



Airbel Impact Lab
Research & Innovation at the IRC



Agro-pastoral Futures at a Crossroads:

Climate, Conflict and Resilient
Livelihoods Transformation
in Somalia and South Sudan



The Challenge

A Double-Bind with No Exit

For hundreds of millions of people living in contexts where climate and conflict compound one another, the greatest challenge is no longer just weathering the next shock—it's surviving one crisis after another while preserving the possibility of a future in the places they call home. Across fragile and conflict-affected settings, which are among the most climate vulnerable yet receive the least support, climate change is steadily eroding the livelihood systems that sustain households and local economies while driving humanitarian need. More frequent and severe droughts, floods, and extreme heat are widening the gap between what communities need and what existing systems can provide. In places already affected by conflict, displacement, weak governance, and economic fragility—such as Somalia and South Sudan—climate shocks are neither isolated nor temporary disturbances: they compound existing pressures, accelerate systemic breakdown, and erode communities' capacity to adapt over time. In both contexts, agriculture and pastoralism remain critical to household and local economies, yet communities face increasing difficulty sustaining the livelihood systems that have supported them for generations.

For households, livelihood collapse is one of the most visible consequences of these overlapping crises. Climate shocks—including floods and drought—, conflict and market disruptions interact to create a vicious cycle in which families lose livestock, productive assets, and income while becoming increasingly vulnerable to food insecurity, poverty, and displacement. Compounded by

declining humanitarian assistance, livelihoods deteriorate, competition over scarce natural resources intensifies, social tensions grow, and households face an increasingly stark choice: displacement for those with the means to leave or entrapment for those without. Millions are caught in a growing **double bind**—the livelihoods they traditionally relied upon are becoming increasingly unviable, yet safe and viable alternatives remain out of reach.

Meeting this challenge requires moving beyond helping communities adapt within systems that may no longer be able to sustain them. Through **Livelihoods Transformation (LT)**, IRC's climate research and innovation initiative launched in 2025, we are **investing upstream of displacement**: strengthening existing livelihoods where they remain viable, and building pathways for households to diversify, transition, or pursue mobility safely and voluntarily, on their own terms. Our aim is to support people to **stay when they can, move when they must, and do both with dignity**. Through this approach we intend to demonstrate that targeted investments in locally led livelihoods solutions strengthen communities' capacity to withstand and recover from recurrent shocks and reduce future humanitarian need.

BELOW: An IRC client's goats rest in the shade near Olol village, Somalia.



Research and Innovation: Pathways to Livelihoods Transformation

The LT initiative seeks to: (1) understand how, when, and why livelihood systems collapse; and, (2) translate those insights into practical, locally-led solutions that help communities build more resilient futures. Rather than assuming that existing livelihood systems can always be restored or maintained, LT begins with a different question: ***What happens when communities are already experiencing structural livelihood collapse, and when traditional adaptation strategies are no longer sufficient?***

Combining **systems thinking** and interdisciplinary research, including **behavioral science** and **human-centered design**, the initiative follows a staged process that moves from understanding complex livelihood systems to designing, testing, and refining solutions with communities. It began with a **global root cause analysis** exploring the structural drivers of livelihood collapse across fragile and conflict-affected settings before **localizing that analysis** through rigorous research and consultations with IRC country teams, technical experts, local partners, and communities in Somalia and South Sudan. This process informed in-depth **participatory research** to understand how these dynamics unfold within specific livelihood systems, identify locally relevant barriers and opportunities, and **co-create conflict-sensitive solution concepts** that are responsive to communities' evolving needs, priorities, and aspirations.

LT first launched in **Mudug, Somalia**, where we worked with communities and stakeholders to develop and validate an initial portfolio of solutions through the project's first Design and Ideation Phase. In June 2026, selected solution concepts **advanced into Prototyping** to test and refine them with communities, informing future implementation, iterative learning and evaluation, and—where evidence demonstrates effectiveness and feasibility—broader scale.



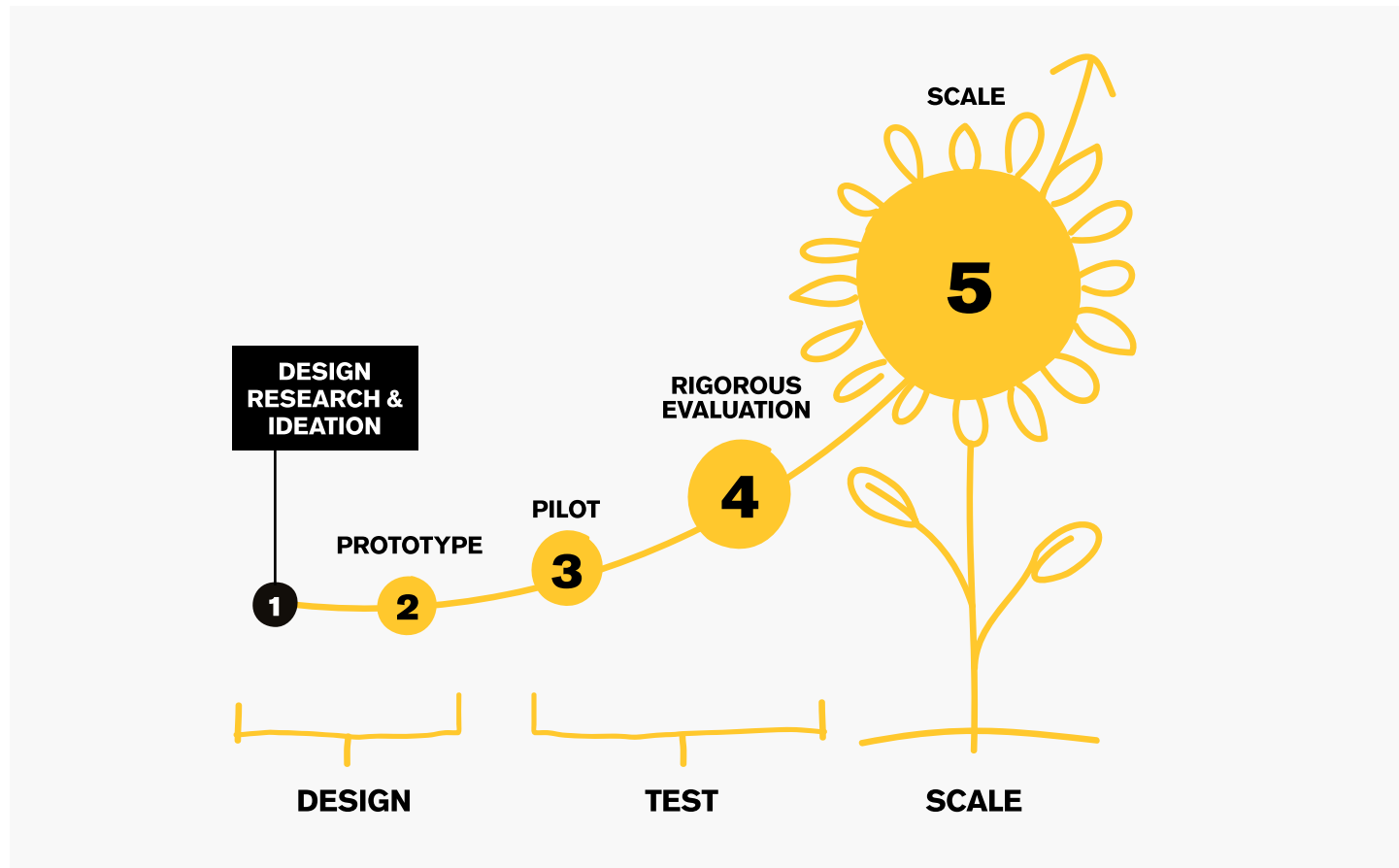
ABOVE: Water accumulates near an IRC-supported health facility in Mogadishu following torrential rains and severe flash flooding across several districts.



Building on lessons from Somalia, the initiative expanded to **Panyijiar and Renk in South Sudan** in spring 2026. Design research is now underway and will conclude in September 2026, drawing on sustained engagement with farmers, pastoralists, and other community stakeholders to understand local livelihood systems and identify key barriers and opportunities. As in Somalia, these insights will guide the co-development and testing of locally appropriate solutions. Promising concepts will then advance into Prototyping and, where evidence supports them, continue along the pathway toward scale.

Ultimately, LT is built around a simple principle: design locally, prove what works, and scale what succeeds. In so doing, it aims to shape a new generation of livelihood programming, one that expands people's options, strengthens resilience, and empowers communities to navigate increasingly uncertain climate futures with dignity.

FIGURE 1: Innovation to Scale Pipeline



ABOVE: IRC staff handle a sacks of crops at the Farmers' Economic Market Association (FEMA) store in Ajuong Thok Refugee Camp, South Sudan.

Identifying Root Causes

Livelihoods Under Pressure, Options Out of Reach

To ensure that we are working toward innovative solutions with scale potential across other fragile and conflict affected states facing similar challenges, we started our root cause analysis with a global lens. Through evidence reviews, key informant interviews with both local and global experts, and consultations with IRC technical and country program staff, we found common challenges to adaptation for people with climate-sensitive livelihoods across the most climate-vulnerable and conflict-affected contexts:

First, certain livelihood strategies are becoming unviable (**root cause 1**) due to the negative impacts of both sudden and slow onset disasters, a situation that is exacerbated by the mismanagement of natural resources by both governments and communities. Further, agro-pastoralists have limited access to adaptive options to maintain their current livelihood strategy (**root cause 2**) due to inadequate national financial resources (low GDP), government policies that restrict adaptive options in terms of water and land use, and conflict dynamics which destroy necessary infrastructure and limit mobility.

FIGURE 2a: Root Cause Analysis (RC 1&2)

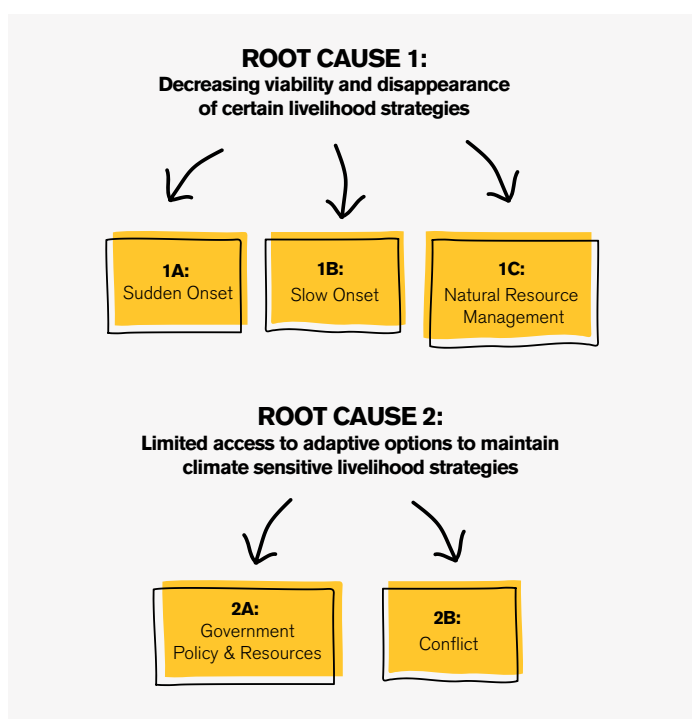
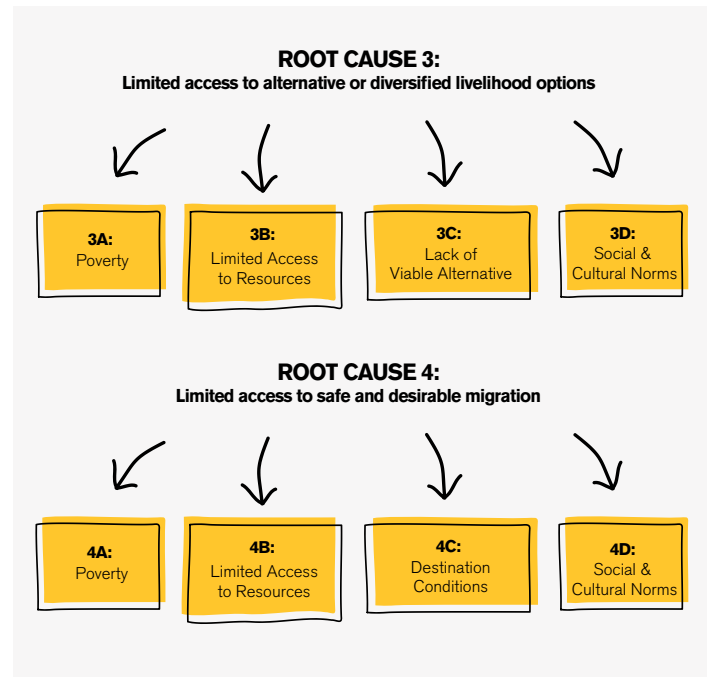


FIGURE 2b: Root Cause Analysis (RC 3&4)



Additionally, agro-pastoralists with unviable livelihood strategies have limited access to alternative or diversified livelihood options where they are (**root cause 3**), as well as limited access to safe and desirable migration (**root cause 4**). Poverty, limited access to information, technical and input support, lack of safe non-farm livelihood alternatives, and social and cultural norms all contribute to constraining agro-pastoralist options to transform their livelihood strategy in place. Whereas poverty, limited access to information and safe migration pathways, poor conditions at the destination, and social and cultural norms all contribute to constraining agro-pastoralist options to transform their livelihood strategy through migration.

Somalia and South Sudan

Collapsing Livelihoods, Converging Crises

Somalia and South Sudan represent two of the most urgent cases of how climate change, conflict, and rapidly shrinking humanitarian resources are undermining—and, in some cases, driving the collapse of—livelihood systems. While the drivers of crisis differ, both reveal the limits of conventional adaptation as traditional livelihood systems become less reliable and opportunities to build resilient futures narrow. These are not isolated humanitarian emergencies—they are frontlines where climate investment can protect viable livelihoods, expand pathways to diversification and transition, and strengthen resilience before a crisis deepens.

BELOW: Amira, a Sudanese refugee who has lived in Pamir Refugee Camp in South Sudan since 2016, winnows sorghum grown with support from the IRC's climate-resilient agriculture program.





DEEP DIVE

📍 Mudug, Somalia

In Somalia, recurrent drought, environmental degradation, insecurity, and displacement continue to erode pastoral livelihoods that have sustained communities for generations. Approximately **4.4 million people** face crisis or worse levels of food insecurity, while an estimated **1.7 million pastoralists** experience multidimensional poverty (FAO 2026; UNDP 2025). In **Mudug**—an arid region administratively divided between Puntland and Galmudug—, these national pressures converge across a livelihood system shaped by pastoralism, displacement, and growing connections between rural and urban economies, where livestock rearing and pastoral mobility remain central to livelihoods, the regional economy, and social identity. Galkayo, Mudug's capital, serves as a particularly important hub connecting surrounding dryland pastoral communities with urban markets, services, and long-established displacement settlements.

Localized Realities: Adaptation Amidst Livelihood Crisis

In Mudug, the four constraints identified through IRC's global root cause analysis are all clearly visible, but they rarely operate independently. Climate shocks, insecurity, displacement, and economic pressures reinforce one another, progressively limiting households' ability to sustain pastoralism, adapt it to changing conditions, pursue viable alternatives, or move safely toward opportunities elsewhere.

Traditional pastoral livelihoods are becoming increasingly difficult to sustain (RC1). Recurrent drought emerged as the **most immediate threat** facing pastoralist house-

holds. Three consecutive years of drought, followed by severe flooding in 2024, contributed to widespread livestock losses, displacement, food insecurity, and competition over scarce water and pasture (IRC 2025; [UNDP 2024](#); Halakhe & Miller 2023).

“**The uncertainty is a poison. It paralyzes us. We are always gambling. Do I sell my animals now, when they are still healthy, or do I risk holding them, hoping for rain? If I sell and the rains come, I have lost my wealth. If I hold them and the rains fail, they will die and be worthless. We are forced to think only of today, not next year.”**

— Pastoralist, Mudug

Mudug's pastoral communities have seen a 50-75% loss of income over recent years, with some communities reportedly **losing up to 90 percent of their livestock** since 2017, alongside rising water costs, declining milk production, and worsening household diets. **Shorter recovery periods** between shocks are undermining a system historically adapted to environmental variability through mobility and herd management, while resource scarcity is intensifying tensions and further disrupting access to productive land ([Agency for Peacebuilding 2024](#); IRC 2025).

ABOVE: Drought leaves the ground cracked and parched in Arladi IDP camp, Somalia.

“*Our way of life is tied to the land and our animals. The vast majority of us are pastoralists. Our wealth, our food, and our identity come from our herds of goats, sheep, and camels.*”

— Pastoralist, Mudug



The mechanisms that once enabled households to adapt are also weakening (RC2). Conflict increasingly restricts access to grazing areas and **makes movement with livestock more dangerous**, while Mudug's fragmented governance and recurring clan-based tensions complicate natural resource management and coordinated support. At the same time, **declining humanitarian assistance** and the erosion of customary safety nets have left households with fewer resources to absorb losses. Pastoralists continue to adjust their strategies, but **adaptation is increasingly short-term and reactive**, constrained by limited access to finance, services, infrastructure, markets, and institutional support (IRC 2025).

For households unable to sustain their herds, viable alternatives remain limited (RC3). Some families pursue farming, petty trade, wage labor, or small businesses, but these **options are constrained** by weak markets, declining purchasing power, and limited access to land, water, skills, and productive inputs (IRC 2025; FEG 2025; [ECHO 2025](#); [Mishra 2025](#)).

“*Providing [my children] with education... is more important to me than returning to our previous way of life,*”

— Female IDP in Galkayo (former pastoralist)

Many households therefore **rely on coping strategies** such as borrowing, purchasing food and water on credit, reducing consumption, or selling livestock under distress. These measures may meet immediate needs but often deepen debt, deplete productive assets, and **reduce the capacity to recover from the next shock** (IRC 2025).

ABOVE: Mohamed Husein, an animal health worker trained by the IRC, helps communities in Dinsor, Somalia, care for their livestock.



Transitions away from pastoralism are also shaped by more than economic feasibility. Livestock represent wealth, security, dignity, and **a deeply rooted way of life**. Even among people who had lost their herds, settled near Galkayo, or begun pursuing other work, many continued to **identify as pastoralists** and hoped to return if conditions improved (IRC 2025). For younger generations, however, **aspirations may be shifting**: urbanization and greater access to technology and information are increasing the appeal of urban life and drawing labor away from traditional pastoral systems. Alternative livelihoods must therefore be not only financially viable, but also socially acceptable and responsive to people's identities and aspirations.

Mobility, meanwhile, is becoming both more necessary and more constrained (RC4). Some households continue to move seasonally or across borders with their livestock, while others migrate temporarily for work or relocate to towns and displacement settlements after severe herd losses. Yet rising costs, conflict, insecurity, limited information, and social ties to place increasingly **restrict both pastoral mobility and access to opportunities** elsewhere.

“ You must move or lose everything. This is not a search for a better life; it is fleeing starvation.”

— Pastoralist from Mudug

For most community members with whom IRC spoke, permanent **migration was not a preferred pathway but a last resort** when other options had been exhausted (IRC 2025; IRC 2025).

What emerges from Mudug is **not a failure to adapt, but a steady erosion of the choices** people have to shape their own futures. Each successive shock makes existing livelihoods harder to defend, alternatives more difficult to establish, and movement more costly or dangerous. Addressing this challenge requires more than a single intervention: it requires a portfolio of solutions that protects viable pastoral systems while opening credible pathways to adaptation, diversification, and safe mobility.

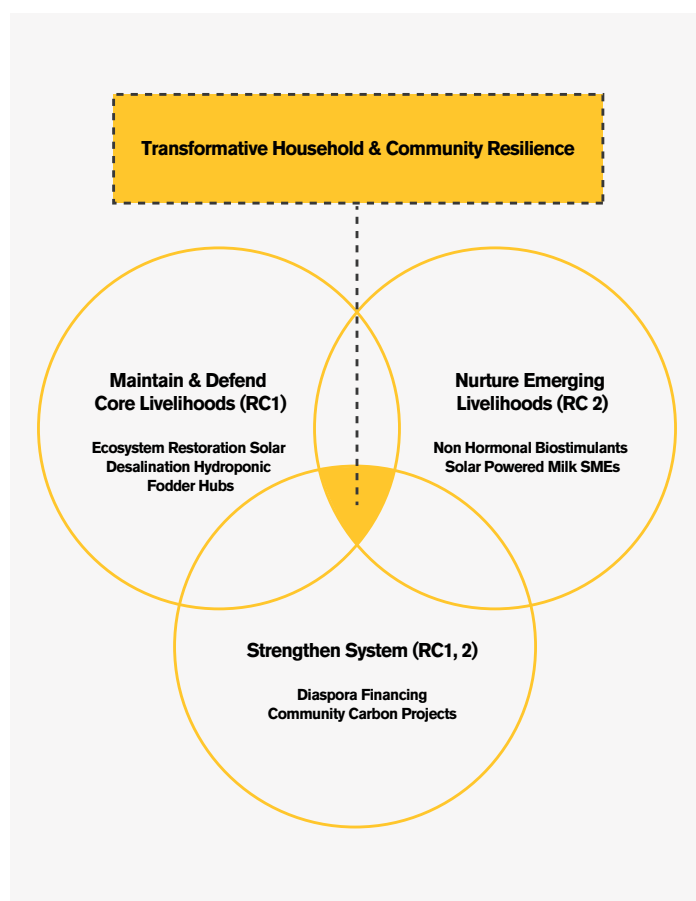
ABOVE: Abdirashid Mohamed, a village elder in Mudug, Somalia, tests clean water provided with support from the IRC.

Emerging Solutions: Protecting What Works, Building What Comes Next

The user-centered design and behavioral research process revealed that no single intervention is likely to address the complex and interconnected drivers of livelihood stress identified in Mudug. Instead, findings pointed toward the need for a portfolio of solutions capable of addressing multiple, overlapping barriers to resilience. In Somalia, the LT initiative therefore seeks to generate scalable solutions that advance three interconnected goals:

- **Maintain and defend core livelihoods:** Protect existing income sources and productive assets from climate and conflict shocks;
- **Nurture emerging livelihoods:** Create viable new income streams and livelihood diversification pathways;
- **Strengthen local systems:** Build durable market, financing, infrastructure, governance, and resilience systems that enable long-term transformation beyond short-term aid delivery.

FIGURE 3: Interconnected Goals of the LT initiative



Importantly, the initiative does not assume that all households should abandon pastoralism. Many seek to preserve pastoral identity while supplementing their income through diversified and adaptive livelihood strategies. The table below presents the emerging solution portfolio, including each concept's objective, proposed design, community feedback on desirability and potential risks, and the immediate steps required to advance toward piloting.

Community feedback is instrumental in shaping the way forward, helping refine solution design, identify safeguards, and determine which concepts are ready to move forward. Notably, each of the solutions below was rated as “most desirable” during local community consultations—with the exception of diaspora financing, which received a somewhat lower score—grounding the emerging portfolio in the expressed needs and aspirations of community members.

ABOVE: With training and support from the IRC, Hassan Mohamed grows crops for sale in local markets in Mudug, Somalia.

OBJECTIVE	SOLUTION	DESCRIPTION	COMMUNITY FEEDBACK ¹ : DESIRABILITY & RISKS
Maintain & Defend Core Livelihoods	Ecosystem Restoration & Community Resilience	Restore degraded rangelands through community-agreed protected areas, regenerative techniques, and local stewardship. Solar cookers would reduce pressure on recovering land by lowering firewood use, while IRC explores whether verified restoration and clean-energy outcomes could generate catalytic carbon revenue for future livelihood investments.	Total Score: 50/50 "To mitigate the risk of tensions , clear, defined boundaries and a common committee to represent all groups using the area would need to exist." — Host Male
	Community-Scale Solar Desalination	Install solar-powered desalination units at selected community boreholes to convert saline or brackish groundwater into irrigation-quality water. The model would adapt proven high-recovery technologies to Somalia, prioritizing compatibility with locally available and appropriate energy sources and exploring local manufacturing to reduce costs and ensure scalability.	Total Score: 50/50 "Having clean drinking water is the top priority in Docol village because this solution addresses a life-saving need." — Host Male
	Climate-Resilient Livestock Feed Systems	Establish circular feed hubs producing hydroponic fodder, greywater-grown duckweed, and black soldier fly larvae using low-water, low-tech systems and locally available materials. Women's and youth groups would operate the hubs as micro-enterprises supplying feed tailored to different livestock needs.	Total Score: 50/50 "For an IDP, the last three goats are our savings account. This system keeps those animals alive during the Jilal (dry season) when they would otherwise perish." — IDP Female
Nurture Emerging Livelihoods	Climate-Resilient Agriculture Inputs	Test non-hormonal biostimulants that strengthen crop tolerance to drought and heat while improving soil microbial health. By supporting beneficial microbes and reducing reliance on harsh chemical inputs, the approach aims to improve yields and long-term crop resilience across rainfed and irrigated systems.	Total Score: 50/50 "People who have never farmed before may be interested because the spray helps crops 'cope' with harsh environmental conditions." — Host Male
	Women-Led Solar Dairy Enterprises	Establish a women-led dairy cooperative that aggregates local milk, uses solar chilling and pasteurization to reduce spoilage, and packages products for higher-value urban markets. The model aims to improve milk quality and women's incomes while creating a pathway toward yogurt and other value-added products.	Total Score: 50/50 "The SME must have flexible shifts or onsite childcare to be truly accessible." — IDP Female
Strengthen Local Systems	Forecast-Triggered Diaspora Financing	Create a forecast-triggered financing system using drought forecasts, local monitoring, and satellite data to mobilize diaspora giving before impacts peak . Trusted financial partners would channel funds to communities through mobile money alongside guidance on investments such as water, fodder, animal health, and agricultural inputs.	Total Score: 45/50 "Remittances are personal, most of the people in the IDP settings don't have such access " — IDP Male

1 Over the course of two weeks in January 2026, we sought feedback from 20 clients and local stakeholders (10 men and 10 women), to understand the desirability, urgency, and risks associated with each solution in the ideas bank. Participants were asked to grade each solution, from 1-5, based on its desirability, resulting in a total collective desirability score out of 50.

These concepts will continue to be refined, validated, and adapted through iterative prototyping in Mudug, commencing in October 2026.

From Aid to Investment: Carbon Markets as a Complementary Pathway

Recognizing that declining humanitarian funding cannot sustainably support the scale of transformation required, IRC is also exploring how voluntary carbon markets could serve as a complementary financing pathway for climate resilience and livelihood recovery.

In Somalia, IRC is partnering with the Ministry of Environment and Climate Change to support the development of the country's first national carbon market guidelines, following the Ministry's designation as Somalia's Designated National Authority (DNA) and completion of a readiness assessment. At the same time, we are examining whether several of the livelihood transformation concepts described above could form the basis of future high-integrity carbon projects.

This work is grounded in the recognition that carbon finance is unlikely to provide a standalone solution. Rather, it may offer catalytic revenue for select projects, helping them demonstrate results and build the track record needed to attract larger blended-finance or results-based investments. By linking community resilience with emerging climate finance opportunities—while prioritizing rights, safeguards, and accountability—this work aims to create a virtuous cycle in which ecosystem restoration, livelihood protection, and long-term financing reinforce one another.



ABOVE: An IRC livelihood officer speaks with Hawo and her grandchild at a local water reservoir during a field monitoring visit.



DEEP DIVE

📍 Panyijiar and Renk, South Sudan

In South Sudan, prolonged flooding that has left some areas inundated for years, compounded by conflict and displacement, is progressively transforming landscapes and undermining pastoral, fishing, agricultural, and trading livelihoods. Today, approximately **7.8 million people** face crisis or worse levels of food insecurity, while an estimated **8.8 million people** dependent on livestock-based livelihoods experience multidimensional poverty (IPC 2026; UNDP 2024).

Panyijiar and **Renk** illustrate two distinct ways these national pressures are driving livelihood stress and collapse at the local level. Panyijiar, in Unity State, historically sustained an economy built around farming, livestock, fishing, and trade, while Renk, located on the border of Sudan in Upper Nile State, was a productive agricultural and commercial hub linked to cross-border markets (CSRF 2024; CSRF 2024a; FEWS NET 2018; FAO/WFP 2023). Today, prolonged flooding and violence are dismantling Panyijiar's productive systems, while the Sudan war has transformed Renk into an overstretched border community marked by mass arrival and prolonged settlement (IRC 2026; UNMISS 2025; UNHCR 2025).

Localized Realities: Different Shocks, Converging Constraints

The four constraints identified through IRC's global root cause analysis are visible in both locations, but they converge differently. In Panyijiar, flooding and conflict are eroding the livelihood system itself. In Renk, displacement is overwhelming a previously productive local economy, while heat, flooding, and water scarcity deepen the strain.

“During rainy season [...] many animals died from floods due drowning, and disease outbreak. I was shocked, stressed and vulnerable. My crops and land were destroyed by floods. I lost my pride and sense of belongings in the community.”

— Male pastoralist from Panyijiar

ABOVE: An aerial view of the flood-surrounded Rubkona IDP site in South Sudan, home to more than 100,000 people displaced by conflict.

Traditional livelihoods are becoming less viable through different pathways (RC1). In Panyijiar, **seasonal flooding has become prolonged inundation**, destroying farms, herds, infrastructure, and access to markets.



Flooding in Panyijiar displaced more than 100,000 people—including approximately 45,000 children and 26,000 women—in September 2025 alone.

In September 2025 alone, flooding displaced more than 100,000 people in Panyijiar, while field research found flood-driven agricultural losses of 33% among larger landholders and up to 85% among smaller farmers, alongside cattle deaths as high as 80–90% (Agiro & Tekenet 2025; IRC 2026). **Cattle raiding and insecurity** further restrict farmland, markets, and grazing corridors, turning climate displacement into repeated movement with-

out a clear recovery pathway (Agiro & Tekenet 2025; SIPRI 2025; Radio Tamazuj 2025; IRC 2021; IRC 2023; Eye Radio 2024).

In Renk, meanwhile, **the Sudan war** brought more than 220,000 new arrivals in 2025, many without assets, capital, or documentation, placing immense pressure on land, water, employment, markets, and public services (Borras 2025; DAP 2025; UNHCR 2024). Climate hazards compound this **displacement-driven strain**: temperatures reached approximately 45°C in 2024, more than 32,000 people were affected by flooding, and community members consulted by IRC described water scarcity, rising prices, unreliable harvests, and losses of roughly one-third of goat and sheep herds (UNHCR 2024; WHO 2025; ECDC 2025; OCHA 2024; IRC 2026).

Communities know how to adapt but the resources needed to sustain their livelihood systems are increasingly inaccessible (RC2).

In Panyijiar, households use mobility, early warning, dyke construction, farming adaptations, and fishing to manage risk. Yet **limited livelihoods support** leaves them without the inputs, services, transport, and market links needed to act on that knowledge (OCHA 2024a; IRC 2026).

In Renk, the response since 2023 has prioritized transit, WASH, and shelter, while many **refugees and returnees** remain unable to access land, documentation, capital, or livelihood opportunities (UNHCR 2024; UNHCR 2025a; MSF 2024; IRC 2026). Conflict compounds these barriers: **insecurity restricts livestock mobility and access** to grazing land in Panyijiar, while asset loss, documentation barriers, and disrupted onward movement **prevent displaced households** in Renk from reaching land and livelihood opportunities.

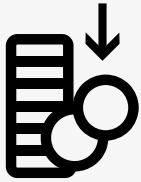


The Sudan war brought 220,000 new arrivals to Renk in 2025 alone; funding shortfalls sharply curtailed onward transport, leaving more than 9,000 people stranded



LEFT: Children fish in floodwaters that have made roads impassable and destroyed sorghum farms cultivated by Sudanese refugees at Pamir Refugee Camp in South Sudan.

Declining assistance is narrowing the space for adaptation even further: with the 2025 humanitarian response plan only 41% funded, local systems are increasingly overwhelmed, leaving households with assets, high ground, documentation, and stronger social networks best positioned to adapt (ALNAP 2025; Oxfam 2025; IRC 2026).



71% of South Sudan's humanitarian funding came from donors that subsequently announced reductions, while the 2025 humanitarian response plan was **only 41%** funded.

Alternatives exist but most remain too precarious to support durable livelihood transformation (RC3). Nearly three-quarters of Panyijiar's population were estimated to need humanitarian assistance, while unemployment affected roughly four in ten displaced heads of household in Renk (CSRF 2024; UNHCR 2024).

Families combine farming, fishing, petty trade, charcoal production, and casual labor, but limited capital and weak markets keep these activities **small-scale and low-return** (IRC 2026). Fishing may be better adapted to current conditions, yet safety, equipment, and market barriers restrict

access; small businesses offer greater returns but remain out of reach for households without capital or connections. Those with the fewest resources increasingly rely on **extractive or dangerous work**. Firewood and charcoal production degrade the natural-resource base, while gendered income strategies—such as water-lily gathering—can expose women to unsafe travel and heightened protection risk. Emerging findings also point to **harmful coping strategies** among some households—including theft, early or forced marriage linked to bridewealth, and substance use—which can exacerbate protection risks and deepen mistrust and community tensions (IRC 2026).

Livelihood decisions are also shaped by identity and inequality. In Panyijiar, cattle remain tied to dignity, social standing, and family continuity; many households pursuing fishing or trade still hope to rebuild their farms and herds. Crisis in Panyijiar has expanded women's roles in fishing, trade, dyke construction, and peace mobilization, but unequal care burdens and limited access to assets, savings, and credit continue to constrain their choices (IRC 2026).

Mobility remains essential, but increasingly moves people from one form of insecurity to another (RC4). In Panyijiar, flooding, conflict, and weak transport restrict access to farmland, grazing areas, markets, and services. Even **high ground is overcrowded and insecure**; women and girls face heightened exposure to violence, while older people and persons with disabilities may be **unable to relocate** altogether (Agiro & Tekenet 2025; UNMISS 2026; IRC 2026).

In Renk, reduced onward transport has **turned temporary refuge into protracted immobility**. More than one million South Sudanese have returned from Sudan, approximately 80% through Renk, but funding cuts left more than 9,000 people stranded in Renk by the end of 2025. More than half of arrivals through Joda/Wuntau border crossing were women and children, and roughly one in three experienced theft, extortion, or physical violence (UNMISS 2025; UNHCR 2025; UNHCR 2025a; UNHCR 2026; Mureithi 2025; UNHCR 2025b). Crossing the border may therefore provide immediate safety without opening a viable path to recovery.

What emerges across Panyijiar and Renk is **not a failure to adapt, but a rapid narrowing of the choices** available to households. In Panyijiar, families move between floodwater, violence, and insecure high ground; in Renk, people who have escaped war may remain unable to continue onward or rebuild. Responding requires locally grounded solutions that protect viable livelihoods, create meaningful alternatives, and ensure that movement leads toward safety and opportunity—not another form of entrapment.

Emerging Opportunities: Potential Innovations for Livelihood Resilience

The evidence points to a clear opportunity: communities are already diversifying their livelihoods, sharing knowledge, and organizing collectively, but these strategies remain constrained by limited assets, weak markets, and unequal access to finance, information, and social networks. The goal is therefore not to prescribe a wholesale transition away from agro-pastoralism. Rather, it is to help communities protect the livelihoods they value while turning existing adaptation and diversification strategies into safer, more productive, and more durable pathways.

“I will not force my children to become farmers; they should choose their own paths.”

— Farmer in Renk

In South Sudan, we have recently completed Design Research and are now moving into Ideation. We've identified opportunity areas, but the solutions themselves are still taking shape. South Sudan shares Somalia's objective framework (Figure 3)—protecting core livelihoods, nurturing emerging livelihoods, and strengthening local systems—but begins from different ecological and livelihood realities. While Somalia's portfolio responds to severe land degradation and the need for ecosystem restoration, South Sudan's starts from relative natural-resource abundance that households often lack the assets, infrastructure, and market access to use productively.

Next steps involve gathering substantive community feedback to refine opportunity areas into solution concepts, then prototype and test the most promising ideas for desirability, feasibility, affordability, and scale potential before advancing the strongest bundle to pilot.

BELOW: Sudanese refugee women and IRC staff tend a demonstration plot in Ajuong Thok, South Sudan, where women learn climate-resilient gardening techniques to improve household food security and nutrition.



OBJECTIVE	OPPORTUNITY AREA	EMERGING PRIORITIES
Defend Core Livelihoods	Investing in Productive Assets	Expand access to the assets households need to protect and adapt farming, livestock, and fishing livelihoods, including flood-adapted seeds and practices, kitchen-garden and dry-season irrigation inputs, safe canoes and fishing equipment, climate-adapted storage, and reliable veterinary medicines and services. Test better-adapted livestock options and provide start-up capital for high-demand goods and services where local supply remains limited.
Nurture Emerging Livelihoods	Supporting Livelihood Diversification	Provide grants, mentorship, and business training to help households strengthen complementary income streams and move into higher-value activities, including fish trading and small enterprises. Develop apprenticeships with electricians, plumbers, traders, and fisherpeople—particularly for young people and, where appropriate, women—and support local businesses that can fill unmet demand for nets, canoes, veterinary supplies, flood-adapted seeds, transport, and digital services.
Strengthen Local Systems	Supporting Market Systems	Strengthen producer, trader, and supply networks by expanding pooled storage and climate-adapted preservation of fish, improving access to higher-value regional markets, and supporting traders' unions to negotiate inter-community trade agreements and fairer operating conditions. Formalize credit through VSLAs and other lending mechanisms, explore community insurance, and support a gradual transition from in-kind food assistance toward market-based approaches linked to local producers and wholesalers.
	Strengthening Local Resilience	Strengthen locally-led early-warning and anticipatory-action systems that combine scientific forecasts with Indigenous and community knowledge and translate alerts into practical guidance. Support community-led dyke construction and flood-adapted housing trials, inter-community learning and trader exchanges that reinforce peace and mobility, and youth-led livelihood storytelling and archiving to preserve local knowledge and help counter social fractures.

While these are not yet finalized solutions, they provide a strategic foundation for co-developing and testing locally appropriate concepts with communities in Panyijiar and Renk. The specific pathways will differ: Panyijiar requires approaches that protect and adapt productive systems under recurrent flooding and insecurity, while Renk requires solutions that help displaced and host communities regain access to assets, markets, and economic opportunity.

Across both locations, however, the ambition is the same: to move households beyond repeated coping by protecting what remains viable, strengthening promising sources of income, and widening access to the assets, relationships, and systems that make meaningful adaptation possible.

The Way Forward

Expanding Choice Before Crisis

At the frontlines of conflict and climate crises, communities are faced with a shrinking set of choices and an increasingly constrained space for adaptation—not because they are failing to adapt, but because the conditions for adaptation are steadily being eroded. As existing livelihoods become harder to sustain, adaptive options diminish, and viable alternatives—including mobility—grow increasingly precarious, climate stress can quickly become livelihood collapse, deepening food insecurity, poverty, and displacement in contexts already marked by fragility and conflict.

Yet, even as these intersecting pressures become increasingly acute, **fragile and conflict-affected settings remain largely absent** from the spaces shaping global climate and climate-mobility agendas, limiting the extent to which the realities of conflict, displacement, and humanitarian need inform policy priorities and financing decisions.



Future livelihoods programming and donor support must therefore be built around three priorities:

- 1. Expanding the choices available to communities.** Resilience should not mean assuming that people abandon valued livelihoods or remain in places that can no longer sustain them. Resilience programming should protect existing livelihood systems where they remain viable while creating credible pathways to diversification, transition, and safe, voluntary movement on terms shaped by communities themselves.
- 2. Investing in integrated, systems-based solutions.** Climate, economic, environmental, and institutional barriers cannot be addressed in isolation. Through the LT initiative, IRC is developing and testing portfolios of locally led solutions that address these constraints together and measure success not only through income, but through stronger markets, healthier ecosystems, greater agency, and reduced humanitarian need.
- 3. Prioritizing support before communities' options are depleted beyond restoration.** In fragile and conflict-affected settings, the window for meaningful adaptation is narrowing. Donors should urgently direct flexible financing and support toward contexts where climate and conflict are already eroding livelihoods, but where timely investment can still preserve viable adaptation choices.

As climate and conflict increasingly converge, **the choice for donors and doers is clear:** invest in resilience now or continue absorbing the rising human and financial costs of crisis response later. Fragile and conflict-affected settings such as Somalia and South Sudan should not be treated as too risky for climate investment, but as places where well-designed investments can deliver **some of the greatest human and systemic returns.** By investing in locally-led research and innovation, flexible financing tailored to fragile contexts, and the evidence-driven expansion of promising solutions, the international community can help ensure that frontline communities are not merely asked to endure change but are effectively equipped to shape what comes next.

LEFT: Halimo stands on her small farm in Dinsor, Somalia, where IRC support helps her build resilience to climate change.

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