



Airbel Impact Lab
Research & Innovation at the IRC



Seed Security in Niger: System Disruptions and Solutions in the Diffa Region

**CLIMATE-RESILIENT
AGRO-PASTORAL
LIVELIHOODS**



[Rescue.org](https://www.rescue.org)



A coordinated local and global effort is needed to transform climate resilience in Niger.

Women who work in a sorghum field near the village of the Sabon Machi, Maradi region of Niger. Photo: Luis Tato/AFP via Getty Images
Cover: Sorghum, a popular agricultural crop in Niger.

For most of the world, climate change is the crisis of tomorrow; for the conflict-affected communities in which the International Rescue Committee works, climate change is the crisis of today. These communities, such as those in Niger's Diffa region, are on the front lines of complex and compounding conflict and climate crises. Despite this urgent need, these conflict-affected communities are being left behind by global efforts on climate action, receiving disproportionately little funding and ineffective solutions. Moreover, despite the fact that adaptation is an immediate priority in frontline communities, the distribution of global climate finance predominantly favors mitigation efforts, leading to an alarming scarcity of funds designated to address critical adaptation needs.

As Niger continues to grapple with security challenges, political upheaval and displacement, farming communities in Diffa, the nation's southeast region, continue to confront the effects of climate change, persistent insecurity and conflict in some areas, economic deterioration, food and supply shortages, and high prices for essential items including food and agricultural supplies, as well as health concerns exacerbated by the COVID-19 pandemic. The Airbel Impact Lab, IRC's Research & Innovation Unit, and IRC's Niger Country Team, in coordination with farmers and local stakeholders, have identified opportunity areas ripe for innovation and transformation that have the potential to alleviate the high risk and significant

uncertainties in the seed system posed by climate impacts and protracted conflict in Niger's Diffa region. A concerted effort by a coalition of governments, multi-lateral bodies, peer organizations and funders is needed to invest in the full range of conflict-sensitive solutions to transform climate resilience in Niger, as well as in all contexts most affected by and least responsible for climate crisis.

RESEARCH OBJECTIVES, METHODS & SCOPE

In 2021, as part of a new global research and innovation priority focused on climate-resilient livelihoods, the IRC launched a new design initiative in Niger with the aim of enhancing farmers' access to quality climate-adapted seeds. The objective of this research was to analyze the issues and barriers impeding seed security in two localities within the Diffa region of Niger, as well as identify opportunities and potential solutions to mitigate these limitations; solution areas pertain to **enhancing seed availability, accessibility** and **quality**, as well as enhancing **access to information**. Methods included a formative evidence review and desk review, interviews and focus group discussions with agro-dealers, agricultural extension workers, representatives from international agriculture organizations and NGOs, seed producers and farmers (both male and female), and a series of design workshops with the IRC's Niger agricultural livelihoods technical team and farmers.



Number of people experiencing food insecurity

Number of farmers in need of food and agricultural assistance

Niger	3.12M	816K
Diffa Region (target)	133K	34.8K



NIGER

SYSTEM DISRUPTIONS THREATENING SEED SECURITY

Since its independence from French colonization in 1960, the Republic of Niger has experienced several coups — the most recent of which began just days prior to the writing of this case study in July 2023— which have resulted in ongoing political instability. Further, conflicts involving non-governmental armed groups have posed significant threats to the Nigerien population, particularly in the Diffa region. Additional security concerns in Niger stem from conflict in neighboring countries—such as fallout from the Libyan civil war and conflict in northern Mali and Burkina Faso—as well as threats of terrorist insurgencies in the region. Diffa—located in the southeastern region of Niger, along the border with Nigeria—has been host to Nigerian refugees fleeing violence in Nigeria’s northern states since 2013. Complex and compounding crises in the Diffa region—including the Boko Haram crisis that began in 2015, intense and violent attacks from Armed Opposition Groups (AOGs), mass population displacements within the region, and climate change-induced stresses and shocks—have exacerbated the vulnerability of Diffa’s population, the majority of which is engaged in smallholder (one hectare maximum) farming and has resulted in food insecurity and chronic malnutrition in the region. The ongoing coup has not only intensified political instability but has also heightened uncertainties and security concerns, posing significant challenges to the effective delivery of humanitarian aid by international actors who rely on government cooperation. Ultimately, the evolving political situation continues to exacerbate the vulnerability of the local population.

The Republic of Niger is an agricultural state, with the majority of its population concentrated in the south of the country, a region favorable to the cultivation of basic cereals (millet and sorghum), as well as irrigated market gardening and various cash crops. Today, more than 80% of the Nigerien population is dependent upon agriculture for their livelihoods. These livelihoods are rendered increasingly vulnerable as a result of climate change, as they are adversely impacted by frequent droughts, flooding and land degradation.

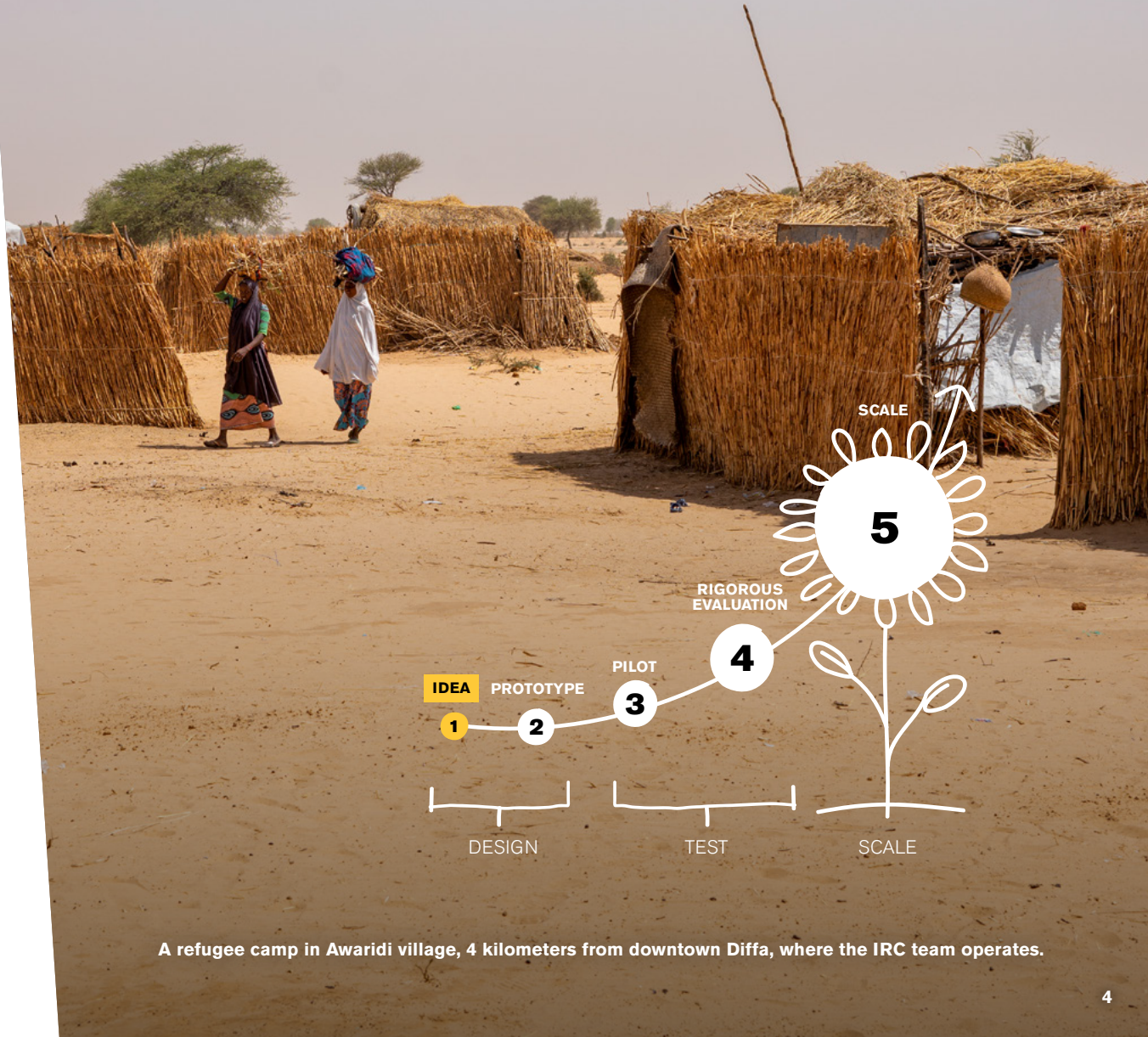
Kelou Kiari feeds her 16-month-old son, Bidi, who suffered from malnutrition after their family was displaced from their home when members of Boko Haram attacked their village.

Seed Security in Niger's Diffa Region

Another significant constraint for agricultural livelihoods in Niger is the limited access to technological advancements. Irrigation infrastructure is limited—resulting in a reliance on rainfall, particularly in the Diffa region—and most farmers lack access to improved seed varieties and other climate-smart agricultural technologies. In addition to technological limitations pertaining to agricultural production, there are substantial technological limitations in the processing and marketing of agricultural products in Niger.

Overall, the unavailability and inaccessibility of high-quality, climate-smart seeds deteriorates the security of the seed system in Niger. This is the result of a number of complex and interrelated factors, including limited seed multiplication at the community level, significant post-harvest losses, a high rate of dependency on NGOs for access to seed, limited market access, lack of access to agricultural information and an unstructured seed supply chain with very limited seed quality controls. These factors are further compounded by environmental shocks (such as erratic hydrological patterns), farmers' financial constraints and ongoing conflict and insecurity in certain regions of the country (e.g., Diffa). Despite actively contributing to agricultural production across Niger, female farmers are especially vulnerable, given a variety of gendered barriers to seed security, such as a lack of access to high-quality land and farming equipment, and limited decision-making ability. Women also carry a disproportionate burden of domestic responsibilities, and, in some regions, social and cultural norms impede their active participation in agricultural production—especially their access to land and farm inputs, including quality seeds and necessary farming tools—while also limiting their financial inclusion.

More than 80% of the Nigerien population is dependent upon agriculture for their livelihoods.



A refugee camp in Awaridi village, 4 kilometers from downtown Diffa, where the IRC team operates.

TOWARD SUSTAINABLE SEED SECURITY

The design process informed the identification of a number of opportunity areas ripe for innovation. The IRC is currently working to generate solutions within these areas with the aim of transforming seed security in the Diffa region; this case study will be updated when the solutions package is finalized. We aim to demonstrate that it is possible to build climate resilience, even in the most fragile and protracted situations, through direct, conflict-sensitive investment in farmers, their communities and the systems in which they operate. Given the magnitude of convergent conflict and climate crises, the IRC cannot act alone. We call upon governments, multi-lateral bodies, peer organizations and funders to support the generation of complementary solutions to address the complexity of seed system needs in Niger. A range of breakthrough seed security solutions and effective delivery models are needed to match the urgency and gravity of the problem; key opportunity areas for innovation are elaborated at right. ▶

- ▶ **Facilitate the development of a farmer-first seed company**, in collaboration with research institutions. Leverage the company to test and disseminate climate-resilient seed varieties, build technical capacity of seed producers and agro-dealers, and facilitate market access for seed producers (community-based seed multipliers);
- ▶ **Establish a seed producer network** at the Diffa level and provide grants to participating producers to catalyze production by ensuring farmers have requisite inputs and assets, while simultaneously addressing underlying humanitarian needs;
- ▶ **Develop a seed business network**, connecting seed companies, agro-dealers, and community seed producers to bridge the gap of access to and use of essential inputs by seed producers;
- ▶ **Link informal, formal and emergency seed sectors** to improve choices for smallholder farmers;
- ▶ **Provide training to grain vendors** on the separation of seed and food quality grain and to farmers on the appropriate grain types for seeding;
- ▶ **Promote the uptake of improved seed varieties and farming practices** through demonstration plot trainings that focus on the use of improved seeds (from agro-dealers), proprietary seed production, selection and saving, and climate-smart agricultural practices;
- ▶ **Facilitate seed fairs** to bring a large number of seed vendors to community sites and address issues of access, reinforce the local market and offer farmers more choice in seed varieties. Leverage these fairs to expand use of higher-nutrition crops and to ensure access to seeds for crops typically cultivated by women (sorrel, okra, groundnut, squash);
- ▶ **Facilitate the adoption of improved crop storage techniques** by supporting farmers in identifying and implementing efficient storage infrastructure and conservation materials, as well as through capacity building for better seed conservation;
- ▶ **Develop and expand local warrantage system** (warehouse receipts system) integrated with improved seed storage;
- ▶ **Support female farmers** to increase crop production through improved access to farming machinery and other advanced agricultural inputs, including high-quality seeds;
- ▶ **Support female farmers' participation across the value chain** by providing trainings and support related to post-harvest crop-processing activities;
- ▶ **Strengthen extension services** to promote farmer literacy;
- ▶ **Support the development of seed research institutions** and improve the local seed research framework.



Niger's economy depends heavily on agricultural activities, including sorghum, in order for people to survive and earn a living.

Seed Security in Niger's Diffa Region



A woman in an Awaridi village refugee camp. Women carry a disproportionate burden of domestic responsibilities, sometimes impeding their active participation in agricultural production and financial inclusion.

To effectively design, test and scale solutions within these opportunity areas, several shifts in current approaches to climate action are needed. We must disrupt the paradigm wherein the most vulnerable populations are systematically left out of climate action and prioritize conflict-affected states, focusing on contexts like Niger that are experiencing extreme and co-occurring climate vulnerability and fragility. Within these countries, we must unlock funding to specifically support adaptation and climate resilience and shift from a “government-first” to “people-first” model of financing by coordinating with non-state and community-based delivery partners, such as village councils and local farmer associations, who are already key actors in local systems and often have the greatest access to communities in need. Finally, we must invest in innovation to develop context-appropriate and conflict-sensitive interventions that are designed for and tested in fragile environments, where current delivery mechanisms for climate-adaptive interventions are absent, non-functioning or are ill suited for conflict contexts. The “people-first” approach is critical to conflict-sensitive and contextually appropriate innovation, as it reduces the vulnerability of investments to conflict or political shocks. In the Nigerien context, this approach may be instrumental in ensuring the sustainability of solutions even in instances where rapidly changing political circumstances may render government cooperation infeasible.

Only by taking deliberate and complementary action in Niger and other areas that suffer the dual burdens of climate change and conflict can we truly address the climate crisis and foster a future of greater security, well-being, and resilience for all.