Food systems resilience dialogue and pathway development

Jonglei State and Greater Pibor Administrative Area - South Sudan

Gerrit-Jan van Uffelen, Pascal Debons, Tony Ngalamu, Arnab Gupta, Julius Kaut, Salah Jubarah, Augustino Atillio, Marc Antioko, Kok Majok

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Abstract
Food systems in Jonglei State and Greater Pibor Administrative Area (GPAA), South Sudan, are in dire crisis because of multiple shocks and stressors, persisting conflict and violence, climate change, and natural resource deterioration. However, building upon South Sudan's national food systems dialogue, ample opportunities exist to build food systems resilience in Jonglei State and GPAA through strengthening the capacity of people to produce and access nutritious and culturally acceptable food over time and space in the face of natural and/or man-made shocks and stressors.

Food systems approaches are increasingly seen as a way forward to develop sustainable food systems in protracted food crisis, as highlighted by the UN Food Systems Summit, the Global Network Against Food Crises, and the Fighting Food Crises along the Nexus Coalition. It is therefore most opportune to act now by investing in an urgently needed transformation towards equitable, inclusive, and sustainable food systems for improved outcomes, in particular food and nutrition security in protracted food crises contexts. For South Sudan this means, in line with the outcomes of its national food systems dialogue, addressing four strategic challenges to transform the country's food systems: 1) strengthening the resilience of food systems in face of current and future shocks and stressors; 2) developing food systems that contribute to social cohesion and peace; 3) ensuring that food systems are based on sustainable use and management of natural resources and produce healthier diets, and; 4) promoting sustainable food supply systems through inclusive value chains and agribusinesses with an eye on youth employment.

Governance of food systems takes place at multiple levels and scales but transformation of local food systems will only succeed if communities, civil society organizations, small producers, farmers, and indigenous groups – with their local knowledge, and lived-in experiences – can shape how food is governed. The Jonglei State and GPAA food systems resilience dialogue & pathway development (FoSReD-PaD) provides a contribution to understand local food system dynamics and to strengthen local governance of food systems for improved food systems resilience and outcomes.

The Jonglei State and GPAA dialogue envisaged a total of four pathways, in line with South Sudan's national food systems transformation pathways, which together form a roadmap to transform its food systems to become more resilient, better serve the needs of all stakeholders (in particular smallholder farmers/agro-pastoralists and herders), and improve food and nutrition outcomes for all.

Keywords: food systems resilience, dialogue, protracted crises, food and nutrition security, South Sudan

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Photo cover: Packaging dried fish near Bor Town for Juba and export to Uganda and the Congo
(Source: 360 Africa Ltd.)

Disclaimer
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Acknowledgements

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We would also like to acknowledge and highlight the important contributions of a wide range of people representing government, UN organisations, I/NGOs, CSOs, youth and women's associations and the farmers' union, the private sector, knowledge institutions, and representatives of the communities of Jonglei State and GPAA. Through participation in the food systems dialogue they co-created a better understanding of the food systems in Jonglei State and GPAA, and developed a vision and pathways to build resilient food systems.

We appreciate the logistical support provided by FAO and partners, that enabled conduct of the dialogue in Jonglei State and GPAA in Bor Town, and the missions led by the University of Juba to conduct local dialogues in Bor-South, Pibor, Akobo and Pochalla Counties.

In particular, we would like to express our gratitude to the Ministry of Agriculture and Food Security for their representation and participation in the dialogue in Bor Town and the local dialogues in the aforementioned counties, the Jonglei State government, and the ministers and/or their staff of the Ministry of Agriculture and Food Security, the Ministry of Information, the Ministry of Co-operatives, the Ministry of Peacebuilding, Ministry of Animal Resources and Fisheries, and the Relief and Rehabilitation Commission (RRC).

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Part A: Introduction and background

In a village near Pochalla (Source: Gerrit-Jan van Uffelen)

1 Introduction to the report

1.1 Background and purpose of the report: the Jonglei State and Greater Pibor Administrative Area FSR Dialogue

This report presents the key findings of the 'Food systems resilience dialogue and pathway development' (FoSReD-PaD) in Jonglei State and Greater Pibor Administrative Area (GPAA) (October-November 2023). The focus has been on four counties (Bor South, Pibor, Pochalla and Akobo); for ease of reference this is referred to as 'Jonglei State and GPAA' in this report.

The Jonglei State and GPAA food systems resilience dialogue was designed to build upon South Sudan's national food systems transformation priorities (flowing out of South Sudan's national dialogue to inform the 2021 UNFSS), and make it relevant to local contexts reflecting Jonglei State and GPAA food systems transformation priorities, by co-creating, with relevant local level food systems actors and stakeholders, local pathways to develop resilient food systems in Jonglei State and GPAA.

In consultation with partners, the objectives of the state-level dialogue were set as follows:
- Develop a shared understanding of local food systems including their resilience in fragile settings.
- Co-create pathways and action plans for sustainable food systems transformation.
- Strengthen food systems governance and collaboration through a multi-stakeholder partnership.

The food systems dialogue was facilitated by the University of Juba with the support of its partner Wageningen University & Research (WUR), under the auspices of the Jonglei State and Greater Pibor Administrative Area Government, the Area Reference Group (ARG) and partners, with support of FAO South Sudan and the Ministry of Agriculture and Food Security. The dialogue was made possible through financial contributions by FNS-REPRO and FAO South Sudan.

In total around 35 participants, representing local government, UN agencies, NGOs, private sector, academia, CBOs, civil society and community representatives, participated in the FoSReD-PaD co-creation process from 26th-29th September 2023 in Bor town. An additional 8 participants from the GPAA participated in a food systems resilience workshop organised at the University of Juba following the dialogues in Bor. For a full list of participants see Appendix 1; for the dialogue schedule, see Appendix 2. It is also important to note that local-level food systems resilience dialogues took place in the counties of Bor-South, Pibor, Pochalla and Akobo, the findings of which have informed this report.

1.2 Building food systems resilience

In a world of growing complexity and uncertainty, the security of food supplies is threatened by many factors. These include multiple processes of global change (e.g. climate change, rapid urbanisation, population ageing), unexpected shocks (e.g. natural disasters, financial and political crises), and unexpected responses of food systems themselves to these processes and events.

Food systems approaches are increasingly seen as a way to improve food systems outcomes and sustainability, in order to deal with competing priorities and address the complex relationships that exist between components of food systems (Tendall, et al., 2015).

Food security remains elusive for many populations worldwide. Greater emphasis on food systems resilience could reduce these vulnerabilities. This requires integrated strategies that together foster food systems resilience, including (a) integrating gender equity and social justice into food security initiatives, (b) increasing the use of ecological processes rather than external inputs for crop production, (c) fostering

local and regionalised food distribution networks and waste reduction, and (d) linking human nutrition and agricultural production policies (Schipanski, et al., 2016). Enhancing social–ecological links and fostering adaptive capacity are essential to cope with short-term volatility and longer-term local-global change pressures.

In this report we understand, for the sake of simplicity, food systems resilience to mean the capacity of food systems to deliver desired outcomes in the face of shocks and stressors (de Steenhuijsen Piters et al., 2021).

1.3 The importance of local governance of food systems

As highlighted by South Sudan's national food systems transformation agenda, there is acknowledgement that it is critical to act now by investing in an urgently needed transformation towards equitable, inclusive, and sustainable food systems for improved outcomes, in particular food and nutrition security.

This transformation will only succeed if communities, civil society organisations, small producers, farmers, and indigenous groups – with their local knowledge, and lived experiences – can shape how food is governed.

While the governance of food systems takes place at multiple levels and scales there are, even in the most fragile contexts, innovative mechanisms and tools that can empower local communities to shape food systems in ways that address hunger, food and nutrition security, and related concerns (Resnick, 2022).

In general there are a number of reasons for the importance and development of local food system governance (Resnick, 2022) that are also relevant for Jonglei State and GPAA:

1. Farming and livestock rearing methods, consumer preferences and natural resource management practices are often grounded in local cultural traditions, historical experiences, and agroecological conditions.
2. As the world urbanises and cities grow, even in protracted food crisis contexts such as South Sudan, they present their own unique food security challenges that may require particular food system goals in the face of national level aspirations.
3. The general trend towards decentralising government functions has given greater authority to local governments over key elements of local food systems.
4. Informal sources of governance, such as traditional authorities, may have greater credibility with local communities; national government may be unable to exert power, authority or legitimacy, particularly in fragile states.
5. A local perspective on food system governance can better reflect food system priorities responding to local needs and preferences.

The dialogue in Bor Town and the field missions to Bor South, Pibor, Pochalla and Akobo explored the potential for developing local food systems governance.

2 South Sudan's food systems transformation at national level

2.1 South Sudan's national food systems dialogue

South Sudan's food systems
South Sudan's food systems are increasingly in crisis after decades of war and conflicts. The causes of food crises are often multifaceted, with several factors reinforcing each other. The most common primary driver is conflict. Despite growing humanitarian assistance and imports, South Sudan's food security and nutrition situation has been steadily deteriorating, particularly in recent years, with a current peak of people suffering from severe food insecurity reaching 60% of the population coupled with alarming levels of both chronic and acute malnutrition in children under five years of age.

Catalysing the sustainable and inclusive transformation of food systems
In preparation for the September 2021 UN Food System Summit, the South Sudan Ministry of Agriculture and Food Security (MAFS), the EU, and FAO jointly worked on the initiative Catalysing The Sustainable and Inclusive Transformation of Food Systems. The initiative also benefited from South Sudan's National Dialogue in preparation for the September 2021 Food System Summit.

Central to the initiative was the assessment of South Sudan's food systems performances, looking at four sustainability goals: 1) food security, nutrition and health, 2) inclusive economic growth, jobs and livelihoods; 3) sustainable natural resource use and the environment; and 4) territorial balance and equity.

2.2 Strategic challenges to South Sudan's food systems transformation

South Sudan's Food Systems Dialogue defined four critical strategic challenges seen as fundamental to transform South Sudan's food systems. For each of these key challenges, the national dialogue proposed key systemic levers as areas of action. The state-level dialogue adopted these levers to ensure alignment and consistency with the national dialogue findings and recommendations.

Building food systems resilience in face of natural and human-made shocks/stressors

South Sudan's national food systems dialogue – key sustainability question 1: How can food systems be more resilient to human-made and natural shocks so that (i) it can ensure food security for all and (ii) communities and the country are less dependent on humanitarian assistance?

First transformative lever: improve governance and institutional strengthening to enable a multisector approach to food system development.

Second transformative lever: enhance communities' food production resilience through technical and institutional innovations.

Third transformative lever: facilitate the transportation of food products from areas with excess supply to high-demand areas, in particular the growing urban centres.

Developing food systems for peace

South Sudan's national food systems dialogue - key sustainability question 2: Which type of development of food systems could best contribute to peace consolidation, stability and territorial balance?

First transformative lever: enhance governance on food system-related features that could mitigate the impact of conflict and contribute to resolving some of the underlying causes of conflict.

Second transformative lever: re-balance territorial development and strengthen conflict-resolving processes by developing community-based peace-building mechanisms; these should allow evidence-based dialogue and peacebuilding and negotiated community development programming for peaceful coexistence among communities through equitable access to natural resources.

Third transformative lever: build capacity for enhanced land tenure security.

Fourth transformative lever: protect and invest in human capital, particularly women and youth, and social cohesion through community-driven development (CDD) interventions.

Developing food systems for sustainable use and management of natural resources, and healthier diets

South Sudan's national food systems dialogue – key sustainability question 3: How can these rich natural resources be seized to produce a large spectrum of food for a healthier diet without hampering these resources and in an equitable manner between actors in food systems?

First transformative lever: strengthen farmers' organisations (FOs) and cooperatives.

Second transformative lever: support responsible public and private investment that is respectful of the environment and enhance governance and equity in accessing productive natural resources.

Third transformative lever: enhance awareness and knowledge related to nutrition and healthy diets.

Fourth transformative lever: enhance the nutrition of infants and children.

Fifth transformative lever: develop animal value chains.

Developing food systems for agri-business and value chain development

South Sudan's national food systems dialogue – key sustainability question 4: How can the development of agri-business contribute to youth and women employment, economic stabilisation, diversification, and equitable wealth?

First transformative lever: enhance access to financial resources for small to medium businesses, to enable them to flourish.

Second transformative lever: promote business development, to enable small-scale producers and food system entrepreneurs to cater for emerging markets in urban areas.

2.3 Critical conditions to transform South Sudan's food systems

South Sudan's food systems are in deep crisis, vulnerable to multiple shocks (conflicts, climate, natural disasters), and inefficient in productivity and competitiveness. At present they cannot fulfil their roles in terms of food security, poverty reduction, equity, job creation and peace consolidation.

Nevertheless, there are multiple opportunities to transform the food systems; the country has a young population in a vast territory and is endowed with a wide range of natural resources.

In order to tackle the manifold challenges and grasp the existing opportunities, the following elements are seen as critical to the country's food systems transformation, and also for Jonglei State and Greater Pibor Administrative Area:

- Peace consolidation and nation-building should take precedence and contribute to the process of building credible, functioning and accountable government structures.
- Policy reforms, innovations and responsible investments that can break the negative feedback loops (between a weak enabling environment, lack of incentives and finance for investment, and low agricultural and food production) that all keep the agri-food systems locked into underperformance.
- Strengthening of the productivity and incomes of smallholder farmers, targeting the rural areas where the vast majority of them live and the agricultural sector on which their livelihoods depend.
- Ensuring that humanitarian assistance, development processes and peacebuilding are working in synergy to address short- and long-term needs and to reduce risk and vulnerability.
- Food security and other sectoral response policies for urban poor populations should continue to attract the attention of humanitarian and development actors in the short run to create safety nets for the most vulnerable people and provide direct access to food.
- Government commitment and leadership to enhance governance and coordinate policies of the international community, to ensure synergies between all interventions across the food system spectrum.

3 Jonglei State/Greater Pibor Administrative Area food systems resilience dialogue

3.1 Food systems resilience dialogues and pathway development

The Jonglei State/Greater Pibor Administrative Area (GPAA) Reference Group and FAO South Sudan (under its food systems programme), in consultation with and the support of the Ministry of Agriculture and Food Security, invited the University of Juba, with the support of Wageningen University & Research, to design and facilitate the Jonglei State and GPAA food systems resilience dialogues and pathway development (FoSReD-PaD).

The process involved the State Government, the Area Reference Group, UN agencies, NGOs, the private sector, and representatives of communities in Jonglei State and GPAA. Dialogue participants co-created an understanding of the local food system and its sub/systems, based on which they co-developed activities and pathways to achieve this vision.

The pathways are grounded in, and contribute to:
- The key priority dimensions for building food systems resilience, as identified by South Sudan's national food systems dialogues (2021).
- South Sudan's Comprehensive Agricultural Master Plan - CAMP[1].

Together the four different pathways comprise a road map for the transformation of food systems in Jonglei State and GPAA to become more resilient and better serve the needs of smallholder farmers/agro-pastoralists and herders.

3.2 General principles of the pathways

The most important general principles of the pathways include:
- Build food systems resilience, in particular through strengthening localisation and humanitarian-development-peace nexus programming.
- Encourage and facilitate community-driven initiatives to ensure that interventions are responsive to community needs and priorities and are accountable to communities.
- Promote the agency of smallholder farmers and livestock keepers, both in value chain development and in building upon their entrepreneurship around existing and new food commodities to improve the food system outcomes.
- Ensure that building food systems resilience is inclusive and that all, in particular women and youth, can participate in and benefit equitably from food systems resilience.
- See the role of youth as an opportunity in food systems transformation, for example through the adoption of innovative activities/ideas/approaches.
- Ensure constructive engagement of local experts and expertise, thereby strengthening national as well as state-level knowledge/training/research infrastructure.

[1] https://openknowledge.worldbank.org/bitstream/handle/10986/37951/cc1048en.pdf?sequence=1

It is also strongly recommended that each of the pathways should:

- Include learning, capacity-building efforts, and the generation of evidence of impact, including the documentation of good practice, principled approaches and policy recommendations.
- Facilitate joined learning, peer reviews, and exchange visits, to share knowledge, experience and ideas.
- Develop evidence-based intervention models and principled approaches, on the basis of which advocacy is to be promoted for finance options/practice by government and donors.
- Improve data literacy, including data analytics and foresight, to inform state- and local-level decision-making and programming.

4 Food system resilience: framework and concepts

4.1 Food system framework

Our approach is grounded in the food system framework developed by Berkum and al. 2018. We also used other action-oriented food system resilience assessment methodologies based on good practices, such as the toolbox for food system analysis developed jointly by KIT-Royal Tropical Institute, the Netherlands Food Partnership (NFP) and Wageningen University and Research (WUR)[2].

The benefit of applying a system lens is that it broadens perspectives when seeking solutions for the root causes of problems such as poverty, malnutrition, and climate change; or, in our case, sustainable solutions for a sufficient supply of healthy food in protracted food crisis contexts.

The food systems approach offers a number of benefits:
- It provides a checklist of topics and issues that should at the very least be addressed when it comes to improving food and nutrition security (in relation to other policy objectives).
- It maps the impact of environmental and climate changes on food security by pointing to the various vulnerabilities of a food system, and in doing so identifies possibilities for strengthening the system's resilience.
- It helps to pinpoint the most limiting factors for achieving food security, and hence identify effective interventions aimed at improvement.

In essence, a food system analysis considers the relationships between the different parts of a food system, looking at its main elements, in particular:
- Food system activities – this includes the food supply system (agricultural production, food storage, transport and trade, food processing and transformation, food retail and provisioning, and food consumption); the enabling environment; the food environment; business services; and consumer characteristics.
- Drivers impacting food system activities such as socio-economic and environmental drivers.
- Food system outcomes - this includes food security (availability, access, and utilisation), socio-economic outcomes, and environmental/climate outcomes.

[2] Posthumus, H., Bosselaar, J., Brouwer, H., de Steenhuijsen Piters, C. B., Bodnár, F., Newton, J., Dhamankar, M., Dengerink, J., van Vugt, S., Visser, D., & de Roo, N. (2021). The food systems decision-support toolbox: a toolbox for food system analysis. Wageningen Centre for Development Innovation. https://doi.org/10.18174/541410

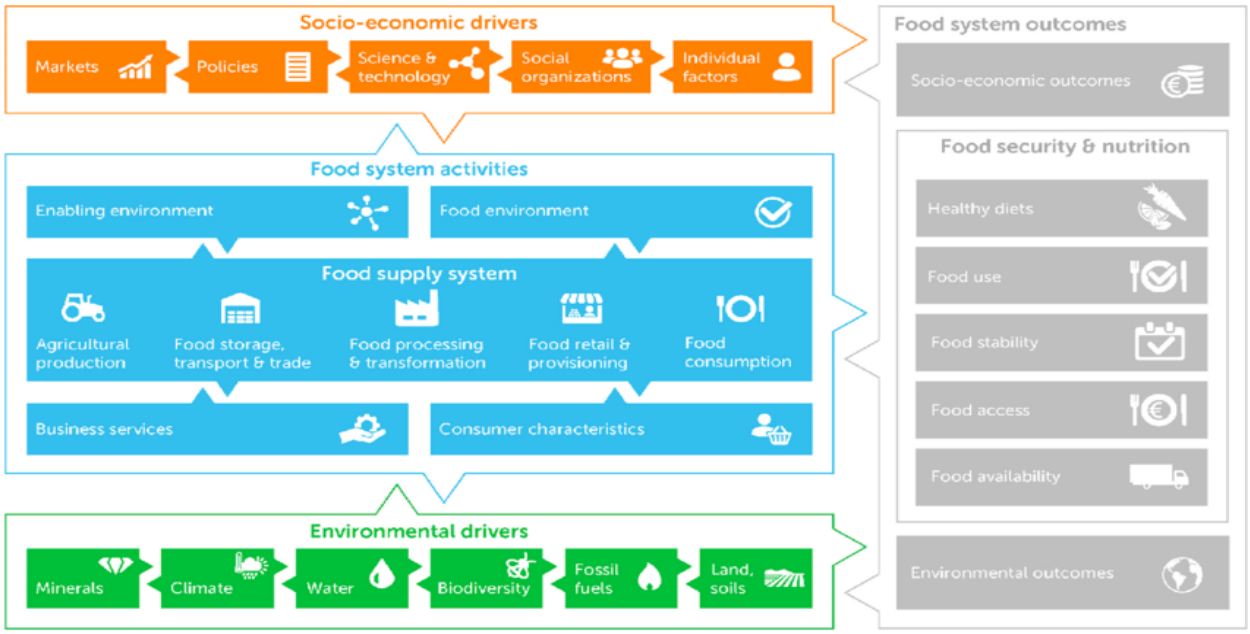


Figure 1 *The van Berkum food system framework (van Berkum et al., 2018).*

Feedback loops are a distinguishing factor in systems thinking. They occur between parts of the food system activities, the drivers and the outcomes. For example, socio-economic and environmental outcomes of the food system will become drivers of the food system activities and initiate new dynamics which will lead to new outcomes over time.

4.2 Resilience framework

Because of the intensity and frequency of shock and stressors affecting Jonglei State and GPAA, it is essential to apply a resilience lens to our analysis of food systems. In protracted food crises (typically characterised by fragile and conflict-affected situations) this approach explores how natural and human-made hazards impact food systems and their outcomes (such as food security, employment, and their impact on social relations and the environment). In doing so one can gain a better understanding of the resilience of food systems in such environments. Concretely, the specific risk landscape of Jonglei State and GPAA can be applied to each activity and driver of the food systems to establish specific vulnerabilities and coping capacities. In turn, the food system activities and drivers are also assessed in terms of their dynamic contribution to the risk landscape.

When applying a resilience lens to a food system, we use **four basic resilience questions** to guide and frame our analysis:

- **Resilience of what?** The food system in its protracted crisis context.
- **Resilience to what?** The typical shocks and stressors that make up the risk landscape of the food system.
- **Resilience through what?** Strengthening local capacities and addressing vulnerabilities to better anticipate, absorb, adapt and transform in face of shocks and stressors.
- **Resilience for what?** Improved food system performance and outcomes, including improved FNS, socio-economic and environmental outcomes.

See below for an illustration.

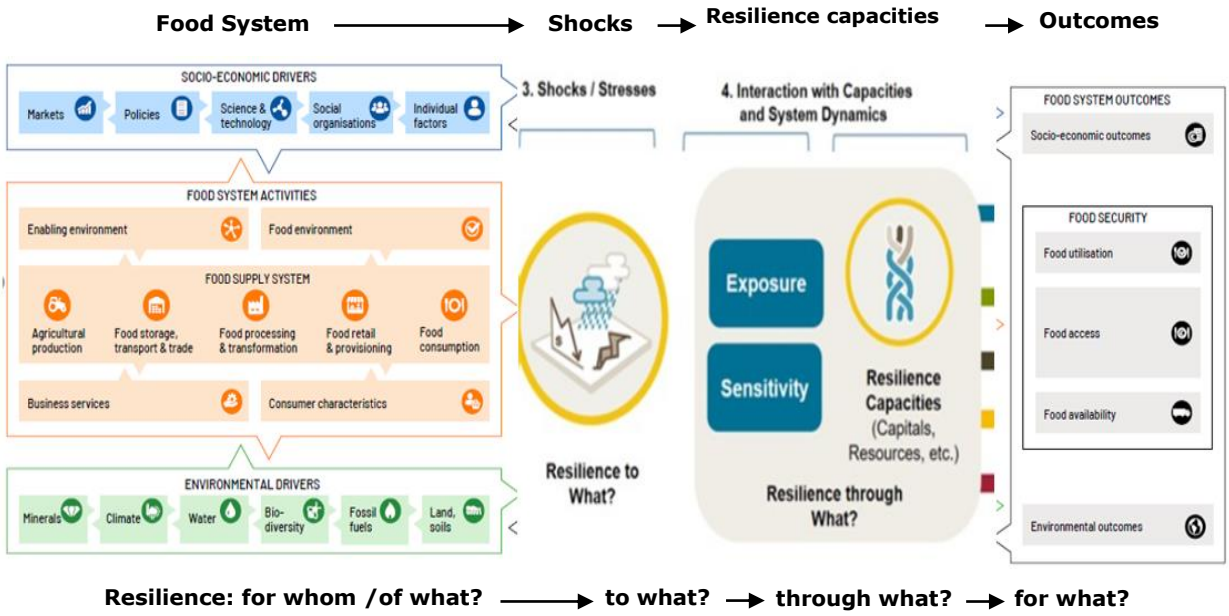


Figure 2 *The food systems resilience framework. Adapted from van Berkum et al., 2018.*

4.3 Dialogue and pathway definition: methodology and steps

To set our analysis on a strong track we were inspired by the Rome Based Agencies' conceptual framework for strengthening resilience for food security and nutrition in protracted crisis contexts. This conceptual framework of resilience is guided by six principles (FAO, IFAD, and WFP, 2015). While keeping in mind the different principles in our analysis, for Jonglei State and GPAA we considered the following elements:

Principle 1. Local ownership and leadership
'People, communities and governments must lead resilience building for improved FNS'. In the case of Jonglei State and Greater Pibor Administrative Area (GPAA), this means that all efforts must not only be participatory and inclusive but be led by local actors as much as feasible. In our case, actors organised around the Area Reference Group (ARG), supported by academics from Juba University spearheaded a process that brought together representatives of the local government, UN agencies and NGOS, the private sector, and civil society.

Principle 2. Multi-stakeholder approach and sustainable transformation
'Assisting vulnerable people to build their resilience is beyond the capacity of any single institution.' In the case of Jonglei State and GPAA, this means that a variety of actors need to be involved to work effectively, including local organisations, communities, and governments (also see above). As mentioned, resilience building requires the breaking down of sectoral barriers and silos. The food systems resilience assessment is a step on that journey and will clarify a joint understanding, vision and priorities for food system transformation. The joint pathways and action plan will serve as a guiding document to steer and improve current interventions but also as a basis to raise further awareness and develop funding strategies and investment options for improving food system performances including contributions to social cohesion and peace. The group of diverse stakeholders, mobilised during the assessment phase, will remain engaged to continue learning and act together.

Principle 3. The triple nexus: combining humanitarian relief, development and peace building
'Planning frameworks should combine immediate relief requirement with long-term development objectives.' Given South Sudan's risk landscape and the one of Jonglei State and GPAA in particular, to pay particular

attention to conflict and peace building in our understanding of food systems resilience is crucial. We need to explore how food systems respond to shocks and stressors through their absorptive, adaptive and transformative capacities, and at the same time explore how current food systems contribute to the risk landscape. Another element is the humanitarian-development linkage and how humanitarian investment (notably through safety nets, asset creation and school feeding) can catalyse sustainable food system transformations.

Principle 4. Focus on the most vulnerable people
'Ensuring protection of the most vulnerable people is crucial for sustaining development efforts.' This is an important aspect of our work. In doing this it is equally important to consider those that have potential to drive local development (and in doing so aim to protect the most vulnerable) and to improve on local capacities to protect the most vulnerable. For example, in value chain development, it makes sense to work with those that can make value chains successful while at the same time consider how income or other gains will benefit the most vulnerable.

Principle 5. Mainstreaming risk-sensitive approaches
'Effective risk management requires an explicit focus on the decision making of national governments, as well as enhanced monitoring and analysis.' Effective risk management is equally important at lower echelons of government, in our case in particular at both state and county level.

Principle 6. Aiming for sustained impact
'Interventions must be evidence-based and focused on results.' Building food systems resilience requires evidence-based adaptive programming as local contexts are often dynamic and volatile and can include potentially violent conflict. Programming for impact is crucial; taking a food systems perspective requires improved outcomes, particularly in terms of food and nutrition security (seeing the current figures which are highly alarming).

4.4 Limitations

The information presented in this report is mainly based on views expressed by a group of food system stakeholders during the five-day dialogue in Bor Town, validated and complemented by insights gained as part of local dialogues facilitated by the University of Juba in Bor-South County, Pibor County, Pochalla County and Akobo County (the team spending at least five working days in each of these localities). Although this report refers to the dialogue as the 'Jonglei State and GPAA food systems resilience dialogue', it must be realised that the information base and therefore focus of this report is on the four aforementioned counties.

The limits of such a participatory process are several, the most important of which are:

a. Our primary source of information was expert perspectives and knowledge, which are, even when well informed, a partial representation of the reality. Stakeholders act based on the information available to them and understood by them. To use this as a starting point for our dialogue and pathways definition was to ensure that participants were brought along in this process of knowledge co-creation. In some cases, the quantitative data available and the experts' perspectives did not align. These discrepancies are in themselves interesting and we have tried to reflect on them.
b. Food systems are complex, and the list of actors involved in its various components numerous. We tried to involve as representative a group as possible, from all roles in the food systems, from various locations (but in particular the Counties of Bor South, GPAA, Pochalla and Akobo), from different interest groups, but we are aware that some voices were little or less represented. Representatives from government, civil society (the UN, NGOs, youth and women's associations) and academia were present in number. But representatives from traders, financial institutions and armed groups proved more difficult to engage in the time that we had. More work with those actors is needed.
c. Opting for a dialogue format to our information-gathering is to run the risk of giving more voice to public speakers and group leaders than to people less used to this sort of engagement. We observed that young NGO workers tended to take the lead in group work as they were more familiar with the concepts, tools and exercises proposed. To try to minimise this bias and maximise the possibility for a diversity of point to view to emerged, we kept groups small and had several groups working on the same topic in parallel.

Part B: Jonglei State and Greater Pibor Administrative Area food systems description

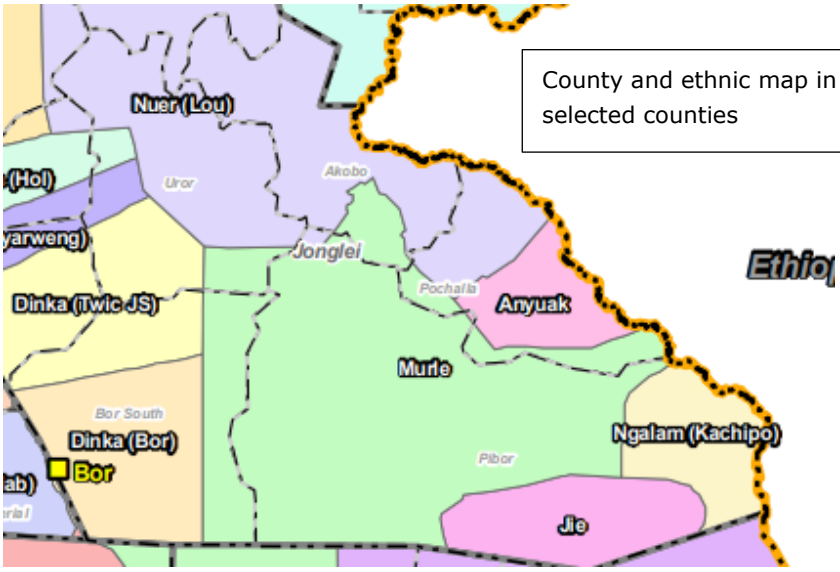
Aerial view from Akobo Town and surroundings (Source: 360 Africa Ltd.)

5 Objectives and process of the dialogue

The objectives of this food system dialogue and pathway definition were to 1) take stock of current knowledge about food system resilience at sub-national level (state and county levels), 2) stimulate a dialogue between a group of key food system stakeholders, 3) explore the potential for each of South Sudan's national food system transformation priorities to be made actionable at local level.

To achieve these objectives the Universities of Wageningen and Juba started by consolidating the current knowledge on Jonglei State and Greater Pibor Administrative Area (GPAA) food system though a literature review. This review was guided by the selected food system resilience framework and aggregated disparate information from various sources.

Given the complexity of Jonglei State and GPAA, and the breadth of information involved to describe food systems, Wageningen and Juba Universities decided to focus the dialogue process on four distinct counties: Bor South, Pibor, Pochalla and Akobo.



County and ethnic map in selected counties

The agro-ecological and livelihood diversity, the ethnic composition, and the long history of conflict, together with the already ambitious task to reflect on the multiple elements of the food system, led us to balance the depth and breadth of our endeavour. Limiting our geographical focus allowed more in-depth understanding of food system dynamics. These four counties were purposely selected because of their proximity and shared borders, their different livelihood zones and food production focus (farmer, livestock, fisher…), their different ethnic composition (Dinka in Bor South, Murle in Pibor, Anyuak in Pochalla, Nuer in Akobo), and an history of violent conflicts.

In April and May 2023, county-level consultations were organized to gather more granular information. Much knowledge at these county and boma levels is not documented or readily available. These opportunities were also used to build relations between key stakeholders and explore momentum for a state-level dialogue. These exploratory consultations were organized through focus group discussions with county government representatives, NGO experts and community representatives.

In September a four-day dialogue was organized in Bor Town and Juba on the topic of food system resilience. The invitation was cast broadly, including stakeholders involved in food production, transformation, trade, consumption from various groups such as academia, government, civil society and NGOs. Despite the intention, some key limitations appeared in the attendance:

- Despite strong female involvement during the county level conversation, no women were included in the state-level dialogue in Bor South.
- Due to current tensions, only stakeholders from Bor South, Pochalla and Akobo were able to meet in Bor town. Stakeholders from Pibor didn't feel confident about travelling to Bor town because of the recent conflict dynamic between communities, and preferred to meet our team in Juba.
- Private sector actors were not represented due to the limited organization of this sector at local level.

These exclusions highlight the difficulty of the road ahead when it comes to participation and inclusion in the food system transformation process in Jonglei State and GPAA.

6 Food system and sub-food systems description

In our consultation, we collected experts' perception on a few key elements of the food system. It is a daunting task in a few days to cover the breadth and complexity of the elements at play in a food system and its resilience to shocks. Some elements are well described in reports and surveillance mechanisms, such as livelihood and production systems, market and road network, food consumption, livestock movements, shocks and stressors, conflict dynamics, food and nutrition security outcomes. Our aim was to stimulate a reflection by linking those various elements into a systemic or dynamic narrative by focusing on:

- Reviewing the local differences in food production and consumption.
- Understanding perceived strength and weakness of each county.
- Describing main in- and out-flows of food in each county. This crucial question helps to understand the boundaries of and interconnection between the sub-food systems.
- Understanding the local shock and stressor history.
- Understanding what makes a community more vulnerable or resilient.
- Identifying the potential for trade and food exchange between counties.

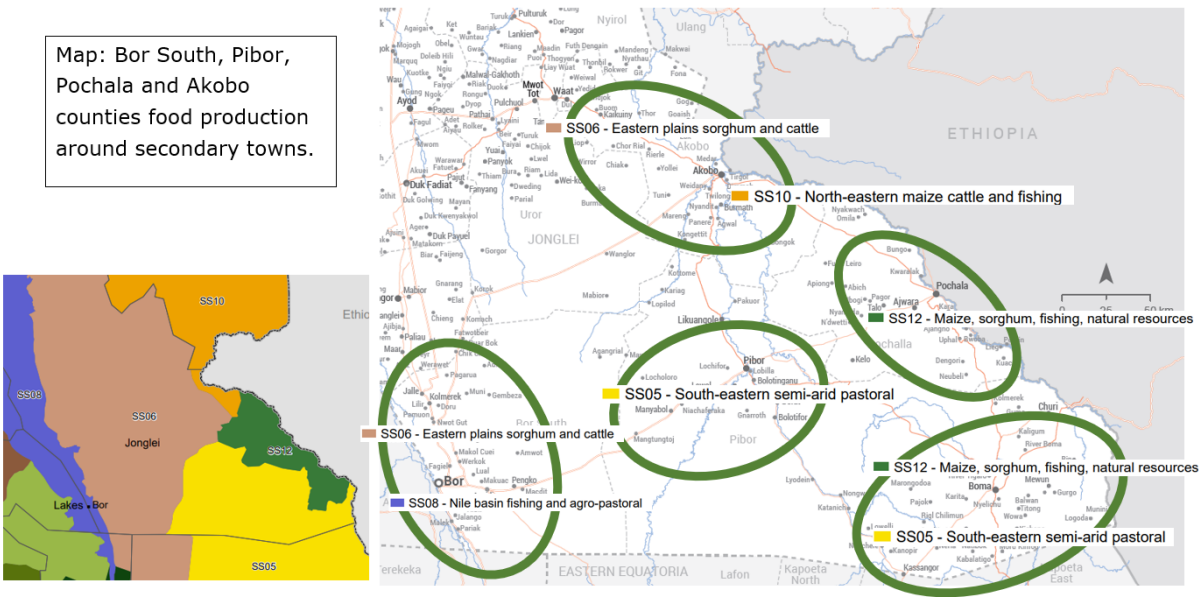
6.1 Food production zones

The first element to consider when describing the local food system is the different production systems that exist. As a base, we considered the local livelihood zone descriptions[3]. Five distinct livelihood zones are represented in our counties of interest.

- SS05: South-eastern semi-arid pastoral
- SS06: Eastern plains sorghum and cattle
- SS08: Nile basin fishing and agro-pastoral
- SS10: North-eastern maize cattle and fishing
- SS12: Maize, sorghum, fishing, natural resources

A second crucial element to consider in our case is human geography. South Sudan has one of the lowest density of population in the world with between 13 and 18 people per square kilometres. In our counties of interest, we see a few secondary towns that are providing services to neighbouring rural communities.

Map: Bor South, Pibor, Pochala and Akobo counties food production around secondary towns.



[3] FEWSNET 2018 "South Sudan Livelihood Zone Map | FEWS NET"

These hubs are separated by large area of forest, pastures or swamps with limited settlement and very low human density. When we translate those elements in a food system perspectives, we see five distinct food production hubs with very distinct food production capacities that are poorly integrated due to long distances and poor road infrastructure.

We can distinguish in summary:

- Bor town: along the Nile river and eastern plains, relying on fish, sorghum and cattle.
- Pibor: situated in the semi-arid pastoral area of the Lotilla plains.
- Boma: at the southeast corner of Pibor county, it is at the crossroads between the pastoral plains and the farming areas of the highlands of the Boma plateau.
- Pochalla: an agricultural production zone benefiting from two harvest seasons, with a blend of cereal, maize and sorghum, with fish and other natural resources.
- Akobo: the Eastern part, bordering Ethiopia, focuses on maize production benefiting from a few major rivers (Akobo and Pibor rivers); the Western part is favourable to sorghum production and cattle raising.

For more detailed descriptions of food production and consumption that were collected during the dialogue, refer to Annex 1.

6.2 Perceived strength/weaknesses of each county

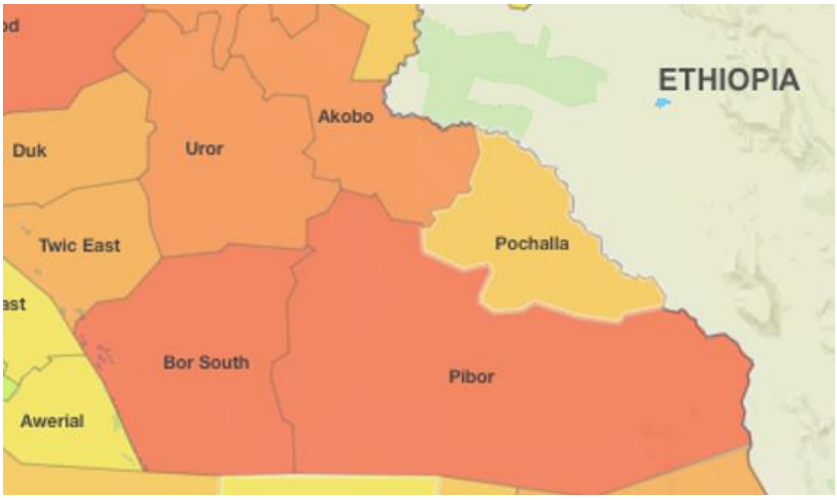
As we have seen, our four counties of interest have very different production systems. The dialogue's participants were tasked to identify the strength and weakness of each county. Our interest was to identify potential comparative advantages, added values or contributions of the different parts of the state in a common food system, and also to discuss the main roadblocks toward food system improvement.

Strengths	Weaknesses
Common strengths: - Vast fertile land for crop production - Abundance of fishes - Abundance of wild animals and foods **Specific strengths:** - Pochalla: recognized as having skilled farmers benefiting from two-season agriculture with reliable rainfall and a strong seed system - Akobo: potential for gum Arabic and honey, river connection to Malakal (when security allows) - Pibor: high availability of livestock, young population available to work, strong seed system in Boma - Bor: Nile river for fishing and transport, connected to Juba through tarmacked road, high trading links established with certain communities	**Common weaknesses:** - Poor security (intercommunity violence, revenge killing, child abduction) - Extreme weather conditions (flooding and lack of rain). Less acute in Pochalla - Livestock diseases and pests and lack of veterinary services - Mindset of population: humanitarian dependency and non-entrepreneurial behaviours - Poor road and communication infrastructures **Specific weaknesses:** - Marginalization in the governance of Pochalla in GPAA and Akobo in Jonglei State - No livestock-keeping in Pochalla, to avoid being targeted by raids - Lack of access to markets and agricultural input in Pochalla - Lack of agricultural knowledge in Pibor (excluding Boma) - In Bor, outmigration of people, resulting in reduced labour availability

6.3 Food flows and food system boundaries

The next element in our food system description was to understand the circulation of food in and out of our four counties of interest. This is an important element to be able to understand the levels of integration between the food-producing areas and the different food markets. Understanding potential unconnected sub-food systems help us to tailor food system improvement strategies. Any changes or interventions in one part of the food system will have different repercussions on its connected elements, but obviously very limited repercussions on disconnected sub-systems.

All four counties are currently considered cereal-deficit production areas[4]. Pochalla has the smallest in deficit (-5000 to -10000 metric tonnes), followed by Akobo; there are large deficits in Bor South and Pibor (-15000 to -20000 metric tonnes). To compensate this deficit, it is expected that a major flow of food will be entering the counties, but that the origins and roads used for transport will differ.



Bor South is mainly supplied through the tarmac road from Juba, with maize flour, beans, cooking oil, vegetables (tomatoes, onions, Irish potatoes, watermelon, ginger…), milk, sugar, soft drinks…

Pibor town, given the current tension between Murle and Dinka, is unable to use the direct road to Bor Town and is using the long and difficult south road through Eastern Equatoria and Juba. Sorghum, maize, wheat flour, cooking oil, biscuits, groundnuts and beans are the main commodities brought through that road.

Pochalla, due to poor road infrastructure, is not well connected with the rest of the State and is dependent for food imports from Gambella in Ethiopia. The flows of food are limited to small quantities as communities in Pochalla have a very low purchasing power, due to the unfavourable currency exchange rate between SSD and ETB and road infrastructures that are cut seasonally. Nevertheless, Pochalla is supplied with maize, rice, sugar, wheat flour, lentils, cooking oil, and snacks from Ethiopia.

As with Pochalla, Akobo East is supplied from Gambella in Ethiopia with similar limitations. Alternatively, Akobo East can be supplied by river from Malakal in Upper Nile, but because of intermittent insecurity this trade route is rarely open. Akobo West is supplied from Lankien market in Nyriol county (Jonglei State).

Given the limited agricultural production in the four considered counties, there is little surplus production to be marketed outside and most produced food is consumed or traded locally. The only notable exception is the large-scale fish production and transformation (smoked or salted) along the Nile that is centralized in Bor town and transferred to Juba and onward to Uganda and Congo.

To a lesser extent, we can identify the following food trades originating in the four counties:
- From Pibor: livestock movement through Eastern Equatoria and with sale in Juba.
- From Akobo: livestock trade to Ethiopia, Malakal and Bor South.
- From Akobo: dried fish trade to Ethiopia and connecting with the Bor town value chain.
- From Bor South: high-risk but high-return (up to 500% margin on bulls) livestock transfer from Uror county through Bor South toward Juba. This trade is done off the main roads and through high banditry areas by young men.

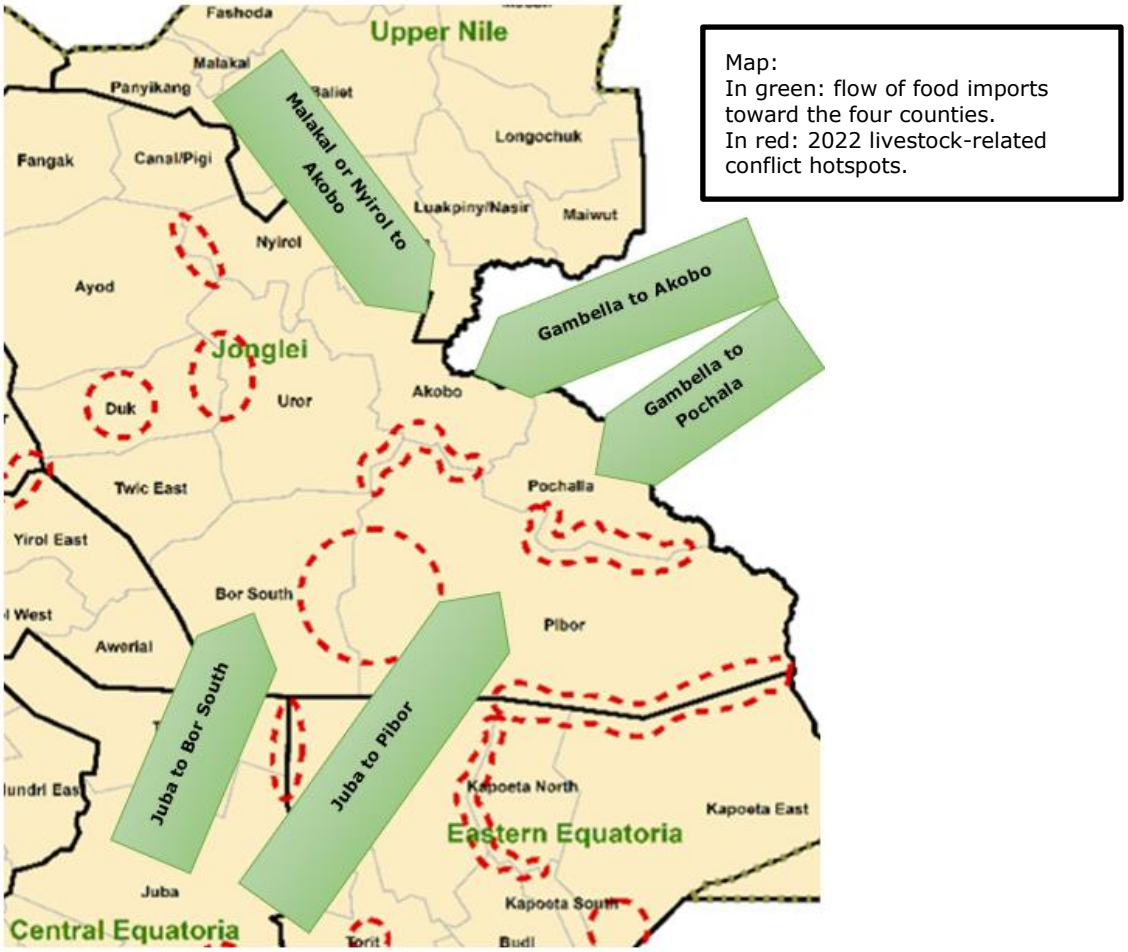
For more detailed descriptions of the counties' food exports, imports, cattle movements and consumption that were collected during the dialogue, see Annex 2.

[4] CLiMIS, 2022.

In summary, we can observe several patterns in the local food system, such as 1) limited food exports from these counties, apart from the fish value chain centred around Bor town; 2) counties are marginally or not at all connected through food trade to each other; 3) each county is dependent on food imports (from Juba, Malakal or Gambella in Ethiopia) through different directions and routes; 4) the boundaries of the food sub-systems are defined by inter-community conflict[5] and road infrastructures.

In that sense, in term of trade links and food dependency, the boundaries of the sub-food systems that we can draw in Southern Jonglei State and GPAA are:

- Bor South linked to Juba, with some limited commodities (mainly groundnut) supplied from Terekeka/Central Equatoria and Awerial/Lakes.
- Pibor linked to Juba through Lafon/Eastern Equatoria.
- Pochalla linked to Gambella/Ethiopia.
- Akobo linked to Gambella/Ethiopia and to a lesser extend to Lankien/Nyirol and Malakal/Upper Nile.



The multiple sub-systems in our four counties of interest are oriented toward the exterior but not interconnected. These interconnections and food supply flows are important to understand as interventions aimed at improving county level food system will be impacted by events and dynamics in different reference markets, Juba, Gambella or Malakal/Nyiriol. For example, raising production at county level will come into competition with goods imported from those distant areas. In that sense, price and food availability in Gambella/Ethiopia and border closure will have a direct impact on the incentives or disincentives for farmers to produce more food in Pochalla and Akobo, but will have little impact in Pibor and Bor South.

[5] Map from FAO, Livestock Bulletin, 2022.

6.4 Shocks timeline and impacts

We have seen the importance of conflict on local food system dynamics. Beyond conflicts, we considered the wider array of natural and human-made disasters that have the potential to affect food systems and need to be factored in when supporting their resilience. We discussed the shock, vulnerability and capacity timeline with the stakeholders of the dialogue. Full detail for a 10 years' timeline, 2013 to 2022, for each county is available in Annex 3. A very dense cycle of conflict and floods emerges.

Number of years by type of shock by county:

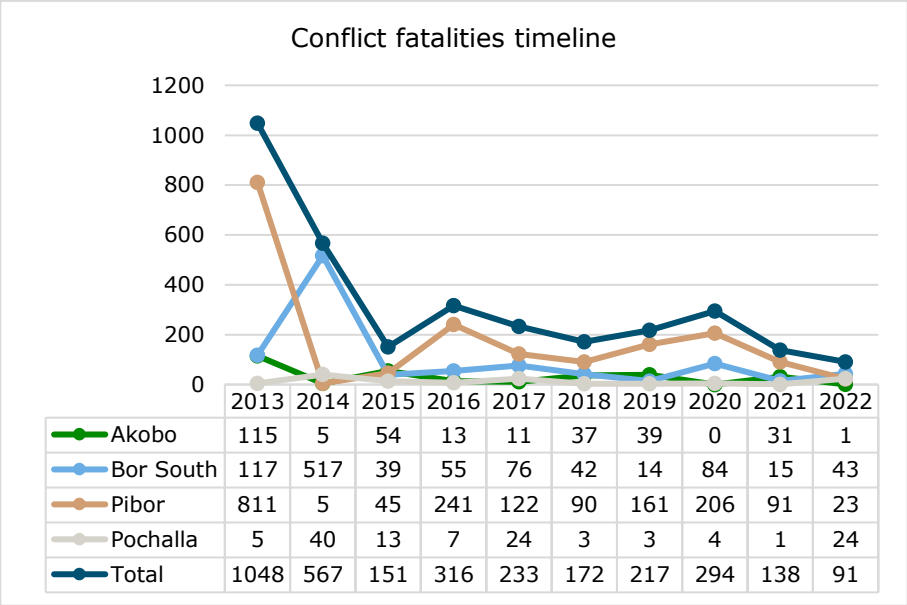
Type of shock	Bor South	Pibor	Pochalla	Akobo	Share of years with the specific situation
Conflict	8 Fatalities[6]: 1002	8 Fatalities: 1795	6 Fatalities: 124	6 Fatalities: 306	63%
Flood	3	3	3	3	27%
Years with no major shocks	0	0	2	2	10%

Locally the term 'conflict' encompasses several main dynamics:

- The political conflict or civil war between 2013 to 2016, with widely different events and dynamics between counties: Akobo was under SPLO-IO control; there was inter-communal fighting in Pochalla; Yao-Yao rebellion, and conflict with Nuer and Dinka, in Pibor; Bor town was sacked and there was heavy Dinka-Nuer fighting in Bor South.
- Land grab: the gradual integration of land by a community, to the detriment of another one, along ethnic lines. One example is the Lou Nuer taking over Anuak land in Akobo/Pochala and renaming land to officialize the claim. In general, the ownership and use of large borderlands between ethnic groups is evolving depending on the relative strength of the parties involved.
- Cattle raiding and child abduction: this type of conflict is present between each county ethnic groups. As a consequence, Anuak in Pochalla have mainly given up cattle raising to reduce this risk.
- Revenge killing: created by layers upon layers of conflicts and unresolved grievances.

Overall these dynamics often coexist and have an intricate and long history. In terms of intensity of the conflict, if we consider the number of fatalities as a proxy indicator, we see that Bor South and Pibor are the counties where conflict has been the most intense. Since the resolution of the 2013 to 2016 civil war, that saw fatalities at a large scale, inter- community conflicts have been claiming about 200 lives every year in the four counties. This trend seems to be receding in 2021 and 2022, but according to stakeholders this is a consequence of the massive floods that have isolated communities and generated a pause in conflict dynamics.

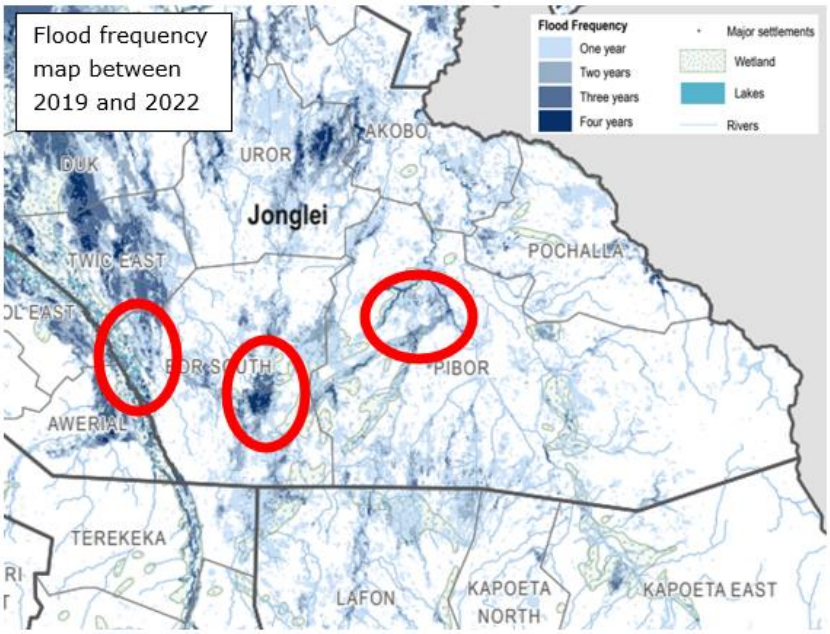
[6] Fatality estimates come from ACLED



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Akobo	115	5	54	13	11	37	39	0	31	1
Bor South	117	517	39	55	76	42	14	84	15	43
Pibor	811	5	45	241	122	90	161	206	91	23
Pochalla	5	40	13	7	24	3	3	4	1	24
Total	1048	567	151	316	233	172	217	294	138	91

Conflicts result primarily in the loss of assets and the limitation of land cultivation, but insecurity also limit behaviours that are judged risky, such as crop maintenance or trade. The limited amount of crop maintenance in isolated farms leads to high level of pests and diseases and even without active conflict farm yields can be severely reduced. Traditionally, when crop harvests are limited, communities rely on wild food and hunting, but insecurity can limit their ability to access those resources.

Flooding is the second shock that frequently disrupt food systems in our four counties of interest. All stakeholders mention four years with widespread flooding during the 2019 to 2022 period[7]. Flooding affects most regularly the three major low lying areas that are either bordering the Nile river in Bor South, the large flood plains between Bor South and Pibor, or the riverine area of the Lotilla plains in Pibor.



From the various accounts, years with extended flooding usually trigger a reprieve in conflict dynamics as communities are cut off for long months and need a season to re-establish part of their livelihoods.

[7] https://reliefweb.int/map/south-sudan/south-sudan-flood-frequency-2019-2022-28-october-2022

Communities can be stranded for long months on limited areas of higher ground or around secondary towns and are totally cut off from the road networks. Some are only accessible and supplied by air.

Both recurring flood and conflict events tend to trigger a population relocation toward the urban centres that can offer better security and have been developing outside the main flood zones. In that sense, we observe a trend toward concentration of population around a few secondary towns, leaving the bulk of the land under limited human use.

6.5 Communities with resilient or less-resilient food systems

The dialogue's participants were asked to describe a community with a resilient or a less-resilient food system in their county and to identify characteristics that explain those differences. The findings are illustrated below:

Less-resilient community, such as in:	**Resilient community, such as in:**
Pochalla - the south of the county, including the town Akobo – Anuak communities Pibor - Lottila Plain community around Pibor town Bor South - Jalle payam (in the north of the county, within the Nile flood zone)	Pochalla North Akobo – Lou Nuer communities Pibor - Ngalam community and Boma plateau Bor South: Kolnyang payam (in south of county along the Nile, but not in the flood zone)
Shared characteristics: - The area is affected by flooding and poor dykes (mainly Pibor and Bor South) - High insecurity for communities living in small villages in zones between conflicting ethnic groups - Lack of livelihood diversification: o Crop farmers – crops are fixed and seed security is fragile during shocks (Anuak in Akobo) o Depend on traditional cattle rearing (Pibor-Lottila)	**Shared characteristics:** - Higher grounds: protection from floods - Less insecurity: closer to the main road, or far from a border with competing ethnic groups, or high population due to favourable conditions - Livelihood diversification (agriculture, livestock, fish): livestock can move during shocks and fish can be relied on during floods - Productive: fertile land with good seed systems and agricultural practices
Specific characteristics: - Poor road infrastructure and connections (Pibor-Lottila or Bor South – Jelle Payam) - Dependence on humanitarian aid and imported food erodes production capacity (Pochalla South-town) - In the case of Pochalla South, the town has become a source of insecurity - Community ties stressed between the Anuak and Nuer (in particular with the Lou Nuer)	**Specific characteristics:** - Along Bor town-Juba road (Kolnyang payam) - Strong communal ties (Nuer in Akobo) or centre of traditional power (Pochalla north-Anuak kingdom) - tell a history of competition for natural resources, the occurrence of and exposure to violent conflicts partly related to this competition, and the ability to live at 'tribal heartlands' situated on higher fertile grounds in relatively isolated and peaceful areas

The characteristics of resilience tell a history of competition and conflicts to occupy fertile, high ground, usually distant enough to offer security from other ethnic groups. These characteristics have been a condition to grow populations and for livelihoods to prosper.

Resilience is also affected by the ability and capacity of populations to resettle in safe areas during conflict or to high grounds during floods. As these occurrences are regular, community resilience is determined by the relations created with allied communities that can offer help and access to safe areas. A crucial factor is to maintain and strengthen solidarity networks to increase the ability of local communities to better manage local shocks, both natural (such as droughts or floods) as well as man-made (for example, violence and conflict). As we know sudden shocks triggering population movement can be extremely destructive and disruptive, but it is also clear that local mobility is a well-established resilience strategy that is thought out and planned and maintained by communities. However, external support to communities is often focused on village-level preparedness, mitigation and coping strategies, but rarely considers maintaining and allowing for mobility by strengthening preparedness within and across communities, including potential host communities.

Example:

Anyidi Payam in Bor South – displacement due to conflict:

As tensions escalated, the community selected strong men to open up new land where allied communities in Bor Payam allowed them to resettle. Gradually the stronger women also went. They started by staying in joint shelters; then tukuls were built; land has now been opened up to a similar size to the old village. The process has lasted up to two seasons. Being newly cultivated, the new land has superior fertility. However, it was previously not used as it was flood-prone. Thus, a temporary food security need has been met but vulnerability to future shock has increased.

As security slowly improves, the community is considering returning to their original village and will use a similar community strategy to reestablish their former village and local food systems.

6.6 Reflection on Jonglei State and Greater Pibor Administrative Area food system improvements

When considering the food production systems, current food trade flows, the food consumption gaps together with the main vulnerabilities of the food system linked with conflict and flood, several considerations for food system improvements emerge:

- ***Several "islands" of stability or resilience*** exist in the four counties, such as Bor town and the south of Bor county along the Nile, Boma plateau and to some extend the north of Pochalla and parts of Akobo county. These areas are not in flood plains, are relatively far from conflict lines, and have fertile land and natural resources available. These areas are poorly connected, apart for Bor South connection to Juba, and have little incentive to produce surplus food. But given the proper support they could develop a diversified local food system that ensure food security and resilience. Strategy articulating agriculture development with local humanitarian procurement could be considered as a first step to jump-start food system improvements.

- Another opportunity to consider is the existence of local ***connection between communities with different risk profiles***. Some communities are currently poorly connected by road, but are not in conflict due to their shared ethnicity and history, and often are highly complementary in terms of food production and needs. During our dialogue we have tried to identify potential that can offer ample opportunity for economic growth, food security and resilience. At this stage, we can name as examples:
  - Community around Pibor town living in the Lotilla plains are affected by conflict with their neighbours, have limited agriculture know-how and are mainly focusing on livestock. At the other end of Pibor county, communities on the Boma plateau are relatively safe and have a long tradition of agriculture with a strong seed system. The connection between these community is over a long distance and limited seasonally, but coordinated strategies to connect those communities could offer a local outlet for livestock products toward Boma and a transfer of agricultural knowledge, seed resilience, and food crops (maize, sorghum, tubers, fruits and vegetables) to Pibor town.
  - Bor town and the west of Kolnyang payam is well connected by road, outside flood plains, and relatively safe. This area offers safety and land for displaced populations from rural payams that are affected by flood (Jalle payam) or conflict with Pibor (Anyidi, Makuach and Baidit payams). Strategies to support temporary displacement, mobility or return of those communities to their remote farmlands, can ensure better resilience on one side and better local food supply for Bor town.
  - Even if tension between Anuak in Pochalla and Nuer in Akobo exist, trade relations are possible, but limited by road infrastructure and investments. However, complementarity between these areas is identified by our dialogue's participants between the productive farmland (sorghum, maize, fruits, vegetable and tobacco) of Pochalla and the fish/livestock products available in Akobo.
  - There is the potential to increase cross-border trade between Akobo or Pochalla with Gambella Ethiopia. This is not an easy strategy as infrastructure and trade regulation are important barriers. However, trade exists, often illegally, as those counties are directly supplied with flour, oil, sugar, snacks and beverages from Ethiopia. The dialogue participants felt that the demand in Gambella for

wild meat, fruits and vegetables from Pochalla or livestock from Akobo East could generate viable value chains.
  - Lastly, complementarity and trade opportunities are identified between Akobo East (fish and maize) and Akobo West (red sorghum).

These illustrative examples would require more in-depth studies as constraints are important, but they are given to provide reflection for food system improvement, beyond the current area-based approach often used by humanitarian and development agencies, to think at system level on complementarity and mutual benefits. These illustrations are also more realistic in the current situation as they do not require working across conflict lines that would require a totally different level of political and security involvement.

- Indeed, another level of food system improvement, could focus on ***building trade and food exchange across the current conflict lines***. In theory, this is the ultimate goal of food systems for peace, where the food systems are actually generating positive and mutually beneficial relations between traditionally conflicting communities, limiting the attractivity of conflict as a mode of wealth generation for some. In reality, trade always exists between those communities at a very limited level and grow during period of relative stability. As pointed out by dialogue participants, trade has never been strong enough or benefitted the armed actors (especially youth) enough to prevent conflict. To be able to act on these strategies for food system for peace, a prerequisite of peace and stability is necessary and will require a strong political will and leadership, a commitment to ensure the rule of law in the borderland between counties, disarmament, and measures that reduce the benefit/ease of the cattle-raiding economy. While this will require time, strategies that exploit periods of stability to their fullest in order to develop road and market infrastructures, provide trade incentives and facilities, and integrate youth in value chains, can help consolidate any gain achieved by peace actors by making conflict a less desirable option for more and more individuals. This strategy will require the full alignment of food system interventions with peace building activities across communities in conflict, such as those initiated in the 2022 conference on cattle raiding and conflict. Area to focus on could include:
  - Sorghum from Bor traded with livestock from Pibor.
  - Cereal, tubers, fruits, vegetables and tobacco from Pochalla traded with livestock products from Pibor.

7 The cause-effect relationship between conflict and food insecurity in Jonglei State and Greater Pibor Administrative Area

7.1 Exploring the cause-effect relationship

As part of the food systems resilience dialogue the participants were asked their perspectives on the cause-effect relationship between conflict and food insecurity.

This was done by asking participants to reflect on two key statements and indicate whether or not they agreed (using a five-point scale: strongly agree, agree, neutral, disagree, strongly disagree), and provide a rationale for their choice. The arguments were weighted in either in favour of or in opposition to the statement.

The exercise presented an overall perspective on, and insights into, the cause-effect relationship between conflict and food insecurity in Jonglei State and Greater Pibor Administrative Area (GPAA).

The dialogue participant responses reflected a diverse range of perspectives and rationales, but ultimately present a nuanced understanding of the interplay between conflict and food insecurity. As such, the exercise underscores the need for a multi-faceted approach to addressing food insecurity that not only addresses the root causes of conflict but also seeks to build stability and peace. The insights gained from this exercise can inform interventions that prioritise the role of food systems in building peaceful and stable communities while also addressing the underlying drivers of conflict and insecurity.

Key findings are discussed below. Detailed findings on participant responses to the statements can be found in Appendix 4, 'Dialogue participant perspectives on the cause-effect relationship between conflict and food insecurity'.

Argument: Conflict is the main cause of food insecurity in Jonglei State and GPAA
A total of 89% of arguments agreed with the statement, 6% disagreed, and 5% of responses were neutral. See Figure 3.

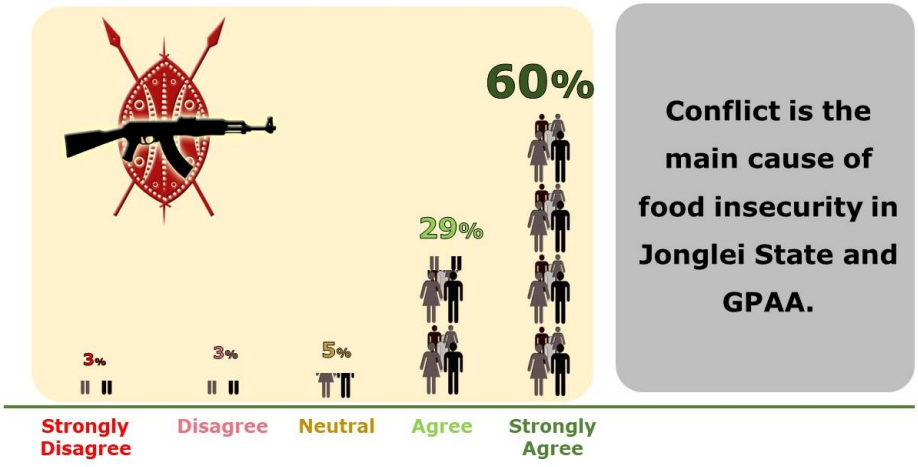


Figure 3 *Cause-effect relationship, conflict-food insecurity statement 1.*

In agreement
In total, 90% of the arguments voiced by dialogue participants agreed that conflict is the main cause of food insecurity in Jonglei State and GPAA (29% agreed, and 60% strongly agreed).

The impact of conflict on agricultural production is very significant, with dialogue participants highlighting that conflict and insecurity limits or even prevents farmers from cultivating because of fear of being harmed or killed, and that livestock risks being raided, further fuelling conflict and insecurity. Conflict and insecurity not only impact ability to produce but also reduce trade and the flow of goods and stops 'development' altogether, for example through affecting service delivery and input supplies.

Conflict and insecurity was also said to erode peoples' assets and livelihoods, and reduce the availability of labour for agricultural production, in particular because of youth taking up duties to safeguard agricultural production systems. Conflict was also said to result in forced displacement, with people giving up agricultural production in certain areas.

Some statements directly related to conflict and insecurity directly targeting food systems, such as the collapse of agri-value and food supply systems, and the use of scorched earth tactics and forced displacement targeting the very foundations of local food systems.

It was mentioned that conflict also creates food insecurity in areas receiving humanitarian assistance, as such assistance could only support people's food needs for a short period of time.

Conflict was said to be politically motivated by political greed, inequal distribution of wealth and resources and even the 'unequal' provision of humanitarian assistance. Intercommunal fighting – often motivated by bad politics – was said to directly affect agricultural production.

Conflict was also said to break down law and order, making individuals and even entire communities vulnerable to various forms of violence. The need for awareness raising and education/training in conflict transformation, and peacebuilding to reduce conflict and its negative impact on food security, was highlighted.

In disagreement
A total of 5% of voiced arguments disagreed that conflict is the main cause of food insecurity in Jonglei State and GPAA (2.6% disagreed and 2.6% strongly disagreed).

Rather than conflict creating food insecurity, it was said that food security itself created conflict. It was also mentioned that communities in Jonglei State and GPAA no longer know how to depend on their own in terms of food provisioning.

Neutral
A total of 5.3% of the voiced arguments were neutral, mentioning that although conflict is an important shock, weather extremes/climate change, pests and diseases and economic crises were more important factors contributing to food insecurity.

7.2 Food insecurity as cause of conflict

Argument: Food and nutrition insecurity is the main cause of conflict in Jonglei State and GPAA. A total of 75.0% of arguments agreed with the statement, 14% disagreed and 11% of responses were neutral. See Figure 4.

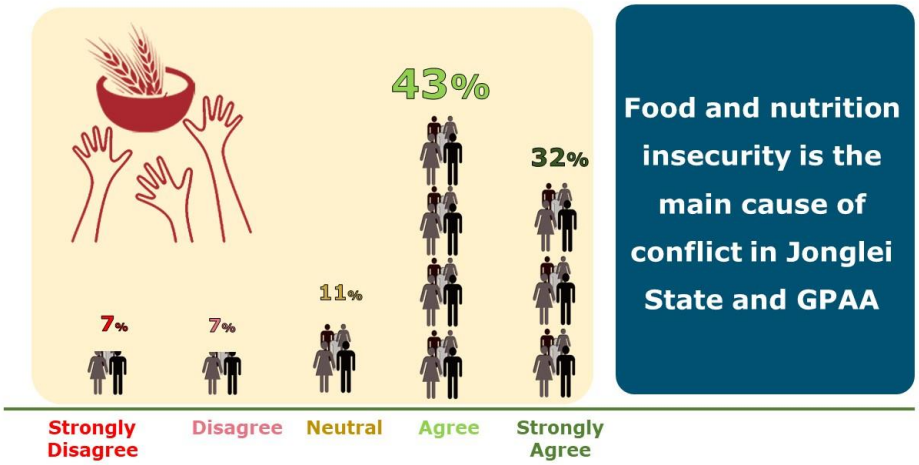


Figure 4 *Cause-effect relationship, conflict-food insecurity statement 2.*

In agreement
Of the 75.0% of statements in support of the statement that food and nutrition insecurity is the main cause of conflict in Jonglei State and GPAA, 43% agreed and 32% strongly agreed.

A majority of statements highlighted that food insecurity is a causal factor for conflict. Statements highlighted that in times of food insecurity people start to compete over scarce resources which can cause conflict. It was also mentioned that situations of deep food insecurity prompt some individuals to resort to any means, including committing crimes by looting food and stealing property. Being hungry can also motivate people, in particular youth, to go raiding using their guns.

Intercommunal conflict was mentioned to be more easily sparked when there is widespread food insecurity. It was also mentioned that some groups in Jonglei State and GPAA were marginalised by blocking access to food or resources required for agricultural production developing discontent and breeding potential conflict.

Some indirect reasons of food insecurity causing conflict were mentioned such as traders and humanitarian aid convoys, bringing food to those in need, being attacked and looted by criminals.

Secondary effects may contribute to conflict, in particular large scale displacement of hungry people looking for opportunities elsewhere and thereby potentially creating conflict in hosting areas. A very substantial number of the people from Jonglei State and GPAA reside outside the area in neighbouring states.

A number of statements also highlighted the lack governance both by the government and international community in promoting agricultural production. In particular the failure to develop agricultural production systems by the international community and the lack of power by the Jonglei State and GPAA government to develop programmes that can avoid food insecurity and by failing to do so conflict having a change.

In disagreement
Of the 14% of statements in disagreement, 7% strongly disagreed and 7% disagreed.

There was recognition that food insecurity can drive conflict but that that is not the main cause of conflict. For example, it was mentioned that fighting takes place in areas where there is enough food. Other

statements highlighted that tribal conflict is triggered by cattle rustling, and not by food insecurity *per se*; and that there is a culture whereby one has to fight, loot properties or raid cattle in order to be considered a man.

Neutral
Food insecurity is one of the underlying causes of conflict but not the main one. Cattle raiding was mentioned to be a main cause of conflict and insecurity, not directly linked with food insecurity but deeply rooted in local culture and a superiority complex.

7.3 Overall findings

The cause-effect relationship between conflict and food insecurity is complex and the perspectives of the food systems dialogue participants suggested that in Jonglei State and GPAA conflict impacts local food systems such that it causes food insecurity, but also that food insecurity can escalate the risk of conflict and insecurity.

Conflict disrupts food systems by limiting agricultural production as well as distribution of food by hindering the flow of goods and services in support of agricultural production, limiting the flow of locally produced foods and undermining local markets and peoples' ability to access food. In extreme cases violent conflict is directed towards the destruction of local food systems though scorched earth policies and forced displacement of people.

Food insecurity and scarcity can be a catalyst to conflict as it may contribute to competition over increasingly scarce productive resources, can encourage cattle raiding involving armed youth, can instigate some to commit crimes by stealing or looting food or properties, or can limit options for particular groups to access food.

With the cause-effect relationship between conflict and food insecurity so complex, it requires a comprehensive, multifaceted approach to conflict transformation and the development of local food systems in ways such that it maximises its potential to contribute to social cohesion and peace. This means that a food systems governance system must have the building of 'social cohesion' and 'peace' at the core of its considerations.

8 Stakeholder perspectives on national priorities

As an exercise of the food systems resilience dialogue, participants were asked for their perspectives on the critical challenges (identified by South Sudan's national food systems dialogue) to transform food systems in Jonglei State and Greater Pibor Administrative Area (GPAA). This was to establish how the national priorities resonate in the context of Jonglei State and GPAA and whether they capture and are relevant to local realities.

Each of the four strategic challenges for the transformation of food systems were introduced in the form of a statement. Participants were asked whether or not they agreed (using a five-point scale: strongly agree, agree, neutral, disagree, strongly disagree) with each statement, and were asked to provide a rationale for their choice. The arguments were weighted either in favour of or in opposition to the statement.

The exercise presented overall perspectives on, and unique insights into, the perceived strengths of as well as challenges to the food systems of Jonglei State and GPAA, while also presenting an opportunity to document perceptions and perspectives uniquely relevant to Jonglei State and GPAA.

Key findings are discussed below. Detailed findings can be found in Appendix 3, 'Dialogue participant perspectives on the four key strategic challenges to transform food systems in Jonglei State and GPAA'.

8.1 Food systems resilience

Statement: Food systems in Jonglei State and GPAA are resilient to human-made and natural shocks/stressors (ensuring FSN).
A total of 82% of arguments disagreed with the statement (challenges), and 18% agreed (strengths). See Figure 5.

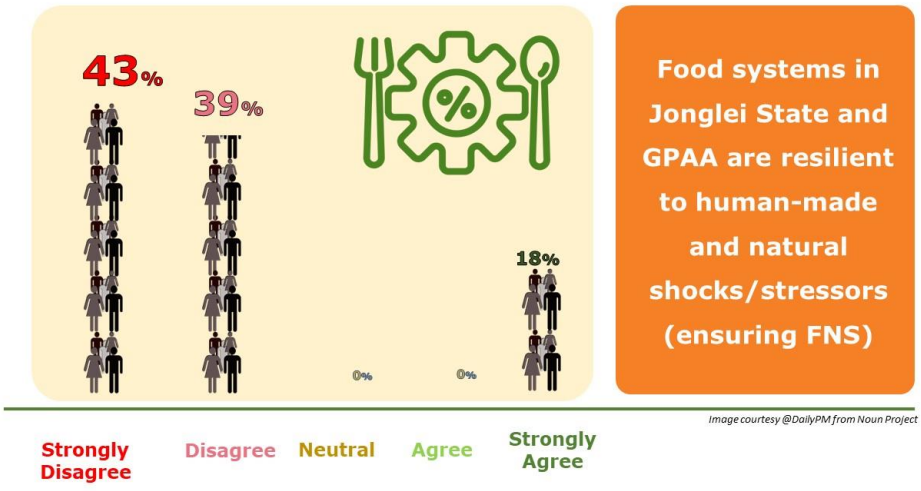


Figure 5 *Food systems resilience statement 1.*

In disagreement
Key arguments in disagreement (challenges) included statements such as: 'human-made and natural shocks are the main factors that have compromised food systems resilience in Jonglei State and GPAA'; 'continued dependence on humanitarian assistance and the importation of food and seeds have reduced the resilience of

communities'; and 'distribution of free food by humanitarians have eroded the capacity of local food systems to increase food production'.

Statements also highlighted that a considerable number of people have migrated out of Jonglei State and GPAA in search of food. There was also acknowledgement of the lack of relevant polices and institutions to deal more effectively with shocks and stressors: 'there are no policies and interventions by the government to assist people in better managing the impact of shocks on their food systems', 'there is no disaster risk management system and committee in place that can adequately support communities to prepare for and respond to shocks'.

It was also mentioned that 'there is in general a lack of knowledge on the proper management of food systems in the face of natural shocks'.

In agreement
Arguments agreeing that food systems are resilient in face of natural and human-made shocks (strengths) included: 'serious shocks impact both people and food systems - people are however able to maintain their food systems in very challenging situations'.

Statements also referred to what is needed to further strengthen resilience of local food systems: 'when issues are seriously addressed food systems can become far more resilient' and 'knowledge is required for people to increase their production to make local food systems more resilient'.

See Appendix 3, 'Dialogue participant perspectives on the four key strategic challenges to transform Jonglei State and GPAA food systems' for a detailed overview of the responses provided.

8.2 Food systems for peace

Statement: Food systems in Jonglei State and GPAA contribute to social cohesion and peace within and across different ethnic groups
A total of 49% of arguments disagreed with the statement (challenges), 42% agreed (strengths) and 9% of responses were neutral. See Figure 6.

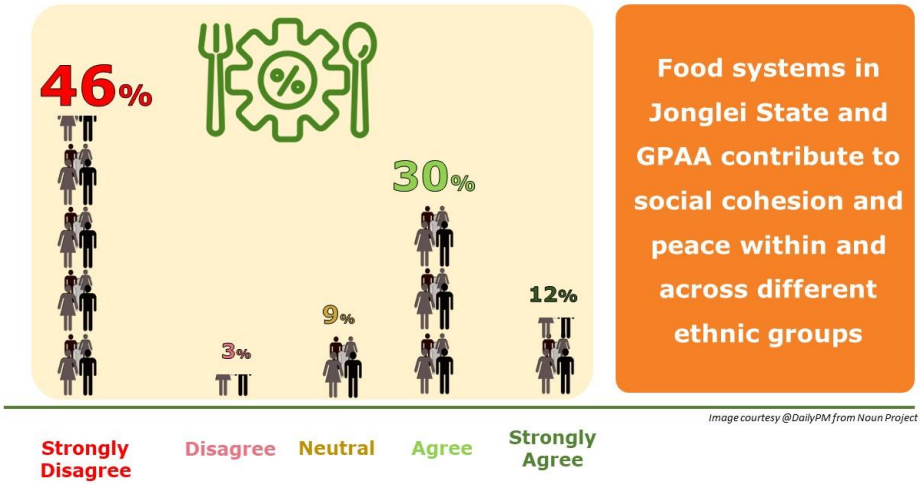


Figure 6 *Food systems resilience statement 2.*

In disagreement
Arguments in disagreement (challenges) mentioned: 'there is no peace but conflict between neighbouring communities: we have no peaceful relations amongst ourselves'. Other arguments touched upon important reasons why: 'because of the crisis, the potential of food systems is not reached and therefore the way we

have organised our food systems can't contribute to social cohesion and peace', 'there is a lack of understanding and appreciation amongst people how food systems can contribute to social cohesion and peace', 'the management of livestock in our food systems is a big problem and creates conflict', and 'poor infrastructure makes people interact poorly'.

A number of statements also highlighted deeper and more structural issues: 'our food systems give rise to robbery, banditry and armed conflicts', 'the way we produce and assess our food causes fighting across the State' and 'the food systems make people fight and kill each other because of valuable resources'.

In agreement
Arguments agreeing that food systems contribute to social cohesion and peace within and across different ethnic groups (strengths) included: 'when food is available within communities it will be used as an indigenous safety net within and between different people groups', 'when food is produced and fairly shared and distributed it will build the social fabric of the Jonglei people - but when it is not, it is likely to contribute to conflict'.

Statements also highlighted role of food systems in fostering social cohesion and peace: 'the flows of food and other commodities between neighbouring communities foster relationships' and 'food systems can build the relationships between different people groups by strengthening mutual interests and synergies that contribute to social cohesion and peace'.

One statement also highlighted the importance of food in creating healthy and more mindful people: 'when food is available it creates healthier and more mindful people, as a result of which everyone holds no difference against each other and people live in good unity'. Some statements highlight the role of bylaws and conflict mitigation: 'we have so many resources and when we respect the bylaws we create strong co-operation and social cohesion' and 'when governed well, sharing natural resources to produce food strengthens the mechanisms of conflict mitigation'.

Neutral
An argument for those taking a neutral position was that 'there are positive examples with traders from the Nuer and Murle community coming to Bor to sell cattle; at the same time there is cattle raiding and killing going on in communities and our traders are being killed in neighbouring areas'.

See Appendix 3: 'Dialogue participant perspectives on the four key strategic challenges to transform Jonglei State and GPAA food systems' for a detailed overview of the responses provided.

8.3 Food systems for healthier diets

Statement: Food systems in Jonglei State and GPAA maintain the natural resource base and produce a variety of foods contributing to healthier diets.
A total of 67% of arguments disagreed with the statement (challenges), 27% agreed (strengths) and 6% of responses were neutral. See Figure 7.

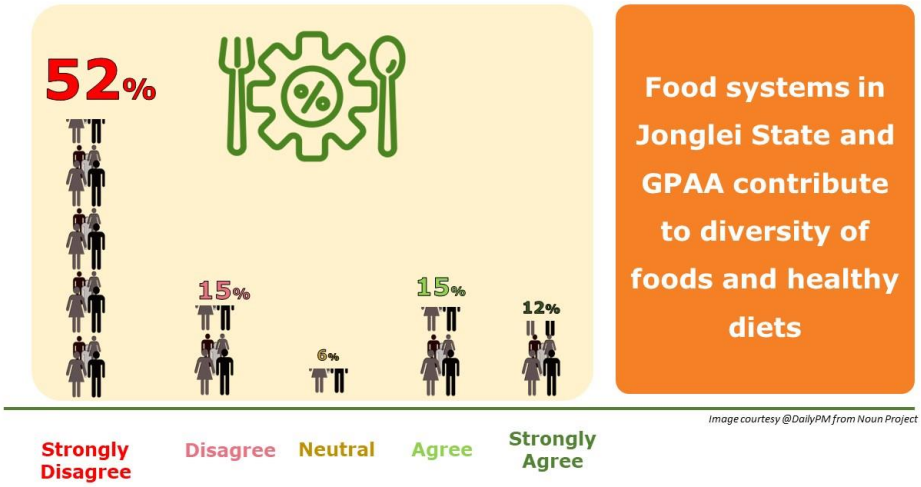


Figure 7 *Food systems resilience statement 3.*

In disagreement
Key arguments in disagreement (challenges) were: 'development of food systems do not consider proper natural resource management', 'most food produced in the State is not diverse at all with one or two main food types, therefore does not contribute to healthy diets', and 'markets do not function well and therefore do not offer a variety of food that people can access'.

Statements also refer to Jonglei State and GPAA having abundant rich lands but that food systems are seriously affected by man-made and natural disasters: 'because of insecurity, farming and livestock-keeping erode the natural resource base', 'due to insecurity farmers overexploit the soils in areas that are seen to be relatively safe as compared to their traditional fields in more remote and potentially dangerous areas' and with reference to natural disasters: 'repeated extensive and long-lasting floodings risk undermining biodiversity'.

Some statements referred to poor agricultural practice: 'agriculture is extractive, wild animals are being killed for food' and 'food production does not consider maintaining the natural resource base'.

A number of statements highlight that food systems are not well aligned with the natural resource base: 'the food system is not well aligned with the natural resource base to offer the nutrients people require' and 'there is a need to identify the variety of foods that can be produced and are available through indigenous wild foods to inform food system programming to produce healthier diets'. And also 'people are not aware that good nutrition is important'.

Other statements in disagreement highlighted poor co-ordination and lack of a dedicated institution to promoting healthy diets: 'there is poor co-ordination and support for producing a variety of food that make up for a healthy diet' and 'there is no dedicated institution or actor that is pro-actively engaged in promoting the production of healthier diets'.

In agreement
Arguments agreeing that food systems in Jonglei State and GPAA maintain the natural resource base and produce a variety of foods contributing to healthier diets included: 'Jonglei State and GPAA have abundant

fertile land that can produce the variety and diversity of food to provide people with healthy diets', 'local food systems make use of indigenous crops and wild foods which have dietary value', and interestingly 'foods produced so far are natural and 'organic' with no genetically modified food crops'. One argument also highlighted the need for improved food systems programming: 'Considering the rich natural resources: food systems, when well designed and promoted, can provide sufficient nutritious food to all and contribute to people's well-being and ability to live in harmony and peace with each other'.

Neutral
An argument for those taking a neutral position was that 'Traditional farming and livestock keeping does not provide sufficient food and the diversity of food needed for healthy diets'.

See Appendix 3: 'Dialogue participant perspectives on the four key strategic challenges to transform Jonglei State and GPAA food systems' for a detailed overview of the responses provided.

8.4 Food systems for inclusive value chains & agribusinesses and youth employment

Statement: Agribusiness and value chains in Jonglei State and GPAA are inclusive and generate employment for youth and women.
A total of 62% of arguments disagreed with the statement (challenges), 20% agreed (strengths) and 18% of responses were neutral. See Figure 8.

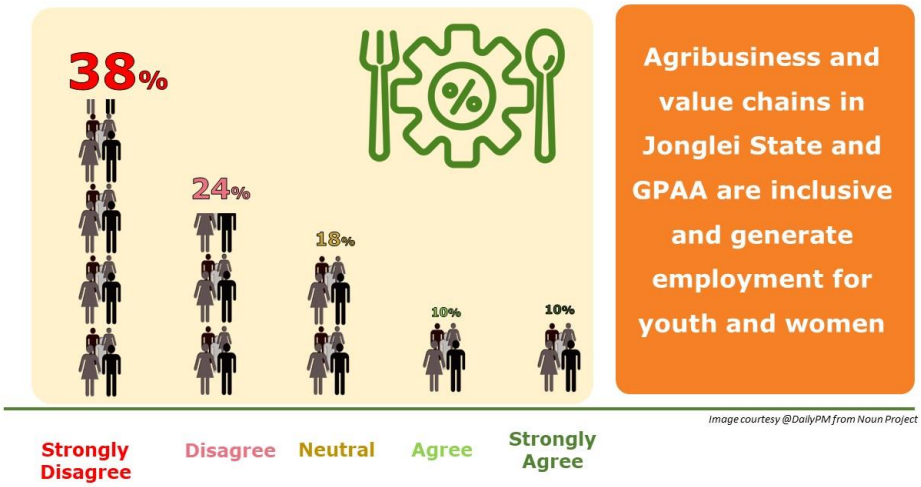


Figure 8 *Food systems resilience statement 4.*

In disagreement
Key arguments in disagreement (challenges) were: 'value chains are not well developed and are limited to 'within' communities: food and goods do not flow to other communities due to lack of peace and stability', and 'few have the opportunity to produce beyond self-provisioning for local markets'.

With regard to inclusiveness: 'agribusiness and value chains that are emerging are owned and managed by foreigners with few South Sudanese employed and limited benefits to the local economy', and 'agrifood enterprise employs and benefits those that are directly related to the owner(s)'.

With regard to youth employment: 'there are no well-established value chains and agrifood enterprises - as a consequence youth employment is low and options to strengthen resilience of local food systems are limited', 'value chain and agrifood enterprise development do not generate much employment opportunities for

women and youth' and more specific with regard to youth: 'youth is not involved in value chain development - there is high unemployment and idleness amongst youth'.

Some statements reflect concern as to why value chains and agribusiness are not more sustainably developed: 'there is lack of co-ordination and no system to harmonise the different efforts by NGOs to develop models that promote inclusive and sustainable value chains and agrifood enterprise development' and 'value chains that do exist are not inclusive and they are not sustainable as they depend on continued external financial support' highlighting the argument that 'the creation of value chains need longer time frames of support in order to be sustainably developed'.

Other statements refer to the lack of an appropriate extension system: 'there is no existing network supporting value chain and agrifood enterprise development' and 'there is no extension system in place supporting value chain development'.

In agreement
Arguments in agreement included: 'there is a lot of work going on within the various agricultural value chains - most is in the informal domain', 'NGOs provide ample opportunities for those wanting to be involved in value chain and agrifood enterprise development', and 'inclusivity is not there but should be strived for as it will create transparency and accountability within and across communities'.

Neutral
Argument for those taking a neutral position were 'youth and women employment are seeing a small increase' and 'improvements in road infrastructure have provided opportunities such as for fish value chain development enabling trade to main urban centres (such as Juba) and outside of South Sudan'.

See Appendix 3: 'Dialogue participant perspectives on the four key strategic challenges to transform Jonglei State and GPAA food systems' for a detailed overview of the responses provided.

8.5 Overall findings

The perspectives and perceptions of the Jonglei State and GPAA food systems dialogue participants reveal critical vulnerabilities as well as strengths in the development of local food systems vis-à-vis South Sudan's four strategic food systems transformation priorities.

The perspectives highlight opportunities to address current challenges as well as to act upon the strengths of the Jonglei State and GPAA food systems in building the resilience of food systems against natural and human-made shocks, building social cohesion within and across ethnic groups, contributing to conflict transformation, improving sustainable resource management and nutrition-sensitive development of local food systems, and developing inclusive and equitable value chains and agrifood enterprises maximising youth employment.

In all of this the perspectives raise the importance of an enabling policy environment and the establishment of an inclusive and participatory local governance mechanism to support building resilience within and across Jonglei State and GPAA's food systems.

Part C: Pathways development

A focus group discussion with women on crop diversity (Source: Gerrit-Jan van Uffelen)

9 Pathways development

Lastly, the participants of the food system resilience dialogue were tasked with identifying activities aligned with the national food system transformation priorities that were relevant locally. The four national priorities with their suggested transformative levers were presented to stimulate the discussion.

For each national priority specific challenges and ambition levels were discussed. As a rough indication, to estimate the importance of the factors mentioned, we counted the number of times a specific element was mentioned by the dialogue's participant (indicated in brackets in the table below.

9.1 National priority 1: strengthen resilience of food systems in the face of human-made and natural shocks

Challenges	Ambitions
Structural vulnerabilities (28) - Poor condition and seasonality of road infrastructures (8) - Lack of coordination among actors and government leadership for disaster risk management (early warning, preparedness, response) (4) - Lack of farmer knowledge and technology access (4) - Minimal government support and capacity funding for farmers (3) - Food aid dependency syndrome (3) - Lack of integration of youth and women's empowerment (2) - Lack of diversification of food system and overreliance on some resources such as fish or livestock (2) - Limited resistant crop varieties (1) - Lack of a proper land tenure system (1) - Construction of water points (1) **Disaster frequency and intensity (21)** - Climate change with unpredictability and alternance between floods and drought (10) - Conflict among community, insecurity, and small arms availability (6) - Political instability and negative influence on intercommunal peacebuilding (2) - Pests and diseases for crops and animals (3) **High impact of disasters (9)** - Displacement and livelihood disruption (4) - Loss of peoples and assets (seeds, farms, crop, livestock) (5)	**Resilient agriculture sector (31)** - Adopt climate-smart agriculture (conservation agriculture, rice production on wetlands, irrigation for dry season, drought and water-resilient crops) (9) - Make vocational training available for youth and women and set up youth and women farm groups (6) - Improve agricultural systems, infrastructure and access to technology (mechanization) (5) - Improve road connections (3) - Make grants available for large-scale farming and insurance schemes (3) - Establish disaster risk reduction committees and early warning mechanisms for floods and droughts (2) - Develop research on crop varieties and promotion of improved practices at county level (2) - Set up functional community seed banks (2) **Disaster risk management (25)** - Establish peaceful coexistence between communities (through dialogue, especially between pastoralists/farmers) (16) - Limit flooding by making sustainable dykes (7) - Establish community animal health workers limiting animal diseases (2)

A. First transformative lever - FSR governance and institutional strengthening

National key actions	State level Proposed interventions
I. Commit to the revitalised Transitional Government of National Unity (R-TGoNU) to restore and consolidate peace, security and stability. This is a pre-requisite II. Governance mechanisms for food systems and food security and nutrition (co-ordination of institutions and mutual accountability) III. Develop macro-economic management and efficient trade and taxation policies IV. Develop the political will to allocate the necessary financial and human resources to implement the Comprehensive Agriculture Master Plan (CAMP) V. Reduce the over-reliance of South Sudan on food importation, while developing the surveillance capacity to ensure food quality and safety	➢ State level/county: o Set up food system council/committees o Strengthen the existing food security clusters o Develop farmer/pastoralist associations o Develop cooperative societies and unions o Develop DRM committees ➢ Institutional capacity: o Integrate food system in policies, legal framework and programmes o Set up gender mainstreaming and gender-responsive policies, programmes and food system financing o Create food system units or departments in relevant institutions o Strengthen research and extension services o Create platform for knowledge sharing and coordination o Strengthen cooperative societies with knowledge, skills and assets/giving grants

B. Second transformative lever - enhancing communities' food production

National key actions	State level Proposed interventions
I. Develop and support community-based organisations: pastoral field schools (PFS), community animal health workers (CAHWs), farmer field schools (FFS), and business field schools (BFS) - effective in the absence of formal extension services and poor infrastructure II. Develop, propagate and adopt climate-resilient technologies and investment III. Develop community seed production as a means to develop self-reliance and avoid the current dependency on donations/imports with extremely variable quality and questionable adaptation to local conditions	➢ Introduce new crops such as rice, sugarcane and bananas ➢ Introduce feed with the purpose of increasing milk production ➢ Introduce tuber crops such as cassava, sweet potatoes and yam ➢ Introduce sorghum varieties ➢ Develop climate-smart agriculture (such as mulching and irrigation) ➢ Develop disease control in animals by introducing zero grazing and paddocking ➢ Research on seeds (seeds that can take 2-3 months to mature) ➢ Develop farm mechanization ➢ Build capacity of pathways

C. Third transformative lever - facilitating storage and transportation of food products

National key actions	State level Proposed interventions
I. Invest in road infrastructure II. Develop policies to enable trade and transportation of domestic food from excess areas to deficit areas III. Invest in storage to reduce the costs as well as losses of agricultural produce, particularly perishables	➢ Improve local storage facilities into modernized stores ➢ Develop community seed bank centres to keep surplus seeds ➢ Train producers on quality post-harvest handling/practice and buyer requirements, management of stores ➢ Form cooperatives and farmers unions to facilitate collection, transportation and marketing ➢ Construct feeder roads to connect production area with urban consumers ➢ Use adequate material (containers, refrigeration, hermetic bags…) to transport different varieties of food items ➢ Develop policies that guide and support storage and transportation within and outside the country ➢ Develop training in food safety ➢ Build farmers' skills negotiation ➢ Develop market linkages ➢ Regulate transportation material ➢ Change UN agency food procurement strategy (i.e.: local purchase)

9.2 National priority 2: use and maintenance of natural resources, and healthier diets

Challenges	Ambitions
Challenges to agriculture for nutrition (28) - Lack of crop diversification due to limited seed availability (e.g. no fruit or vegetable seedlings) (6) - Low agricultural and animal productivity (2) - Limited knowledge (e.g. on crop diversification and horticulture) (5) - Poor road and communication infrastructure (6) - Limited access to inputs and tools due to lack of financial support (4) - Lack of research centres and poor instruction (2) - Poor post-harvest handling and high food loss and waste (2) - Lack of male labour on farms – women do most of the work (1) **Shocks and stressors (8)** - Insecurity (cattle raiding, child abduction) and intercommunal conflict (6) - Unpredictable climatic conditions (1) - Market price volatility (1) **Lack of policies and limited implementation (4)** - Lack of policies on climate smart agriculture and land management (3) - Poor governance (1) **Natural resource degradation (2)** - Deforestation due to cultivation and depletion of natural resources (2)	**Adopt nutrition-sensitive, environment-friendly and climate-smart agriculture (40)** - Adopt nutrition-sensitive and climate-smart agriculture (with integrated farming systems, irrigation, diversification, sustainable fishes, fruits) (10) - Adopt new technology (mechanized agriculture, fertilizers, pesticide, post-harvest) (8) - Adopt environment-friendly farming (green economy, agroforestry, afforestation) (6) - Make finance available for farmers to adopt new technology and practices (4) - Build capacity in food production (e.g. horticulture) and processing (4) - Improve seeds and varieties (verification, local seeds, bio fortification) (4) - Maintain resistant indigenous livestock and improved productive breeds of livestock (2) - Set up training centre and demonstration plots (2) **Existence of vibrant markets and food trade (11)** - Develop value chain and value addition, potentially leading to exports (fish, livestock, charcoal, gum Arabic, grains, vegetables) (3) - Develop good infrastructures (roads and bridges) (4) - Develop vibrant markets to offer incentive to food production and ensure youth/women integration (4) **Good policies and strong governance (5)** - Set up a food system resilience committee and develop good governance (3) - Enforce policies that empower the food system and regulate fishing (2) **Peace and security** (peace building, disarmament of civilian and deployment of armed forces) **(4)**

A. Strengthen farmer organisations and cooperatives.

State level Proposed interventions
➢ Train farmers organizations on group dynamics, group organization and innovation
➢ Train on marketing
➢ Strengthen farmers organisation with business skills, business planning, financial education
➢ Develop financial credit
➢ Set up training on conflict resolution and duty of care
➢ Develop communication skills
➢ Establish group constitution

B. Support responsible public and private investment that respects the environment and enhances governance and equity in accessing productive natural resources.

State level Proposed interventions
➢ Carry out social and environmental impact assessment
➢ Carry out gender analysis
➢ Set up joint monitoring and evaluation
➢ Set up risk transfer/insurance
➢ Develop investors' corporate responsibilities

C. Enhance the awareness and knowledge related to nutrition and healthy diets by promoting nutrition-sensitive agriculture and value chains, promoting food diversification, awareness-raising regarding healthy diets, and promoting sustainable consumption patterns, including behaviour change communication.

State level **Proposed interventions**
➢ Encourage hygienic food preparation and consumption
➢ Encourage the consumption of diets containing required ingredients for balanced diets
➢ Ensure food safety during transportation
➢ Set up training on behaviour change communication to diversify food production
➢ Set up training for mothers/caregivers about balanced diets
➢ Develop sustainable consumption (ensure there is food)

D. Enhance the nutrition of infants and children.

State level **Proposed interventions**
➢ Train mother/caregivers on the importance of breastfeeding exclusively in the first 6 months
➢ Train mothers/caregivers on the importance of quality foods and diseases caused by lack of nutrients
➢ Train the mothers/caregivers to eat quality food and be able to produce milk
➢ Develop nutrition-sensitive agriculture
➢ Develop homegrown school feeding

9.3 National priority 3: food system for peace

Challenges	Ambition
High vulnerability and absence of economic connections (26) - Poor road infrastructure limiting connectivity, communication and trade between communities (12) - Lack of skills and employment opportunities (especially for youth and women) (8) - Limited investment in agriculture development and underdevelopment of agriculture sector (6) **Natural disasters and pastoralist movements (11)** - Pastoralist movement and lack of land use mapping (4) - Repeated flooding and drought impacting livelihoods and generating displacements (7) **Absence of political and security investments for peace (11)** - Lack of political goodwill and investment in peace (6) - Gun availability and limited law enforcement (especially for youth) (3) - Negative cultural practices (high bride price and raiding) and historical land injustices (2) **Existence of multiple conflicts (13)** - Conflicts and insecurity (7) - Cattle raiding and child abduction (3) - Intercommunal violence (3)	**Development of the agriculture sector and trade (27)** - Establish a surplus-producing agriculture with highly skilled farmers (10) - Set up and develop agrobusiness (agriculture schemes, processing factories, international investments…) (5) - Develop and maintain roads infrastructure while ensuring free/fair connectivity (8) - Develop a thriving intercommunal trade and economic growth (3) - Ensure that all have access to nutritious, healthy and affordable food (1) **Peace architecture in place (17)** - Develop political will and good governance (3) - Develop peace dialogues and sustainable peace between communities (10) - Ensure security (3) - Disarm civilian and armed groups (1)

A. Develop community-based peace-building mechanisms, allowing evidence-based dialogue and peacebuilding and negotiated community development programming for peaceful coexistence among communities through equitable access to natural resources.

State level **Proposed interventions**
➢ Set up an early warning system and response ➢ Develop youth empowerment through provision of vocational training, agri-business (livestock focus) and production cooperative societies ➢ Develop community dialogue and peace negotiations through extension outreach ➢ Create pastoralist associations ➢ Strengthen rule of laws through local authorities (chiefs)

B. Build capacity for enhanced land tenure security.

State level **Proposed interventions**
➢ Revise the existing laws on land tenure systems to improve food systems ➢ Enact environmental law and policies ➢ Enact land policies ➢ Increase awareness of communities about land policy (civic education) ➢ In the absence of environmental laws, develop principles regarding the environment ➢ Formalize livestock migratory routes

C. Protect and invest in human capital, particularly women and youth and social cohesion through community-driven development interventions.

State level **Proposed interventions**
➢ Develop agriculture through seed bank development, training of farmers, risk disaster management, cooperatives ➢ Develop infrastructure (roads and telecommunication network) ➢ Develop value addition and trade ➢ Improve health facilities ➢ Improve land tenure system ➢ Develop TVET (vocational training of youth) ➢ Analyse problems (gender transformation, inter-mutual actions) ➢ Develop an active community seed bank

9.4 National priority 4: value chains /agri-businesses and maximising youth employment

Challenges	Ambition
Lack of value chains, infrastructures, and knowledge (27) - Lack of knowledge and skills in value chains (9) - Lack of road connections to main towns and long distances (8) - Low agricultural production (6) - Limited market infrastructures (2) - Absence of value addition facilities (transformation or preservation) (2) **Lack of policies and investments promoting value chains (13)** - Lack of policies, regulations and weak institutions (7) - Lack of capital or investment in value chain development (5) - Lack of coordination and linkages between food producers (1) **Conflict, insecurity and shocks (7)** - Conflicts and insecurity (4) - Absence of rule of law regarding taxation, which discourages traders (1) - Climate shocks and economic crises (2)	**Good value chains, infrastructures, and knowledge (26)** - Ensure strong knowledge in production and value addition (10) - Construct road connections between towns with rural areas (5) - Improve production systems with technology/innovation (4) - Set up agrifood processing and packaging for better preservation and value addition (e.g. fisheries, livestock…) (4) - Improve livestock productivity (e.g. cross breeding) (2) - Improve market infrastructure (1) **Strong and inclusive value chain groups with business mentality (5)** - Encourage an entrepreneurship mind-set (e.g. livestock value and surplus production) (2) - Set up farmers associations and value addition cooperatives (2) - Include and empower youth and women (1) **Relevant policies, good governance and investments in value chains (10)** - Make micro credit available (4) - Ensure relevant policies and good governance (4) - Change the land tenure system (1) - Set up strong communication and coordination across food system activities (1) **Resilient value chains in a secure environment (5)** - Develop peace and stability (4) - Set up a functional early warning system on natural disasters (1)

A. Promote small business development to cater for emerging markets in urban areas.

State level Proposed interventions
➢ Create conductive business environment with relevant policies and government subsidies
➢ Create workable business models such as milk bar, vegetable growing, livestock fattening, poultry
➢ Linking with market/media
➢ Develop business skills (i.e.: manual and training from the university)
➢ Training in business kills

B. Enhance access to finance for small/medium businesses.

State level Proposed interventions
➢ Set up policies and regulations to empower small and medium businesses to access finance
➢ Empower women/youth with business skills related to value-added agricultural products from cooperatives/associations to access loans and credits from cooperative banks/agricultural banks and microfinance institutions
➢ Concerned authorities (State/county) must provide land for business activities
➢ Government must establish grants and loans for small and medium businesses
➢ Provide capital loans from banks or cooperatives

C. Promote value chain development that is inclusive and that maximises youth employment (this lever is added as part of the state-level food systems dialogue).

State level **Proposed interventions**
For agro-pastoral producers/farmers cooperatives: ➢ Set up training on value chain addition ➢ Set up Micro-finance ➢ Ensure access to land ➢ Ensure security ➢ Empower market information and linkages For processors: ➢ Set up post-harvest training ➢ Develop storage and packaging facilities ➢ Ensure water and electricity access ➢ Ensure access to credit ➢ For middlemen: ➢ Regulate middlemen For traders: ➢ Regulate policy ➢ Ensure security ➢ Improve and empower trade unions For transporters: ➢ Increase knowledge on quality assurance and food safety For consumers: ➢ Develop awareness of consumer rights on quality food ➢ Develop understanding different food demands and fragmentation

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Appendix 1 List of participants in the Jonglei State and GPAA dialogue

S/No	Name	Institution	Title
1.	Hon Hellen Lukurnyang	National Legislative Assembly	Member of Parliament
2.	Hon Sulafa Hassan Nashingol	National Legislative Assembly	Member of Parliament
3.	Hon. Simon A Duol	State Ministry of Local Government & Law Enforcement	Minister
4.	Hon. John Chuol Malou	State Ministry of Agriculture, Forestry and Environment, Jonglei State	Minister
5.	Hon Saliba Joseph Duri	State Ministry of Agriculture, Forestry and Environment, Greater Pibor Administrative Area	Minister
6.	Hon Malual Gabriel	State Ministry of Peace Building	Minister
7.	Hon. Elijah MocNom	Relief and Rehabilitation Commission, Jonglei State	Deputy Chair
8.	Ayen Awyang Daniel	County Agriculture Directorate	Inspector
9.	Kuer Jacob Reech	State Ministry of Cooperatives and Rural Development	Acting Director General
10.	Geu Wunthony	State Ministry of Animal Resources, Fisheries and Tourism	Director
11.	Mach John	Dr JG-MUST	Academia
12.	Peter Ajak Ateny	Dr JG-MUST	Academia
13.	Anei Bol Anei	JSCIA	Deputy Chair
14.	Both Deng Bayak	Relief and Rehabilitation Commission, Akobo East County	Member
15.	Nyuen Panchol Nyuen	B. Mau Association	Chairperson
16.	Wol Alier Jokoy	Jongolei Youth Union	Chair
17.	Sobinston Achuk Bol	State Ministry of Agriculture Forestry & Environment	Acting Director General
18.	Duol John Mabil	Van Hall Larenstein, University of Applied Sciences	Post-graduate Student
19.	Mohamad Choul Peter	State Ministry of Information	Director
20.	Solomon Pur Thok	Dr JG-MUST	Academia
21.	Mamer John Thok	Dr JG-MUST	Academia
22.	John Boloch Kumen	Peace and Reconciliation Organization, GPAA	Executive Director
23.	Thomas Kilwan Nyati	State Ministry of Agriculture Forestry & Environment, GPAA	Director
24.	Majok Ayien Kok	Dr JG-MUST	Academia
25.	Salah K Jubarah	University of Juba	Academia
26.	Marc Wani	National Ministry of Livestock and Fisheries	Director of Extension Service
27.	Augustino Atillio	National Ministry of Livestock and Fisheries	Director General
28.	Tony Ngalamu	University of Juba	Academia
29.	Rubean Matuor	Zoa-Dorcas, Jonglei State	FSL Officer
30.	Dee Santo Athian	Tearfund	FSL Officer
31.	Pascal Debon	Wageningen University and Research	Food and Nutrition Advisor
32.	Gerrit-Jan van Ufflen	Wageningen University and Research	Senior Advisor Food Systems and Resilience in Protracted Crises
33.	Daniel Runguma	Tearfund	Area Coordinator Jonglei Programme
34.	Michael Kamya	Zoa-Dorcas, Jonglei State	Deputy Programme Manger
35.	Jacob Mamer	FAOSSD, Bor	FSL Officer

Appendix 2 The main workshop schedule

Food systems resilience dialogue and pathway development (FoSReD-PaD) for Bor South, Pibor, Pochalla and Akobo, Jonglei State and Greater Pibor Administrative Area, South Sudan

Location: Bor town

Dates: September 26th to 28th 2023

Overall objective

Propose state level pathways for food system transformation along the four national priorities:

- Building food systems resilience in face of natural and human-made shocks/stressors.
- Developing food systems for sustainable use and management of natural resources, and healthier diets.
- Developing food systems for peace.
- Developing food systems for agri-business and value chain development.

Engage key stakeholders in four strategic counties in Jonglei state and GPAA to reflect on interventions reinforcing county food systems resilience and identifying 'connectors' to creating synergies and peace between these food systems.

Process of the dialogue

1. Introduction: national food system transformation priorities, state level food system dialogue and why food system resilience?
2. Reflection on county food system information (desk, consultation, IPC): strength and weakness of county food systems.
3. Reflection on inter-counties dynamic around food system: food system boundary map and dynamic, opportunities and threats for inter-county food system transformation.
4. Deeper dive on food system transformation national priorities:
   - Food system for peace: current peace building dynamic, entry points for food systems development that contributes to 'social cohesion, peace and territorial integrity', identification of food commodities and value chains contributing to peace building.
   - Building food systems resilience in face of natural and human-made shocks/stressors.
   - Developing food systems for sustainable use and management of natural resources, and healthier diets.
   - Developing Food Systems for agri-business and value chain development.
5. Envision the pathways for food system transformation and resilience along the 4 national priorities, define a set of pathways reinforcing individual food systems and identifying 'connectors' to creating synergies between these food systems.
6. Measuring' food systems resilience: how to measure community resilience and change along the pathways for food system transformation.

Timeline for FoSReD-PaD at a glance						
	Sept 25th	**Sept 26th**	**Sept 27th**	**Sept 28th**	**Sept 29th**	**Sept 30th**
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
Logistics	Travel	Dialogue	Dialogue	Dialogue	Experts' discussion	Dialogue with Pibor stakeholders
Main activities	Preparation	Welcome Introduction County food systems Inter-county food system dynamics	Food system for peace	Deeper dive on food system transformation national priorities Food system resilience pathways	Travel	

Agenda of the dialogue and pathway definition:					
Day	**Session topic**	**Focus content**	**Format/tools**	**Duration**	**Presentation/ facilitation**
1	Welcome		Plenary presentation	1/2	
1	Introduction	National food system dialogue in South Sudan State-level perspective Why food system resilience? Concept and added value	Plenary presentation	1 1/2 hour	Dr Augustino Government/FAO Juba/John Garang University
1	County food systems	Reflection on county food system information Review of desk, consultation, IPC information Strength and weakness of county food systems	Plenary presentation And County group work	2 hours	JU/WCDI County leads
1	Inter counties food system dynamic	Reflection on inter-county dynamics around food system Food system boundary map and dynamics Opportunities and threats for inter-county food system transformation	Plenary presentation And Group work	2 hours	WCDI Group leads
2	Food system for peace	Analysis of conflict dynamics Current peace building dynamic Entry points for food system developments that contribute to 'social cohesion, peace and territorial integrity' Identification of food commodities and value chains contributing to peace building	Group work Presentation Group work Group work	6 hours	WCDI Dr Augustino JU/JGU/WCDI JU/JGU/WCDI
3	Deeper dive on food system transformation national priorities	Building food systems resilience in face of natural and human-made shocks/stressors Developing food systems for sustainable use and management of natural resources, and healthier diets Developing food systems for agri-business and value chain development	Group work Group work Group work	4 hours	TBD TBD Nancy Lumeit
3	Food system resilience pathways	Envision the pathways for food system transformation and resilience along the four national priorities Define a set of pathways reinforcing individual food systems and identify 'connectors' to creating synergies between these food systems	Group restitution and plenary discussions	2 hours	Group leads JU/JGU/WCDI
4	Dialogue with Pibor stakeholders	Food system and conflict from a Pibor perspective	Group discussion	6 hours	JU/WCDI

Appendix 3 Dialogue participant perspectives on the four key strategic challenges to transform food systems in Jonglei Sate and GPAA

A3.1 Food systems in Jonglei/GPAA are resilient to human-made and natural shocks/stressors (ensuring FNS)

Strongly Disagree 42.9% all statements	Disagree 39.3% of statements	Neutral 0% of statements	Agree 0% of statements	Strongly Agree 17.9% of statements
Man-made and natural shocks are the main factors that have compromised food systems resilience Jonglei State / GPAA.	Food systems are not resilient because man-made conflict and natural hazards (notably floods and droughts) have undermined the capacity to produce food making recovery slow / difficult.			2 **Things can change when issues are seriously addressed; food systems can become far more resilient.**
Man made and natural shocks cause displacement of people, loss of livelihoods and lives; such shocks make it very difficult for people to cope.	2 Continuous cattle raiding, displacement of communities and the collapse of the peace dialogue have eroded the resilience of local food systems.			**Knowledge is required to make food systems more resilient - people can increase their food production.**
There are no policies and interventions by the government to assist people in better managing the impact of shocks on their food systems.	Natural and man-made shocks are displacing entire communities in Jonglei / GPAA.			**Serious shocks impact both people and food systems - people are however able to maintain their food systems in very challenging situations.**
There is no disaster risk management system / committee in place that can adequately support communities to prepare for and respond to shocks.	Communal wars between Jonglei and GPAA result in displacement with farms destroyed.			The problem is entirely man-made - it can be solved when there is commitment to address the root causes.
There are no actors / agencies that create awareness about potential shocks and inform people to be aware of coming shocks.	Large numbers of free ranging grazing cows make that less land is cultivated.			
There is in general a lack of knowledge on the proper management of food systems in face of natural shocks.	Extensive and long lasting floods affects farmland with harvests completely lost.			
Natural shocks affects agricultural production in general.	**The lack of seed security and the distribution of free food by humanitarians have eroded the capacity of local food systems to increase food production.**			
When there is flooding people have ability to control it.	We still cannot rely on the food that we produce ourselves.			
Man made shocks will bring insecurity and erode the capacity to produce.	Nutrition centres are required to provide essential nutrition.			
Human made shocks displaces people and rob them from the ability to produce or access food rendering them reliant on humanitarian assistance.	**There is considerable migration of people out of Jonglei / GPAA in search of food.**			
Continued dependence on humanitarian assistance and the importation of food and seeds have reduced the resilience of communities.				

A3.2 Food systems in Jonglei State and GPAA contribute to social cohesion and peace within and across different ethnic groups

Strongly Disagree 45.5% all statements	Disagree 3.0% of statements	Neutral 9.1% of statements	Agree 30.3% of statements	Strongly Agree 12.1% of statements
3 **There is no peace but conflict between neighbouring communities: we have no peaceful relations amongst ourselves.**	**The food systems make people to fight and kill each other because of valuable resources.**	Food systems can contribute to social cohesion and peace; but it is currently not happening.	**When food is produced and fairly shared / /distributed it will build the social fabric of the Jonglei people (but when not it is likely to contribute to conflict).**	It brings people together; and show the people of Jonglei that they are the people which can eat and share food and everything else together.
The way we produce and assess our food causes fighting across the State.		**There are positive examples with traders from the Nuer and Murle community coming to Bor to sell cattle; at the same time there is cattle raiding and killing going on in communities and our traders being killed in neighbouring areas.**	**Food systems can build the relationships between different people groups by strengthening mutual interests and synergies contribute to social cohesion and peace.**	The way food is produced, shared and distributed strongly contributes to social cohesion and peace.
Our food systems give rise to robbery, banditry and armed conflicts.		Peace is not in place in Jonglei.	**We have so many resources and when we respect the bylaws we create strong co-operation and social cohesion.**	Food systems when managed well will bring people together and build social cohesion contributing to peace.
2 **There is a lack of understanding and appreciation amongst people how food systems can contribute to social cohesion and peace.**			2 **Flow of food and other commodities between neighbouring community fosters relationships.**	**When food is available it creates healthier and more mindful people as a result of which everyone holds no difference against each other and people will live in good unity.**
2 **Because of the crisis the potential of food systems is not reached and therefore the way we have organised our food systems can't contribute to social cohesion and peace.**			**When food is available within communities it will be used as indigenous safety net within and between different people groups.**	
The management of livestock in our food systems is a big problem and creates conflict.			When we produce enough we can take to those that are vulnerable in our state.	
There are many conflicts with farmlands being destroyed by cattle.			Seed access and trade builds strong relationships.	
Cattle give raise to conflict including cattle raiding.			Trade brings people together including trade in cattle.	
Food items are not equally distributed across the state.			**When governed well sharing natural resources to producing food strengthens conflict mitigation mechanisms.**	
Transportation of food is risky due to armed persons,				
Poor infrastructure makes that people interact poorly.				

A3.3 Food systems in Jonglei State and GPAA maintain the natural resources base and produce a variety of foods contributing to healthier diets

Strongly Disagree 51.5% all statements	Disagree 15.2% of statements	Neutral 6.1% of statements	Agree 15.2% of statements	Strongly Agree 12.1% of statements
There is no dedicated institution or actor that is pro-actively engaged in promoting the production of healthier diets.	**Agropastoralists move away as pasture and rangelands become degraded.**	**Traditional farming and livestock keeping does not provide sufficient food and the diversity of food needed for healthy diets.**	2 **Jonglei and GPAA have abundant fertile land that can produce the variety and diversity of food to provide people with healthy diets.**	Seen the diversity of foods produced through farming and livestock keeps they together make best use of and maintain the natural resource base.
There is poor co-ordination and support for producing a variety of food that make up for a healthy diet.	**Because of insecurity farming and livestock keeping erode the natural resource base.**	Fishing is becoming an important source of food and it makes diets more healthy.	2 Our rich natural resources are able to regenerate well and can sustain our communities.	**Seen the rich natural resources, food systems when well designed and promoted can provide sufficient nutritious food to all and contribute to people's well-being and ability to live in harmony and peace with each other.**
Jonglei / GPAA has abundant arable land but food systems are severely affected by man-made and natural disasters.	**Due to insecurity farmers overexploit the soils in areas that are seen to be relatively safe as compared to their traditional fields in more remote and potentially dangerous areas.**		**Local food systems make use of indigenous crops / wild foods having dietary value.**	**Foods produced so far are natural ('organic') with no genetically modified food crops.**
People experience both a lack of food as well as a diversity of healthy foods.	**Repeated extensive and long-lasting floodings risk undermining bioversity.**			Even though our current food system maintains the natural environment our farming systems encourage deforestation so expansion of farmland should be well-planned.
2 **Most food produced in the state is not diverse at all with one or two main types, therefor does not contribute to healthier diets.**	Fishing has become unsustainable in areas that see development of the fish value chain, in particular near Bor.			
Farming in the midst of conflict and insecurity results in food shortages which by itself does not impact positively on peoples' health.				
Markets do not function well and therefore do not offer a variety of food that people can access.				
A poor system to store food results in poor diets in the dry season.				
2 **People are not aware that good nutrition is important.**				
The food system is not well aligned with the natural resource base to offer the nutrients people require.				
There is a need to identify the variety of foods that can be produced and are available through indigenous wild foods to inform food system programming to produce healthier diets.				
2 **Development of food systems do not consider proper natural resource management.**				
Food production does not consider maintaining the natural resource base.				
Agriculture is extractive, wild animals are being killed for food.				

A3.4 Agribusiness and value chains in Jonglei and GPAA are inclusive and generate employment for youth and woman

Strongly Disagree 37.9% all statements	Disagree 24.1% of statements	Neutral 17.2% of statements	Agree 10.3% of statements	Strongly Agree 10.3% of statements
There is no co-ordination and no existing network in support of value chain and agrifood enterprise development.	**There is lack of co-ordination and no system to harmonise the different efforts by NGOs to develop models that promote inclusive and sustainable value chain and agrifood enterprise development.**	So far there is only work in the fish value chain but not in the agricultural and livestock sectors.	There is an increase in the member of youth working in agrifood enterprise development.	**Inclusivity is not there but should be strived for as it will create transparency and accountability within and across communities.**
There is no extension system in place in support of value chain development.	**Creation of value chains need longer time frame of support in order to be sustainably developed.**	**Improvements in road infrastructure have provided opportunities for fish value chain development including export to main urban centres (such as Juba) and outside of South Sudan.**	Value chain and agrifood enterprise development present opportunities to all who see opportunities and are keen to work hard.	Value chain and agrifood enterprise development does provide employment opportunities for both genders and increase the standard of life.
There is a high dependence on food imports from Uganda while local value chains and agrifood enterprises are poorly developed.	**Value chain and agrifood enterprise development do not generate much employment opportunities for women and youth.**	Successful value chains and agrifood enterprises are very rare in Jonglei / GPAA.	**There is a lot of work going on within the various agricultural value chains - most is in the informal domain.**	**NGOs provide ample opportunities for those wanting to be involved in value chain and agrifood enterprise development.**
Value chains are not well developed and limited to 'within' communities: food / goods do not flow to other communities due to lack of peace and stability.	**Within current food system there is little support for women and youth to be constructively involved in agrifood enterprise development.**	**Youth and women employment are seeing a small increase.**		
2 **There are no well established value chains and agrifood enterprises - as a consequence youth employment is high and options to strengthen resilience of local food systems limited.**	2 **Agrifood enterprise employs and benefits those that are directly related to the owner(s).**	Food safety is very poor and hampers value chain and agrifood enterprise development.		
Youth is not involved in value chain development - there is high unemployment and idleness amongst youth.	**Few have the opportunity to produce beyond self-provisioning for local markets.**			
Insecurity hampers development of value chains within and across the state.				
Agribusiness and value chains that are emerging are owned and managed by foreigners with few South Sudanese employed and limited benefits to the local economy.				
There is very limited value addition in Jonglei / GPAA - except for the emerging fish value chain.				
Value chains that do exist are not inclusive and they are not sustainable (they depend on continued external financial support).				

Appendix 4 Dialogue participant perspectives on the cause-effect relationship between conflict and food insecurity

A4.1 Conflict is the main cause of food insecurity in Jonglei State and GPAA

Strongly Disagree 2.6% all statements	Disagree 2.6% of statements	Neutral 5.3% of statements	Agree 28.9% of statements	Strongly Agree 60.5% of statements
It is food insecurity that creates conflict.	**Most communities in Bor no longer know how to depend on their own in terms of food provisioning.**	Conflict affects food insecurity - however the main cause of food insecurity is climate change in particular recurrent droughts and floods.	2 **Conflict and Insecurity is politically motivated and directly reduces agricultural production.**	4 **Conflict leads to displacement and directly erodes peoples' ability to produce food.**
		Conflict is an importance shock - but other shocks are equally or even more important in contributing to food insecurity; in particular climate shocks, pests & diseases, and economic crises.	**Conflict is the main cause of food insecurity; and is motivated by political greed and inequal distribution of wealth as well as provision of humanitarian assistance.**	When there is conflict nobody will think of what to eat but run for his life to seek security.
			Insecurity makes it difficult for people to cultivate - people are being killed in their fields.	2 **Conflict and communal fighting reduces availability of labour for agricultural production.**
			Cattle raiding creates insecurity and affects ability to produce food.	3 Conflict prevent people form cultivating; people fear to be killed.
			Persistent conflict erodes peoples assets and means of livelihoods.	**Women and elderly people can no longer go to the fields as they may be killed; youth will be engaged in fighting and not in food production.**
			Conflict disrupts livelihoods.	2 **Conflict and insecurity prevents agricultural production, reduces trade and stops development.**
			Conflict results in collapse of food supply chains.	In times of conflict food will always be short supply: food production goes down, businesses will be affected and everything is in disorder.
			Scorched earth tactics and forced displacement directly affects key elements of local food systems.	Conflict has always interrupted agriculture and development.
			Conflict creates instability reducing scope for development.	**Intercommunal fighting - motivated by bad politics - will directly affect agricultural production.**
			There is a lack of peace education to highlight the importance of conflict transformation and peace as key condition for food security.	2 **Livestock may be raided in times of conflict; the 'culture' of raiding contributes to conflict and insecurity.**
				Conflict results in loss of life and property.
				Conflict affects service delivery and input supplies.
				2 **Conflict leads to breakdown of law & order making individuals and communities vulnerable to various forms of violence.**
				Humanitarian assistance can only support people for a short period of time.

A4.2 Food and nutrition insecurity is the main cause of conflict in Jonglei State and GPAA

Strongly Disagree 7.1% all statements	Disagree 7.1% of statements	Neutral 10.7% of statements	Agree 42.9% of statements	Strongly Agree 32.1% of statements
Conflict drives food insecurity but it is not the main cause of food insecurity.	Tribal conflict in Jonglei is triggered by cattle rustling, and not by food insecurity per se.	2 **Food insecurity is one of the underlying causes of conflict but not the main one.**	Food security is the main cause of conflict.	In times of deep food insecurity people fight over resources - everybody wants to be on top to have access to resources.
Fighting takes place in situations / areas where there is enough food.	**Conflict is a culture where one has to fight, loot properties or raid cattle in order to be considered a man.**	**Cattle raiding is a main cause of conflict and insecurity, and not directly linked with food insecurity but deeply rooted in some local cultures and superiority complex.**	2 **Some individuals search for food by 'any means' -and commit crimes by looting food and properties because they are hungry.**	**Whenever there is no food people must do something to get food and when there are no options some are likely to start fighting amongst each other.**
			Resource scarcity can be a contributing factor to food insecurity and accessing scarce resources can breed conflict.	Being hungry motivates people to go raiding and robbing food or assets from others.
			Inequalities in food accessibility contribute to conflict.	When out of food you may go for raiding.
			Conflict induced poverty provides key challenges to cover even basic needs such as having enough food to feed oneself and family: trying to seek ways to improve food security may therefore contribute to conflict.	This is because the youth is stronger than the governor / government of Jonglei / GPAA.
			Some groups block access to food for other groups thus contributing to conflict.	Youth that are hungry for food may use their guns to get food.
			Intercommunal conflict can be more easily sparked when there is widespread food insecurity.	**The governor/government of Jonglei/GPAA lacks the power to develop programmes that can avoid food insecurity and by failing to do so conflict is having its chance.**
			Food insecurity disrupts livelihoods and the need for food may create conflict with others.	**There is a lack of proper agricultural production systems that can produce sufficient food in areas that are prone to experiencing conflict.**
			Displacement due to food insecurity may create conflict in hosting areas.	Whatever is produced may be lost to conflict.
			Humanitarian food convoys and traders bringing food are being looted by criminals and bandits.	
			Cattle raiding means you have more food to feed your family.	

Appendix 5 Food production and consumption at county level

Based on the livelihood zones and demography, we can distinguish the following agricultural, pastoral and natural resources based food production and consumption systems:

County	Bor South	Pibor	Pibor	Pochalla	Akobo
Main secondary town	Bor town	Pibor town	Boma	Pochalla	Akobo town
Livelihood zone	SS08 Nile basin fishing and agro pastoral SS06 Eastern plain sorghum and cattle	SS05 South-eastern semi-arid pastoral	SS12 maize sorghum, fishing, natural resources SS05 South-eastern semi-arid pastoral	SS12 maize sorghum, fishing, natural resources	SS10 North-eastern maize, cattle and fishing SS06 Eastern plain sorghum and cattle
Food production	Production by importance: - Sorghum - Groundnut (mostly transformed as paste for sauce) - Fish - Livestock products (cattle, goats, poultry, pigs, sheep) - Vegetable (jute melon, amaranth, tomato, carrot, okra, pumpkin, sukumawiki, eggplant) - Legume (cow peas, cow pea leaves) - Wild foods and game Marginal: - Sesame (planted under sorghum) auto-consumed - Maize	- Livestock rearing (main product) - Wild foods and game	Highlands: - Sorghum - Maize - Fish - Limited production of vegetables, okra, groundnuts Plains: - Livestock rearing (main product) Both: - Wild foods and game	Production by importance: - Sorghum - Maize - Cassava - Fruits: banana, mango, guava - Wild meat and food - Cow peas - Fish - Vegetables: okra, tomatoes, yam - Sugar cane - Sweet potatoes - Limited cattle due to raids and diseases	Akobo West: - Sorghum - Livestock products Akobo East: - Maize - Wild fruits (balanites, wild jujube, amaranth) - Honey, fish, bush meat (in dry season) - Cowpeas, beans - Vegetables (pumpkins, okra, cucumber, Jew's mallow, watermelon, egg plants). Both: - Wild foods and game
Food consumption	- Sorghum - Vegetables or groundnut sauce - Oil - Fish/game meat Rare: - Wild fruits - Milk or eggs	- Meat, milk, cattle blood - Maize - Sorghum - Groundnuts		- Sorghum - Maize - Bean - Meat, fish, - Wild food - Tubers (cassava, potatoes, yam) - Vegetables - Fruits (mangoes, bananas, and guava)	- Maize and sorghum - Vegetables - Wild foods

Appendix 6 Food inflow and outflow in each county

	Pochalla	Akobo	Pibor	Bor South
Food export (outside of county)	No food export from Pochalla (insecurity, no access, no incentive for production)	- Livestock to 1) Ethiopia, 2) Malakal 3) Bor - Dried fish to 1) Ethiopia, 2) Bor	No agriculture export and limited livestock trade outside of the county. - Illegal export of mineral (gold)	- Smoked fish caught and smoked by local people and sold in Juba - Salted fish caught by local people, salted by Ugandan, transported by Ugandan traders to Uganda; some exported to further markets in Congo, Nigeria… Marginal: - Groundnut: small quantities is brought by individuals to Juba and sold - Cattle from Nuer-Uror are purchased by Bor South people, 30% (preferably female cows) are kept for restocking, 70% (preferably male) bulls are resold in Juba for a profit (about x5 the initial price). This is only marginally practiced as it is highly risky due to current insecurity - Sorghum: the trade that existed with Murle/Pibor (mainly cattle for sorghum) has stopped because of current insecurity
Food import (to the county)	Food items are imported from Gambella/Ethiopia: - Maize - Rice - Sugar - Wheat flour - Lentils - Cooking oil - Snacks Small quantities are imported due to low purchase power, low exchange rate SSP vs ETB and road infrastructure seasonally cut	Mainly from Gambella/Ethiopia. But such trade is limited and often illegal. Trade is usually carried out in foreign currencies. Akobo's border with Ethiopia provides a critical supply for food and other goods along the Sobat/Pibor Rivers From Lankien/Nyirol county to Akobo West From Malakal by river to Akobo East. The main road linking the zone to Malakal is rarely open because of insecurity	- Sorghum and maize, wheat flour, cooking oil, biscuits, groundnut, beans Murle/Pibor trade with Juba/Central Equatoria and Eastern Equatoria without passing through Bor South	Food commodities fully imported to Bor town are mainly: - Maize flour - Beans - Cooking oil - Vegetables: tomatoes, onions, Irish potatoes, watermelon, ginger - Milk - Sugar, soft drinks… Other: - Groundnut comes from Terkeka-Central Equatoria (5% of their production) and Awerial-Lakes (20% of their production) are sold in Bor to supplement the deficit in Bor South - Fish caught by local people along the Nile in Twic and Duk is brought to Bor town to be sold and transported

Appendix 7 Timeline of the shocks in each county

	Pre 2013	2013 to 2018	2019-2021	2022
Bor Shocks	- Cattle raiding - Cobra faction rebellion	- Bor attack and civil war - Cattle raiding - ECF? outbreak	- Floods - COVID - Inter- communal violence	- Reduction of floods - Cattle raiding resumes
Bor Food system vulnerability and capacity	- Food insecurity - Cattle raiding - No trading/no accessible roads	- Food insecurity - Reduction in trade - Low agriculture and fish production - Loss of livestock - Migration/displacement to Bor - Humanitarian aid	- Loss of assets (including seeds) - Humanitarian aid - Food insecurity	- Many people that migrated from insecure rural areas remain displaced near Bor town - Cultivate fertile land in flood plains - High reliance on wild food and fish - Livestock that migrate to EES for safety (creating tensions there) - No trade with Pibor

	Pre 2013	2013 to 2016	2017-2018	2019-2021	2022
Pibor Shocks	- Conflict between the Murle and the Anuak - Conflict with Nuer	- YaoYao rebellion (second) - Civil war - Conflict with Nuer and Dinka		- Floods - No Murle-Anuak conflict as no movements	- Murle-Anuak conflict - Shortage of rains
Pibor Food system vulnerability and capacity		- Increasingly limited access to land for farming		- High loss of livestock - Loss of crops	- Increased reliance on wild food and hunting
Pibor Main integrated phase classification	IPC 2-3	IPC 2-3	IPC 4	IPC 4	IPC 4

	Pre 2013	2013 to 2016	2017-2018	2019-2021	2022
Pochalla Shocks	- Murle-Anuak conflict - Ethiopian refugees and military operation 2003-6 in Pochalla - Flood 2007	- YaoYao rebellion - Civil war - Intra-community Anuak fighting	- Murle-Anuak peace brokered by churches	- Floods (snake bites) - No Murle-Anuak conflict as no movements	- Murle-Anuak conflict
Pochalla Food system vulnerability and capacity	- Farming but limited maintenance resulting in pests/diseases - Introduction of fishing - Reliance on wild food	- Low agricultural production - Refugees in Ethiopia - Humanitarian aid (air-dropped)	- Normal cultivation	- Limited farming on high grounds - Refugees in Ethiopia - Humanitarian aid (air- dropped)	- Backyard subsistence farming by women - Humanitarian aid - Recovery
Pochalla Main integrated phase classification	IPC 1-2	IPC 2-3	IPC 2-3	IPC 3	IPC 3

	2012	2013 to 2016	2016	2017-2018	2019	2020	2021-2022
Akobo Shocks	- Floods	- Conflict	- Floods	- Normal year	- Floods	- Conflict Nuer and Murle	- Recurrent conflict - Revenge killing - Returnees from Ethiopia and the Sudan to Akobo town
Akobo Food system vulnerability and capacity	- Widespread losses of crops and household assets Akobo market completely cut off from reliable supply chains	- SPLA-IO control - Tensions in Lou Nuer and Anyuak due to: gradual displacement of the Anyuak by the Lou Nuer in the county; the changing composition of Akobo town; and unaddressed land disputes - low agricultural production after floods	- Widespread losses of crops and household assets Akobo market completely cut off from reliable supply chains	- Low agricultural production after floods.	- Widespread losses of crops and household assets Akobo market completely cut off from reliable supply chains	- Low agricultural production after floods	
Akobo Main integrated phase classification		IPC 3	IPC 2	IPC 3/4	IPC 3	IPC 4	IPC 4

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