BETTER ASSISTANCE IN CRISES RESEARCH

Research Briefing

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Climate Change, Conflict, Food Security and Social Protection in Niger

Niger, like much of West Africa, faces interconnected short- and long-term challenges, particularly around food insecurity, conflict, and climatic extremes. Although hazards such as droughts and floods are not the only drivers of food insecurity, they can worsen vulnerabilities and worsen humanitarian impacts. This Research Briefing introduces the concept of **opportunity storylines** to explore the impacts of plausible climate futures and identify which social protection systems could be used to reduce hunger and protect livelihoods. It draws on findings from a workshop attended by climate and technical experts from Niger and the wider Sahel. The event drew on research led by the Better Assistance in Crises (BASIC) Research programme in partnership with the Red Cross Red Crescent Climate Centre, and regional climate specialists examining the links between climate change, conflict, food security, and social protection.

Key messages

- Niger is facing overlapping challenges (food insecurity, conflict, and climate extremes) which interact in ways that increase vulnerability and worsen humanitarian impacts. The 2005 food crisis showed how combined hazards, like drought and locusts, can compound existing risks and lead to systemic breakdowns.
- Imagining different future climate scenarios can help us plan to avoid these kinds of breakdowns. These **opportunity storylines** show what might happen, and what actions could make a difference. They help identify which social protection systems are most likely to hold up in a crisis, and how they can be used to reduce hunger and protect people's livelihoods.
- Future risks will be systemic and multi-layered. To reduce impacts, we need integrated approaches that can address multiple, interconnected shocks at the same time.
- As a result of climate change, Niger is facing rising temperatures, more frequent heatwaves, floods, and droughts. Protecting livelihoods and boosting resilience will require targeted, forward-looking actions.

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As crises spread across the Sahel region of Africa, governments and humanitarian organisations are struggling to meet rising food needs. In response, efforts have increased to use existing social protection systems to scale up and provide support before and during climate-related shocks, based on pre-agreed forecast triggers.

In November 2021, Niger became the first country in the Sahel to launch a trigger-based adaptive safety net tailored for drought response. Using satellite data to anticipate climate shocks, the system was activated three months ahead of the usual lean season, allowing early actions to be implemented. As a result, the government was able to deliver monthly cash transfers to 15,400 households affected by drought well before crisis conditions peaked (World Bank 2022). As Niger grapples with uncertainties associated with climate change, such tailored, flexible social protection interventions will become necessary to protect people in future.

To explore these challenges and plausible climate futures, we hosted a workshop on 11 March 2025 with climate and technical experts from Niger and the wider Sahel. Participants included the African Centre of Meteorological Applications for Development (ACMAD) the UK Met Office, and other climate specialists in the region. During our workshop, participants reviewed our analysis and discussed climate storylines and their implications for future planning.

What were the compounding, climate-related drivers of the food crisis in 2005?

Niger's semi-arid climate is highly unpredictable, with short rainy seasons that often start late, end early, or are interrupted by dry spells – especially in the north. While drought is the main hazard, floods, high winds, and heatwaves also worsen conditions. Climate risks are intensified by socioeconomic vulnerability. Around 80 per cent of the formal workforce is employed in agriculture, which makes up roughly 50 per cent of gross domestic product (GDP). Roughly 70 per cent of workers are seasonal agricultural labourers, making them especially vulnerable to climate shocks. Poverty further limits people's ability to cope and adapt.

Between March and August 2005, Niger experienced a severe food crisis marked by soaring millet prices, widespread use of harmful coping strategies, and a sharp rise in child malnutrition. While climate conditions contributed significantly to crop failure, the crisis was triggered by a complex interplay of climatic, socioeconomic, and environmental factors.

In our research, we used the 2005 food crisis in Niger as a lens to explore how climate extremes interact with other drivers of vulnerability. Focusing on a past event, rather than more recent ones, allows for deeper analysis and more robust conclusions due to the greater availability of data.

The crisis was triggered by below-average rainfall and an early end to the 2004 rainy season, which led to poor millet harvests. As a result, millet prices rose by around 50 per cent above the average in 2005 (Figure 1). A major desert locust infestation in 2004 further damaged crops, worsening food insecurity (Figure 2). These shocks struck a population already facing chronic food insecurity, rural poverty, and limited access to affordable health care, deepening the crisis.

Both farmers and pastoralists saw their incomes fall – farmers due to poor harvests, and pastoralists due to a lack of fodder.

Figure 1: Historic rainfall, millet yield and crop prices for the Tahoua region from 1990–2024

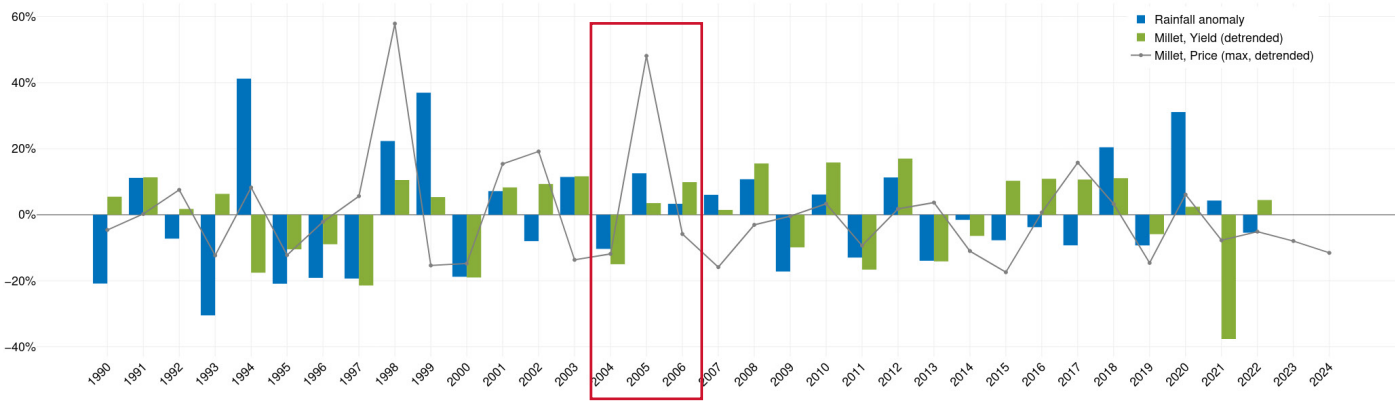
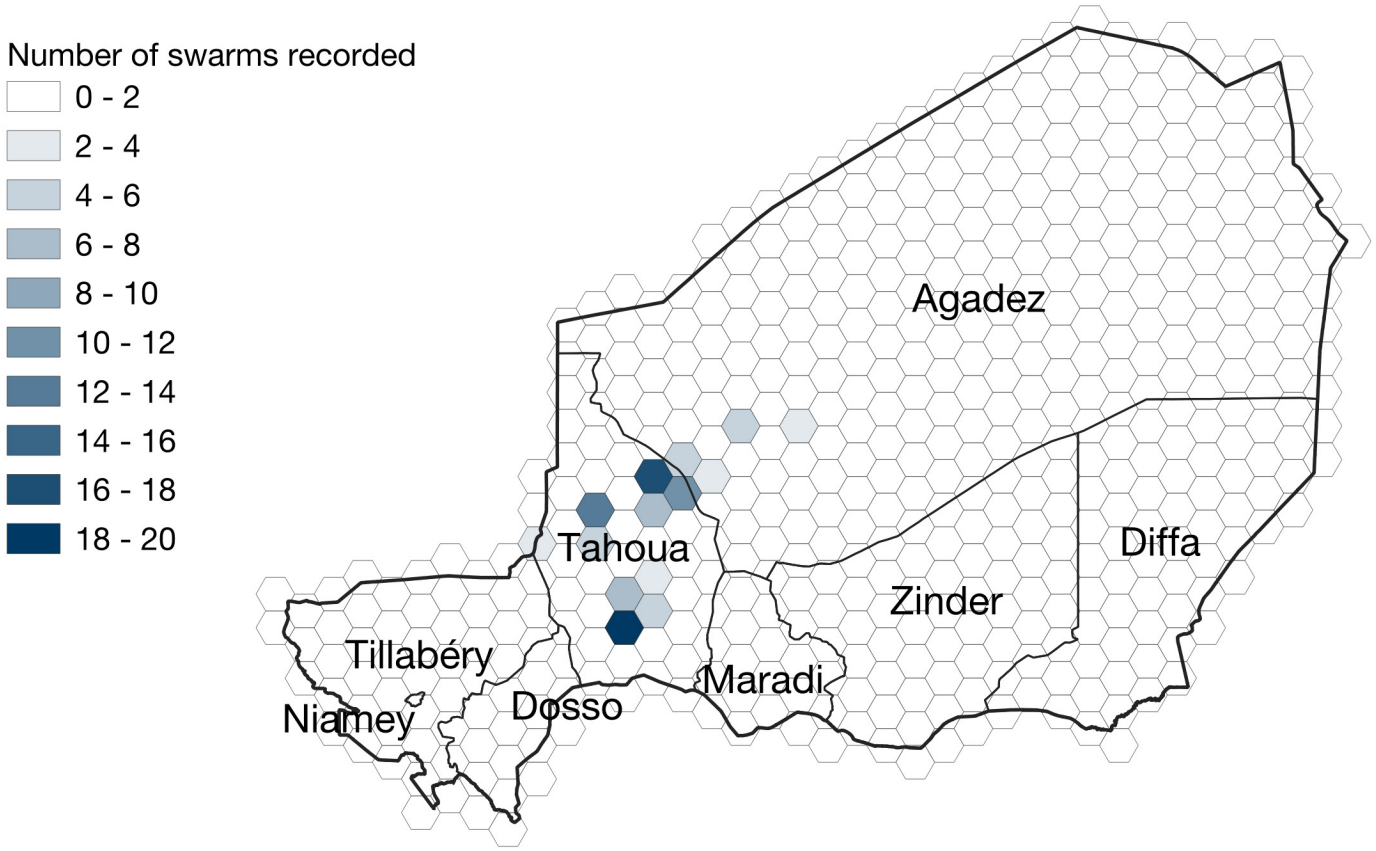


Figure 2: Locust infestation in Niger in 2004



For pastoralists, reduced grassland availability led to earlier migration, which increased local tensions. At the same time, lower agricultural output meant less demand for casual labour, further cutting incomes. Combined with rising food prices, these pressures significantly worsened food insecurity.

What could future, climate-driven impacts look like in Niger?

Building on lessons from the 2005 crisis, we explored how climate change may shape future impacts in Niger. Temperatures are expected to rise, along with more frequent heat extremes, and fewer cold days (high confidence). Heavy rainfall events and flooding are also expected to become more frequent (high confidence). However, projections for average rainfall are uncertain, making it difficult to predict whether rainy seasons will become wetter or drier.

Even if total rainfall stays the same, higher temperatures and more intense storms could lead to harsher droughts and longer dry spells, even during the rainy season.

To prepare for this uncertainty, we developed two plausible climate storylines for Niger:

1. A warmer future with the same amount of rain but higher variability.
2. A warmer future with more total rainfall.

These scenarios help turn complex climate projections into clear, tangible futures, providing a useful basis for designing effective preparedness and adaptation strategies.

During our workshop, participants highlighted the need to focus on solutions. When developing plausible future scenarios, opportunities for action and solutions should also be emphasised rather than solely highlighting negative impacts. One participant reacted '*Where is the opportunity?*'

Table 1 presents potential opportunities related to the two plausible climate futures. It is based on climate data analysis, a literature review, and workshop inputs. The two storylines include possible common and distinct response measures and therefore shift the focus from raising awareness to facilitating actionable strategies. For example, we highlight how social protection mechanisms can help mitigate food insecurity and build community resilience to climate extremes.

Table 1: Opportunities presented by two plausible climate futures

Storyline 1: A warmer future with the same amount of rain but higher variability	Storyline 2: A warmer future with more total rainfall
Climate characteristics	
Hotter average and extreme temperatures including more intense and frequent heatwaves.	
Delayed onset of monsoon/early end of monsoon.	Wetter monsoon season.
More droughts.	More floods.
More extreme precipitation.	Fewer droughts.
Potential risks	
Crop yield loss and crop failure impacting income and food insecurity of the population.	
Increase in heat stress for people	
Distribution and seasonal transmission of vector-borne diseases is expected to increase.	
	Increase in temperature and humidity can favour breeding conditions for desert locust.
Increase in evapotranspiration and pressure on water resources.	Destruction of infrastructure including health facilities.
Opportunities	
Develop food security and livelihood interventions that are designed based on needs and the lived experiences of populations.	
Climate-smart agriculture can help farmers adapt to changing conditions. This includes using drought- or flood-tolerant seeds, choosing faster-maturing crops, and investing in water management infrastructure. However, any crop changes should be based on solid evidence of resilience under local conditions.	
Improving early-warning systems for desert locusts is key to reducing future risks. This includes cross-border monitoring, biological control, and new technologies—such as sound and light-based deterrents, remote sensing, and modelling tools to track and forecast locust movements.	
	Develop food security and livelihood interventions that capitalise on increased water availability. This could include using high-resolution climate modelling to target areas expected to experience the most change.
Build social protection systems that can respond more effectively to people's changing needs in a shifting climate. **Programmes should focus on:** • Smoothing consumption during years with unstable production or fluctuating food prices through tools like food subsidies; • Providing income support during and after shocks.	
Social protection programmes should aim to: • Support livelihood diversification and, where feasible, help communities transition away from drought-sensitive agricultural practices; • Assist mobile populations by improving access to referral services and safe shelters; • Provide short-term income assistance to help households cope with income loss caused by crop failure or other livelihood disruptions.	**Social protection programmes should aim to:** • Diversify livelihood strategies, especially those that take advantage of increased rainfall; • Support transitions out of unsafe housing – whether due to poor location or materials – for high-poverty households exposed to flooding, such as those living in riverside informal settlements; • Introduce flexible cash-for-work programmes linked to seasonal forecasts and annual climate bulletins, focusing on climate-smart activities such as improving drainage systems; • Strengthen contingency planning to ensure essential social protection services can continue during disruptions like floods, making use of weather and climate information services.

Source: Authors' own.

Recommendations

What have we learned from Niger's compounding crises and how can we better prepare for what's next?

These recommendations aim to enhance our understanding of the complex factors influencing food security and inform targeted interventions that build resilience in vulnerable communities.

1. **Reframe the 2005 food crisis as a multi-risk event – not just a drought.** While drought is often seen as the main driver of the 2005 crisis, our analysis shows that multiple, interacting hazards – including drought and locust infestations – combined to worsen impacts. These overlapping shocks amplified existing vulnerabilities and led to severe outcomes. Future planning should take a compound risk approach, addressing systems exposed to several, connected hazards, not just one.
2. **Strengthen the use of local weather data to improve risk analysis and response.** In our analysis, we relied on gridded global datasets, which may contain some biases. While this had little impact on our results – since we focused on changes and variability across large areas – using local observational data would provide a clearer picture of trends at the community level. To improve accuracy, especially for early warning systems and adaptive safety nets, it is essential to strengthen partnerships with regional and national institutions like the African Centre of Meteorological Applications for Development (ACMAD) and Niger's National Meteorological Department (DMN). Integrating local datasets can improve climate modelling and make trigger systems for cash assistance more precise and timelier.
3. **Improve market analysis alongside climate monitoring to better anticipate food insecurity risks.** Food prices are shaped by more than just local rainfall or harvests; they are influenced by regional trade, transboundary cereal flows, and broader geopolitical dynamics. This means good rains do not always translate to affordable food. To strengthen early warning systems and food security responses, it is important to integrate climate forecasts with market and trade data.
4. **Address conflict as a key driver of food insecurity and barriers to social protection.** In many cases, conflict – not climate extremes – is the main cause of food insecurity, poor health outcomes, and disrupted livelihoods. Climate shocks can worsen these impacts, but the underlying driver is often insecurity. Conflict limits people's mobility, disrupts agricultural activities and trade, and blocks access to education, markets, and healthcare. Social protection programmes must adapt to conflict-affected contexts. This means:
   - Specifically addressing the needs of displaced populations;
   - Revisiting how programmes target and verify beneficiaries, as traditional methods may not work in insecure areas.

   These insights reflect broader findings from our Ethiopia case study (Lind et al. 2025), highlighting the complex links between climate, conflict, and social protection.
5. **Co-develop opportunity-focused climate storylines to drive action.** Plausible climate futures – or storylines – should not only highlight risks but also identify opportunities for proactive solutions. As one workshop participant asked, '*Where is the opportunity?*' This shift in perspective moves beyond raising awareness to encouraging actionable strategies. Co-developing these storylines with local actors can help explore how tools like social protection systems can reduce food insecurity and strengthen community resilience to climate extremes.
6. **Explore the role of different social protection instruments based on storylines.** The choice of social protection instruments may need to consider multiple plausible future scenarios, and choose those ones that remain most resilient, irrespective of the specific climate risk. This could potentially mean strengthening human development objectives in social protection programming, and taking a comprehensive approach that prevents poverty, enables coping and adaptation, and ensures livelihoods/income security.

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Figure source details

Figure 1: Historic rainfall, millet yield and crop prices for the Tahoua region from 1990–2024

Source: Authors' own. Created using rainfall data from Climate Hazards Centre (CHC) CHIRPS v2.0 daily rainfall product (Funk *et al.* 2015). Anomalies are yearly averages subtracted from the long-term average of 1990–2023. Millet yield data is from the Food and Agriculture Organization (FAO) database (FAOSTAT). Millet price data is from the FAO Food Price Market Assessment (FPMA). Yield and price data is detrended by removing the linear trend from the timeseries (1961–2023) and then adjusting the mean to align with the original mean in order to allow for relative variability calculations.

Note: The red rectangle highlights the period from 2004–2005, marked as year of food crises in Niger. This period characterised by a rainfall deficit and lower millet prices followed by very high millet prices.

Figure 2: Locust infestation in Niger in 2004

Source: Authors' own. Created using data from the FAO Locust Hub database.
Note: Desert locust was particularly present in the Tahoua region of Niger, a main agricultural area.