 5% of households reporting relocation after the floods in 2022 and less than 1% otherwise (see Figure A12). Furthermore, outbreaks of human diseases can temporarily limit people's ability to work, either due to decreased health or through lockdowns and social distancing measures, as seen during the COVID-19 pandemic (Pakistan Bureau of Statistics, 2021).

In conclusion, a household's purchasing power is significantly impacted by socio-economic crises through reductions in income and savings value, hindering their ability to purchase food or preserve self-sustained food production. Furthermore, natural hazards limit own-use food production, forcing households to seek alternative means of food acquisition, often without the necessary financial resources due to the current economic situation.

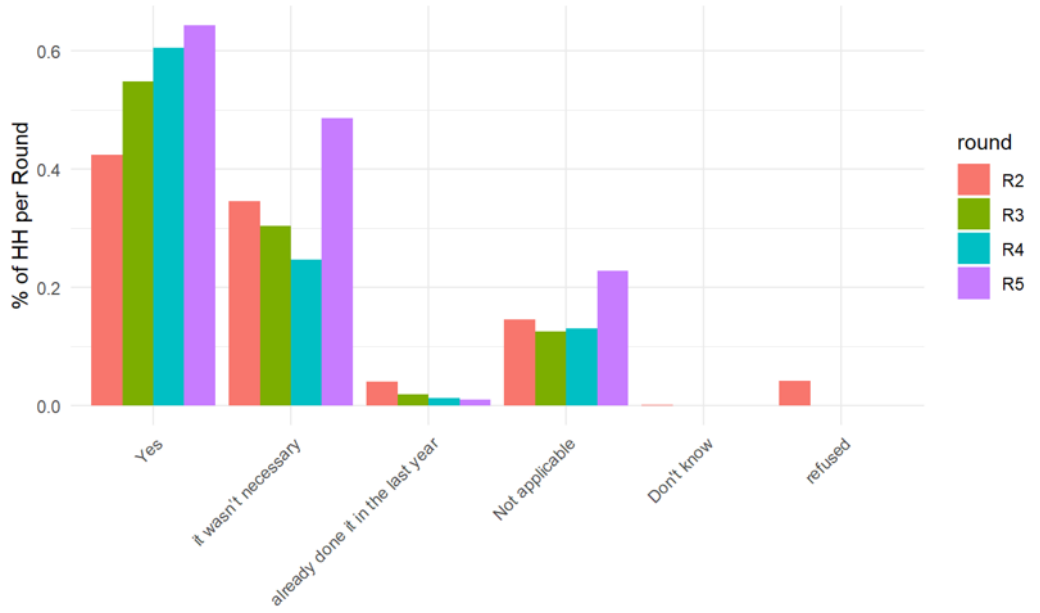
Coping Strategies

The reduction in purchasing power has forced households to adopt various coping strategies to maintain access to food. The DIEM survey conducted by FAO (FAO, 2024) explored these strategies in depth. The detailed results are presented in Appendix Chapter A.3.4, Figures A6 until A12, and illustrate all the coping strategies investigated. What is unclear from the data is that the option "already done it in the last year" was also selectable when saying "yes"; therefore, it is unclear if the mentioned coping strategies are also long-term coping strategies.

Moreover, as previously mentioned, borrowing money has become an increasingly common strategy for maintaining food access. According to Figure 9, the percentage of households that had to take on debt money increased from about 40% to over 60%. Similarly, households reacted by spending their savings to cope, as shown in Figure 10.

Figure 9.

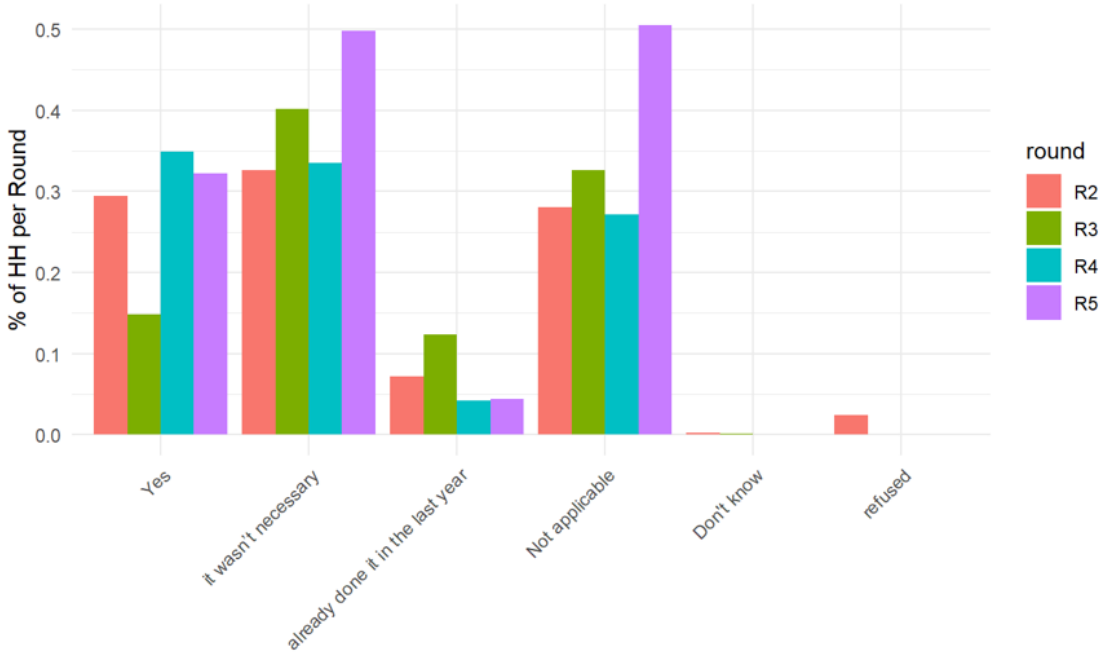
Overview of the percentage of households that had to borrow money in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question if the coping strategy was used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure 10.

Overview of the percentage of households that had to used savings in the last 30 days as a coping strategy

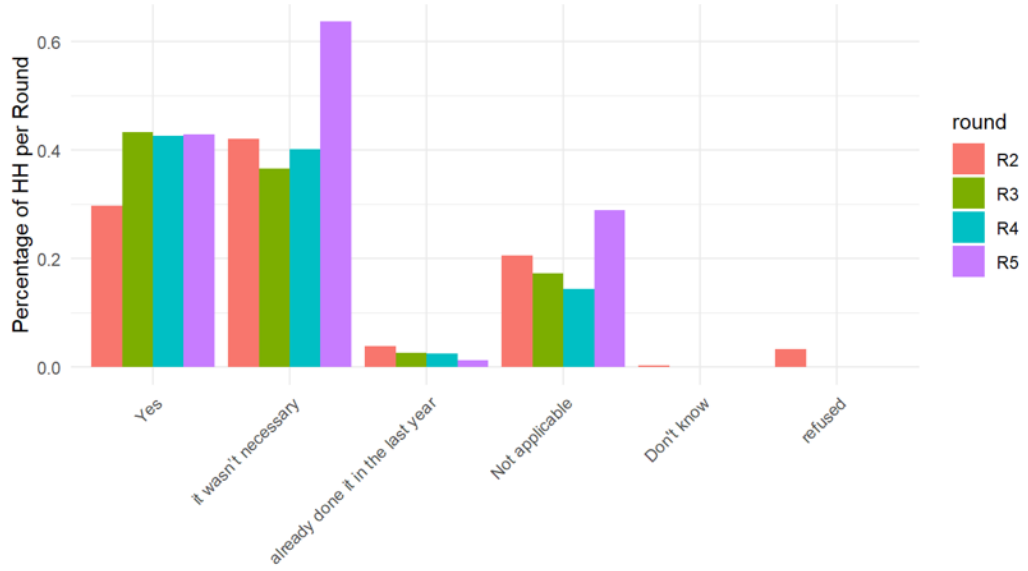


Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Furthermore, since the emergence of the 5F crisis in 2022, about 40% of the surveyed households have had to reduce their spending on health and education (see Figure 11), indicating an increase since the survey round in August 2021.

Figure 11.

Overview of the percentage of households that had to reduce spending on health and education in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

In contrast, after the floods in 2022, about 6% of households had to sell productive assets or means of transport compared to the other rounds (around 3% for the others) (see Appendix, Figure A6). Similarly, about 10% points more had to sell their household assets or goods to be able to keep access to food.

A coping strategy that has been used less frequently is the consumption of seed stocks reserved for the next planting season (see Appendix, Figure A9). Other coping measures, such as selling a house or land and selling the last female animal, were very rarely adopted (below 5% for all rounds, see Figures A10 and A11).

These coping strategies allow households to maintain their food access temporarily. However, they may have long-term repercussions that hinder the ability to improve food security. For instance, falling into a debt cycle or reducing expenditures on health and education may have lasting adverse effects.

Fostering Anticipatory Action in Sindh

Anticipatory Action: A Disaster Risk Management Approach

Accelerating climate change has led to an increase in the frequency and intensity of climate-related disasters such as droughts, floods, storms, and wildfires on a global scale. Agri-food systems are vulnerable to these extreme weather events, which affect agricultural and livestock production, food distribution, and access, posing a threat, especially to the livelihoods and lives of the vulnerable populations who rely on agriculture and natural resources for their livelihoods (*Climate and Disaster Risk Management*, n.d.). Disaster risk management is used to mitigate these shocks and protect food security can be divided into pre- and post-shock strategies. Post-shock strategies help reduce new disaster risks and mitigate existing damages and include early response and recovery, rehabilitation, and reconstruction strategies. Pre-shock strategies entail taking preventive measures before the shocks occur and include crisis preparedness, resilience building, and anticipatory action (Peters et al., 2019).

Anticipatory Action (AA) is amongst the last introduced strategies of crisis response and is defined by the G7 Foreign Ministers' Statement as "acting ahead of predicted hazards to prevent or reduce acute humanitarian impacts before they fully unfold" (MAECI, 2022). Unlike post-shock emergency responses, AA contributes to - although not directly - long-term resilience building, addressing the root causes of poverty and food insecurity. Following the shift from purely recovery-focused humanitarian interventions to investments in resilience (FAO and WFP, 2023). The agricultural economics experts remarked that a lot of these programs increase resilience indirectly by allowing them to face the shock better, subsequently increasing resilience, as recovering from a shock is much more difficult than preparing for it. In fact, from the moment the population is hit by a shock, resilience increasingly gets lower and lower. The AA expert working for an NGO noted that if a shock does not occur, the assistance provided will not be wasted; instead, it will contribute to building resilience in the area.

Like most disaster risk reduction strategies and plans, AA requires the cooperation and coordination of multiple actors and stakeholders to be implemented successfully. For AA, the relevant stakeholders usually are IOs (like FAO or WFP), the state authorities (both at national, regional, and local levels), local NGOs operating on the ground, and the affected population.

The AA Task Force

AA Task Force, comprised of members including FAO, International Federation of Red Cross and Red Crescent Societies (IFRC), OCHA, Start Network and WFP, is an initiative aiming to promote the use of AA to scale-up humanitarian actions to mitigate disaster risks (Anticipation hub, n.d.). Its approaches have been implemented in over 35 countries, and the members come together to provide technical expertise and knowledge as well as foster partnerships for shaping the global AA agenda that matches the needs of each country (Anticipation hub, n.d.).

The Anticipatory Action experts emphasized the importance of ensuring that communities where the protocol will be implemented are informed, prepared, and fully understand the Anticipatory Action plan before any risk of a crisis arises. The most at-risk households need to be identified and targeted with special preparation well ahead of the potential implementation of the protocol.

Moreover, because multiple organizations have multiple, separate AA plans, it is important to coordinate when the crisis arrives to avoid confusion and problems for the local governments about which plan they should work within an already time-constrained situation. It is crucial, therefore, that all organizations work together to avoid proposing completely different protocols. Nonetheless, it is important to remember that AA comes only as an addition to other disaster-risk reduction and preparedness activities, which nonetheless should continue in the country.

It might become difficult to implement AA for SE crisis if there are no other activities and strategies in place – such as resilience building or preparedness - specific for such type of crisis that AA could complement

Lastly, it should be noted that there are also other anticipated measures outside of AA used for disaster management. Nonetheless, it is the formal and institutionalized planning and the mainstreaming of the interventions in a systemized way that differentiates AA from other measures.

> *"People calling anything that's in any way based on a signal or in any way a bit earlier than what you usually do, anticipatory action. And that's not the point right. The point is really to have a sound program in place"*
>
> *- AA Senior Expert*

FAO on Anticipatory Action

FAO has been working in over 130 countries, with a major focus on anticipatory intervention as a key-risk response strategy (FAO, 2021), aiming to manage disaster risks and protect people's food security from shocks such as food, economic, and humanitarian crises. FAO supports countries in linking early warnings to anticipatory or early action ahead of forecasted hazards; to date, it has supported over 50 countries, and studies show that every USD 1 invested can generate over USD 7 in return for farming families (FAO, 2021). In Pakistan, FAO has designed and implemented AA and post-crisis interventions against climate shocks such as droughts and floods, mostly by itself or in partnership with other organizations such as WFP, Save the Children or the Pakistani government/national experts. One regional expert mentioned that interventions, in general, take place upon government request. Apart from this, FAO could also decide to intervene in cases where either the government is involved in the conflict, does not have the capacity to manage the crisis promptly, or is absent.

> *"An organization like FAO definitely can't operate in a vacuum, so they would also have to engage with the relevant government entities, the disaster risk management authorities, and the meteorological departments. When you have indications that both parties are actually interested in taking on this type of work, then you could make the decision (to activate the protocol)"*
>
> *- AA Senior Expert*

The Anticipatory Action Protocol

AA actions can take multiple shapes and forms, with common characteristics regarding the preparation and evaluation of it: trigger methodology, action plan (identification of relevant AAs), budget, and lastly, evaluation (FAO, 2021).

1) The Trigger Methodology

The importance of having strong predictors was highlighted by AA experts, who also noted the challenge in identifying and establishing such predictors. If correlations can be found, this is when the predictors are reliable and considered as strong. For certain shocks, this works better. The experts underlined that the need for them to be rigorous and justifiable is especially important within IOs because otherwise they would not receive funds or can replicate the protocol.

> *"We need to stick to the methodology that we have agreed upon so that it can be replicated and it can be understood by partners. if we start deviating from what has been planned and pre agreed, we would create some questions and confusion among the partners and they might not trust the methodology in future."*
>
> *- AA Senior Expert*

Moreover, AA experts emphasize the need for coordination between the different actors creating the AA protocols to make sure the same quality forecasting system and prediction model are being used. If different actors working in the same area have different thresholds, and thus, one is activating and one is not, it can become an issue.

An AA expert remarked that quick-onset crises entail easier activation of protocols compared to slow-onset crises. The activation of the protocol is drawn out in phases, each phase tied to an index or threshold. However, the expert argued that it is unlikely that the index will climb as regularly and gradually as the protocol has been designed, especially in slow-onset crises. In this case, it is important to distinguish between preparedness, anticipatory action, and resilience building. With the slow onset of the crisis, the separation between the strategies becomes increasingly difficult

Socio-economic crises typically develop gradually but tend to persist for extended periods, making it difficult to plan the activation phases of the protocol.

Quick-onset crises should not be confused with shocks that materialize suddenly, without prediction at all; for these kinds of shocks, AA experts reported that they would not encourage AA, as prediction cannot be rightfully implemented. As such, it is much more difficult to implement AA for shocks that do not present seasonality.

Typically, socio-economic crises do not present with a seasonal pattern but come about with no prior anticipation. This makes creating indicators and predictors, but also the overall decision to create an AA protocol for such crises, extremely difficult.

Once the hazard or crisis has been confirmed, early warning systems are utilized to inform people of an upcoming shock and urge them to take precautionary measures (FAO & WFP, 2023).

2) The Action Plan:

The experts on AA explained that the action plan entails the following: First, the set of relevant anticipatory actions must be identified that can be implemented ahead of predicted extreme events. Strategies within the action plans comprise local community preparation and the country's preparation.

Local community preparation: includes a wide range of activities, such as different kinds of training, practical support to farmers, ensuring access to health services, and facilitating market access. These are achieved through multiple means, such as the distribution of cash, vouchers, food, healthcare, food, seeds, fuel, vaccination, agricultural objects, fertilizers, and transportation.

Cash-based assistance is among the most used strategies by all kinds of actors. As such, cash can be used to purchase a lot of different things that can help people face the shock. The AA experts argued that distributing cash rather than other physical assets also gives agency to the population and freedom to use the cash however they deem most useful. Moreover, not only the individual households are supported but also the overall local economy, thus having a multiplier effect – when markets are functional.

During economic shocks like inflation, markets are less functional. Therefore, cash assistance becomes difficult and may lose its effect because of inflation. Nonetheless, if the cash distribution happens early enough before the market has failed, positive effects could still be achieved.

As highlighted by AA experts and social protection experts, AA cash distribution can be tied to national social protection schemes, as these usually already include cash distributions. This greatly facilitates AA implementation.

Country preparation: Guidelines are provided to countries on how to face the shock on a national level, for example, how to manage temporary migration and displacement, how to facilitate market access, how to implement social protection systems, and how to distribute food, cash, and physical assets.

The targets of the interventions will depend on the type of crisis and the period of the year, but always for smallholder farmers: same target but different types of livelihoods (either livestock owners or people who are mostly relying on livestock). Social mobilization takes a long time because it is crucial to identify people who are in real need of specific interventions.

AA for Climate Shocks

AA is generally adopted to counter climate shocks**.** Specific strategies to counter climate shocks and improve food security involve both material and non-material support. Material support include agricultural and livestock support, such as distributing animal fodder, farming tools, drought-tolerant crop seeds and animal health support, in addition to infrastructure rehabilitation, for example irrigation channels and canals (FAO & WFP, 2023). They also carry out cash transfer, for instance under the Shock Responsive Social Protection System adopted by FAO, UNICEF, WFP and other organizations (FAO & WFP, 2023). One form of non-material support is farmer training to enhance food production capabilities and improving post-harvest management practices.

3) The Budget

The experts on AA underlined that the budget needed for implementing the anticipatory actions should be well-defined and established before the onset of the crisis and the activation of the protocol. Donors should be already identified and ready to be called in when the threshold and triggers are reached.

One of the most relevant characteristics of AA is its ability to minimize the funding necessary to assist in a shock. The money can be used for other purposes (such as increasing capacity, investing in better predictors, and investing in resilience), but it also makes the project more manageable as less funding is needed, which is a critical factor often highlighted by the AA experts.

> *"By mitigating rather than responding to shocks, and injecting smaller amount of money before the shock in areas which are the most vulnerable and potentially the most exposed, we can actually reduce the costs of the assistance that we need to provide. "*
>
> *- AA Expert*

For example, cash assistance is generally adopted as a post-crisis strategy. Nonetheless, by injecting the cash earlier, it is possible to reduce the necessary amount. An expert on agriculture and livelihood highlighted that it is much more expensive to buy new livestock, rather than the animal feed to keep that livestock alive.

Moreover, experts on AA highlight the importance that donors need to be found and approved before they are ready to deliver the funding, which is the moment the thresholds are reached and the protocol is activated.

Because an economic shock could happen at any point, it would be much more difficult to secure a donor who could provide the funding at ANY point in time. AA Experts fear donors would not have enough interest to take such a risk.

Nonetheless, AA faces significant challenges related to funding. While there is confidence in the predictive models, allocating funds for AA to mitigate the effects of a potential future crisis remains difficult, as millions of people are already experiencing food insecurity worldwide and could benefit from that money. Last, because AA can't cover the needs of a huge population, it is important to narrow down the intervention to those areas where anticipatory action can make a difference.

AA Interventions by FAO

AA carried out by FAO can be divided into four main categories: direct food assistance, cash and voucher assistance, livelihood protection, and finally, data and information sharing.

Direct food assistance is mainly conducted along with humanitarian responses after natural hazards, primarily in partnership between FAO and WFP. The contents of food baskets are designed and adjusted to meet the nutritional requirements of the recipients, in consideration of the local context, such as preferences, population characteristics, weather conditions, and malnutrition levels (*The WFP Food Basket | World Food Programme*, 2024).

Cash and voucher assistance programs, including cash-for-work programs and unconditional cash transfers, are also often conducted in collaboration with the WFP. Cash-for-work programs contribute to bringing in income to poor, vulnerable households through short-term labor opportunities, as well as simultaneously rehabilitating infrastructure and other community assets (FAO, n.d.-a). Unconditional multipurpose cash assistance, which is implemented in cases where the local markets are functional, supports the markets and promotes independence of individuals by enabling them to decide on the usage of the cash (FAO, n.d.-a). Cash and voucher assistance programs contribute to protecting livelihoods of farmers who have been affected by disasters and are not capable of producing or purchasing food, as well as further developing resilience of individuals and the community (FAO, 2016).

Livelihood protection programs primarily encompass agricultural and livestock support. The experts on AA described that provision of agricultural and livestock inputs such as seeds, fertilizers, animal feed, vaccination are the most common, especially during monsoon seasons. In addition to the provision of climate-adapted inputs such as drought-tolerant seeds to enhance the productivity and resilience of local farmers.

Disaster prediction information is shared to promote evacuation and implementation of countermeasures in an early stage, and data on food and vaccine stocks in the country are gathered to prepare for future shocks. FAO's data collection is supported by over 1200 partner bases worldwide to forecast outlook on food security situations such as crop and production deficits. These data are used to provide risk management guidelines to countries, as well as in the development of the early warning system which serves as a trigger of AA implementation.

NGOs' Approach to Anticipatory Action

NGOs that have participated in anticipatory action (AA) have mostly carried out self-implemented projects in addition to collaborating with governments, IOs, and other NGOs. They emphasize the value of local participation and cooperation; as such, working with local groups is a priority to guarantee alignment with ongoing initiatives and community needs. NGOs work to lessen the effects of upcoming shocks mostly by providing necessities such as food, money, gasoline, seeds, agricultural equipment, and livestock. AA Expert from an NGO remarked that they try to consider already-existing infrastructure and community efforts as much as possible, with the goal of achieving more integrated and grassroots interventions.

Moreover, the experts working for NGOs explained that they concentrate on enhancing community resilience through initiatives that go beyond the provision of emergency help. To ensure sustainability and long-term resilience, they place a strong emphasis on projects like fostering gardening, creating community-based kitchens, and supporting alternative livelihoods. Instead of just giving relief, they want to provide communities with the tools they need to endure shocks in the future on their own.

NGOs have developed AA protocols, which they occasionally activate before other actors have had a chance to react. They acknowledge the significance of the "human aspect" in the process of making decisions and suggest adjusting protocols in response to how people interpret shock. This is a nuanced strategy where specific indicators trigger actions, yet human judgment remains a crucial element. Depending on how serious the issue is, NGOs may modify their activities, occasionally eclipsing rigid cutoff points to react more successfully. For example, although several organizations carefully follow predefined thresholds for action, others give themselves more leeway, allowing them to react based on human judgment and early warning indicators. This methodology guarantees equilibrium between methodical procedures and flexible reactions customized to the distinct circumstances of every scenario.

Anticipatory Action in Pakistan

Overall, our AA experts stated that in Pakistan, AA is very well recognized by all the relevant stakeholders, including the government, NGOs (international and local), the National Disaster Management Authority, and other IOs.

The already existence of multiple relevant programs within the AA framework in Pakistan proves that not only IOs are interested, but also local actors, which are crucial for the success of any crisis response strategy. This is a "green flag", as potential experimentation of other types of AA – such as AA for socio-economic crises - could be perceived positively, too.

The Role of FAO

The FAO Regional Office for Asia and the Pacific (RAP) aims to enhance the development of AA in its target areas, including Pakistan. It works to connect early warning and flexible financing in order to enhance food security, reduce rural poverty, and encourage efforts for climate change mitigation and adaptation (FAO, n.d.-d). In addition, the Country Programming Framework, adopted mainly by FAO and the government of Pakistan, seeks to improve the food system inclusivity and effectiveness while reinforcing social protection programs, with a focus on enhancing institutional frameworks, climate data systems, and agricultural resource management (FAO, n.d.-c). These measures contribute to addressing not only climate issues but also social challenges such as gender equality, inclusion, and community engagement (FAO, n.d.-c).

Examples of interventions

Direct food assistance: In Pakistan, food baskets containing 2,100 calories (per person per day) are distributed to those who are fully dependent on food aid (*The WFP Food Basket | World Food Programme*, 2024).

Livelihood protection programs: These forms of intervention were active in Sindh and other provinces including Balochistan and Khyber Pakhtunkhwa after the 2022 floods.

FAO also provides support to national risk anticipation and mitigation systems in Pakistan.

FAO also emphasizes the necessity of AA for socio-economic shocks, including Sindh, Pakistan, as one of their target areas, given the high vulnerability posed to the population, especially due to the 5F crisis in 2022/23 (FAO, n.d.-d). To achieve this, RAP currently focuses on identifying triggers and integrating socio-economic and livelihood indicators in the AA process (FAO, n.d.-d). This focus on socio-economic data distinguishes this AA project from those in the past, which emphasized mainly climate hazards (FAO RAP, 2023).

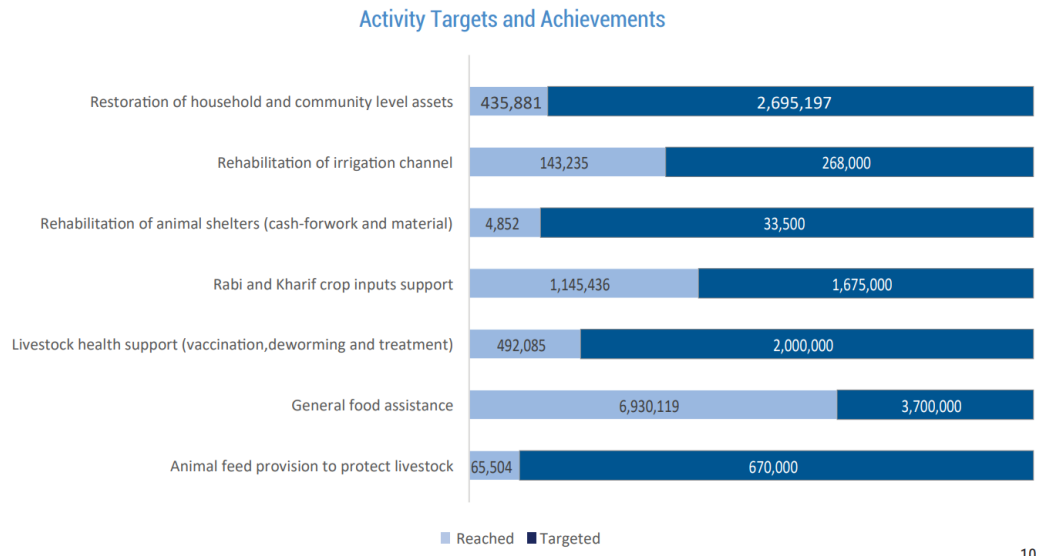
In addition, FAO is also working on a social protection agenda, especially on safety net programs, to protect vulnerable households facing livelihood risks (FAO, n.d.-e). This is mainly implemented in the form of conditional or unconditional cash transfers, food distribution, food subsidies, and employment-based safety nets. With the emergence of shocks such as the world food price crisis in 2008 and the 5F crisis, the importance and scope of this work has been increasing (FAO, n.d.-e).

The Role of the Government

Most of the interviews conducted with regional senior experts on livelihoods, social protection, AA, resilience building, and agriculture economics emphasized the government of Pakistan's role and efficacy in the agriculture sector, particularly in Sindh and other regions. They mentioned the government's consideration in the areas of ad hoc subsidies on agricultural imports, fertilizers, and seeds, as well as expenditures in irrigation infrastructure. However, issues like excessive inflation, unequal effects on basic needs, and unsound financial practices have made these initiatives less successful. As an example of this discrepancy, Figure 12 shows the government's planned activities in the context of their flood response plan and their achieved outcomes, showing how resource limitations hinder the full realization of the intended objectives.

Figure 12.

Overview of population targeted with government activities and population reached.



Note. The illustration above represents the intended objectives of the Pakistani government's 2022 flood response plan and their actual achievements. Source: Revised Pakistan 2022 Floods Response Plan Final Report (OCHA, 2023).

As illustrated in Figure 13, the national and provincial governments have different institutions and policies to support vulnerable people and support the agricultural sector, improving people's ability to access food. The provincial government of Sindh has put agricultural policy and social safety net measures into effect. Despite inclusion and exclusion flaws, poor households have benefited from the Benazir Income Support Programme (BISP). However, assistance has not increased to keep up with inflation, so basic needs remain unfulfilled. Plans for responding to disasters, like the $89.73 (25,000 PKR) subsidies given after floods, work well in the short term but are unsustainable in the long run.

Additionally, it is also crucial to understand the role of the National Disaster Management Authority (NDMA) as it has integrated agriculture and livestock contingency planning through partnerships with other institutions, including UN agencies. Implementation is hampered by political unpredictability, a lack of funds, and problems with priority notwithstanding these attempts (NDMA, n.d.). Furthermore, government budget allocations typically ignore rural areas in favor of heavily populated ones (NDMA, n.d.). In provinces such as Sindh, financial and policy autonomy allows for customized programs but also results in unequal distribution of resources. It is difficult to reach all farmers in Sindh with initiatives aimed at boosting agricultural output and resilience, including modernizing irrigation infrastructure and expanding access to seeds and fertilizers.

The Benazir Income Support Programme (BISP)

Launched by the Pakistani government after the 2008 global financial crisis, BISP aims to alleviate poverty and reduce inequality using modern technology. Initially an unconditional cash transfer program, BISP has expanded to include conditional cash transfers and became an autonomous institution in 2010 (Guven et al., 2024).

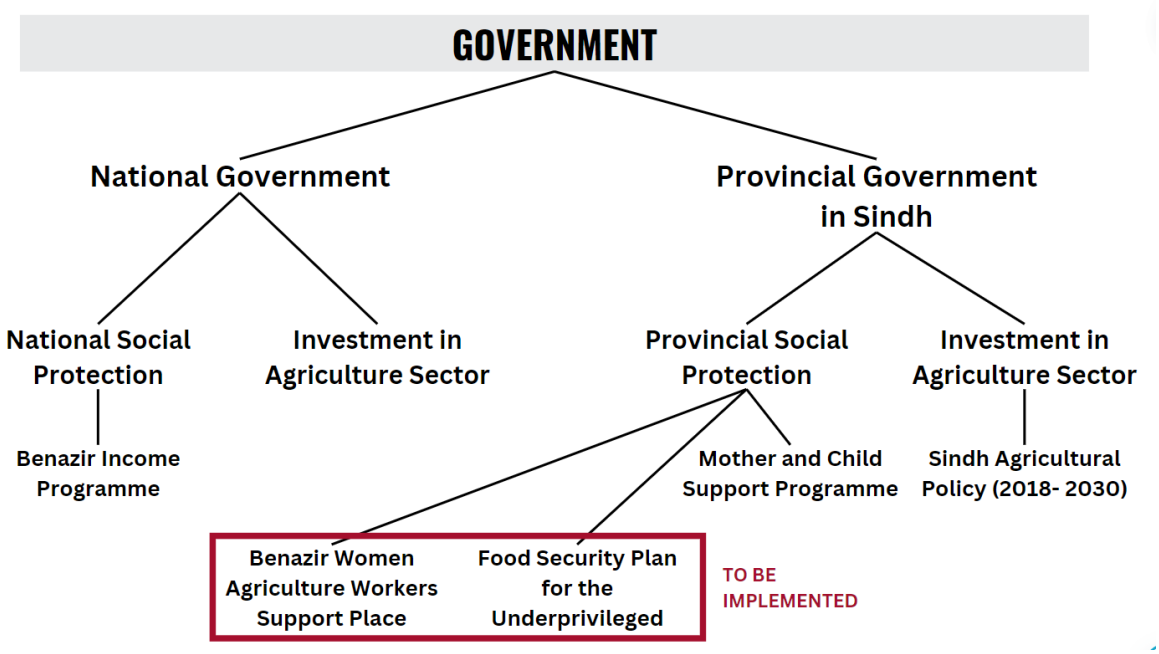
BISP's target population is determined by the National Socio-Economic Registry (NSER), which identifies poor households based on socio-economic status. As of 2024, about 26 to 30% of the population in each Pakistani province is covered (Guven et al., 2024). The integration of biometric verification with the National Database and Registration Authority (NADRA) has streamlined verification processes (Guven et al., 2024).

BISP has expanded its budget from PKR 34 billion in 2008 to PKR 360 billion in 2022, increasing coverage from 1.76 million to 9.2 million families. The program has effectively responded to crises like the 2022 floods and COVID-19 (Guven et al., 2024). From 2011 to 2019, the percentage of beneficiaries living below the poverty line dropped from 90% to 72%, enhancing food security, child nutrition, and investments in health and education (Guven et al., 2024).

However, BISP faces challenges. It primarily targets the poorest 20% of the population, excluding many middle-class households affected by disasters. Inclusion and exclusion errors also exist, with some undeserving individuals receiving benefits while marginalized communities are left out (Guven et al., 2024). Additionally, the benefit amount is insufficient, covering only about 10% of average household spending amid high inflation. Other issues include limited support mechanisms and inadequate resources during crises, with suggestions for improved communication, staff placement, and protocols (Guven et al., 2024).

Figure 13.

Overview of institution structure for social protection and agricultural investment on national level and Sindh specifically



Note. Overview of institution structure for social protection and agricultural investment on national level and Sindh specifically. Source: own illustration.

Senior experts on livelihood highlighted that low-income communities suffer from rapid urbanization because it reduces agricultural land and raises the cost of local production. Priorities are set for immediate aid over long-term stability. It takes efficient local and national monitoring systems to react quickly to financial crises. Due to low funding and significant inflation, current economic monitoring and actions frequently fall short. Large cash transfers are necessary for better economic crisis responses, but donors and governments are typically unprepared for them. Pakistan has not yet put such programs into place, but they might offer a stable basis.

Sindh set to launch food security program

The Benazir Women Agriculture Workers Support Plan and a food security plan for the underprivileged are the two new social protection projects that the Sindh government is introducing. (Sindh Set to Launch Food Security Programme, 2024). These initiatives, which were approved during the Sindh Social Protection Board's first meeting, are designed to lessen hunger and give female farm workers financial support. Women who are registered with the labor department would be eligible for conditional cash transfers under the Benazir Women Agriculture Workers Support Program, provided they maintain regular medical check-ups. For these programs, which are each allocated Rs30 million, feasibility studies are currently in progress (Sindh Set to Launch Food Security Programme, 2024).

In addition, the Mother and Child Support Program (MCSP), which has been implemented in 15 rural districts with funding from the World Bank totaling USD 28.15 million, provides 1.3 million pregnant women with cash support of USD 107.72 over a period of 1,000 days in order to enhance maternal and child healthcare services. To date, 152,349 beneficiaries have received payments totaling USD 1,24,596.3 (Sindh Set to Launch Food Security Programme, 2024).

Social Protection Schemes

Pakistan has established a robust social security framework that extends beyond remuneration. Two of our interviewees noted that the National Socio-Economic Registry (NSER), which has been providing a comprehensive database on poverty since 2008, is a crucial part of this system. People can register with this dynamic registry to see if they meet the requirements for various social security programs based on their poverty score, which accounts for both assets and income.

The Social Protection Strategy Unit (SPSU)

Established as an attached office to the Chief Minister's Secretariat Sindh, is tasked with designing and implementing provincial social protection programs in alignment with the Chief Minister's priorities and the Social Protection Board's goals (SPSU, n.d.). Its services encompass food security, maternal and child health, women's well-being, youth internships, and early childhood development. Social protection initiatives in Sindh aim to build resilience, increase equity, and create opportunities, encompassing social assistance, social insurance, labor-market programs, social care services, and subsidies, reflecting the citizenship right to state-level social protection services for those in need (SPSU, n.d.).

Moreover, senior experts disagreed, arguing that there is still significant concern in addressing the "missing middle"—informal workers who are neither working in a formal capacity to qualify for social insurance benefits nor sufficiently impoverished to qualify for unconditional cash transfers. The Ministry of Poverty Alleviation is testing a social insurance scheme for unemployed workers in a few districts as a solution to this problem.

Payments made to savings accounts by unpaid workers are matched by the government under this program. The opportunity to withdraw these money in an emergency or at retirement provides a safety net for this segment of the workforce. Pakistan's social protection system is constantly evolving with the aim of enhancing food security and resilience, especially for vulnerable people in Sindh and other regions.

While cash-based assistance can play a significant role in facilitating urgent aid, investments in institutional capacity, infrastructure, and comprehensive systems are necessary to achieve long-term resilience. There is a need for already existing policies to be incorporated into the AA plan for example financing resilience construction is only as critical as boosting entire ecosystem support, which includes better infrastructure, forecasting system, and efficient resource distribution.

Even while Pakistan's social safety nets are growing stronger and more developed, more has to be done to address gaps and enhance their effectiveness, particularly when it comes to reaching the unorganized sector of the economy and ensuring the sustainability of agricultural growth

Social Protection Policies

Cash-Based Assistance: Both unconditional and conditional cash transfers are a part of Pakistan's social safety programs. While conditional transfers are associated with health and education, unconditional cash transfers help the extremely impoverished. Through the provision of financial assistance for basic necessities, these programs seek to improve resilience.

Schemes for Social Protection: Pakistan provides a number of social protection services in addition to monetary transfers. These consist of public education, medical and educational grants, and subsidized healthcare. Social insurance schemes like the Workers Welfare Fund and the Employees Old-Age Benefits Institution are beneficial to formal workers.

The Role of Local NGOs

Local NGOs are extremely important in the successful implementation of emergency response programs like AA. Although not in a formal, systematic and formalized way, in Sindh local NGOs have been increasingly active in providing AA assistance during natural disasters and socio-economic crises. Their wide-ranging efforts include financial support, food security, disaster relief, healthcare, and education, especially in rural areas where there are significant gaps in access to basic services. Post-crisis actions include delivering emergency aid, including food assistance, medical care, and disaster response programs. In addition to meeting immediate needs, these initiatives strengthen long-term resilience, enabling vulnerable groups to better resist and bounce back from shocks in the future.

BWT (local NGO)

BWT was established in the wake of the disastrous 2010 floods, and it is committed to sustainable socio-economic growth that is informed by Islamic values. BWT implements comprehensive preparedness measures, including livelihoods programs, WASH projects, and community training to increase resilience, in advance of potential catastrophes. Before the floods, BWT had carried out water supply initiatives, built flood-resistant housing, and trained nearby people in disaster preparedness. BWT quickly organized its resources after the floods to help affected populations with food distribution, medical camps, and shelter support. Through the integration of pre-crisis planning and post-crisis response, BWT exhibited a comprehensive approach to proactive measures, thereby mitigating the disaster's impact on susceptible communities in Sindh.

Local NGOs partnerships with government agencies, international organizations, and local communities. However, their proximity to the ground enables quick-thinking and flexibility.

Challenges of Anticipatory Action

1. Funding

One major challenge of AA implementation, which was frequently brought up in the interviews with AA, national and regional experts, is the current funding mechanism. Several AA experts highlighted the inadequacy of funding compared to the large scale and seriousness of the disaster, which often leads to it coming after the disaster has already occurred. Some reasons behind this situation could be limited resources of the government, the low priority for donors, as well as lack of coordination between all the actors.

One resilience building senior expert pointed out the various global crises occurring at the same time, notably the war in Ukraine and in Gaza, noting that natural disasters in Pakistan have often become a low priority for financial investment for the donors. In addition, the complexity of the Pakistani government's contingency budgeting was also mentioned, which lacks a clear mechanism to release the funds at times of crisis.

Funding problems also arise when the predictors are not strong, leading to increased skepticism about risk prediction; as such, donors are less likely to give out assistance if they are not sure of the reliability of the predictors.

"Anticipatory Action as set in limits in terms of funding, we can't cover the need of huge population. So we need to … narrow down the intervention to areas where Anticipatory Action can make a difference."

- (AA Expert)

2. Data Accuracy in Risk Prediction

Other difficulties are associated with data accuracy and significant difficulty in risk prediction, especially for non-seasonal shocks, like socio-economic crises. Experts stated that fluctuations in stock and food prices are extremely hard to forecast, given their dependence on a wide range of factors that lack seasonality or predictable cycles. The need for more investment in weather information systems to generate more accurate data and reliable analysis for risk anticipation was emphasized by multiple experts.

Accuracy challenges are also connected to gaining trust and funds for AA implementation. Considering that even AA for climate shocks - relatively predictable - encounter difficulties in securing funding, attracting donor funds for socio-economic shock mitigation could face even more resistance, due to its unpredictability. Increased accuracy and reliability would also contribute to fostering a shared understanding of the practical methods of AA among stakeholders.

3. Institutional Frictions

Additionally, the slow decision-making process and the lack of clear operational flow within the organization are other obstacles which have led to missed opportunities of intervention in urgent crisis situations. One reason which is leading to the formation of these dynamics is the lack of investment in strengthening bottom-up management and governance; as such, top-down approaches slow down decision processes and lead to institutional frictions.

> *"Coordination and collaboration with government takes time. We need to go to the provincial office, then director general of the key levels [which] takes time, when the system in the government is not much feasible to go down. You need a lot of follow ups and most of the time, our activities are season-bound."*
>
> *- (AA and social protection Expert)*

The importance of the enhancement of institutional strength has been stressed by an agricultural economics senior expert in terms of clarifying the responsibilities of monitoring as well as informing policymakers about upcoming natural disasters. One AA experts highlighted the case of the missed activation of AA protocols during the 2022 floods in Pakistan and thus missed opportunity to promptly respond to the crisis because they were not able to identify beneficiaries in time. Improvement in speed and accuracy of the target-specification, decision-making process and organization could contribute to risk preparedness and effective pre-emergency interventions.

4. Coordination Between Stakeholders

The issue of coordination between the multiple actors (IOs, NGOs, government, grassroot organizations, locals, Pakistani federal and provincial governments) is one of the major challenges of AA. The coordination issue is twofold:

(1) Coordination regarding practical actions.

Firstly, AA still lacks common understanding among actors, in terms of the definition of the concept, as well as understanding of the advantages of using AA instead of other, post-crisis strategies. In particular, multiple regional and international AA experts stated that there is a confusion in the distinction between the concept of AA and emergency preparedness. The lack of common perception has resulted in skepticism towards AA among the actors, becoming an obstacle to smooth and effective implementation.

(2) Coordination regarding protocol activation.

Secondly, there are discrepancies in triggers, thresholds, activation points of AA within and among stakeholders, as well as in perceptions of the hazard. For example, there are cases where the country is requesting AA implementation while organizations do not recognize the necessity, or the Organization (FAO) questions the appropriateness of AA implemented by NGOs.

Regarding different situation assessments within the organization, one AA expert gave an example of the drought in Pakistan in 2023, where the [team] who had been monitoring the weather forecasting system considered the situation to be normal, whereas the ground team in Pakistan recognized a risk and demanded the activation of AA. Possible exaggerated strictness of FAO threshold triggers was pointed out during our interviews by FAO practitioners and other organizations, resulting in some missed activations in the past, including the 2022 floods.

Moreover, pre-determined thresholds and trigger methodologies are generally unchangeable during the shock, to enable replications and avoid confusion by other partners. While consistency is important because many actors are involved, some experts mentioned the inefficiency of this strictness in the face of a crisis. Overall, the different perceptions of shocks between actors on the ground and international actors is one of the main drivers of confusion and tensions among the stakeholders involved in AA implementation. The inconsistency of implementation standards, deriving from the lack of common understanding and criteria for judging the situation, leads to skepticism, especially among local actors, about significance and effectiveness of AA.

"In 2022 there was a huge flood [in Pakistan] and we had several organizations that had Anticipatory Action … but none of them triggered because it was a flash flood and not the riverine flood. It was also right for the trigger not to trigger. … We really need to improve our trigger systems. We need to coordinate better between different stakeholders."

- *(AA Senior Expert)*

5. Localization

During emergency response planning, not only the difference in local contexts, situations, cultures, economic and social dynamics, and geography, but also practical availability, including the presence of resources, have an important impact on how the shock or hazard will look like and will be perceived. However, localization of AA is challenging due to the necessity of AA in having standardized practices. Unstandardized protocols would lead to difficulties in replicability and require higher investments, which are currently lacking in the humanitarian sector.

"If we have to do different methods for different districts depending on the specific context, that's heavy."

- *(AA Expert)*

Nonetheless, the lack of localization leads to serious challenges for protocol implementation; non-localized thresholds/triggers could misrepresent reality, make the action plan inappropriate or unfeasible for the selected context, or result in missed interventions. These dynamics can also create tensions and lack of coordination between stakeholders on the ground and other staffs.

Pakistan is a diverse country in terms of geography, ethnicity and political system. The country comprises four provinces with its own government and distinct political framework, and other federally governed areas *(CountryReports, n.d.)*. Provincial governments enjoy autonomy in sectors such as health, agriculture and education, having the capacity to create laws over certain matters *(GlobalSecurity, n.d.)*. Degrees of poverty and food security levels vary within the country as well. Pakistan is also rich in geographical diversity, with plains, plateaus, mountains, and deserts, having also different levels of vulnerability and susceptibility to various types of natural disasters; provinces such as Sindh and Punjab is prone to floods from monsoon rainfalls, and Sindh and Balochistan, which face water scarcity issues, have high exposure to droughts *(ENVPK, 2021)*. These differences in geographical and socio-economic situations require specific approaches and triggers adapted on a case-by-case basis, posing complexity in AA creation and implementation.

Recommendations: AA for Socio-Economic Shocks

Based on the current challenges with AA and risk mitigation identified in our interviews, we suggest the following recommendations to each stakeholder. The recommendations cover strategies for addressing socio-economic shocks - with a focus on Sindh, Pakistan - by integrating insights from AA for climate shocks, which should be considered in the protocol design and implementation of AA for socio-economic shocks. The recommendations are addressed to specific or multiple actors, with "All actors" including FAO, other international organizations, NGOs, and the government.

Recommendations on AA in Sindh: To all actors

1. Set clear triggers, actions, and responsibilities of intervention implementation.

Our findings from interviews imply that the ambiguity in triggers and lack of clear implementation process standards have led to delayed decision-making within the organization and missed opportunities to implement intervention programs. Determining and sharing information on specific actions and triggers would be necessary to respond to shocks promptly.

2. Foster effective communication and collaboration among actors.

Strong coordination among actors with different levels and areas of expertise (including scientists, politicians, other international organizations, NGO staff, and local actors) could facilitate and smoothen the process of intervention planning and implementation. Sharing common understanding could also contribute to improving the funding mechanism. Direct connection with most local governments would help reduce these follow-ups and time-consuming activities, leading to more efficient protocol activations.

3. Raise awareness of the potential effectiveness of AA for socio-economic crises.

Currently, we have an impression from the interviews that disaster risk management for food insecurity due to socio-economic crises, not only limited to AA, is still an undeveloped field. The concept of AA for socio-economic crises is not well defined and is rather integrated within the scope of social protection systems and resilience building. While this could be one of the reasons why some AA experts showed reluctance to AA for socio-economic crises in our interviews, perception towards this new type of AA was generally positive in the interviews, and experts showed curiosity regarding its realizability. However, several posed questions regarding its feasibility, mentioning the lack of predictors for these shocks. There first needs to be an understanding for each actor about the idea and potential effectiveness of AA for socio-economic crises, followed by investment in the construction of a possible strategy with strong predictors.

4. Prioritize physical assets rather than cash transfers.

Most experts expressed negative views of cash transfers, mainly from the high risk of a significant drop in the value of currency due to inflation. Instead, we recommend placing emphasis on physical assets, including material distributions of food, fertilizers, and fuel, as well as voucher assistance. These interventions could achieve more stable access to food with minimized vulnerability to price and currency fluctuations. Furthermore, while the individuals' right to decide on how to use these benefits is important, there needs to be a system to ensure that it is used for appropriate purposes.

5. Adopt flexible strategies in combination with AA for climate shocks.

An AA protocol for socio-economic crises should be differentiated and adjusted depending on the situation and the local context. One AA expert mentioned that in Pakistan, before the monsoon, the focus should be on protecting farmers to cope with damages from droughts on crops, whereas in the withdrawal phase, emphasis should be put on financial support for farmers who lost their livestock. AA experts highlighted the need for specific strategies according to the regional context, season, and the target people. AA for climate and socio-economic crises should not be looked at separately; instead, they are always part of disaster risk management and, therefore, should reflect and complement each other for comprehensive risk reduction. We found out in our interviews that currently, triggers are unlikely to change during the implementation, while voices came up from experts on how they should be adapted according to circumstances. Given the high unpredictability of socio-economic shocks, flexibility in the protocols is even more crucial compared to AA for climate shocks.

Specific for FAO

6. Promote the inclusion of local actors in the creation of the programs and in the planning.

Several challenges in AA implementation were linked to the coordination between local actors and headquarters staff. We suggest more trust in ground roots and protocols with already established fixed and non-fixed mechanisms, which could be adjusted regarding context and local perceptions. Incorporating more of the knowledge and experience of the local actors in a bottom-up approach could contribute to a more localized and flexible intervention that matches the local needs.

Specific for the Pakistani and Sindh Governments

7. Further implement AA practices

To further implement AA in the Pakistani and Sindh Governments, we suggest the following policies:

- **Advanced early warning systems:** Purchasing state-of-the-art early warning systems for disease outbreaks, natural disasters, and economic downturns can greatly improve predictive capacity. Modern technologies, such as artificial intelligence (AI) and machine learning, could be used by these systems to evaluate data and precisely forecast possible problems, enabling prompt actions (UNDRR, 2023).

- **Economic Crisis Response Mechanisms:** During economic downturns, the development of strong crisis response systems, such as extensive cash transfers and financial support, could offer prompt relief. These systems should be built to react quickly and efficiently by turning on automatically in reaction to certain economic indicators (IMF, 2021).

- **Enhanced Social Protection Programs**: A more robust safety net can be created by ensuring their flexibility to increase assistance in anticipation of emergencies, guaranteeing all-encompassing protection and assistance (ILO, 2021).

In addition to implementing new policies, the provincial government can use existing policies by integrating them into their AA strategies. We recommend working with the following policies:

- **Infrastructure for Irrigation**: Anticipatory Action techniques require improved irrigation infrastructure. For example, the best possible use of available water resources is ensured by contemporary, effective irrigation systems, which lower the risk of drought and increase agricultural productivity. These systems can improve proactive water management and distribution by incorporating real-time data on weather patterns and water availability, thereby avoiding possible crises (FAO, n.d.-a).

- **Subsidies for Agriculture:** Increased crop yields and reduced costs for farmers are achieved by subsidies on seeds, fertilizers, and agricultural imports. These subsidies ought to be allocated in accordance with anticipatory action by using forecasting models that foresee future shortages or price increases. By taking preventative measures, food insecurity is avoided before a crisis arises, and stability in the agriculture sector is ensured (FAO, 2013).

- **Plans for Disaster Response:** Effective short-term remedies are provincial disaster response plans, which include post-flood financial subsidies. The plans ought to include risk assessments and projections in order to turn these into Anticipatory Action. Predictions of impending natural disasters should be used to preposition financial resources and support systems, ensuring quick deployment and reducing impact (NDMA, n.d.).

8. Address inclusion and exclusion errors by improving mechanisms to assess the eligibility criteria for social protection schemes and increasing acknowledgment and regulation of the informal economy.

The informal economy and current social protection systems have excluded some informal workers and other marginalized populations from legal protection, healthcare services, and formal markets, hindering their skill, physical, and financial development as well as their access to services such as food aid and voucher assistance. Regulation of the informal economy and revision of coverage mechanisms would not only be instrumental in including all vulnerable populations within the scope of support, thereby enhancing their food accessibility but also in increasing tax revenues and strengthening the government's capacity.

9. Enhance investment for proactive and diversified funding.

Increase funding for advanced data collection and weather forecasting systems. Improving risk prediction accuracy and dependability with improved technology and training guarantees that preemptive measures are grounded in accurate and timely information. Increasing data accuracy is essential to disaster management success. Generate funds specifically designated for disaster preparedness that can be accessible prior to a disaster, diversifying finance sources by forming alliances with the corporate sector, foreign donors, and NGOs. This lessens dependency on financing provided after a tragedy and guarantees resources are available when required most.

Recommendations on resilience building: To all actors

While AA has the potential to play a crucial role in reducing damages from socio-economic shocks, it would work as a complement to other resilience-building approaches aimed at developing long-term self-sufficiency among the people. The recommendations below focus on this aspect, bringing in the concept of food sovereignty as a key notion to realize stable food accessibility in Sindh.

10. Emphasize training activities on skill acquisition and livelihood diversification to prepare the local population.

Increased human and financial capital is crucial in building people's resilience against various forms of shocks. In addition to training activities from agricultural aspects, including crop and livestock management, trainings on livelihood diversification and financial literacy could contribute to promoting self-reliance and enhancing sustained stability in livelihood of the local population. Livelihood diversification could take the form of cash-for-work programs, already carried out by FAO and other IOs, but more as a long-term vision. Investment in human capital is also essential, including education and health services, which are negatively affected by shocks and crisis but are closely connected with people's abilities to earn income and produce food.

11. Promote local production for food sovereignty.

Promoting food sovereignty can significantly reduce dependence on external factors, thereby minimizing vulnerability to external shocks. For example, localizing food production in Pakistan could diminish the necessity of importing staple foods, which, in turn, makes the country less susceptible to external inflation.

Food sovereignty

Defined by La Via Campesina in 1996, food sovereignty describes the concept in which each nation has the right to maintain and develop its own capacity to produce its basic foods, respecting cultural and productive diversity. Ensuring the right to produce their own food in their own territory, within the concept of food sovereignty, is a precondition to genuine food security (What Is Food Sovereignty? | : SeedChange, n.d.).

Food sovereignty prioritizes the localization of food production, ensuring people's rights to promote sustainable agriculture, protect themselves against dumping, and preserve their environment. Localized food systems also enhance self-reliance, by reducing the country's dependence on import from distant suppliers and businesses (La Via Campesina, 2003) (La Via Campesina, 2003) (La Via Campesina, 2003).

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Appendix

A.1 Literature Review

A1.1 Right to Food

The right to be free from hunger and to have access to adequate food is fundamental to the fulfillment of human rights for all. As such, the United Nations Committee on Economic, Social and Cultural Rights (UNCESCR) considers it inseparable from social justice, as it represents a necessary means to the achievement of life, dignity and enjoyment of other human rights (Gordillo & Méndez, 2017). Specifically, the right to food is:

" […] the right of every individual, alone or in community with others, to have physical and economic access at all times to sufficient, adequate and culturally acceptable food that is produced and consumed sustainably, preserving access to food for future generations" (HLPE, 2020, p. 6).

Gordillo and Méndez (2017) reaffirm that it is necessary to incorporate a human rights lens on every aspect of community life to achieve development on this matter. The right to food is now incorporated in the International Covenant on Economic, Social, and Cultural Rights (ICESCR) as a third-generation right.

According to the Human Rights Commission, the ICESCR is violated when states do not ensure that their citizens are (at least) free from hunger. As such, they play a crucial role in creating the institutional context to enable the implementation of the right to food. Agency refers to not only the access to material resources but also to the ability of people to take action to improve one's situation. Agency in respect to food security often lacks within historically disadvantaged communities, while actors such as donors and large corporations tend to have disproportionate power (HLPE, 2020). Nevertheless, it is important to point out that although governments are to be held accountable for complying with this principle, the right to adequate food can only be achieved with the cooperation of all members of society (Gordillo & Méndez, 2017).

Before the 1990s, the human rights approach was not integrated within the policies that tackle hunger. However, understanding the nature of the issue was a crucial milestone in designing solutions to combat hunger and malnutrition, as it enabled the creation of more effective and correct tools (HLPE, 2020).

A.2 Interview Questions

A.2.1 Interview Grid [with Pakistan knowledge, Resilience & Emergency]

Icebreaker questions:

1. To start off, we would like to ask you a few questions about yourself. We know you now work for … and are …. How did your experiences bring you?

Situation of Food Access

2. How do you assess the current situation in Pakistan regarding the people's ability to buy or produce their own food? If your knowledge permits, we would like to focus on the Province of Sindh
    - Are there any particular communities or regions within Sindh that face greater challenges regarding food accessibility?
    - What are the main factors that limit people from having the ability to buy or produce food in Pakistan? If your knowledge permits, we would like to focus on the Province of Sindh
    - If the focus is on climate: Besides climate factors, what other factors could limit people's ability to access food?
    2. Are there any characteristics or situations unique to Sindh in terms of food access?
3. In the last few years, Pakistan suffered from several economic crises and high inflation. For example, the 5F (lack of food, feed, fuel, fertilizer, and finance) crisis, which emerged through COVID-19 and the war in Ukraine - how did they affect people's ability to buy or produce food? (eg. increasing food prices, decreased demand for work, etc.)
4. Is there another socio-economic crisis that comes to your mind that affected people's access to food in Pakistan? Do you know about one specifically in the Province of Sindh? If yes: How did it affect the access to food?
5. In your opinion, what are the socio-economic consequences of the floods in 2022 that limited people's ability to buy food or sustain their own livestock? How did it affect the access to food?

Interventions/programs

For the next part of the interview, we would like to focus on interventions or programs that increase food security, especially food access.

6. Are you aware of any indicators to measure people's ability to buy food or sustain their livestock?
7. At the beginning, you already mentioned some of your organization's work. Could you explain more? What did your organization do in the past to mitigate the effects of shocks (climate or socioeconomic) on people's ability to buy food or sustain their livestock?
    - Do you know what triggered the use/application of the intervention/program? Are there special indicators you base your decision on?
    - What programmes are currently active from your side?
    - If they only focus on the consequences of climate shocks:
    - -> Are you doing or did you do something specifically for the consequences of socio economic crises?
    - Who are you reaching with your interventions?
    - How would you estimate the effectiveness of your work? What are the challenges of implementing mentioned intervention?
    - What are the organisation's plans for the future?
    - How does your organisation cooperate/work with other institutions? Are their specific actors you cooperate with on ground level or institutional level?
8. Do you know about specific government programmes that increase people's ability to buy food or sustain their livestock?
   What kind of social protection schemes are in place?
    - Do you think the Benazir Income Support programme is sufficient enough to support people in crises?
        i. Who are they reaching with this support programme?
        ii. How would you assess the effectiveness of the programmes?
        iii. what are the challenges of this programme?

9. Are there interventions that focus on increasing people's resilience before the crises happen?
    - Are there any focusing on socio-economic crises?
    - Do you know which indicators trigger the use/application of the (government) intervention/programme?
    - Can you think of other actors like NGOs or IOs that have programmes or interventions, for example, anticipatory action, that focus on resilience building?
    - Could you assess the aspects of the intervention that work and which could be improved?
    - Do you know what measurements are taken beforehand that trigger the use/application of the intervention/programme?

AA specific

Now, we would like to focus on Anticipatory Action specifically: Anticipatory action is now commonly defined as acting ahead of predicted hazards to prevent or reduce acute humanitarian impacts before they fully unfold.

10. Do you have ideas on how Anticipatory Action could be used to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation?
    1. What are the benefits and what are the difficulties of the use of AA in these cases? How do you assess the effectiveness of AA as a tool to mitigate the consequences of socio economic shocks?
    2. Does it even make sense to use AA in these cases?
11. Why is AA not used as much for socio-economic crises as for climate crises?
    - What makes AA so effective for climate shocks?
    - Do you have ideas on how resilience building could be used to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation?
        - What are the difficulties of using resilience building in these cases?
        - Do you think that resilience building for countering socio-economic shocks like the 5F crises or rapidly increasing Inflation would be an effective tool?

Future:

12. How do you think the situation regarding people's ability to buy food or sustain their livestock in Pakistan/Province Sindh will develop in the future? What could be future challenges?
13. In general, what would you like to see change in the future? What different approach should be used?

Closing questions

14. Is there anything else you would like to mention or something we should consider for our research
15. Could you recommend anyone else or an organisation that we should talk to? (maybe from the foundation you worked before the save the children)
16. In the case we have some follow up questions, can we contact you again?

A.2.2 Interview Grid [without Pakistan knowledge, Resilience & Emergency]

Icebreaker questions:

1. To start off, we would like to ask you a few questions about yourself. We know you now work for X and are X. How did your experiences bring you here and what is something you like about your job?

Situation of Food Access

2. We would like to ask you if you could assess what the main factors are that limit people from having the ability to buy food or produce their own food? *Although we recognize that your expertise may not be centered on Pakistan, any insights would be highly valuable.*
    - Besides climate factors, what other factors could limit people's ability to access food?
3. In the last few years, Pakistan suffered from several economic crises and high inflation. For example, the 5F (lack of food, feed, fuel, fertiliser and finance) crisis, which emerged through COVID-19 and the war in Ukraine - how do you think such crises affect people's ability to buy or produce food? (eg. increasing food prices, decreased demand for work, etc.). Again, if you don't know specifically for Pakistan, you could answer this question for the Asia-pacific region or hypothesis.
    3. Is there another socio-economic crisis that comes to your mind that affected people's access to food?
    a. If yes: <u>How did it affect the access to food?</u>

<u>Interventions/programs</u>

For the next part of the interview, we would like to focus on interventions or programmes that increase food security, especially food access or reduce the negative effects from crises

4. Are you aware of any tools to measure people's ability to buy food or sustain their livestock?
5. What past project did you work on that worked on mitigating the effects of shocks (climate or socio-economic) on people's ability to buy food or sustain their livestock?
    - Do you know what measurements are taken beforehand that trigger the use/application of the intervention/programme?

Interventions/programmes: AA

For the next part of the interview, we would like to focus on interventions or programmes that increase food security, especially food access or reduce the negative effects from crises, and anticipatory action.

6. What past project did you work on that worked on mitigating the effects of shocks (climate or socio-economic) on people's ability to buy food or sustain their livestock?
    - How did it improve people's ability to buy food or sustain their livelihoods/livestock?
    - Who are you reaching with your interventions?
    - What are the challenges of implementing mentioned intervention?
7. What you just explained, does it apply to most AA programs?
    - If no, when and why would a situation be different?
8. How are countries/situations chosen for the implementations of AA?
9. Could elaborate more on the topic of linking Anticipatory Actions to social protection schemes by the government?
    - What are the main challenges?
10. Do you know what measurements are taken beforehand that trigger the use/application of the intervention/programme?
11. What makes AA so effective for climate shocks?

Socio economic shocks

12. Do you have ideas on how Anticipatory Action could be used to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation?
    a. What are the difficulties of the use of AA in these cases?
    b. Does it even make sense?
    c. Do you think that Anticipatory Action for socio-economic crises like the 5F crises or rapidly increasing Inflation would be an effective tool?
    d. Do you know why AA is not used as much for socio-economic crises as for climate crises?
13. Do you have ideas on how resilience building could be used to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation?
    a. What are the difficulties of using resilience building in these cases?
    b. Do you think that resilience building for countering socio-economic shocks like the 5F crises or rapidly increasing Inflation would be an effective tool?

Future:

14. How do you think the situation regarding people's ability in the asia-pacific region will develop in the future regarding people's ability to buy food or sustain their livestock? What could be future challenges?
15. In general, what would you like to see change in the future? What different approach should be used?

Closing questions

16. Is there anything else you would like to mention? Something we should consider for our research project?
17. Could you recommend anyone else or an organisation that we should talk to?
18. In the case we have some follow up questions, can we contact you again?

A.2.3 Questionnaire for the local NGO

Research Project Information: same as above.

1. To start off, we would like to ask you a few questions about the NGO
    - How did your NGO came about?
    - Could you explain your daily work?
    - What are your biggest projects currently?

Understanding the Local Situation

2. Could you explain the local culture in Sindh?
    - What is the difference between urban and rural life?
    - How does the culture affect the local communities and their everyday lives?
    - What are the power dynamics in the region?
3. How do people work in everyday life to earn their livelihood?
    - What sort of work do they do?
4. What is the agricultural setting in this regard?
3. Is agriculture the main way for people to earn income?
3. How do they operate in the "Baradari" setting?
5. Who normally provides for the whole family e.g. does the women of the house equally help in the household?
6. What are the different gender roles in this context?
7. Do the local people produce their own food or do they mainly buy food?
    - If not, who do they depend on for food support?
8. What is the living standard of the local people of Sindh?
    - and what measures do they take to maintain/improve it?
9. What kind of difficulties do people face in sustaining their livestock?
    - Do they cultivate livestock for their own livelihood (to feed themselves) or to sell?

Situation of Food Access

10. We would like to ask you if you could assess what the main factors (climate related and others) are that limit people from having the ability to:
    - buy food?
    - produce their own food?
11. What are the daily challenges for people to buy food or sustain their livestock?
    11. What are future challenges?
12. In the last few years, Pakistan suffered from several economic crises and high inflation. For example, **the 5F (lack of food, feed, fuel, fertiliser and finance) crisis**, which emerged through COVID-19 and the war in Ukraine
    - How do you think such crises affect people's ability to buy or produce food? (eg. increasing food prices, decreased demand for work, etc.).
13. Is there another socio-economic crisis that comes to your mind that affected people's access to food?
    - If yes: How did it affect the people's ability to buy food or sustain their livestock?
14. Are you aware of any tools to measure people's ability to buy food or sustain their livestock?

Interventions/programmes

For the next part of the interview, we would like to focus on interventions or programmes that increase food security, especially food access or reduce the negative effects from crises.

15. **In general**,
    - What kind of work do you carry on?
    - Who are you reaching with your interventions?
    - How is the relationship between your NGO and the local population?
    - Does your organization cooperate with other stakeholders (the government, international organizations, other NGOs …)
16. ***Calamity Relief Services:*** If you could provide insights on your **"water supply project?"**
    - What was the situation before it? How is the situation now?
    - How did it assist the local people?
    - What are the challenges you face?
    - Who does it reach?
17. ***Other projects***: Could you mention one past project your organization worked on that worked on mitigating the effects of shocks (climate or socio-economic) on people's ability to buy food or sustain their livestock?
    - How did it improve people's ability to buy food or sustain their livelihoods/livestock?
    - Do you know what measurements are taken beforehand that trigger the use/application of the intervention/programme?
    - What are the challenges of implementing mentioned intervention?

18. What other programmes or interventions outside of your work are you aware of that increase people's ability to buy food or sustain their livestock?
19. Do you know about **specific government programmes** that increase people's ability to buy food or sustain their livestock?
    - What role do you think the government plays in pre and post-crisis?
    - What kind of social protection schemes are in place?
    - Do you think the Benazir Income Support programme is sufficient enough to support people in crises?
1. Who are they reaching with this support programme?
2. How would you assess the effectiveness of the programmes?
3. What are the challenges of this programme?

Interventions/programmes: Anticipatory Action

For the next part of the interview, we would like ask about your knowledge and/or participation in Anticipatory Action measures;

20. Have you heard of Anticipatory Action before?

    If no, ignore the following questions
    If yes:

    - has/will your organisation take part in Anticipatory Action measures?
    - How are situations chosen for the implementations of AA?
    - Could elaborate more on the topic of linking Anticipatory Actions to social protection schemes by the government?
    - What are the main challenges?
    - What makes AA so effective for climate shocks?

Socio-Economic Shocks

21. Do you have further ideas on what could be done to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation before these crises hit?
    - Do you think it would be possible to have interventions in place for absorbing the effects of a socio-economic crises like the 5F crisis, before the crises affects the people? if you answered yes to the section on Anticipatory Action)
    - Do you think that Anticipatory Action for socio-economic crises like the 5F crises or rapidly increasing Inflation could be adopted and an effective tool?
22. Do you have ideas on how resilience building could be used to mitigate the consequences of a socio-economic crisis like the 5F crises or the increasing inflation?
    - What are the difficulties of using resilience building in these cases?
    - Do you think that resilience building for countering socio-economic shocks like the 5F crises or rapidly increasing Inflation would be an effective tool?

Future Prospects: *Last, we would like to focus on the future.*

23. How do you think the situation regarding people's ability to buy food or sustain their livestock will develop? What could be future challenges?
24. In general, what would you like to see change in the future? What different approach should be used?

Closing Questions

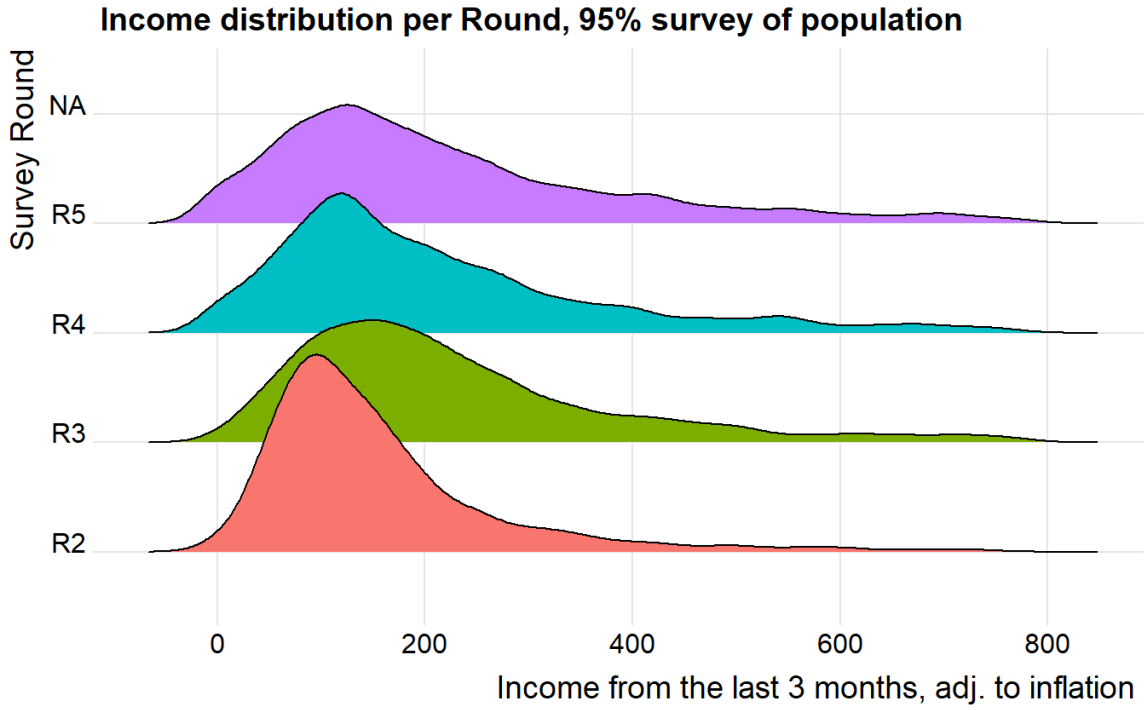
25. Is there anything else you would like to mention? Something we should consider for our research project?
26. Could you recommend anyone else or an organisation that we should talk to? It would be extremely valuable for our research to be able to connect with NGOs and local actors like yours
27. In the case we have some follow up questions, can we contact you again?

A.2 Socio-Economic Crisis and Food Access in Sindh

A2.1 Income

Figure A1.

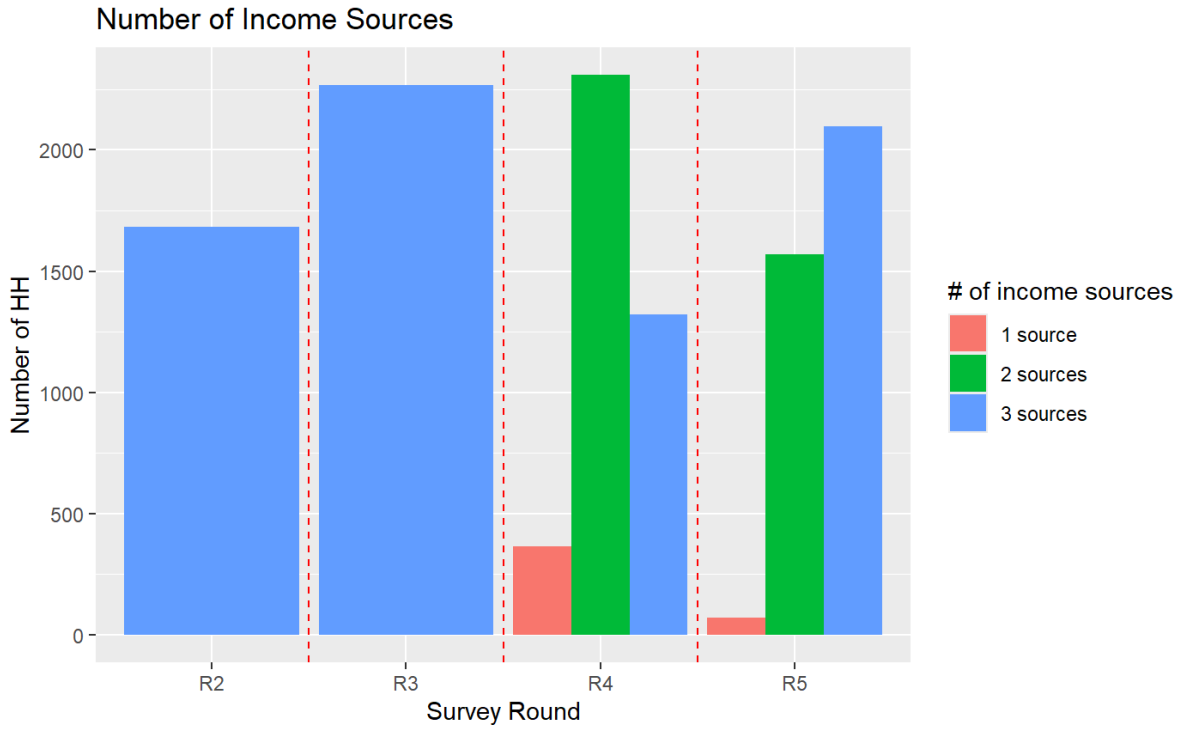
Overview of income distribution based on the income from the last three months in Sindh



Note: The graph shows the income distribution of 95% of the surveyed population in Sindh across four survey rounds (R2 to R5), with incomes adjusted for inflation over the past three months. The Y-axis represents the survey rounds, and the X-axis displays income levels ranging from 0 to 800 USD (exchange rate: 1 Pakistani Rupee = 0.0036 USD, as of June 12, 2024). Each round is color-coded: red for R2 (August 2022), green for R3 (April 2022), turquoise for R4 (February to March 2023), and purple for R5 (November 2023 to January 2024). The density plots illustrate variations in income distribution over time, highlighting shifts and changes in household income levels. The income data was adjusted for inflation using statistics from the Pakistan Bureau of Statistics (TradingEconomics, n.d.). The top 5% of incomes were excluded to avoid outliers and enhance readability

Figure A2.

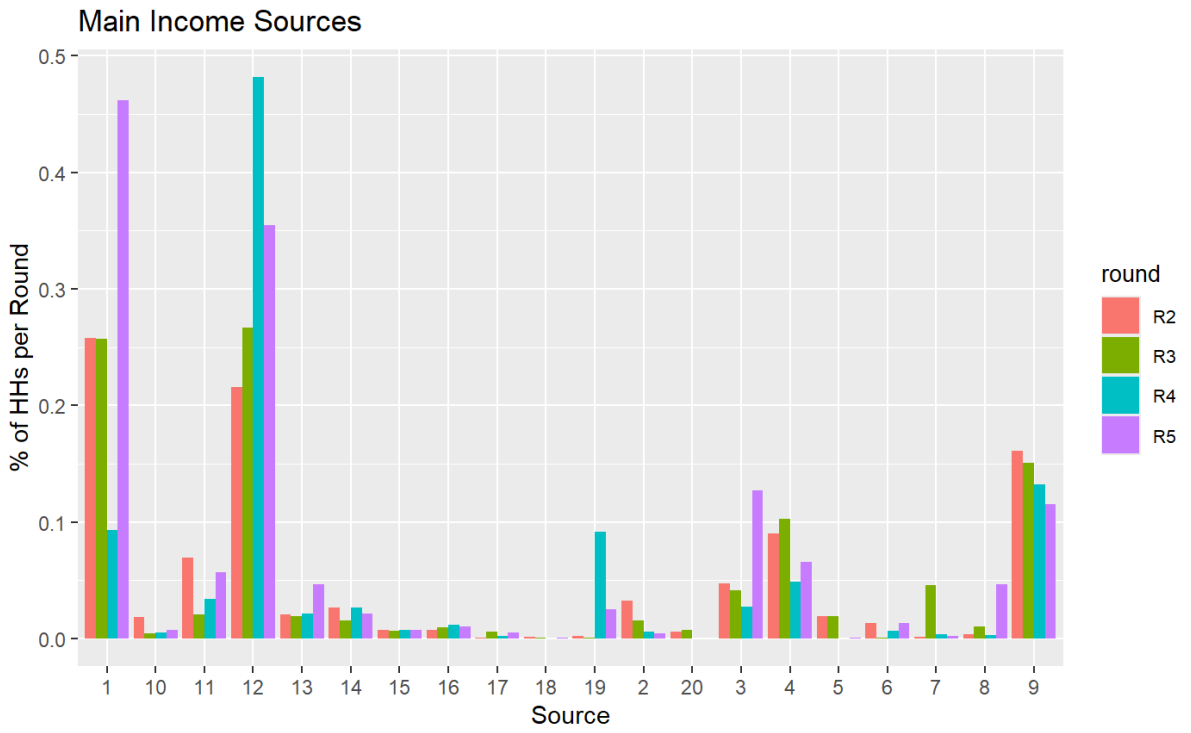
Number of income sources per household and per survey round



Note. The Y-axis represents the number of households that have one, two or three income sources. The X-axis lists the survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A3.

Overview of household's main income source for the last three months



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different main income sources. A list of the source behind the number can be found below. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

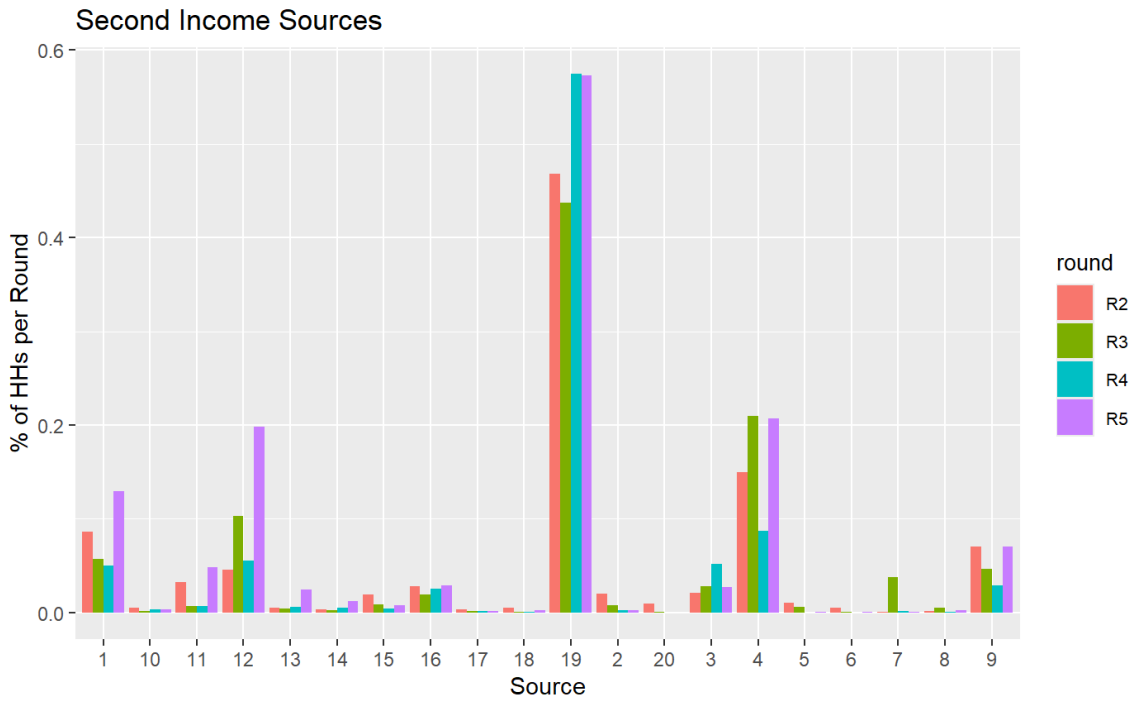
Different categories of income sources:

1. Production and sale of staple crops
2. Production and sale of vegetables or fruit
3. Production and sale of cash crops
4. Production and sale of livestock or livestock products
5. Production and sale of honey and bee products
6. Production and sale of fish or aquatic products
7. Collection and sale of natural resources (including forestry or bush products)
8. Agricultural trade EXCLUDING producers (formal or informal)
9. Daily wage on farms and other casual employment in agricultural sector
10. Stable employment in agricultural sector
11. Non-agricultural self-employed or liberal profession, doctor, architect, lawyer, including restaurant
12. Off-farm daily wages and other non-agricultural casual employment
13. Stable employment in non-agricultural sector

14. Public employment
15. Income not derived from work / Charity
16. Income not derived from work / Welfare transfer, pension, humanitarian aid
17. Income not derived from work / Remittances
18. Income not derived from work / Income from other rents
19. No income source in the last 3 months and used exclusively savings/debts
20. REFUSED

Figure A4.

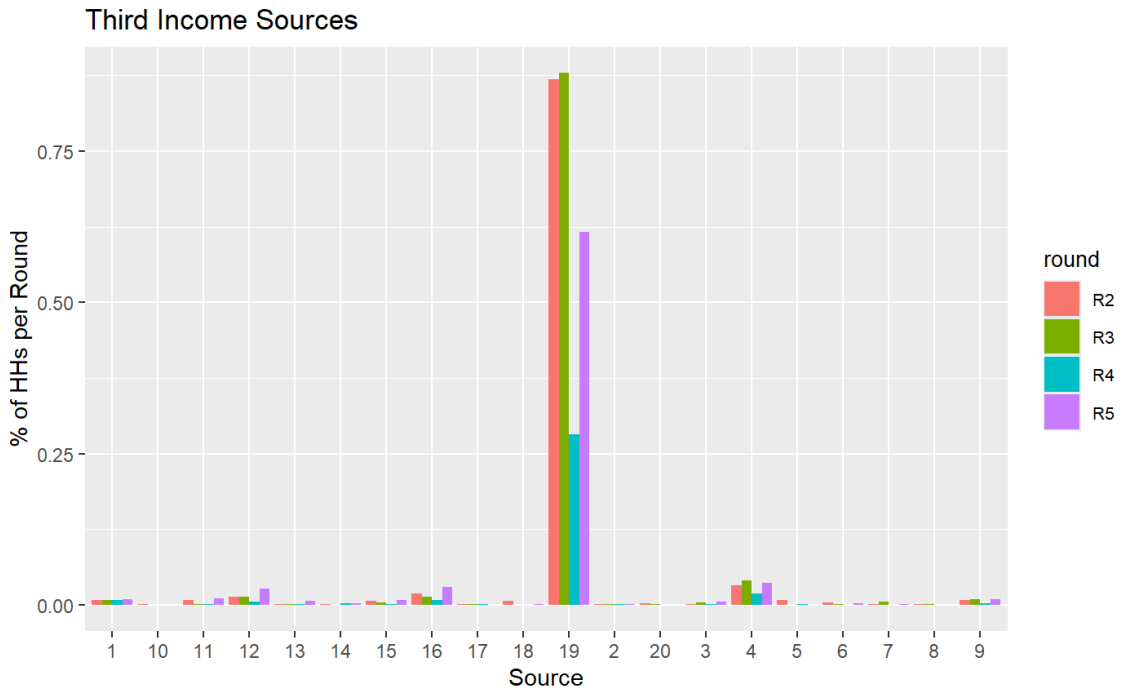
Overview of household's second income source for the last three months



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different second income sources. A list of the sources behind the number can be found above. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A5.

Overview of household's third income source for the last three months

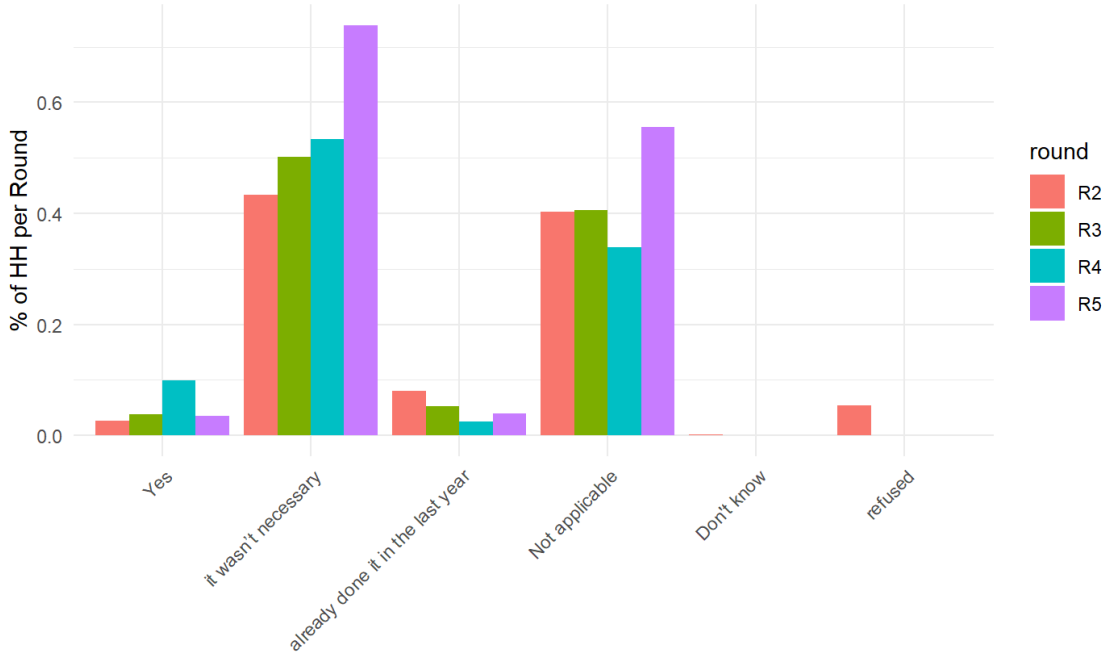


Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different second income sources. A list of the sources behind the number can be found above. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024)

A.2.2 Coping Strategies

Figure A6.

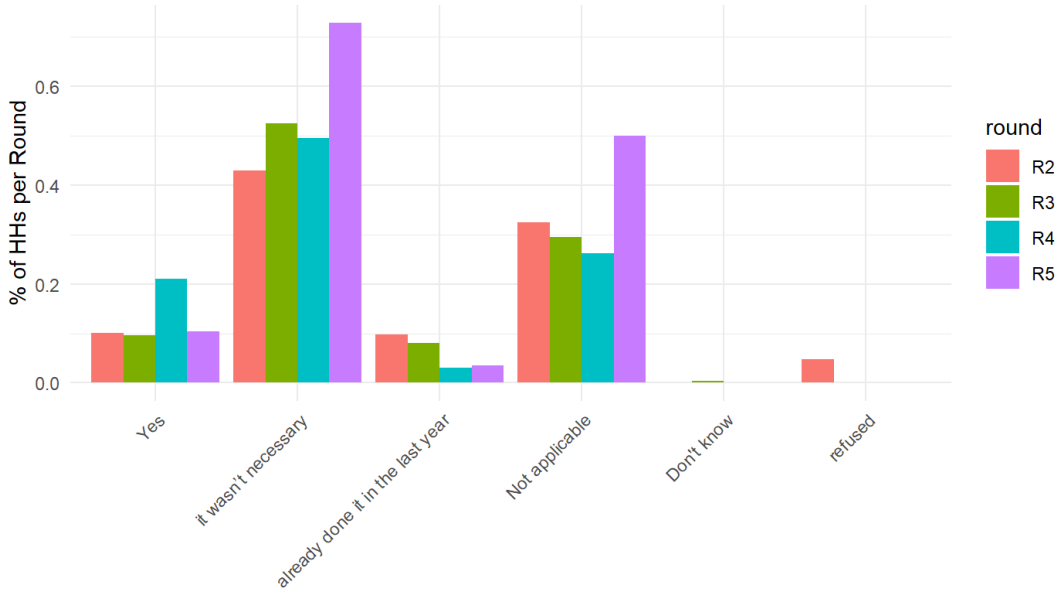
Overview of percentages of households that sold productive assets or means of transport in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question if the coping strategy was used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A7.

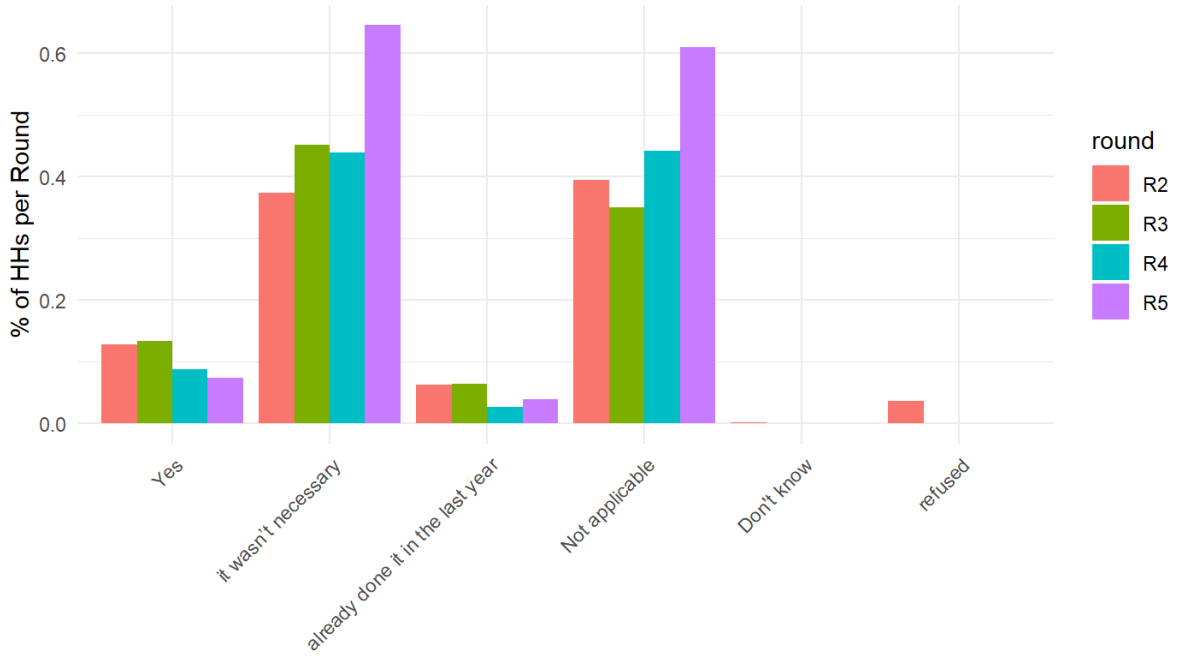
Overview of percentages of households that sold household assets and goods (radio, furniture, etc.) in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A8.

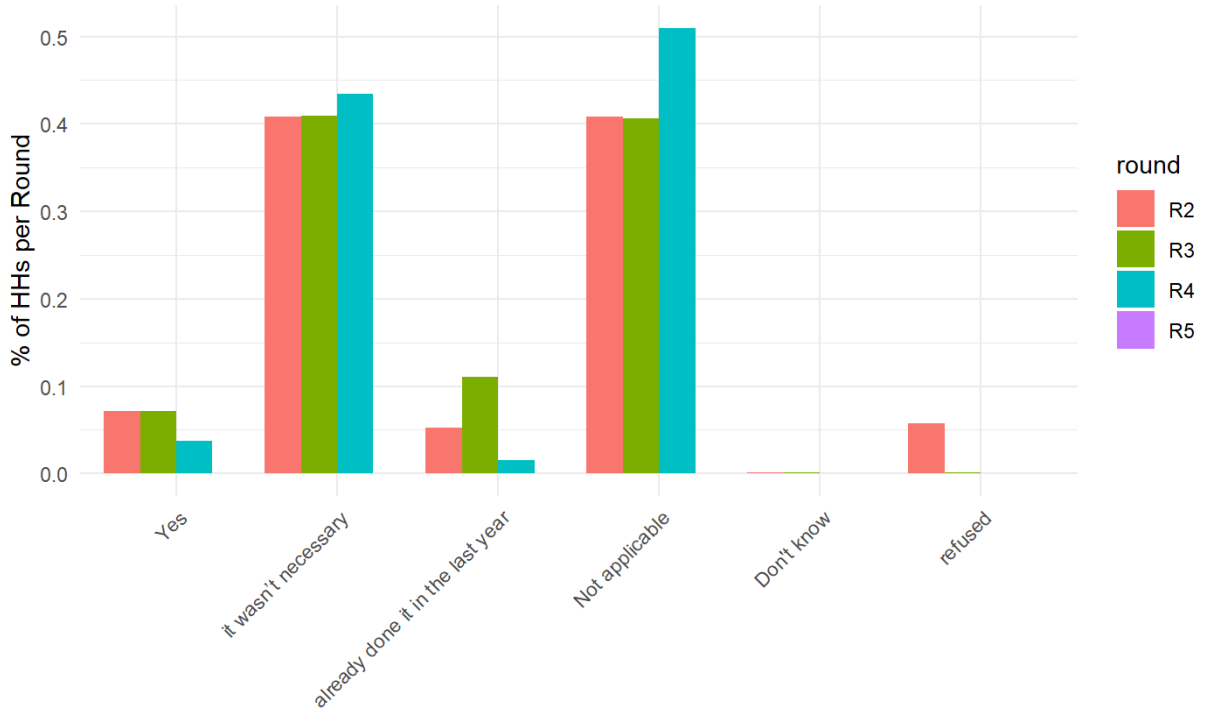
Overview of percentages of households that sold more animals than usual in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A9.

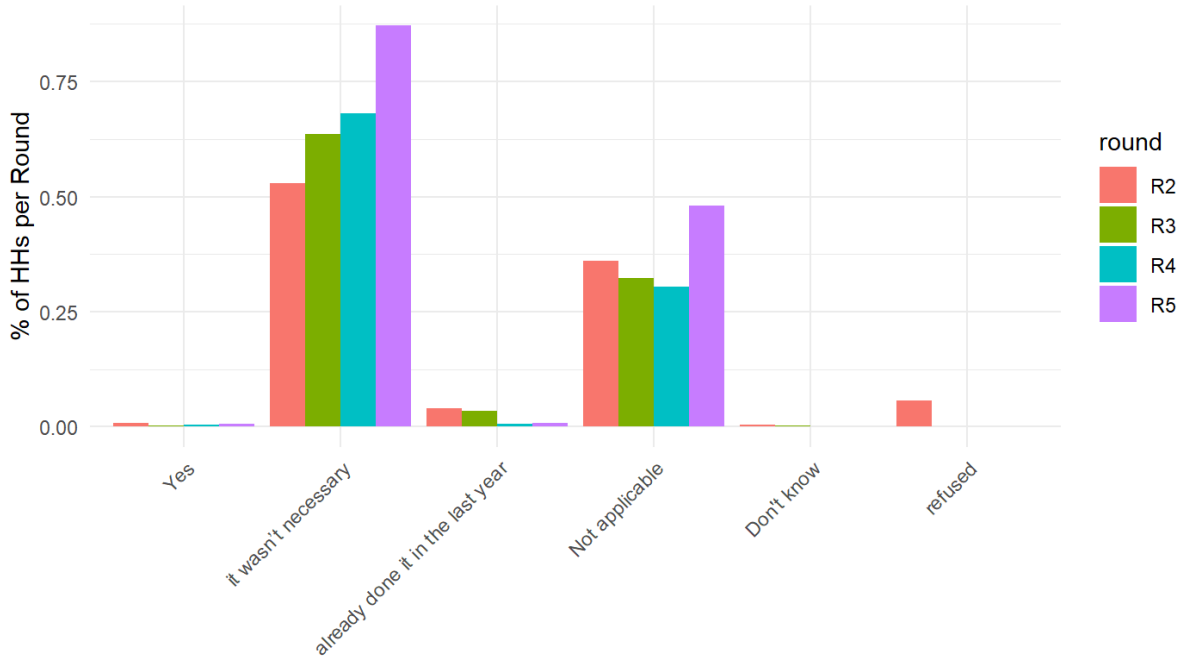
Overview of percentages of households that consumed seed stocks that were to be saved for the next planting season in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A10.

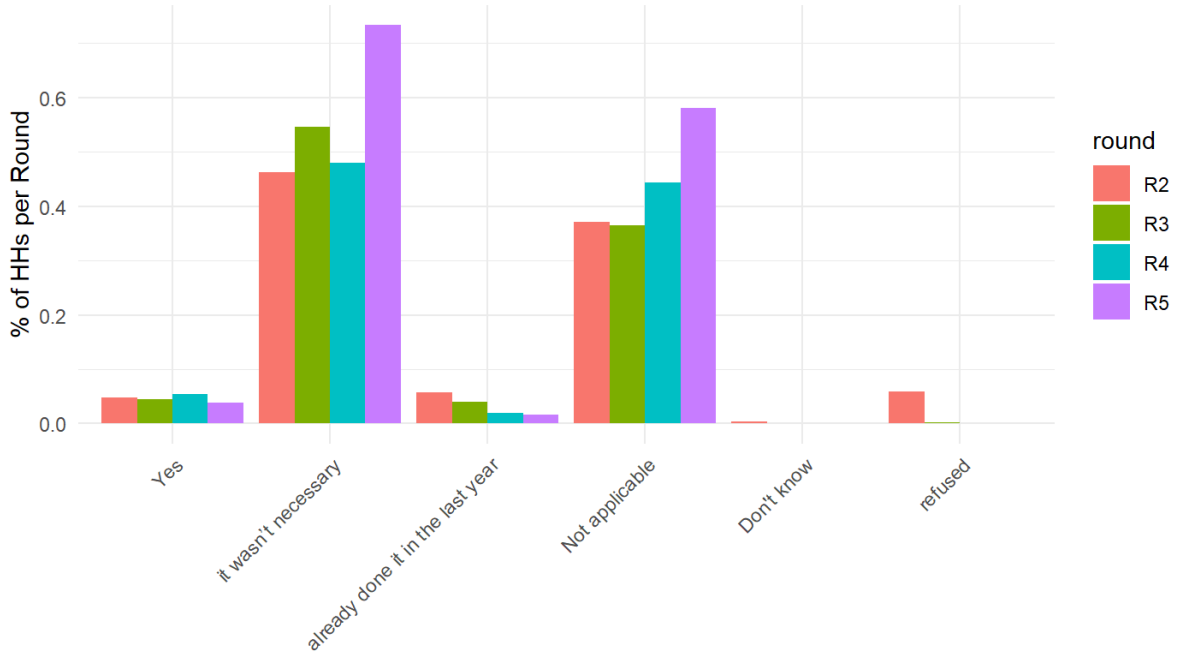
Overview of percentages of households that sold their house or land in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A11.

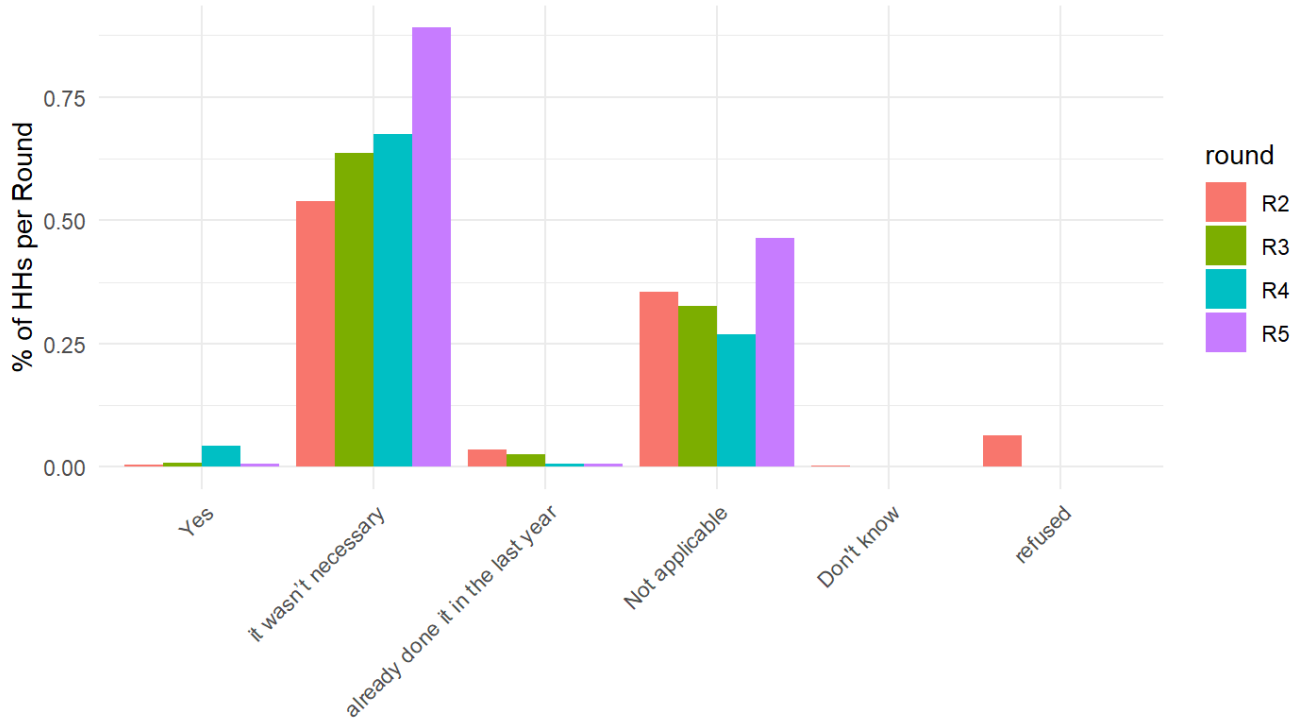
Overview of percentages of households that sold their last female animal in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).

Figure A12.

Overview of percentages of households that migrated in the last 30 days as a coping strategy



Note. The Y-axis represents the percentage of households that responded affirmatively to each category. The X-axis lists the different categories to answer the question of the coping strategy used in the last 30 days. The data is segmented by survey round: Round 2 in August 2022, Round 3 in April 2022, Round 4 from February to March 2023, and Round 5 from November 2023 to January 2024. Own graph, based on the DIEM dataset for Pakistan and includes only households from Sindh across Rounds 2 to 5 (FAO, 2024).