

Topical Synthesis Paper

Effective Seed Insecurity Response



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This report synthesises learning from the action research and dialogue activities conducted under the Integrated Seed Sector Development in Africa (ISSD Africa) programme, 2019-2023.

More information: www.issdafrica.org

Under the ISSD Africa topic “Effective seed insecurity response” Mercy Corps, SeedSystem and partners conducted activities in Ethiopia, Nigeria, South Sudan and Uganda.

Cover photo:

Local market bean seller

Credit: Louise Sperling, SeedSystem

1. Background

Emergencies, whether triggered by natural disasters or events of human origin, often disrupt the lives of farm families and their agricultural production. As a critical component of the overall agricultural production system, the seed system is also vulnerable to shocks. Emergencies can threaten multiple seed systems - formal, informal and intermediary. Seed availability and seed access may plummet due to disruptions in supply and distribution networks or loss of assets; seed quality may be compromised if populations move from one affected area to another; and the overall resilience of the system can be weakened.

In such situations, it is imperative for responders to quickly implement appropriate seed interventions, intervening at the most effective and efficient points in seed systems. Because of the challenges inherent in emergency contexts and the need for speed, it can be difficult for implementers to adequately assess the local context and determine the most appropriate seed-related responses. This can result in seed interventions that target less impactful parts of the system, or depress the long-term development of the local seed system while distorting seed markets.

To avoid these pitfalls, donors and emergency responders must quickly and effectively assess the context and farmer needs, and then develop appropriate seed responses. These responses must be timely, targeted, and coordinated; build upon and strengthen existing systems, whether formal, intermediary or informal; and set the stage for long-term resilience of seed systems once the situation has stabilised.

2. Approach and ambition of the topic

Over the last three years, the Mercy Corps-led ISSD Africa Action Learning Topic, [Effective Seed Insecurity Response](#), has worked to answer two key learning questions:

- How can we improve the impact of emergency seed interventions?
- How can emergency interventions help create more resilient and improved seed systems in the long-term?

Mercy Corps partnered with humanitarian seed systems and market systems experts to identify the current status of emergency seed responses, collate current best practices and emerging market-based solutions and create technical guidance and guiding principles for implementing partners operating in emergencies. To identify current practices and knowledge gaps, a comprehensive desk review of the existing research and guidance on emergency seed responses was conducted, coupled with online discussions with partners such as Supporting Seed Systems for Development (S34D), Supporting Emergency Agriculture Design Standards (SEADS), East West Seeds, SeedSystem, the INGO Forum in Nigeria and a Mercy Corps seeds discussion group across five programs. This review highlighted a gap in the use of in-depth seed assessments by humanitarian implementing organisations to inform seed-related responses, and practical guidance to support actors to make informed choices in emergency interventions to improve the resilience and impact of seed systems.

To address these issues, the [Seed Emergency Response Tool](#) (SERT) was developed jointly between Mercy Corps and Louise Sperling at [SeedSystem](#). The SERT helps seasoned and novice seed implementers to make informed, quality decisions about the choice of a seed security intervention and how best to implement it. It introduces seed system fundamentals; seed security problem diagnostics; details on seed response options, including market-based responses; decision trees for selecting response options; and guiding principles for implementation. The SERT was discussed and disseminated in English and [French](#) through a [webinar](#) with the USAID/Bureau for Humanitarian Assistance-funded [SCALE Award](#).

A critical element of the SERT are the **10 Guiding Principles for Good Seed Aid Practice**, which guide decision-making and on-the ground practice for emergency seed system interventions. The principles are included in the SERT as part of the guidance for practitioners, in support of doing no harm and to spur longer-term seed system resilience. They were presented and discussed with seed system stakeholders in Nigeria at a [workshop and dialogue](#) organised by the National Agricultural Seeds Council (NASC) and Sahel Consulting Agriculture and Nutrition Ltd.; in Kigali at the ISSD Africa synthesis workshop; and with seed companies via the African Seed Trade Association (AFSTA) magazine. It is hoped that these guiding principles are adopted by multiple stakeholders to guide common consensus around intervening in stressed, smallholder farmer seed systems.

Alongside development of the SERT, a [series of consultations in 2021](#) conducted by the SCALE Award discussed challenges to the uptake and adoption of seed system security assessments (SSSAs) by implementing agencies, and highlighted the need for more learning opportunities. The resulting [Seeds Learning Group](#) for humanitarian actors was

designed and delivered by SCALE and ISSD Africa staff. The learning group was attended by 20 humanitarian actors and focused on seed system fundamentals and assessments. Positive feedback highlighted the need to conduct more of these types of opportunities to bring implementers together around seed system learning.

Additionally, Mercy Corps hosted a roundtable in early 2023 on [seed banks in emergency contexts](#) to glean learnings to inform future decisions on the use of seed banks in strengthening seed systems in these contexts. Fourteen stakeholders – composed of donors, agricultural researchers, technical advisors and consultants from Ethiopia, the Netherlands, South Sudan, Uganda and the United States of America – with interests in seed programming joined the discussion. This built on the ongoing collaboration with the Food and Nutrition Security Resilience Program (FNS-REPRO) in South Sudan and Bioversity International to review previous and ongoing seed banks initiatives to understand the applicability of seed banks in emergency contexts. See below for a summary of the roundtable.

3. Outcomes and lessons learned

3.1 Improving the impact of emergency seed interventions

3.1.1 Humanitarian practitioners should conduct a Seed System Security Assessment (SSSA) before responding.

Practitioners should carry out an SSSA to: a) understand what is going on during a stress period (what are the real seed security problems) and; b) choose the best (or better) response. The term 'system' is emphasised in SSSA as a holistic approach is integral, no matter what the specific methodology or sets of tools used (SERT, Sperling *et al.*, 2022). Currently, few humanitarian practitioners use SSSAs to inform their seed interventions in emergency settings, which often results in inappropriate interventions. Many practitioners assume that, when shocks such as drought result in decreased harvests, blanket provision of seed to farmers can quickly revamp food production. Without an assessment, practitioners do not know the seed security problem(s) and therefore cannot choose the best intervention to meet the seed need.

3.2 Guiding Principles for seed aid need to be adopted and actioned amongst humanitarian practitioners.

Emergency seed programming can play a catalytic role in supporting the transition from seed relief to sustainable seed system development. However, repeated emergency seed aid is likely to weaken local seed systems and seed enterprise development. There is currently no global adopted set of principles guiding seed aid. The 10 Guiding Principles for Good Seed Aid Practice embedded within the SERT help implementers attain effective and efficient seed responses aimed at doing no harm and building longer-term seed system resilience. However, for the principles to be effective and support a shift towards better seed aid, they need to be widely disseminated, adopted and enforced. Implementing partners (IPs) will likely have to change their way of working and donors will have to hold IPs accountable to meeting the principles in their work.

10 Guiding Principles for Good Seed Aid (from the SERT)

1. Do an assessment
2. Match the type of response to the the seed security problem(s)
3. Be clear about the intervention's goal
4. Confirm that the response type can actually be implemented in the given context
5. Ensure the intervention gets seed to farmers on time
6. Give priority to market-based assistance
7. Ensure crop and variety suitability
8. Verify seed quality to meet minimum standards of farmers, practitioners and donors
9. Offer farmers choice
10. Arrange for multiple types of feedback

For more information and technical guidance on the principles, see the [SERT](#), pages 30-37.

3.2 Enabling emergency interventions to create more resilient and improved seed systems in the long-term

3.2.1 Avoid common seed response pitfalls and consider market-based options

There is a range of seed-related interventions for use in emergencies that include varied types of direct distribution, market-based support to clients (i.e., farmers, beneficiaries), and market-based support to suppliers. The market-based responses – such as seed fairs, cash, and vouchers – are less frequently used in emergencies but have the potential for greater effectiveness. In recent years, market-based approaches have increased among humanitarian practitioners because of their potential to inject significant funds into local economies in times of stress. For seed security work, market-based assistance also promotes the functioning of multiple sources of planting material over the longer term, and ensures markets, whether formal or informal (see SERT page 26, Box 9), are less compromised by large external seed distributions. Seed system assessments can help the humanitarian community understand the informal and formal seed system before intervening and ensure they do no harm.

Market-based initiatives target essential market functions, businesses, and institutions, which have more reach and impact than typical aid-driven, recipient-focused interventions. If applied correctly, market-based strategies can improve the capacity of markets to provide farmers and households with critical benefits, such as seed, basic services, and credit, with greater reach and adaptability than humanitarian agencies can achieve directly. Market-based interventions can range from direct financial support to businesses, such as cash transfers or co-investments to re-stock seed supplies, to more indirect interventions like helping traders build supply relationships, increase access to seed storage practices, and improve transportation infrastructure (Mercy Corps, 2018). Whatever the interventions, it is important that programs, as 'facilitators of systemic change', work to make sure that new practices remain in the system. This entails understanding which market actors (including public actors and civil society organisations) have the strongest interest in continuing to provide and disseminate practices and in coming up with business models that guarantee sustainability.

3.2.2 Understand the type of shock/stress affecting the area and its impact on seed security.

The impact of a disaster – for example, drought or war – on seed security is heavily shaped by the shock type, the context and the crops in question. Different shocks and stresses impact seed security in different ways, and understanding these different disasters and their impact on seed systems is important for designing effective interventions. There are many factors to consider: the scale and timing of the disaster, the pattern and extent of damage, the stability and resilience of the seed system, and even the ability of farmers to engage in farming or not (SERT page 40).

Despite marked variability in context, analysis of many disasters over the years suggests some broader patterns in seed security stress, associated with disaster type (e.g., drought, flood, plant disease). Drought, for example, generally seems to have more predictable (and milder) negative consequences for seed security than almost every other shock or stress. Some of these associations are set out in Table 4 (SERT page 20). For seed security work specifically in conflict areas, practitioners might refer to a new manual that analyses the effects of different kinds of conflict on seed security, and explores options for diverse interventions depending on the seed security constraint (CAT, Sperling et al., 2022)

Table 4 Linking disaster type with specific seed security problems: field insights from Africa

Disaster	Features with potential to undermine seed security	Seed security constraints most often uncovered	Insights from field experience
Drought	<p>Harvests may be lower than usual but only in rare cases will there be total crop failure.</p> <p>Seed sharing may decrease due to seed scarcity.</p> <p>There may be asset sales due to low harvest.</p>	<p>Access problem: some depletion of farmer assets.</p>	<p>Droughts are by far the most common trigger justifying DSD, particularly in southern Africa. However, evidence from the field shows that even with sharp declines in harvests, enough seed for planting is usually available, both from home production and markets. This availability is typical of drought-prone areas where small-seeded crops such as sorghum or pearl millet predominate.</p>
Plant Disease	<p>Crop failure may be near total.</p> <p>Local crops and varieties may not be adapted to the disease.</p> <p>Local seed production channels may not be able to immediately provide adapted (resistant) varieties.</p> <p>Seed sharing may decrease due to seed scarcity.</p> <p>There may be asset sales due to low or no harvests.</p>	<p>Quality problems: Varieties no longer produce (problem of variety suitability).</p> <p>Planting material diseased (seed health problem).</p>	<p>The challenge with plant disease is to identify something that will grow under changed production conditions (in contrast to drought, where production conditions are stable). Also, finding enough resistant material may demand widespread seed multiplication efforts.</p> <p>Example: parts of East and Central Africa have been confronting crises and related seed-quality problems since the late 1990s with waves of CMD in cassava and a build-up of root rots in bean crops.</p>
Flood	<p>Harvest failure may be total (crops wiped out).</p> <p>Fields might be significantly damaged or destroyed.</p> <p>There is the possibility of population displacement.</p> <p>Local seed production channels may not be functioning.</p> <p>Social relations generally remain the same but could change if families end up in camps for internally displaced persons (IDPs).</p> <p>Markets, roads, and other infrastructure could be significantly disturbed.</p> <p>There may be significant losses of assets (seed, livestock, houses).</p>	<p>Availability problem likely; also, the required conditions for planting (arable fields) may not be in place.</p> <p>Prime problem might be extensive asset loss.</p>	<p>Problems of seed availability would normally be associated with floods. However, in Mozambique, a highly flood-prone country, the government promoted SVFs and input trade fairs shortly after 2000, moving seed from one agroecological zone to another. That response puts the focus on 'access' constraints.</p> <p>Depending on the source of the flood water, a problem of soil management may need to be addressed before planting.</p>
War Quick onset, short and intense, staggered over zones	<p>Harvests are lower than usual, but only rarely a total failure.</p> <p>Perhaps no forced population displacement, although massive fleeing by some portions of the population.</p> <p>Seed sharing may decrease due to ruptured social relations and seed scarcity.</p> <p>Local seed production channels may or may not be functioning.</p> <p>Security might be compromised, restricting agricultural work or use of public resources such as markets.</p> <p>Asset losses due to small or no harvest (as when fields are abandoned).</p>	<p>Depends on nature of war: Could be problems of availability and access, or neither.</p> <p>Issues of protection could be key. Does one provide inputs to households if this might put them in danger? Can aid recipients congregate and/or travel to aid hubs?</p>	<p>Seed security problems encountered greatly depend on the specifics of conflict (onset, duration, extent, intensity).</p> <p>Consider Rwanda in the early to mid-1990s (also Box 1). Before war and genocide, many farmers had come to rely on formal sector channels for clean potato seed and new varieties. These arrangements broke down early in the conflict as government services retrenched and development projects pulled out.</p> <p>In contrast, local markets, the main source of beans, continued to diffuse bean seed during some of the worst events. So while potato seed production virtually collapsed, bean seed channels, continued on course for the most part.</p> <p>In the case of potatoes, there was a seed availability problem. For bean seed, the constraint was solely access.</p>

Source: modified from Sperling, 2008

3.2.3 Incorporate basic resilience features into the overall intervention design

Achieving greater resilience is becoming more important in seed assistance programs in emergency settings, particularly those operating in climate stressed zones. Resilient seed systems must have the capacity to absorb and adapt to shocks and stresses, and to reorganise to maintain and strengthen seed security over time (McGuire and Sperling, 2013).

Practitioners should aim not only to help farmers and other market system actors (e.g., traders, transporters) to recover from shocks and stresses, but also to 'build back better' by increasing their resilience capacities to:

- minimize sensitivity to shocks and stresses (absorptive capacity); and
- modify conditions and practices proactively in anticipation of, or as a reaction to, shocks and stresses (adaptive capacity).

Also, capacity building needs to address the underlying cultural, institutional, and learning dynamics within a system and to enable communities to absorb and adapt over time (transformative capacity) (Mercy Corps, 2019).

The features of resilience programming in seed systems are still being debated and refined within a growing body of resilience experience. There are basic elements of resilient seed systems which can be supported even during an emergency response. For example, supporting the system and facilitating access to a diversity of crops, varieties and supply channels. See Box 3 in the SERT (page 13) for more information (McGuire and Sperling, 2013; Mercy Corps, 2019).

Box 3 Features of seed systems programming aiming for resilience

- **Systems** The focus of program interventions goes beyond seed, to incorporate activities that develop institutions, relationships, and knowledge, spanning processes in both formal and informal systems.
- **Diversity (crops and varieties)** Example: male and female farmers have access to a diverse array of crops and varieties to anticipate fluctuating conditions and various climatic stresses. (This does not necessarily mean new crops and varieties, but rather that farmers grow drought-tolerant, flood-tolerant or short- maturity crops, and diversify crop production strategies to incorporate different stress tolerances.)
- **Diversity (supply channels)** Example: male and female farmers have access to a wide variety of crops and varieties through social networks, formal, and local markets. Diverse suppliers may also operate within these different channels.
- **Availability and access** Seed of stress-tolerant crops and varieties is multiplied and seed production is scaled up (i.e., made available equitably to diverse groups of farmers, ensuring vulnerable farmers can re-sow if needed). The right seed needs to be available and accessible not just for the imminent planting season, but also for several seasons thereafter.
- **Mobilization** Groups and collective actions need to be catalyzed at multiple levels to respond to farmers' immediate needs and help communities avoid shocks or reduce shock stress impacts (e.g., farmer organizations promoted).

Source: modified from McGuire and Sperling, 2013; Mercy Corps, 2019

3.2.4 Explore further the viability of Community Seed Banks in Emergencies.

Around the world, community seed banks (CSBs) play a vital role in helping communities to save and exchange local seeds, promote conservation of local seed biodiversity, support seed access and availability, as well as enhance local knowledge in seed quality control (Vernooy et al., 2017). However, to date, there is a dearth of literature on the use and or potential role of CSBs in emergency contexts, typified by complex humanitarian challenges resulting from natural disasters and man-made shocks. In emergency situations, such as in times of conflict or after a natural disaster, communities' priorities often shift and their ability to set up or maintain a seed bank becomes more challenging. Especially in places where the nature of the stress is recurrent, such as drought or displacement, the likelihood that the seed bank can be replenished regularly with quality inputs diminishes. This has led to instances where NGO stakeholders must replenish the stock in the short term, and the failure of the CSB in the long term.

Participants of the virtual roundtable in early 2023 noted that communities have used CSBs to respond to numerous shocks and stresses, such as loss of crop diversity due to climate change and limited access to seed varieties due to conflict. However, it was noted that, in most cases, the CSBs were set up **prior to the shock or stress hitting the area**. In those circumstances, community members were able to draw on the CSB as a coping mechanism during the shock or stress. Concerns were raised, especially by the donors in the discussion, about IPs recommending establishing *new* CSBs during emergency responses. Different types of emergencies – such as war versus drought or floods leading to pests and diseases – may require different seed-related responses, and any emergency response type (including, potentially, CSBs) needs to be informed by an assessment.

Participants also discussed how CSB preparedness is not common, but sorely needed. For example, many shocks are predictable using meteorological data, data on conflicts, etc. Existing CSBs can be more proactive in planning for shocks and stresses through having risk reduction plans in place, to enable CSB scaling up or down as needed during and post-shock, while maintaining basic CSB functionality.

4. Conclusion and next steps

Building on important advances made in the seed aid field in the last decade, Mercy Corps, SeedSystem and other partners through ISSD Africa have brought together learning, experience and advice on assessing, choosing and implementing seed security responses to improve the impact of emergency interventions. If practitioners and other stakeholders use the SERT (including the references section, its tools and the 10 guiding principles) as well as other existing guidelines, checklists, decision trees, and tools, it should result in important seed aid improvements. However, donors, national and local policy makers, and implementers need to disseminate knowledge on better practice, train personnel in its use, and put incentives in place to ensure that existing 'better advice' actively shapes practice.

There is a need for deliberate capacity strengthening of humanitarian practitioners to enable effective assessment, selection, and implementation of seed-related interventions based on facts and not assumptions. Efforts such as the SERT, the Seeds Learning Group, SSSA training materials on SeedSystem.org, and on-the-ground training of trainer courses are in part meeting this need; however, additional efforts are needed to fully realise potential and improve seed systems interventions in emergency contexts.

Additionally, the potential of market-led approaches in sustaining seed systems is an area for further exploration. Local markets, in particular, serve as seed security safety nets for the majority of farmers, particularly last mile, smallholder farmers in times of stress. Supporting and improving local markets could bolster seed system resilience and catalyse local seed enterprise development. Possible entry points for improving and leveraging local markets might focus on fostering better seed health or on enhancing variety suitability for farmers.

Last but certainly not least, practitioners need to understand when non-seed aid may be the best response option. Optimistic as seed aid practitioners may be, bad practice persists and recognizing the signals is key. If an organisation repeats seed aid in the same area and for the same population multiple years in a row, it should conduct or demand a review. If practitioners chart a timeline on delivery and seed cannot arrive in farmers' hands during their normal sowing period, stop and think about appropriate non-seed assistance options.

Seed security response can and should be a dynamic field. As farmers' circumstances are constantly changing, the field of emergency seed aid should be innovative, evolving to meet emerging challenges and possibilities. We need to learn from mistakes and not repeat them. Moving proactively, managers and field practitioners should promote comprehensive documentation and the frank sharing of lessons in relation to all phases of emergency seed security response: assessments, intervention implementation, and evaluation of on-the-ground programs.

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