



FNS-REPRO Sensemaking workshop report Sudan

Report of a sensemaking workshop held on 27-28 July 2022 with FNS-REPRO and key partners and stakeholders

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This report provides insights and lessons generated from different (internal and external) sources and critically reflected upon during a sensemaking workshop in Sudan in June 2022. This workshop is part of a series of sensemaking workshops, that aim to support evidence-based and adaptive programming for the Food and Nutrition Security Resilience Program (FNS-REPRO) in Somaliland, Sudan and South Sudan. This program aims to contribute to food and nutrition security and resilient livelihoods in protracted crises, by paying attention to natural resource management (NRM), value chain development (fodder in Somaliland, gum Arabic in Sudan, and seed in South Sudan), and production and consumption of nutritious food. Key partners in the program are FAO and WUR.

Keywords: conflict, FAO, food security, food system resilience, gum Arabic (GA), Natural Resource Management (NRM), nutrition, pastoralism, theory of change (ToC), resilience, Sudan, value chain (VC), WUR.

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Specifically we would like to thank our colleagues Koen Joosten and Nathan Kivuva from the FAO Resilience Team Eastern Africa, with whom we closely coordinate and work together to implement the evidence-based and adaptive programming cycle across the FNS-REPRO countries.

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Cecile Kusters and Eelke Boerema

List of abbreviations and acronyms

CoP	Community of Practice
ESA	Ecosystem Analysis
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
FNC	Forest National Cooperation
FNS	Food and Nutrition Security
FNS-REPRO	Food and Nutrition Security Resilience Program (by FAO & WUR)
GA	Gum Arabic
GAPA	Good Arabic Producer Association
GASVC	Gum Arabic and Supply Value Chain
HDP	Humanitarian-Development-Peace
IDP	Internally Displaced Person
IGA	Income Generating Activity
IP	Implementing Partner
IPC	Integrated Food Security Phase Classification ¹
IPM	Integrated Pest Management
LAFP	Learning Agenda Focal Point
MEAL	Monitoring, Evaluation, Accountability and Learning
NRM	Natural Resource Management
NR	Natural Resources
PRA	Participatory Rural Appraisal
RIMA	Resilience Index Measurement and Analysis
RTEA	Resilience Team for Eastern Africa (FAO)
RVCA	Rapid Value Chain Assessment
SDG	Sudanese Pound
SPA	Smart Partnership Agreement
SPCRP	Sudan Productive Capacity Recovery Programme (Northern Sudan)
ToC	Theory of Change
WCDI	Wageningen Centre for Development Innovation, Wageningen University & Research
WUR	Wageningen University & Research

¹ <https://www.ipcinfo.org/ipcinfo-website/ipc-overview-and-classification-system/en/>

1 Executive summary

On 28 and 29 June 2022, the annual program sensemaking event was conducted in Khartoum, Sudan. The event was organized and facilitated by WUR, in partnership with FAO Sudan, FAO RTEA and FNS-REPRO program partners. This event is part of the FNS-REPRO's evidence-based and adaptive programming cycle. The aim of the sensemaking event is to reflect on all information generated under FNS-REPRO in Sudan, identifying key challenges, issues and gaps that need to be addressed in order to achieve the intended impacts. Critical reflection with key stakeholders was facilitated on the key findings from the various studies and publications, and what gaps could be identified in the different outputs and approaches of the FNS-REPRO program outputs. This then led to suggestions to improve the program. The sensemaking event, focusing on the 'why' and the 'what' of FNS-REPRO, was organized back-to-back with FAO's annual review and planning meeting on 30th June which focused on reviewing not only what has been achieved so far but also on how suggested improvements could be integrated in the next and final (2022-2023) annual plan. The planning meeting also culminated into a brief report with action points to be addressed for the final annual plan.

The sensemaking workshop has successfully generated additional insights on how to sharpen specific activities under the three main outputs of the program, being: 1) improved management of and access to natural resources, 2) improved income opportunities along selected value chains and, 3) nutrition sensitive livelihoods support. Furthermore key challenges were identified to which suggestions to address those have been formulated, including addressing key challenges along the gum Arabic value chain, improved market access for gum Arabic producers and generating evidence for MEAL and learning.

Below an overview of all key findings and suggestions for improvement is provided, as input to the final annual plan for FNS-REPRO in Sudan. The full description of the provided suggestions for improvement and the summary of key findings from existing evidence it was based on, is presented further in this report.

1.1 Key issues – high levels of food insecurity due to worsening macro-economic situation, poor harvest and conflict

According to the Integrated Food Security Phase Classification (IPC) information that was published on 21 June 2022 (April 2022–February 2023), "Sudan food insecurity levels continue to increase driven by the worsening macro-economic situation, poor harvest and conflict." They explain that "With significant increases in food and other commodity prices, a reduced harvest, and continued conflict, acute food insecurity in Sudan continues to worsen rapidly..... The situation is projected to worsen between June and September, with up to 11.7 million people likely to be in Crisis (IPC Phase 3 or worse)." The more detailed IPC report shows that for the second projection period (October 2022 – February 2023) the situation is expected to slightly improve but various factors are highly unpredictable. "The situation remains extremely volatile with several highly unpredictable factors, most notably the conflict in Ukraine, the impacts of which can be much more consequential than envisioned in this analysis.... High prices, low purchasing power, intercommunal conflicts, and seasonal floods will remain the key drivers of food insecurity....Sudan's macroeconomic situation is expected to continue to deteriorate through the year 2022. The macroeconomic outlook indicates persistent risks of political instability and shocks related to the Russia–Ukraine conflict (notably higher food and oil prices), including lack of a sustainable hard currency stream and the increased need to import essential food and non-food items will likely drive further currency depreciation. Continued increases in the prices of food and transportation and the local food basket are expected to negatively impact the purchasing power of poor households and likely drive an increase in the inflation rate."

1.2 MEAL update on progress, challenges and suggestions for improvement

Progress update

Various activities have been implemented. Whilst there is some evidence on the effects of these activities, and expectations are high, the data are still incomplete especially at outcome and impact level.

In terms of NRM and conflict management FAO reported that the following activities have been carried out: NRM plans; restoration of degraded rangelands; rehabilitation of water infrastructure and demarcation of livestock routes; co-management training; capacity building of community organizations on conflict resolution & NRM; and dialogue sessions between farmers and pastoralists and between elders and women/youth.

In terms of gum Arabic (GA) production the agroforestry initiative has been implemented and farmers are now trained (TOT) on GA tapping and post-harvest practices.

Capacity building has taken place for women associations, youth, extension officers and lead farmers. Topics included: decision making power; nutrition knowledge and food handling and preservation skills; trainings on water co-management; nutrition-sensitive IGA; and ToT Training in FFS and curriculum development.

Key challenges

Key challenges relate mainly to external factors like political instability, conflict and insecurity, land tenure and desert locust, but also to implementation issues like GA VC development.

Impacts by challenges

The political and economic situation, conflict and lack of access to basic services have influenced the implementation and effects of the program. Furthermore, in this situation it is difficult to collect data at beneficiary level.

Suggestions to address challenges and emerging issues

Suggestions by FAO to address challenges and emerging issues mainly refer to continuing and expanding the work on NRM and related conflict management.

1.3 Key findings and suggestions from the Rapid Value Chain Assessment (RCVA)

Another key information source for the 2022 evidence-based and adaptive programming cycle was a rapid gum Arabic value chain assessment (RCVA) that was undertaken in June 2022 in North and East Darfur regions of Sudan. Key findings and recommendations for improvement are described below.

Natural resource management and conflict resolution and peace building

Key findings

Various program activities were observed to be going well: rehabilitation of water, rangelands and agroforestry; reconstruction of livestock corridors; training services, especially for community-based committees; peace and conflict resolution over natural resources.

Key problems included: insecurity and conflict; inadequate restoration/rehabilitation of productive trees (esp. GA); lack of water in GA areas; poor infrastructures and services; poverty; and poor governance; inadequate protection of hashab trees, rangeland and forest.

Recommendations

Recommendations for improvement relate to continuation and improvement of NRM and peacebuilding and conflict resolution activities, in particular: access to water (rehabilitation & new; for field crops, GA & along livestock corridors); forest protection (firelines; social fencing; community forest guards); peace building dialogues; veterinary services along livestock corridors; continued training and access to information; enhance role of native administration & enforce (by-)laws.

Gum Arabic supply and value chain and agroforestry

Key findings

Communities have received tools and are using Sonki (GA tapping tool). They have been trained and improved awareness (e.g. on GA tapping, overcutting of Hashab and other trees) and associations for knowledge exchange have been established. Also the rehabilitation of village nurseries was supported.

However there are still many challenges faced, particularly around developing the GA value chain: lack of contract farming agreements between private companies & GA producers; farming system is not based on cultivation of multi-crops that are rotated together with acacia trees; access to knowledge by youth & women had only slightly improved, whilst elderly people have indigenous knowledge on tapping GA; Sonki tool not distributed to all GA producers; inadequate access to formal and informal credit for GA producers; pests and diseases; low quantities of crop seeds distributed; late distribution of seeds/seedlings; lack of market for GA; low price for GA; smuggling of GA; insufficient training on post-harvest activities and/or value-addition; no protection of hashab trees against animal encroachment; weak roles of the women & youth in Hashab tapping and collection.

Recommendations

Recommendations mainly relate to the development of the GA value chain but also other issues need attention:

- Improve provision of inputs: ensure timely & sufficient distribution of quality seeds and seedlings, of Sonki tool (with training), of fertilizers and of donkey ploughs (as IGA); establish home/village nurseries.
- Enhance capacity development: to increase quantity and quality of GA products; GA pre-harvesting, post-harvesting and value addition; entrepreneurship; train women and youth on tapping and collection of GA; awareness on agroforestry; pest and disease control; organise exchange visits.
- Improve protection: mitigate overgrazing and overcutting of gum trees.
- Ensure enabling environment: link GA producers/GAPA's with finance institutions; encourage smart-partnerships; strengthen linkages along the GA value chain; improve policies & relates measures (finance, taxes, arms, smuggling).
- Improve infrastructure: water, storage facilities, transportation means, feeder roads, market services for GA production; Gum Arabic Research Center in North Darfur State.

Findings and recommendations in the domain of nutrition and income generation

Whilst training in healthy diets has been undertaken and improved stoves help to reduce the consumption of wood and charcoal, there is need for more training on nutrition, (nutrition-sensitive) income-generating activities (IGAs) and entrepreneurship especially for women and youth.

Concluding remarks by the RVCA team

From the viewpoint of the FNS REPRO Learning Agenda Focal Points (LAFPs), the following suggestions are to be considered for the remainder of the program:

1. Support an enabling environment on the production sites and rural markets;
2. Empowerment of GAPAs & involve more youth and women in the GA business (production, micro-processing and trade activities);
3. Encourage adoption of innovative intermediate technologies for GA producers (e.g. model bag);
4. Endorsement of smart partnerships between GA value chain actors on the basis of win-win & fair trade mechanisms;
5. Adopt good practices that improve post-harvest activities and promote value addition across gum Arabic supply value chain.

1.4 Address key challenges along the Gum Arabic (GA) value chain

During discussions in the sensemaking event it became clear that there was need to review key challenges along the GA value chain and think about how these challenges could be addressed so as to strengthen the GA value chain, and contribute to improved income, livelihoods and food and nutrition security. This includes a.o. improving production & post-harvest activities (finance, cleaning, drying, packaging, storing etc), transporting, negotiating/business development. Suggestions for improvement are described below.

Improve the resource base. This requires the protection of hashab trees; the reduction of deforestation (law enforcement; awareness raising; fencing & rehabilitation of rangeland; distribution of quality pasture seed and GA seedlings for community nurseries); and the provision of water.

Improve GA production. This includes protection of trees, strengthening capacities, dealing with locust, improving tapping, improving access to water, having an agro-silvo-pastoral system etc. It also includes having the right tools for tapping; access to pre-financing for early tapping; and providing a model bag for GA collection (within smart partnership).

Improve pre-harvest activities. Gum is to be collected through tapping and after maturity.

Improve post-harvest value creation. This includes improving value addition; awareness raising on post-harvesting and transportation; improving storage facilities; empower the role of GAPA's.

Improve marketing relations and sales. This includes: capacity building of GA producers; organising GA producers in GAPA's; establishing a market information system; establishing smart partnerships; engaging the government; engage the private sector.

Ensure an enabling environment to enhance government support, and access to finance in support of the above.

1.5 Improve access to the Gum Arabic market: smart partnerships with the private sector

A critical aspect for the success of FNS-REPRO is to guarantee a stable and reliable market for small-scale producers engaged in the gum Arabic value chain. This is key to the program's sustainability as well. In addition, attention to trade and private sector collaboration is part of the new Dutch foreign policy². FNS-REPRO should therefore strengthen partnerships with the private sector (to close the supply/demand gap), as part of the final annual plan.

During the adaptive programming workshops, a beginning was made with the development of a strategy to strengthen the collaboration with the private sector – centered around "*Smart Partnerships*" between GAPAs and gum Arabic companies, drawing from successful smart partnership arrangements in other areas of Sudan where gum Arabic production is well established.

Ultimately, to be successful FNS-REPRO will need to show that smart partnerships can work in Darfur. Once a few good practices have been established, with clear benefits for both producers and companies, it is likely that other partnerships will follow. This will then also take away some of the barriers that exist in Darfur compared to Kordofan, where smart partnerships are common practice.

² <https://www.government.nl/documents/policy-notes/2022/10/10/policy-document-for-foreign-trade-and-development-cooperation-do-what-we-do-best>

1.6 Improve MEAL & evidence

During various discussions in the sensemaking event in Sudan it became clear that there is a need to strengthen the evidence and related MEAL in the program. This involves:

- Quantitative data collection on gum Arabic (GA): amounts produced and sold, quality, income and profit.
- Qualitative data collection on changes at outcome (and impact) level.
- Strengthen context monitoring.
- Capacity building of implementing partners on data collection and management.

2 Introduction

2.1 Introduction to FNS-REPRO

The Netherlands-funded Food and Nutrition Security Resilience Program (hereinafter: FNS-REPRO) is the first program in Eastern Africa specifically designed to foster peace and food security at scale, through a livelihood and resilience-based approach, in some of the least stable regions, where interventions are normally of humanitarian programming nature exclusively³. Its design allows FAO and partners to set examples of building food system resilience in protracted crises. The four-year program (2019-2023) is implemented in South-Sudan, Sudan and Somaliland. FNS-REPRO adopted a food system resilience approach and focusses on strengthening strategic value chains at country level. In Sudan, the focus is on strengthening the Gum Arabic value chain in North and East Darfur⁴.

2.2 Introduction to evidence-based and adaptive programming

One of the FNS-REPRO key principles is flexible and adaptive programming. This means that the program can change over time to increase fit with day-to-day and longer-term realities faced by communities on the ground. Given the complex and protracted crisis context of the program's target areas, there is a need to be able to identify emerging issues and adapt to changes and negative impacts that affect beneficiaries and the FNS-REPRO outcome and objectives. This makes FNS-REPRO more effective, efficient, and relevant for its beneficiaries.

With the above in mind, FAO and its project partner Wageningen University & Research (WUR), designed the program-specific adaptive programming cycle. The cycle is facilitated by the organization of sensemaking events (critical reflection on information generated along the course of the program – organized by WUR) and annual review & planning meetings (strategic program management based on sensemaking events to inform the next FNS-REPRO's annual plan – by FAO country offices), taking place in June and July every year. In addition to this, mid-year sensemaking events are organised by WUR in February to focus on key issues in the context that call for program adaptation.

Information and knowledge generated by FNS-REPRO (RIMA's, context analyses, food system resilience assessments, learning journeys in Communities of Practice (CoPs), special studies, learning events) and review of other relevant literature review and publications (e.g. IPC info) are reflected upon during the sense-making events and critical insights generated thereby will feed directly into the review & planning meeting, informing the next annual plan.

In June 2022, the adaptive programming meetings were held for the third time. All three events took place face-to-face, for the first time, in their respective country capitals Hargeisa, Juba and Khartoum, as COVID-19 travel restrictions had been lifted.

Somaliland

- 5-6 June: Sensemaking event
- 7 June: Annual Review & Planning meeting

³ To read more about FNS-REPRO, visit the following web pages: <https://fns-repro.com/what-is-fns-repro/> and <https://www.wur.nl/en/research-results/research-institutes/centre-for-development-innovation/show-cdi/fns-repro-building-food-system-resilience-in-protracted-crises.htm>

⁴ To read more about FNS-REPRO in Sudan: <https://fns-repro.com/what-is-fns-repro/sudan/>

South-Sudan

- 22-23 June: Sensemaking event
- 24 June: Annual Review & Planning meeting

Sudan

- 28-29 June: Sensemaking event
- 30 June: Annual Review & Planning meeting

The suggestions for improvement for each country program, as generated during the sensemaking event organised and facilitated by WUR, are provided in this report. These suggestions have been validated during the subsequent annual review and planning meeting organised by the FAO country teams.

2.3 Background to the Sudan sensemaking event

On 28 and 29 June 2022, the annual program sensemaking event was conducted in Khartoum, Sudan. The event was organized and facilitated by WUR, in partnership with FAO Sudan, FAO RTEA and FNS-REPRO program partners. This event is part of the FNS-REPRO's evidence-based and adaptive programming cycle. The aim of the sensemaking event is to reflect on all information generated under FNS-REPRO in Sudan, identifying key challenges, issues and gaps that need to be addressed in order to achieve the intended impacts. Critical reflection with key stakeholders was facilitated on the key findings from the various studies and publications, and what gaps could be identified in the different outputs and approaches of the FNS-REPRO program outputs. This then led to suggestions to improve the program. The sensemaking event, focusing on the 'why' and the 'what' of FNS-REPRO, was organized back-to-back with FAO's annual review and planning meeting on 30th June which focused on reviewing not only what has been achieved so far but also on how suggested improvements could be integrated in the next and final (2022-2023) annual plan. The planning meeting also culminated into a brief report with action points to be addressed for the final annual plan.

As the evidence-based and adaptive programming cycle in 2021 took a comprehensive approach to understand progress, key challenges, issues, gaps and trends across all the components of the program, the 2022 cycle took a more detailed approach to assess remaining key issues and trends and suggest pathways to address these. It also looked more closely into what was happening on the ground, by sharing more detailed MEAL information, but also findings from a rapid gum Arabic value chain assessment and stories of change. Moreover, the event in June built upon the February 2022 mid-year sensemaking event which had a predominant focus on understanding key shocks and stressors and suggesting crises-modifiers to mitigate its negative effects. For Sudan, the main focus was on the upsurge of violence and insecurity in the Darfur region, sparked by the October 2021 coup and forthcoming political unrest.

This report provides a summary of the key findings as well as suggestions for improvement of the FNS-REPRO program in Sudan. The report follows the structure of the event itself, being the following components: introduction to key concepts, a brief context update focussing on emerging issues and trends, the revised Theory of Change for FNS-REPRO in Sudan, a FNS-REPRO (MEAL) progress update for the 2021-2022 annual programming cycle, key findings of a rapid gum Arabic value chain assessment and stories of change, key issues for discussion and finally key suggestions for the final annual plan.

A detailed report that includes a description of the context, a literature review on the gum Arabic value chain, key findings of a rapid gum Arabic value chain assessment and stories of change is shared separately.

A separate report on the annual review and planning meeting, building on the key findings and suggestions generated in the sensemaking events, is written by the FAO FNS-REPRO team in Sudan.

3 Day 1 – key concepts, context, Theory of Change and MEAL

3.1 Key concepts

During the sensemaking workshop a brief introduction was given to key concepts, especially in relation to food systems and food systems resilience, which is at the heart of FNS-REPRO. Some of this was also shared in the sensemaking event in June 2021 but shared again this time to refresh ourselves and as new participants have joined the workshop.

3.1.1 Food systems framework

The concept of food systems has been stressed during the recent UN Food Systems Summit ([UNFSS](#)) in 2021. There are many concepts and frameworks that can help to understand food systems. For example the one developed by the High Level Panel of Experts (HLPE) on Food Security and Nutrition⁵. This framework puts particular emphasis on the aspect of **(healthier) diets**.

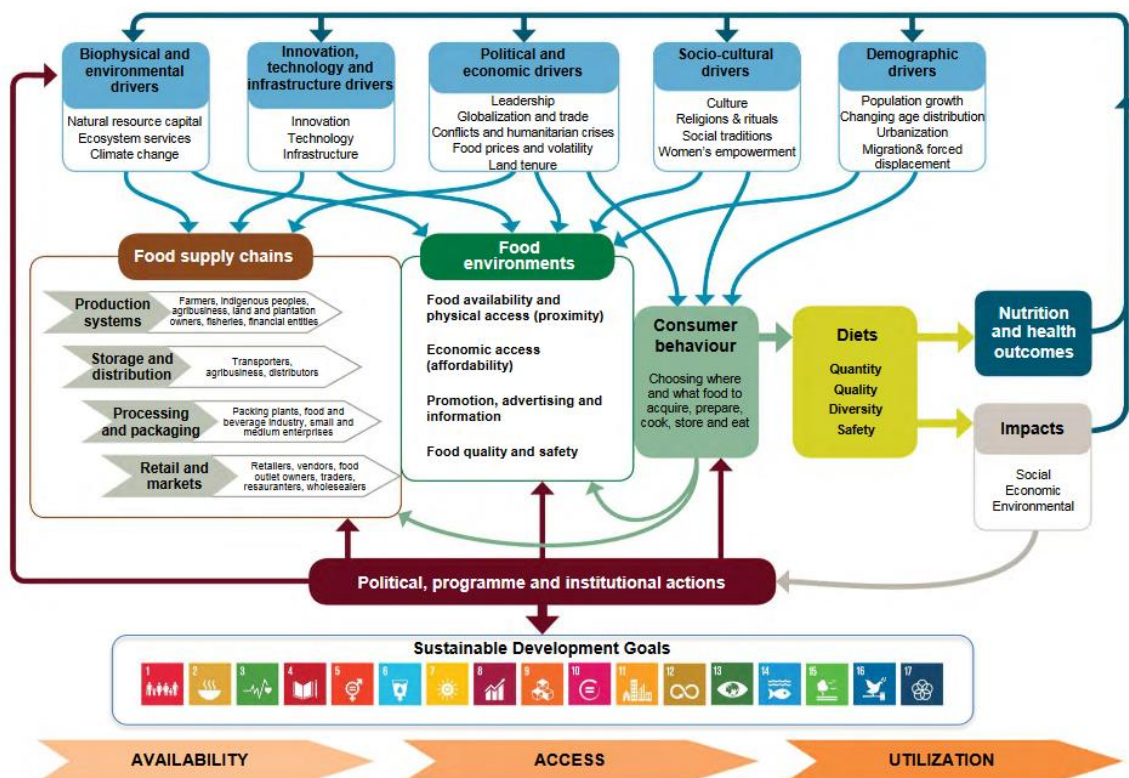


Figure 1 Conceptual framework of food systems for diets and nutrition

This framework has been adapted in the latest HLPE report #15 (see the figure below). Here the emphasis is on **sustainable food systems**. “According to FAO (2018a), food systems are sustainable when they “deliver food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.” When food systems embody these qualities in an integrated, holistic way, they are more likely to support the realization of the right to food and to meet the goals of the 2030 Agenda, especially SDG 2.” (HLPE, 2020).

⁵ See HLPE report 12: <https://www.fao.org/3/i7846e/i7846e.pdf>

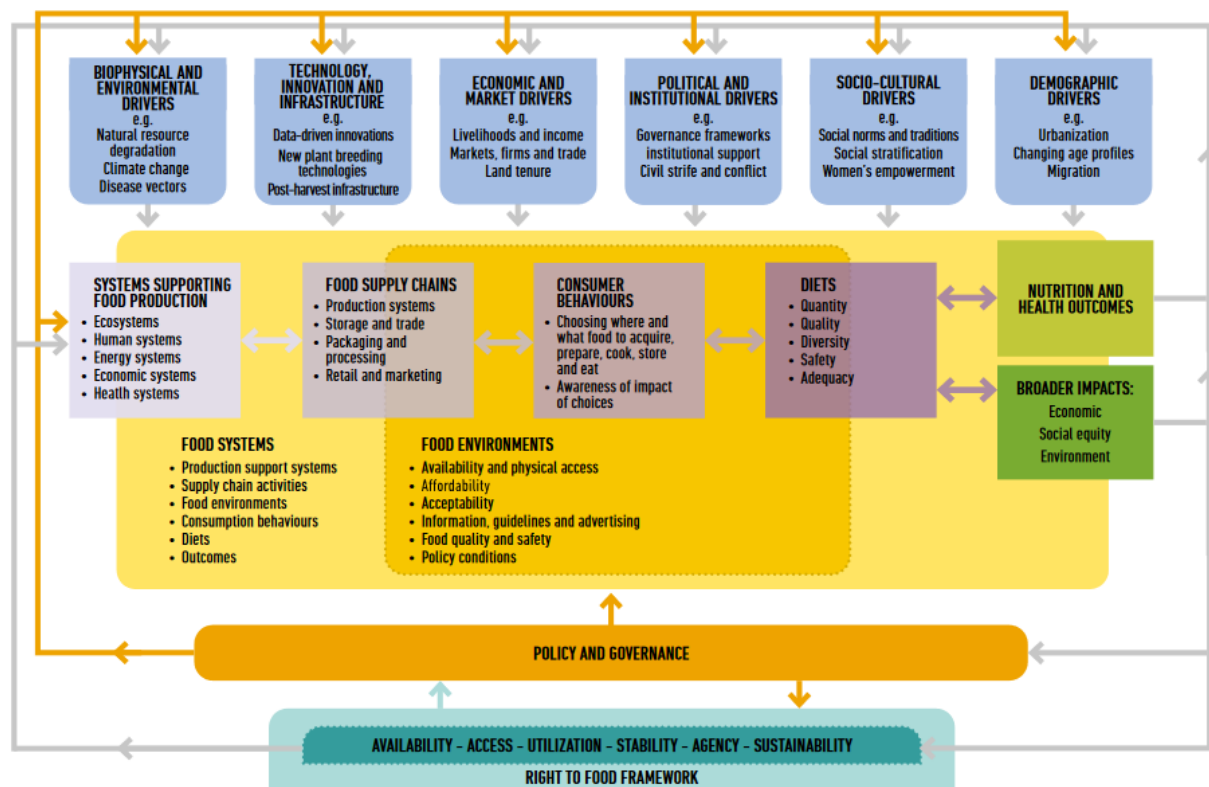


Figure 2 Sustainable Food System Framework
Source: Adapted from HLPE 12, 2017.

The latest HLPE report (2021) positions **youth as agents of change** in a sustainable food systems framework (Wittman et al., 2021).

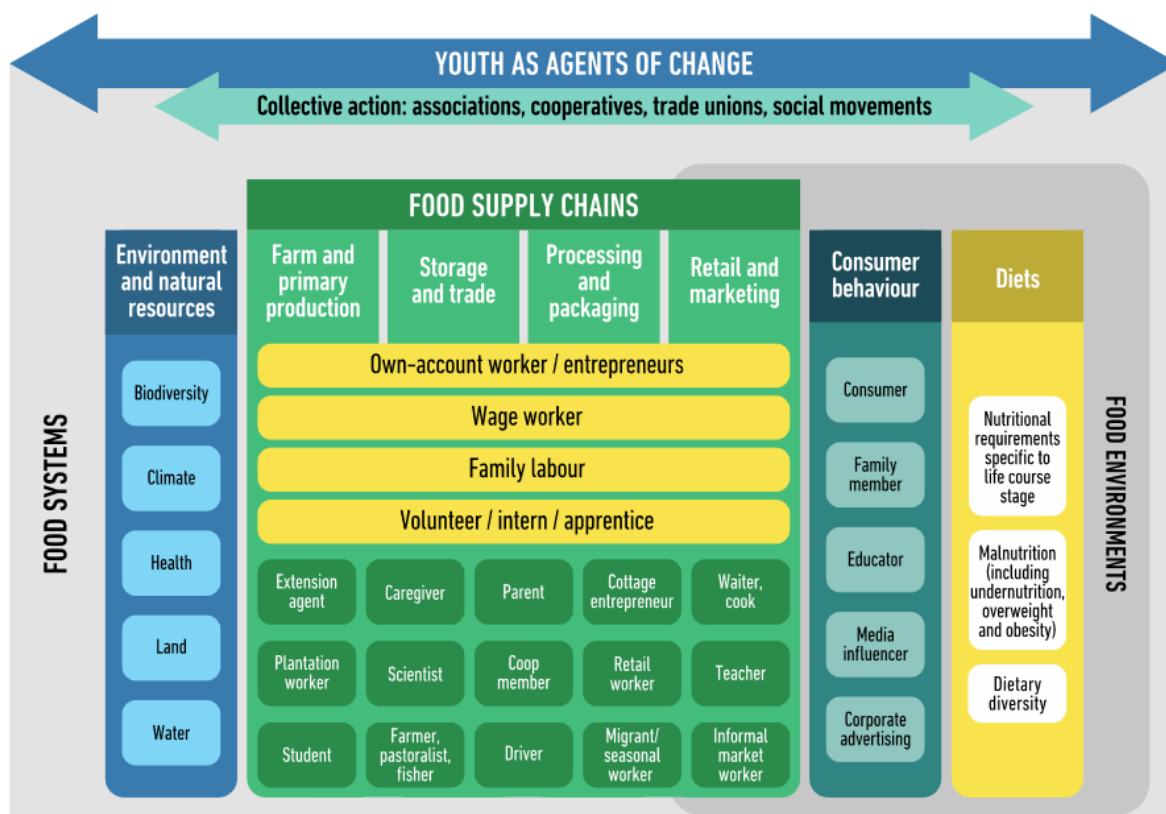


Figure 3 Roles and spaces for youth engagement and employment in food systems
Source: Elaborated by authors based on HLPE 2017, 2020a.

3.1.2 Resilient food systems

Drawing on the UN Common Guidance on Helping Build Resilient Societies, **agrifood systems' resilience** can be defined as *"the capacity over time of agrifood systems, in the face of any disruption, to sustainably ensure availability of and access to sufficient, safe and nutritious food for all, and sustain the livelihoods of agrifood systems' actors"*. The authors indicate that "agrifood systems have three main components: (i) primary production; (ii) food distribution, linking production to consumption through food supply chains and transport networks; and (iii) household consumption, including intra-household food distribution. Key actors are: primary producers; those providing input supply, post-harvest, storage, transport and food processing services; food distributors, wholesalers and retailers; and households and individuals as final consumers." In terms of resilient food systems the authors indicate that "Truly resilient agrifood systems must have a robust capacity to prevent, anticipate, absorb, adapt and transform in the face of any disruption, with the functional goal of ensuring food security and nutrition for all and decent livelihoods and incomes for agrifood systems' actors. Such resilience addresses all dimensions of food security, but focuses specifically on stability of access and sustainability, which ensure food security in both the short and the long term. Another dimension of food security – agency – is deeply connected to human rights, including the right to food, and underscores the need for inclusiveness in systems." (FAO, 2021).

They furthermore indicate that *"Shocks have immediate impact, while stresses gradually undermine systems' coping capacity"*. In particular the **role of climate change** is important: "Compared to other economic sectors, agriculture is disproportionately exposed and vulnerable to adverse natural hazards, especially those climate related. Climate change drives short-term shocks, such as extreme weather events, and generates slow-onset stresses, such as higher temperatures and loss of biodiversity. Shocks have immediate impact, while stresses are slow processes that gradually undermine the capacity of systems to cope with change and which render them more vulnerable. Agrifood systems' components and actors are exposed to shocks and stresses of various types and intensity and, because components are interlinked, disruption in any of them can spread quickly throughout systems. The same shock or stress may have different impacts on different systems' components and actors. Among producers, shocks are most likely to affect the livelihoods of low-income, small-scale operators; among food consumers, the poorest will be the most affected by rising food prices." (FAO, 2021).

The authors also indicate that building resilience is **more than risk management**. "Risk management strategies that reduce exposure and vulnerability to a known, specific shock – such as drought preparedness – help build agrifood systems' resilience. However, the COVID-19 crisis has shown that some shocks are unpredictable in terms of timing and extent. Agrifood systems must have the capacity to continue functioning in the presence of shocks that are not foreseeable. Building resilience is, therefore, more than risk management: resilient agrifood systems are a strategic component of the world's response to ongoing and future challenges." (FAO, 2021).

3.2 Key issues – high levels of food insecurity due to worsening macro-economic situation, poor harvest and conflict

According to the Integrated Food Security Phase Classification (IPC) information that was published on 21 June 2022 (April 2022-February 2023)⁶, "Sudan food insecurity levels continue to increase driven by the worsening macro-economic situation, poor harvest and conflict." They explain that "With significant increases in food and other commodity prices, a reduced harvest, and continued conflict, acute food insecurity in Sudan continues to worsen rapidly. Latest acute food insecurity data indicates that around 9.6 million people across Sudan were highly food insecure and classified in Crisis (IPC Phase 3 or above) from April to May 2022. The prevalence of the population in IPC Phase 3 and above has moved from 13% (October 2021 – February 2022) to 20% (April- May 2022) to 24% (June-September 2022), driven by a plummeting economy, poor harvests and conflict. The situation is projected to worsen between June and

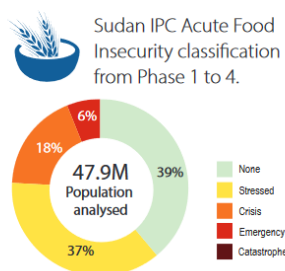
⁶ https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Sudan_AcuteFoodInsecurity_2022Apr2023Feb_report.pdf

September, with up to 11.7 million people likely to be in Crisis (IPC Phase 3 or worse). Northern, Western and Central Darfur, Khartoum, Kasala, White Nile host the highest caseload of IPC Phase 3 and Phase 4 during the projection people from June to September 2022. With an additional 2 million people classified in IPC Phase 3 (Crisis) or above, the results reflect a significant increase in the expected magnitude compared to the same period last year (June to September 2021), when 9.8 million people were classified in IPC Phase 3 or above. The states that are projected to have the highest proportion of people in need of urgent action are West Darfur (42%), North Darfur (36%) and Central Darfur (35%). The most affected groups are internally displaced people (IDPs), returnees, those stranded in conflict areas, refugees from South Sudan, Ethiopia, and other neighbouring countries, and poor groups from agro-pastoral and pastoral communities in rural areas of Western, Eastern and Northern Sudan, whose livelihoods are directly affected by the impact of lean season and macroeconomic crises.” See also the figures below for more details⁷.

Projected Acute Food Insecurity | June -September 2022



Nearly 11.7 million people in Sudan are likely experiencing high acute food insecurity (IPC Phase 3 and above) between June and September 2022.



Projected Acute Food Insecurity Map | June - September 2022

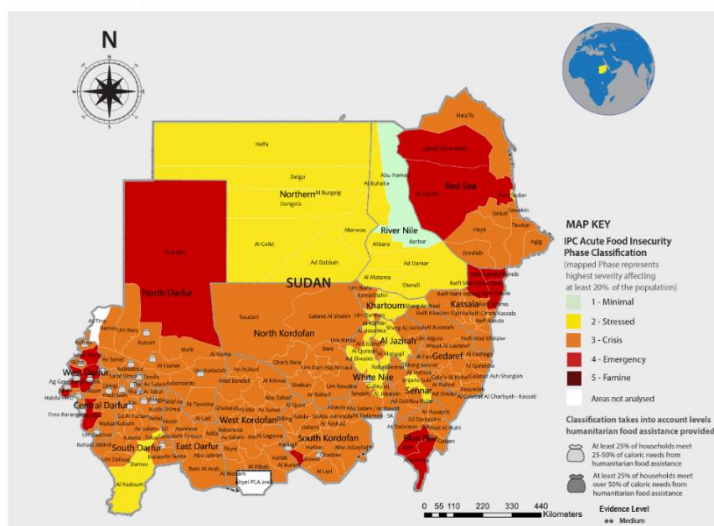


Figure 4 Projected acute food insecurity June – September 2022 for Sudan

⁷ For the latest IPC overview:

https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Sudan_AcuteFoodInsecurity_2022Apr2023Feb_snapshot.pdf

Key Drivers



Economic decline and inflation

The macro-economic situation in Sudan is worsening. Food prices have nearly tripled compared to 2021 and are projected to be more than 400-500 percent above the five-year average through the beginning of 2023.



Conflict induced displacement

Conflict has forced over 3 million people out of their homes across Sudan. According to OCHA, between January and May 2022, about 84,758 people were displaced due to conflict, with the bulk of the uprooting in West and Central Darfur and during the projection period.



Poor harvest

The early 2022 harvests were 35% below average, leading to a cereal deficit of 2.5 million metric tonnes. About 64% of the households in the current period reported do not have stocks to carry them over until the end of the lean season. This will likely lead to a more significant proportion of households relying on markets.



The conflict in Ukraine

Domestic production of wheat only covers 15% of Sudan's wheat demand. In 2020, 60 % of the total wheat imported to Sudan came from Russia (55%) and Ukraine (5%). With a 1.7 million metric tonne deficit of wheat and a shortage of foreign currency for imports, there is expected to be a surge in wheat prices.

Publication date: 21 June 2022 *IPC population data is based on population estimates from the Central Bureau of Statistics of Sudan. Disclaimer: The information on this map does not imply official recognition or endorsement of any physical and political boundaries.

Figure 5 Key drivers of acute food insecurity

The more detailed IPC report⁸ shows that for the second projection period (October 2022 – February 2023) the situation is expected to slightly improve but various factors are highly unpredictable. “The situation remains extremely volatile with several highly unpredictable factors, most notably the conflict in Ukraine, the impacts of which can be much more consequential than envisioned in this analysis.” They explain that “The food security situation is expected to slightly improve during the second projection period compared to the first projection, where the prevalence of population in IPC Phase 3 and worse is 24% compared to 16% in the second projection period.”

“The improved food supply to the markets from local production will lead to a shift of 2.4 million (5%) of the population to a better phase. The improvement is, however, not significant, considering that 63 localities will still be in IPC phase 3 (Crisis) in the second projection period. High prices, low purchasing power, intercommunal conflicts, and seasonal floods will remain the key drivers of food insecurity. In this contest, the mitigating factor is constituted by the main harvest happening in this period of analysis, expected to alleviate the compromised access to food and income, driven by own production, in-kind payments for agricultural labour, and in-kind support from relatives compared to the lean season (June to September). Income from agricultural labour and cash crops’ sale will also support market purchases of food when staple food prices are expected to seasonally decrease or at least stabilize.”

“Sudan’s macroeconomic situation is expected to continue to deteriorate through the year 2022. The macroeconomic outlook indicates persistent risks of political instability and shocks related to the Russia–Ukraine conflict (notably higher food and oil prices), including lack of a sustainable hard currency stream and the increased need to import essential food and non-food items will likely drive further currency depreciation. Continued increases in the prices of food and transportation and the local food basket are expected to negatively impact the purchasing power of poor households and likely drive an increase in the inflation rate.”

⁸ https://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_Sudan_AcuteFoodInsecurity_2022Apr2023Feb_report.pdf

3.3 The Theory of Change (ToC) for FNS-REPRO in Sudan

The poor food security situation in Sudan indicates inadequate food systems resilience which requires both short and long-term actions along the HDP nexus. FNS-REPRO in Sudan focuses on improving natural resource management (NRM) and reducing natural resource (NR) related conflicts, improving gum Arabic (GA) production, food production (introducing agro-silvo-pastoral systems) related to the GA value chain, whilst at the same time improving nutrition-sensitive agriculture, so as to ultimately contribute to improved income and food and nutrition security of targeted population in North and East Darfur.

Below you can find the Theory of Change (ToC) for Sudan, which was prepared in collaboration with the program manager and the MEAL coordinator for FNS-REPRO in Sudan and further discussed during the sensemaking event. A ToC explains the assumptions that people have about how change happens or is expected to happen. Discussion on the ToC during the sensemaking event was done to enhance clarity of program design as well as get input from a range of partners and stakeholders on how to further improve the program. These and other discussions during the sensemaking event provide input for the next, final annual plan October 2022-September 2023.

The result can be seen in the figure below (in yellow additional comments by workshop participants). Basically, in order to enhance food and nutrition security of smallholder farmers in the program areas, FNS-REPRO in Sudan aims to improve food production and income through 3 main pathways: Improved access to & sustainable management of natural resource and reduced NRM related conflict; Improved food production & productivity and increased income from GA; and Improved nutrition-sensitive agriculture. These are explained more in detail below, including comments provided during the sensemaking workshop.

1. **Improved access to and sustainable management of natural resource and reduced NRM related conflict.** It is important to improve access to (for farmers & pastoralists, women, youth & elders) and management of local natural resources, so that NR related conflicts can be reduced and to contribute to more sustainable forests management. This is expected to contribute to the improvement of production and productivity of food crops. The program contributes to improved access to NR and NRM by:
 - a. Building the capacities of NRM committees: this is done by training these committees in leadership and book keeping; monitoring, evaluation and report writing; organization and meeting management; and conflict sensitive programming;
 - b. Improving local conflict management systems. This is done by engaging youth & women and promoting peace and stakeholder (government institution) collaboration in the following activities:
 - i. Supporting the native administration & NRM committees to facilitate 18 *dialogues* between elders and youth & women;
 - ii. Undertaking *ToT training on prevention and management of resource-based conflicts* for native administration and natural resources management committee members;
 - iii. Supporting 18 *dialogue sessions* between farmers and pastoralist to reduce conflict over NR and foster localised sustainable peace.
 - c. Strengthening capacities for Natural Resources Co-Management. This involves the following activities:
 - i. Undertake *trainings in co-management of natural resources* for all established natural resources management committees;
 - ii. *Leading consultation* between the Forests National Corporation (FNC) and communities on sustainable forests management through local level agreement between FNC and communities;
 - iii. *Organizing NRM exchange visits* to understand and learn from successful examples of community based water, range and forests management in different areas of Sudan.
 - d. Increasing amount (XX ha) of rangeland under improved natural resource management. In close collaboration with the Rangeland Department the program aims to *support sustainable rangeland management and reducing related conflict*, by:
 - i. *Demarcation* of 140 km of *livestock migration routes*;
 - ii. *Land restoration* through broadcasting of pasture seeds on a total area of 100 ha;
 - iii. Opening 500 km of *fire lines*;
 - iv. Undertaking a *rangeland assessment survey*.

-
- e. Improving access to water for people (drinking water) and livestock. This is will be ensured by rehabilitating water points and strengthening the capacity to operate & co-manage these water points, by:
 - i. *Rehabilitation of water yards/boreholes/hafirs* in the targeted communities;
 - ii. *Liaising with local water agencies to train communities on the operation and management of rehabilitated water points and support co-management system;*
 - iii. *Producing recommendations* to improve the operation and management of water supply infrastructure rehabilitated by the project.

Comments, suggestions and additions by workshop participants included combining the co-management of NR (c) and rehabilitated water points (e).

2. **Improved food production & productivity & increased income from gum Arabic (GA).** Food production and productivity as well as production and productivity of GA can be improved by having an integrated farming system on the farms of GA producers, the agro-silvo-pastoral system, whereby food production ('agro'), Hashab trees for GA production ('silvo') and livestock ('pastoral') are integrated on the farm land of GA producers. Further developing the GA value chain supports the GA production and productivity. There are four main sets of activities that are expected to support these changes (see the details in the ToC visual):
- a. Capacity development of producers & other actors along the GA value chain. This is expected to influence the 'Improved collaboration on & performance of agro-silvo-pastoral systems' as well as 'Gum Arabic producers increase production & productivity of GA'. Activities include: training for extension officers and lead farmers on sustainable mechanization through ToT; developing capacity of local institutions to scale up the agro-silvo-pastoral system and develop strategies for institutionalizing its research for development; producing a training manual on leadership and entrepreneurship for gum Arabic value chain actors and others; developing capacities of value chain actors (GAPAs, traders and lead farmers) as well as youth and women on leadership and entrepreneurship through a ToT; developing capacities gum Arabic value chain actors through a training on good post-harvest and micro-processing practices.
 - b. Capacity development of GAPA's and GA value chain actors. This is expected to influence 'Gum Arabic producers increase production & productivity of GA', 'Strengthened GA value chain & linkages', and 'Improved access to finance'. The last two also influence which also influence GA production & productivity. Activities include: enhancing and activating the existing 20 Gum Arabic Producers Associations (GAPAs); Preparing a strategy for smart partnership between private sector and GAPA's; developing smart partnerships between GAPAs & private sector companies encompassing production, processing, and value addition; Establishment of gum Arabic collection centres and micro-processing units at rural/urban village market level; establishing a rural micro-finance fund with specific criteria/training programs to access these funds for gum Arabic farmers; multi-stakeholders round table discussion/meetings to increase quality standards of gum Arabic, improve farm gate prices and grant sustainable access to rural finance and good quality inputs; capacity building programs for administrative personnel to endorse quality control process for Gum Arabic and routine monitoring for stable and sustainable balance.
 - c. Capacity development on agro-forestry. This is expected to influence 'Improved agro-forestry system' which in turn influences the agro-silvo-pastoral system on the GA farms. Activities include: Distribution of Acacia Senegal seedlings, improved cash crops seeds and agricultural tools to farmers; Developing capacities of gum Arabic value chain actors on good post-harvesting and micro-processing practices; Post distribution monitoring (PDM); Training on agroforestry for new project beneficiaries; Establishing/rehabilitating community nurseries at community/ locality level.
 - d. Supporting establishment of farmer field schools (FFS) and raising awareness of and train farmers. This is expected to influence 'Improved agro-forestry system' which in turn influences the agro-silvo-pastoral system on the GA farms. It is also expected to influence 'Improved collaboration on & performance of agro-silvo-pastoral systems'. Activities include: Selecting farmers field school members and school sites; ToT training on Farmer Field School concept and curriculum development; Establishing one demonstration farm per village; Supporting weekly meetings of Farmer Field Schools (zigzag training, Ecosystem Analysis (ESA), special topics) supported by subject matters specialists; Undertaking field days for established Farmer Field Schools; Undertaking exchange visits to other

states to understand and learn from the success of established FFS by others FAO/SPCRP Program; Training in IPPM for 25 FFS coordinators/facilitators; ToT training on communication and facilitation skills and Participatory Rapid Appraisal (PRA) for FFS Coordinators and Facilitators.

Comments, suggestions and additions by workshop participants included:

- *The agro-silvo-pastoral system is central.*
- *Training:*
 - Need to introduce technology and innovation (based on research). Importance of training and role of government - many things to be integrated.
 - Women are trained in IGA, but others also need this. Marketing is the most critical issue for GA. Better to train GAPAs and others in IGAs.
 - Package of training for GAPAs includes marketing, project management etc. Manual is being produced and more attention will be given to this.
- *GA market and market linkages:*
 - Individual farmers cannot wait until the price is high. GAPA's need to be linked with partners, e.g. micro-finance institutions. Use GA as collateral to get finance, in collaboration with exporting institutions. Organic certification adds value.
 - Increasing premium e.g. to 25%? Contract farming increased the area of farming which encourages people to go for this.
 - There is a big gap in terms of the GA market: low prices (due to brokers). If GAPA's are well trained they can deal with this. They lack the spirit of businessmen. GAPA's and GA producers capacities need to be strengthened on this, to get a better price. Organise & activate GAPA's (many are not active), often they still sell as individuals. If their capacity is built they can get better prices (e.g. negotiation). In 3 months the price can go from 10.000 to 30.000 SDG. They have to sell their product at a low price and middlemen get the high price. Need to support them in entering the market with more power. The project is working on this. We need data on prices etc. - is being collected by the project.
 - Smart partnerships: there is a missing link - government needs to support. Pre-financing is needed for tapping. Government has to intervene (central bank) - formulate finance portfolio for GA producers as there is a problem to finance GA (end of year, not willing to finance). Need to lobby for this. The only way to help them keep the produce until the price goes up. Maybe national GA board can support this, project cannot do this alone. Now difficult to engage private sector, but are expanding. Project can help by bringing stakeholders to the board and focus on a portfolio in the project area. Need for seed money for sustainability of the project - good for exit strategy.
 - Big workshop will be organised with key GA VC stakeholders to discuss and address some of these challenges - engage others to also invest in this.
 - The project aims to link GAPAs and producers will give them a chance to reach micro-finance bodies. Capacity development, strengthening them to be organised and then linking them to micro-finance institutions and private sector.
 - Already started working on this - but need credibility and buy-in of private sector to buy the product based on market price. Need to have a workshop with all actors to think how to push this issue forward.
- *Farmer Field Schools (FFS):*
 - Give more emphasis to whole cycle rather than treating GA to the way field crops are handled - needs more time.
 - More than 90% GA is naturally grown. The project focuses on short cycle GA production from tapping to marketing. It is difficult to isolate GA from other crops.
 - Tapping starts in November. Project distributes seedlings, so also awareness raising done on how to raise seedlings. So not just focusing on existing / mature trees. If you deal with seedlings early in the season, you need to pay attention to whole cycle of nurturing and producing GA trees.
 - FFS not only for GA. There is still a lot of work to be done in improving value addition, micro-processing - need to focus more on this during remainder of program (sustainability). Quality of GA needs to be high. Engage private sector to do so as well.
 - Pre-harvest processes - people are aware, but post-harvest is where we need to focus to improve quality, income generated by selling and the bargaining power of producers.

-
3. **Improved nutrition-sensitive agriculture.** It is important to pay attention to nutrition sensitive agriculture so that production and productivity of food crops increases, income can increase and ultimately the food and nutrition security situation improves. This is done through two main activities:
- a. Awareness raising & capacity building on nutrition and nutrition-sensitive agriculture (linked to farmer field schools). This includes:
 - i. Developing a curriculum for basic training to increase knowledge on nutrition and healthy diets, as well as basic food hygiene and safety practices, to be used as a guide for training of women and youth;
 - ii. Following an assessment by the FNS-REPRO food & nutrition expert, addressing gaps in nutrition knowledge and food handling and preservation skills for improved dietary intake within households;
 - iii. Promotion of homestead gardens through Farmers Field Schools: supporting cascading down of training activities on nutrition-sensitive agriculture, including promotion of backyard gardening (Jubraaka) to enable women to increase adoption and implementation of nutrition-sensitive interventions;
 - iv. Establishing and training women associations for food preservation, packaging and marketing;
 - v. Training on production of diverse nutritious/nutrient dense crops (eggplant, tomato, rocket and onion);
 - vi. Awareness raising or training on nutrition & healthier diets based on basic nutrition manual;
 - vii. Developing ToT Training for Village based extension agents lead farmers on sustainable crops husbandry practices and sustainable mechanization;
 - viii. Raising awareness of communities around the rehabilitated water yards and water points on the importance of chlorination, boiling of contaminated water and separation of sources for human and livestock drinking.
 - b. Stimulating nutrition-sensitive, income generating food production activities. This includes: Organizing nutrition-sensitive income generating activities (by encouraging women to collect and sell forest fruits like Babao, Aradaib and Dom, encourage women to make fruit seedlings and processing like drying of okra and groundnut); Providing nutritious seeds & seedlings (fruit trees like mango, lemon, vegetables / tomato, eggplant, okra).

Comments, suggestions and additions to the ToC by workshop participants included:

- *Income generating activities (IGA):*
 - Need additional sources of income so GA producers don't just depend on GA and sell when the price is low. Maybe group saving ('association') so people can borrow money when they need it, and can keep the produce until the price is good.
 - IGAs to be sustainable - should be linked to project objectives (healthy food, nutrition) but not if the community preferences can have negative effects ((e.g. making mud bricks but this could lead to degrading of land, conflict).
 - Practice in groups, not as individuals (less sustainable, can create conflict as it requires community resources).
 - Sustainable forest management (with FNC) - community can be very cooperative, IGA e.g. honey production is an option.
 - IGA will help to absorb impacts of shocks and stressors.
 - Homestead gardens will be part of FFS in FNS-REPRO - giving out seedlings and vegetable seeds.
- *MEAL:*
 - Still a gap - how to monitor whether nutrition status has improved? Need for monitoring dietary consumption indicators (e.g. food consumption score, dietary diversity score). In close collaboration with nutrition department.
 - There is a success story with Fatima in North-Darfur (see the box on the next page). There is need to capture such stories more consistently.
- *Other comments:*
 - Aim to improve the food culture and awareness for healthy diets and food consumption.
 - Lean season/period is in production period - consumption is when they are not working. Many malnourished cases. It also affects agriculture.
 - Importance of drinking water for human consumption, close to the GA production areas. It is hard work so energy food needed, particularly since the production areas are often remote.

- Important to provide seeds in the right season and train people on what to plant when (seasonality) in order to harvest good yield and to prevent losses.
- Focus on rainy season due to lack of water to cultivate in summer season. Use of solar energy for drying food - keeps nutritional value and also useful for income generation.
- Nutrition consultant (support from RTEA) will support this component.

For more details see the Theory of Change (ToC) visual figure 6 which is presented on the next page.

Integrating nutrition in the business - the story of the entrepreneurial Fatima

Fatima Abdula Taher Numan, a mother of four, lives in the village Gusa Jamat, one of FNS-REPRO program intervention areas, in Kalimando locality, North Darfur State. Her main job is farming in the rainy season.

Fatima was selected by the Natural Resource Management (NRM) Committee and community leaders in her village as women association member, based on the agreed selection criteria.

Her major concern is to have enough financial support to her family, to have better food and health care for her family. As this all costs money, which she cannot afford, Fatima has been wondering about how she can solve these problems.

Fatima has received training in addressing gaps in nutrition knowledge, food handling and preservation including hygiene practices. Hence she was encouraged to improve the nutritional value and hygiene of the food in her restaurant in Gusa Jamat local market. Moreover, she decided to make additional business by providing drinking milk from cows and goats, juice from wild trees such as pawpaw juice and doom juice. In addition she added Hibiscus, lemon juice and different meat meals to the food she serves in her restaurant. Also she produces leafy vegetables (Radish and Crest) in her homestead garden near her restaurant.

Because of these changes she attracts a lot of customers during the market day, and currently she works seven days a week. She even attracted the FNS-REPRO team to regularly have their meals from her restaurant when they visit her village. Eventually Fatima's business increased and she had to seek the support of her daughter. Now she gets better profits and she started to cover her basic needs whilst her income increased significantly.

Story written by Fathi Mohammed

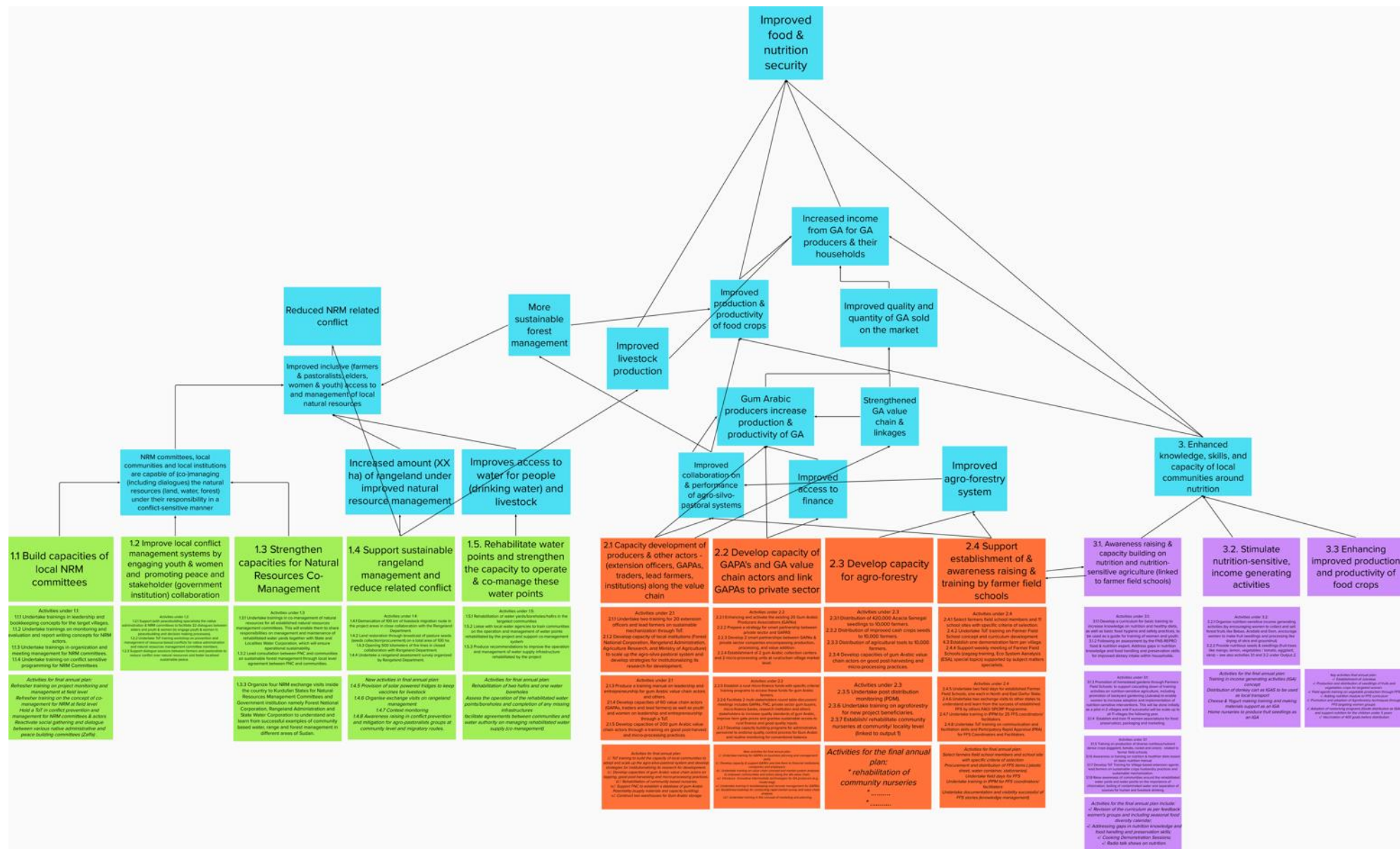


Figure 6 Revised Theory of Change for FNS-REPRO in Sudan

3.4 MEAL update on FNS-REPRO progress, challenges and suggestions for improvement

The FAO Sudan team presented a progress update for FNS-REPRO in Sudan focussing on the 2021-2022 annual programming cycle, and they also presented key findings from the latest progress monitoring mission. Summaries of these presentations are provided below.

Key achievements

Various activities have been implemented. Whilst there is some evidence on the effects of these activities, and expectations are high, the data are still incomplete especially at outcome and impact level.

NRM and conflict management

- In terms of access to natural resources, the development of 11 NRM plans (one plan per community) enhanced the knowledge of the targeted communities on their priorities, which were identified as rehabilitation of water yards, restoration of degraded lands, and demarcation of livestock routes, among others.
- Restoration of degraded rangelands, which increased plant biodiversity, enhanced animal feed availability and reduced soil erosion (as observed during field missions and will be further determined by an annual rangeland survey).
- Rehabilitation of water infrastructure (2 hafir, and 2 water ponds) and demarcation of livestock routes, which improved water access for human & animal consumption, and is expected to reduce conflicts around water.
- Co-management training has improved capacities of communities to manage rehabilitated water yard sustainably.
- Capacity building of community organizations on conflict resolution & NRM is expected to result in strengthening local institutions for common property resource management.
- Dialogue sessions between farmers and pastoralists and between elders and women/youth are expected to contribute to peace building and improve the safe access to natural resources both for farmers and herders.

GA production

- Implementation of the agroforestry initiative has significantly increased the area under Hashab trees which is expected to improve the income of farmers and GAPAs by improving marketing through the establishment of a smart partnership agreement with the private sector companies (this is still below expectations).
- TOT training for farmers on good gum Arabic tapping and post-harvesting practices, resulted in reduced harvesting losses, increased gum Arabic yield, and improved gum Arabic quality and marketability (supported by some data from the quick survey of GA and observed during field visits – but more data is needed).

Nutrition and income generation

Capacity building has taken place for women associations, youth, extension officers and lead farmers. Topics included: decision making power; nutrition knowledge and food handling and preservation skills; trainings on water co-management; nutrition-sensitive IGA; and ToT Training in FFS and curriculum development.

- On-going capacity building of extension officers and lead farmers (through farmer field schools), local institutions, GAPAs and traders, with specific focus on youth and women, is expected to result in improving farmers' skills on farming techniques contributing to improved agriculture productivity and livelihoods:
 - Establishment and capacity building of 11 women associations, is expected to empower women to improve the position of women in the society by making their voices heard and have increased decision making power.
 - Improving nutrition knowledge and food handling and preservation skills for women associations through ToT training improved dietary intake within households (some success stories have documented from the field, but more are needed).

- 10 trainings on water co-management were organized in which at least one women from the established women association participated. The issue of water hygiene and its relation to food safety is one of the main training topics.
- Supporting income generating opportunities for women and youth through training in nutrition-sensitive IGA, is expected to lead to improved women household income.
- ToT Training in FFS and curriculum development is expected to enhance capacities of government staff and farmers, and as such is expected to increase knowledge and change attitudes of farmers for increased production.

Key challenges during this (2021-2022) implementation cycle

Key challenges relate mainly to external factors like political instability, conflict and insecurity, land tenure and desert locust, but also to implementation issues like GA VC development.

- Political instability on a national level, trickling down to local level instability.
- Tribal conflicts in North and West Darfur states (killings, attacking on villages, looting and burning), failure of implementing the JPA security arrangements.
- Conflicts have serious implications as the insecurity makes it challenging to access the areas.
- The need for police escort for field missions, which is expensive, and added an extra layer on the project budget, and caused delays in program implementation.
- Poor engagement of GAPAs in the Gum Arabic value chain (a lot of activities still need to be executed).
- Private sector concerns on the Smart Partnership Agreements (SPA) for producers in Darfur (risk of grantees, credibility of GAPAs).
- Land tenure challenges for GA producers.
- Insufficient knowledge on agro-silvo pastoral system among NRM actors.
- Desert locust affected the Gum Arabic trees and discouraged GAPAs & farmers.

How do key challenges affect achievement towards the outcome / impact levels of the Theory of Change?

The political and economic situation, conflict and lack of access to basic services have influenced the implementation and effects of the program. Furthermore, in this situation it is difficult to collect data at beneficiary level.

- It has been challenging to conduct frequent field visits to collect evidence based data and verify results which also caused delay of some implementation of activities.
- Inadequate market control combined with high inflation led to high prices of commodity and services.
- The complexity of collecting income data due to many actors and factors influencing income data, thus difficulties with monitoring increase of income attributable to the project.
- New conflicts and threats affected the project's ability to achieve its goals.
- Access to basic services is one of the big challenges for the communities.
- Uncertainty of the political and economic situation has negatively affected the engagement of the private sector.

Suggestions to address challenges and emerging issues

Suggestions to address challenges and emerging issues mainly refer to continuing and expanding the work on NRM and related conflict management.

- Continue to strengthen the coordination between the various NRM actors through the technical committee task force.
- Encourage government departments & other service providers to work closely with the NRM committees.
- Continue to support the livestock sector by improving degraded lands, supporting co-management of natural resources, providing services such as water and vets along livestock routes to enhance productivity and reduce conflicts.
- Enhance adoption of improved seeds and seedlings through FFS; endorse community and home nurseries (forest & rangeland) to restore natural resources, grow nutritious foods and grow grasses for livestock.
- Conflict management: continue working through existing local systems for natural resource management, e.g. Judia. Stakeholder collaboration, restoring green belt, land-use and land right policies and continue dialogue among various stakeholders.
- Review the East Darfur NRM policy and see if can be scaled up for North Darfur.
- Explore other private sector companies that are willing to start Sales and Purchase Agreements (SPA's).
- Conduct trainings at field level rather than ToT at city level, for better spread and adoption of skills and practices.

4 Day 2 – rapid value chain assessment, stories of change, key discussion topics and suggestions for improvement

4.1 Rapid Gum Arabic Value Chain Assessments (RVCA)

Another key information source for the 2022 evidence-based and adaptive programming cycle was a rapid gum Arabic value chain assessment (RCVA) that was undertaken in June 2022 in North and East Darfur regions of Sudan. This was commissioned by WUR and undertaken by its partners Kordofan University (El Obeid) and El Fasher University (El Fasher). The assessment targeted four villages in the regions in which FNS-REPRO has been operational. The rapid value chain assessment was designed by WUR in collaboration with the WUR Learning Agenda Focal Points (LAFPs), who undertook the assessments with the assistance of technical staff from their universities.

The objective of the RVCA was to assess the existing gum Arabic value chain before the FNS-REPRO interventions⁹, identifying the existing actors and other influencing factors, the existing gaps, how the FNS-REPRO intervention has changed the value chain over time, and what services have been provided by FNS-REPRO and other actors in the chain.

4.1.1 Prelude

Forests in the program area (North and East Darfur States) play important roles in protecting the environment, going above and beyond their productive value. All trees, shrubs and herbs in the various agroecological zones have significant protective functions. Historically, East and North Darfur States were considered as an important source of high quality GA commodity from *Acacia Senegal*. Due to security unrest and war for the last 15 years, the areas allocated to gum Arabic orchards (gardens) were substantially reduced. The agricultural activities are not often based on a farming system where multi-crops including food and cash crops (e.g. sorghum, millet, sesame, groundnuts, watermelon seeds) are rotated with *Acacia Senegal* and other trees.

4.1.2 Objectives of the RVCA

The main objectives was to generate data and information for the FNS-REPRO sensemaking event in June 2022 through targeting key actors along the gum Arabic (GA) value chain in North & East Darfur states.

Detailed objectives for the RVCA include:

1. To map the changes along the gum Arabic supply and value chain (GASVC) in selected FNS REPRO areas (North and East Darfur).
2. To relate these changes in the GASVC to FNS REPRO interventions and to other factors and actors.
3. To identify key gaps in the GASVC and opportunities to strengthen the GASVC in FNS REPRO areas.

4.1.3 Geographical coverage and methodology

Consultative workshops and focus group discussions were conducted in North Darfur and East Darfur States (Table 1).

⁹ Note: this RCVA build upon the gum Arabic context analysis that was undertaken during the inception phase of FNS-REPRO (October 2019-March 2020) and was undertaken by the same consultant.

Table 1 Consultative workshops and focus group discussions in Darfur

Geographical coverage	Methods of data collection	Date	Participants		Total
			Male	Female	
Alfashir, North Darfur	Consultative workshop (CW)	June 5, 2022	18	7	25
Ed Daein, East Darfur	CW	June 6, 2022	25	9	34
Lawabid, North Darfur	Focus group discussion (FGD)	June 6, 2022	27	7	34
Sani Karao, North Darfur	FGD	June 7, 2022	22	18	40
Jalabi, East Darfur	FGD	June 7, 2022	9	5	14
Bakhiet, East Darfur	FGD	June 8, 2022	11	13	24
Total			112 (65%)	59 (35%)	171

4.1.4 Key findings from consultative workshops in North and East Darfur

4.1.4.1 Key findings on Natural resource management and conflict resolution and peace building

- *Building resilient infrastructures and services* constitutes the most significant outputs for this project. This includes rehabilitation of water, rangelands and agroforestry besides reconstruction of livestock corridors and provision of training services.
- *Restoration/rehabilitation of the forest* using productive trees particularly gum Arabic (Acacia Senegal). Under this context, limited interventions were observed as well as a delay in the distribution of gum Arabic seeds/seedlings. The viability/quality of seeds was sometimes questionable.
- *Establishment and training of community-based committees to empower the local communities*. These committees are categorized as follows: natural resources, water facilities and dispute resolution, all of which having women and youth participation. In this context a business development consultant was hired to train the farmers and local communities (forming part of the different committees).
- *Limited training and capacity building* for local extensionists.
- *Peace and conflict resolution over natural resources* includes peace building dialogues between pastoralists, farmers and native administrations. This was observed to be satisfactory interventions although its coverage is limited. Customary land tenure systems are always a source of conflict among land users. Accordingly, conflict dispute committees have been established to tackle these issues.

The main problems and challenges in relation to natural resource utilization, conservation and management in the project area are as follows:

- Security unrest (ranked first) including land disputes, ethnic conflicts and conflict between pastoralists and farmers;
- Lack of water source (ranked second) particularly in gum Arabic production areas;
- Poor infrastructures and services (ranked third);
- Poverty;
- Poor governance.

4.1.4.2 Key findings on the Gum Arabic supply and value chain

- *Lack (early stage) of contract farming agreements between private companies & farmers* with regard to gum Arabic production, although such contract farming arrangements are in place for some cash crops (groundnut).
- The *farming system* is not based on cultivation of multi-crops that are rotated together with acacia trees.
- *Knowledge and the use of tools*. Before the project there was a good level of indigenous knowledge among eldest people regarding tapping & collection of hashab. Access to knowledge by youth & women had slightly improved after the project interventions. Before project intervention, producers used traditional tools like the axe for tapping and *Kortal* for collection. After the project adoption of *Sonki* has increased and its advantage over axe has been realized but this tool was not distributed to all gum Arabic producers, as some are still using the axe.
- Gum Arabic producers mostly depend on *self-financing* and few of them have access to *Murabaha* (formal credit system with interest rate/marginal profit) but no access to the *Salam* or *Sheil* system (informal loans provided by village traders).

- No *contract farming agreements* existed in the past and now the project is trying to initiate some business contract farming models.
- Due to lack of energy sources, *overcutting of Hashab and other trees* is a common phenomenon before the project intervention to be used as firewood or cooking fuel. Recently, community awareness increased and reduced this phenomenon as extension services are slightly improved after the project intervention.
- Regarding *restoration of the gum Arabic belt*, the project has emphasized importance of forest protection and supported the rehabilitation of village nurseries to produce seedlings.

Other problems include:

- Pests and diseases;
- Unavailability of pre-finance;
- Poor prices for agricultural products.

4.1.4.3 Characteristics of gum Arabic post-harvest and marketing activities

- There is an unfavourable environment of rural markets as there are *unreliable storage and transportation facilities and/or warehouses*. Transportation of the commodity from production areas to rural markets is always by animals, cart and/or on foot. In this respect, the project has distributed few carts.
- There are *many brokers and middlemen* as GA is produced in remote areas, collected from mobile markets and driven to urban centers and/or auction markets. This permits collusive arrangements allowing them to underestimate producer's price leading to *low prices for gum Arabic producers*.
- *Gum Arabic Producers Associations (GAPAs)* have a *limited role in marketing* as they lack the spirit of businessmen and are not able to negotiate collectively for fair prices.
- After the project interventions the following was observed:
 - Percentage of GA tapping increased to about 20% of the existing stands, and 75% of the tapped trees are always collected.
 - Productivity per tree has been increased.
 - Producers only sometimes clean the gum, and rarely dry it without sorting or grading (no post harvest and value addition activities).
 - Pre-finance is not available. Most producers are therefore forced to sell their product immediately after harvest and thus the best price might not be obtained.
 - Plastic bags/ sacs are used to bring GA product to the market to enhance the weight of the product, but it adversely affects gum quality in the market (clotting).

4.1.4.4 Key findings on nutrition and income generation

- *Limited interventions were recorded regarding improving the 'food culture'*, which is considered a big challenge in the rural areas, where millet and sorghum are consumed frequently (Aseeda) without food diversification leading to unhealthy diets.
- No intervention was reported on *income-generating activities for pastoralists*.
- *Training of women's associations in small scale businesses* is fair. They are however still suffering from some weaknesses, including insufficient finance, disputes regarding land ownership and limited participation in decision making process.

4.1.4.5 Recommendations in the domain of natural resources and conflict resolution and management

- Continue rehabilitation of existing water sources; currently we are rehabilitating 2 additional hafirs and 2 water ponds;
- Establish new water sources in areas of field crops & gum gardens;
- Continue rehabilitation of existing range/pastures by high quality/nutritive species;
- Open firelines timely and try to cover large areas;
- Complete demarcation of livestock corridors;
- Provide water & veterinary service across livestock corridors;
- Generalize and recognize dialogue as a powerful tool for peacebuilding and conflict resolution in the area;
- Involve/integrate women and youth in peace dialogues;
- Diversify peacebuilding mechanisms (communication networks, consensus, Judia, etc.);
- More training, capacity building & access to information are needed;
- More training, capacity building, exchange visits and access to information to train local extensionists;

- Intensify community awareness programs and peace dialogue to resolve problems of customary land tenure systems.

4.1.4.6 Recommendations in the domain of gum Arabic value chain (with agro-forestry)

- More seeds dispersal is needed;
- Timely & sufficient distribution of seedlings (e.g. Acacia Senegal) is required;
- Test viability of seeds and acquire these from wellknown sources (e.g. Seed centre in Kordofan);
- More companies need to be involved in win-win contract farming agreements with gum producers (including fair prices);
- Adopt protection measures to mitigate overgrazing and overcutting of gum trees;
- Raise awareness and skills to improve GA quantity and quality of GA products;
- Adopt good practices and transfer approved technology in GA preharvest activities;
- Improve skills in post harvest and value addition activities for GA production;
- Improve infrastructure, including water, storage facility, transportation means, feeder roads, and other market services for GA production;
- Train producers to with business management and skills (entrepreneurship);
- Develop capacity & support GAPAs and link them to financial institutions, companies and employers; agreed;
- Support the provision of preferential policies (finance, taxes, arms) to support an enabling environment in the production sites;
- Create GA portfolios to provide an easy and timely financing service for producers and other actors;
- Adopt high quality and specifications measures through all stages of the GA value chain activities;
- Establish Gum Arabic Research Center in North Darfur State;
- Scale up the project's umbrella to other states productive states in Darfur;
- Conduct a study in order to find the best way to finance associations to ensure their sustainability;
- Adopt training in supply and value chains to empower communities and actors along the GA value chain;
- Mitigate market distortions and rationalize policy intervention measures to control and defeat smuggling;
- Establishment of an auction in the state capital(s) El Fashir and / or Ed Daein;
- Provide or facilitate provision of pre-financing or any other mechanisms (e.g. contract farming) that are needed to stimulate production of GA;
- Select active and potential GA producers and their cooperatives (GAPAs) to engage with the project.

4.1.4.7 Recommendations in the domain of nutrition and income generation

- Raise community awareness on food diversification for healthier diets;
- Suggest income generating activities & find best mechanisms to address pastoral communities;
- Business development consultant should focus on integration and development of entrepreneurship with regards to women and youth.

4.1.4.8 Feedback from rural communities regarding project interventions

Main interventions

- NRM & conflict resolution and management:
 - Rehabilitation of water stations (solar system + pump + inverter + construction of fence + non-cemented yard, hafirs construction);
 - Range and pasture: opening fire lines, broadcasting pasture seeds, opening and demarcating livestock corridors;
 - Improve involvement of women and youth in some committees (formulation of pure women associations).
- GA production and agro-forestry:
 - Provision of agricultural inputs (improved seeds, carts and manual ploughs, etc.);
 - With regard to cropping patterns, the main crops grown in the area were millet, sorghum and sesame, but after the intervention groundnuts were added as a cash crop, which improved farmers income;
 - Community members were trained on planting hashab trees on the same place with the crops (agroforestry);
 - Improved community' awareness on advantages of agroforestry system;
 - Joint associations have been formed to exchange experiences and knowledge;

- Training of gum producers to use sonki and raising their awareness on the advantage of sonki over an axe;
- Training of producers to care about gum collection and not to use plastic sacs and to avoid gum from falling into the ground (use of Kortala for gum collection).
- **Nutrition and income generation:**
 - Women and youth have been trained in adoption of healthier diets; and in making improved stoves to reduce the consumption of wood and charcoal.

Main limitations

- **NRM and conflict resolution & management:**
 - Lack of control interventions for locusts, pest, and diseases;
 - No measures to control overgrazing of hashab trees by camels;
 - Excessive cutting and wild fires;
 - Late opening of firelines;
 - Lack of water point and veterinary services across corridors;
 - No protection for the broadcasted seed regenerated areas;
 - Incompletion of solar systems that were provided (no batteries and invertors).
- **GA production and agro-forestry:**
 - Low quantities of distributed crop seeds;
 - Late distribution of seeds/seedlings;
 - There are no companies in the area to buy gum Arabic, but there are some agents who deal with companies;
 - No auction markets;
 - Producers are price takers, which means buyers determine the (low) price for producers;
 - Smuggling of gum Arabic;
 - No sufficient training on the post harvest activities and/or the value-added activities;
 - No protection measures to mitigate the destructive role of animal encroachment;
 - Roles of the women & youth in Hashab tapping and collection are generally weak;
 - Some converted the areas of Hashab to the cultivation of groundnut, due to the absence of markets for gum.
- **Nutrition and income generation:**
 - Women were not sufficiently trained in income-generating activities;
 - Insufficient quantities of seeds, carts and ploughs;
 - Malnutrition, especially among children.

Recommendations from rural communities

- **NRM and conflict resolution & management:**
 - Prevent overcutting and overgrazing by raising the awareness of community and activate the role of native administrations and enforce (by-) laws;
 - Provide veterinary services and health care for animals; include fridge for vaccines in each locality powered by solar cells;
 - Open fire-lines early before the grass dries up and fires break out (September-October); agreed;
 - Provide social fencing coupled with voluntary forests guards from villagers to protect forest stands.
- **GA production and agro-forestry:**
 - Enhance pest and disease control activities;
 - Intensify awareness on advantages of the agroforestry system;
 - Provide (and distribute early) more fertilizers, improved seeds, and donkey plough; donkey plough as IGA;
 - Provide the more sonki with related training package;
 - Train women and youth on tapping and collection of GA;
 - Encourage micro-financing institutions to enter the area;
 - Encourage smart-partnerships;
 - Provide Hashab seedlings and seeds to producers (early) from well know sources;
 - Establish home/village nurseries;
 - Organise exchange visits of gum Arabic value chain actors among producing states (e.g. North and West Kordofan).

4.1.4.9 Concluding remarks

From the viewpoint of the FNS REPRO Learning Agenda Focal Points (LAFPs), the following suggestions are to be considered for the remainder of the program:

1. Support an enabling environment on the production sites and rural markets;
2. Empowerment of GAPAs & involve more youth and women in the GA business (production, micro-processing and trade activities);
3. Encourage adoption of innovative intermediate technologies for GA producers (e.g. model bag);
4. Endorsement of smart partnerships between GA value chain actors on the basis of win-win & fair trade mechanisms;
5. Adopt good practices that improve post-harvest activities and promote value addition across gum Arabic supply value chain.

4.2 Stories of change

Coupled with the WUR commissioned RVCA, the data collection mission also included collection of some stories of change. The stories of change, being of qualitative nature, assessed a wider range of impacts (so far) by FNS-REPRO in the respective target communities and its beneficiaries and identified what worked well, what did not work well, what good practices were emerging and remaining key challenges.

One story of change is highlighted here. The complete overview of conducted stories of change are presented in the more detailed report that focused on the gum Arabic value chain.

Story of Suleiman Muhammed Ali Hammouda - 'My income from gum Arabic production is increasing annually':

"My name is Suleiman Muhammad Ali Hammouda. I'm a gum Arabic producer from the village of Um Harazah (belongs to Lawabid), located 65 km east of El Fasher town in North Darfur. Because of the prevailing security unrest and instability in our region, I experienced very hard conditions (poverty, unemployment, etc.) in my locality. I decided to leave my village and migrate to one of the big cities to find employment covering my expenses and supporting my livelihood."

"We, as a family, own a gum Arabic orchard (garden) in the vicinity of the village. We use it mainly for cultivation of traditional field crops but without any benefits from the existing Acacia stands. I got the idea to discuss this issue with my father as he has very extensive experience with gum production. He welcomed the idea and explained to me the right time for tapping gum Arabic trees. He said tapping always starts in Daroota time or at the begging of "Kasrat al-Surarr", by that he meant mid-October."

"He taught me to make sure that the garden is not attacked by locusts. He showed me the signs of tree maturity and readiness for tapping such as dryness, greyish color, and shedding leaves. Then, I decided to stay and to practice gum Arabic production. From that time (8 years ago) onwards, my income from gum Arabic production is increasing annually. I'm now totally depending on gum Arabic production to cover my daily family expenses (2 wives and eight children) and also to pay for education, health and other services."

"After the project, I feel much better and see many producers starting to deal with gum Arabic production and to intensify tapping of the trees in Lawabid region. In this region, we are facing some problems. As you can see, I'm now suffering from a broken hand due to the assault by some herders, whom I found stealing my gum product and destroying my garden by their camels. What is needed from this project is to connect us with some companies and to help our state to establish an auction market in El Fasher town."

Pictures of: Suleiman Muhammed Ali Hammouda, Gum Arabic resin and a Gum Arabic tree.



4.3 Key issues for discussion and suggestions for improvement

During the sensemaking event a few topics were discussed more in detail so as to better understand the issue and also come up with suggestions that could be included in the next, final annual plan. For Sudan the following key topics for discussion were included:

- Addressing key challenges along the GA value chain. This includes improving production & post-harvest activities (finance, cleaning, drying, packaging, storing etc), transporting, negotiating/business development;
- Smart partnerships with the private sector (fair prices and contract farming);
- Improving MEAL & evidence: here issues that came up during the sensemaking event are noted. More detailed discussions on MEAL and evidence were discussed during the subsequent planning meeting led by FAO on the next day.

Furthermore, in between the group discussions a range of other challenges have been identified to some of which suggestions to address these challenges have been developed. This was discussed and noted down during the FAO review and planning day, subsequent to the sensemaking event and is shared in a separate brief report by FAO.

4.3.1 Address key challenges along the Gum Arabic (GA) value chain

During discussions in the sensemaking event it became clear that there was need to review key challenges along the GA value chain and think about how these challenges could be addressed so as to strengthen the GA value chain, and contribute to improved income, livelihoods and food and nutrition security. This includes a.o. improving production & post-harvest activities (finance, cleaning, drying, packaging, storing etc), transporting, negotiating/business development. Key issues along the GA value chain and suggested ways to improve these are provided below.

Improve the resource base:

- Protect hashab trees:
 - a. Role of FNC & native administration: enforcement of laws & legislation to protect the trees. Regulations are there but there is relaxation in enforcement. Needs strong political will.
 - b. Creating awareness from community on protection of hashab trees.
 - c. Social fencing, protection by community.
- *Reduce deforestation*: there is overcutting of trees for various reasons:
 - expansion of agricultural land and at the expense of forest land;
 - expansion of urban cities at expense of forest (1 forest completely disappeared);
 - nomadic behaviour - IDPs are in camps without support and they go to the forest.Proposed suggestions include:
 - Enforcement: There is a law regarding expansion of land but communities don't follow rules & regulations. Needs to be enforced by Min of Agriculture.
 - Awareness raising.
 - Fencing & rehabilitation of rangeland (pasture seeds needed) then less need to go to hashab trees. Project needs to have a fenced area to produce pasture seeds.
 - Pasture seed and GA seedlings:
 - Have pasture seed distribution for open & closed rangeland. Make use of research units to provide these seeds. GA seedlings: locally adapted, high quality - delivery at suitable time.
 - Establish community nurseries.
 - Training on caring for seedlings at field level.
 - Source of seed should be well known - seed propagation unit. High adaptability.
 - Community nursery needs capacity building (including also water harvesting etc).
 - Provide water.

Improve GA production (tree ready for tapping): protection of trees, capacities, locust, tapping, access to water, agro-silvo-pastoral/agro-forestry system etc.

- *Provide tools for tapping*: right tapping time, tool, intensity and age. These influence high yield and preserve the tree from being stressed. This needs training. FFS June - December will handle production of agro-forestry. Extend the technologies of production.
- Early tapping requires *pre-financing*:
 - Pre-finance is fundamental to ensure that tapping happens timely and at scale – need to engage micro-finance institutions. State Ministry of Agriculture can provide collateral in collaboration with e.g. FAO. Maybe engage the multi-finance institution that focuses only on chemicals? Smart partnership.
 - All producers are competing for credit with the Animal Resources Bank. Why don't we have a GA bank to avoid competition with animal producers? Government should have a role in this.
- *Provide a model bag for GA collection* (within smart partnership), including: plastic container for water; plastic sheet to collect GA and prevent GA from falling on the ground; tapping tool; protective clothing (thorns, harsh conditions), shoes, cap etc; torch; primary health care; solar radio to get messages.

Improve pre-harvest activities. After tapping there is collection of the gum, so it does not fall on the ground. Gum is to be collected after maturity otherwise there is clothing or green gum (comes after 1 month). Have the first picking after 45 days.

Improve post-harvest value creation (e.g. cleaning, drying, packaging, aggregation, storage, transportation, building warehouses, other value addition). Comments and suggestions included:

- *Improve value addition* (to increase quality and price): drying, cleaning, sorting, packaging (in bags), processing (as powder - but complicated).
- *Awareness raising*: Transportation from field to market and from rural to urban area is a problem. Raising awareness is needed on:
 - a. Avoiding to collect GA in plastic sacs. Distribute jute sacks instead of plastic sacks.
 - b. Developing a manual on GAP in post-harvesting: how to dry, clean, sort, store and package GA and send from rural to urban market and use group transportation.
- *Improve storage*:
 - a. Ensure warehouses at village level to collect GA, next to warehouses at state level so as to fetch higher prices. Can engage the private sector. At Darfur states there are no markets for GA.
 - b. Instead of conventional storage - GAPAs to collect GA from producers and keep GA in store until the price is improved. Smart partnership can provide seed money to build a portfolio for producers to have a smart partnership with private sector. Store is linked to smart partnership. Producers need money in November - December when the banks don't provide loans. Producers collectively contribute and the rest can be provided by a private sector partner.
- *Strengthen the role of GAPAs*: Empower GAPAs to play a role in group marketing, collection etc. Also to avoid dealing with many middlemen and to deal with many challenges (e.g. protection against locust, marketing etc).

Improve marketing relations and sales (including access to market, business development, etc) and uptake/use of GA (middlemen, auctions, etc):

- Build capacity of GA producers:
 - a. Organise exchange visits from producer to market (e.g. auction so they also know the market). If you want to auction your gum you need a minimum of 100 Sudanese Pound (SDG) -> network approach needed.
 - b. Improve the spirit of business in producers.
 - c. Bring the standards and qualification of the urban market to the rural areas, to GA producers.
- Organise GA producers in GAPAs so they can enter the auction market.
- *Establish a market information system* - provide messages on the prices in the main auction market - need real time information on the market prices.
- *Establish smart partnerships*: engage agencies to assemble the gum so as to access the largest GA market. Smart partnerships depend on having adequate quantity of GA.
- *Engage the government*: there are 3 levels of GA marketing, rural, urban and auction market, but there is no auction market in the project area. Encourage the government to have an auction market.
- *Engage the private sector*:
 - a. How to attract 'big names'?

- b. CSR in GA: important for the product that is being exported. Engage big groups (e.g. Nexira and Alain & Robbert) that export GA in this. Infrastructure like storage, feeder roads, water points - they can contribute.

Ensure an enabling environment (e.g. policies, strategies & enforcement; formal & informal business environment) - lack of government support, lack of access to finance: these issues have been integrated in previous sections.

4.3.2 Improve access to the Gum Arabic market: smart partnerships with the private sector

A critical aspect for the success of FNS-REPRO is to guarantee a stable and reliable market for small-scale producers engaged in the gum Arabic value chain. This is key to the program's sustainability as well: if beneficiaries realize there is clear benefit and a viable business they will more likely continue the work. In addition, private sector collaboration and investment are likely to be an important element of new Dutch foreign policy, and private sector development has always been a focus for the Dutch embassy. FNS-REPRO should therefore strengthen partnerships with the private sector (to close the supply/demand gap), as part of the final annual plan.

During the adaptive programming workshops, a beginning was made with the development of a strategy to strengthen the collaboration with the private sector – centered around “*Smart Partnerships*” between GAPAs and gum Arabic companies, drawing from successful smart partnership arrangements in other areas of Sudan where gum Arabic production is well established. The following issues were identified as being essential to making smart partnerships work, with at least two of such partnerships to be signed in each state, as well as the action that FNS-REPRO can take.

Table 2 Overview of working group discussion on smart-partnerships

<i>How do we make smart partnerships work?</i>	
Requirements from GAPAs	Needs from the private sector
<ul style="list-style-type: none"> • Need to be well-organized (with bank accounts, records, active membership, etc.) and serious about potential partnership. • Need to have sufficient area under Hashab. • Need to strictly follow the protocol agreed with the company. • Be willing to sign a guarantee check against pre-finance and pay back pre-finance in agreed instalments. • Commit to sell gum Arabic produced to the partner, with no side selling! • Any agreement with the private sector to be signed by the head of community (Umda) (who can represent a group of GAPAs), or directly by GAPA in presence of Umda. 	<ul style="list-style-type: none"> • Needs baseline information from potential GAPAs, i.e. production potential, seriousness of GAPA, land under production, records and financial capacity. • Signing of agreement with GAPAs, which includes: <ul style="list-style-type: none"> ◦ Pre-finance (10-20%) of expected harvest. ◦ Clear protocol, that includes the supply of materials and agreement on harvesting, collection, storage, etc. (to ensure quality). ◦ Agreed price, with 10% on top of market rate. ◦ Provision of some Corporate Social Responsibility initiatives as part of agreement with GAPA.
<i>Suggested actions by FNS-REPRO</i>	
At the GAPA level	At the private sector partner level
<ul style="list-style-type: none"> • Provide extension support to ensure gum Arabic produced is of good quality. • Raise awareness on the benefit of smart partnerships. • Bring community, local leaders and GAPAs together. • Organize exchange visits to successful smart partnerships in Kordofan, jointly with the private sector. 	<ul style="list-style-type: none"> • Develop a baseline with all relevant info at the GAPA level (expected production, quality, seriousness, area under production, etc.). • Facilitate linkage with GAPAs that have potential. • Provide “comfort” and take away risks where possible, including: <ul style="list-style-type: none"> ◦ Mediate in case of issues. ◦ Ensure GAPAs don't misuse pre-finance. ◦ As much as possible, ensure GAPAs don't sell to middlemen or other actors.

Ultimately, to be successful FNS-REPRO will need to show that smart partnerships can work in Darfur. Once a few good practices have been established, with clear benefits for both producers and companies, it is likely that other partnerships will follow. This will then also take away some of the barriers that exist in Darfur compared to Kordofan, where smart partnerships are common practice, as in Darfur:

- Gum Arabic production is lower
- Insecurity leads to lower accessibility
- There is a knowledge gap at beneficiary and GAPA level
- There is no auction market, or gum Arabic board
- The distance to the main markets is larger
- There is a lack of awareness around the importance and value of Hashab trees and gum Arabic.

Nonetheless, the sensemaking event has facilitated a discussion by FNS-REPRO actors in Sudan and a private sector actor that showed willingness and interest to explore smart partnership arrangements with good performing GAPA's that the FNS-REPRO program works with in North and East Darfur. This would hopefully be a first step towards linking the Darfur states to the markets, improving overall gum Arabic value chain performance in Darfur.

4.3.3 Improve MEAL & evidence

During various discussions in the sensemaking event in Sudan it became clear that there is a need to strengthen the evidence and related MEAL in the program. This involves:

- Collect key data from Gum Arabic Producer Associations (GAPAs)/ GA producers on expected production, quality, seriousness etc. to inform the private sector partnerships.
- Develop a standard tool for GAPAs to collect data on Gum Arabic production to assess profit/additional income from GA, amount GA tapped/sold and related prices, and changes as a result of additional income, challenges etc. Implementing Partners (IPs) to be submitting data electronically through the KoBoToolbox application.
- Roll out outcome level monitoring to collect qualitative information on FIES, HDDS indicators, intended outcomes (e.g. income) and unintended outcomes (e.g. women empowerment) etc. through post distribution monitoring, focus group discussions, Most Significant Change (MSC) technique, outcome harvesting etc. The qualitative data will help in understanding the why behind changes (role of FNS-REPRO and other factors and actors) and complement the final program evaluation.
- Track program beneficiaries: IPs to collect data on beneficiaries reached directly & indirectly through different awareness raising campaigns and changes as a result of the campaigns (data disaggregated by gender, youth, location etc.).
- Rely on unique identification number in the database to avoid double counting of beneficiaries.
- Continuously build capacity of implementing partners (mostly government staff implementing the LOA activities) through on the job training, remote management etc.
- Strengthen context monitoring especially for conflict component through deploying approaches like outcome harvesting etc.

Some of these issues were discussed more in detail with during the planning meeting (organised by FAO) that followed the sensemaking event. This is further elaborated in the planning meeting report.

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Appendix 1 Workshop participants

Name	Organisation
Osman Adam Gibril	Ministry of Agriculture – East Darfur
Abubakar Belo	Ministry of Agriculture – East Darfur
Manahil Musa	Ed Daein University
Mohamed Osam Talha	FNC – East Darfur
Amna Ahmed Osman	FNC – North Darfur
Elnour Adam	Ministry of Agriculture – North Darfur
Siddig Ibrahim Haroun	Ministry of Agriculture – North Darfur
Alamun Mohamed Omda	El Fasher University
Ibrahim Ali Elnour	El Fasher University / LAFP
Mohammed Hamed	Kordofan University / LAFP
Tarig Elsheikh Mahmoud	Kordofan University / LAFP
Monier Elyas Siddig	Kordofan University
Yasir Gasim Elseed	Consultant
Yassin Mohamed	FAO
Abdelmonim Osman Kardash	FAO
Abdelmonim Ishag Siddig	FAO
Abdelazim Hamid	FAO
Fathi Ismaeel	FAO
Elfatih Babay	FAO
Koen Joosten	FAO
Nathan Kivuva	FAO
Hassan Mofadal	Private sector
Ahmed Ali Mahadi	Private sector
Hisham Salih Yagoub	Private sector
Hashim Eldegair	Private sector
Eelke Boerema	WUR

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Wageningen Centre for Development Innovation supports value creation by strengthening capacities for sustainable development. As the international expertise and capacity building institute of Wageningen University & Research we bring knowledge into action, with the aim to explore the potential of nature to improve the quality of life. With approximately 30 locations, 7,200 members (6,400 fte) of staff and 13,200 students, Wageningen University & Research is a world leader in its domain. An integral way of working, and cooperation between the exact sciences and the technological and social disciplines are key to its approach.

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The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 7,200 employees (6,400 fte) and 13,200 students and over 150,000 participants to WUR's Life Long Learning, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.

