



SPARC

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FACED WITH FLOODS

Shifting livelihood strategies among
South Sudan's pastoralists

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The interpretations and opinions expressed in the report are not necessarily those of the people we interviewed, nor of the Supporting Pastoralism and Agriculture in Recurrent and Protracted Crisis (SPARC) programme and its consortium members. The authors are solely responsible for any errors and omissions.

About SPARC

Climate change, armed conflict, environmental fragility and weak governance and the impact these have on natural resource-based livelihoods are among the key drivers of both crisis and poverty for communities in some of the world's most vulnerable and conflict-affected countries.

Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises (SPARC) aims to generate evidence and address knowledge gaps to build the resilience of millions of pastoralists, agro-pastoralists and farmers in these communities in sub-Saharan Africa and the Middle East.

We strive to create impact by using research and evidence to develop knowledge that improves how the UK Foreign, Commonwealth and Development Office (FCDO), donors, non-governmental organisations, local and national governments and civil society can empower these communities in the context of climate change.

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KEY FINDINGS

- Compounded shocks in South Sudan over the past decade have included conflict, displacement and climate shocks – and most recently, protracted flooding. These shocks have precipitated a steep decline in communities' livestock holdings, which has coincided with an accelerated process of livelihood diversification and fragmentation. Communities have become increasingly dependent on many relatively low-return activities, mostly around natural resource exploitation.
- In turn, changes in livelihood portfolios have contributed to shifts in the gender and social norms that have traditionally governed the division of labour within pastoral and agro-pastoral livelihood systems. Many women have taken on larger roles in providing for their households through diversified economic activities and engagement in labour-intensive tasks. While this may contribute to a sense of autonomy and control over resources for some women, it also contributes to an already-heavy female time burden.
- Despite less reliance on livestock production for food and income, and the perception of increased risk of owning livestock, many interviewees highlighted the continued importance of cattle to their cultural, economic and social systems. They remain hopeful that the flood waters will recede and that they will be able to return to mixed agro-pastoralism.
- While animal production now plays a lesser role in household food and income generation, this does not necessarily mean that pastoralism is in decline or that current livelihood adaptations are permanent. Pastoral systems are resilient and adaptable, having evolved to function in highly variable and uncertain environments. If policy and climate conditions allow it, pastoral and agro-pastoral populations should be able to resume their reliance on livestock production; however, whether households choose to do so will depend on resources, preferences and experiences in the interim years.

1. INTRODUCTION

Conflict and climate shocks are driving rapid change within the pastoral and agro-pastoral livelihood systems that many South Sudanese households have relied on historically for food and income. Recent among these shocks is prolonged and widespread flooding, which has caused extensive crop and livestock losses and a reorientation of the livelihood strategies upon which communities are most reliant (FAO, 2021). However, there is a dearth of evidence about the specific ways pastoralists and agro-pastoralists have adjusted their livelihood strategies, and similarly about the extent to which these shocks – and communities' responses to them – are likely to spell permanent versus temporary changes to the broader pastoral livelihood system. Some donors and implementers in South Sudan are asking: What is the future of pastoral livelihood systems amidst such volatility?

Conflict and climate shocks are driving rapid change within the pastoral and agro-pastoral livelihood systems that many South Sudanese households have relied on historically for food and income.

This report begins to address this question by examining shifts in livelihood portfolios in South Sudan's Unity State. We draw on qualitative participatory rural appraisal (PRA) methods to examine the changing balance of food and income sources at the community level as a proxy for livelihood strategies, and we consider the potential implications of these changes for the future of pastoral livelihoods. Our hope is that this report and forthcoming ones in this series will inform donors and implementers on the evolving profile of pastoralism and highlight opportunities for investments that support resilience within highly adaptive pastoral and agro-pastoral systems. While this interim technical report is limited to a discussion of select study findings, subsequent reports in this series will draw on additional analysis to present implications and recommendations for donors and practitioners to support livelihood security and the resilience of pastoral systems.

This technical report is part of an ongoing SPARC research initiative that seeks to understand livelihood trajectories in the drylands of East Africa, with a focus on examining the ways in which pastoral livelihood systems are changing in response to climate change and conflict. A [companion report](#) examines communities' dynamic perspectives and aspirations with respect to pastoral and agro-pastoral livelihoods in South Sudan (Humphrey et al., 2023). As a whole, publications in this series will:

- 1) identify and categorise the mechanisms, systems and processes households are employing in response to shifting risks and shocks in distinct dryland contexts;
- 2) identify the factors that influence which approaches pastoralists prioritise when responding to risks and shocks; and
- 3) provide guidance for how aid actors can best support recovery and resilience within pastoral and agro-pastoral livelihood systems.

Methods

This report draws on the findings from semi-structured one-to-one interviews and focus group discussions (FGDs) conducted during March and April 2023 with 80 men and women engaged in pastoral and agro-pastoral livelihood activities. The study participants reside in towns and rural villages, as well as in the Bentiu internally displaced persons (IDP) camp, in South Sudan's Rubkona County. Participants were recruited to ensure diversity in terms of socioeconomic status, age and gender.

FGDs employed PRA approaches, including a proportional piling activity in which participants used a consensus-based approach to indicate the dynamics related to the relative importance of different food and income sources to their broader community. The first exercise entailed a discussion of 'all the sources of food and income that have come into this entire community over the course of the previous year', followed by the proportional piling exercise to show the different proportions of the food and income sources. This exercise (which team members had employed elsewhere with success) is an effective means of combining sources that can otherwise be difficult to compare, such as own production, salaried income and humanitarian relief.¹ In-depth discussion about each of the food or income categories takes place once the group has reached consensus on the proportional piling. Researchers then ask the group to reflect on the 'last good year' within recent memory. Once established, we ask participants to identify any additional sources of food and income that existed in that year but that are not included in the current table and add these to the list. The participants reposition the counters to show the proportions of food and income sources in the last good year. Lastly, we discuss differences that exist between the last good year and the present year, and the reasons behind such differences.

The interviews allowed the research team to gain a deeper understanding of key topics discussed in the FGDs, with a more targeted focus on household-level dynamics.

Research sites

Interviews and FGDs were conducted in Rubkona County, in the centre of South Sudan's Unity State. Rubkona County is home to an agro-pastoral production system, though livestock keeping (particularly cattle rearing) has been more common and relied upon in the past than cropping. The county produces a deficit of grain, so household diets usually comprise a combination of livestock products, humanitarian food aid and staples imported mostly from neighbouring Sudan. Historically, Rubkona County has exported livestock to adjacent areas of South Sudan and to cross-border markets in Sudan. However, this trade has been severely disrupted by decades of conflict, border closures during the Covid-19 pandemic and severe flooding that has persisted across much of South Sudan since 2019.

Indeed, Rubkona County has seen a series of pronounced shocks, including the 2011/2012 East Africa drought, the political conflict and associated violence beginning in the country in 2014, and widespread prolonged flooding starting in 2019. These shocks have been

1 Many participants listed 'sharing' as an important source of food or income. Because people are obviously sharing existing sources of food and income, this component is essentially double-counted in a group proportional piling activity. However, as these proportions are meant to be illustrative as opposed to quantifying exact amounts, we include 'sharing' in our analysis and note that it is often a critical source of support for the poorest households.

accompanied by displacement and forced migration, loss of access to arable land and loss of livestock. Rubkona County was the site of heavy fighting between government and opposition forces during South Sudan's civil war and is home to South Sudan's largest IDP camp, previously known as the Bentiu Protection of Civilian site or PoC. The camp, located just outside Bentiu Town, hosts over 100,000 IDPs, many of whom reside in the camp but travel outside it regularly to conduct business and other livelihood activities. This includes pastoralists, who were interviewed as part of this study, who keep livestock in the areas surrounding the camp. Bentiu Town, in and around which many interviews for this report were conducted, is home to the county's largest marketplace, and serves as the administrative capital of Unity State. The town is connected by road to cross-border trade routes to the Kordofan region of Sudan. Road access to Juba markets remains unreliable, with the region usually cut off during rainy seasons. During this period, traders can access Juba markets only by river or air.

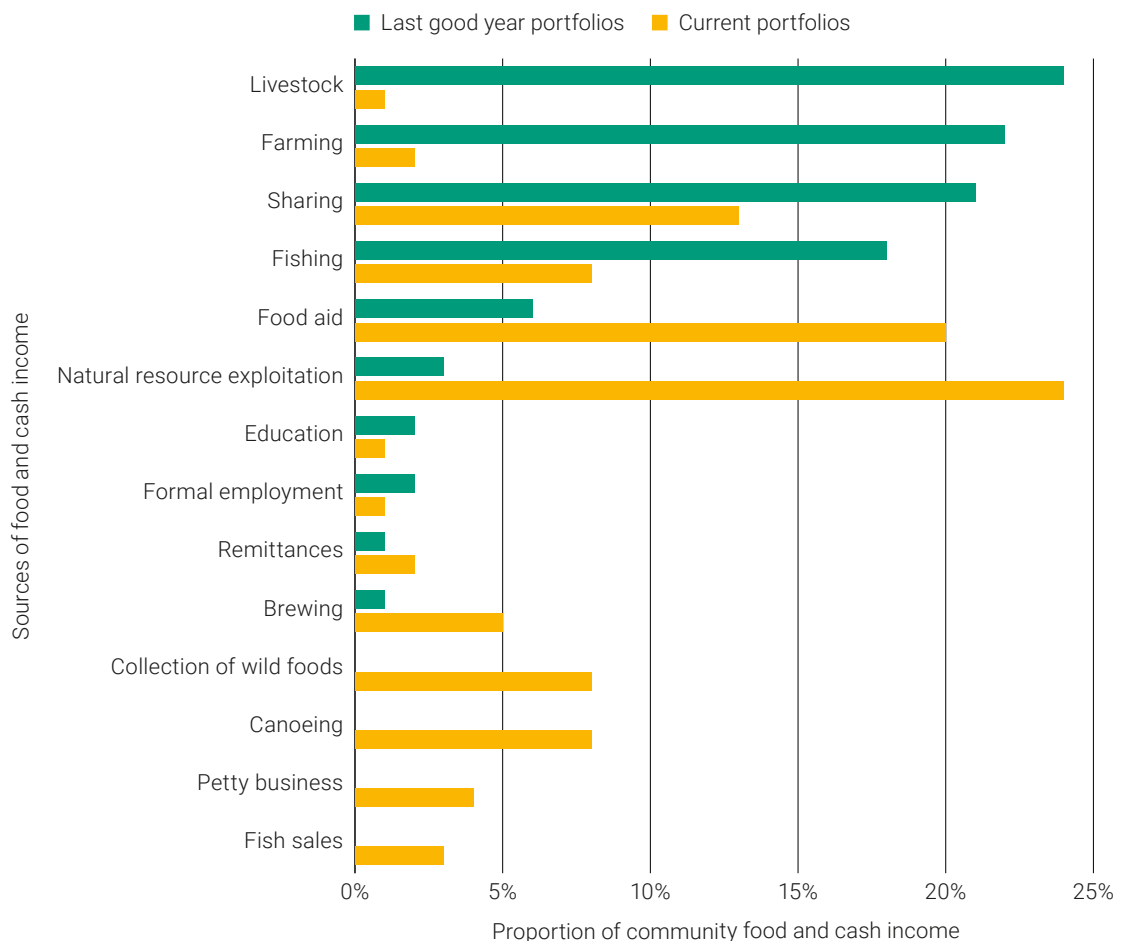


2. FINDINGS

Changing sources of food and income over time

The research team led eight participatory FGDs (four male and four female in separate groups) to identify food and income sources in the previous year. Due to time constraints, however, the comparison to the 'last good year' occurred in only four of these eight groups.² Figure 1 shows sources of food and cash income for the community as a whole in the last good year and in the year prior to the data collection (April 2022 to April 2023).

FIGURE 1. COMMUNITY LIVELIHOOD PORTFOLIOS



Source: The authors.

The 'last good year' was identified in the four focus groups as falling between 2004 and 2012. Figure 1 shows a marked difference in sources of food and income over the intervening period, with a sharp decline in livestock and crop farming and a parallel increase in natural resource

² The small sample size and the limitations of the methodology are reminders that these figures are indicative as opposed to exact and are meant to broadly illustrate the trends.

exploitation and receipt of humanitarian food aid. Overall, the pattern appears to be one of fragmentation of community-level livelihood portfolios, with low-return and marginal activities filling the gap created by the decrease in agro-pastoral production.

This pattern of fragmentation reflects the ways in which households and communities have responded to the prolonged flooding and serves as a reminder that diversification is not always an indicator of resilience. At the same time, it is important to recognise that agro-pastoral livelihood systems have long been highly diversified, especially along lines of age and gender. Even under ideal conditions, agro-pastoralists participate in a wide range of activities, including the collection of natural resources, bartering or trade for non-animal food items and engagement in activities to generate income for cash needs. In other words, although many of the current activities may be low-return in comparison to livestock and agricultural production, they are not inherently distress strategies. Such activities play important (though proportionally less significant) roles within the local livelihood systems outside crisis periods and engagement in these activities can increase as a means of responding to shock.

Overall, the pattern appears to be one of fragmentation of community-level livelihood portfolios, with low-return and marginal activities filling the gap created by the decrease in agro-pastoral production.

In many contexts, women are generally more adept at diversifying their economic and subsistence activities than men (Rao, 2019; Rao et al., 2020). This pattern is replicated somewhat in our South Sudan data where we observe an increase in female participation in activities such as brewing, water lily collection (for consumption and sale) and petty trade. Natural resource collection is often dominated by women, but in this instance the category includes activities both within the female realm (firewood, grasses and reed collection and sale) and traditionally performed by men (collection and sale of building poles and production and sale of charcoal). Some of the activities normally undertaken by women – including firewood collection – have become more difficult due to insecurity and flooding and they currently require expensive canoe transport. These activities therefore make a smaller contribution to household food and income than in previous time periods. Male-dominated diversifications – such as working in the canoe transport business – are generally more profitable. This means that, while women may spend more time doing a range of diverse activities, the economic contribution of the often-fewer activities undertaken by men is greater for household incomes in at least some instances.

Fishing drops from being the third most important activity in the earlier time period (the last good year) to being on par with canoeing and collecting water lilies in the current time period. Part of the proportional decrease in the total contribution of fishing is likely due to the price drop caused by both the increased availability of fish (due to rising flood waters) and the expanded number of people seeking to sell fish as an alternative livelihood. As explained by a male respondent in Rubkona: 'Right now if you go to the market, everybody is selling fish at cheaper prices ... Prices have gone down because fish are easily available, and people want to get money even if it is little'. Despite this price drop, however, fish remain important within networks of sharing and for their sale value, and participants stressed the continued importance of fishing for those who have lost their livestock.

The increased reliance on humanitarian food aid is one of the starkest differences when comparing the present to the last good year.

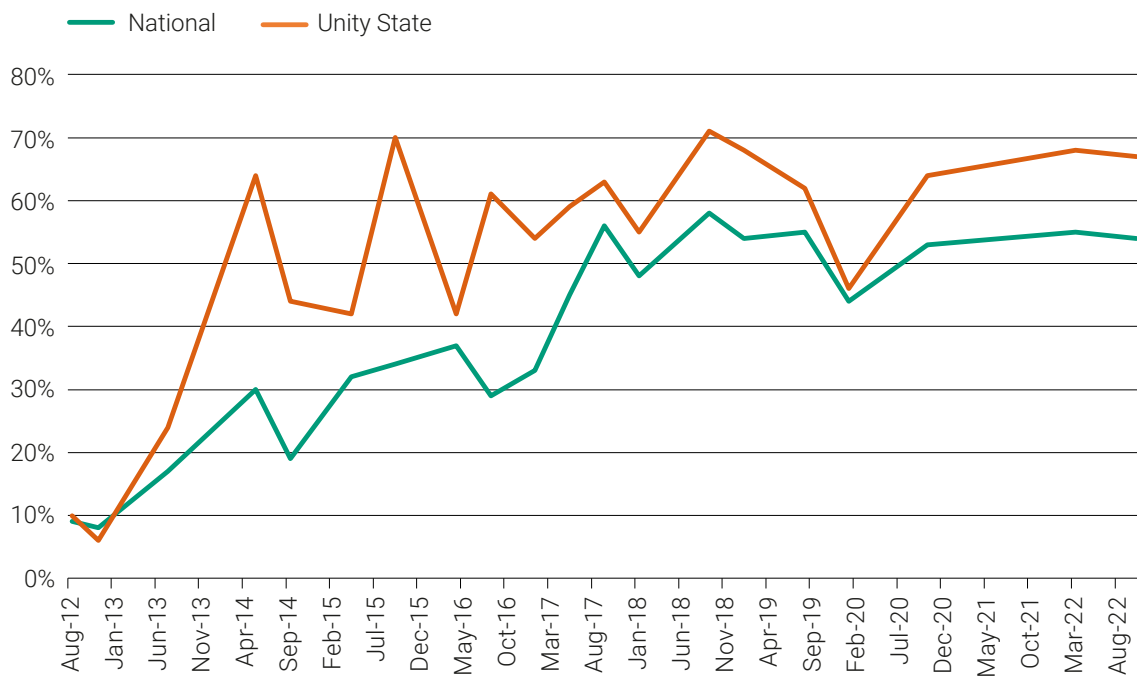
The steep decline in reliance on livestock is unsurprising given the experience of repeated shocks. Participants explained that, while livestock raids have always been a risk for animal owners, today the obstacles to successful animal husbandry are multifaceted. A male interviewee in a rural area outside Rubkona Town explained, 'Livestock keeping has become a very risky livelihood that has few profits these days because of all the problems associated with it, like cattle raids, revenge killing, intercommunal violence and natural disasters like these floods which can also disrupt it easily'. People who may have been gradually rebuilding herds after conflict-related losses suffered serious setbacks with the onset of the 2019 floods, which resulted in the deaths of thousands of animals. A male participant in Rubkona explained, 'Since the floods began, most livestock have fallen ill and died due to sicknesses associated with the polluted flood waters ... People who had livestock did not benefit in any way from them in terms of food, but had more stress. Some even sold them to Sudanese from Darfur and used the money to become traders. Others bought canoes for transportation.' Some people who sold off their herds earlier were able to establish businesses in Rubkona and Bentiu Towns, whereas many of those who held onto their animals only to lose them in the floods have ended up destitute in IDP camps. Those who retained small numbers of animals struggle to feed them, as explained by women in an FGD held in a rural area near Bentiu Town: 'There is no food for the livestock to eat now. Those who own them have to do the hard labour of going into the river and flood waters daily to cut grass from the river and bring it to the animals to eat'.

The increased reliance on humanitarian food aid is one of the starkest differences when comparing the present to the last good year. Notably, this corresponds with a precipitous increase in acute food insecurity and corresponding humanitarian need over the same period – with Unity State consistently recording levels of food insecurity well above the national average. Although humanitarian food aid has been part of the local economy in Sudan and South Sudan for over 50 years, many respondents described a successful system of agro-pastoral production prior to the 2014 political violence and displacement and more recent flooding. A man interviewed in Bentiu provided his perspective:

'Food aid is a new thing in many people's lives. Before the 2013 war and the flooding, people used to feed themselves from food they cultivated from their traditional farms and from their livestock ... But when these two incidents occurred, every Nuer man or woman became poor and dependent on humanitarian handouts.'

The interviewee went on to explain that, prior to these events, people helped each other in times of disaster or hardship through the sharing of harvests and loans of lactating animals. Female FGD participants explained that, while they were accustomed to receiving food aid in the past, humanitarian organisations only provided food aid 'when there was a famine or drought and when there was conflict or an outbreak of disease ... People did not depend on food aid as much as they do now because problems were not as big as what we are facing now like floods, displacement, sickness and conflict.' As evident in these accounts and as illustrated in Figure 2, people see food aid as critical at present but as external to their normal livelihood systems.

FIGURE 2. ACUTE FOOD INSECURITY SINCE THE 'LAST GOOD YEAR'



Source: Created using the IPC's [Population Tracking Tool](#)

Current livelihood portfolios

The diversification of community-level livelihood portfolios in Bentiu coincides with new approaches to conducting livelihood activities. Participants described adjusting their livelihood strategies to mitigate the negative consequences of shocks on livelihood productivity or, in some cases, to take advantage of new opportunities that these shocks present. It is possible that these changes also reflect shifting social and gender norms that govern who conducts certain types of labour. Here, we highlight a few examples of changing livelihood strategies and corresponding changes in related social and gender norms.

Canoe businesses

Informal canoe businesses emerged as significant sources of income for communities in Bentiu during the multi-year flooding that began in 2019. With people unable to attend markets, undertake livelihood activities or trade with neighbouring communities, able-bodied men turned to constructing canoes, which they operate on a for-hire basis. Local community members typically hire these canoes to facilitate their own income- and food-generating activities, especially natural resource collection in nearby submerged areas. In some cases, formal business operators and humanitarian actors also pay local canoe operators to transport goods. Canoes have remained in high demand during the flooding and, as described by a group of women, 'those who are doing canoe business have more money than people doing activities like collecting firewood, poles and reeds, brewing or tea selling'. However, the activity is seasonal, and respondents pointed out that its profitability would decrease as flood waters subside. In this sense, canoeing was seen by participants as unreliable in the longer term.

Although canoes are typically owned by men, both men and women regularly hire and operate the canoes. This marks a departure from the past when canoe operation was typically a male-led activity and may indicate a trend of increased mobility across gendered divisions of labour. Notably, however, women's use of canoes is often restricted to collecting natural resources, while men may use canoes for other purposes, including contracted transportation of goods for formal businesses.

Fishing and fish sales

Livestock losses because of flooding required communities to replace animal products with alternative food sources. At the same time, rising waters meant that more and larger fish were available closer to town. While fishing was stigmatised in Nuer culture historically and considered an activity reserved for men from households without livestock, the flooding has caused this to change. A male respondent explained: 'Fishing and fish business is done by almost everyone these days. If you go to fishing camps, you will find that even educated people are fishing or buying fish that they bring to Bentiu and take to Juba for sales. Fish business is booming everywhere these days, unlike in the past when fishing or selling fish was a shame.' Gender barriers related to fishing also appear to have eroded during the period of flooding. While it was once 'a shame for a woman to join men in fishing camps [or] to catch fish for sales', this belief no longer exists. While women may join men in distant fishing camps, more often they fish closer to town in shallow flood waters and catch and sell smaller fish than their male counterparts.

Fish have traditionally been reserved for household consumption. However, this too has changed during the flooding, evident in the significant increase in the sale of fish as a source of household income. Fish businesses are typically operated by women, who either resell dried fish caught by others – including men working in distant deepwater fishing camps – or sell fish they have caught themselves in nearby shallow waters. Participants explained that income from fish sales is typically used for household necessities 'and there are people who are using the money ... from fish sales for paying bridewealth'. As discussed above, however, the proliferation of fish and fish vendors in local markets has resulted in a significant reduction in profitability over time.

Natural resource exploitation

Participants described a significant increase in the community's reliance on natural resource exploitation as a source of food and income during recent years. With this increased reliance, the profitability of resource exploitation has decreased during the prolonged flooding, as the supply of natural resources has become more limited, and the collection of these resources requires more labour and time than in the past. Collecting firewood, for example, now either requires a long process of drying when it is removed from below the flood water, or it requires travelling significant distances, usually by canoe, in search of wood on dry land. Conversely, in the past, dry wood could be collected reliably on foot, closer to town.

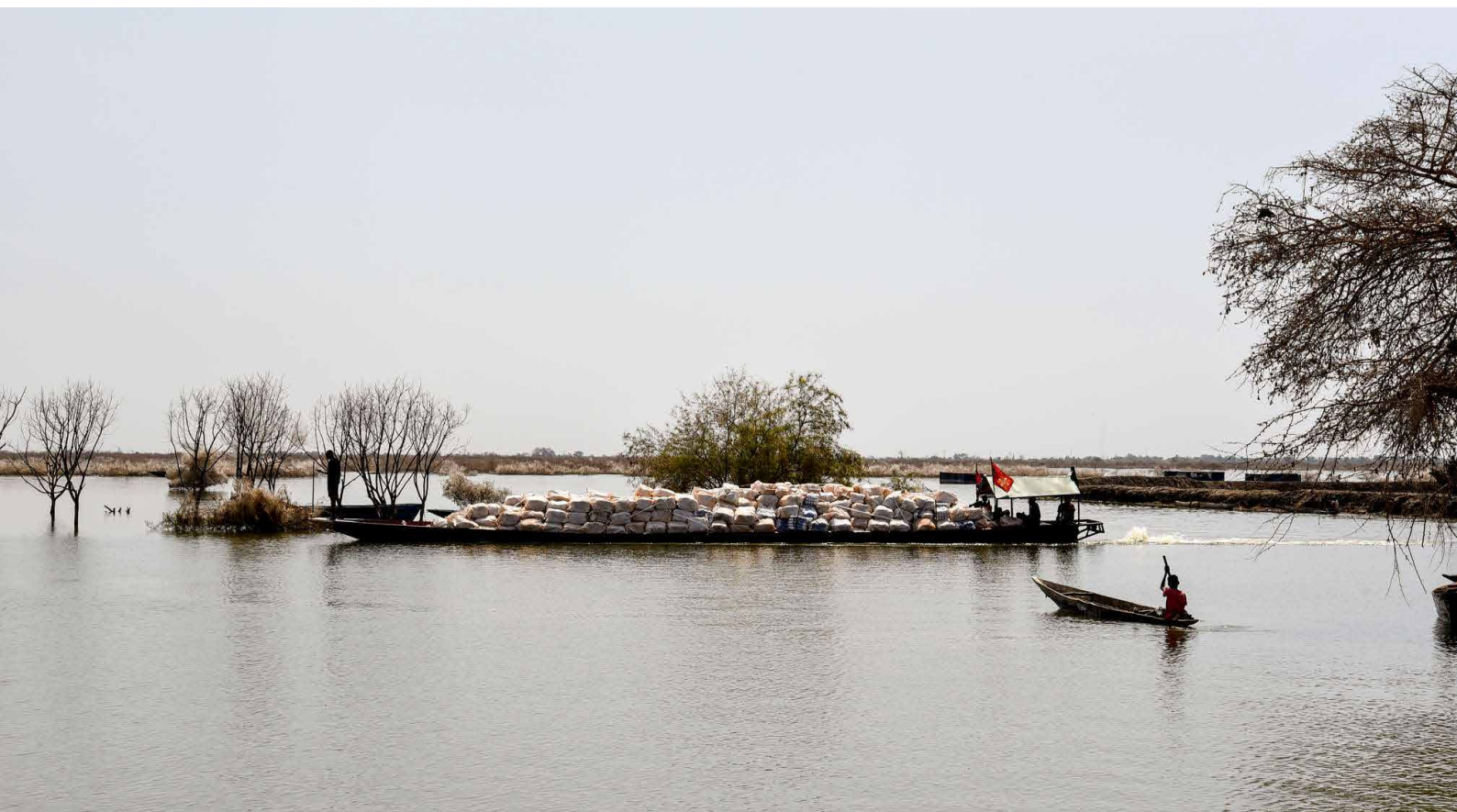
The increasing number of households involved in natural resource exploitation is associated with changing social and gender norms around this activity. While resource exploitation was in the past pursued primarily by poorer households and typically conducted by women, these norms have changed during the prolonged flooding. Although, culturally, men used to shy away from collecting and selling firewood during this period of hardship, men are now forced to do what was once considered to be women's work.

Inter-household sharing

Participants described informal social support networks as a critical source of food and income, particularly for households without access to productive livelihood activities or humanitarian food assistance. Food is understood to be a collective asset and is largely shared among community members. This process of redistribution is rooted in strong social norms that are especially pronounced during times of heightened need. However, such reciprocal mechanisms suffer during periods of conflict and displacement – when existing communal ties can be disrupted – and also when impoverishment is widespread. This lessens the ability of households to provide for others while still having adequate reserves for themselves. If a household is believed to be able to share and fails to do so, traditional authorities may intervene and exclude that household from reciprocal support in the future (Fitzpatrick et al., 2022; Humphrey et al., 2019).

As one male respondent explained, 'Food belongs to the community, it does not belong to an individual. Livestock, crops, fish, and anything that could save the lives of the community is shared among village members. If someone is not willing to share what they have with community members, the village chiefs are compelled to confiscate lactating livestock or food he has and give it away to the hungry households.'

This strong redistributive ethos means that productive livelihood activities, even when practised by a subset of the community, are likely to have important implications for the wider population. Our findings related to community-level food and income sources should be interpreted with this process of redistribution in mind.



Additional discussion

Pastoral and agro-pastoral livelihood systems in dryland settings are under extreme pressure almost everywhere they exist. Common external challenges include climate change, the privatisation of resources, barriers to mobility, population growth of both settled and transhumant groups, and a general absence of policies that support pastoral systems. Conflict is endemic in many locations, taking the form of cattle rustling, territorial disputes that often fall along ethnic lines, and broader political conflicts with impacts upon pastoral communities. Internally, transformations of livestock-based livelihood systems are taking place due to the increased commercialisation of the livestock sector, households' increased need for cash, the growing inequity of livestock ownership and generational differences brought about by improved educational and economic opportunities – often *not* in pastoral locales.³ Despite these pressures, by their very nature pastoral systems are highly adaptable and designed to take advantage of shifting environments, unpredictable climate patterns and emerging opportunities. However, the pace at which these uncertainties arise has accelerated, which at times undermines the existing systems through which pastoralists were previously able to respond and adapt (Scoones and Nori, 2023).

Evidence on pastoralists' responses to and recovery from drought – which is more extensive than the evidence on floods – can provide some indication of household ability to recover.

These pressures upon pastoral and agro-pastoral production are readily apparent in the data from South Sudan. The extent of livelihood transformations visible in Figure 1 and Figure 2 on changes in sources of food and income are not surprising, when considering Rubkona County's history of pronounced shocks. The extent and relative speed with which households have diversified away from the previous three main categories of livestock, farming and fishing implies a high degree of adaptability at both the household and collective level. However, the longer-term implications of these adaptations for livelihood productivity and security remain uncertain. It is also unclear whether this diversification marks a temporary response to prolonged flooding or a more permanent shift in livelihood portfolios. The answer to this question will depend in part on how this transformation affects households' ability to move back into 'good year' livelihood activities if and when conditions improve.

Evidence on pastoralists' responses to and recovery from drought – which is more extensive than the evidence on floods – can provide some indication of household ability to recover. We know from work in pastoral areas of northern Kenya that households diversify quite rapidly as needed in response to droughts; such flexibility is built into the livelihood systems of pastoral and agro-pastoral populations as a means of managing variability and uncertainty. However, while households may be able to adapt quickly in response to climate shocks, *resuming* livestock production after the situation improves requires more time, and poorer herders experience much more difficulty recovering after livestock losses (Aklilu and Catley, 2010). Rebuilding herds after drought is primarily through reproduction (as opposed to purchase) and animals must regain strength before they are able to reproduce (Little et al., 2014). This means a minimum of five to six months for births of goats and sheep, and much longer for cattle and

³ Numerous authors discuss the evolution of pastoralism. See, for instance, Lind et al. (2020).

camels. Relatedly, the delay in lactation means that improvements in human nutrition also lag significantly behind the coming of the rains at the end of a dry period (Young et al., 2023). Less is known about the recovery patterns of herding households following floods, but the health impacts on the animals, gestational delays and differing impacts by wealth group are likely consistent across both drought and flood recovery. It is hoped that future SPARC research will investigate some of the experiences of flood recovery, including the extent to which people are able to resume livestock production.

Data from other pastoral and agro-pastoral settings have shown that poorer households are more likely than their better-off counterparts to engage in diverse – but often unsustainable – livelihood activities when faced with diminishing livestock herds (Little et al., 2014). There is no reason to doubt the existence of this pattern in the South Sudan context. Opportunities for sustainable and higher-margin livelihood diversification are quite limited, given the lack of robust markets and a poorly developed economy in Rubkona County. Market institutions have also been affected by the shocks listed above, and widespread flooding has resulted in further contraction of market linkages due to lack of consistent road access to major cities and towns, including Bentiu. Albeit limited, commercialisation and commodification opportunities do exist and have allowed people to both intensify in existing sectors, such as natural resources collection and sale, and expand into new areas, including canoeing and the sale of fish. Further economic growth may mean that some people will be able to find longer-term opportunities in these sectors, but the sustainability of these options and the ability of the poor to secure these opportunities remains to be seen.

We do know that climate shocks are driving changes to the gender and social norms that have traditionally governed the division of labour within pastoral livelihood systems. This is particularly evident in the recent process of diversification of agro-pastoral activities into low-return coping strategies. As livestock activities (traditionally the remit of men) are replaced with alternative sources of food and income, women are playing increasingly central roles as household providers. Notably, the activities in which they are engaging (e.g., natural resource collection and sale, harvesting and sale of wild foods, brewing and fishing) are labour-intensive, high-risk and typically generate minimal profit (Fratkin and Smith, 1995; Smith, 1997). This increased responsibility for providing for household needs is in addition to women's continued domestic responsibilities. While other research, including a previous report in this series (Humphrey et al., 2023; Stites and Howe, 2019), explains that some women celebrate a sense of autonomy that comes with this responsibility, female respondents in the present study also highlighted the associated risks, such as increased gender-based violence and exposure to natural hazards. This emphasises the sometimes-paradoxical nature of shifting gender norms in pastoral communities.

Several considerations may determine the longer-term nature of livelihood systems in the area, namely: i) the extent to which diversifications that have occurred in response to recent and protracted shocks represent sustainable versus maladaptive activities; ii) the degree to which these activities fall within or outside a broader agro-pastoral system that already includes a high degree of diversification; and iii) whether new activities provide reliable and sustainable incomes. Maladaptive activities are those which are unsustainable, bring negative environmental impacts or harm the rights of others. In the South Sudan context, this would include over-exploitation of natural resources, joining armed groups and participating in cattle raiding, among others.

Whether communities in flood-affected areas of South Sudan return to livestock production as a primary source of food and income is also a question of people's aspirations.

A question remains around the resumption of livestock-based activities by those affected by the floods and other protracted shocks. Many people lost animals due to the floods, but others were able to move herds to safer locations, as documented in a previous report in this series (Humphrey et al., 2023). Also unknown is the health of surviving livestock. Participants reported a precipitous drop in the contributions of livestock to food and income, but this decline could be due to a number of reasons. Loss of animals (death, sale or theft) is the most obvious but not necessarily the only reason. Income from animal sales may be reduced due to depressed market prices. Animals may still be present but weakened and no longer producing milk; this is common in pastoral areas experiencing drought. In such instances, herders aim to keep animals healthy despite being thin, in the hopes that they will be able to recover once the drought ends (Young et al., 2016). Additionally, a previous report in this series discusses the fact that surviving livestock are being kept at greater distance from the households (particularly in Rot Riak, near oil fields along the Sudanese border) in order to secure safe and adequate pasture (Humphrey et al., 2023). As a result, households may have less access to livestock for food or income generation. As previously noted, rebuilding of herds through reproduction after a shock is a very slow process,⁴ especially for poorer herders with fewer animals (Catley and Aklilu, 2013). Households who have lost (or sold) animals will have to rebuild herds from scratch, whereas those who have maintained 'thin but healthy' livestock or kept their livestock at a greater distance have a step-up in the recovery trajectory (Young et al., 2016).

Finally, whether communities in flood-affected areas of South Sudan return to livestock production as a primary source of food and income is also a question of people's aspirations, particularly given perceptions of increased risks and the adaptations into new sectors, including fishing and urban opportunities. Previous research in this series has explored this theme, highlighting that livelihood aspirations and perceptions of pastoralism vary widely within communities, and even households, often along gendered and generational lines. They also appear closely linked to factors such as risk exposure and proximity to towns and markets (Humphrey et al., 2023). Livelihood aspirations will likely continue to shift in response to risk and opportunity.

4 Reproduction rates depend on several factors including extent of losses, biomass, overall animal health and longer-term conditions. Rebuilding a cattle herd takes at least five years. See Eriksen et al. (2023).

3. CONCLUSION

Pastoral and agro-pastoral systems are inherently resilient and adaptive. This is because they have emerged and evolved in dryland regions characterised by highly variable and uncertain environments. However, the compounded shocks in South Sudan in the past decade have undermined the strength and tested the resilience of these systems in Unity State. The data for this study indicate that, although many households and communities are experiencing severely weakened pastoral systems, the series of shocks has not eradicated them. The future of pastoral livelihood systems in these areas – i.e., whether and when livestock-based production systems will return to being a primary source of food and income for most households in Rubkona County – depends largely on three important questions.

1. Will conditions conducive to pastoralism return?

At the time of writing (October 2023), flooding in Rubkona County has receded, but not yet to levels conducive to widespread livestock keeping. A resurgence of pastoral livelihoods will depend, first and foremost, on a reduction in flood levels to allow access to grazing areas and to transhumant routes. For the pastoral system to be able to rebound fully, however, stakeholders will need to invest in sustained peace and to adopt and promote pro-pastoral policies. Such policies must ensure pastoral mobility and access to resources despite trends of privatisation, commercialisation and population growth.



2. If conditions return to normal, to what extent will people resume pastoral production?

Peoples' future aspirations and current priorities have changed, and these will continue to change in line with the shifting patterns of risk and opportunity in the drylands. Many interviewees expressed concerns over the long-term sustainability of pastoralism. Some – especially young people – have taken up urban livelihoods or are pursuing opportunities outside livestock husbandry. Others who have struggled to make ends meet within the pastoral system expressed a desire to shift to alternate livelihoods. For some, these shifts in activities and new perspectives may be a temporary reaction to shocks, rather than a permanent change.

Others are unlikely to resume the difficult lifestyle of pastoralism, although some respondents did describe an intention to return to livestock keeping as soon as conditions allow. A young man in Bentiu Town, for example, felt that the current shift away from animal production was largely a necessity for survival, and that people's outlook would reverse if and when conditions improved:

'Livestock are no longer important [and this] has had a catastrophic impact on people whose lives depended on [pastoralism] ... Perhaps, young people have now adapted to the shock. Some of them are selling charcoal, food stuffs, construction materials, fish and other things that can sustain their lives and the lives of their families. However, if you ask them whether they would stay in town after the flooding [recedes], most of them would tell you that they would return to their villages to restock their animals and do the farming.'

3. How successful will recovery be, and how long will it take?

Pastoral production was not uniform across households prior to the flood experiences discussed in this report. Similarly, recovery in a post-shock period will vary based on household resources and capabilities. Those households or communities who lost the largest proportions of livestock will have greater difficulties replenishing their herds; and these are often those already in a vulnerable position. Growing inequity of animal ownership coupled with increased privatisation of resources makes it even more difficult for the poor to get a foot back into livestock production or to grow existing herds to sustainable levels. The combined effects of impoverishment, conflict and displacement have undermined customary social safety mechanisms that previously supported the vulnerable, including through loans of animals to help rebuild herds. These factors create an environment in which recovery will likely be uneven and non-linear. Herders with advance access to financial resources and pasture will be in a relatively better position when the flood waters first recede, as they will be able to purchase animals at depressed prices in areas where recovery is lagging. Those without capital will continue to feel pressure to sell at depressed prices.

The success of recovery will depend, in part, on whether the informal systems that allowed for sharing of resources (livestock, milk products, food and cash) rebound and if they are robust enough to make a significant impact. In turn, the role of such systems in recovery depends on the extent of assets within the network: if everyone in the network is at the same level of extreme impoverishment, a system of reciprocal support can do

little more than keep people afloat. If, however, the assets of key individuals and/or the community as a whole are rebounding, then such systems can assist the more vulnerable, smooth consumption and mitigate the effects of ongoing shocks. Sustained recovery will likely require multiple seasons without major climatic or conflict shocks to allow herds to reproduce and for market and transport links to reopen.

SPARC will continue to explore these questions in future publications in this series, where we will also discuss specific opportunities for external assistance to support the recovery and resilience of pastoral livelihood systems. However, a few overarching principles to guide recovery efforts are already clear.

Most urgently, responses should be tailored to address the specific livelihood strategies used by pastoral communities to cope with flooding and other shocks. In some cases, this may require providing communities with alternatives to strategies which appear to be maladaptive or unsustainable, for example by creating pathways for communities to rebuild assets and reconsolidate currently fragmented livelihood portfolios into livestock-keeping activities. This could entail the provision of unrestricted cash transfers along with interventions to facilitate access to veterinary support, feed, water or animal shelter, as examples. Concurrently, aid actors should assist communities to maintain and increase the food- and income-generating potential of sustainable adaptations that have been adopted in response to shocks. For example, in Rubkona County, facilitative, market-based interventions to support fishery value chains and connect local suppliers – particularly of dried fish – to external markets may allow pastoral communities to spread risk and better protect assets in case of future shocks.

It is also critical for aid actors to recognise that perceptions and aspirations with respect to livelihoods change as a function of dynamic risks in the drylands. While it is highly unlikely that flooding will result in a paradigm shift with respect to communities' perceptions of pastoralism, it is equally unlikely that all households will aspire to return to pre-shock levels of livestock dependence when waters recede. An underlying objective of flood recovery interventions should therefore be to enable individuals and households to have access to a broader set of livelihood-related options, and to be able to make and act on informed decisions about livelihood investments on their own terms.

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Finally, to achieve these objectives, it is essential that affected populations stand at the centre in identifying appropriate response priorities.⁵ Participatory approaches to community engagement, which entail informal consultations with men, women and youth in pastoral communities, are critical to ensuring flood recovery interventions match contextualised needs and reflect peoples' livelihood aspirations.⁶

5 The Livestock Emergency Guidelines and Standards (LEGS) Participatory Response Identification Matrix (PRIM) is an especially practical tool to help aid actors 'facilitate discussions with local stakeholders in order to decide which livestock interventions are most appropriate and feasible' in the context of floods and tropical storms (see Prem, 2023).

6 LEGS provides a useful overview of participatory tools which can be used to guide post-flood community consultations (see Omeno, 2021).

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