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Taadoud

Transition to Development Project

Risk and Returns: Household Priorities For Resilient Livelihoods in Darfur

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Acronyms

CAFOD	Catholic Agency For Overseas Development
CAHW	Community Animal Health Worker
CRS	Catholic Relief Services
HH	Household
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
INGO	International Non-governmental Organization
ISI	Income Stream Index
MOA	Ministry of Agriculture
NGO	Non-governmental Organization
OR	Operational Research
PIPs	Policies, Institutions, and Processes
PRA	Participatory Rural Appraisal
SDG	Sudanese Pound
SHARP	Sudan Humanitarian and Resilience Programme
SILC	Savings and Internal Lending Community
TDO	Trust for Development Organization
UMCOR	United Methodist Committee on Relief
WASH	Water, Sanitation, and Hygiene
WFP	World Food Programme
WVI	World Vision International

Glossary of local terms

Abbala	pastoralists specializing in rearing camels
Ajawid	local committee for negotiating disputes, especially involving livestock
Baggara	pastoralists specializing in rearing cattle in western Sudan; also applies to the type of Sudan Zebu cattle
damra	pastoralist settlement, sometimes seasonal, on the outskirts of a village
donki/ dwanki (pl.)	deep borehole with a mechanized pump and large elevated water tank that can deliver a large amount of water in a short time
feddan	measure of land, equal to about an acre
gizu	northern rangeland most often used by Abbala pastoralists during the rainy season
goz	stabilized sandy soil suitable for growing millet and sorghum during the rainy season
mukhamas	measure of land, equal to about a half of a hectare
murhal	official livestock corridor used by herds during seasonal migrations
nafir	communal working groups, most often for agriculture, but also other activities
sanduq	traditional savings or insurance scheme; can take many different forms
sheik	village leader
souk	market
talaig	period between harvesting and planting when herds can be in a cultivating region
wadi	seasonal stream or river bed

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Executive summary

This study describes and analyzes how livelihoods in the Darfur Region have been affected by multiple shocks experienced over the past 15 years, the choices families have made to sustain themselves throughout, and the extent to which they have recovered. The lessons learned have been shared as part of an operational research project in support of the Sudan Humanitarian and Resilience Programme (SHARP), a six-member NGO partnership led by Catholic Relief Services (CRS). SHARP supports conflict-affected households to rebuild their livelihoods and to be prepared to deal with future shocks and stresses.

The research process was a collective endeavor, involving national research partner Ahfad University for Women, Taadoud implementing agencies, and secondees from state-level government personnel (Ministry of Agriculture). The study adopted an iterative, stepwise approach to learning. It started with a desk study, followed by a scoping study in West Darfur (Fitzpatrick and Young 2015) and finally an expanded operational research study, which is reported on here. During this process, Feinstein shared findings and built research capacities through seven workshops, which promoted participation in review, analysis, and shaping recommendations.

The operational research covers four case studies in seven localities in West, East, and South Darfur. The total sample of 333 households was drawn from 28 villages in the seven localities across the three Darfur states. Field methods included Participatory Rural Appraisal (PRA) techniques: livelihood mapping and community resource mapping, timelines, and proportional piling. Semi-structured interviews were also conducted.

The study developed an Income Stream Index (ISI) that combined household preference for livelihood activity (income stream) with their dependence on that income stream. Changes in this index through a 15-year recall period (2000–2015) were reviewed. This tool showed that the two predominant and preferred livelihood activities are rainfed cultivation and raising livestock (referred as Tier 1 activities). Usually households are engaged in both and specialize in one. By cultivating, pastoralists reduce their need to sell livestock during good years, allowing their herds to multiply faster. By raising livestock to sell for cash needs, specialist cultivators can reduce the amount of grain they need to sell, thus preserving their granaries. They aim to have sufficient stores to feed the household for two to three years. Both livelihoods have unique strategies for building resilience.

Changes in livelihoods over time

The case studies in the different Localities and States (see Figure 1) mapped changes in livelihood strategies over time and revealed major shifts in livelihood strategies in response to the wide-ranging shocks and risks over the past decade or more.

Southern West Darfur has experienced tremendous turmoil over a long period, severely disrupting the livelihood strategies of the villagers but with relatively little negative impact on the food security of pastoralist livelihoods. From a sense of relative self-sufficiency during the reference period (2000 to 2002), the villagers dropped suddenly to a very low point in 2003 to 2004, when many were displaced. At that time, households resorted to food aid, the collection of firewood, and casual labor in order to survive. They fueled their recovery by slowly increasing their engagement in their more preferred Tier 1 activities (cultivation and livestock production), which required either capital or regaining some of their former access to cultivable land. As these more profitable, scalable activities increased, their relative dependence on less preferred, lower Tier activities decreased, leading to an overall improvement in their earning potential. The recovery was supported by improved infrastructure and access to services, but primarily by increasing access since their former displacement to the natural resources key to their livelihood strategies, namely fields for cultivation. The recovery has been limited by the ongoing insecurity, which has prevented

households from fully re-engaging in one of their most important Tier 1 activities, livestock rearing, while also leaving them with less access to land for cultivation. Shocks, such as floods or the drought in 2013, have also served to slow the recovery from the earlier, conflict-related shock in 2003. Although the proportion of income from animals and agriculture is approaching pre-2003 levels, total income from these activities remains diminished, and recovery appears to have plateaued. Further recovery now depends primarily on increasing access to natural resources, which, in turn, depends on improving relations with the pastoralists by shifting from relationships of intense competition and opposition to relationships of complementarity and cooperation.

In the northern part of West Darfur, Kulbus has a drier climate compared to the southern localities sampled. Kulbus also has had a very different experience of shocks and recovery. In the settled villages, while households practice both cultivation and livestock, there is a greater emphasis on livestock compared to villages in southern West Darfur. Although households in Kulbus lost almost all of their physical assets in 2003, they quickly regained unrestricted access to their fields and were able to restart both of their top income streams, agriculture and livestock rearing. These quickly drove their recovery, which is nearly complete, though they still have reduced herds. Most households reported that they were able to cope with the drought in 2013 and feel they will be able to cope with the poor harvest in 2015 if there is a good harvest in 2016. Relations with pastoralists in the area also appeared better, and no conflict was reported.

The sampled households in the northern areas of East Darfur (Assalaya) included a mix of livelihoods, but were mostly agro-pastoralists who depended primarily on agriculture supplemented with small numbers of livestock. The households in the southern areas (El Ferdous) were almost completely Baggara pastoralists with larger herds of cattle and permanent villages (rather than temporary settlements) in the sampled localities. This population experienced little impact from the wider regional conflict and moderate impact from the inter-tribal conflict in the more northern parts of East Darfur. Most of the shocks mentioned were related to birds, pests, and low rainfall affecting the crops. These households did not lose access to their fields or water sources except for the briefest periods and appear to have weathered the past 15 years without significant trouble. Households reported that the past year, 2015, was the driest of the past 15 years. Though the millet harvest was negligible, the groundnut harvest was only a little smaller than normal, and most households appear to have the capacity to support themselves until the next harvest. If the 2016 harvest season is also dry, then the households with fewer animals may have difficulty coping without risking their long-term livelihood goals.

South Darfur was moderately affected by the regional crisis, and recovery has been severely hampered by inter-tribal conflict. In response, households in the case study have set up two residences, living in their villages during the rainy season to cultivate crops and collect palm leaves, while fostering more urban income streams in the camps and cities during the dry season. Gains made from their low point in 2003 to 2005 were lost in 2013 and 2014, years with especially fierce tribal conflict. Whereas most of Darfur was reaping a bonus harvest, in 2014 this region was unable to benefit due to a lack of access to their fields, and the region declined to a new low. However, the households' ability to fall back onto Tier 2 income in 2014 instead of having to resort to the Tier 4 activities they used in 2003 to 2005 provides hope that their strategies now include the adaptability to cope with shocks like the periodic loss of access to their land. Regardless, their long-term displacement, and the fact they now have reduced access to natural resources in their villages, has prevented a stronger recovery.

The application of the Income Stream Index revealed that patterns of risk and recovery varied widely across the case studies. The two areas struggling most with recovery were South Darfur and southern West Darfur, largely because of their change in circumstances associated with the impact of different types of conflict that have reduced their total production from Tier 1 activities.

Interviewees frequently mentioned the importance of human capital to resilience: absent men, a chronically sick family member, or many small children all contributed to reducing the

resilience of a household, while the presence of an unmarried son had a positive impact on household resilience.

The study sought households' views and perspectives on the shocks over the past five years, how much suffering they caused, and the characteristics of households that either recovered more or less than others. As expected, covariate shocks such as drought, floods, and conflict affected the most households, while idiosyncratic shocks such as chronic illness or death of a family member had a far higher impact than any of the covariate shocks. Social networks and cooperative activities served to support households facing idiosyncratic shocks. Examples of such activities included supporting one another with daily tasks such as water collection and working together on agricultural tasks (known as *nafir*).

The importance of markets to resilience

Across all the livelihood case studies, markets and trade were crucially important, both in relation to supply and demand for the output from cultivating crops and buying and selling livestock, and for supplying the inputs needed for these activities (seeds, tools, livestock drugs, etc.). Re-analysis of the Taadoud Baseline Data showed that access to markets was associated with better Individual Dietary Diversity Scores for women, Household Hunger Scores, and Coping Strategies Index Scores. These relationships were even stronger among households reporting a recent shock, suggesting markets are crucial to both resilience and recovery.

Better-off households employed investment strategies in a particular commodity to generate income, while poorer households used the market in multiple ways to supplement income, especially in response to shocks and during recovery. The closer a household was to a market, especially a daily market, the more opportunity they had to do these myriad activities on a regular basis. When primary production dipped, households shifted into a range of trade-related coping strategies, such as: casual labor in the market; transporting goods with wheelbarrows or donkey carts; collection and sale of firewood, grass, palm leaves; and production and sale of charcoal.

Markets in Darfur have always been relatively poorly integrated with national markets due to the long distances and poor roads, and during periods of insecurity this isolation potentially increases, in part because of impromptu checkpoints along trade routes. However, smaller village markets are reporting more traders, who are purchasing primarily firewood and charcoal but also grain and animals.

Shocks can affect not just the price of goods in a market, but the markets and trade routes themselves, changing the effectiveness of households' resilience strategies. Improving the integration among markets within Darfur and between Darfur and the rest of the nation may help mitigate the impact of local shocks to production on market prices.

Investments in infrastructure

Investments in infrastructure by government and humanitarian agencies have encouraged the return of displaced families, supported their recovery, and stimulated the local economy, integrating Darfur into the country socially and economically. The benefits to resilience included a combination of reducing vulnerability to shocks like conflict or illness and supporting recovery by reducing costs and increasing productivity.

Particular investments that were considered most helpful in relation to recovery included road paving and improved access to water. Road paving increases local transport, improves communications and integration of markets, and promotes social integration. Access to clean water has improved significantly and was considered one of the most helpful inputs, especially during shocks. Most systems are simple boreholes with a hand pump, but in East Darfur and in the occasional village in the other areas water yards (*donki/dwanki* (pl.)) were supported, which are designed for a much larger, more rapid delivery of water and serve both people and livestock. These improved water sources were valued for the quality and delivery of the water (for domestic use, children could be tasked with collecting water), and the time savings gained. However, the majority of hand pumps ceased to function after the first or second time they broke down after the supporting agency had moved on.

After water, the three most common services available in the villages were health centers,

schools, and police. The value of these services depended on perceptions of need, quality, and reliability. Police provided a sense of security, and their presence was felt to reduce the worst security incidences, although theft and risk of livestock damaging crops continued. Access to these services helped people to feel "settled," and they could look forward to recovery.

Another service that has been beneficial to recovery is the Taadoud Savings and Internal Lending Communities (SILCs). Borrowing at interest is seen as very risky by households that are struggling to meet their basic needs and in the culture of Darfur is not always a positive strategy. SILC groups instead use their capital for joint investments, buying in volume at a discount to sell retail at a higher price, buying young livestock to raise and sell when the animals are grown, or buying seeds for a shared field and shared profits. These spontaneous cooperative activities increased the confidence of the groups in each other and in their own business acumen, while also increasing the amount of income in the fund to be distributed to the members, further supporting recovery.

The study concludes with a discussion of the following six broad areas and makes ten recommendations.

1. **Primacy of cultivation and livestock rearing:** Livelihood systems in the Darfur Region depend primarily on rainfed cultivation and raising livestock, both of which are uniquely adapted to the extreme rainfall variability. In good years, the two livelihood systems have the potential for yielding high returns in proportion to the effort and investment required. They are the principle drivers of recovery. Supporting households to re-establish these highest-return activities will likely have much more positive impact than investments in alternative lower-return activities that are apt to be more subject to the forces of competition.

2. **Strengthening and rebuilding weakened livelihood asset portfolios:** The study has shown through the changing Income Stream Index that communities are making progress on their recovery trajectory, but many still have a long way to go. Recovery requires further rebuilding of livelihood assets, in particular social and human capital, through investments in basic services (especially health and education) and infrastructure (transport, roads, improved water sources). In practice, the multiplying effect of investment in infrastructure is sometimes neglected in favor of "capacity-building" activities such as training and demonstrations with minimal physical inputs. There still remains a strong need to increase available services and infrastructure or more often, to improve the quality of existing services and infrastructure. Re-building health services will also play a major role in addressing illnesses, one of the major idiosyncratic shocks.

3. **Mismatch between short-term WASH inputs and building resilience:** After more than a decade of humanitarian WASH programming, considerable infrastructure, especially hand pumps, has been installed. Much of the infrastructure has already broken and has been left unrepaired. The NGOs installing the hand pumps diligently trained and equipped the communities to maintain them, but they considered the hand pumps a stand-alone resource with a very specific, limited use. The pumps were not considered part of a larger, integrated system of natural resources with long-standing management systems. These failed bits of infrastructure can provide tremendous learning opportunities for implementing agencies on why such activities fail. They are also a low-cost opportunity to increase access to clean water.

4. **Power, relationships, and access to natural resources:** Natural resources, land in particular, are key to all livelihood strategies in Darfur. In the case studies with the least recovery, interviewees spontaneously gave a similar root cause: an extreme power imbalance that dominated access to

resources. Despite this imbalance, elsewhere local experience of negotiating and resolving disputes over natural resources (land and water, for the most part) has been shown to promote a closer working relationship between groups of users. Clear identification and understanding of mutual interests can serve as the basis for negotiating new agreements that reflect cooperative arrangements around these interests.

5. **National and state policy to make space for local solutions:** In the past, the interface between the national/state-level policies and the local tribal administration allowed for some flexibility in local governance to make decisions; for example, in determining seasonally dependent events such as the *talaig*. A further example of local governance for local solutions is the *ajawid*, a local council that negotiates the settlement of local disputes. The *ajawid* has been weakened over the past ten years, but recently support from Taadoud has strengthened the *ajawid*. In a context of climatic and ecological variability, flexibility in local governance is crucial. Likewise, in practical terms for international agencies, it is essential to both work directly with communities, including all users of local natural resources, and to ensure the involvement of local line ministries when designing and implementing programming.

6. **Hope in relationships: Promoting integration:** Examples of relationships between groups using similar natural resources, such as villagers and pastoralists, spanned a wide range. Some were cordial and involved sharing of natural resources, which led to greater recovery. Some relationships were on the opposite end of the spectrum, with tensions running high and access to natural resources extremely limited for one group. Conflict was more common in these relationships. In a context where primary production is everything, communities must above all else have access to sufficient natural resources—land of various types, water, pasture, trees, etc.—but most particularly land. Although the relationships have been polarized and strained by the events of the past 13 years, rebuilding these relationships to create new agreements and management strategies that include all users is key to recovery, prevention of future conflict, and the process of becoming resilient to all shocks.

The report makes the following ten recommendations.

1. Tailor interventions to the context, taking account of the local population and its experience of shocks.

2. Promote inclusion by example in the design and targeting of project activities.

3. Support community needs for water in an environmentally and socially sustainable way.

4. Consider capacities to cope with and adapt to both covariate and idiosyncratic shocks.

5. Promote opportunities for co-learning and active participation of national counterparts.

6. Reframe the narrative about farmers and pastoralists to emphasize their common interests, goals, and values.

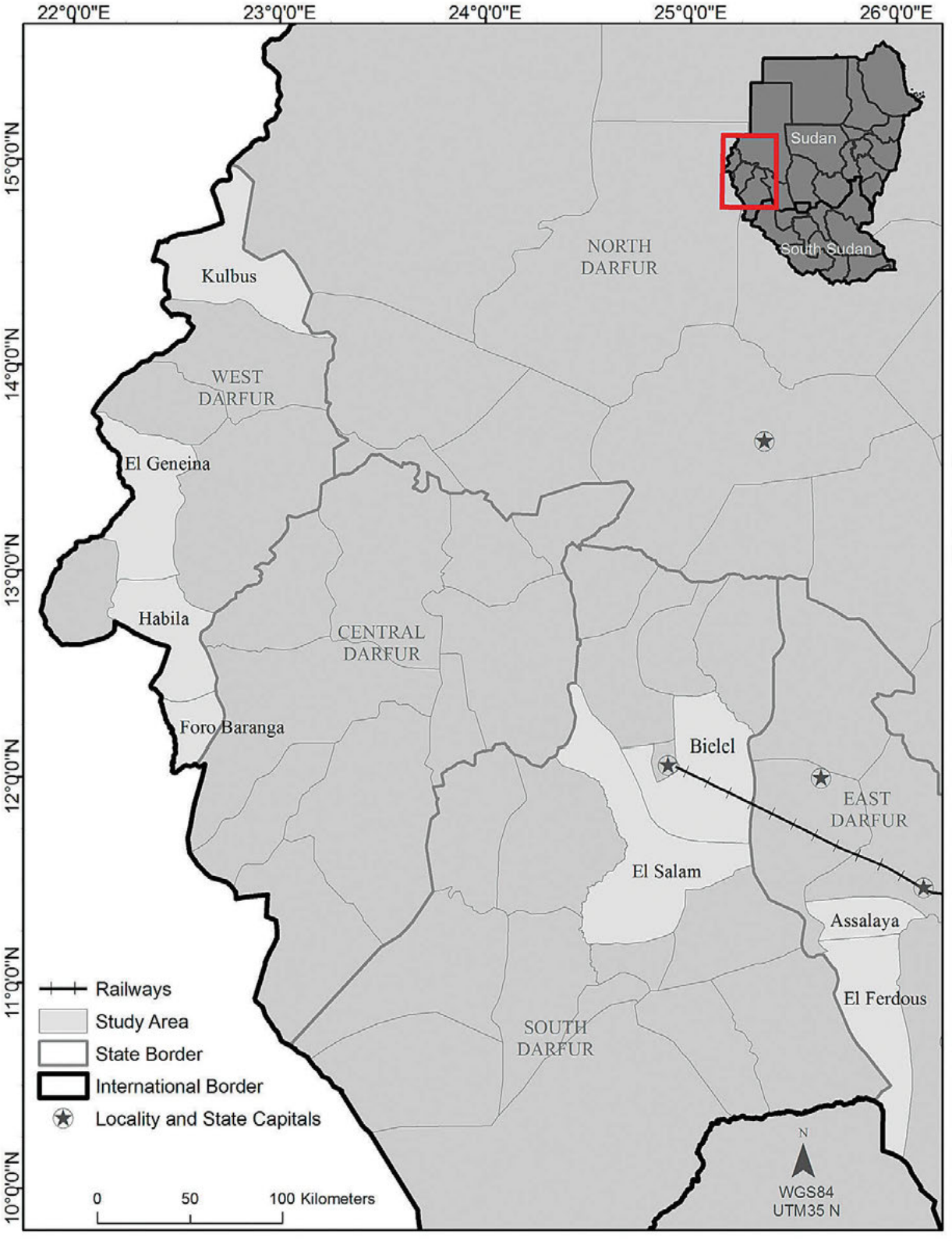
7. Advocate for the role of local negotiations and agreements in the management of natural resources.

8. Review how resilience is measured and understood, including tools for monitoring food security.

9. Recognize the importance of markets in building resilience and the need for market analysis beyond price information.

10. Give greater recognition and support to improving primary production.

Figure 1. The geographical spread of the areas sampled in the Darfur Region.



1. Introduction

The Darfur Region is vast and varied, ranging from the wetter southern savannah on the border with South Sudan to the steeper mountain slopes in parts of South Darfur and to the drier, undulating sandy soils extending north to the fringes of the Sahara Desert. Throughout this region, peoples' livelihoods depend primarily on direct access to natural resources and over centuries have become well adapted to the climate variability that is characteristic of the region. This adaptation is the basis for the resilience of both the people and their livelihoods. This resilience has been severely tested over the past 15 years by a series of shocks, often overlapping and causing major disruption to lives and livelihoods, leading to a protracted complex emergency. Different scenarios related to multiple types of shocks have played out across the region during this time. Darfur provides an unprecedented opportunity for learning lessons regarding livelihood resilience, with a view to informing policies and practice in this specific context to support local recovery and resilience building. Furthermore, lessons learned in Darfur can be applied in protracted crisis settings elsewhere.

The Taadoud Project supports conflict-affected households to rebuild their livelihoods and to prepare them to deal with future shocks and stresses. Taadoud is implemented across all five Darfur states in over 200 communities by a six-member partnership led by Catholic Relief Services (CRS) and funded by the United Kingdom's Department for International Development (DFID) under its Sudan Humanitarian Assistance and Resilience Programme (SHARP).[1] The specific aim of Taadoud is to build the resilience of households and communities by addressing the problem of insecure livelihoods that leads to food insecurity and malnutrition. Taadoud selects responses that will increase the uptake of improved nutritional, agricultural, and pastoral practices and strengthen communities' adaptive capacity to cope with stresses and shocks.

Within this project framework, Catholic Relief Services commissioned the Feinstein International Center at Tufts University Friedman School of Nutrition Science and Policy, in partnership with Ahfad University for Women in Omdurman, to undertake operational research as part of the Taadoud Project. The broad aim of the SHARP Taadoud operational research (OR) is to strengthen the impact of resilience-related actions and interventions through: first, improving understanding and analysis of resilience in the Darfur context using a livelihoods lens; and second, increasing the capacity of local, national, and international stakeholders in resilience approaches and operational research. The research analyzes how livelihood systems have been affected by the multiple shocks experienced in Darfur, the choices families have made to sustain themselves throughout, and the extent to which they have been successful.

This operational research was conducted in three phases. An extensive desktop study explored the concept of resilience, related contextual factors, and livelihoods in Darfur as described in available literature, in secondary analysis of baseline data, and in interviews with key Sudanese experts (Fitzpatrick and Marshak 2015). This desktop study formed the basis for an approach to a scoping study, which further contextualized these concepts and described families' experience of shocks and their responses to those shocks (Fitzpatrick and Young 2015). The operational research explored these concepts in more detail and developed an approach to investigating resilience from a local perspective.

Despite a growing body of theory on liveli-

[1] Taadoud is one project implemented by five partners in five states and supported by the Catholic Agency For Overseas Development (CAFOD) as technical lead for the implementation of one of its components. The five implementing agencies are: Catholic Relief Services (CRS), Norwegian Church Aid (NCA), Oxfam America, United Methodist Committee on Relief (UMCOR), and World Vision International (WVI).

hoods and resilience, and how best to mitigate the impact of shocks and speed recovery, the real experts are the families who have experienced these shocks directly. The families' narratives of living through a very tumultuous period in the region and country and their strategies for supporting themselves and for rebuilding their lives give us powerful insights into what has helped them and, conversely, what continues to limit their recovery.

This study aims to investigate resilience from the perspective of the households themselves, to distill their stories and their careful explanations into a format that is usable by governments and humanitarian agencies aiming to support them and others like them elsewhere.

The focus of this study is on livelihoods and the people who practice them. This report attempts to describe the impact of shocks and events on households and livelihood strategies, and how the shocks and events affect the ability of each household to recover.

Four different areas within the region were sampled, each reflecting a different experience of the past 15 years and providing unique insights on livelihood dynamics in response to a wide range of shocks and paths to recovery. A comparison of these four different cases reveals a set of similar factors that determined the scale of the impacts from shocks and the speed with which households were able to recover.

This report starts below with a background on livelihoods in the Darfur Region, followed by a description of the methods in Section 2, including an explanation of the novel Participatory Rural Appraisal techniques developed to help households communicate their experiences. Section 3 describes in detail the stories of the four unique livelihood systems that serve as case studies, delving deeply into the stories, examining the dynamics of the shocks each experienced and the pathways to recovery. A comparison of these cases in Section 4 reveals the importance of specific factors, which facilitate or drive recovery, and those factors that must be resolved before full recovery can be achieved. Comparing different case studies helps to distinguish those aspects of resilience that are more context-driven from those that are more generalizable. Finally, Section 5 presents a discussion of the most important factors to take into account when supporting resilient livelihood strategies in Darfur and more broadly.

1.1 Background on livelihoods in the Darfur Region

The Darfur Region is ethnically diverse as a result of a long history of trade and migration, and the historical tradition of the Fur Sultanate encouraging immigration and assimilation, which resulted in multiple discernable tribes and sub-tribes. Many of the tribes and sub-tribes are associated with a particular geographic area, which historically would have been their traditional tribal homeland (*dar*). This link between tribe and a particular geography or ecological zone partly accounts for the association between a particular tribe and a particular livelihood. For example, four of the northernmost tribal groups—the Zayadiya, Meidob, Zaghawa, and Northern Rizeigat—are distinct tribes, but all share the common culture of Abbala, camel-herding pastoralists.

Darfur has one rainy season and one dry season, and, where possible, both are used to produce different types of crops using different types of land (Morton 2005). Rainy season cultivation produces the staple grains (millet and sorghum) and is the most important season for households. Historically, farmers practiced shifting cultivation or crop rotation, incorporating a long fallow period. This practice is no longer possible due to a combination of population growth and insecurity. Population growth means more people are competing for land, which reduces the amount of land available per household. Insecurity further limits the amount of land available to certain groups (Osman et al. 2013; Robinson 2005). As the land available per farming household has been reduced, farmers have had to cultivate an increasing percentage of their land, to the point where they must cultivate all land available to them each year in order to support their families. Farmers reported that the continuous cultivation of the same land is reducing the fertility of these fields.

The growing season is shorter in the northern parts of the region than in the southern parts.

Thus, farmers in the southern parts tend to cultivate longer-growing sorghum and millet varieties, while farmers in the north tend to cultivate a variety of millet with a short maturing time. The difference in the harvest periods in the northern and southern areas is between two weeks to one month, and the farmers in the north tend to harvest first. The major difference is when planting occurs. Farmers in the south tend to plant in late May through June, while farmers in the north normally plant in late June through July.[2] The rainy season crop is dominated by millet, coupled with a significant amount of okra and some sorghum in the wetter areas. Dry season crops are usually planted in alluvial soils associated with dry riverbed systems (*wadis*) just before or after the heavy work of the rainy season harvest and sometimes continue to be planted throughout the dry season. *Wadi* land suitable for dry season cultivation is limited and varies by village and region. In areas where it is in short supply or where the water table is so deep it requires a mechanical pump, *wadi* land is usually owned by a small, better-off minority.

Sedentary cultivating households tend to specialize in goats and occasionally sheep, though in more secure areas they might also own a few cows (Holt and Coulter 2011). These animals are used as a sort of savings (that might also grow slowly) as well as a source of milk for the household (Morton 1993).

Darfur pastoralists tend to specialize in either camels (Abbala) or cattle (Baggara), although many Baggara and Abbala are now increasingly investing also in sheep (Krätli, El Dirani, and Young 2013). Herd sizes vary from less than 100 livestock to 1,500 or more, with the larger herds usually moving the longest distances and moving on first so as not to exhaust local resources for smaller herds. Figure 2 shows cattle grazing near Kulbus in West Darfur. Wealthier villagers or even townsfolk might also own large herds and hire herders to migrate with the herds rather than assuming that lifestyle themselves (Osman et al. 2013). Small herds tend to remain near the home, roaming within the distance of a day's walk of the village. Patterns of livestock migration vary within the region, although within the sample areas large herds migrate in a general south–north direction, following the pattern of the advancing rainy season (Young et al. 2013). There are officially demarcated livestock corridors (*murhal*) connecting seasonal grazing lands, although there have been major problems for pastoralists when these routes have been blocked by the expansion of farms (covering the corridor itself) or by conflict or insecurity, when opposing groups have refused them access (Young et al. 2013). Skills for negotiating access and finding alternate routes are key for reducing the impact of these problems.

Historically the Arab Abbala were nomadic, while other Abbala tribes had their own distinct tribal homeland. The entire nomadic household moved with their livestock and did not have a permanent home. There has been a process of sedentarization and livelihood diversification, which has accelerated over the past 15 years (Krätli, El Dirani, and Young 2013; Young et al. 2009). Most pastoralist groups have permanent or semi-permanent residences in their dry season grazing areas, where part of their household live (Morton 1993). Most of the women and children, along with selected men, will remain in these settlements during the rainy season while the herds migrate northward. The sedentary part of the family thus has access to services, such as education, that would be difficult to access while on the move. Households reported that sometimes a few livestock are left at the settlement all year to provide milk. The women might feed some of the milk to the household and sell or trade the rest to pay for small purchases. These women also usually engage in cultivating grains for household or livestock consumption, reducing the need to purchase food.

In summary, although the literature may characterize households by their primary activity as either a "pastoralist" or a "farmer" household, most households engage in both of these activities. They use a combination of the two activities, both of which depend on the same natural resources. The two primary production strategies use resources in different ways for slightly different outcomes. This commonality provides many areas of mutual interest and potential scope for developing sustainable, equitable natural resource management that can benefit all users.

[2] Personal email communication, Abdalrahim Norein, Khartoum, October 11, 2015.

Figure 2. Cattle grazing near Kulbus, West Darfur.

2. Methods

This section describes the methods applied as part of the scoping study and the operational research. The scoping study was intended to be exploratory. Its purpose was to inform the types of data to be collected and the methods to be used to collect them during the operational research. Table 1 provides a summary of the sample sizes and techniques used in the scoping study and the operational research.

The rest of this methods section describes: the research partners and personnel; their training; the study area and sampling approach; the data collection techniques (including innovative PRA approaches); and key steps in the analysis. Finally, it reviews the study limitations. The research protocol was approved by the Tufts University Medford Institutional Review Board.

2.1 Research personnel: Building partnerships and capacity

This research was conceived from the start as a collective endeavor, bringing in national research partner Ahfad University for Women, Taadoud implementing agencies (who seconded research personnel), and secondees from state-level government personnel (Ministry of Agriculture). Without the active collaboration and direct support of these different groups, this work would not have been feasible.

As a significant objective of this study was to build the capacity of the Taadoud implementing INGOs and their Sudanese partner NGOs, key NGO field-based staff were used as enumerators. The same CRS staff were used in both the scoping study and the operational research in West Darfur. Staff from Oxfam and WVI (in South Darfur) and from UMCOR (in East Darfur) were used during the operational research. The field research was led by one researcher from Feinstein and two from Ahfad University for Women in Khartoum. To cover three different states during the operational research, each of these researchers led a team of five to six staff. A full list of participants is provided in Annex A.

At the start of the study, Feinstein and the Taadoud implementing agencies made a conscious decision to use staff from these agencies in the data collection rather than to hire enumerators, with the aim of building staff capacity in qualitative research methods and their understanding of resilient livelihoods. Training sessions before periods of data collection were combined with workshops following data collection to discuss and analyze findings. Practice sessions with volunteers similar to the study subjects helped to hone skills before using them in the field and allowed the tools or techniques to be adjusted to be more effective. This incremental approach to learning proved to be very effective. The growth of the teams'

Table 1. Summary of methods

	Scoping study (November 12–22, 2015)	**Operational research (November 16–December 4, 2015)**
Sample coverage	2 localities, 8 villages	7 localities, 28 villages
Sample size	47 household interviews and 15 focus groups	333 household interviews
PRA techniques used	Semi-structured interviews, ranking and piling, livelihood mapping, modified community resource mapping	Semi-structured interviews, ranking and piling, modified timelines

capacity, especially those who participated in both the scoping study and the operational research, was visible, and participants' own sense of accomplishment was tangible.

Below is a table of the training sessions and workshops provided, along with the purpose of each.

2.2 Study area and sampling

Only communities targeted by the Taadoud Project could be visited and included in this study. Mobile sections of the population that were not present could not be sampled. The study's sampling is therefore directly affected by Taadoud's targeting priorities, one of which included communities that had been displaced but had returned. While every attempt was made to include as many different livelihood groups and systems to maximize generalizability, the study is not a comprehensive catalogue of livelihood systems and experiences, but rather a set of case studies that attempt to describe a wide variety of experiences.

Table 2. Taadoud operational research training and review workshops

Training or workshop title	Dates	Topics or purpose
Initial resilience and participatory methodology training	February 9–13, 2015	Basic concepts of livelihoods, resilience, quantitative research using participatory methods
Field scoping study training	September 4–6, 11–12, 2015	Training and practice on tools used in the scoping study
Post-scoping study mini-workshop	November 14, 2015	Presentation of initial findings from scoping study to Taadoud agencies and donors
Operational research (OR) training	November 8–11, 2015 (with 1 to 2 additional days in each state)	Discussion of initial findings from scoping study, review of previous training, additional training and practice on tools for OR data collection
Donors and key decision-makers presentation	December 14, 2015	Presentation and discussion of initial findings from OR to update donors and other agencies targeting resilience
Participatory review workshop	December 15–16, 2015	Presentation of initial findings to key Taadoud managers and study enumerators, feedback and interpretation of findings, discussion of implications for Taadoud and other programming, potential changes for future programming, planning dissemination of the findings
Final participatory review workshop	March 22, 2016	Presentation of findings and review of key learning points for dissemination and fine-tuning of recommendations

The scoping study sampled villages in two localities in West Darfur. The operational research was much more extensive and covered seven localities across three states. Due to access issues, the study team was not able to visit North Darfur. Among the remaining four states, East Darfur, South Darfur, and West Darfur were selected, in part to give the widest variety in contexts but also to engage as many of the Taadoud implementing agencies as possible to build their capacity within the study's time and financial limits.

Annex B lists the localities and villages visited for both the scoping study and the operational research. Figure 2 provides an idea of the geographical spread of the areas sampled. The area indicated by the dotted circle was originally selected, but was then inaccessible at the time of the data collection due to insecurity, so was not sampled.

Past experience has shown that when using PRA techniques with semi-structured interviews, a sample size of about 50 households or 10 to 15 focus groups is sufficient to cover most variations in a population (Catley et al. 2013). This study averaged 47.5 households per locality and 15 focus groups in the scoping study area. The consistency and repetition of similar responses among the households interviewed provide corroboration and confidence that the sample size was sufficient.

Locality and village selection was based on a list of possible variables from the literature relating to livelihood systems and resilience to capture the widest possible variation in experiences. The villages were usually organized in clusters of houses. Each interview team was assigned to a particular cluster, and households were selected for interviews using transects through each cluster. In very small clusters, all households with an adult present were interviewed. Focus groups were selected more on a convenience sample. Eight of the focus groups had only men. Seven contained only women and were facilitated by women.

2.3 Participatory Rural Appraisal techniques

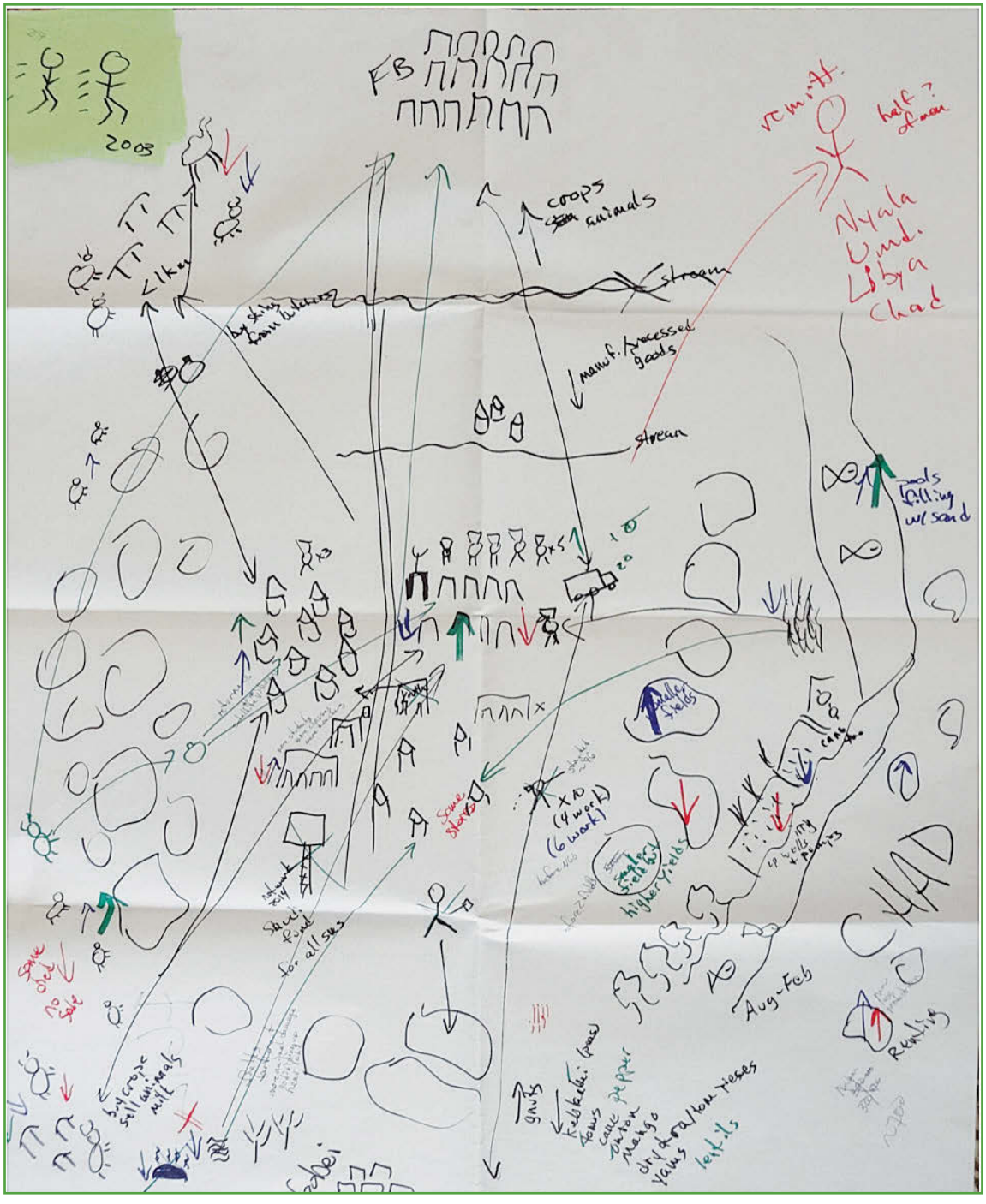
Both the scoping study and the operational research used semi-structured interviews combined with multiple Participatory Rural Appraisal (PRA) techniques. Household interviews addressed the specific experiences of the entire household, while the focus groups addressed changes and resources at the community level. While semi-structured interviews, focus group discussions, and ranking and piling techniques are standard techniques, several modifications of other techniques were created specifically for this study.

2.3.1 Livelihood mapping (scoping study)

The livelihood maps used in this study were a modification of those used by Robinson to describe socioecological systems (Robinson 2009). Building on a list of income-generating activities created during a ranking and piling exercise, diagrams were drawn at the direction of the interviewee to depict the inputs required for the different activities currently used, where the outputs went, and any particular elements like markets or mills that changed the form or value of inputs and outputs. For example, rainy season cultivation required land, seed, labor, rainfall, etc. These would be noted on a flip chart with arrows showing them feeding into a symbol for rainy season cultivation. Arrows leading away from the cultivation symbol showed where the outputs went; for example, to the household for consumption, to a particular market to be sold, or even to pay for additional labor. The flow of value (goods and revenue) from the market would be drawn to the household, health clinics, schools, or wherever indicated by the interviewee. The end result was a sort of map of their current livelihood strategy. Additional arrows in other colors were added to show how this map was different 3 years ago, 15 years ago, and during a particular shock. As different elements were added to the map, households very often volunteered explanations for why certain inputs or outputs were used, or why certain changes were made from one period to another. When they did not volunteer the information, the interviewer followed up with questions for explanations.

Focus groups drew fairly standard community resource maps, with the addition of flows of goods and resources from various resources to particular users (Crane and Mooney 2005). Figure 3 provides an example of one such map. Again, the focus groups were asked how this

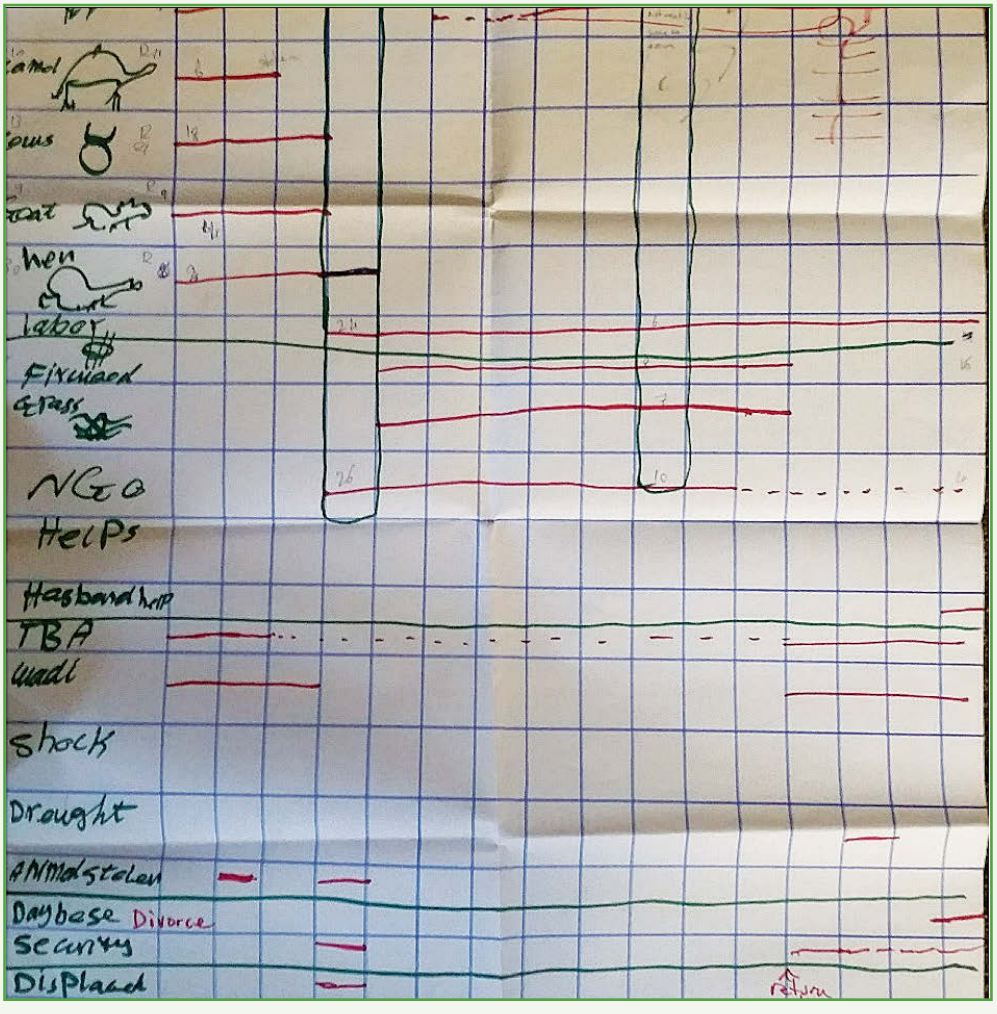
Figure 3. Community resource mapping (scoping study).



map differed 3 years ago, 15 years ago, and during a particular shock, with the changes noted on the maps and discussed.

One of the results of the scoping study was the observation that households shifted dependence on different activities, or income streams, in response to shocks and had a definite order of preference for the income streams that seemed consistent across the households. The scoping study also demonstrated that households were often coping with or recovering from multiple overlapping and interacting shocks of varying duration. To help understand how the different shocks related to specific changes in livelihood strategies, the operational research used a combination of weighting and timelines. An example is shown in Box 1.

Box 1. Telling a story with timelines.



The diagram shows an example of a timeline. The years are listed across the top. Down the left-hand side, households listed all of the income streams they had used over the past 15 years (or since their marriage if they were married after 2000) and the shocks that had affected them. They weighted the income streams by preference and risk (risk of the income stream failing and also physical risk to the household). Bars showed when each was used by the household or happened to the household. The households also weighted the income streams used by how much they depended on each to provide food and income at four different points on the timeline. This provided snapshots of their livelihoods across time to help clarify and quantify some of the changes. With each addition to the timeline, explanations were usually volunteered.

In the case of this example, the household reared multiple types of livestock and cultivated rainy season crops until 2003, when they had to resort to labor and humanitarian aid. The shocks at the bottom show that they were displaced at that time due to insecurity, and their livestock were stolen. They added firewood and grass the following year. In 2005, they were able to start a small amount of cultivation, gradually increasing it. When they returned to their village in 2012, they were able to cultivate enough that they no longer needed to collect firewood and grass, though they continued to supplement with labor. By 2015, they still had not been able to restart their livestock rearing, possibly due to the ongoing insecurity we see at the bottom, as well as a drought and divorce.

2.4 Data analysis

Although the ranking and piling exercises allowed people to weight their perceptions and the timelines demonstrated the relationships between changes in services, income streams, and shocks, the majority of the data was narrative. The PRA methods above provided the basis for conversations about key aspects of resilience in a way interviewees could understand. The most informative data came from people's explanations of elements drawn out by the PRA methods.

2.4.1 Narrative analysis

Numerators took notes in their preferred language, transcribing them onto data sheets each evening. Group discussions with the full team were held at the end of each day of data collection to compare findings and observations. Following the group discussions, the team leaders conducted meetings with each team of interviewers to review their data sheets, maps, or timelines and their individual observations and analyses. Finally, the enumerator notes were entered into Microsoft Excel and NVivo to reveal any missed trends. Both the interview guides and the data sheets for the enumerator notes can be found in Annex C.

2.4.2 Quantitative data analysis

As the focus of the study was on qualitative data gathered during extensive interviews, the sample size per area was relatively small compared to a more quantitative survey method. Nevertheless, quantitative data derived from the piling exercises associated with the timelines were sufficient for some nonparametric analyses using Stata 14, primarily to test the significance of relationships described in the narrative data.

In the scoping study, the way households described the impact of shocks and strategies for recovery made it clear that changes in dependence on different income streams, or even the cessation and resumption of whole income streams, was key in telling the story of their experiences. After a shock, households received less benefit from more-preferred income streams and were pushed to depend more on less-preferred income streams, providing less overall benefit. The preference weighting exercise showed tremendous similarities across the full sample of households. Using these observations, we designed the Income Stream Index (ISI) to depict the experience of resilience and recovery of livelihood groups through the 15-year recall period in order to facilitate the data analysis. The higher the score, the greater the dependence on the more-preferred income streams and the more effective the livelihood strategy. A drop in the score generally accompanied a shock, such as the insecurity in 2003–2004 or the drought in 2013. On following page in Box 2 is a brief description of the Tiers and the calculation of the ISI. More detailed information is in Annex D.

2.5 Limitations

The study could not use the same research team in all states, as INGO staff cannot work outside of their agency's programming areas. Some of the differences recorded between states may be due in part to different approaches or assumptions among each of the teams. To limit this effect, all three team leaders began together in West Darfur for the data collection in the first locality to ensure that data would be collected and recorded in the same way in all three states.

The operational research data collection was conducted in November and December 2015, at a time when households were very busy with the harvest and few were to be found at home during the hours the study team could safely be in the villages. The sample therefore has a higher representation of households with older couples and very young women than does the general population.

In at least three areas, both mobile pastoralism and farming were evident; however, only in southern West Darfur was it possible to include both in the sample. Including both in the sample led to the discovery of valuable lessons about their interactions. In Kulbus and South Darfur, the mobile pastoralists were not present.

Finally, the field teams were sometimes accompanied by government observers, especially in the scoping study. Their attendance raised the profile of the visit and may have

Box 2.

The Income Stream Index.

The Income Stream Index takes account of a combination of household *preference* for certain categories of livelihood activities (food and income streams) and how much the household *depended* on each income stream at four key points on the timeline. The first step in developing the index was comparing a household's preference scores for different income streams. Preference was explained as the preferred income stream based on the potential benefits a household might expect from individual sources of income. Across the sample, the preference scores were fairly consistent (as shown by interviewees applying similar weights to each income stream) and clearly grouped certain activities, which were then clustered into four Tiers:

Tier 1: cultivation and livestock rearing

Tier 2: trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, salaried jobs

Tier 3: gifts, remittances/migrating for labor, local labor

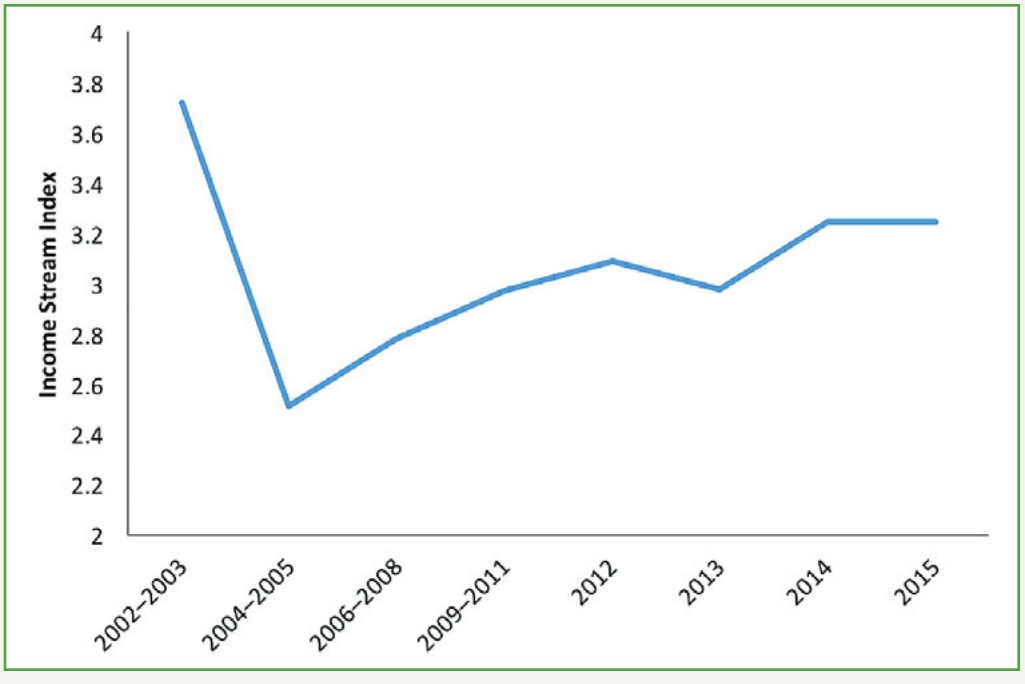
Tier 4: collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance

The preferences for these activities were averaged to create a preference weight for each tier.

The dependency measure was based on a household proportional piling exercise, which showed the relative importance of different income streams as a source of food and/or income. The following formula was used to calculate the Income Stream Index for the particular point in time for which a household provided dependency data.

$$\text{ISI score} = (\text{Pref}_{\text{Tier1}})(\text{Dep}_{\text{Tier1}}) + (\text{Pref}_{\text{Tier2}})(\text{Dep}_{\text{Tier2}}) + (\text{Pref}_{\text{Tier3}})(\text{Dep}_{\text{Tier3}}) + (\text{Pref}_{\text{Tier4}})(\text{Dep}_{\text{Tier4}})$$

Below is sample graph mapping changes over time to the Income Stream Index.



altered responses to some questions. On the other hand, the Ministry of Agriculture representatives integrated well into the team and after a few days of training were able to support the interviews, making a valuable addition to the teams.

3. The Story of Four Livelihood Systems

Resilience is the story of real lives and how people cope with hard times. This study is a compilation of 333 families' stories, drawn from four different regions (Table 3) and an analysis of what their experiences can teach us about resilience. Every story is unique, but we see patterns across the stories in the different areas. Each story is one small part of a much larger narrative, that of the Darfur Region during one of the most tumultuous periods of its long history. The total area sampled in this study can be divided into four areas, each with distinctive livelihood systems (see Table 3).

Before heading into the more detailed descriptions, we will begin with the concepts of livelihood systems and strategies, and an explanation of cultivation and livestock rearing as the primary, complementary livelihood activities.

3.1 The terminology of livelihood systems and strategies

Households develop strategies to support themselves in the short term and to reach their long-term desires or goals. Their strategies influence how they use their assets in pursuit of a selected range of activities (also referred to in this study as income streams). In developing these **livelihood strategies**, households consider the wider influences on their livelihoods, often referred to as "policies, institutions, and processes" (PIPs), that affect their particular portfolio of assets (including social, human, physical, natural, and financial assets), both in terms of their value and the benefits they generate. Access to natural resources, for example, is influenced by wider policies, and customary laws and institutions. Households must also weigh the risks associated with likely shocks, like drought in northern Darfur. These prevailing PIPs, available potential assets, and potential shocks are part of the local **livelihood system** (a sort of environment) and influence the potential strategies households living there can use.

Livelihood systems operate at different scales or orders of complexity from the household to the regional level, with varying degrees of integration between the predominant specializations of cultivation and pastoralist livestock production. For example, some households may depend primarily on cultivation, but keep a few livestock to reduce the amount of their harvest they have to sell. Other households may depend primarily on livestock rearing and have large herds, but cultivate a small plot of land to reduce the number of livestock they must sell to buy food. Both live and function within the same higher-level livelihood system, sharing the same natural resources, markets, and services, but each of these strategies has a different way of using these resources to support their households and interacts very differently with the PIPs. Pastoralists with long migration routes move through multiple areas with different relationships, rules of behavior, levels of access to natural resources, and exposure to potential shocks in each of the areas on their route.

The edges of a system, however, are not clear because different systems interact, resources overlap, and the events in one system affect others. For example, when Arab Abbala pastoralists were excluded from their *gizu* pasture in North Darfur by other Abbala in the late 1990s, they reported that their herds spent more time in other areas west and south of their normal pastures, affecting those new areas. When rainfall is short or late, as it was in 2015, the herds move south earlier and may be compelled to enter areas with crops still standing in order to feed their herds.

3.2 Livestock and cultivation as complementary activities

In all the sampled areas except the southern West Darfur villages, cultivation and livestock rearing were the two current largest sources of income. When a household applies both, the effect is synergistic, and their livelihood strategy is often more productive and much more resilient.

By cultivating, pastoralists can reduce their need to sell livestock during good years, allowing them to multiply faster, and even provide supplemental feed for livestock during dry years. By raising livestock to sell for cash needs, cultivators can reduce the amount of grain they need to sell,

Table 3. Livelihood case studies by state and locality

No.	State	Localities	Livelihood	Examples of resilience strategies associated with primary production
1a	Southern West Darfur	Mornei, Fora Boranga, and Habila	Farming (villager returnee, previously agro-pastoralist)	Cultivation supplemented by livestock • Large grain stores (two years' consumption) to ensure food security in drier years • Keep small herds of small livestock to sell for cash to reduce sales of grain • Dry season cultivation • Multiple fields in different locations (to avoid losing everything if locusts, animals, thieves, etc. attack one location) • Fields with different types of soil (some better for wetter years, others better for drier years) • Store grains in safe, urban areas • Keep children in the fields, even sleeping in the fields, near harvest time to avoid animal destruction
1b		Mornei, Fora Boranga, and Habila	Pastoralism	Livestock mobility Cultivation as well as livestock • Time movement of herds to maximize nutrition for animals while avoiding conflict with cultivators • Establish a permanent/semi-permanent residence for the part of the family not migrating—increases access to services and ability to cultivate • Diversification into animal trade—animals are not owned for as long and so wealth is less vulnerable to loss from disease and theft, able to shift resources quickly from one type of animal to another or even into non-animal inventory to respond to new opportunities or to avoid growing threats • Shift from camels and cattle into smaller bovines—less likely to cause crop damage and conflict (as well as commercial benefits to pay for cash needs) • Avoid hand pumps with herds to prevent conflict

Continued on next page

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No.	State	Localities	Livelihood	Examples of resilience strategies associated with primary production
2	West Darfur	Kulbus	Agro-pastoralism	Cultivation and livestock production both practiced • Try to keep larger grain stores (three years' consumption) than do southern areas due to more variable annual rainfall patterns • Move livestock away from villages to access water and good grazing, but primarily to avoid competition with Abbala, who seasonally graze near the villages • Avoid camel ownership to avoid conflict • Store large amounts of fodder to feed small herds during long dry season because larger migrating herds will not leave them enough • Shift markets where grain is sold from Kulbus to Goz Diga in order to trade with Abbala, reducing risk of conflict and increasing opportunities for trade
3	East Darfur	El Ferdous	Pastoralism with agriculture	Cultivation and livestock production both practiced • Livestock mobility—timing of movements to maximize nutrition and minimize disease for herds, using *murhals* (designated corridors) to avoid conflict • Communication among pastoralists to locate pastures and maintain distance between herds • Break up large herds into smaller herds to reduce catastrophic loss to theft • Maintain some small animals with herds of large animals to sell for cash needs/emergencies, reducing need to sell larger animals • Abandon crops like millet that are vulnerable to bird attacks in favor of groundnuts
		Assalaya	Agro-pastoralism	Cultivation with some livestock production • Small bovines with some cattle • Store groundnut harvests with traders to reduce risk of theft and maximize profits
4	South Darfur	Al Salam and Beleil	Farming villagers split between two residences	Rainy season cultivation in the villages coupled with urban income-generating activities • Bring harvests directly to homes instead of drying in the fields to avoid theft • Maintain an urban residence to live in during the dry season to avoid contact with Abbala • Urban income streams to supplement cultivation (to compensate for lack of access to land in dry season and inability to maintain small herds)

extending the time during which the grain reserves can cover them (Morton 1993). At different times, depending on the limitations and opportunities at the time, pastoralists have cultivated more or less, while cultivators have kept more or fewer livestock (de Waal 2005).

During the rainy season, pastoralist households, usually women, cultivate. In the past, cultivation by pastoralists was far less common, but the pastoralists interviewed said this practice has been increasing since the famines in the 1980s and 1990s. Most pastoralist households interviewed said they did not try to build up grain reserves beyond a one-year supply; instead, they sold any surplus grain to purchase livestock.

Sedentary villagers primarily cultivate and reported that they try to keep grain stores sufficient to feed the household for two to three years. Grain is traditionally stored in small granaries. Some look like little huts propped up off the ground (Figure 4). In slightly wetter areas where insects and dampness are more of a problem, large dung-and-clay jars called *dabanga* are filled with grain and sealed with clay to keep out insects and to suffocate those that are already in there. In the driest areas, households often dig pits that they line (for example, with mats) and fill with grain, then cover over with sand so they are not visible from above ground. This strategy of burying grain is also done in other areas during times of insecurity. The use of sacks to store grain is more common in a more insecure context, and the sacks are kept in small *rakuba* (grass huts) within the household compound or are transferred to a second home in an urban area.

Managing the grain store involves managing risks as well as opportunities and costs. The financial risk of holding on to a larger grain store is the foregoing of sales of grain to invest in other income streams that might earn income, or alternatively risking having to sell when the price is low to pay for an urgent need. Holding on to stocks of grain may also make the owner a target during periods of insecurity. There might also be losses of grain to spoilage from damp or pests.

The risks of not having a grain store are that food prices vary, and during drought or following particularly dry years, the high price of food may make it unaffordable. As many households reported, you will never starve if you have grain in your stores.

Hence, this grain store is central to households' resilience strategy. Traditionally, very little grain was sold for cash needs; rather, an animal was sold to protect the grain reserves. Milk from the livestock also reduced the amount of grain consumed, extending the period of time the reserves could feed the family, further strengthening its resilience.

These two activities, when used in combination, form the core of the livelihood strategies for all areas of Darfur sampled, but there are differences in how each strategy is actually carried out in each area depending on the specific agro-ecological system, the experiences of the past 15 years, and households' power to leverage access to natural resources.

Figure 4. Example of a traditional granary, southern West Darfur.

3.3 Livestock rearing and cultivation: Shared use of land and other natural resources

Farming and grazing livestock both require land, and historically the two livelihood systems did not need to use the same land at the same time. Staple grains are grown during the rainy season in large fields scattered around the villages. Herds migrate away from these villages during this time, into drier areas with more nutritious grass and fewer livestock diseases. The grain is harvested in the early dry season just before the return of the herds. Early in the dry season when remaining grass becomes scarce in the northern pastures, the migrating herds migrate south, back into the areas dependent on cultivation.

To make this transition of land use clear to all and reduce crop losses or conflict, a *talaig* is set. The *talaig* is a date, usually negotiated between local authorities and pastoralists, when all crops should be harvested and livestock are able to return to the area (Krätli, El Dirani, and Young 2013). Even those herds belonging to villagers are required to remain at a distance until the *talaig*. Any farmer who has not harvested by that time is at risk of losing his crop to grazing livestock and has little grounds for complaint.

When the rains are poor or end early, water sources may dry up, or grass in the rainy season pastures may finish early. Pastoralists reported that, under those conditions, they are pressed to migrate earlier than usual into their dry season grazing areas in order to find sufficient water or grazing for their livestock, sometimes violating the *talaig*. This increases the risk of livestock damaging crops and causing conflict with the owners of the fields. Crop destruction by livestock was a major source of tension and friction between villagers and herders in all areas sampled except East Darfur. One woman from Hashaba, West Darfur listed the fines from damaging crops as a shock and went on to explain, "when it is closer to the *talaig*, it is sometimes hard to find water, so we push nearer to the *wadi,* which is also near the farms. There was more crop damage before, but now we have to pay fines so we have to send children with the livestock to keep them out of the fields, especially when the livestock are going for water."

It is a tremendous shock to a cultivating household when they lose their crops, especially just before harvest. At the same time, it is a strain on livestock owners or herders to manage their livestock so closely at all times to avoid this conflict, and it is especially difficult for migrating livestock in areas where farms have expanded, blocking livestock corridors (Young et al. 2013). While pastoralists are usually framed as the aggressors (Krätli, El Dirani, and Young 2013), the force of expanding farming areas and fenced-off rangelands for individual use are also a major factor (Getachew et al. 2013).

3.4 Four unique livelihood systems

Darfur is a complex network of interconnected livelihood systems. Although each livelihood system sampled had very different experiences and outcomes, telling very different stories of shock impacts and recovery, the stories told by individuals with similar livelihood strategies were surprisingly consistent.

All households except those in East Darfur described tremendous changes to their strategies in response to the events of the past 15 years. The following sections will discuss the events and experiences of each group during this period. It will also describe households' livelihood strategies as they are now and how they changed at key points to ensure the survival of the household at all times and the climb toward recovery.

3.4.1 Southern West Darfur—Mornei, Fora Boranga, and Habila: The struggle continues

Southern West Darfur is blessed with a web of *wadis* and some of the best *goz* soil in the country. It is one of the "breadbaskets" of Darfur (Buchanan-Smith et al. 2014, 41) and provides good grazing for all types of livestock during the long dry season.

Traditionally, pastoralists migrate with their herds from their northern rainy season pastures into this area during the dry season. Through negotiations with local traditional authorities, they seek access to land, water, and other resources, establishing permanent or semi-permanent settlements[3] known as *damra* near enough to particular villages to make use of the market, water supplies, and

[3] Two terms are used to describe two types of occupied spaces because they function very differently. The term "settlement" is used to describe living spaces originally formed by mobile pastoralists who historically moved seasonally. Some are now permanent with permanent, solid houses, while others remain temporary tented camps. The term "village" is used for the space occupied by a more sedentary population with more permanent structures.

crop residues, but far enough away to provide space for their livestock. Sometimes these settlements would shift around the villages, nearer during the dry season and farther out during the rainy season, but containing only a part of the household during the rainy season. Other settlements are only seasonal, and the whole family moves away with the herd during the rainy season.

The livestock kept by pastoralists are most productive when there is sufficient water and specific types of grass, but also soil that is dry enough to maximize the concentration of nutrients in the fodder (Breman and de Wit 1983) and to minimize the insects and disease common further south (Barbour 1954). As the rains start, the larger herds follow the rains northwards, returning back toward the south with the transition to the dry season.

Milking livestock might be left in the settlement to provide milk. Those household members remaining near the village might also cultivate, though generally less than the villagers (de Waal 2005). Village residents cultivate staples and okra during the rainy season and vegetables during the dry season in small fields near the *wadis*. Although rainy season fields might be prepared before the herds move out, they are not planted in earnest until the herds are gone. As noted above, a date is traditionally negotiated, depending on the timing of the seasons, when crops should all be harvested and the herds can return to the area (Krätli, El Dirani, and Young 2013). Traditionally, the village *sheik* allocated land to the residents of the village to use during the rainy season. During the dry season, land was free to be used by grazing livestock and for that reason often was not fenced. In 2002, during the reference period, pastoralists were most often asked to pay a small fee to the farmer to graze on the crop residues left standing in the fields.

This fertile area saw tremendous disruption in 2003 and 2004 as villages associated with the rebelling factions were attacked by armed militia, often associated with the pastoralists migrating in and out of the area (Flint and De Waal 2005). Villagers interviewed reported that the militia burned houses, looted livestock and grain stores, cut down fruit trees, and displaced the sedentary population. While the villages were unpopulated and large farm fields were left uncultivated, pastoralist groups moved in and established settlements around the remnants of the villages. Some pastoralists who had already been living around villages previously reported that they shifted from one village to another to gain better access to *goz* soil for cultivating millet. In some cases, though, where the relations were good between the villagers and the pastoralists living in the nearby settlements, the villagers were able to negotiate payments to the pastoralists to protect them. These few villages were not displaced and are now, in general, much better off than most of the other villages. Very slowly, starting in about 2006, villagers began to move back to their homes, pressed by the difficulties of living in the camps or in Chad and the lower levels of humanitarian aid. At the time of this study, most of the villages in this area were living with extreme tension between the villagers and the pastoralists in the settlements.

During the reference period of 2000 to 2002, both groups derived very similar proportions of their income from a combination of cultivation and animal husbandry, though villagers depended more on cultivation and the pastoralists depended more on livestock. The very different experiences of these two groups over the past 15 years have not only polarized their relationships, but have also created large differences in their livelihood strategies and the success of their outcomes. The two sections below look more closely at the stories of these two livelihood groups, how the multiple shocks, both man-made and natural, have affected each group, and the strategies families have used to cope and recover.

Southern West Darfur—villagers

Villagers in southern West Darfur during the reference period supplemented rainy season cultivation and animal husbandry with a small amount of dry season cultivation, petty trade, and the sale of grass or firewood. The biggest change in livelihood strategies for these households since the reference period is the loss of livestock as a source of income. In the reference period, livestock and cultivation each contributed about 40 percent of total household income (Figure 5). Now livestock contribute only about a tenth of their total income due to fear of theft and risk to personal safety. Households in this livelihood group gave livestock keeping the highest risk weighting of any of the livelihood groups. Although dependence on agriculture has increased somewhat, it is important to remember that these

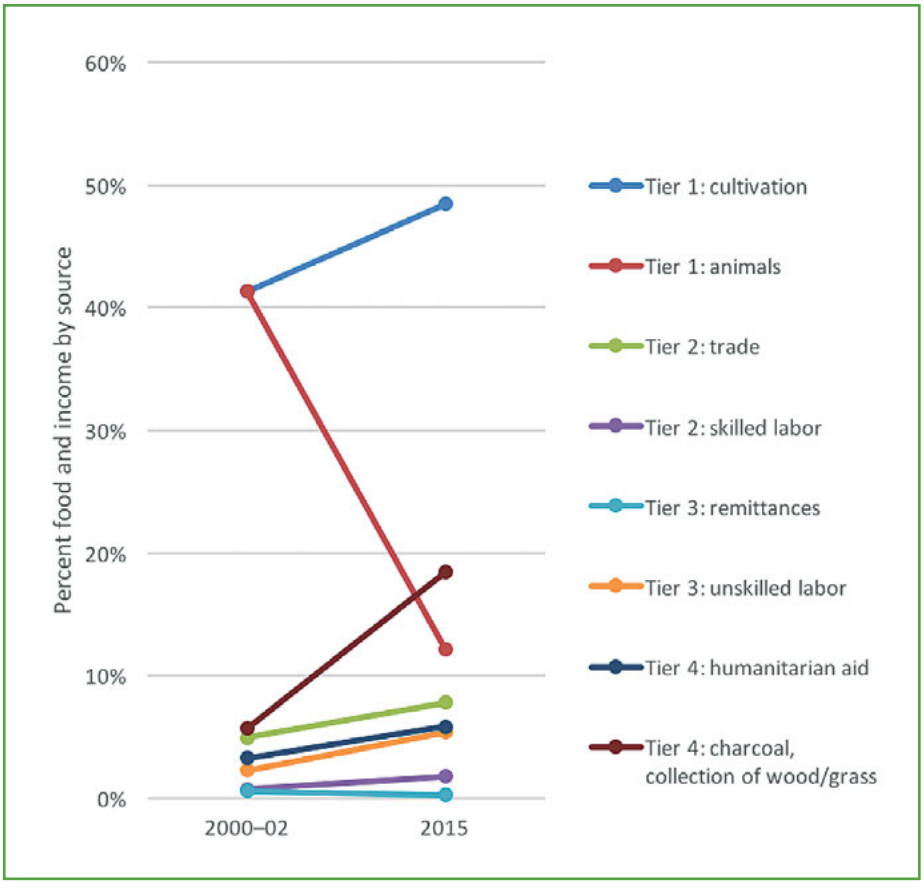
are proportions of total income and not direct measurements of income. So while the proportion of agriculture has increased, most of these villagers explained that total agricultural production has decreased, partly because of reduced soil fertility, but mostly because land they farmed before 2003 is now occupied by pastoralists in settlements around the villages.

Throughout all areas studied, certain income streams were prioritized over others, generally according to their ability to support the household (see Box 2 in section 2.4 above). The changes seen in Figure 5 are very important because of the very significant drop in one of the high-priority income streams (livestock), replaced mostly by much lower-priority income streams like the collection of firewood and grass. The overall result is a less productive, less sustainable, less resilient mix of income streams.

With few good alternative income streams, households must sell a portion of their grain harvests to pay for cash expenses, further increasing their food gap. An adaptation that is proving helpful in areas with significant land near *wadis* is increasing dry season cultivation to earn cash. This strategy makes use of the time when household members are not engaged in grain cultivation. Because dry season fields are generally closer to the village, they are considered safer and are often accessible when larger, more distant rainy season fields are not.

Another major change to the strategies of this livelihood group is a much larger dependence on the collection of firewood and grasses for sale. In the Mornei area, less-preferred income streams now provide more than twice the amount earned from livestock. Unfortunately, firewood is being cut at an unsustainable rate. In some villages, it is already dropping off as a source of income, because the available firewood is now so far away. Collecting it has become so time-consuming and risky as to hardly be worth the effort, and some households estimate that within a year or two it will no longer be a viable source of income. This

Figure 5. Shifts in income streams in the southern West Darfur villages between the reference period and 2015.



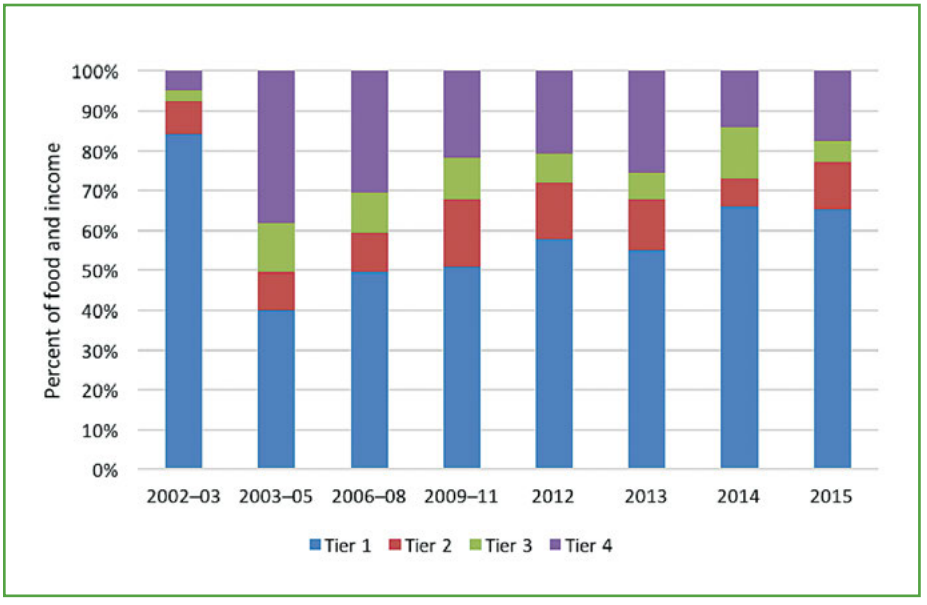
is concerning for multiple reasons. One concern is the loss of almost 20 percent of an already diminished total income. Another reason for concern is that collection of firewood was a primary coping strategy in times of severe crisis but will not be available in future crises. Finally, it is a sign of overall environmental degradation that will ultimately affect all livelihood strategies in the area.

Throughout this region, village households lamented their inability to maintain livestock in significant numbers. Despite the risk, they are only recently (in 2015) attempting to reinvest in livestock. One of the Taadoud Project activities is a savings group scheme in which the accumulated capital is loaned to members as well as being saved. At given intervals, the total capital is shared out to the group members in a lump sum. A very large proportion of households in this livelihood group used the funds to either enlarge their dry season cultivation or to invest in livestock.

While Figure 5 above is helpful for understanding the overall impact of the past 15 years, looking more closely at trends during that period can help us understand in more detail how the major shocks initially changed the livelihood strategies and how people are managing their recovery. Figure 6 shows the proportional dependence of the West Darfur villagers on various tiers of income streams throughout the recall period. As shown above, during the reference period, Tier 1 primary production activities (cultivation and raising livestock) initially contributed the highest proportion of total income but was seriously impacted by shocks in 2003–04. As households recover, they seek to increase Tier 1 activities and only reduce these activities when they are forced to. Tier 1 activities are especially important, because they generate the most income in a sustainable way and depend on access to natural resources. Tier 3 and 4 activities are the lowest-paying sources of income, and many are unsustainable, damaging the environment and other income streams such as cultivation. They are used because they provide immediate income and do not require inputs other than physical effort. Each bar in the figure below provides a snapshot of the livelihood strategy at a specific point in time. The higher the proportional dependence on Tiers 1 and 2, the stronger and healthier the overall livelihood strategy, as there is less dependence on unsustainable, low-return strategies.

During the reference period, more than 90 percent of income came from Tier 1 and 2 activities. People described the Tier 3 and 4 activities as being supplemental during that time, a way to make use of extra time and household labor when it was not tied up with more preferred activities. For example, after a family finished harvesting its own fields, the family might

Figure 6. The relative importance of different income streams in West Darfur villages: Trends from 2000 to 2015.



Tier 1–cultivation and livestock rearing; Tier 2–trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs; Tier 3–gifts, remittances/migrating for labor, local labor; Tier 4–collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance.

have worked as labor in someone else's field to earn a bit extra cash. Similarly, during the dry season when there was little agricultural work, family members sometimes gathered grass and firewood for sale on a small scale.

A massive shift is seen in the 2003–2005 period, when the population was displaced. Tier 1 activities dropped from about 85 percent to just over 30 percent of total income, while Tier 3 and 4 activities rose from less than 10 percent to 60 percent of income. From this low point, households gradually and intentionally worked to increase cultivation, a Tier 1 activity, essentially replacing the lowest-paying income streams with higher-paying income streams. Immediately after displacement, households depended on a combination of humanitarian aid and collection of grass and firewood for sale, in addition to casual labor when they could find it. The remuneration from labor was more than the returns from firewood and grass, but with so much competition, it was often hard to find jobs. After this early recovery period, households used their social networks to gain access to small pieces of land, sometimes for free but more often by renting the land. More fortunate households were able to buy assets like donkey carts or inventory for trade and were able to increase their income. If a household had adult males, the men sometimes migrated for labor, though with mixed success.

As the security situation improved, households gained more and more access to their villages and some of their own land. At first, the women would go to the village for short periods during the rainy season to cultivate. Although this activity was limited, it seemed to generate enough food and income to ease some of the worst of the hard times. Gradually, families spent more time in the villages and could cultivate more.

During the reference period, very few of these villages had government schools or clinics, and improved water sources were rare. To encourage and facilitate the return of villagers, both the government and the humanitarian community invested in infrastructure and basic services. There was a surge in the installation of boreholes, schools, and clinics around 2006 to 2008, about the time villagers started returning in significant numbers. The hand pumps reduced the time households used to collect water each day, freeing up time to invest in income-generating activities and reducing the physical risk associated with venturing to distant, insecure areas to find water. The local presence of the clinics reduced the time and expense of travelling to more distant clinics or hospitals. Interviewees reported that before 2003, education was a fairly low priority for most households, and few villages had schools, so education was considered beyond their reach.[4] While displaced, many of the children were able to attend school for the first time. Adults also saw that there was an advantage to being relatively more educated than others in the competition for jobs, since some individuals with education were being hired by humanitarian agencies. Those without skills and education faced strong competition for low-pay jobs. Being educated is therefore a human asset that is especially helpful during hard times. If a school was not available in the village at the time of the study, families with sufficient means tended to keep a residence in the camps or urban areas in addition to the village, largely to allow children to continue to attend school. Children begin to contribute significantly to the household production and overall income by the age of ten even if they can attend school in the village, so this division of the family not only increased household expenses, but also reduced household labor available for cultivation. A common reported benefit from the availability of services was that it promoted a feeling of "being settled." With all of the movements and uncertainty of the past decade, it is not surprising that this sense of being settled should become one of the livelihood outcomes or goals sought by families.

Around 2008 and 2009, with the eviction of many humanitarian agencies and reduced food aid, humanitarian assistance was reduced, and more families returned to their villages, further increasing cultivation. The rains were very good in 2012, and more households were able to benefit from them than in any other year since the reference period. Many households told of storing part of their harvest and selling part to buy productive assets like a couple of goats or a donkey cart. From about 2006 to 2012, households' recovery is reflected in the increasing

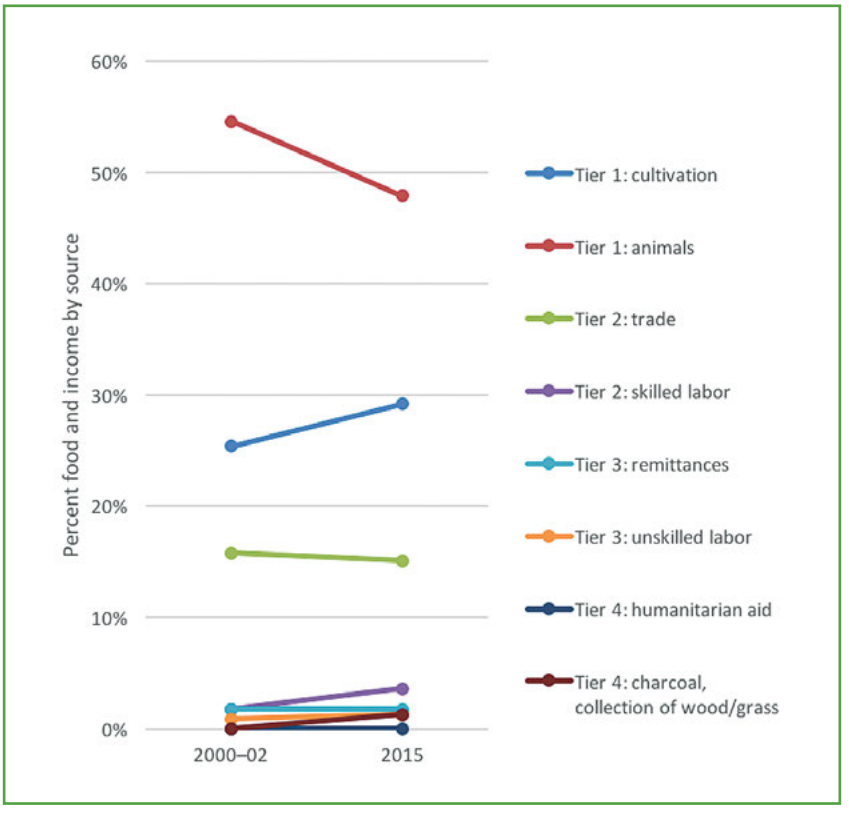
[4] Literacy figures available from 1993 to 2002 show that literacy in Western Sudan has always been the lowest in the country and dropped from 44 percent in 1993 to 38 percent by 2002 (Cobham 2005).

portion of their income derived from Tier 1 and 2 activities, as seen in Figure 6. This trend shows a dip in the recovery in 2013, a very dry year. With very poor rains and low yields on top of high inflation, the small grain stores remaining from the bonus harvest in 2012 were consumed, and many productive assets, especially livestock, were sold to pay for basic needs. Fortunately, 2014 was another very good year for the rains. By that time, even more people had returned from displacement and were cultivating larger areas, so they were able to benefit from the rains. More families in this area were seen to restart livestock as an income stream, using grain sales from this harvest, than at any time since they lost their livestock in 2003, a combination of increasing wealth and increasing confidence in the security situation. The harvest at the time of the data collection in 2015 was reported to be lower than average, and the year a "dry year but not a drought." Most households estimated they had become resilient enough to cope with the coming year, largely by making use of dry season cultivation and labor to reduce sales of livestock and grain while they tried to rebuild these resources.

Southern West Darfur—pastoralists

The pastoralists in Southern West Darfur interviewed for this study were living in settlements around villages that were engaged primarily in cultivation. They were a mixture of both Abbala and Baggara pastoralists, some of whom continue to have large migrating herds. Others have lost large portions of their herds to disease and banditry. While some pastoralists had lived for decades in the same settlement, others had recently moved from another location. Some had made the transition from a nomadic lifestyle to having part of the household settled in a *damra*. While the pattern and timing of settlement among these pastoralists varied, livestock mobility remained important as part of their pastoralist production system. Irrespective of tribe or pastoralist system, whether Abbala or Baggara, the general activities and interactions of pastoralists with the village and local natural resources appeared similar.

Figure 7. Shifts in income streams for pastoralists in southern West Darfur between the reference period and 2015.



Of all the livelihood groups, this group retained the highest proportion of their income derived from livestock. See Figure 7. Although this percentage dropped from 55 percent to 48 percent, between the reference period and 2015, livestock remained by far the largest source of income. The difference may be due to the fact that the sampling was likely to capture pastoralists who had settled because they had lost their herds. Among the Baggara, the proportion of their income from large livestock in particular was slightly less in 2015 than in the reference period, while among the Abbala it was slightly more. Note this only reflects proportion of total income, and not the actual number of livestock. Thus, while proportion might drop, actual numbers of livestock might increase.

One change reported by the Abbala was a slight shift from camels to cattle. They had always tried to keep a few camels for transportation. Partly, as they explained it, they kept camels because they were Abbala, and their fathers had kept camels. They reported that it would not feel right if they did not have any camels at all. They also explained that camels were much more difficult to care for if they were living part of the year in the settlements, because the camels required more space to graze and were more likely to get into the crops, causing problems with the owners of the fields.

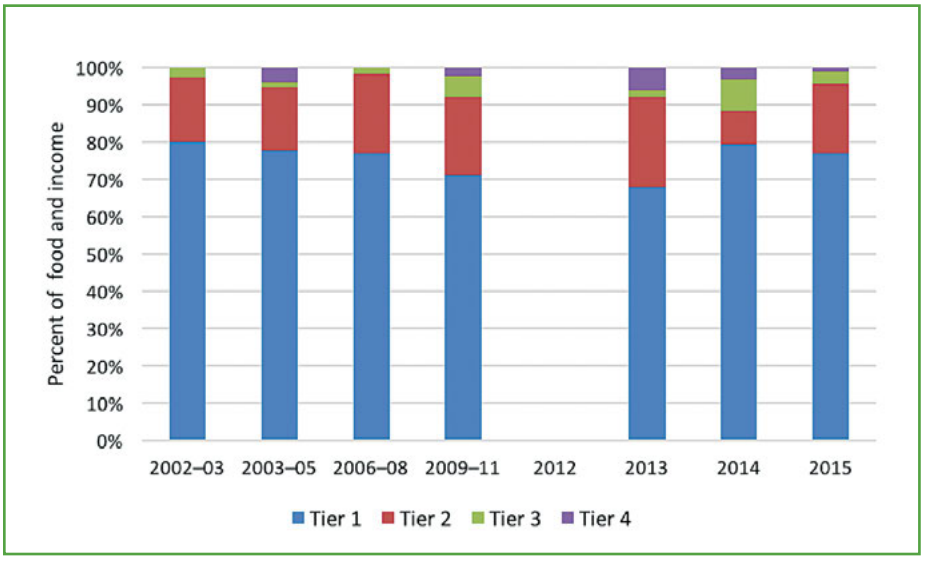
For many of these pastoralists, cultivation as a major income stream was relatively new and was seen as a way to provide food and income to prevent selling livestock. They reinvested any grain harvests beyond a one-year reserve in purchasing livestock. A very few had purchased an asset such as a mill and added that to their income sources. Milk was consumed by the households as fresh milk, yogurt, or ghee. To a lesser degree, milk was sold. Some households living near larger daily markets have found the sale of milk to be lucrative and are actively promoting increased milk production among their remaining cows by feeding them grains. All other sources of income were negligible, even among the poorer pastoralist households.

There was very little change overall to the strategies for this livelihood group (Figure 8), as compared with other case-studies. In the period 2003–05, we see that there is no indication of loss of access to natural resources. Livestock that is traded is owned only for a short time, unlike breeding livestock. Banditry had increased, and nearly all livestock owners reported that cattle are "preferred by thieves." Therefore, more pastoralists were investing in livestock trade rather than animal breeding, increasing the Tier 2 activities in general. They purchased livestock from producers at small village markets and either sold them to larger traders at central hub markets, or they hired herders to walk them to Omdurman. When the herder arrives in Omdurman, the owner takes a bus or even flies to Omdurman to finish the transaction. One man with several adult sons had two sons who toured the local markets to purchase the livestock, while one son lived in Khartoum to handle the sales when the herds arrived, thus saving on the travel costs. The slight increase in Tier 4 income during 2003 to 2005 and 2011 is due to humanitarian assistance received by a few of the families interviewed. All of these changes are relatively small compared to the changes seen among the villagers throughout West and South Darfur.

Still, there were some significant changes to individual families not captured by this graph (Figure 8). Some of the pastoralists we spoke to had been fully nomadic until about 2006 to 2009, when they settled for a number of reasons. Partly, the migration had become more difficult due to reduced access to certain grazing areas. For others, an epidemic had reduced their herds or bandits had stolen a large part of it, and they settled in order to cultivate and rebuild their herds, but then decided to keep part of the family in the settlement while the growing herd continued to migrate. Mostly, the use of a settlement was seen as an opportunity to complement the migrating herd rather than as a temporary coping strategy. It allowed them to cultivate more so they could reduce sales of livestock and promote herd growth. They were also able to send their children to school. Education had become a much higher priority to the West Darfur pastoralists, though there were exceptions among individual families. A study of the impact of conflict on the Northern Rizeigat camel herders, including groups in West Darfur, also reported a process of increasing sedentarization, with a trend of rapidly expanding *damra*, especially in the vicinity of larger villages and towns, and a process of livelihood diversification (Young et al. 2009).

The primary risks cited by these pastoralists included banditry, livestock disease, and drought

Figure 8. The relative importance of different income streams for pastoralists in southern West Darfur: Trends from 2000 to 2015.



Tier 1–cultivation and livestock rearing; Tier 2–trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs; Tier 3–gifts, remittances/ migrating for labor, local labor; Tier 4– collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance.

affecting crops. There were no risks cited relating to access to natural resources or physical dangers to household members. Banditry had also increased since the reference period and did not appear to be declining. Some said that banditry, with and without violence, was associated with livestock looting when migrating or on the long route to the Omdurman markets. Some of the livestock raids were blamed on "people from Chad," though much of the banditry took place far from the border. Most reported more livestock disease currently compared with previously, although none gave specific reasons. Some households mentioned the migration to their favored northern pastures had been blocked, possibly reducing access to more nutritious seasonal pastures, limiting their mobility and risking overcrowding in and overgrazing of available pastures (Young et al. 2009). The Community Animal Health Workers (CAHWs) in the villages in West Darfur were villagers and not pastoralists for the most part, and yet did not remain in the villages. Because they worked on a fee basis, they had nearly all moved to hub markets where they could find more clients. Pastoralists and non-pastoralists alike understood that they would need to go to a hub market to find treatment for their livestock.

In general, it appears there has been very little change in the success of the strategies of these pastoralists throughout the recall period. Both indicators of food security, the Food Consumption Scores and Coping Strategies Index, showed this group to have significantly better food security than any other group sampled. The resilience of their livelihoods, however, depends on more than food security outcomes, which are associated with the ecological resilience of their Tier 1 pastoralist production. Social resilience, on the other hand, depends on social capital, including social networks and exchange, as well as skills, experience, and other human capital outcomes. Social resilience encompasses a wide array of human resources. Households' relations to local institutions, governance, and power dynamics also play a role in their resilience and should not be ignored.

Interactions between pastoralists and villagers

In the past, pastoralists and villagers have interacted in a number of ways that benefited both groups. Over time, the nature of the relationship has changed drastically, and spontaneous interactions between pastoralists and villagers have become very limited. Almost all interactions reported are limited to those mediated by traders in the marketplace or the *ajawid*, a trend already reported elsewhere (Buchanan-Smith and Fadul 2008). Not only does this limited interaction reduce the effectiveness of both livelihood strategies, but it also reduces the positive nature of the relationships, extending the sensitivity of each

to perceived infractions by the other and increasing the potential for small conflicts to escalate out of control.

Past positive interactions now lost

Although most pastoralists grew some grain, they also depended on buying grain from the villagers, especially during drier years. With the onset of the conflict in 2003, households interviewed reported a tremendous drop in the production of grains and less surplus available for sale (Buchanan-Smith et al. 2014). This was a trend across Darfur from 2003. There was a 65 percent drop in sorghum production and a 45 percent drop in millet on the five-year average (WFP 2005). These drops drastically reduced the total grain available for those dependent on the markets with limited means, and Darfur went from being self-sufficient in grain to being a net importer, primarily in the form of food aid (Buchanan-Smith and Fadul 2008).

Many villagers also depended on pastoralists for access to milk, a very high-quality food that is especially important to young children. We found a few cases where pastoralist women had areas within the marketplace where they would go to sell small amounts of milk, either for cash or for produce. Although the women would bargain and banter with each other, there were sometimes sharp comments incorporated into the negotiations, such as "yesterday you grazed your livestock on my fields without paying and now you ask me this high price for the milk?"

The use of crop residues is one of the most commonly cited mechanisms providing mutual benefits that is no longer used. Traditionally, after the harvest and once the farming household took the stalks needed for renewing their house fences, the remaining standing stalks (crop residues) were available for anyone's livestock to graze on. See Figure 9 for a photograph of crop residues in a house compound in West Darfur. While grazing, the dung from the livestock partially replenished the soil. Even during the recall period, the mentality toward land ownership and exclusive right of use had already changed, and the farmers had begun to charge animal owners (whether pastoralist or another villager) for this grazing, reducing pastoralists' access to this resource and increasing their operating costs (Krätli, El Dirani, and Young 2013). Now, farmers collect all crop residues either for their own use or for sale, leaving very little for either grazing or for turning back into the soil. When asked if they still grazed their livestock on crop residues, pastoralists explained that prior to the onset of regional conflict they would do so after paying a small fee, but now there is not enough left in the fields to bother.

Figure 9. Crop residues in a house compound in West Darfur.

The lack of inputs or other strategies for maintaining or promoting soil fertility is resulting in reduced yields.

Current limited interactions

While many of the past constructive interactions are no longer practiced, there remain a handful on which to begin rebuilding relationships between farmers and pastoralists. These are discussed below.

Condolences and births: When a person dies or a baby is born, everyone in the community will visit the household to give their condolences or congratulations. They do not go empty-handed; rather, they bring a gift of money or food. One woman reported that she had received a total of three sacks of millet from other women in the village when her child was born. Even in the tensest communities, where the relationship between the two groups was the most strained, both pastoralists and villagers avowed, "but we do visit them to give our condolences." While this interaction may seem a small thing, it shows a certain level of civility and potential for traditional interactions to be restored.

Shared services: Households reported that prior to the conflict, there were few basic services available outside of the hub market towns. Starting around 2007, both the government and humanitarian agencies built schools and clinics, usually located within the villages and distant from pastoralist settlements. Access to these services has always been difficult for mobile pastoralists (a problem not unique to Sudan (Krätli and Dyer 2009)), which has left a deep sense of marginalization and disadvantage, especially among those living in closer proximity to villages (Young et al. 2009). Although pastoralist households reported that many more of their children are attending school now than previously, challenges remain. Pastoralist children living in settlements must walk long distances to the schools, and parents said they often delayed starting their children's education because of the long journey. Still, the shared use of these facilities and ensuring they remain open provides a common interest that can be built on.

Hand pumps: Outside of the market towns in southern West Darfur, water yards (*donki/dwanki* (pl.)), which are vital for dry season watering of livestock, are rare and seldom in working order. Humanitarian agencies have favored boreholes with hand pumps. Invariably, these hand pumps were placed in the center of the village residential areas, mostly during humanitarian activities from 2005 to 2008, and are considered by villagers to be the most helpful of all the services or infrastructure provided in West Darfur. On the other hand, many of the pastoralists, even those living relatively near the hand pumps, do not use them regularly. The hand pumps are generally unsuitable for watering more than a couple of livestock at a time. The output of the hand pumps is too limited to water even small herds, and the herds would cause too much disruption and conflict if they were regularly led through densely populated sections of the village. Instead, most pastoralist households in West Darfur mentioned watering their livestock and getting their household water from the wadi. It was not clear if pastoralists were actively discouraged from using the hand pumps, but their placement and design was not inclusive.

Ajawid: The *ajawid* is a traditional village committee that serves to support the resolution of disputes within the community, most often the destruction of crops by animals. Communities mentioned that *ajawid* also deal with other forms of conflict, including domestic disputes. Although these committees existed in all villages visited, their role appeared to be most critical and active in southern West Darfur. Both the Ministry of Agriculture and the humanitarian community have actively supported these committees with training in leadership and conflict management, in addition to some small financial support. One of the Taadoud emphases has been to ensure a wider representation within the *ajawid*, ensuring residents of both the villages and the settlements are represented. While nearly all communities and households interviewed in this area felt strengthening the *ajawid* was positive and necessary, many of the villagers despaired that they were still ineffectual. Although the pastoralists always avowed they paid any fines decided by the *ajawid*, the most commonly cited problem among the villagers was the lack of ability to enforce a settlement when it involved compensation from the pastoralists for the destruction of a villager's crops. They blamed the presence of arms among the pastoralists. To balance the power of the *ajawid* against these arms, the *ajawid* reported that they most often involved the police in seizing the livestock implicated, thus reducing the perceived neutrality of the police.

Trade: Both the pastoralists and the villagers depended on interacting with the same local and hub markets. According to the households interviewed, there were now more professional traders from larger markets than ever before at even the smaller village markets, and fewer direct transactions between pastoralists and villagers, whether for grain, firewood, milk, or buying livestock. Even so, both the people interviewed for this study and other published reports note that regardless of other interethnic conflict, "trade is still the main way in which different ethnic groups interact" (Buchanan-Smith and Fadul 2008, 4).

Local residential pastoralists and passing pastoralists: Village households in areas where there was less general tension often specified that certain grievances were not with the pastoralists living nearby, but rather with pastoralists who were migrating through the area. In other areas, new settlements were being established alongside settlements that had been there since the reference period. In these cases, even the pastoralists themselves made a distinction between themselves and their new neighbors. They took care at the start of the interview to establish their long-term residency with the interviewer. This distinction varied from village to village but did serve to show that villagers distinguished between different groups and were not generalizing their grievances to all transiting pastoralists. Their grievances were with those particular individuals whom they felt abused by.

Summary of Southern West Darfur observations

Southern West Darfur has experienced tremendous turmoil over the past 13 years, severely disrupting the livelihood strategies of the villagers but with relatively little negative impact on the food security of pastoralist livelihoods. From a sense of relative self-sufficiency during the reference period, the villagers dropped suddenly to a very low point in 2003. At that time, households resorted to food aid, the collection of firewood, and casual labor in order to survive. Their recovery was fueled by increasing their engagement in the more preferred, higher tier activities, which required either capital or access to natural resources. As these more profitable, scalable activities increased, their relative dependence on less preferred, lower Tier activities decreased, with the impact of an overall improvement in their earning potential. The recovery was supported by improved infrastructure and access to services, but primarily by increased access to the natural resources key to their livelihood strategies, namely fields for cultivation. Their recovery has been limited by the ongoing insecurity, which prevented them from fully re-engaging in one of their most important Tier 1 activities, livestock rearing, while also leaving them with less access to land for cultivation. Shocks, such as floods or the drought in 2013, have also served to slow the recovery following the 2003 conflict-related shocks. Although the proportion of their income from livestock and agriculture is approaching their pre-2003 levels, their total income from these activities remains diminished, and recovery appears to have plateaued. Further recovery now depends primarily on increasing access to natural resources, which in turn depends on improved relations with the pastoralists by shifting from relationships of intense competition and opposition to relationships of complementarity and cooperation.

3.4.2 Northern West Darfur–Kulbus: Rapid recovery

Kulbus has a very different climate and geography from the southern localities sampled, and a very different experience of shocks and recovery. Rainfall in Kulbus is far less than in southern areas, temperatures are somewhat cooler, there are far fewer trees, and *wadis* are much farther apart. The livelihood strategy of almost the entire sedentary population is based on primary production, including both cultivation and livestock. There is a greater emphasis on rearing of all types of livestock except camels as compared to villagers in southern West Darfur, as we would expect in this more arid environment. This combination of livestock and cultivation is often referred to as agro-pastoralism (Simpkin 2005; Rass 2006).

The main crop is millet, with some okra, groundnuts, and watermelon. Millet and okra are primarily for household use; groundnuts and watermelon are sold as cash crops, though some groundnuts are pressed for oil for household consumption. Although there is less rainfall here and little ability to cultivate in the dry season, households had significantly better food security scores than their agro-pastoralist counterparts in southern West Darfur.

Pastoralists do not have permanent settlements in this area, and only the Abbala pastoralists (from multiple tribes) pass through during the early dry season and the early rainy season. Some continue on their way to dry season pastures farther south, while others move between water points in the region, depending on availability of grass.

Although the village population has large herds of sheep and goats, and a small number of cows, the herds are kept well away from the villages, at least several day's walk, mostly to the northeast, for much of the year. In the rainy season, they cause problems with the crops. In the dry season, they come into conflict with the Abbala. Because the Abbala herds are large and tend to eat most of the grass in the pasture, leaving little for the villagers' herds, villagers make a tremendous effort to cut and store both crop residues and wild hay (Figure 10). In dry years, they sometimes sell hay to the Abbala herdsmen. Unfortunately, the Abbala were not available to give their side of the story.

Land is freely accessible throughout the rainy season, fields are large, and animal traction (plows pulled by animals) is commonly used. Harvests in normal good years can be sufficient for two to three years. Some reported that the 2014 harvest provided them with almost four years of grain. If a household has a solid grain reserve, it may sell some to purchase livestock. Households who had diminished herds used the surplus harvests of 2012 and 2014 to purchase livestock, selling some in 2013 to cover expenses during that dry year. Currently, with herds reduced by the conflict, households are attempting to simultaneously build their herds and their grain stores, selling a portion of their surplus even if they only have a bit more than a year of grain stores.

Alternate or supplemental income streams: Although villages were spread far apart with very little infrastructure compared with southern West Darfur and fewer weekly village markets, markets still provided the key to alternative or supplemental sources of income. Currently, most Tier 2 activities include mainly various forms of trade and the use of donkey carts. Tier 3 activities are very limited and usually involve migrating for labor or local agricultural labor. More people actually participate in making small handicrafts for sale (usually food covers), but it contributes a tiny amount. Tier 4 activities are mostly the collection of grass for sale to pastoralists or timbers for building houses.

Changes to strategies in response to shocks: In this region, rebellion and counterinsurgency strategies had less of a direct impact on local communities. The villagers were more often caught in the middle rather than being the actual targets of the two fighting groups. They still lost most of their physical assets, but the displacement for most of the population was short, and they

Figure 10. Villagers collecting hay to store as fodder for the dry season, northern West Darfur.

regained access to their natural resources very quickly. Even in those areas that were occupied by rebels for an extended period, households maintained access to most of their land and water sources.

The most significant change in their income streams is a drop in dependence on livestock from about 50 percent to about 35 percent between the reference period and 2015, with a compensating rise in dependence on agriculture and trade (see Figure 11). In this arid region where crop failure as a result of drought is a higher risk, grain stores are important for resilience. However, sales of livestock are much more important than they were in the southern areas, both as a source of income and as a back-up to failed agricultural seasons. In other words, to maintain strong resilience in response to increased risk of a poor harvest, households depend proportionally more on livestock. While their resilience was affected through this reduction in animal-based income, the significant investment in livestock during 2012 and 2014 was a clear indication of incremental steps toward rebuilding this important income stream. The implication is that program investments in animal health, productivity, and rangeland management in this region would have a strong benefit for resilience.

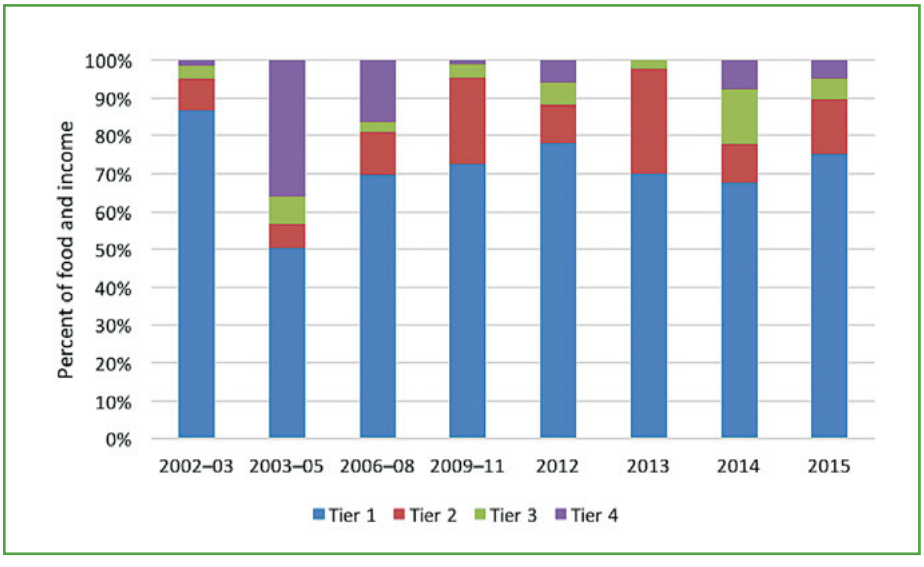
Figure 11 provides some insight into the experience of households in Kulbus over the past 15 years and how their livelihood strategies changed to allow them to cope and recover. Like villagers in southern West Darfur, they experienced a sudden loss of income from livestock and agriculture in the violence of 2003, relying on humanitarian aid plus collection and sale of grass and some firewood to support themselves. Beyond that, the experience varied widely from one part of the locality to the next.

Some villages reported that they fled only a short distance when their villages were attacked, looted, and burned. The attack came after the final weeding of the crops but before the harvest. They were able to travel to their fields from their hiding places to harvest and returned to their villages before the next planting season.

Other villages experienced a more severe impact, with a longer period of fighting and insecurity. Households were displaced to a camp and were not able to venture out of the camp to seek food or income when the food aid was insufficient. They pressed on to Chad, leaving a part of the household in the camps to collect the food aid. In Chad, they were able to find land to cultivate and restart their herds, but when fighting erupted in eastern Chad in 2007, they returned to Sudan and their villages. These households had fewer livestock and less grain stores than the first group of villages but were already cultivating at the same level as the reference period.

Finally, there were villages that found themselves isolated within rebel-held territory, cut off

Figure 11. The relative importance of different income streams for agro-pastoralists in Kulbus, West Darfur: Trends from 2000 to 2015.



Tier 1–cultivation and livestock rearing; Tier 2–trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs; Tier 3–gifts, remittances/migrating for labor, local labor; Tier 4–collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance.

from markets but able to cultivate and rear livestock. Abbala pastoralist herds were still able to pass through the area on their seasonal migration and brought a small amount of trade with them.

After the initial years of the conflict, we see a rapid return to agriculture, with a corresponding reduction in the Tier 4 activities, though food aid continued until about 2008 for most villages. In 2013, we see a drop in Tier 1 activities due to the drought but without the need to resort significantly to Tier 4 activities, showing households had regained some measure of resilience. Families explained that the harvest in 2012 had been very good. With that harvest, they had partly refilled their grain stores and had purchased some livestock. During the drought, instead of resorting to collecting grass or unskilled labor, they ate from their grain stores and sold their livestock to pay for other needs. They also had some capital and were able to engage in trade and earn money from the use of donkey carts. Even so, they had some livestock die from a lack of feed.

Although 2014 was a good year, due to a fluke of sampling the only households to provide data for this year were very young households. They had fewer livestock due to their stage in life and were more dependent on labor and small handicrafts for income. Most households spoke of 2014 as a very good year, still had stores from that year in their granaries, and had replaced the livestock sold in 2013. They expected that although the harvest was reduced for 2015, they could use a similar strategy over the next year, but might have difficulty if 2016 is also dry. In other words, they are now resilient to single dry years, but not necessarily to two dry years in a row.

Relations with the pastoralists: Although the pastoralists were not present in the area, the villagers did frequently refer to them. Two different groups of Abbala pastoralists moved through the locality. Although some of the Abbala migrated farther south and west during the dry season (even as far as the Central African Republic), some of them stayed in the area, rotating from one grazing area to another. One group grazed mostly north and west of the study area and the other to the east and south, coming together sometimes at key water points, especially as water ran low in the dry season at minor water points. Most villagers explained that they did not currently have significant conflict with either pastoralist group. The *ajawid* were used mainly to settle disputes between villagers or between the two pastoralist groups.

The harvest was just finishing during the data collection, and households were very busy collecting crop residues, a rough type of grass to repair their homes and fences, and a type of hay to store as animal feed (Figure 10). They said that the pastoralists' livestock would eat all of the available pasture, so they needed to collect enough to feed their own livestock once the pasture grass was finished. They also explained that in hard years when there was not enough pasture, the pastoralists sometimes bought some of their stores.

One of the pastoralist groups, the Zaghawa, were active in the rebel insurgency and did not feel they could freely enter the town to trade at what was a major market. Trade was mostly directly with Omdurman rather than through an intermediate market, so the once-bustling market in Kulbus has dwindled to a remnant of its former size with streets of empty, crumbling shop buildings. Locals report that with less demand, high transport costs, and insecurity on the road, many traders stopped coming to Kulbus during the recall period. Although security on the road has improved, the traders have not returned. Many of those pastoralists who do not migrate farther south practice limited cultivation and depend more on the purchase of grain. As Kulbus market is closed to them and as the population still wants to sell them grain, the villagers reported that a new grain market, Goz Diga, has grown up well north of Kulbus town, closer to some of the grazing pastures. Although Kulbus market was closer to some of the villages, most households in those villages still chose to sell their grain at Goz Diga. There was more demand for the grain there; therefore, it was easier to sell large amounts, and the price was better. It was not immediately clear what, if any, impact this new market had on the pastoralists.

Summary of Kulbus observations

Although households in Kulbus lost almost all of their physical assets in 2003, they quickly regained unrestricted access to their fields and were able to restart both of their top income streams of agriculture and livestock rearing. These income streams quickly drove their recovery, which is nearly complete, though they still have reduced herds. Most households reported that they were able to cope with the drought in 2013 and feel they will be able to cope with the poor harvest in 2015 if there is a good harvest in 2016.

3.4.3 East Darfur–El Ferdous and Assalaya: Opportunities for dominant groups

The sampled area of East Darfur was a strip of relatively fertile land near the international border with South Sudan. Like everywhere else sampled, the households combined cultivation and animal husbandry. The two neighboring sampled localities of El Ferdous to the south and Assalaya to the north had very similar PIPs, climate, soil, shocks, and general recent history, so we will consider them a single livelihood system. There was, however, a gradual change in the population from south to north reflected in their livelihood strategies, so at times we will distinguish between the two localities.

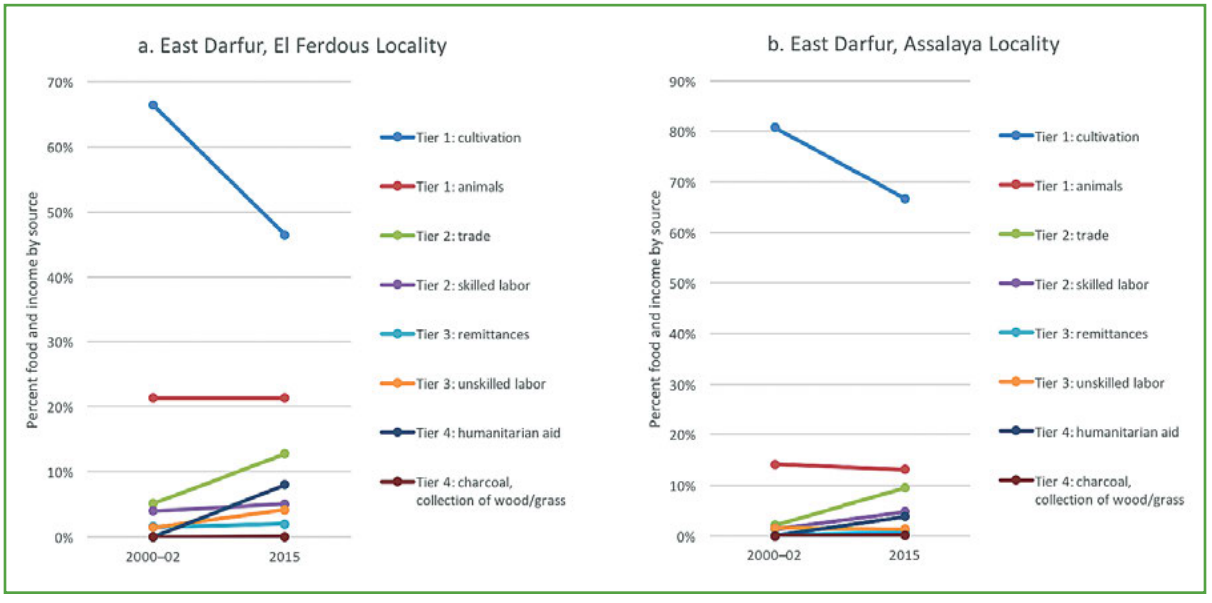
The population sampled in East Darfur was a combination of ethnicities and livelihood strategies, primarily agro-pastoralists to the north, becoming more dominantly Baggara pastoralists towards the south. Those in the northern area were more affected by the earlier regional conflict, while there was no reported direct impact further south. Inter-tribal conflict in the area spiked in 2013 and continued into 2014 and has had a much more profound impact throughout this area.

In considering the information in Figure 12a and b, we have to remember that these figures show the "proportion" of income from a given source; actual amounts of income were not measured. Although the proportion of income from cultivation dropped and the proportion from livestock remained the same, households in El Ferdous reported cultivating about the same amount now as in the reference period, with no significant changes in the amount of land cultivated. Total income for those households has likely increased, with most of that increase coming from the sale of livestock and trade, and some from humanitarian assistance. This matches well with the explanations of herders that they are investing more in sheep, which are intended for sale on a regular basis, and more households are venturing into animal trade. It appears increasingly commercially oriented herds and trade provide additional cash income rather than replacing other sources of income.

> *"When I lost my livestock, I started to buy a few animals from some markets, and I take them to the town of El Ferdous or Ed Dain to sell them."* **(Household in East Darfur)**

In the northern areas, this decline in proportion of income from cultivation was partly due to a decline in production, largely due to the tribal

Figure 12. Shifts in income streams in East Darfur village communities (El Ferdous Locality, and Assalaya Locality) between the reference period and 2015.



conflicts in the region, and partly due to increased dependence on trade. On the other hand, households in Assalaya had significantly higher food consumption scores than those in El Ferdous, possibly due to the cultivation of a larger variety of crops or their closer proximity to the urban centers of Ed Daien and Nyala.

Although the Baggara are strongly identified with pastoralist cattle herding, they also cultivate significantly. In fact, these households reported that currently, on average, almost half of their food and income is derived from cultivation, while only around a fifth comes from livestock. This apparent contradiction of pastoralists known to have large herds getting much more income from cultivation may mean one of two things. It may mean that cattle are not counted as income, as livestock have to be sold to generate income. Alternatively, income from livestock sales may be used for generating lump sums for large investments, like buying mills or vehicles, while day-to-day expenses are covered by agriculture and trade. This sporadic source of income from livestock sales was not included in their estimations. Or it may simply be the unwillingness of this group to account for income from their herds.[5]

The sheep and cattle herds owned by the sample population migrate northward during the rains. During the dry season, the sheep move closer to the settlements, while the cattle continue south into South Sudan, though the herders maintained permanent homes in the sampled areas. Not all households had herds, and many of the households in Assalaya had been reduced to small numbers of livestock that did not migrate. The availability of services like health care and schools was variable among the sampled villages. The use of water yards (*dwanki*) was very common, because the water table was deep. Households could draw large amounts of water for the herds as well as for household use.

Cultivated crops include millet and groundnuts, and a small amount of sorghum and okra. Groundnuts are a cash crop, while millet is primarily reserved for the household's consumption. In recent years, birds have become a major problem and reduced millet yields in some areas to such an extent that many households are switching from millet to groundnuts. This switch may make income more volatile and households somewhat less resilient. They have fewer grain stores and rely primarily on a cash crop (groundnuts) and the vagaries of the market. On the other hand, groundnuts appear to be less vulnerable to the risks of insects, birds, and drought.

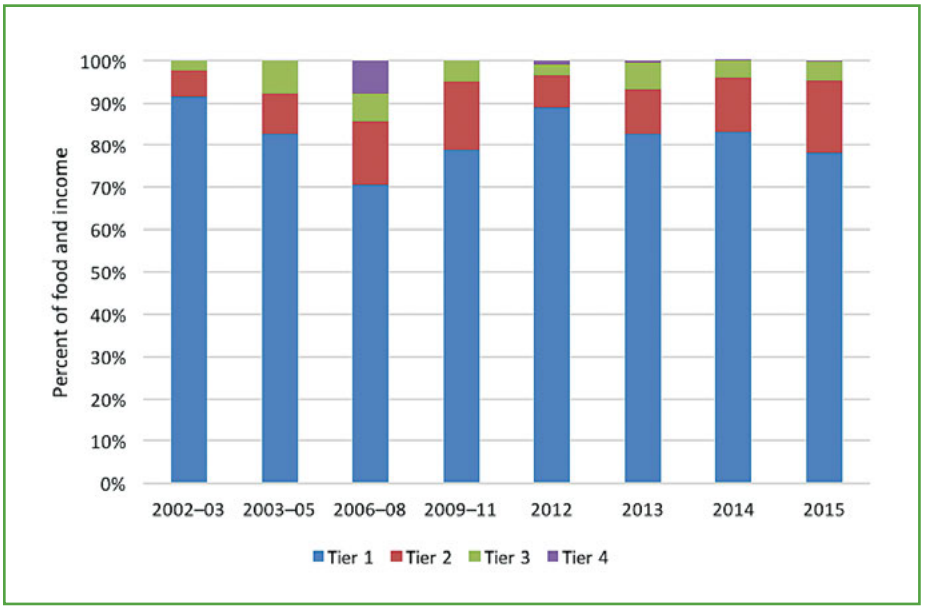
The market system in East Darfur, especially in El Ferdous, appeared less well developed. In a number of villages, there was no market, and trade was dominated by a single, large groundnut dealer. If households sold their groundnuts in a market, they had to pay 12 percent in taxes, but if they sold directly to the dealer, then they did not pay that tax. As a further incentive, the dealer would act as an agent for the producers with a type of warehouse receipting system. Producers could deposit their groundnuts with the dealer for storage. The producer could wait until he felt the time was right to sell. At that point, the dealer would pay the producers for the groundnuts at the current market price. The dealer often also had a shop associated with the groundnut storage and would sell goods to the producers on credit, to be repaid when the producer finally sold his groundnuts.

Changes to strategies in response to shocks

Households reported very little impact from the events of 2003 and 2004 (see Figure 13). Any impact was more strongly felt in Assalaya than in El Ferdous to the south. All areas experienced more tribal conflict from 2006 to 2008. The increase in Tier 4 activities during this time is primarily from food aid rather than from foraging for grass and firewood. Throughout the past 15 years, this population's access to natural resources has remained about the same, with very small interruptions in Assalaya from about 2004 to 2009 due to tribal conflict. Periodic border closures with South Sudan and insecurity in these important grazing areas also limited access at times, but skilled, experienced herders were able to negotiate continued access to areas well into the southern areas.

[5] Some have suggested that women will not report on income from the herd, but a check of the data does not show significant differences between the answers of the women and men interviewed.

Figure 13. The relative importance of different income streams for agro-pastoralists in East Darfur: Trends from 2000 to 2015.



Tier 1–cultivation and livestock rearing; Tier 2–trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs; Tier 3–gifts, remittances/migrating for labor, local labor; Tier 4–collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance.

Some of the most intense inter-tribal conflict in this area occurred in 2013 and 2014. While households did not report losing access to their land for cultivation, trade was affected. The trade routes passed through an area controlled by populations against which these households had been fighting. New, longer trade routes had to be established, and trade lagged for a while. As so many households depended on the sale of groundnuts, this lag in trade had a negative impact on income from cultivation. In addition, 2013 was a drier-than-usual year. The further drop in agricultural revenue in 2015 was due to what many households reported was the driest year in the past 15 years. Although the millet harvest was reported to be minimal, most reported that the groundnut harvest was only slightly reduced.

Most of the shocks named were either those that affected only individual households or natural shocks like birds, insects, or low rainfall. In years when harvests were reduced by shocks like birds or low rainfall, Tier 2 activities were more likely to be used than the lower-tier activities. These included primarily salaried positions and trade for wealthier traders, though poorer households did tend to supplement their income with remittances and working as hired herders, especially for traders moving their herds to distant markets.

Summary of East Darfur

The households in the northern areas of the East Darfur practiced a mix of livelihoods, but most were agro-pastoralists who depended primarily on cultivation supplemented with small numbers of livestock. The population in the southern areas was almost completely Baggara pastoralists with larger herds of cattle and permanent villages (rather than temporary settlements) in the sampled Localities. The population experienced little impact from the wider regional conflict and moderate impact from the inter-tribal conflict in the more northern parts of East Darfur. Most of the shocks mentioned were related to birds, pests, and low rainfall affecting the crops. These households did not lose access to their fields or water sources except for the briefest periods and appear to have weathered the past 15 years without significant trouble. The past year, 2015, was reported by households to be the driest of the past 15 years. Though the millet harvest was negligible, the groundnut harvest was only a little less than normal, and most households appear to have the capacity to support themselves until the next harvest. If the 2016 harvest is also dry, then the households with fewer livestock may have difficulty coping without risking their long-term livelihood goals.

3.4.4 South Darfur–Al Salam and Beleil: Adapting to ongoing limitations

The sample from South Darfur include primarily farmers who normally keep a small number of livestock. Abbala pastoralists also spend a part of the dry season in this area, but they were not present during this study. Therefore, this section describes the livelihood strategies of the farmers.

In addition to the regional conflict, throughout the recall period and even prior to 2003, families were repeatedly affected by tribal conflict. This population lost many of their assets and were displaced to large camps not too far from their villages. Although some were able to return permanently to their villages, many remain at least part of the year in the camps.

From Figure 14 we see that cultivation of millet and groundnuts remained the largest contributor to income, though it has declined somewhat. Dependence on livestock was the second largest source of income in the reference period but has reduced considerably. Collection of palm leaves and making mats from them, unskilled labor, and humanitarian aid were each all about the same as, or more than, the income from livestock.

> *"Rainy-season cultivation provides a big income, but animals require taking a high risk."* **(Household in South Darfur)**

Changes to strategies in response to shocks

At the start of the rains, many of the displaced villagers have begun to migrate seasonally from the more urban areas and IDP camps to the villages in order to cultivate when the Abbala migrate north out of the area. The villagers' houses in the villages are not permanent structures, and harvests are taken directly from the fields to these village homes for threshing, then to their urban residence for storage. The villagers' children remain behind in the urban residence to continue going to school and have access to health care. Households explained that although cultivation still provides most of their income, the limited time they have access to their land has reduced their overall income from cultivation.

In the reference period, about a fifth of households' income came from livestock. This has decreased even more than cultivation due to the risk of livestock being stolen and the difficulty of

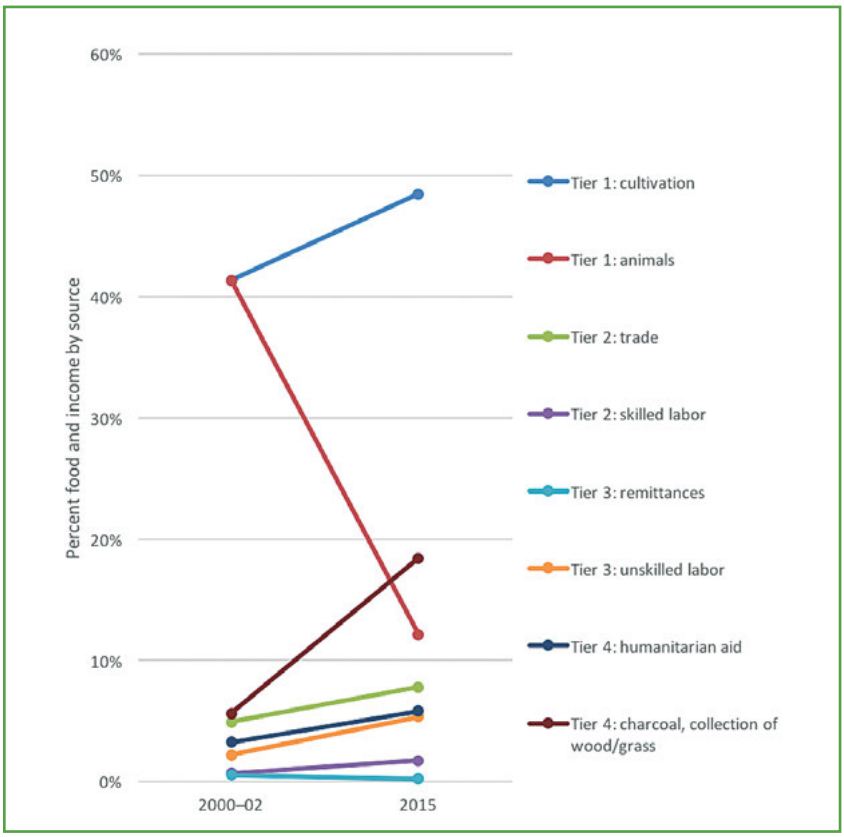
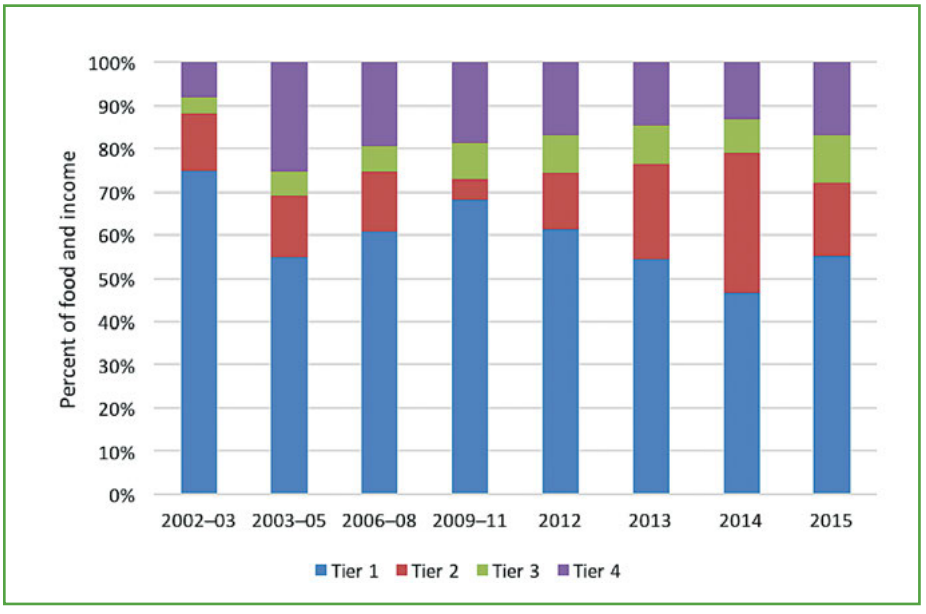


Figure 14. Shifts in income streams in South Darfur communities between the reference period and 2015.

Figure 15. The relative importance of different income streams for villagers in South Darfur: Trends from 2000 to 2015.



Tier 1–cultivation and livestock rearing; Tier 2–trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs; Tier 3–gifts, remittances/migrating for labor, local labor; Tier 4–collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance.

keeping livestock during the dry season, when they do not have access to the grazing around their villages. Income from livestock has reduced to the point that it is now about equal to earnings from unskilled labor and remittances and is less than grass mats. With the reduction of both cultivation and livestock, we can assume that total income has decreased.

During the seasons when households do not have access to their villages, they engage in other activities in their more urban residences like trade and donkey carts. Increased dependence on the collection of palm leaves for making mats is a significant adaptation, along with increased dependence on unskilled labor. In the reference period, humanitarian assistance constituted about 10 percent of overall food and income in Al Salam, while Beleil had none. Both now depend on aid for about 10 percent of their income.

In Figure 15, we see a significant drop in Tier 1 activities (cultivation and livestock), with the onset of the regional conflict affecting many, though not all, of the communities in the sample. The recovery from that point was very slow, with a very gradual increase in cultivation. Severe tribal conflict in 2013 and 2014 reduced access to fields even during the rainy season. By this time, households had developed Tier 2 income streams in the camps and the city of Nyala that they expanded during these years to cover more of their needs. Although access to their fields increased in 2015, it was a very dry year, and yields were below average. The small improvements in security did allow them to collect more palm leaves.

Summary of South Darfur

South Darfur was moderately affected by the regional crisis, and recovery has been severely hampered by inter-tribal conflict, with only the slowest of recovery trajectories. Gains earned from the low point in 2003 to 2005 were lost in 2013 and 2014, years with especially fierce tribal conflict. Whereas most of Darfur was reaping a bonus harvest, this region was unable to benefit due to a lack of access to fields, and the harvest declined to a new low in 2014. During this low time, households' ability to fall back onto Tier 2 income instead of the Tier 4 activities they used in 2003 to 2005 provides hope that their strategies now include the adaptability to cope with shocks like the periodic loss of access to their land. Regardless, this long-term displacement and reduced access to natural resources in their villages has prevented a stronger recovery.

3.5 Patterns of risk, vulnerability, and resilience across the four regions and livelihood systems

The variety of experiences described above highlights the dangers in generalizing analysis about impacts and experiences, as well as programming, across the vast Darfur Region. But it also provides an opportunity for comparison to draw out which factors and relationships related to the impact of shocks or the trajectory of their recovery are more generalizable to other areas of Darfur and possibly farther.

3.5.1 Comparison of experiences following shocks using the Income Stream Index

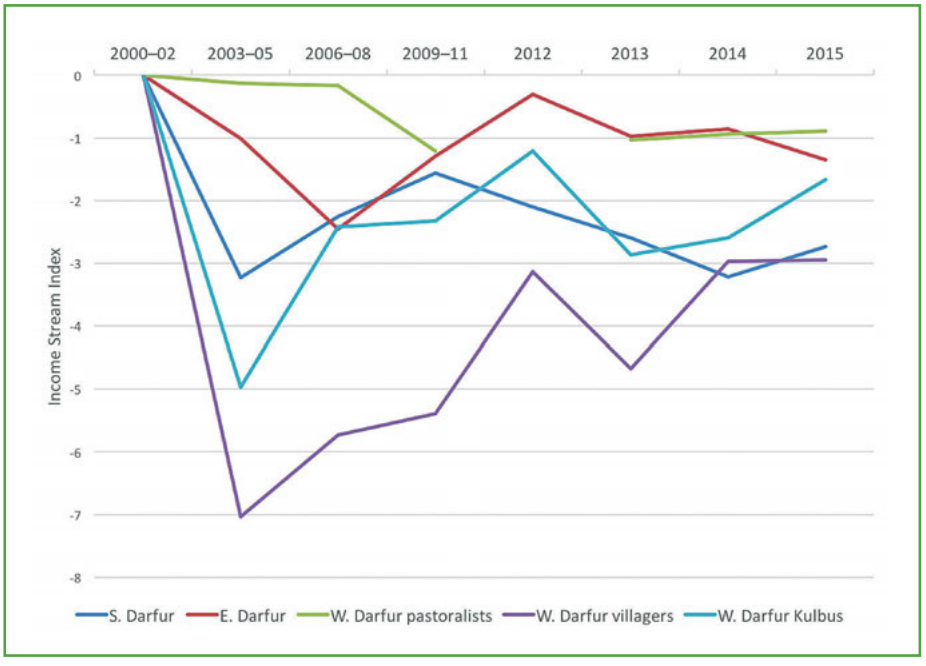
Some shocks reduced the benefits from particular income streams, but did not stop them, while other shocks ended entire income streams. During recovery, there was a common trend of prioritizing investment in the most preferred (Tier 1) income streams as soon as and as much as possible. Households' explanations for these shifts among income streams showed they were not random and were a part of a carefully considered strategy to maximize their livelihood outcomes within the limitations present at each point in time, while planning for the future.

Based on these observations and to help compare the impact of shocks and their process of recovery in the different areas, we created the Income Stream Index. A more detailed explanation of the index is provided in Annex D; we will provide a quick summary here. Each tier of income streams was weighted according to the average preference rating of its incomes streams. These weights were each multiplied by the average proportion of the total income (dependence) provided by that tier during given periods and summed for a total index score. Below is the formula used:

ISI score for a given period = $(pref_{tier1})(dep_{tier1})+ (pref_{tier2})(dep_{tier2})+ (pref_{tier3})(dep_{tier3})+ (pref_{tier4})(dep_{tier4})$

Figure 16 provides a graph of these scores for each livelihood group sampled. It is immediately apparent that the different groups had very different experiences of shocks and different degrees of success in recovering. Numerous events, decisions, and factors went into the changes to the livelihood strategies for each of these groups. By comparing the trends shown in Figure 16 with the experiences described in the section above, we begin to see some of the larger, more fundamental factors that led to such different trajectories of impact and recovery.

Figure 16. Changes in the Income Stream Index in different areas over time (2000–2002 to 2015).



Two of the groups (W. Darfur Villagers, W. Darfur Kulbus) show a significant drop in the 2003–2005 period followed by a gradual climb, partially recovering their initial mix of tiers of income streams. The negative effects of the 2013 drought are clearly visible, as are the bumper crops in 2012 and 2014. One group (S. Darfur) shows a similar initial drop and recovery, but then reverses into a decline. The last two groups (E. Darfur, W. Darfur Pastoralist) show little or no impact from 2003 to 2005 and only slight, later declines.

Of the three groups showing the initial decline, the least initial drop was in South Darfur, where not all villages sampled had been displaced during this period. The impact in Kulbus was slightly less than in West Darfur villagers, because some of the villages did not lose an agricultural season even when displaced, and some households were able to keep their livestock. The difference in this impact appeared to have more to do with the nature of the conflict rather than any capacities of the households. The destruction appears to have been more complete and comprehensive in southern West Darfur, where some families said they felt their livelihoods themselves were targeted to prevent their rapid return, because the attackers wanted to have use of the resources.

As each of these groups struggled to recover, Kulbus shows the strongest recovery, even though at first glance it is the driest and least promising of all areas sampled. All the villages but one in the Kulbus sample were able to return quickly to their land without limitations, and there was no ongoing threat to prevent them from keeping livestock. Military victory rather than ownership and use of the natural resources was the objective of the fighting parties. Recovery was a matter of rebuilding the asset base, primarily the grain stores and the herds, in the face of more natural shocks such as drought and animal disease, though banditry and raiding did slow the growth of herds. In the sampled areas of southern West Darfur and South Darfur, the objectives and nature of the conflict were different. The pace of recovery was determined by the success of villages in negotiating the shared use of natural resources to which they previously had had access, if not sole control. The level of success of these negotiations appeared to depend on the personal characteristics of the leaders of both groups, the history of the relationship between the two groups, and the local resources available. The fact that only one side of this negotiation was armed meant that negotiations were not balanced, nor were they always successful. The history of being marginalized by many of the traditional mechanisms for managing use of local resources may be adding to the reluctance of pastoralist groups to forego the power of arms and to submit once more to those same traditional mechanisms. Many communities remain extremely tense, even now, and villagers continue to have reduce access to land.

The two less-affected groups did not lose access to natural resources and did not lose a critical portion of their assets. Instead, they gained significant power through arms and used that power specifically to gain access to natural resources necessary to sustain or enlarge their livelihood strategies. Although this may have been successful in the short term, experience in other areas like Abyei suggest it would be a difficult strategy to maintain in the long term, with many negative aspects. Households in East Darfur will continue to expend resources to maintain that access while having reduced access to the livestock markets in Omdurman due to the need to travel around an area they have alienated. In southern West Darfur, families in the settlements are living very separately from the families in the villages, unable to benefit from many of the social support strategies that help the villagers cope with idiosyncratic shocks.

In southern West Darfur in particular, the unresolved issue of how to equitably and sustainably manage the use of natural resources is resulting in a severe degradation of the natural resources that will negatively affect all livelihood strategies. With increased sedentarization, households reported a larger number of livestock are remaining near the villages throughout the year and require pasture for grazing. Pastoralists living in new settlements have designated previously cultivated areas around their settlements for their livestock to graze and do not allow villagers to cultivate on that land. Although this study did not quantify differences in access to farm land, a report by Buchanan-Smith et al. reported that villagers in West Darfur surveyed in 2014 had access to only 2 to 4 *feddan* (0.84 to 1.68 hect-

ares) compared to 7 *feddan* (about 2.94 hectares) previously, and villagers in South Darfur had access to 4 to 5 *mukhamas* (about 2 to 2.5 hectares) , compared to 7 to 10 *mukhamas* (3.5 to 5 hectares) previously due to insecurity (Buchanan-Smith et al. 2014). Households with limited access to their rainy season fields are using the fields to which they do have access even more intensively, with little rotation of the crops or fields. Because their income is so limited, the villagers are gathering all crop residues to use or to sell, reducing the system of fertilizing the fields with dung as livestock graze on the residues, further speeding the reduction in soil fertility and reducing available grazing for livestock. As we saw in Figures 5 and 15 showing the increased dependence on the collection of firewood and grass as a long-term adaptation, trees are being cut at an alarming rate, and the cutting of grass even in Kulbus is depriving the pastoralists of fodder. Villagers often admitted they knew they should not cut the trees and were aware of the negative effects they were having on the environment, but they said they did not have any better alternatives as long as they could not fully engage either in cultivation or livestock rearing.

Adaptations for recovery in a constrained environment

The two areas struggling most with recovery, South Darfur and southern West Darfur, had no choice but to accept a new status quo. They will have to adapt their livelihood strategies in order to survive and achieve their various goals. In South Darfur, households have set up two residences, living in their villages during the rainy season to cultivate and collect palm leaves and fostering more urban income streams in the camps and cities during the dry season. In southern West Darfur, households have significantly increased their dry season cultivation to cover the gap left by reduced production. Both strategies have advantages and disadvantages, but neither has the ability to support the same number of households at the same level. The overall impact is reduced total production among the villagers and increased vulnerability to natural shocks like floods and drought.

3.5.2 Household characteristics related to resilience

Some factors were consistent and important across all four livelihood systems. Interviewees gave fairly uniform descriptions of households that "suffered more" or "suffered less" during major shocks. Many of these descriptions involved the numbers and types of household members and seemed to revolve around whether or not the members increased or reduced the productivity of the household rather than demands on household resources.

Instead of giving a general description like "large families," interviewees were always much more specific. Most often they described a household "with many small children" or households with someone who is chronically ill or disabled. Small children do not consume very much, but they do reduce the ability of the mothers to work, either through taking up her time or reducing her mobility. Often we would see an income stream managed by a woman, and at the same time a child was born. Sadly, households often cited the birth of children, especially twins, as a shock to the household. Women explained that they simply did not have time to do all their normal activities when they had an infant and cut out the least preferred activities or those that required more time away from the house. In a similar way, severely handicapped members of the household reduced the overall productivity of other household members, but unlike small children, their effect was long term.

Chronically ill members had a double effect. Not only did they reduce the household's overall productivity, but they also incurred huge expenses. Many times interviewees would cite the onset of a chronic illness as a shock to the household and say that the shock was ongoing. An income stream would end at the same time as the onset of the illness, and the interviewees would explain that they had had to sell productive assets to seek treatment.

On the more positive side, interviewees often said unmarried adult sons still living at home were a very helpful asset, especially during shocks and recovery. The fact that no household was without at least one adult woman is testament to women's indispensable role in the household, but they have heavy duties in caring for the household that take up a very large part of their time and that do not bring income to

the household. Men's time and mobility, especially that of young single men, are much less constrained, so they can be fully dedicated to productive activities. They tend to remain at home until they marry, often in their late twenties, and are expected to contribute to the household, often starting a small business or migrating for work in addition to helping with cultivation. Sometimes they will already have their own fields and contribute a part of their harvest to the household in times of shortage.

The absence of men had the opposite effect, especially if the remaining woman was divorced or abandoned rather than widowed. Young widows seemed to remarry, and older widows most often had grown children who could support them. Divorced or abandoned women had difficulty remarrying and keenly felt the lack of the man's contribution. Sometimes it was difficult to know the marital status of women because men had migrated away for work and did not return, send support, or even communicate, leaving the wife in limbo. In these cases, if the oldest boy was at least in his mid-teens, he took on many of the responsibilities of the missing parent, sometimes leaving school to do so. The stigma of divorce and abandonment makes it a poor criterion for targeting programming, though perhaps the contribution of grown children or male household members may be closer to the point and have less stigma.

Most analyses of dependency ratios, such as the Taadoud baseline evaluation, may take the criteria above into account, but they also tend to ignore the contribution of younger children to the household. Sometimes the children's contribution was less to earn income directly for the household and more to reduce expenses or to free up the more capable adults from low skill tasks that did not require a lot of strength. For example, children as young as seven or eight might watch even younger children for short periods of time, freeing the mother to do quick tasks away from the home. Most households had donkeys to help carry water, and children starting around nine or ten years old could take on the time-consuming daily task of fetching water or watching small herds of livestock (so the family did not have to pay someone to watch the livestock). By about twelve years old, children were contributing significantly in the fields or working at labor. By about fourteen years old, if they were not in school, they could work as casual labor and produce the income equivalent to an adult.

Dependency ratios generally have a single age-bound cut-off for measuring vulnerability and as a consequence generally show a weak effect on measures of well-being and food security. This may be because dependence is much more nuanced than that. While the general policy of the international community is to discourage child labor, we are simply reporting their contribution to the livelihoods and resilience of the household.

Although households consistently described these demographic effects as having a major influence on the resilience of households, statistical analysis of the demographics in this sample as well as the baseline failed to reveal a statistical relationship between the make-up of the household and any outcome indicators, other than occasionally male-headed households scoring somewhat higher. It appears that the impact of demographics is either compounded by or reduced by many other factors, making it almost impossible to tease out statistically the exact impact. A nine-year-old child in a household without livestock will have a different impact than in one with livestock, as children of this age may watch livestock but not work in the fields, adding to the household's food security in one case, but not the other. Very young children in a household that also has a nine-year-old child to watch over them will have a different impact on the productivity of the mother than a household that has only very young children.

While policies and programs cannot change the composition of an existing household, it may change the productivity of particular members, or reduce the drain on productivity of other members. Investments in infrastructure and services often translated to better livelihood outcomes and resilience in this way. For example, a school nearby in the village may allow children to both attend school and contribute to the household. A nearby water source may allow a mother to leave her baby with a younger child while she fetches water.

3.6 The unseen shocks

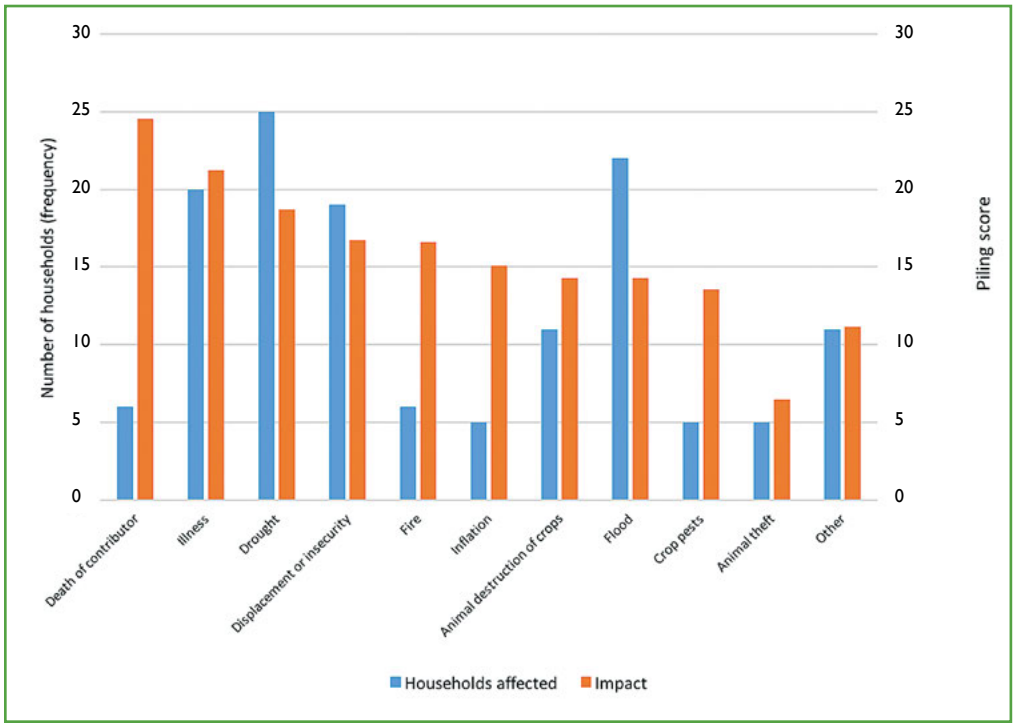
The ISI graph in Figure 16 in the previous section clearly shows the impact of major shocks that affect entire populations, but households described many shocks that do not show up in this population-level perspective. During the scoping study, households listed "events that changed their food and income" during the past five years. As we see in Figure 17, there were many different types of shocks that affected households, and not all households were affected by the same shocks.

Households also weighed the shocks by how much "suffering" they caused to provide an idea of the scale and importance of shocks to individual households. They also explained how they had suffered and how it changed their livelihood strategies to help us better understand the true impact of these shocks. Although the shocks were not tracked in the same way during the operational research as in the scoping study, the same trends were apparent.

Figure 17 shows the frequency of the shock and the severity of the impact when it was experienced. As expected, covariate shocks such as drought and floods affected the most households. But not far behind those shocks we see illness, an idiosyncratic shock with a higher impact than any of the covariate shocks.

Humanitarian responses focus on covariate shocks, because they affect the largest number of households at one time and therefore have the greatest impact on households or are the most likely to overwhelm the ability of local systems to cope. If we look at Figure 17, though, we see that three of the five highest-impact shocks (death, illness, and fire) only affected one household at a time (i.e., are idiosyncratic). Illness is idiosyncratic but is also one of the most commonly felt shocks, as well as one of the highest-impact shocks. A similar study asking similar questions of households in Pakistan also found that the total cost of expenses and lost labor due to illness was greater than any other type of shock listed because of the combination of high frequency and high impact (Heltberg and Lund 2009). These seemingly small shocks are constantly happening across the population. For the families experiencing these idiosyncratic shocks in Darfur, they can have more of an impact than drought, conflict, or floods. The timelines also showed that the duration of the impact for illness was often far longer than it was for drought, flood, and even conflict.

Figure 17. Impact and frequency of shocks by type of shock.
(among West Darfur villagers in the past five years)



Because idiosyncratic shocks are constantly happening, but are happening to different households at any one time, they do not show up in scores based on population averages (like the ISI) but are very visible when we look at individual households. On the timelines, most of the shocks listed were in the past five years, presumably due to recall bias, and included both large and small shocks. The shocks listed for the period of 5 to 15 years ago were usually only the more significant shocks that left a long-lasting impression on the interviewee. These were as often idiosyncratic shocks as they were covariate shocks. When these shocks happened, they very often resulted in the loss of at least one income stream that took many years to restart, if it ever did. Because we depend mostly on measures using population averages, the humanitarian community knows much less about the impact of these types of shocks and how households cope with them. The strong qualitative nature of this study allowed us to look a bit more closely into this aspect of shocks and resilience and the support systems communities have developed to mitigate their impact.

3.6.1 Cooperative activities and systems that have always addressed idiosyncratic shocks

When one of these idiosyncratic shocks affected a household, they usually turned to their friends, family, and neighbors, a trend seen in other rural contexts (Heltberg and Lund 2009). In fact, there appeared to be a constant exchange of support among the population to help whichever household was affected. Sometimes it was not even an exchange of goods. When a woman without older children was ill, other women might collect water or firewood for the household.

Another type of social assistance is *nafir*. This assistance consisted of many different ways of working together to support a struggling household but was usually in the form of agricultural labor. If a household had only one or two adults and one was sick or injured, or if a farmer hadn't been able to get his crop in before the *talaig* (and the crop was therefore in danger of being lost), the household could "call for *nafir*," and others who had time available would come to help. The owner of the field was expected to provide a gift of sugar or food in payment, but the cost of the gift was much less than the cost of labor. *Nafir* operates on the basis of reciprocity. Although no accounts of assistance are kept, those who never support others cannot expect an enthusiastic response when they call for *nafir*.

As seen elsewhere, while this community support ensures the most basic survival of the household, it seldom does more than that. Data from elsewhere show that livelihood outcomes are often reduced for a long period (Heltberg and Lund 2009). Idiosyncratic shocks are therefore a constant drain on the population as a whole, severely reducing the resilience of households to other shocks.

4. Policies, institutions, and processes supporting resilience

During the operational research, households described the policies, institutions, and processes (PIPs) that were helpful in promoting their livelihoods in normal times and were especially helpful during shocks and recovery from those shocks. PIPs can take many forms, from formal organizations, services, and infrastructure to local traditions, values, and customs. The cooperative systems in communities listed in the previous section are some of the less formal but no less common institutions. Below are those PIPs and the cooperative strategies that households described as being the most helpful in either reducing the impact of a shock or supporting their recovery.

4.1 Markets central to livelihood strategies

Households, regardless of their livelihood strategy, described many different ways they used markets. Very few income streams did not depend at least in part on some form of a market, and the income streams that households depended on most during shocks and recovery depended even more heavily on markets. The desktop study for this report, as well as many others across a range of contexts (d'Errico, Kozlowska, and Maxwell 2014; Ekblom 2012; Burgers 2008), has found access to markets has a very strong relationship to food security or other positive indicators of household well-being. The Taadoud Baseline Data showed that households who had better access to markets also had better Individual Dietary Diversity Scores for women, Household Hunger Scores, and Coping Strategies Index scores (TANGO 2014). Interestingly, this relationship was even stronger in those households that reported having experienced a recent shock, suggesting that markets are even more important during a shock or recovery (Fitzpatrick and Marshak 2015). While statistical data tell us that markets are important to resilience, they do not explain exactly what about the markets is most important, a point explored in this study.

4.1.1 Markets reflect the level of production

Most large traders move goods between markets, often buying one type of product and selling another at each market. For example, traders may purchase grain at a village market to take to Omdurman, but they do not arrive at the market with an empty truck; rather, they might buy sugar in Omdurman to sell at the village market. They also go only where they can buy and sell goods in large enough amounts to cover the costs of transportation and still make a profit. The number of traders at a market usually related to the amount and variety of production available to buy or the purchasing power of the people coming to the markets.

Villages that were very small or that had very little production on a regular basis often either did not have a market, or the market simply allowed local residents to exchange local produce amongst themselves and maybe purchase small amounts of tea, sugar, salt, and soap from an enterprising resident. In Kulbus, villages were much farther apart, and the nearest market might be two hours away. Regardless, it appeared to be levels of agricultural production more than distance between markets that determined where markets formed.

In this sense, access to markets is a reflection of production and the successful outcomes of livelihoods rather than a driver of livelihoods. In other words, to a certain extent, markets form near better-off populations and are a result of local wealth rather than increasing production and wealth.

4.1.2 Markets help to generate income

We often think about markets as a place where people sell their crops or livestock and buy food and other household necessities. Most market assessments therefore focus on the prices of major products and their links to other markets. The ability to sell these goods in large volumes is an obvious and increasingly important part of livelihood strategies for producers in the study area.

But the relationship between markets and livelihoods in Darfur is much broader than that. During the scoping study, households mapped out their livelihoods, including each of their sources of income, the sources of inputs like seed or water, and the flow of goods or income produced. Not only did households spontaneously include markets on every map, but nearly every activity linked with markets, usually in more than one way. Seed for crops, medicine for livestock, tools for making furniture came from the market. Small shops, tea stands, butcheries, restaurants, and similar activities often provided extra income to supplement the Tier 1 activities. During displacement, these activities replaced the Tier 1 activities. Casual labor in the market and transporting goods with wheelbarrows or donkey carts were common among displaced households. Boys often worked with wheelbarrows in the market to pay for their education. Firewood, grass, palm leaves, and charcoal were usually sold in the markets.

During normal times, better-off households frequently depended on trade (both buying and selling the same item) as a significant source of income, but poorer households tended to use the market in multiple ways to supplement income. Looking at the timelines, we see that dependence on these other activities with intense market interaction provided a higher proportion of income during shocks and early recovery for all households. The closer a household was to a market, especially a daily market, the more opportunity they had to do these myriad activities on a regular basis.

4.1.3 Not all markets serve the same purpose

Local primary markets tend to be weekly, while secondary markets in larger towns operate daily. The frequency of a market often related to the supply of goods and local demand. Some markets are specialized, with some known for their fruit, sorghum, onions, or livestock. Traders specializing in those goods target those markets, often providing producers with better prices or more scope for selling large amounts at those markets. When drawing the maps, households often noted different markets and the different roles each played. For example, they might sell fruit at a weekly market in a neighboring village, large amounts of grain at the secondary market in a larger town, and small amounts of grain at their own weekly village market.

Households were very much aware of the different roles of the different markets, the ability to sell small or large amounts of produce at those markets, and the prices of key goods at each. They weighed the time, effort, and cost of travelling to a market with a better price against the potential profit. If a market with a much better selling price was too far away, they would sell small amounts locally for their daily needs but travel the distance to the other market for selling large amounts. Sometimes, they would travel long distances to sell large amounts even without a difference in price, because they knew another market had higher demand, and they would be more likely to find a buyer.

This question of distance, specifically to the markets with higher demand, became even more important during recovery, when households were selling large volumes of low-value goods (hay and grass in particular) and travel was risky. In these cases, distance to a secondary market was more important than distance to a village primary market, unless large wholesale traders were willing to come to the village market. There is some evidence that large-scale traders from central Sudan, or their agents, target certain markets in Darfur, sometimes bypassing the secondary market and going straight to markets in areas of high cereal production rather buying from the more central market in the state capital.[6]

Because of the different roles each market played at different times, a simple question of distance to the nearest market may not be a complete indicator of market access, especially in relation to resilience.

4.1.4 Trade outside the formal marketplace

Anyone who knows Sudan has an idea what a Sudanese *souk* (market) looks like. In this study not all trade passed through these typical markets. Some trade was done directly with traders. In Gobei, West Darfur, groundnut traders had storehouses separate from and in addition to the normal marketplace. Producers would bring their groundnuts to sell directly to these traders. In charcoal-producing areas, traders from Omdur-

[6] Personal communication, Sudan market expert, July 6, 2016.

man came directly to the villages to purchase charcoal from those making it. Megmere in West Darfur straddles a major road into El Geneina, and each household sold firewood alongside the road to passing traders. In East Darfur, groundnuts were a major crop that often rivaled grain production as a source of food and income but were highly taxed in the markets. As an alternative to selling in the markets, producers sold directly to large local traders, who also had shops. While waiting for a good selling price, households could buy goods from the groundnut traders against the future sales of the groundnuts. These traders were a sort of one-trader market in and of themselves. There is also a well-established practice of livestock traders or agents buying directly from pastoralists in the bush (Buchanan-Smith and Fadul 2012).

When considering markets and their importance in livelihoods, we need to keep these alternative forms of trade in mind. They may indicate local solutions to unique barriers or opportunities to support.

4.1.5 Market integration reduces variability in price during some shocks

Integration is the key to the success of local economies everywhere, providing demand for local products and reducing the cost of goods not produced locally. Markets in rural areas often struggle against the effects of isolation, especially when transportation becomes problematic due to poor infrastructure, taxes, or insecurity (WFP 2007).

Markets in Darfur have always been relatively poorly integrated into the national market system due to the long distances and poor roads. During the rainy season, and for some more remote markets, they have also been poorly connected with each other, but otherwise pre-conflict cereal markets at least have been quite well integrated within Darfur (Buchanan-Smith 1988). Since the conflict erupted, market isolation has increased, especially during periods of insecurity, which was only partly addressed by supporting convoys with armed military escorts. Impromptu security checkpoints along trade routes provided opportunities for local or unofficial fees to be levied. Buchanan-Smith and Fadul found that transport costs between major markets within Darfur increased up to five-fold, primarily due to formal and informal fees, but also due to the higher charges by the transporters themselves because of the higher risks they incurred (Buchanan-Smith and Fadul 2008). In Gobei, West Darfur, local groundnut middlemen who depended on trade with Omdurman complained that a new tax levied in El Obeid en route to Omdurman had reduced their profits by half, lowering the price they were able to pay the producers and reducing the number of traders coming to buy.

Integration of markets is important for ensuring the best local prices for producers during normal times and reducing seasonal variations in the price of local produce but also for preventing wild drops or spikes of key goods in times of crisis. When crops produce less than people need for their consumption and other needs, households in Darfur and similar contexts across the Sahel who have livestock commonly try to sell them in order to buy grain. When this happens, the price of livestock in poorly integrated markets will dip more than in integrated markets, and the price of grain will rise more, reducing the terms of trade between livestock and grain. The impact on households is to reduce the amount of grain they can buy at a time when they need it most. In Somalia, a long, sustained drop in the price of livestock in remote hub markets was blamed in part on this dynamic and contributed to the spiral into famine (Maxwell and Fitzpatrick 2012).

In general, following the decline in market integration post-conflict, more recently markets in Darfur appear to have become more integrated into the national markets. There seems to be improved integration between markets within Darfur as well. Households in smaller village markets are reporting that more traders from other parts of Darfur and beyond are coming to purchase goods directly from the producers, primarily firewood and charcoal, but also grain and livestock.

Mornei in West Darfur is a good example of improved integration. It is a significant town that had sheltered a large number of displaced families. Households in villages in the Mornei areas reported that between 2003 and 2008 insecurity stopped many of the traders from arriving. Prices of imported goods rose dramatically. When the government started providing armed military escorts for the traders, many returned and prices partly normalized. About three years ago, the government paved the road connecting Mornei with the capital city of El Geneina and interviewees reported that "more traders now come than

they did even before the war, and prices are lower than they ever were for manufactured things." Villagers living in communities along the paved road said that before, they could wait a day or two without seeing a trader. Now, traders pass frequently every day, and villagers can sell goods to passing traders without having to consider the cost of transport at all. Residents of other villages in the region say they can now transport livestock and produce on public transport (trucks) to sell in the markets in El Geneina.

The general effect is to stimulate recovery through reducing costs to producers, improved market efficiency, and improving opportunities to sell at better prices. It is hoped that during future shocks, this new integration will help to move goods between areas with surplus and areas of shortage, although purchasing power is also a factor. If this declines as a result of loss of income, goods will not necessarily flow into that area, which was an issue in remote areas of northeast Darfur pre-conflict.

4.1.6 Markets grow and decline and trade routes are redirected

Markets are dynamic platforms where people interact. Although a single market may exist for centuries, it will grow and decline. Trade routes change as different events and shocks change the costs and opportunities for trade. Some of these changes reflect new limitations on populations and their mobility and reduce the benefits of trade, while others provide new opportunities to spur recovery.

The Kulbus market was once a bustling market center in northern West Darfur, with direct market links to Omdurman. Accessing Kulbus market therefore did not require going through El Fasher or one of the other major centers. The impact of the conflict has made this market less accessible to those associated with the Zaghawa rebel groups, major buyers of local grain. Not only has the Zaghawas' access to grain been reduced, but the ability of producers to sell their grain has also been reduced. To remedy this problem, Goz Diga has emerged as a new market center for local grain farther north, in an area that is easier for the Zaghawa to access. Some villagers in Kulbus Locality reported that when they had large amounts of grain to sell, they preferred to sell it in Goz Diga, where the price is better and there are more wholesale buyers. They use the Goz Diga market even though the Kulbus market is only one and a half hours away, whereas Goz Diga is about three and a half hours away. Kulbus market is now a depressed, collapsing market littered with the shells of shops that have long since been abandoned, taking with them many local opportunities for employment.

In the Mornei area, we were surprised when households reported using Sisi market instead of Mornei for sales of livestock and large amounts of produce. This market had fewer trade barriers (fewer taxes, better roads, less hassling from authorities) and was more accessible for larger traders to visit. Though prices were about equivalent between Sisi and Mornei, households reported it was easier to find buyers in Sisi.[7]

In East Darfur, as mentioned above, groundnut producers are selling to individual traders (who are not necessarily in the market) or in places where there is no market, in part to avoid heavy taxation. Most trade in the sampled area of East Darfur has also been forced to change to a longer trade route, as the previous route passed through an area traders can no longer enter due to conflict with groups there. This longer route has increased the cost of transporting goods to other, larger markets and reduced the profit for producers.

The government is making several changes to encourage the flow of trade between Darfur and the rest of Sudan. Over recent years, many different groups, militias, local governments, the military, and others set up checkpoints on the roads to provide themselves and their organizations with revenue. These checkpoints have increased the cost of transport and inhibited the efficiency of the markets. Buchanan-Smith reported that one trader moving from Jebel Mara to El Geneina in 2007 was stopped seven times in each direction to pay a total of 2,300 SDG (about 370 USD) (Buchanan-Smith and Fadul 2008). A recent effort to reduce the number of these

[7] Buchanan-Smith and Fadul (2008) report the emergence of significant new markets since the start of regional conflict, including markets in the largest IDP camps. These markets are largely unregulated and have attracted urban traders and consumers.

semi-official checkpoints has reportedly been successful. Nevertheless, official taxes remain high. For example, households in South Darfur reported that they must pay a 12 percent tax on groundnuts if they sell them through the market. This tax encourages them to trade through alternate means that may not be as efficient and that may be more susceptible to price volatility due to having fewer alternatives.[8]

4.1.7 Summary of markets

Markets provide a platform for buying and selling produce as the basis for economic well-being and economic growth at all levels, from the household (micro level) to the meso and macro level. Markets also provide multiple income opportunities at the household level. While these opportunities are important at all times, they are crucial for survival during shocks and recovery. They provide supplementary income sources at a time when the preferred Tier 1 activities (primary production) are under severe stress.

All sources of income used by households interviewed depended heavily on interacting with markets, and this interaction took on many different shapes. Interaction was even more important for sources of income used during shocks and recovery. Shocks can affect not just the price of goods in a market, but also the markets and trade routes themselves, changing the effectiveness of households' resilience strategies. Improving the integration between markets within Darfur and between Darfur and the rest of the nation may help mitigate the impact of local shocks to production on market prices. Understanding how a single household interacts with different markets, how they are incorporated into their livelihood strategies, how they link into a larger system, and how they change in response to shocks is important when designing policies and programs to support resilient livelihoods.

4.2 The high and lasting impact of investment in services and infrastructure

The government and humanitarian community have invested considerably in infrastructure in Darfur in recent years, though the investment is uneven. Some infrastructure investment, like communications, is commercially driven. In general, these investments have paid off enormously, encouraging the return of displaced families, supporting their recovery, stimulating the local economy, and integrating Darfur into the country socially and economically. The benefits to resilience included a combination of reducing vulnerability to shocks like conflict or illness and supporting recovery by reducing costs and increasing productivity. As we would expect, the relative benefits of each type of infrastructure depended mostly on the particular needs in an area. For example, those areas with more tension especially valued the police stations, while those far from alternative water sources appreciated the boreholes.

> *"The road facilitates marketing, the water point saves our time, and the other services facilitate our stability."* **(Household in South Darfur)**

4.2.1 Basic infrastructure

Infrastructure within particular villages appears to have focused on some of the areas that had the highest productive potential, suffered the worst impacts from conflict, had the highest international visibility, and where households were being encouraged to return from about 2006 to 2008. These particular investments in infrastructure were frequently mentioned by households as the investments that were most helpful in their recovery and are expected to continue to help them in the long term.

Road paving increases market and social integration

Road construction efforts in Darfur have been much more apparent within the past four or five years than at any other time in its history. Some projects, like the Western Ingaz Highway linking Darfur to the rest of Sudan through El Fasher, have been underway with sporadic bursts

[8] Taxes had recently been raised and subsidies lowered. In an area struggling to recover from multiple major shocks, taxes were perceived as an impediment, and few people felt they had ever gotten much from the government in return for their taxes.

since the 1990s. The road finally reached El Fasher only in the past year or so. The current focus of road building is on linking markets within Sudan (Staff 2015). Other projects link key markets within Darfur and to the main roads out of Darfur. Prior to this final connection from El Fasher, travel outside of Darfur from anywhere but Nyala meant an expensive flight (about 700 SDG) or a bus or truck ride that took several days if all went well and was exhausting and risky (El Nour 2015). Now, comfortable busses travel daily between Khartoum and El Fasher for about 300 SDG, leaving in the morning and arriving in the evening. Households in the study reported they now travel more frequently to other parts of Sudan.

Not only does this better infrastructure improve resilience through better market linkages that should reduce the severest price spikes, but it also increases access to services. In one village, households reported that, prior to the road paving, if someone was ill, it could take several days to get them to a hospital. Now, they said they could call a driver in El Geneina who would come to pick the person up, and they could be at a large hospital within a few hours. In some areas, households now commute between large towns like El Geneina and their villages on a weekly basis, facilitating income streams in both locations, and allowing them to maintain a household in El Geneina, where they felt crop storage was safer. Finally, easier travel to Khartoum and other cities reduces the financial barriers of migrating for labor.

The multiple benefits and risks of improved water sources

Throughout the areas sampled, access to clean water has improved significantly during the recall period and was considered one of the most helpful pieces of infrastructure during normal times. Access to water was especially helpful during shocks. Most systems are simple boreholes with a hand pump, but in East Darfur and in the occasional village in the other areas, a water yard (locally termed a *donki*), is the primary source of water. Hand pumps are generally sufficient for household domestic use only, but *dwanki* are designed for a much larger, more rapid delivery of water. In rural areas, they can serve both households and large herds of livestock and are especially important during the dry season. Because they require more maintenance and fuel to operate, *donki* operators generally charge a fee by the jerry can or head of livestock.

The improved water sources were more reliable than other sources during the dry season and especially during drought. They were usually positioned in safer areas, obviating the need to venture into unsafe areas in search of water. Their water quality was better, and households said they had fewer cases of diarrhea when they used water from a borehole rather than from an open well or the *wadi* (Figure 18). People therefore lost fewer days of work. The primary benefit they cited, however, was the savings in time on a daily basis. Estimations in time savings ranged from a few hours to entire days, especially during drought. This time was then available for other activities.

Figure 18. Small sheep and cattle herds being watered at an open traditional well, Kulbus, West Darfur.

Also, when water was more accessible, it was more likely they could delegate the task to children, further freeing up adults' time to earn more income.

In the driest areas, where there were few easy alternatives to hand pumps or boreholes, they were valued the most, were the most likely to be repaired or to be well managed, and were most often functioning during our visit. Outside of these areas, the majority of hand pumps ceased to function the first or second time they broke down after the supporting agency had moved on. In most villages in southern West Darfur, more hand pumps were broken than not, despite the fact that the INGOs that installed them had trained and equipped water committees to maintain them. The high failure rate and varied reasons given for the failures warrant further investigation given the propensity of agencies to install boreholes in the region.

> *"The services in the village help my family to use time effectively, and our students access education from the school."* **(Household in South Darfur)**

4.2.2 Health centers, schools, and police

After water, the three most common services available in the villages were health centers, schools, and police. While need was a significant factor in the value of these services, the quality and reliability of the services was perhaps equally critical. Distance to a service provider therefore becomes a very weak indicator. Even though well-functioning health centers could treat little more than the most basic illnesses, having one nearby reduced the financial cost and lost income associated with travelling to distant clinics. The schools allowed families to live together. Where schools were not present, households that could afford to sent their children away to schools. Not only did they have to pay additional costs for the care of these children, but they also lost the contribution of the child's labor. The child lost lessons in the household's income strategies and potentially the community social networks he might need to overcome shocks later in life. Households that could not afford the extra expense of sending their children off to school found themselves becoming further disadvantaged. Police provided a sense of security that, while theft and risks associated with livestock might continue, the worst security incidences were unlikely to happen if police were present in the village. In general, households stated time and again that having the services helped them to feel "settled." They felt that the worst was behind them, and they could look forward to recovery.

4.2.3 Savings groups

Building on a traditional rotating savings version of *sanduq*[9] , the Taadoud Project uses Savings and Internal Lending Communities (SILCs), in which group savings are loaned at interest to other members, and the accumulated capital is shared out to the group members in lump sums at agreed times. In sampled areas where households were struggling to launch or enlarge income streams, especially Tier 1 and 2 income streams, this lump sum was often used to increase household income and generate wealth. Some purchased new types of seed or equipment, and many purchased livestock with which to restart small herds, thus potentially accelerating recovery.

Borrowing at interest is seen as very risky by households that are struggling to meet their basic needs and in the culture of Darfur is not always a positive strategy. SILC groups instead used their capital for joint investments, buying in volume at a discount to sell retail at a higher price, buying young livestock to raise and sell when it is grown, or buying seeds for a shared field and shared profits. These spontaneous cooperative activities increased the confidence of the groups in each other and in their own business acumen, while also increasing the amount of income in the fund to be distributed to the members, further supporting their recovery.

Because the SILC groups required a small cash deposit on a regular basis, the poorest households who needed the support the most felt they could not commit to participate in either the savings or the social insurance associated with the

[9] *Sanduq* is the term used for multiple versions of traditional savings and insurance schemes.

savings group. Some groups lowered the regular cash commitments for such members, but most did not, effectively excluding them and further marginalizing them.

In general though, access to various types of markets, as well as basic infrastructure and services, had an enormous multiplying effect on the value of asset portfolios and the ability of households to rebuild their livelihood strategies. Among populations that have already largely recovered from the major shocks of the past 13 years, investment in PIPs is helpful. Such investment appears to have the greatest benefit among those populations still struggling to recover.

5. Discussion and Conclusions

This study describes four very different case studies of livelihood systems in Darfur, each with its own ecology, economy, traditions, livelihood strategies, and unique history and experience of shocks and recovery. Throughout all four case studies, certain trends persisted, some that may be extended to the rest of Darfur and some even further. Households strategically shifted their limited resources toward different income streams based on an assessment of the potential benefits and risks associated with each. For all livelihood systems and groups studied, the primacy of cultivation and livestock rearing, and the complementarity of these strategies, plays a very key role in productive livelihood strategies that can either withstand or quickly recover from multiple shocks. How well households can engage in and earn from these and other activities depends in large part on the policies, institutions, and policies (PIPs) in force in a given time and place. These PIPs changed with different shocks and with the changing balance of power among various populations and actors, altering the ability of many groups to engage in key activities. The PIPs were also different in different areas. One of the strongest associations between a PIP and resilient livelihood outcomes was access to markets, though even this association needs to be contextualized, as people's interactions with markets changed during times of crisis and recovery, across different livelihood systems, and with different types of shocks. Other significant PIPs related to access to natural resources, the basic, most limiting element for cultivation and animal rearing. Nearly all local PIPs, though, depended heavily on the relationships of different distinct groups within the population.

5.1 Primacy of cultivation and livestock rearing

Livelihood systems in the Darfur Region depend primarily on rainfed cultivation and raising livestock, both of which are uniquely adapted to the extreme rainfall variability. In good years, these two livelihood systems have the potential for yielding high returns in proportion to the effort and investment required. These two activities are the principle drivers of recovery in the Taadoud Project areas. When these fail following a shock, such as drought, or when shocks prevent or restrict these activities, households prioritize re-establishing these activities, by investing as much as they can into the effort. It is only once these activities are generating income that households begin to leave behind their dependence on the unreliable, high-risk or low-return activities that often put the local natural resources and therefore future livelihoods at risk. Supporting households to re-establish these highest-return activities will likely have much more positive impact than investments in alternative lower-return activities that are also likely to be more subject to the forces of competition.

5.2 Strengthening and rebuilding weakened asset portfolios through investment in PIPs

Shocks almost always deplete livelihood resources but not always equally across the assets portfolio. The precise patterns of depletion vary. During major shocks, people elsewhere have reported that their most useful assets were their social capital (their identity and social networks) (Majid et al. 2016) and their human capital (their labor, health, and skills). However, when conflict disturbs the social fabric of a society and the ability to draw on distant connections, as we saw in many parts of this study sample, even these can be lost. Basic services and infrastructure like boreholes, village schools, and quality health care delivery are key to maximizing available human capital.

Considerable investments in infrastructure have been made over the past ten years by government and the international community, but much of it is already broken and left unrepaired (see section 5.3 below).

We saw during this study that, as primary production declines, alternative income-generating activities become increasingly limited and more dependent on marginal activities linked to markets. Markets, in turn, depend on safe and

effective transportation infrastructure.

The ISI score trends clearly showed that households are making progress on their recovery trajectory, but many still have a long way to go. As the government and international community move away from short-term interventions that help households to cope with shocks toward longer-term interventions to support recovery, the multiplying effect of investment in infrastructure is sometimes neglected in favor of "capacity-building" activities such as training and demonstrations with minimal physical inputs. But there still remains a strong need to increase available services and infrastructure or more often, to improve the quality of existing services and infrastructure.

5.3 Mismatch between short-term WASH inputs and building resilience in the longer term

Water is vital for both life and livelihoods, and is a central pillar of humanitarian response. In the Darfur Region, water is a most precious resource that influences access to land. For pastoralists, access to pasture is determined by access to water; the best pasture available cannot be accessed unless there is water for the livestock. For cultivation, the timing and distribution of the rains are crucial, while for dry season cultivation access to available water resources around *wadi* systems is key.

The study found numerous examples of hand pumps that had been installed from about 2005 as part of humanitarian Water, Sanitation, and Hygiene (WASH) programs, with the aim of providing clean, easily accessible water to the returning villagers. However, humanitarian WASH programs operate according to short-term goals of meeting the need for domestic water consumption, which is a minimum of 15 liters per person per day, as recommended by the Sphere standards (The Sphere Project 2011). Little consideration is given to the wider household livelihood needs.

By the time of this study, more hand pumps installed during the recall period had fallen into disrepair than were functioning. When questioned about this, villagers responded with multiple reasons: the government body responsible for maintaining the hand pumps had centralized the spare parts and villagers were waiting for them to repair the hand pump; the local committee had depended on incentives and did not feel motivated to continue to maintain the hand pump without the incentives previously paid by the NGOs, while the population did not feel it should be responsible for contributing toward the incentives; parts of the original committee had moved away, and the committee was no longer functioning. Additionally, it was clear in nearly every case except Kulbus that only villagers and not the pastoralists were using the hand pumps, even for household water. While boreholes with hand pumps are much cheaper to install and much easier to maintain than deep boreholes served by *dwanki*, hand pumps are clearly intended for limited use and do not take into account livelihood needs, especially livestock. Pastoralists, unable to water their livestock at the hand pump, were forced to use other, unimproved sources for their livestock and chose to collect water for their households from those same sources.

Although the NGOs installing the hand pumps had diligently trained and equipped the communities to maintain them, ensuring all technical structures were in place to make the hand pumps "sustainable," they had considered the hand pumps stand-alone resources with a very specific, limited use. They had not considered them a part of a larger, integrated system of natural resources with long-standing management systems and norms. They had also not considered the potential livelihood implications of water and the potential to further polarize the already tense relationships between the users of the resources. Nor had they engaged the appropriate government services during the project planning and implementation. With the departure of the NGOs, the government services took ownership of the hand pumps but lacked the capacity to provide support to the large number of widely scattered hand pumps.

As Bromwich argues, an approach for future programming that involves water, land, or other natural resources requires "co-management" to promote sustainability, while simultaneously promoting cooperation and collaboration between competing sections of the community (Bromwich 2015).

These failed bits of infrastructure can provide tremendous learning opportunities for implementing agencies on why such activities fail, as well as a low-cost opportunity to increase access to clean water. Infrastructure designed to support

livelihood activities as well as human assets can have additional benefits. For example, in areas where there are significant herds during the dry season, strategically placed *dwanki* can support water for both the household and the herds, while preventing the herders from having to go near the dry season fields bordering the *wadis*. Poorly placed hand pumps can be divisive and even damaging to the environment and the livelihoods that depend on it (Bromwich 2015).

5.4 Power, relationships, and access to natural resources

Throughout the stories from all four livelihood systems in this report, including the preferred livelihood strategies, the impacts of shocks, and their long road to recovery, people constantly put access to natural resources at the heart of their narratives. The infrastructure, services, and activities listed above facilitate recovery, but natural resources, land in particular, are key to all livelihood strategies in Darfur. Reduced access to seasonal grazing, water, or pasture, cultivation along livestock routes or near watering points, and blocked livestock routes seriously affected the pastoralists interviewed in both West and East Darfur. Lack of access to large fields of different types of land required for cultivation was the most common major issue facing villagers in southern West Darfur, South Darfur, and even parts of East Darfur, where there are not the same restrictions on access to land. In addition to land, villagers in these systems said they were not able to restart their herds due to the high risk of livestock theft and risk of physical violence to a household member. The limitations on either pastoralist mobility or access to cultivable land in this context are a matter of the wider power relations between rival groups that have been distorted as a result of conflict dating back to the mid-nineties.

In the case studies with the least recovery, interviewees also spontaneously gave a similar root cause: an extreme power imbalance that renders ineffective many traditional institutions previously in place to manage use of natural resources.

In contrast, in Kulbus, even in the absence of any significant infrastructure or services, the total loss of assets was more rapidly overcome by a quick, full-time return to the villages and full access to natural resources, largely because there was not the same distorted competition for resources with a more powerful group. The observation was that access to natural resources, land in particular, is key to livelihoods in Darfur. With the demographic shifts brought about by the protracted conflict and crisis, a more equitable and co-managed governance of natural resources has yet to be achieved. Lessons from Darfur's past and present suggest that the answer lies in functioning local institutions and more balanced power relations to ensure access for all.

5.4.1 Natural resource management: Moving from distorted power relations to cooperation and mutual agreements

Government administration and policies have historically neglected the interests of all Darfur, but especially the pastoralist population. National policies favor cultivation while largely ignoring pastoralism (El Shazli, Adam, and Adam 2006) despite the fact that pastoralist production made up the majority of the national herd. This bias partly accounts for the neglect of pastoralist producers, while the increasing commercialization of agriculture (expansion of farms, fencing of pasture, purchase of commercial inputs, and harvesting of crop residues for own use or resale) has led to the loss of many of the mutual benefits shared between farmers and pastoralists, resulting in less integration and cooperation. Wider civil conflict has further polarized these groups and radically shifted the power dynamics between them. Pastoralists remain marginalized and disempowered in terms of investments in their human capital, but in some regions (such as the southern part of West Darfur) they now dominate in terms of their control of access to natural resources.

The tribal administration traditionally plays a crucial local governance role, managing customary rules and regulations about the timing and multiple uses of land and resources on that land by different users during different seasons. They also manage related disputes over the use of the land and resources. The shared use of different land and water resources are inherently complex and therefore need to be managed and negotiated locally. Osman et al. (2013) argue that the process of negotiation overseen by the tribal administration ensured that all parties using the resources at least understood the needs of the others, and its participation increased the chances of an acceptable solution and therefore of compliance.

However, the legacy of conflict in parts of Darfur, which has a long history, has been to distort local power differentials and polarize formerly cooperative groups, creating a severe imbalance in the relations between neighboring groups. There are important lessons to draw from to address this imbalance. First, the long history of cooperation and shared use of natural resources in Darfur is well remembered by local farmers and pastoralists as well as studied by national scholars. Second, local experience of negotiating and resolving disputes over natural resources—land and water, for the most part—has been shown to promote a closer working relationship between groups of users (Osman et al. 2013). In other words, there is great value in the process of jointly negotiating and enforcing the agreements and in the formal purposes of the agreements. Lastly, experience elsewhere in Darfur shows that over time clearly identified and understood mutual interests can serve as the basis of negotiating new agreements that reflect cooperative arrangements around these interests, even when former relations were hostile or even violent.[10]

The *ajawid* is one example of an institution weakened by a process of conflict that has polarized and distorted local relationships, yet it has potential for being part of the solution.

> *"***Ajawid,** *one exists but is not doing well because some of the nomads have weapons so they will not pay."* **(Household in southern West Darfur)**

The *ajawid* is a local council that negotiates the settlement of local disputes, most often to do with livestock and natural resources, but also other issues, even domestic issues. Previously, the *ajawid* would facilitate negotiations between two parties, helping them to come to an agreement on the amount and type of compensation and how the payment would be enforced. With the increase in local arms and impunity in using them to enforce a position, this institution has been severely weakened. Unarmed villagers on the *ajawid* are unable to enforce the payments, because they can no longer threaten the withdrawal of access to land or other punitive measures. They also cannot ensure livestock placed in a cage as insurance against payment are not simply taken back by the owners. In these cases, as reported elsewhere, the *ajawid* members explained they must depend on the police (Krätli, El Dirani, and Young 2013), but in these case studies both the villagers and the police themselves reported that the police are often less well armed than the animal owners and may not even pursue the owners.

Villagers did mention specifically that work by the Taadoud Project to strengthen and encourage the *ajawid* had made them more representative and somewhat more effective. If *ajawid* members could be quickly brought to the scene of a problem, like the animal destruction of crops while the animal was still in the field, then the *ajawid* was usually able to prevent an escalation of the situation and begin to negotiate a settlement, though these were rarely paid.

> *"The animal owners know the* **ajawid** *is more active now, so they have increased control of their animals."* **(Household in southern West Darfur)**

The strengthening of the *ajawid*, especially by promoting inclusiveness in its composition, may be one of the more significant contributions toward resolving the barriers faced by households in South Darfur and southern West Darfur, which are over shared use of and access to land and pastoralist mobility. Because the *ajawid* mediates disputes and recommends solutions and enforcement mechanisms, it is the natural platform from which to begin discussions about management of the community's natural resources in order to promote more equitable access and cooperation.

5.4.2 National and state policy to make space for local solutions

Although the issues of land tenure and management of natural resources are linked to national government policies (de Wit 2001; El Hassan and Birch 2008; El Shazli, Adam, and

[10] For example, the annual pre-migration agreements negotiated between the Southern Rizeigat and Dinka Malual from 2013 onwards.

Adam 2006), locally the climate and ecology that shape local livelihoods varies widely. The mix of livelihoods, strategies for sharing resources, and historical relationships between users all vary. In the past, the interface between the national- and state-level policies on the one hand and the local tribal administration on the other allowed for this transition between national and local governance. Policies that do not take into account these differences and the local institutions designed to manage them can disrupt lives and livelihoods, reducing the overall productivity of entire regions.

For example, some recent state policies have set dates for events that used to be set locally to meet local needs. In 2015, the Ministry of Agriculture officials in some localities in West Darfur declared a single *talaig* for the entire locality, set in February. This did not make sense for local communities, which set their own start of the *talaig* in mid-December. One *talaig* for all cannot take into account the many planting and harvesting times, which differ greatly from one area to the other due to the uneven spatial patterns of the rain and soil. It keeps children out of school or reduces household labor when the harvest is delayed, like it was in 2015. It keeps pastoralists out of some areas that are already harvested and pushes them into other areas that are not yet harvested. Local *talaig* were still set, because the general date would have been harmful to the area. Because the official dates did not make sense on the ground in many places, they took on a political nature. There was debate about why the date was set as it was and who it was meant to benefit preferentially.

"Efforts to develop solutions for local governance of natural resources need to continue to innovate in drawing on both government and community capacities to address such difficulties." **(Bromwich 2015, 386)**

Much more significantly, certain national government policies instituted over a much longer period have been much more disruptive. The Unregistered Land Act of 1970 made all land that was not specifically registered by owners with the government into the property of the government, to disburse as the government saw fit, regardless of local agreements, customs, or norms (de Wit 2001). This was quickly followed in 1971 with the abolition of the native administration, the primary local institution for resolving conflict (El Hassan and Birch 2008). Although the 1971 policy was repealed in 1984 with the Civil Transaction Act, which restored some usufruct rights, it maintained the system of registered land ownership (de Wit 2001), causing confusion where these two systems overlap. The overall impact of these acts was to reduce the ability of communities to manage the natural resources upon which their livelihoods depend.

There are benefits and limits to the structure of larger government approaches to natural resource management as well as to locally negotiated and managed systems. Bromwich found that "one means by which communities in Africa are seeking to the combine the benefits of local decision making over natural resources with formal legal frameworks is by developing "co-management" regimes…Efforts to develop solutions for local governance of natural resources need to continue to innovate in drawing on both government and community capacities to address such difficulties." (Bromwich 2015, 386)

In practical terms for humanitarian and development agencies, this would imply the necessity to work both directly with communities, including with all users of local natural resources, as well as to ensure the involvement of local line ministries when designing and implementing programming. Project activities that seek to increase animal ownership or cultivation of either rainy season or dry season crops need to take into account the various uses of land, pasture, and water resources and involve these stakeholders from the start. Failing to do so may lead to poor project impact at best and to damage to the environment (and hence livelihoods) and creating conflict at worst.

5.4.3 Hope in relationships: Promoting integration

Among the many villages visited during this study, there were examples where tensions were high between villagers and pastoralists, villagers' access to natural resources was extremely limited, and conflict was common. There were also examples of the opposite, where the relationship between the two groups was cordial, natural

resources were shared, conflict was not common, and recovery was much more advanced. The study team visited one of each of these examples on two consecutive days, providing a stark contrast.

In the village with more tension, the relationship between the groups began with the settlement of the pastoralists in the community during the time when the village population was displaced. The pastoralists were from a large mix of tribes coming from multiple directions. They had established their own *sheik* and did not seek the permission of the village *sheik* when they made claims to land for whatever use. The pastoralist settlements were very close to the village, and the residents of the settlements claimed large tracts of land around their settlements, not to farm but to reserve for their herds even when their herds were not present as plowing disturbs pastures for grazing, reducing the ability to alternate its use seasonally between grazing and cultivating. Some of these pastoralists reported that prior to settling in this location, they had never before had a settlement and had never tried to cultivate more than casually. The villagers were focusing most of their cultivation on the extensive *wadi* land very near the village because they had only limited access to their rainy season fields and did not feel safe enough to keep livestock.

Despite the sense of risk and insecurity, examples were given where the relationship between the pastoralists and villagers was positive and long-standing. In one village, the same group of pastoralists had lived in the settlements around the village since well before the current crisis. During the conflict, the villagers paid the pastoralists for their protection of the village. The village population was never displaced. They had more access to land, and they owned far more livestock, even cows, than their more unfortunate neighbors. In this environment, the traditional institutions that had served the population previously were still functioning, and there was a tangible sense of respect and tolerance between the two groups. Such positive examples as this one provide hope that cooperation and sharing of natural resources, negotiated at a local level, is possible. Sharing lessons from these more cooperative relationships can provide guides and lessons for other villages as government and humanitarian agencies seek to normalize relationships and build new institutions.

In conclusion, to be resilient, households in the Taadoud communities of Darfur must above all else have access to sufficient natural resources—land of various types, water, trees, etc.—but most particularly land. Although the relationships have been polarized and strained by the events of the past 13 years, rebuilding these relationships to create new agreements and management strategies that include all users is key to recovery, preventing future conflict, and becoming resilient to all shocks. Achieving these goals will require an enabling rather than a prescriptive government policy environment as well as practical support in the leadership skills and activities, through the *ajawid* for example, that can foster the development of new and equitable agreements.

This approach of fostering relationships is new and uncharted territory, particularly for international parties. Practical projects that meet a local livelihood need, involving **all parties** and implemented on a small scale, can be a starting point. They provide a low-risk, low-threat way to empower all parties to begin working together. The testing of and learning from new and innovative solutions to local resource sharing is a good place to start. The process itself can begin to build a base from which parties can address larger, related issues while reducing fear and suspicion.

5.5 Support for idiosyncratic shocks: Increasing the capacity of local systems

Covariate shocks, those that affect the entire population, are the shocks most commonly studied and addressed through humanitarian programming. Although indicators used to monitor well-being are measured at the household level, these indicators are averaged to provide a score at the population level. They therefore only detect shocks that affect the entire population at one time. As we saw in the section on unseen shocks, covariate shocks are only a portion of the shocks that households must cope with and recover from. Idiosyncratic shocks, those that happen to individual households, are often unseen. Their frequency and impact are often underestimated. Illness of a productive member of the household was one of the highest-impact and most common shocks experienced by households. Very often, entire sources of income would cease with the onset of an illness, creating its own shock and slowing recovery from previous shocks.

Aid agencies and government programs are structured to provide support to large numbers of people with a standardized intervention. They do not have insight into the lives of individual households to judge the true nature and scale of needs in the way that other community members do. Households therefore depend very heavily on personal networks and community support mechanisms for these idiosyncratic shocks. The most effective innovations in assistance are often modifications of or support to mechanisms traditionally used in the community, because they have the ability to tailor each response to individual needs.

Households in several villages in West Darfur explained that ICRC has built on traditional insurance schemes. As these schemes currently operate, all households in the community pay a monthly contribution to the village *sheik*. The funds are held by an elected member of the community. When a household is in crisis, the *sheik* decides how much to give to that household from the fund, and it is disbursed by the keeper of the funds.

More and more often, small insurance schemes are being included as an adjunct to savings schemes, such as the SILC activities of the Taadoud Project, with great success. While larger agency-led schemes usually insure against covariate shocks, this study found numerous positive examples of the SILC "social fund" being used by households to very effectively reduce the impact of idiosyncratic shocks. The households in this study are, for the most part, still in recovery from the events of the past 15 years, so not only did these schemes prevent the impact of new idiosyncratic shocks from causing the loss of an income stream, but they also allowed the household to continue its recovery from larger shocks. At the same time, they also reduced the drain on the other households, which would have been expected to provide unforeseen contributions to the affected household. As one woman put it, "when someone was sick, we used to pay some money, but now with SILC we pay some weekly." By supporting social insurance schemes, programming can increase the ability to reduce the impact of these shocks and also build community cohesion that may be useful in many other ways.

Networking small, group-level social insurance schemes may increase the capacity of these schemes to respond to larger crises. For example, in the wake of a dispute that led to a death, the *sheik* of the killer (who had fled the area) was held prisoner until he could pay the ransom. Seeing that the *sheik* lacked the means to pay the ransom, the SILC groups in his community put their funds together to pay the ransom and release the *sheik*, who is very slowly repaying the groups.

In the previous section (5.4.3), we discussed the need to build positive relationships between antagonistic sections of the population within communities. Currently, the SILC groups are small, self-selecting groups based on mutual familiarity and trust. While this composition promotes the management of individual groups, the groups are very homogenous and do not encourage interaction between the antagonistic sections of the population. Networking the groups to address shared struggles would increase the capacity of the schemes. More importantly, it may increase the each group's understanding of the problems faced by the other and become a part of a shared solution.

5.6 At the heart of resilience

This study was able to review in detail four very different contexts and experiences of shock over the past 15 years, each with its own road to recovery, some more successful than others. The nature of the shocks, relationships between the actors, market systems, available infrastructure, and traditional mechanisms for managing resources and disputes all varied widely. Although cultivation and livestock rearing are often seen as two opposed, competing uses of natural resources, we saw that all major livelihood strategies used a combination of both activities. Pastoralists used cultivation to increase the effectiveness of livestock rearing by reducing the need to sell livestock to meet their needs or to rebuild a herd after losses due to a shock like disease, drought, or theft. Villagers used livestock to increase the effectiveness of their cultivation activities by reducing the amount of grain that had to be sold to pay the expenses associated with shocks like illness or drought.

The success of all livelihood strategies in the study area depended on sufficient access to natural resources. The greatest impact from major shocks and the greatest hindrance to recovery was reduced access to these natural resources. Although other support in the form of infrastructure

and services was very helpful to encourage recovery, the ability of households to engage on a large scale in the activities that provided the most benefits—cultivation and livestock rearing—was the fuel powering recovery. Access to natural resources and security, both of which were dependent on relationships with others sharing those natural resources, was vital. The relative importance of access to natural resources was made clear by the fact that the area with the most investment in infrastructure and the best access to services but the least access to natural resources, southern West Darfur, is the area that has seen the least overall recovery.

The immediate post-conflict period is a time of flux, when old systems are being questioned and new systems are being created (Young and Goldman 2015). New norms in natural resource management among the users of these resources are being established. If sustainable natural resource management strategies are not built in a way that will allow all users sufficient access, they will contain the seeds of the next conflict (Young and Goldman 2015). Solutions negotiated at the most local level by the people who understand the resources available are the most likely to be equitable and enforceable, though these solutions will require a supporting, facilitating policy environment created by the government and by relations between the users.

5.7 Recommendations

The recommendations that follow were reviewed and discussed at two workshops (December 15–16, 2015 and March 26, 2016) with the Taadoud implementing partners.

1. **Tailor interventions to the context.** Because of the variety of experiences of shock, the varying social interactions, the differences in available resources, and the very contextual PIPs, large projects that cover a wide geographic area and multiple livelihood systems need to have sufficient flexibility to adapt project activities to the local needs. Blueprint resilience-building approaches or "one-size-fits-all" rarely work and ignore the wide range of experiences and livelihoods of local communities. This study has taught us the absolute importance of understanding local livelihoods and their experience of shocks, so that activities can be tailored to the local situation and needs in each livelihood system and for each major livelihood strategy.[11] This lesson is one for all international and national actors, and will ensure more effective programs with greater impact. Tailored approaches will also promote value for money.

   This tailoring of interventions is particularly urgent given the burgeoning attention being given to resilience in recovery and post-conflict settings. Practical approaches for allowing this tailoring include: profiling local livelihoods, including key aspects of resilience highlighted in this study (for example, functioning local institutions, relations to natural resources, and relations between users); and flexibility at the local level to adapt approaches to local needs or constraints, while still meeting the larger programmatic objectives. In the context of new, more innovative programming, improved community communications and feedback mechanisms play an important role.

2. **Promote inclusion by example.** The study highlighted the eroded relations and polarization at a local level. In practice, the program has unintentionally perpetuated this local differentiation by favoring one particular group. Taadoud's original design focused on returnees, which inevitably meant excluding some groups. At the very least, it did not encourage the targeting of many activi-

[11] This recommendation built on the discussion in the December 2015 Workshop (see Table 2) on the lessons learned from using a blueprint approach—a fixed package of interventions for all areas. Even though local managers knew that not all parts of the package were a good fit, they did not have the option of tailoring them locally. This was sometimes attributed to the donor but was also a result of the way the partners themselves designed the program, so as to make reporting and progress toward a single set of indicators easier to manage.

ties. Both pastoralist and farming groups are engaged in agriculture, but both groups potentially lack skills, for example pastoralists because this is a new endeavor and returnees because during displacement youth may not have acquired some farming skills. Agriculture represents an area where targeting all groups would not only promote the activity more broadly but also would serve to promote inclusion. However, at the start of the Taadoud Project, the relationships between international organizations and pastoralist groups were poor to non-existent and had been since the start of humanitarian interventions in the region in 2004.

3. **Support community needs for water in an environmentally and socially sustainable way.**
The study has shown the value communities attached to the improvement in water resources (hand pumps) in the short term, yet their high failure rate and the inability to address this issue in the longer term are a major cause for concern. A full investigation is needed. At the same time, the application of the WASH humanitarian model in a context of water scarcity and where water availability determines both access to cultivable land and pasture during the dry season is conceptually flawed, with almost certainly damaging consequences (from an environmental and cost perspective). These fundamental challenges to the WASH humanitarian approach have implications far beyond the Taadoud Project and need to be taken up as a critical policy issue in relation to a wide range of agendas or aid modalities (humanitarian, climate adaptation and resilience, peacebuilding).

4. **Consider capacities to cope with and adapt to both covariate and idiosyncratic shocks.**
The study highlighted the importance of social and human capital for coping with all types of shocks; the loss of a family member to illness, for example, can devastate the household's livelihood. Rebuilding and promoting the livelihood capitals, such as physical and social structures, that are vital for coping should be a priority. What shape these projects might take is likely to vary according to the community, and so flexibility is needed to enable dialogue to identify initial modest inputs, the impact and cost effectiveness of which should then determine next steps. Decisions as to what support is given to community physical and social structures must take into account local social relations and how they promote more inclusive social capital, for example.

Idiosyncratic shocks can greatly exacerbate the impact of covariate shocks, generating multiple coinciding shocks and wide-ranging deeper impacts. Potential projects must consider how their activities either support or undermine social capital in particular and revise the approach with a view to promoting social capital and cooperation. Also, the link between delivery of basic services (health care) and building resilience must be recognized, and projects should use this link to advocate for more joined-up inter-ministerial approaches to building resilience. It will be important to continue to build the capacity of community physical and social structures that support households during all shocks, without neglecting the idiosyncratic shocks.

5. **Promote opportunities for co-learning and active participation of national counterparts.**
Promoting the participation of national and local professional networks in the Taadoud Project is a mechanism for building capacity in two directions; on the one hand, from the specialist knowledge and long experience of national networks to international actors; and on the other, from the wider international resilience-building discourse, tools, and approaches to the national and local actors. A strategy for exchanging lessons learned in relation to the Taadoud Project could include providing opportunities for counterparts in line ministries and

humanitarian agencies to jointly engage in the implementation of activities to forge constructive relationships. Shared objectives should be found, and ministries must be engaged to participate and contribute to program activities.

6. **Reframe the narrative about farmers and pastoralists to emphasize their common interests, goals, and values.**
Conflict-related narratives have perpetuated and reinforced the polarization of local communities. In conflict settings, resilience programs should move away from a narrative of competing interests. They should instead focus on shared interests and promote activities of value to all sectors of a local population, recognizing their common needs, goals, and values. The active involvement of all livelihood groups is key. Opportunities for working together, and benefiting directly from the interaction, must be sought. Cooperation results from mutual interests, which need to be further understood and clarified by all actors.

   NGOs frequently work through local committees, and so the inclusivity of these groups needs to be reviewed and addressed.

7. **Advocate for the role of local negotiations in the management of natural resources.**
Although this study did not review in any depth the structures and institutions for resolving local disputes and for peacebuilding, these are obviously vital to ensure sustainable management of natural resources. Peacebuilding and reconciliation also provide a way to promote cooperative relationships more broadly. There must be a policy environment that at the very least tolerates and allows space for this process. At best, successful local co-management of resources needs wider acknowledgement and recognition so that lessons learned can be shared and replicated.

8. **Review how measurement of resilience and monitoring food security is conducted.**
As understanding of resilience in a given context grows, the measurement of resilience must adjust accordingly. One crucial finding from this study that is not always considered in relation to food security monitoring is the longer-term adaptation to climate variability made by farmers and pastoralists by managing either their grain reserves or their livestock herds. These strategies span cycles of two or three years, far longer than the annual food deficit planning cycles of early warning systems.

   Thus, in the Darfur context, resilience is related to longer-term processes of change over a timeframe of two to three years, which is unlikely to be revealed by the common food security indicators when measured at a single one point in time (as part of a cross-sectional baseline survey, for example) or even in two consecutive years that may be wildly different from each other. Thus, while food security indicators are relevant as a proxy for food insecurity, their role as an indicator of resilience in a context of climate variability and drylands needs to be established.

   With the advent of new resilience programs, a plethora of new concepts has generated a search for new indicators and approaches for measurement, ones related for example to adaptation and absorptive capacity. This study urges caution. Until the livelihood systems are understood, including the integration between systems and across scales from the local to the national and even transnational, adaptation cannot be fully understood or measured. The methodological tools used in this report captured a process of change, which is important for planning but not for measuring impact.

9. **Recognize the importance of markets and the need for market analysis beyond price information.**
   Market analysis and market information systems provide crucial information about demand and supply of goods and services that are associated with Tier 2, 3, and 4 strategies. From a monitoring point of view, increased use of Tier 3 and 4 strategies provides evidence of increasing vulnerability of livelihoods within a local context. An example is women and children participating in more marginal activities of collecting and selling firewood, grass for fodder, or wild food, or the existence of a market for petty trade and casual labor for women and men, young and old. As a situation deteriorates, markets for these marginal activities are likely to become saturated, and prices (income) may fall. Monitoring trends in the number of people and types of households participating in these activities may be as important as monitoring prices or rates for casual labor, etc. Local producers may also benefit from more analysis of supply and demand trends in order to enable them to adapt their marketing strategies accordingly. Further market analysis that would support resilience strategies includes value chain analysis, focusing on the outputs of smallholders and especially women.

10. **Recognize the primacy of primary production.**
    Promoting primary production or removing barriers or constraints to primary production (Tier 1 activities) would reflect local priorities and is likely to be far more effective in building resilience across the population, as compared to labor- and material-intensive income-generating projects such as teaching tailoring, handicrafts, and mechanics (as these projects have little potential for significant returns for a large section of the population).

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Annex A. List of data collection participants

Scoping study and operational research

Feinstein International Center: Merry Fitzpatrick

Ahfad University for Women: Dr. Sarra Rasheid Ahmed Beheiry and Dr. Niveen Salah Eldin Elmagboul

Catholic Relief Services & Taadoud partners: Mohammed Abdalla, Abdal-Razig Ahmed Adam, Mohamed Ibrahim Suliman, Mohamed Abdusamed Emam Trust for Development Organization (TDO`), Mahdi Hamdan West Darfur Youth Organization for Development (WDYO)

Additional participants in the operational research

World Vision International WVI: Ahmed Adam Omar, Ishaq Ahmed

Oxfam/partners: Khalil Mohamed (Oxfam), Hamid Abdallah (PODR), Mohamed Mukhtar (JMCO)

UMCOR: Alrafie Abdalla, Hassan Yagoup, Haja Mohamed, Ahmed Ismail, Abdel Raheim Mussa, Muawia Khalil Shaib

Ministry of Agriculture, West Darfur

Scoping study: Ahmed Arafat Suliman Shogar, Mohamed Abdalsham

Operational research: Hussein Khames, Gassim Hassan Adam

Annex B. States, localities, and villages

State	Locality	Village
West Darfur	Mornei	Ashamara Megmerie Hashaba Hasabouna
	Fora Boranga	Kajabagool Dasa Ramkaya Gemeiza Sunta
	Kulbus/Jebel Moon	Batro Rahad Jamaa Sememei Shogog
East Darfur	Assalaya	Abusaeida Elkhatima Um Grago Um Dai
	El Ferdous	Eljadei A Abukhadura Om Eid El Reyadh
South Darfur	Al Salam	Hai Albaggara Kuli Taalila Dagrees
	Beleil	Debat Fool Eshma Cluster Fijaw Gishtee and Umdom

Annex C. Interview guides and data sheets

An interview guide was used to support semi-structured interviews. Graphics were made using the questions and are not depicted here. Because recording and transcribing the interviews was not possible, data sheets were created for each type of interview to ensure the key points were recorded. Some of the information was recorded in the form of the graphics, so not all points in the guide have corresponding spaces on the data sheets.

Scoping study tools

Two types of interviews were conducted during the scoping study, household interviews and focus group discussions.

Interview Guide – Household Level

Introductions, explanations of the purpose and estimated time for the discussion (1 ½ to 2 hours).

Interviewers must first complete the consent process (use the appropriate consent form). If there are multiple adults from the selected household responding, for example both the wife and the husband, all adults should give consent individually.

If multiple adults from the selected household are participating, they should be encouraged to confer to give a joint answer. Be careful to ensure that they are indeed conferring and that one is not dominating the responses. If they appear to disagree when they confer, or if one person is dominating the responses, then record the answers separately, noting who gave which answer.

Location Code_____-_____-_____ Date____-____-2015

Interviewer Identifier_____ Household Identifier_____

Total number of adults from the household participating in the interview: 1 2 3 4 5
How many male adults participating in the interview? 1 2 3 4 5
How many female adults participating in the interview? 1 2 3 4 5

1. Sources of income (about 15 minutes)

a. Ask the interviewees to list their sources of food and income. As they name them, ask them to draw a simple picture to depict the source of food or income (if all interviewees present are literate, then they can simply write a word or two). If there are more than 5 sources, ask them to pick the 5 which provide the most benefit to the family.

b. Give the interviewees 20 beans or pebbles and ask them to put the amount of beans on the pictures of the sources of food or income in proportion to the amount of benefit they receive now. Record how they distribute the beans or pebbles.

c. Once the beans/pebbles have been placed, ask the following questions:

c.2 "Think back to 2 years ago"

c.2.1 "Which of these sources of income did you not have 2 years ago?

c.2.2 Did you have sources of income 2 years ago that are not listed here? If so, when did you stop using them and why?"

c.2.3 "Was the order of importance or benefit different 2 years ago? If so, what was the order then? (they can move the papers to show the order of importance)

c.2.4 "What are the reasons for these changes?"

c.3 "Think back even further"

c.3.1 "Which of these sources of income did you not have 10 or 15 years ago?

c.3.2 Did you have sources of income at that time that are not listed here? If so, when did you stop using them and why?"

c.3.3 "Was the order of importance or benefit different at that time? If so, what was the order then?

c.3.4 "What are the reasons for these changes?"

2. Environmental Effect Incidence and Severity Ratings (about 20 minutes)

a. Ask the interviewees to name the changes or effects that have negatively affected their household in the past 3 years. As they name them, ask them to draw a simple picture to depict each change or effect, perhaps one picture per piece of paper.

b. As they are drawing each picture, note the year of each effect and whether the effect affected just their household, or most of the households in their community

c. If there are more than 10 effects, ask them to select the 10 effects that had the biggest impact on the well-being of their families. Keep those selected in the center of the discussion space and put away (but keep) the others.

d. Give the interviewees 50 beans or pebbles

e. Ask the interviewees to put the pebbles on the pictures in proportion to how much they suffered from each effect, putting more beans on the effects that caused them more suffering and less on those that caused them less suffering. Record the answers.

f. When the beans/pebbles are in place, ask the following question:
f.1 "How did you suffer differently for each of the worst 5 effects?"

g. Collect up the beans/pebbles and give them back to the interviewees. Ask them to put the number of pebbles onto the pictures of the effects in proportion to how long it took to recover, putting more beans on those effects that took longer and fewer on those that took less time to recover. Record the answers.
g.1 "What made some effects take longer to recover from and others less time?"

3. Livelihood Diagram (about 20 minutes)

Provide the simple standard version livelihood diagram of the most important source of income. As you explain the diagram, draw a picture for each item so that illiterate members will be able to participate. Ask them the following question:

3.a. "How is the diagram different for your own household right now?"

Modify the map to show these differences as they explain them. They can add elements, take elements out, and change the arrows between the elements. (Black ink)

Ask them the following question:
3.b "How were each of these diagrams different 2 years ago?

3.c. "10 or 15 years ago?"

4. Impacts of Effects (about 20 minutes)

Place the livelihood diagram where everyone can see them as well as the pictures of the strongest effect and the pictures of the effect that took the longest to recover from. Ask the following questions. The responses may be different for each of the effects, so you will need to take note of which effect each response is referring to.

a. Referring to the livelihood diagrams, ask:
   a.1 "Which elements or arrows grew, became smaller, disappeared, or changed direction?" (note on diagram)
   a.2 "Did new elements or arrows appear or disappear during the effect?" If so, ask "What elements or arrow where they?"

b. "Which elements or arrows were the most important for you to use during each of these effects?"

c. "Which elements or arrows were the most important for you to recover after each of the effects?"

d. "Which changes were permanent?

e. "Which changes were temporary?"

f. "Are there things you have or can do that helped you, but which many other people don't?"

g. "and the opposite, are there things other people have or can do that helped them, but which you do not have or cannot do?

5. Current wealth (about 2 minutes)

a. "How would you identify the wealth of your household (the ability of your household to get what they need) now, compared to most other households in your community?"

Poor Middle Better off (compared with others) no answer

6. Changes in wealth (about 2 minutes)

a. "2 years ago, were you better off, poorer or the same?"

c. "10 or 15 years ago, were you better off, poorer or the same?"

Thank the participants for their participation

"Thank you very much for participating in this research exercise. We are not designing programs from this information, but we are asking the question so that we can understand your strategies and struggles better. We hope that the information you provided will help those people planning activities to be able to plan the activities that will be the most helpful to you. Now that we are finished with our questions to you, do you have any questions for us?"

7. Programming Options (team leaders only)

Explain the following again before continuing on to the questions in this section:
"We cannot make any promises about future programming. We are only doing research so that if the NGOs or the Government are able to do future programs, they will have your advice to consider."

a. "Are there any services that are not available now but you would like to help you to do better during the next effect?"

b. "Are there any services that are not available now but you would like to help you to recover better from the next effect?"

c. "If you were given one gift of $100, how would you use it? Would it change the way you would respond to the next effect? If so, how?"

d. "If you were given a gift of $100 each month for 6 months, how would you use it? Would it change the way you would respond to the next effect? If so, how?"

Scoping study interview guide—community level
Introductions, explanations of the purpose and estimated time for the discussion (1 ½ to 2 hours).

Interviewers must first complete the consent process (use the appropriate focus group consent form).

The group should be encouraged to confer with each other to give a joint answer. Be careful to ensure that they are indeed conferring and that one is not dominating the responses. If they appear to disagree when they confer, or if one person is dominating the responses, then record the answers separately, noting who gave which answer.

Location Code_____-_____-_____ Date____-____-2015

Interviewer Identifier_____ Focus Group Identifier_____

Total number of people participating in the interview: 1 2 3 4 5 6 7 8 9 10 11 12 13 ___
How many men participating in the interview? 1 2 3 4 5 6 7 8 9 10 11 12 13 ___
How many women participating in the interview? 1 2 3 4 5 6 7 8 9 10 11 12 13 ___

Roles of Participants (why were they selected for the focus group?)

1. Effect Incidence and Severity Ratings (about 20 minutes)

a. Ask the interviewees to name the changes or environmental effects that have negatively affected their community in the last 10 or 15 years. As they name them, ask them to draw a simple picture to depict each change or effect, perhaps one picture per piece of paper.

b. As they are drawing each picture, note the year of each effect

c. If there are more than 10 effects, ask them to select the 10 effects that had the biggest impact on the well-being of many families in the community. Keep those effects selected in the center of the discussion space and put away (but keep) the others.

d. Give the interviewees one pile of 50 beans or pebbles

e. Ask the interviewees to discuss together and to put the pebbles on the pictures in proportion to how much the community suffered from each effect, putting more pebbles on the effects that caused them more suffering and fewer on those that caused them less suffering. Record the answers.

f. When the beans/pebbles are in place, ask the following questions:
   f.1 "How did the community suffer differently for each of the effects?"
   f.2 "Which types of households suffered more from each type of effect?"

g. Collect up the beans/pebbles and give them back to the interviewees. Ask them to put the number of pebbles onto the pictures of the effects in proportion to how long it took to recover, putting more pebbles on those effects that took longer and fewer on those that took less time to recover. Record the answers.
   g.1 "What made some effects take longer to recover from and others less time?"

2. Create a Community Map (about 20 minutes)

Ask the group to make a simple map on a sheet of flip-chart paper of the community and surrounding area as it is now, to show different services and resources that support their households and their livelihoods.

Ensure they include things like residential areas, farming areas, garden areas, grazing areas, markets, water sources, clinics, schools, major roads, animal migration corridors, and areas that may be used only seasonally. Include also things outside of the community, like other communities, major markets, seasonal distant grazing areas, etc. If part of the community is present only part of the year, add something to show where they go the rest of the year.

Keep this map in the center of the discussion space where everyone can see it and easily point to things on the map.

3. Impacts of Effects (about 20 minutes)

a. "How was this map different 2 years ago? 10 or 15 years ago?"

b. "How did this map change during each of the effects listed above?"
   - If they do not mention changes to markets and services, ask these questions:
   b.1 "How did the markets change during each of the effects? How long did these changes last?"
   b.2 "How did the availability, cost and quality of services change during each effect change?"

c. "Did these changes increase your overall income after the effect, decrease it, or leave it about the same?"

d. "Which changes made you more secure against the next effect?"

e. "Which changes made you more vulnerable to the next effect?"

4. Coping with Recovering from Effects (about 10 minutes)

a. "Which items on the map were the most important for the community to use during each of these effects?"

b. "Which items were the most important for the community to protect during each of these effects?"

c. "Which items were the most important for helping the community to recover after each of the effects?"

d. "Are there things this community has or can do that helped you, but which other communities don't have?"

e. "and the opposite, are there things other communities have or can do that helped them, but which you do not have or cannot do?

5. Changes in wealth (about 2 minutes)

a. "2 years ago, was this community richer, poorer or the same?"

b. "10 or 15 years ago?

Thank the participants for their participation

"Thank you very much for participating in this research exercise. We are not designing programs from this information, but we are asking the question so that we can understand your strategies and struggles better. We hope that the information you provided will help those people planning activities to be able to plan the activities that will be the most helpful to you. Now that we are finished with our questions to you, do you have any questions for us?"

Programming Options (to be asked by the researcher only)

Explain the following again before continuing on to the questions in this section:
"We cannot make any promises about future programming. We are only doing research so that if the NGOs or the Government are able to do future programs, they will have your advice to consider."

a. "Are there any services or activities that are not available now but you would like to help you to do better during the next effect?"

b. "Are there any services or activities that are not available now but you would like to help you to recover better from the next effect?"

c. "If your community was given a budget of $10,000 (SDG equivalent) to help the community prepare for the next effect, how would you want to use it?

Scoping study household level interview data sheet

Location code _____-_____ Date _____-_____- 2015

Household code _____Interviewer code _____

Total number of adults from the household participating in the interview: 1 2 3 4 5

How many male adults are participating in the interview? 1 2 3 4 5

How many female adults are participating in the interview? 1 2 3 4 5

1. Sources of Food and Income

	Source of food or income	Current Sources of income (Number of beans)	Sources 2 years ago (rank)	Sources 10-15 years ago (rank)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
	Total number of beans			

C.2.4 Reasons for changes from 2 years ago.

1._____

2._____

3._____

C.3.2 Reasons for changes from 10 to 15 years ago

1._____

2._____

3._____

2. Effects

Effect number 1	Effect Description	Year	Just household or All Community Affected HH / Community	Number of Beans (level of suffering)	Ranking (time to recover)
2			HH / Community		
3			HH / Community		
4			HH / Community		
5			HH / Community		
6			HH / Community		
7			HH / Community		
8			HH / Community		
9			HH / Community		
10			HH / Community		

f.1 How did you suffer differently for each of the worst 5 effects?

Effect

Effect

Effect

Effect

Effect

g.1 What made some effects take longer to recover from and others less time?

3. and 4. Livelihood Diagram, Impact of Effects – primary source of income

You should have 2 diagrams attached to this form, both adapted for this family (black ink).

1. Copy A with modifications for 2 years ago (blue), and for 10-15 years ago (green).
2. Copy B with modifications for effects (during-blue, recovering-red), and notes explaining the changes

f. Are there things you have or can do that helped you, but which many other people don't?

g. Opposite, are there things other people have or can do that helped them, but which you do not have or cannot do?

5. Current Relative Wealth (ability to get what you need)

Poor Middle Better than others no answer

6. Changes in Wealth compared to:

a. 2 years ago better ___ poorer ___ same ___

b. 10-15 years ago better ___ poorer ___ same ___

7. Programming Options

a. services would like during next effect

b. services would like to recover from next effect

c. uses of single $100 gift

d. uses of six monthly $20 gifts

Scoping study community focus group discussion data sheet

Location Code ____-____ Date ____-____-2015

Interviewer Identifier _____ Focus Group Identifier_____

Total number of people participating in the interview _____

Total number of men ____ Total number of women_____

Roles of participants

_____

_____

1. Effect Incidence and Severity

2. Effect

Effect number 1	Effect Description	Year	Just household or All Community Affected HH / Community	Number of Beans (level of suffering)	Ranking (time to recover)
2			HH / Community		
3			HH / Community		
4			HH / Community		
5			HH / Community		
6			HH / Community		
7			HH / Community		
8			HH / Community		
9			HH / Community		
10			HH / Community		

f.1 How did you suffer differently for each of the worst 5 effects?

Effect

Effect

Effect

Effect

Effect

f.2 "Describe the types of households who suffered more from each type of effect and the households that suffered less."

g.1 What made some effects take longer to recover from and others less time?

3. Community Map

Map of community and all elements affecting livelihoods.

3.a. Now, 2 years ago, 10-15 years ago.

3.b.1 Changes during each effect

Effect	Market changes	How long?

3.b.2 "How did the availability, cost and quality of services change during each effect?"

c. Changes to income AFTER the event
increase decrease same

d. Changes which made more secure for next effect

e. Changes which made less secure for next effect

4. Coping and recovery from effects

a. Items most important DURING each effect

b. Items most important to RECOVER AFTER each effect

c. Things this community has or can do that helped them, but others didn't have or couldn't do

d. Opposite, things other communities had or could do to help them that this community did not have or could not do?

5. Changes in wealth

a. 2 years ago

Richer Poorer Same

b. 10 or 15 years ago

Richer Poorer Same

6. Programming

a. Are there any services or activities that are not available now but you would like to help you to do better during the next effect?

b. Are there any services or activities that are not available now but you would like to help you to recover better from the next effect?

c. If your community was given a budget of 100,000 SDG to help the community prepare for the next effect, how would you want to use it?

Operational research tools

Only individual household interviews were conducted during the operational research.

Operational research interview guide

Introductions, explanations of the purpose and estimated time for the discussion (45 minutes).
Interviewers must first complete the consent process (use the appropriate consent form).
If multiple adults from the selected household are participating, they should be encouraged to confer to give a joint answer. Be careful to ensure that they are indeed conferring and that one is not dominating the responses. If they appear to disagree when they confer, or if one person is dominating the responses, then record the answers separately, noting who gave which answer.

Location Code_____-_____-_____ Date____-____-2015

Interviewer Identifier_____ Household Identifier_____

Total number of adults from the household participating in the interview: 1 2 3 4 5
How many male adults participating in the interview? 1 2 3 4 5
How many female adults participating in the interview? 1 2 3 4 5
Sex of household head: Male / Female

1. Distance to Markets

1.a. Where do you normally sell small amounts of agricultural products, like millet or sorghum?

1.b. How long does it take you to walk to that market?

1.c. Where do the traders at that market come from?

1.d. How long does it take you to walk to that market?

1.e. Do you ever go to that market to sell anything? If yes, what do you sell there?

1.f. What is the price of a sack of millet/sorghum at each of these two markets?

2. Household composition

2.a. What is the age and sex of each of each person depending on the income from your household?

2.b. Are any of them chronically ill or require extra care? If yes, which people?

2.c. Are any of the adults unable to work? If yes, which adults?

2.d. What income activities can only boys do? What income activities can only girls do?

3. Cooperative behavior

3.a. In what ways do people in this village work together or help each other?

3.b. Which of these activities does someone in this household do?

3.c. How do these activities help this family when there is a problem?

4. Income Strategies Index

Use a flip chart paper and beans to support these questions – as in the attached example

4.a. Which of these income activities did someone in your household ever do? Are there other activities your household did that are not listed?

Agriculture (summer), Agriculture (winter), animals, salary job, small trade, charcoal, firewood, travel for labor, local labor, handicrafts, receive gifts other than from someone travelling for labor, receive distributions from government or NGOs

4.b. Instruct the person to put more beans on the income activities that are the most preferred or helpful activities for getting food and money and fewer beans on the activities that are less preferred for getting food and money.

4.c. Why do you prefer _____ more and _____ less?

4.d. Record the numbers of beans and collect them. Instruct the person to put more beans where there is more chance an activity will fail and less beans where there is less chance the activity will fail. For example, you cannot be sure you will find work as labor, but you can usually sell even a small amount, so labor may have a higher chance of failing than petty trade.

4.e. What makes _____ more likely to fail than _____?

4.f. When were you married? If not married, when did you begin to manage your own household?

4.g. What are the different problems that have happened since you were married that have changed the way your household was able to get food or money? For example, a drought or illness.

4h. What are the different services, programs or events that have helped your household to get food or money? For example, the opening of a clinic or the arrival of traders to the village.

4.i. Which years did each of these problems or helpful activities happen?

4.j. Which years did you do each of the income activities you listed for getting food and money?

4.k. How did each problem or helpful event change the way your household gets food or money?

4.l. When you were first married, how much did your household benefit from or depend on each of these income activities? Use the beans to compare them.

4.m. How much does your household benefit from or depend on each of these income activities now?

4.n. Pick two other key times and ask them to repeat the weighting with the beans.

4.o. Why did you depend more on _____ and less on _____ at this time?

4.p. In general, which years was it the easiest for your household to get food and money? Why?

4.q. Which years was it most difficult for you to get food and money? Why?

4.r. If _____ (problem) happened again, are there any of these income strategies that you used last time which would not be available this next time? If yes, why?

5. I would like to ask you about all the different foods that your household members have eaten in the last 7 days.

Could you please tell me how many days during the past 7 days your household has eaten____?

5.a. staples - millet, sorghum, maize, bread, rice or pasta

5.b. pulses – lentils, groundnuts, beans, peas

5.c. fresh vegetables (fresh or dry) – leaves, okra, tomatoes, onions

5.d. fruit – watermelon, cucumber, mangoes, oranges, bananas

5.e. animals (fresh or dry) – meat, fish, chicken, eggs

5.f. milk products – milk, yogurt, cheese

5.g. sugar

5.h. oil

6. Now we are going to talk about the last month. In the past month (30 days) how many times did your household do one of these things because you didn't have enough food or money?

6.a rely on less expensive or less preferred food

6.b. limit portion sizes or reduce quantity

6.c. reduce the number of meals eaten in a day

6.d. Borrow food or rely on help from friends or relatives

6.e. Purchase food on credit (from a trader or using a loan)

6.f. Gather unusual types or amounts of wild food?

6.g. Send household members to eat at a friend's or relative's house

6.h. Reduce the amount adults eat so children can eat more

6.i. Beg for food from people you do not know

6.j. Migrate for work in a way that you do not usually do at this time of year

6.k. Spend an entire day without eating

6.l. Eat your seeds you were saving for planting

Thank the participants for their participation

"Thank you very much for participating in this research exercise. We are asking the question so that we can understand your strategies and struggles better. The information you provided will help those people planning activities to be able to plan the activities that will be the most helpful to you."

Operational research data sheet

Location Code_____-_____-_____ Date____-____-2015

Interviewer Identifier_____ Household Identifier_____

Total number of adults from the household participating in the interview: 1 2 3 4 5
How many male adults participating in the interview? 1 2 3 4 5
How many female adults participating in the interview? 1 2 3 4 5
Sex of household head: Male / Female

1. Distance to Markets

1.a. name of market for selling small produce _____
1.b. time (minutes) to small produce market _____
1.c. name of market where traders come _____
1.d. name of market for selling big produce_____
1.e. time to big market _____
1.f. millet ___ sorghum____
Price at usual selling market _____
Price at big market _____

2. Household composition

2.a.b.c.

Age	Male / Female	Chronically ill, debilitated or too old to work? Yes / No	Require extra care?
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	
	Male / Female	Yes / No	

2.d. Activities for boys/men only?_____
Activities for girls/women? _____

3. Cooperative behavior

3.a. Cooperative activities in the village 3.b. Circle the activities this household does

3.c. How do these activities help when there is a problem?

4. Income Strategies Index

Flip charts and attached the table with timelines

Income stream	Preference	Riskiness	Dependence Year _____	Dependence Year _____	Dependence Year _____	Dependence 2015(now)

4.c. Reasons for preferences

4.e. What makes an income stream more likely to fail?

4.k. How did each problem or helpful event change the way your household gets food or money?

4.o. Why did you depend more on _____ and less on _____ at this time?

4.p. In general, which years was it the easiest for your household to get food and money? Why?

4.q. Which years was it most difficult for you to get food and money? Why?

4.r. If _____ (problem) happened again, are there any of these income strategies that you used last time but which would not be available this next time? If yes, why?

5. I would like to ask you about all the different foods that your household members have eaten in the last 7 days.

	Days eaten
Staples	
Pulses	
Vegetables	
Fruit	
Animals	
Mild products	
Sugar	
Oil	

6. Now we are going to talk about the last month. In the past month (30 days) how many times did your household do one of these things because you didn't have enough food or money?

6.a rely on less expensive or less preferred food	
6.b. limit portion sizes or reduce quantity	
6.c. reduce the number of meals eaten in a day	
6.d. Borrow food or rely on help from friends or relatives	
6.e. Purchase food on credit (from a trader or using a loan)	
6.f. Gather unusual types or amounts of wild food?	
6.g. Send household members to eat at a friend's or relative's house	
6.h. Reduce the amount adults eat so children can eat more	
6.i. Beg for food from people you do not know	
6.j. Migrate for work in a way that you do not usually do at this time of year	
6.k. Spend an entire day without eating	
6.l. Eat your seeds you were saving for planting	

Thank the participants for their participation

"Thank you very much for participating in this research exercise. We are asking the question so that we can understand your strategies and struggles better. The information you provided will help those people planning activities to be able to plan the activities that will be the most helpful to you."

Annex D. Calculation of the Income Stream Index

The Income Stream Index (ISI) emerged out of patterns seen in the answers provided by people and what particular numbers meant to them. It is based on the observation that people try to do those things that give them the most benefits toward reaching their livelihood goals. Certain activities do this better than others, for the many reasons listed in Annex E. The more people are able to do these better or "preferred" activities, the easier it should be for them to attain their goals, but shocks often limit their ability to do many of things they prefer and reduce their benefits or increase their risks. If they do not have savings to fill the gap, they must engage in activities that provide less benefit or have other issues that make them less preferable. As the shock passes, households hopefully begin to recover and overcome some of these issues, increasing their dependence on the more preferred activities as they recover, if they recover. If there are barriers that remain, it may slow their shift back into the preferred activities. The ISI is a combination of preference and dependence on different income streams.

Preference

During the interviews, households listed all income streams they had used during the recall period (2000 to 2015) and when they had used them, using the timelines. They used 50 beans to weight all the listed income streams by how much they *preferred* each, the benefits they could get for each, or which activities they wanted to be able to do the most.

The preference scores were fairly uniform across the sample and clearly grouped certain activities, which were then clustered into four tiers:

Tier 1: cultivation and livestock rearing

Tier 2: trade, butcher shops, restaurants, mills, donkey carts, skilled artisans, and salaried jobs

Tier 3: gifts, remittances/migrating for labor, local labor

Tier 4: collection of grass, firewood, and palm leaves, making charcoal, humanitarian assistance

The preferences for these activities were averaged to create a preference weight for each tier.

Dependence

Households also used the beans to weight the different income streams by how much the household (not the individual being interviewed) *depended* on each income stream at four key points on the timeline.

They gave one measure of dependence for the reference period (2000 to 2002) if they were married and managing their own household by then, or the year they married if that was after 2002. Another measure was taken for 2015, the time of the interview. Two additional points were taken in between, aiming for one time when they were struggling the most due to a shock (usually 2003 to 2005) and one part-way through the recovery trajectory (usually around 2012). Different households therefore provided measures at different points in time, but by grouping the years into blocks of three for the earlier years, there were sufficient data points for all periods except one.

Calculating the Income Stream Index (ISI) Score

The ISI is calculated for each point in time a household provided dependency data, using the following formula:

$$\text{ISI score} = (\text{Pref}_{\text{Tier1}})(\text{Dep}_{\text{Tier1}}) + (\text{Pref}_{\text{Tier2}})(\text{Dep}_{\text{Tier2}}) + (\text{Pref}_{\text{Tier3}})(\text{Dep}_{\text{Tier3}}) + (\text{Pref}_{\text{Tier4}})(\text{Dep}_{\text{Tier4}})$$

The score was calculated for each point in time a household provided dependency data. The scores were then combined for all households with the same livelihood strategy to create Figure 16 in the report.

Annex E. What makes an income stream "preferred"?

At all times—before, during, and after a shock—households were very deliberate in their choices and could clearly articulate why they had made certain changes. These were most often framed in terms of benefits, costs, risks, and barriers. When planning the discussions with interviewees, we had separated preference and risk, but during the discussions we found that an estimation of risk was so incorporated into their concept of preference that we abandoned the effort. As households described why they preferred one activity over another, they often referred to its potential to fail, the risk it would create for the household if it did fail, and the physical risk to members of the household if they attempted the activity. In other words, as households were building and managing their livelihood strategies, the management of risk was such an inherent part of the process that it was difficult to even tease out.

Below are the themes that appeared to underlie the many factors households cited for their choices of income streams. By understanding the way households plan their strategies and how they view risk as an integral part of the planning, we can help them to minimize their total risk and support the activities that will help provide the most benefit.

Return on investment and use of household labor

Return on investment was often named, and physical effort was a major part of the investment. Labor was disdained by many, because the pay was not worth the physical effort. Agriculture was considered a good investment by villagers who owned land, because, in a normal good year and with seed and intensive labor for three to four months, they could earn more than a year's worth of food or income, leaving them free to do other activities. Livestock breeding required care throughout the year, but small herds could be cared for by young children, and large herds could produce a good income. Migration for labor was very risky. If a job could be found, it usually paid well, but travelers often did not find jobs.

> *"Animals need more care to breed all the year, but agriculture is only three months, and I get more to cover my HH needs."* **(Household in West Darfur)**

Predictability, certainty, and stability

Life in Darfur is unpredictable at the best of times. Households valued the aspect of **certainty** and **predictability** in any income stream. A higher level of certainty reduced risk of lost investments. Also, when a shortage meant hardship and hunger, knowing that you will at least meet your minimum needs each month was important. For example, many appreciated salaried positions because the income was **fixed**, **regular**, and **certain**. A drawback of trade was not knowing from day to day how much you could earn. The greatest source of unpredictability was the harvest, but ironically, it was seldom considered a limiting risk by households that depended on it most. The way participants described it, the benefits from the good years more than compensated for the losses in the bad years. For example, for those with good access to land, the surplus from the bonus 2014 harvest made up for the losses of the 2013 harvest and prepared them for a weak 2015 harvest.

> *"I will depend more on salary in the next drought, because it is secure and fixed."* **(Household in East Darfur)**

Steady streams of income or lump sums

While some streams provided a **steady income** throughout most of the year, others provided income in **lump sums**, and both were appreciated for different reasons. The steadier sources of income, like trade and salaried jobs, were easier to plan for. They provided the comfort that constant expenses such as school fees and food could be paid for each month even though they did not have that income already in their hands. But these steady streams were usually fairly small and did not provide enough to meet unexpected expenses, like medical treatment, or for investment in productive assets like plows or donkey carts. Therefore, they needed a balance between steady but relatively small income streams and those that provided lump sums, like the sale of an animal. As one household put it, "animals can bring income quickly if you are in urgent need."

> *"I depend more on agriculture because it provides me with food, education for my children, medication, and other social needs. Casual labor keeps me from working on my farm and reduces my own crop production."* **(Household in East Darfur)**

Harvests of grain seemed to provide both a steady income and lump sums. The grain stores could be sold as needed in amounts just large enough for the need.

Timing of activities

Although a household might engage in five different income streams in a single year, the streams may be seasonal, and only a couple of them might be active at any one time. Households talked about the ability to time activities to maximize the use of household labor, smooth income, or reduce conflict with other activities. Households in southern West Darfur complemented rainy season cultivation with dry season cultivation, because they were not busy during that time, and it reduced the amount of grain they had to sell to pay for other expenses.

Capital investment barriers and competition

Although certain income streams like trade or milling provided good returns, they required significant **start-up capital**. Some of the least-preferred income streams, like labor and firewood collection, were used in times of stress, specifically because they did not require any investment of capital, just labor. However, low entry barriers meant that anyone could try their hand at them, and **competition** then became a risk, driving down wages and reducing the likelihood of finding a job.

Scale of activities and growth potential

Some activities, like blacksmithing or furniture production, provided good returns and were often steady throughout the year, but could only be done on a limited **scale** due to limited demand and risk of too much competition. Handicrafts and grass mats had the misfortune of having both low returns and a lack of demand. Other activities had a practically limitless **potential to expand**, especially with increased market integration. Rainy season cultivation and animal husbandry were the largest-scale activities making the largest contribution to livelihoods, though dry season cultivation is increasing rapidly in some areas as water pumps and connections to larger urban markets both increase.

Marketability

Time and again, pastoralists extoled the benefits of rearing sheep, in large part because a combination of factors that may be combined into the term "**marketability**." Sheep are an increasingly important commodity, in part due to the export market. With high, unlimited demand, sheep are sold in most hub markets at a good price. Increasing supply does not appear to be affecting their price. Cows, on the other hand, are more difficult to sell. Fewer buyers are able to gather the capital necessary to buy cows, and they are at higher risk of theft. Pastoralists noted that the price of cows declined considerably during crises.

> *"In 2004, collecting grass was the riskiest, because it was far and the* **janjawid** *were beating us and chasing us."* **(Household in Mornei)**

Theft, armed robbery, and risk of physical harm

Risk of **theft, armed robbery**, and **physical harm** associated with particular income streams was frequently cited. Animals and the collection of firewood were the two income streams most commonly cited as posing this type of risk. It was mentioned primarily by villagers in South and West Darfur. Levels of this risk varied by region, but it was rarely mentioned in East Darfur and only occasionally mentioned in Kulbus. When it was mentioned in Kulbus, it was usually in reference to those who came from Chad. With respect to the collection of firewood, this risk was most often mentioned in relation to how increasingly far it is becoming necessary to travel to obtain firewood, which means getting into areas that are less secure than the domain immediately around the village.

High dependence and impact of failure: Diversification

Sometimes it was not the activity itself that posed the risk, but the potential impact if an activity failed. If a household was completely dependent on an activity, regardless of the activity and the likelihood of it failing, households felt this was a risk to consider. The traditional combination of animals and agriculture is a demonstration of a backup plan. As one household put it, "I depend mainly on groundnuts as my cash crop; if it fails I will be lost."

> *"Labor pays less and needs more effort. I feel less dignity while working as laborer for other people."***(Household in South Darfur)**

Tradition and dignity

Sometimes a household explained they raised animals or cultivated because it was the activity conducted by their parents, so it is the activity they knew and valued. There was a certain **dignity** and pride in continuing the same activities. People felt a loss of dignity and even shame in working on someone else's land or doing construction (carrying materials rather than acting as carpenters and masons). These are also some of the lowest-paying types of labor. Construction in particular was felt as something households only did when they when there was no other option and interestingly, was done mostly by women.

> *"I prefer livestock raising because it is not a difficult job and was my father's job. Agriculture is a more difficult job, and I am new in agriculture."* **(Household in East Darfur)**

Experience and skills

Pastoralists who were attempting to expand or begin a new type of cultivation expressed concern that they didn't have the **skills or experience** to make it successful. Success in trade in particular was often put down to experience. When households were displaced, they most often lost all of their physical, financial, natural assets, and sometimes even their social assets, leaving them with only their human assets. For many households, they had only the physical strength to work and survived through doing low-paying unskilled labor, something that was not always available due to high competition. But a specialized skill, like making local doors, driving, or blacksmithing, provided a much better-paying opportunity because it faced much less competition.

"Cows are more likely to be stolen. Now I keep one cow for milk and focus more on goats, because the risk is too high with cows." **(Household in Kulbus)**

Animal-specific risks and benefits

Some **risks and benefits** were **specific to animals**. These included disease, need for pasture, need for drinking water, ability to recover them from thieves, milk products, mobility, reproduction rate, and risk of creating conflict. The level of benefit and risk attributed to each of these factors varied by animal type.

Although any asset may be looted in conflict, banditry was nearly always associated with livestock. Throughout, cows had the highest earning potential but also had the highest risk of theft and were the most difficult to recover. Cows also cost the most to maintain and were the most likely to die in dry years. Goats posed a high theft risk in some areas, because they could be stuffed into small cars and quickly carried away. On the other hand, goats were considered the cheapest animal to purchase and maintain. They reproduce the most rapidly and so were usually the first animals owned when restarting animal rearing as an income stream during recovery.

"Goats do not cost me much, they can eat whatever I offer them." **(Household in East Darfur)**

The value and marketability of cows on the other hand has been severely affected by the general insecurity. Large-scale looting at the start of the conflict depleted many herds. Continued targeting of cattle, in particular by bandits and raiders, poses a risk to ownership, especially while herds are on the move. In drought, the cattle are also the most susceptible to hunger. In times of crisis, whether climatic or conflict-related, it is difficult to find buyers for cows in particular, partly because of the above costs and risks but also because few people have the means to buy them.

Risks and benefits particular to cultivation

Some **risks and benefits** were **particular to cultivation**. Plant pests and diseases were of course a risk. In East Darfur, birds were a very common, damaging risk to grain crops. The direct correlation between rainfall and the success of rainy season crops was closer than for any other activity. Rainfall is unevenly distributed but cannot be moved like livestock, nor irrigated like dry season cultivation. On the other hand, cultivation can be done on a very large scale while using only a few months in the year to produce one to three years of grain.

4. ايلاء الاهتمام اللازم بقدرات التعامل مع كل من "الصدمات غير الاعتيادية/الخاصة (idiosyncratic shock)" و"الصدمات المتغايرة (covariate shock)"" بجانب الاهتمام بقدرات التكيف مع تلك الصدمات.

5. تعزيز فرص التعلم المشترك والتعاون النشط للنظراء المحليين.

6. تغيير النظرة والفهم المتداولين حول المزارعين والرعاة فى اتجاه التأكيد على المصالح، والأهداف، والقيم المشتركة.

7. مناصرة/مؤازرة دور المفاوضات والاتفاقيات المحلية حول إدارة الموارد الطبيعية.

8. مراجعة الكيفية التى يتم بها فهم وقياس القدرة على التكيف/التاقلم، بما في ذلك أدوات رصد ومتابعة الأمن الغذائي.

9. الاعتراف بأهمية الأسواق في بناء القدرة على التكيف/التاقلم، بجانب الاعتراف بالحاجة الى تحليل السوق بما يتجاوز معلومات الأسعار.

10. إعطاء المزيد من الاعتراف والدعم لتحسين التعليم الاساسى.

الأحيان - حاجة ماسة لتحسين نوعية الخدمات المتوفرة والبنية التحتية القائمة حاليا. كما ان إعادة بناء (مرافق) الخدمات الصحية سيلعب دورا رئيسيا في معالجة الأمراض، والتى تمثل واحدة من "الصدمات غير الاعتيادية/الخاصة (idiosyncratic shock)"الرئيسية.

3. **عدم التوافق بين مدخلات المياه والصرف الصحي والنظافة (WASH) على المدى القصير، من جهة، وبناء "القدرة على التكيف/التواؤم"، من الجهة الاخرى:** بعد انقضاء أكثر من عقد من اعداد وتنفيذ برامج المياه والصرف الصحي لاغراض انسانية، تم تاسيس وانشاء بنية تحتية هائلة، خاصة المضخات اليدوية لرفع المياه، الا ان الكثير من عناصر تلك البنية التحتية قد تعطلت بالفعل وتم تركها دون اصلاح/صيانة. لقد ثابرت/اجتهدت المنظمات غير الحكومية التى تقوم بانشاء/تركيب المضخات اليدوية فى تدريب وتهيئة المجتمعات المحلية للحفاظ علي تلك المضخات، لكنها كانت تنظر لتلك المضخات كمورد قائم بذاته، ذا استخدام محدد ومحدود للغاية. ولم يتم النظر لتلك المضخات كجزء من نظام أكبر ومتكامل للموارد الطبيعية يمتلك نظم إدارة طويلة الأمد. ويمكن لعناصر البنية التحتية هذه، التى لم يحالفها النجاح، ان توفر فرصا هائلة للتعلم بالنسبة للوكالات المنفذة حول لماذا تفشل مثل هذه الأنشطة. كما أنها تشكل ايضا فرصة منخفضة التكلفة لزيادة فرص الحصول على المياه النظيفة.

4. **السلطة، والعلاقات، واتاحة الموارد الطبيعية:** تلعب الموارد الطبيعية، والأرض على وجه الخصوص، دورا محوريا فى جميع استراتيجيات سبل كسب العيش في دارفور. وبشكل تلقائى، تقدّم المعاينون الذين تم استطلاعهم، في الحالة الدراسية التى حققت ادنى مستوى من التعافى، بذكر سبب جذري مماثل: وهو عدم توازن القوى الصارخ الذي يسود فيما يتصل باتاحة الموارد وامكانية الحصول عليها. وعلى الرغم من هذا الخلل، فقد تبين، فى مناطق اخرى، ان التجربة المحلية فى التفاوض وحل النزاعات حول الموارد الطبيعية (الأرض والمياه، فى الجزء الأكبر منها) قد عملت على تعزيز علاقة عمل أوثق بين مجموعات المستخدمين (للموارد). ويمكن، من خلال التحديد الواضح للمصالح المتبادلة وفهمها، ان نوفر أساسا متينا للتفاوض من اجل ارساء اتفاقيات جديدة تتبنى/تضم ترتيبات تشاركية/تعاونية تتخذ من هذه المصالح نقطة لانطلاقها.

5. **السياسات القومية والولائية اللازمة الهادفة لاتاحة الفرصة للحلول المحلية:** في الماضي، كانت الصلة التى تربط بين السياسات القومية/الولائية والإدارة القبلية المحلية تسمح ببعض المرونة في اتخاذ القرارات المتصلة بالادارة/الحكم المحلي. فعلى سبيل المثال، عند تحديد الأحداث المرتبطة بموسم بعينه مثل "الطليق". والمثال الآخر للادارة المحلية للحلول المحلية هو "الاجاويد/الجودية"، حيث يمثل "الاجاويد" مجلس/هيئة محلية تقوم باجراء التفاوض لتسوية المنازعات المحلية. وقد تم اضعاف (مؤسسة) الاجاويد على مدى السنوات العشر الماضية، لكن، في الآونة الأخيرة، قاد الدعم المقدم من "تعاضد" بتعزيز تلك المؤسسة. وفي سياق التغير المناخي والبيئي، تعتبر المرونة في الادارة/الحكم المحلي أمرا بالغ الأهمية. وبالمثل، فمن الضرورى، من الناحية العملية، للوكالات الدولية، ان تعمل مباشرة مع المجتمعات المحلية، بما في ذلك جميع مستخدمي الموارد الطبيعية المحلية، وضمان إشراك الوزارات المحلية (الولائية) المعنية عند تصميم وتنفيذ البرامج الخاصة بتلك الوكالات.

6. **تعليق الامال على العلاقات: تعزيز التكامل:** تمتد الأمثلة على العلاقات بين جماعات تستخدم موارد طبيعية متشابهة، مثل سكان القرى والرعاة، لتغطي نطاقا واسعا. ويسود بعض هذه العلاقات الود والحميمية، حيث يتم فيها/خلالها تقاسم وتشارك الموارد الطبيعية، مما يقود إلى تعافى/انتعاش اعظم. وعلى النقيض الآخر، تميزت بعض العلاقات بالتوتر المحموم، حيث يكون الحصول على الموارد الطبيعية محدودا للغاية بالنسبة لاحدى تلك المجموعات. وقد اتسم هذا النوع من العلاقات بتفشى النزاعات وشيوعها. في السياقات التى يكون فيها الإنتاج الأولي/الاساسى هو كل شيء، يجب، قبل كل شيء، أن يكون متاحا للمجتمعات الحصول على ما يكفي من الموارد الطبيعية - الارض بمختلف انواعها، والمياه، والمراعي، والأشجار، وما إلى ذلك - ولكن على الأخص الأرض. وعلى الرغم من أن العلاقات قد شابها الاستقطاب والتوتر بسبب أحداث السنوات الثلاث عشرة (13) الماضية، الا ان امر إعادة بناء هذه العلاقات لخلق اتفاقيات جديدة واستراتيجيات إدارة تضمن مشاركة كافة المستخدمين، يظل عاملا اساسيا لتحقيق الانتعاش/التعافى، ومنع نشوب النزاعات في المستقبل، وتطوير القدرة عى التكيف مع جميع الصدمات.

ختاما، يتقدم التقرير/الدراسة بالتوصيات العشر التالية:

1. تصميم التدخلات وفقا للسياق، مع الأخذ في الاعتبار السكان المحليين وتجربتهم فى التصدى للصدمات.
2. تعزيز الادماج بالقدوة في تصميم واستهداف أنشطة المشروعات.
3. دعم حاجة المجتمعات المحلية للمياه بطريقة مستدامة بيئيا واجتماعيا.

الاستثمارات في البنية التحتية

شجعت الاستثمارات في البنية التحتية من قبل الوكالات الحكومية والإنسانية عودة الأسر النازحة، كما دعمت عمليات تعافيها/انعاشها، وحفزت الاقتصاد المحلي، مما انعكس ايجابا على دمج وتكامل دارفور مع بقية ارجاء البلاد اجتماعيا واقتصاديا. وشملت الفوائد التي انعكست على "القدرة على التكيف/التوائم" جراء تلك الاستثمارات، مزيجا يشمل الحد من التعرض للصدمات مثل النزاعات أو الامراض، من جهة، بجانب دعم التعافى/الانتعاش عن طريق خفض التكاليف وزيادة الإنتاجية، من الجهة الثانية.

وتشمل الاستثمارات التي تعتبر مفيدة للغاية بشكل خاص فيما يتصل ب"القدرة على التعافى/االابلال" كلا من تعبيد الطرق، وتحسين فرص الحصول على المياه. فقد ساهم تعبيد الطرق فى زيادة خدمات النقل المحلي، وتحسين الاتصالات، وتكامل الأسواق، بجانب تعزيز التكامل الاجتماعي. وتحسنت فرص الحصول على مياه نظيفة إلى حد كبير، مما يعتبر واحدا من أكثر المدخلات ذات الفائدة، خصوصا أثناء الصدمات. ونجد ان معظم انظمة الامداد المائى تتكون من الآبار العادية/المبسطة المزودة بمضخات يدوية، اما في شرق دارفور، وفي بعض القري المتفرقة في المناطق الأخرى، فنجد مستودعات/محطات المياه (دوانكي / مفرد: دونكى)، والتي تم تصميمها لتوفير كميات اكبر من المياه على نحو اسرع، حيث تغطى خدمة الامداد المائى كلا من الانسان والحيوان/الماشية معا. وتتميز مصادر المياه المحسنة هذه بجودة المياه ويسر توافرها (لاغراض الاستخدام المنزلي يمكن تكليف الأطفال بمهمة جلب/احضار المياه)، بجانب توفير الزمن. ومع ذلك، فقد توقفت معظم المضخات اليدوية عن العمل بعد المرة الأولى أو الثانية من اصابتها باعطال فى اعقاب مغادرة الوكالات/الجهات المقدمة للدعم.

وتلى المياه، فى قائمة الخدمات المتاحة الأكثر شيوعا في القرى، المراكز الصحية، والمدارس، ومراكز/نقاط الشرطة. وتعتمد قيمة الخدمات التى تؤديها تلك المرافق على مدركات الحاجة (الحاجة المدركة)، والجودة، والموثوقية. فالشرطة توفر الشعور بالأمن، حيث ان هنالك اعتقاد/ادراك بان وجودها يسهم فى الحد من وقوع أسوأ الحوادث الأمنية، على الرغم من ان السرقات ومخاطر اتلاف المحاصيل ما تزال قائمة/مستمرة. وقد ساعد الحصول على هذه الخدمات فى شعور الناس ب"الاستقرار"، وأنه يمكنهم (الان) التطلع نحو تحقيق "التعافى/الانتعاش".

من الخدمات الأخرى التي تعود بالنفع على عمليات "التعافى/الانتعاش" هنالك جمعيات/مجموعات "تعاضد" للادخار والتسليف (SILCs). ويعتبر الاقتراض بفائدة مخاطرة كبيرة بالنسبة للأسر التي تكافح من أجل تلبية احتياجاتها الأساسية، حيث لا يمثل في ثقافة دارفور استراتيجية إيجابية فى كل الحالات. وتستخدم جمعيات/مجموعات "تعاضد" للادخار والتسليف (SILCs)، بدلا عن ذلك، رأسمالها الخاص لتمويل الاستثمارات المشتركة، مثل الشراء بالجملة بأسعار منخفضة والبيع بالتجزئة باسعار أعلى، وشراء صغار الماشية لتربيتها وبيعها عندما تكبر، أو شراء البذور لحقل مشترك/جماعى مع اقتسام الأرباح بعد الحصاد. وقد ساهمت هذه الأنشطة التعاونية التلقائية فى زيادة ثقة المجموعات في بعضها البعض، كما زادت فى ثقة تلك المجموعات فى حنكتها التجارية، بينما نمّت اموال الصندوق التى يتم توزيعها على الأعضاء، مما يوفر المزيد من الدعم لعمليات التعافى/ الانتعاش.

وتخلص الدراسة الى مناقشة المجالات الستة التالية، تتبعها عشر توصيات.

1. **أولوية الزراعة وتربية المواشي:** تعتمد أنظمة سبل العيش في منطقة دارفور، في المقام الأول، على الزراعة المطرية وتربية المواشي، حيث يتم تكييف/موائمة تلك الانشطة بشكل فريد لمجابهة التذبذب الحاد فى مستويات هطول الأمطار. وفي السنوات الجيدة، تتمتع نظم العيش هذه بالقدرة على خلق عائدات عالية بالتناسب مع الجهد والاستثمار المطلوبين. وتمثل هذه النظم قوى الدفع الرئيسية لعمليات التعافى/الانعاش. ومن المرجح ان يكون تاثير دعم الأسر لإعادة تأسيس هذه الأنشطة، ذات العائد الأعلى، أكثر إيجابية من الاستثمار في أنشطة بديلة منخفضة العائد، والتي غالبا ما تكون اكثر عرضة لقوى المنافسة.

2. **تعزيز وإعادة بناء محفظة/محفظات الأصول المتصلة بكسب العيش:** بينت الدراسة، من خلال التغير فى "مؤشر تدفقات الدخل (ISI)"، ان المجتمعات المحلية تحرز الان تقدما على مسار التعافى/الانتعاش، وان كان الكثير منها لا يزال فى بداية المشوار. ويتطلب التعافى/الانتعاش المزيد من إعادة بناء أصول كسب العيش، وعلى وجه الخصوص رأس المال الاجتماعي والبشري، من خلال الاستثمار في الخدمات الأساسية (وخاصة الصحة والتعليم) والبنية التحتية (النقل، والطرق، والمصادر المحسنة للمياه). عمليا، نجد ان التأثير المضاعف للاستثمار في البنية التحتية يتم اهماله في بعض الأحيان لصالح أنشطة "بناء القدرات"، مثل التدريب والعروض الايضاحية التى لا تكون مصحوبة بمدخلات مادية الا فى الحدود الدنيا. ولا تزال هنالك حاجة ماسة لزيادة الخدمات والبنية التحتية، أو- في كثير من

القدرة على التكيف للتعامل مع الصدمات من شاكلة الفقدان المنتظم/الدورى لامكانية الوصول إلى أراضيهم الزراعية. ومهما يكن، فان النزوح المتطاول، وواقع تقلص فرصهم فى الحصول على الموارد الطبيعية في قراهم، حالا دون حدوث تعافى/ابلال أقوى.

كشف تطبيق مؤشر تدفقات الدخل (ISI) أن أنماط المخاطر والتعافي تتفاوت الى حد كبير على امتداد الحالات الدراسية. وكانت المنطقتان الأكثر تعثرا فى التعافى/الابلال هما جنوب دارفور والمنطقة الجنوبية من غرب دارفور، وذلك، إلى حد كبير، بسبب التغير في الظروف التى واجهتها هاتان المنطقتان، والذى ارتبط بتاثير أنواع مختلفة من النزاعات مما اضعف إنتاجها الكلي من انشطة (الفئة (1)).

وكثيرا ما أشار من تمت معاينتهم إلى أهمية رأس المال البشري بالنسبة للقدرة على التكيف/التاقلم: اذ نجد ان الرجال الغائبين، ووجود أحد أفراد الأسرة الذى يعانى من مرض/أمراض مزمنة، أو كثرة الأطفال الصغار، جميعها قد ساهمت في الحد من قدرة الأسرة على التكيف/التاقلم، في حين تلاحظ أن وجود ابن غير متزوج يؤثر إيجابيا على القدرة على التكيف/التاقلم على مستوى الاسرة.

وسعت الدراسة الى تقصى وجهات نظر الأسر ورؤاها للصدمات على مدى السنوات الخمس الماضية، ومستوى المعاناة التي تسببها تلك الصدمات، وخصائص الأسر التي تعافت/انتعشت أكثر أو أقل من غيرها. وكما هو متوقع، فقد اثرت "الصدمات المتغايرة (covariate shock)" - مثل الجفاف والفيضانات والنزاعات - على معظم الأسر، في حين أن "الصدمات غير الاعتيادية/الخاصة (idiosyncratic shock)" - مثل المرض المزمن أو وفاة أحد أفراد الأسرة - كان لها تأثير أكبر بكثير من أي من "الصدمات المتغايرة (covariate shock)". وقد عملت الشبكات الاجتماعية والأنشطة التعاونية/التشاركية على دعم الأسر التي واجهت تلك الفئة من الصدمات، حيث تشمل الأمثلة على هذه الأنشطة الدعم المتبادل فى تنفيذ المهام اليومية مثل جلب المياه، والعمل الجماعى/التشاركى لانجاز المهام الزراعية المعروف باسم (النفير).

أهمية الأسواق بالنسبة للقدرة على التكيف/التاقلم

في جميع الحالات الدراسية حول كسب العيش، كان للأسواق والتجارة أهمية عظمى، سواء فيما يتعلق بالعرض والطلب على الناتج من زراعة المحاصيل وبيع وشراء الماشية، او بامداد/توفير المدخلات اللازمة لهذه الأنشطة (البذور والأدوات والأدوية البيطرية، إلخ). وقد اظهرت نتائج إعادة تحليل بيانات الأساس (البيانات المرجعية) لمشروع "تعاضد" أن امكانية الوصول إلى الأسواق ترتبط بارتفاع قيمة "مؤشر/درجة التنوع الغذائى للفرد (Individual Dietary Diversity Scores)" بالنسبة للنساء، و"مؤشر/درجة الجوع الاسرى (Household Hunger Scores)"، و"درجة مؤشر استراتيجيات التكيف/التعايش (Coping Strategies Index Scores)". ونجد ان هذه العلاقات كانت أقوى فى اوساط الأسر التى افادت عن تعرضها لصدمة خلال الماضى القريب، مما يدلل على ان الاسواق تتسم بالاهمية لكل من "القدرة على التاقلم/التكيف – resilience" و "التعافى/الابلال – recovery" على حد سواء.

استطاعت الأسر الميسورة ان تستخدم استراتيجية الاستثمار في سلعة معينة لتوليد/ادرار الدخل، في حين لجأت الأسر الأكثر فقرا الى استخدام السوق بطرق متعددة للحصول على دخل اضافى عند حوث صدمات وخلال فترات التعافى/الابلال. وكلما كانت الأسرة قريبة جغرافيا من السوق، خصوصا الاسواق اليومية، كلما اتيحت لها المزيد من الفرص لمزاولة تلك الأنشطة المتعددة على أساس منتظم. كما لوحظ ايضا انه عندما ينخفض الإنتاج الاساسى، تتحول الأسر نحو استراتيجيات التكيف ذات الصلة بالتجارة، مثل: العمالة المؤقتة في الاسواق؛ ونقل البضائع على عربات اليد أو على العربات التى تجرها الحمير؛ وجمع وبيع الحطب، والاعشاب/الحشائش، والسعف؛ وإنتاج وبيع الفحم.

ظلت الأسواق في اقليم دارفور دائما على مستوى ضعيف نسبيا من الاندماج/التكامل مع الأسواق القومية بسبب المسافات الطويلة ورداءة الطرق. وتزداد هذه العزلة النسبية خلال فترات انعدام الأمن حيث يرجع ذلك، فى جزء منه على الاقل، الى انتشار نقاط التفتيش بشكل مرتجل/عشوائى على طول الطرق التجارية. ومع ذلك، فان الأسواق القروية الصغيرة تجذب اعدادا متزايدة من التجار الذين يشترون الحطب والفحم بشكل اساسى بجانب الحبوب والحيوانات كذلك.

وتؤثر الصدمات ليس فقط على أسعار السلع في الاسواق، وانما تؤثر كذلك على الأسواق نفسها بما فيها الطرق التجارية، مما يؤثر سلبا، بدوره، على فعالية استراتيجيات الأسر لمجابهة الصدمات/الازمات. ان تحسين التكامل بين الأسواق في دارفور، وبين دارفور وبقية البلاد، ربما يساهم فى تخفيف آثار الصدمات المحلية المتصلة بالإنتاج على أسعار السوق.

توفير رأس المال الكافى أو استعادة بعض من كان لهم من امتيازات سابقة فى الحصول على أراضي صالحة للزراعة. وكلما زادت هذه الأنشطة الأكثر ربحية والقابلة للتوسع، قل اعتمادهم النسبي على أنشطة الفئة الأقل تفضيلا، مما أدى إلى حدوث تحسن عام في مقدراتهم على الكسب. وقد دعمت عملية التعافى/الابلال تلك البنية التحتية المحسنة بجانب توفر امكانية الحصول على الخدمات. ولكن توفر الدعم لتلك العملية، في المقام الأول، عن طريق زيادة فرص الوصول، منذ نزوحهم السابق، للموارد الطبيعية التى تحتل موقعا اساسيا فى استراتيجيات معيشتهم، وهي الاراضى القابلة للزراعة. وكبلت عمليات التعافى/الابلال (الانتعاش) تلك حالة انعدام الأمن المستمرة، والتى حرمت تلك الأسر من إعادة الانخراط تماما في واحدة من أهم انشطة "الفئة (1)"، تربية الماشية، بينما قيدت كذلك فرصهم فى الحصول على أراضي للزراعة. كما نجد ايضا ان الصدمات - مثل الفيضانات (المتكررة) أو موجة الجفاف التى اجتاحت المنطقة في عام 2013 - قد عملت هى الاخرى على إبطاء عمليات التعافي/الابلال من الصدمة السابقة المتصلة بالنزاع الذى تفجر في عام 2003. وعلى الرغم من أن نسب الدخل من تربية الحيوانات والزراعة حاليا تقترب من مستويات ما قبل العام 2003، الا ان إجمالي الدخل من هذه الأنشطة لا يزال متضائلا، كما ان عمليات التعافى/الابلال، كما يبدو، قد وصلت طورا من اطوار الاستقرار. ويتوقف تحقيق المزيد من التعافي/الابلال فى الوقت الراهن على زيادة فرص الحصول على الموارد الطبيعية في المقام الأول، والتى تعتمد، بدورها، على تحسين العلاقات مع الرعاة من خلال التحول من علاقات المنافسة/المزاحمة والتعارض نحو علاقات التكامل والتعاون.

في الجزء الشمالي من غرب دارفور، نجد ان "كلبس" تتميز بمناخ أكثر جفافا مقارنة بالمناطق الجنوبية التى شملتها عينة الدراسة. كما ان "كلبس" تتميز ايضا بتجربة مختلفة جدا مع الصدمات والتعافى/الابلال. ففي القرى المستقرة، نجد انه بينما تمارس الأسر الزراعة وتربية الحيوان بالتلازم، الا ان هناك تركيزا أكبر على الثروة الحيوانية بالمقارنة مع قرى المنطقة الجنوبية من غرب دارفور. وعلى الرغم من أن الأسر في "كلبس" فقدت، تقريبا، جميع الأصول المادية التى كانت تمتلكها في عام 2003، الا انها سرعان ما استعادت امكانية الوصول غير المقيد إلى مزارعها، حيث تمكنت من إعادة تدفق المداخيل من كلا المصدرين الأعلى تفضيلا (الفئة (1))، وهما الزراعة وتربية الماشية. وعمل ذلك على دفع عملية التعافى/الابلال وتعجيل سرعتها، حيث شارفت تلك العملية على الوصول الى نهاياتها، على الرغم من أن تلك الاسر لا تزال تعانى نقصا فى القطعان. وأفادت معظم الأسر بانها كانت قادرة على التعامل مع الجفاف الذى ضرب المنطقة في عام 2013، كما عبروا ايضا عن اعتقادهم فى انهم سيكونون قادرين على التعامل مع تدنى المحصول في عام 2015 في حالة تميز العام 2016 بمحصول جيد. كذلك، فان العلاقات مع الرعاة في المنطقة تبدو على نحو أفضل، ولم يتم رصد اى حالة لنشوب نزاع.

ارتبطت الأسر التى شملها البحث في المناطق الشمالية من شرق دارفور (عسلاية) بمزيج من سبل كسب العيش، وان كانت تتكون في معظمها من "المزارعين-الرعاة" الذي يعتمدون في المقام الأول على الزراعة الملحقة بأعداد صغيرة من الماشية. وتتكون الأسر في المناطق الجنوبية (الفردوس)، بالكامل تقريبا، من رعاة البقارة الذين يملكون قطعانا كبيرة من الماشية ويقطنون فى قرى دائمة (بدلا عن المستوطنات المؤقتة). وتاثرت هذه الفئة من السكان على نحو طفيف بالنزاع الإقليمي واسع النطاق، بينما تاثرت بقدر معتدل من النزاع القبلى الذى اندلع في اعلى الأجزاء الشمالية من شرق دارفور. وتتصل معظم الصدمات التى جرى ذكرها فى المنطقة بالطيور والحشرات، وتدنى معدلات الأمطار بما يؤثر على مستويات الحصاد. ولم تتعرض هذه الأسر الى فقدان امكانية الوصول إلى حقولها أو امكانية الحصول على مصادر المياه إلا لأقصر الفترات، حيث يبدو أنها قد اجتازت فترة الخمسة عشر (15) عاما الماضية من دون التعرض لمشاكل ذات بال. وقد ذكرت تلك الأسر أن العام الماضي (2015) كان الأكثر جفافا خلال السنوات الخمسة عشر (15) الماضية. وعلى الرغم من أن محصول الدخن كان ضئيلا، الا ان محصول الفول السوداني كان اقل قليلا فقط من المعتاد، حيث يبدو ان معظم الأسر تمتلك حاليا القدرة على إعالة افرادها حتى موسم الحصاد المقبل. وإذا ما قدر لموسم 2016 ان يكون جافا أيضا، فان الأسر التي تمتلك اعدادا أقل من الحيوانات ربما تواجه بعض الصعوبة في التكيف بدون المخاطرة بأهداف معاشها على المدى الطويل.

وتاثرت جنوب دارفور بشكل محدود من الأزمة الإقليمية، حيث اعاقت النزاعات القبلية، بشكل حاد، عمليات التعافى/الابلال من ذلك الاثر. وكرد فعل لذلك، أنشأت كل اسرة من الأسر التى شملتها الحالة الدراسية مسكنين لها، حيث تقوم تلك الاسر بقضاء فصل الخريف في قراها لزراعة المحاصيل وجمع السعف، بينما تقوم بتامين المزيد من روافد الدخل من المناطق الحضرية، في المخيمات والمدن، خلال موسم الجفاف/الصيف. وضاع ما تحقق من مكاسب معيشية في الفترة (2003 – 2005) فى الاعوام 2013 و 2014، والتى كانت قد شهدت نزاعا قبليا موغلا فى الشراسة. ففي حين تمتعت معظم ارجاء دارفور بمحصول وفير فى العام 2014، لم تتمكن هذه المنطقة من الاستفادة من ذلك الموسم نظرا لانعدام امكانية الوصول إلى المزارع، حيث انحدرت المنطقة إلى مستوى منخفض جديد. وبالرغم من ذلك، فإن مقدرة الأسر على اللجوء الى دخول/مداخيل من (الفئة 2) في عام 2014، بدلا من الاضطرار إلى اللجوء إلى انشطة (الفئة 4) التي سبق لهم استخدامها خلال الفترة (2003 إلى 2005)، توفّر بعض الأمل فى أن استراتيجياتهم، حاليا، باتت تشمل

الملخص التنفيذي

تعالج هذه الدراسة، بالشرح والتحليل، الكيفية التى تأثرت بها سبل كسب العيش في منطقة دارفور جراء تعرضها لصدمات متعددة على مدى السنوات الخمس عشرة الماضية، والخيارات التى تبنتها الاسر فى تلك المنطقة من اجل تامين إعالة افرادها خلال تلك الازمان، والقدر الذى تمكنت به من تحقيق التعافى والابلال من اثار تلك الصدمات. وقد جرى تداول الدروس المستفادة كجزء من مشروع بحث تشغيلى لدعم ومساندة برنامج العمل الانسانى والقدرة على الموائمة فى السودان (SHARP)، والذى يمثل شراكة بين ست منظمات غير حكومية بقيادة منظمة خدمات الإغاثة الكاثوليكية (CRS). ويقوم ذلك البرنامج بتقديم الدعم للأسر المتاثرة بالنزاعات من اجل إعادة بناء سبل/انظمة كسب معاشها، وتعزيز استعدادها وجاهزيتها للتعامل مع الصدمات والكروب/النوازل في المستقبل.

ومثلت عملية البحث مسعى جماعيا شمل جامعة محلية - وهى جامعة الاحفاد للبنات - كشريك أبحاث، بجانب الوكالات المنفذة لمشروع "تعاضد"، وفريق من المعارين من موظفي الحكومة على المستوى الولائى (وزارة الزراعة). كما اعتمدت الدراسة على منهج تدريجي تكراري/تعقبى للتعلم، حيث كانت البداية بالدراسة المكتبية، تلتها الدراسة الاستطلاعية في غرب دارفور ("فيتزباتريك" و "يونغ"، 2015)، وأخيرا دراسة البحث التشغيلي الموسع التي يتم رصدها وتوثيقها فى التقرير الحالى. وقد قام مركز فاينستاين الدولى، خلال هذه العملية، بتبادل وتعميم النتائج وبناء القدرات البحثية من خلال تنظيم سبع حلقات/ورش عمل عززت عمليات المشاركة في الاستعراض والتحليل وصياغة التوصيات.

ويغطي البحث التشغيلى أربع حالات دراسية في سبع محليات في ولايات غرب وشرق وجنوب دارفور. وقد تم سحب مفردات العينة الإجمالية، المكونة من 333 أسرة، من 28 قرية في المحليات السبعة الموزعة على ولايات دارفور الثلاث. وشملت الاساليب الميدانية المستخدمة طرائق/اليات التقييم الريفي التشاركي (PRA): رسم خرائط سبل العيش، وخرائط الموارد المجتمعية، والجداول الزمنية، والتراكم/التجميع التناسبى. وبجانب ذلك، تم ايضا استخدام اسلوب المقابلات/المعاينات شبه المنظمة.

وقامت الدراسة باعداد مؤشر لتدفقات الدخل (ISI) يجمع بين تفضيلات الأسر لانشطة كسب المعاش (الدخل)، واعتماد الاسر على تدفقات تلك الدخول. وتم استعراض/مراجعة التغير في هذا المؤشر خلال فترة استدعاء/تذكر تبلغ 15 عاما (2000-2015). وأظهرت هذه الأداة أن الزراعة المطرية وتربية الماشية تتصدران قائمة أنشطة سبل المعيشة السائدة والمفضلة (يشار اليها بأنشطة الفئة 1). وعادة ما تكون الأسر منخرطة في النشاطين معا ومتخصصة في واحد منهما. فمن خلال الزراعة يستطيع الرعاة تقليص حاجتهم الى بيع الماشية خلال السنوات الجيدة، مما يسمح لقطعانهم بالتكاثر والنماء بشكل أسرع. ومن خلال تربية الماشية بغرض البيع لمقابلة الاحتياجات النقدية، يستطيع المزارعون المختصون تقليص كمية الحبوب التي يحتاجون لبيعها، وبالتالي يستطيعون الحفاظ على مخزوناتهم المنزلية من الحبوب، حيث يهدفون فى العادة الى الاحتفاظ بمخزونات كافية من الحبوب تؤمن إطعام الأسرة لمدة سنتين إلى ثلاث سنوات. وهكذا، فان لكل واحد من سبل كسب العيش تلك استراتيجيات فريدة لبناء القدرة على التكيف.

التغيير في سبل كسب العيش على مر الزمن

ترصد الحالات الدراسية في مختلف المحليات والولايات (انظر الشكل 1) التغييرات التى تحدث في استراتيجيات كسب المعاش مع مرور الزمن، حيث تكشف تلك الحالات الدراسية حدوث تحولات كبرى في استراتيجيات سبل كسب العيش استجابة للصدمات والمخاطر واسعة النطاق على امتداد العقد الماضي أو اكثر.

شهدت المنطقة الجنوبية من غرب دارفور اضطرابات هائلة على مدى فترة طويلة مما تسبب فى ارتباك حاد فى استراتيجيات كسب المعاش بالنسبة لسكان القرى، وان لم تؤثر سلبا على موقف الأمن الغذائي بالنسبة لسبل كسب العيش الرعوية الا فى حدود ضيقة. فمن الشعور النسبي بالاكتفاء الذاتي خلال الفترة المرجعية (2000-2002)، هوى القرويون فجأة إلى نقطة منخفضة جدا في عام 2003 إلى عام 2004، عندما نزح الكثيرون منهم عن ديارهم. في تلك الاثناء، لجأت الأسر إلى المساعدات الغذائية، وجمع الحطب، وامتهان الاشغال العرضية (غير المنتظمة) من أجل البقاء على قيد الحياة. وتمّ لهم توفير قوة الدفع لعمليات التعافى/الابلال من خلال الزيادة المتأنية لمعدلات انخراطهم ومشاركتهم في انشطة "الفئة (1)" الأعلى تفضيلا لديهم (الزراعة والإنتاج الحيواني)، الأمر الذي يتطلب إما

اغسطس، 2016

دعما لمشروع "تعاضد" للانتقال نحو التنمية

المخاطر والمردود: اولوليات الاسرة من اجل سبل عيش قادرة على التكيف فى دارفور

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