



World Food Programme

SAVING
LIVES
CHANGING
LIVES

Evidence from WFP's Integrated Resilience Programme in the Sahel

Equipping Communities to Withstand Food Crises

WFP is committed to seizing opportunities to build the resilience of individuals, communities, and systems and address the root causes of vulnerability. Transformational long-term programmes are crucial to prevent and mitigate crises, reduce humanitarian needs over time,

and pave the way towards resilient food systems. In the Sahel, **the Integrated Resilience Programme is one of WFP's strongest tools to do that, as demonstrated by the evidence presented in this publication.**

March 2023

A challenging context, including for the communities participating in WFP’s integrated resilience programme

Since the start of the resilience programme in 2018, the Sahel region has experienced a **significant deterioration of its food security situation**. The worsening of the security context, recurrent climate shocks, a deteriorating macro-economic situation coupled with high food prices, as well as political and institutional fragility in one of the world’s most vulnerable regions have all contributed to a **drastic increase in the number of food insecure population over the past five years** (see Figure 1).

In particular, the 2021/22 season in the five Sahel countries was marked by a combination of climatic, economic and socio-political challenges which resulted in the **highest number of food insecure people since the beginning of the Cadre Harmonisé¹ (CH) analyses in 2014**.

WFP’s resilience intervention areas were not spared – more than half of the districts in which

WFP implemented the integrated resilience programme were classified in Crisis (CH Phase 3) or Emergency (CH Phase 4) during the 2022 lean season, compared to just over a third of districts in 2021. This follows a **general trend towards a deterioration of the food security situation in WFP’s intervention areas** that has been observed since 2019 (see Figure 2).

However, despite this contextual deterioration of the food security situation in the five Sahel countries overall and in WFP’s resilience intervention areas specifically, **the evidence generated through WFP’s resilience-specific monitoring systems suggests that communities that participate in the integrated resilience programme were relatively less affected by food insecurity**, and better equipped to withstand the food crisis that impacted the region.

Figure 1: Food insecure populations in the Sahel 2014 to 2023 (projection), in millions

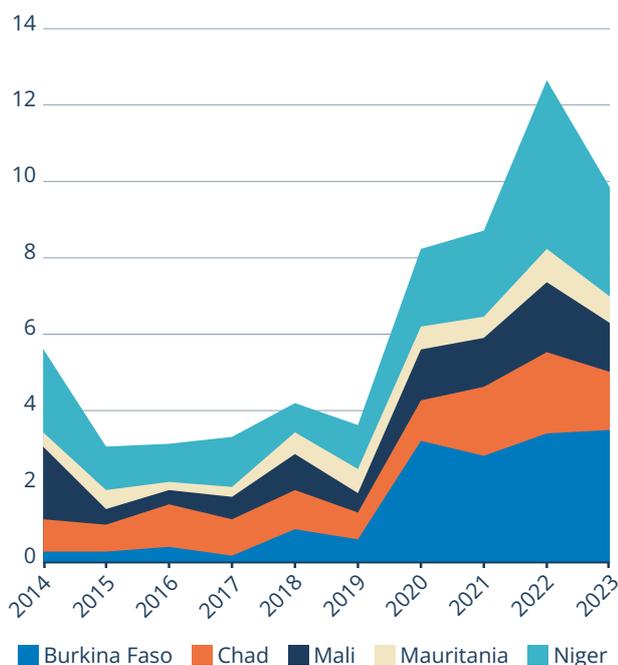
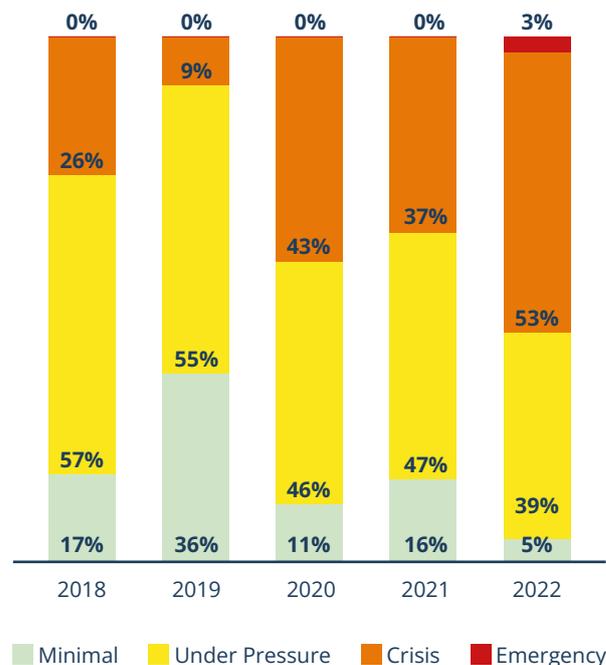


Figure 2: CH Classification of WFP intervention areas (districts) during the lean season



¹ The Cadre Harmonisé (CH) is the harmonised regional framework for analysing and classifying food security outcomes in the Sahel and West Africa. For more information, see: <http://cadreharmonise.org/> and <https://www.ipcinfo.org/ch/>.

1. Stable or improved food consumption despite various shocks and stressors

Like most vulnerable populations in the Sahel region, the communities participating in the resilience programme were not spared by the various shocks affecting the region in recent years. During the annual monitoring surveys conducted at the end of 2021 and 2022, resilience beneficiaries were asked about the shocks they experienced in the previous twelve months. **The most commonly reported shocks across all countries over the past two years included high food prices, increased prices of agricultural or livestock inputs, and climate shocks such as droughts, erratic rainfall, and flooding.**

Despite this exposure to shocks and stressors, evidence collected through WFP’s outcome monitoring systems since the beginning of the scale-up of the integrated resilience programme in the Sahel suggests that the **communities participating in WFP’s resilience programme were able to maintain or even improve their food security outcomes during times of hardship.**

To ensure that the interplay between different food security outcome indicators monitored by WFP is factored into the analysis, **three key indicators² were combined to assess the food security situation** amongst households participating in the integrated resilience programme. Households were grouped into four categories³ of food security outcomes:

- **Category 1** includes households with an acceptable food consumption that do not rely on consumption-based or livelihood-based coping strategies to meet their food needs.

- **Category 2** includes households that have an acceptable or borderline food consumption coupled with a moderate reliance on consumption-based or livelihood-based coping strategies to meet their food needs.
- **Category 3** includes households that have a borderline or poor food consumption and systematically rely on negative coping strategies (both consumption-based and livelihood-based) to meet their food needs.
- **Category 4** include households that have a poor food consumption and engage in emergency-level livelihood-based coping strategies and crisis-level consumption-based strategies.

Figure 3: Classification of key food security indicators for matrix analysis

		ACCEPTABLE FOOD CONSUMPTION	BORDERLINE FOOD CONSUMPTION	POOR FOOD CONSUMPTION
NO COPING STRATEGIES	rCSI < 4	Cat. 1	Cat. 2	Cat. 2
	rCSI 4 - 18	Cat. 1	Cat. 2	Cat. 2
	rCSI ≥ 19	Cat. 2	Cat. 2	Cat. 3
STRESS COPING STRATEGIES	rCSI < 4	Cat. 2	Cat. 2	Cat. 3
	rCSI 4 - 18	Cat. 2	Cat. 2	Cat. 3
	rCSI ≥ 19	Cat. 2	Cat. 3	Cat. 3
CRISIS COPING STRATEGIES	rCSI < 4	Cat. 2	Cat. 3	Cat. 3
	rCSI 4 - 18	Cat. 2	Cat. 3	Cat. 3
	rCSI ≥ 19	Cat. 3	Cat. 3	Cat. 3
EMERGENCY COPING STRATEGIES	rCSI < 4	Cat. 2	Cat. 3	Cat. 3
	rCSI 4 - 18	Cat. 2	Cat. 3	Cat. 4
	rCSI ≥ 19	Cat. 3	Cat. 3	Cat. 4

2. The three indicators are the Food Consumption Score (FCS), Livelihood Coping Strategies-Food Security (LCS-FS) index and the reduced Coping Strategies Index (rCSI). The indicators were combined using the thresholds for each indicator used in the Cadre Harmonisé (CH) as described in Figure 4 above, through an approach inspired by the FEWS NET Matrix Analysis.

3. These four categories are loosely based, but not comparable to, the CH/IPC phases (Minimal, Stressed, Crisis, Emergency).

The analysis results suggest that after a significant deterioration of food security outcomes between 2019 and 2020 – that can amongst other things be attributed to the severe impacts of the Covid-19 pandemic – a **steady improvement of food security outcomes can be observed over the past few years.**

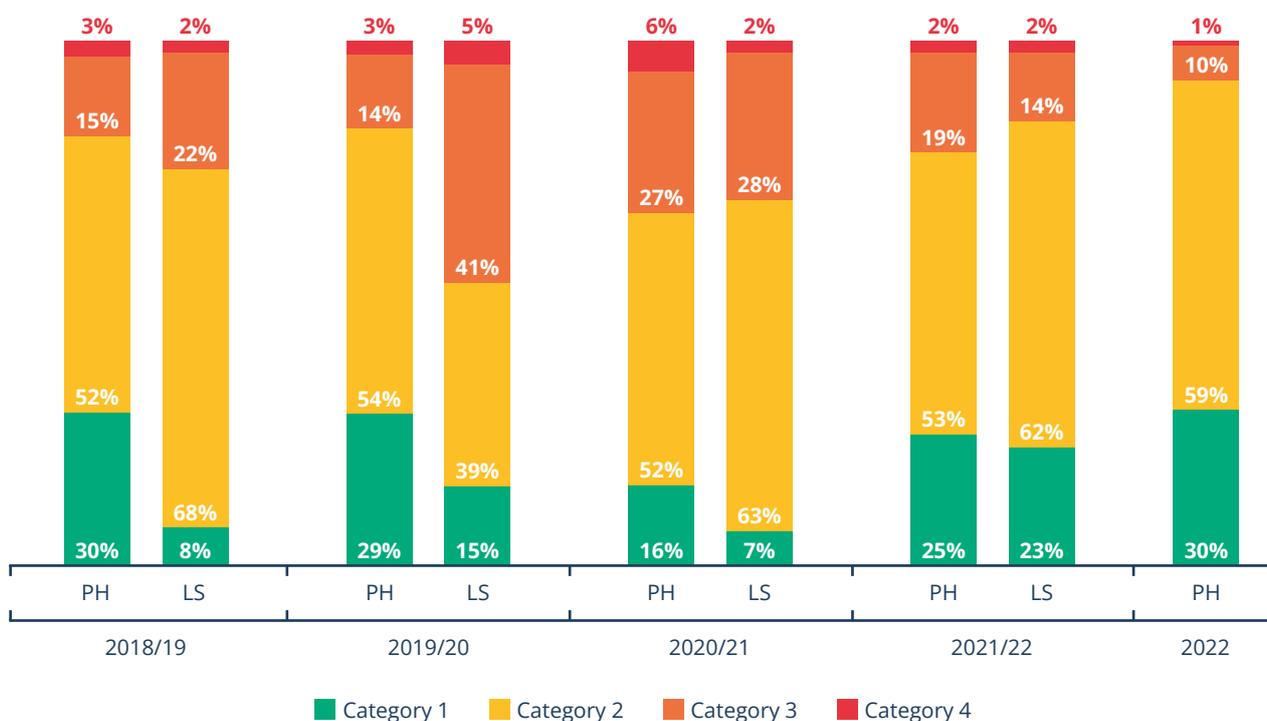
Moreover, between 2021 and 2022, it appears that **exposure to severe shocks is less linked strongly linked to poor food security outcomes:** whereas in 2021, 19% of households that were exposed to a severe shock were classified in category 3 or 4 based on the approach described above, the same only applied to 14% of households in 2022 (see Figure 4⁴). This development could be indicative of an **increased ability of households to withstand severe shocks.**

In addition, the usual deterioration of food security during the lean season – when incomes plummet and food stocks dwindle – was not observed among communities participating in the resilience programme in recent years.

Monitoring surveys found that over time, **respondents' food security indicators started stabilising or improving in the lean season compared to the post-harvest period** – including during the 2021/22 crisis year. This suggests that **WFP-assisted communities have an increased capacity to withstand seasonal shocks and stressors.**

Lastly, there is increasing evidence that resilience interventions contribute to reducing humanitarian needs.

Figure 4: Evolution of key food security indicators during the post-harvest (PH) period and the lean season (LS), 2018-2022



4 Note on Figure 5: PH refers to the situation during the post-harvest season (data collected in November/December) while LS refers to the lean season situation (data collected between May and June). The data visualised in the graph is aggregated for all five Sahel countries.

For instance, in 2022, Niger faced its worst food security crisis in a decade following a particularly poor agropastoral season. WFP resilience intervention areas were among the most impacted – nonetheless, **the vast majority (80%) of WFP intervention villages located in highly-affected areas did not require humanitarian assistance, suggesting their increased capacities to withstand major shocks.** The accounts for about half a million people who did not need humanitarian food assistance in 2022 thanks to resilience programmes.



80% of WFP intervention villages located in highly-affected areas of Niger did not require humanitarian assistance

“I had never seen such production in my life: before the introduction of the zai, our fields were completely degraded, and we could hardly produce. Before we harvested 100 to 200 kg per hectare. Now we are able to harvest up to 1 ton per hectare. The results were so impressive that even other community members, who had not participated in FFA, saw the benefits and started to replicate zai pits in their own fields as well as composting, asking us to teach them the techniques.”

- Moussa Abdoulaye, a 28-year-old father of three children from the Maradi region in Niger

Salmata is one of the women in the village of Bandaro, Chad, who works in the community garden and the school canteen. The harvest of the 2 hectare-community garden and fields contributes fresh, locally grown vegetables, cereals, and pulses to the daily school meals. WFP/Evelyn Fey



2. Confidence in households' capacities to face climatic, economic, or socio-political challenges

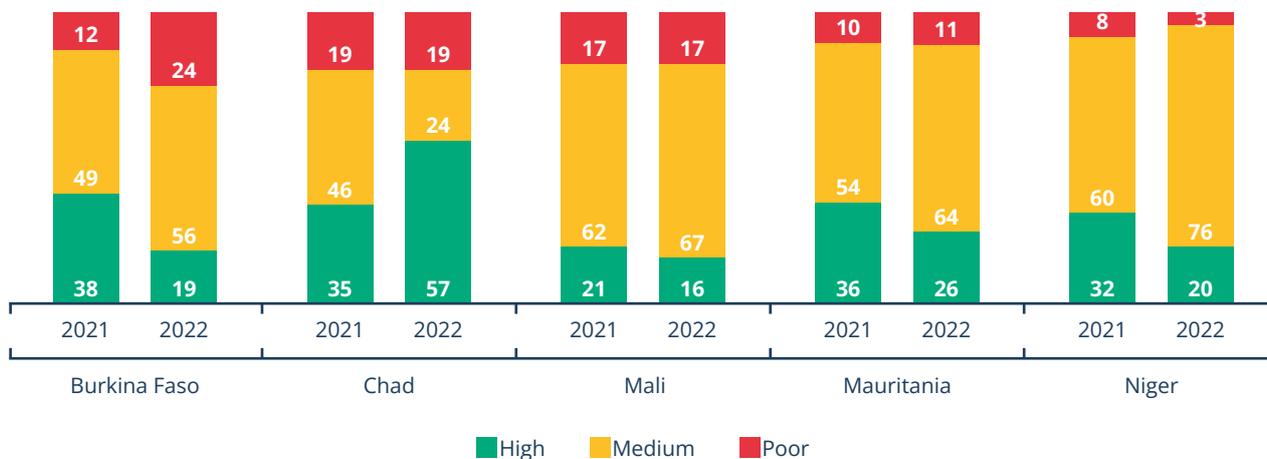
The monitoring surveys also allowed to assess respondents' perceptions about their resilience capacities. On average across all five countries, **most respondents had a medium or high confidence in their resilience capacities**, half of households having a high perception of their transformative capacity.

The SERS/RCS⁵ also allows to understand which capacities and capitals are perceived as particularly important across countries. For instance, the majority of households in all countries reported being able to rely on friends or family in case of need – on the other hand, in Mali, there appears to be a limited degree of confidence (less than 20% of respondents) on the ability to rely on public institutions.

In all five countries, the trends suggest that **resilience capacities remained stable or improved between 2021 and 2022**, with the exception of Burkina Faso, where the continuous deterioration of the security situation continues to affect food security and resilience outcomes.

In Chad, a significantly higher proportion of households reported a high degree of confidence in their resilience capacities in 2022 compared to the previous year. This appears to confirm the fact that communities participating in the resilience programme were well equipped to withstand shocks.

Figure 5: Evolution of Resilience Capacity Score (in %), 2021-2022



5 As part of WFP's Resilience Monitoring and Measurement (RMM) approach, WFP has rolled out the Subjectively-Evaluated Resilience Score (SERS) across the five Sahel countries. This indicator is compatible with WFP's new Resilience Capacity Score (RCS). Note that the SERS/RCS has been rolled out in all five countries in December 2021. Three countries (Burkina Faso, Chad and Niger) have been collecting it in previous surveys.

3. Improved access to key natural resources like land and water

More than 87 percent of respondents of the 2022 annual follow surveys reported that WFP’s asset creation activities enabled them to increase or diversify their agricultural and/or pastoral production and to improve their production potential through enhanced water management capacities and soil fertility. In **Burkina Faso**, for instance, the cultivated plot size for various cereal and cash crops⁶ went from 2.5 ha in 2019 to 4.75 ha in 2022 and the quantity produced grew from around 730 kg to over 2,108 kg during the same period.

In **Mali**, households participating in the resilience programme increased their

cultivated plot size from 2 ha in 2019 to 2.51 ha in 2021 and the amount harvested for various cereals evolved from around 1.7 MT to 2.2 MT during that period. In **Chad**, the number month of food needs covered by respondents’ own production improved from 3.5 month in 2019 to nearly 4 months in 2022.



87% of respondents stating that asset creation activities enabled them to increase or diversify agricultural and/or pastoral production

A 7,000 meter-long dike and nearby pond capture rainwater in the site of Bregue Birguit, Chad. The dike captures rain water that infiltrates into the ground from June to October – thus recharging the groundwater and shallow wells for use during the dry season. At the end of the rainy season when most of the water will have infiltrated into the soil or evaporated, moist farmland becomes available to cultivate sorghum (“berbere” as it is called locally). This enables communities to have an additional second harvest season in January. WFP/Evelyn Fey



6 This includes maize, sorghum, peanut, and cowpea.



Photos: Before (left) and after (right) from Bougherba, Mauritania. Before interventions, the soil was degraded and barren. Through FFA activities the community recuperated 51 ha of land by using a combination of dike, soil bunds and half-moon techniques. This has allowed them to grow sorghum, beans, cowpeas, millet, groundnuts, okra to improve and diversify their meals. En Haut! for Grdr, WFP/En Haut!

4. Better protection against climate hazards and restored environments

On average, 77% of households found that the assets created or rehabilitated in their communities contributed to the protection of their household, their belongings, and their production capacities (fields, equipment, etc.) against the impacts of floods and/or droughts.



Around 80% of households also reported improvements in their natural environment thanks to the improvement of soil fertility and its effects. These findings are corroborated by satellite-based analyses conducted in collaboration with USAID and NASA as well as WFP's AIMS (Asset Impact Monitoring from Space) team.

A study conducted with USAID and NASA in 2020 showed that **on 18 intervention sites that were treated with half-moons or zai, satellite-derived vegetation indices post-intervention were nearly 50% higher than in pre-intervention years**, and 25% higher than in similar sites nearby that were not rehabilitated.⁷

⁷ Mishra, V., Limaye, A.S., Doehnert, F. et al. Assessing impact of agroecological interventions in Niger through remotely sensed changes in vegetation. *Sci Rep* 13, 360 (2023). <https://doi.org/10.1038/s41598-022-27242-3>.

These findings are also confirmed by analyses conducted in 2022 by the WFP AIMS team on seven intervention sites in Niger, which found that all seven project sites had an increase in NDVI (Normalised Difference Vegetation Index) values ranging from 28% to over 104% compared to the pre-intervention average NDVI values, indicating significant improvements in vegetation conditions.

Post-intervention vegetation conditions also evolve more favourably than in comparable areas outside of the intervention sites in most analysed sites, suggesting that the improvements are the result of WFP's intervention and not of climatic events, such as unusual rainy seasons.

When protected and managed sustainably, soils and lands can serve as carbon sinks: together with the AGRHYMET Regional Center, a specialised institute of CILSS, WFP in Niger

has measured the carbon sequestration potential of land rehabilitation activities implemented as part of the integrated resilience approach and found that, on average, **each hectare of land rehabilitated as part of the integrated resilience approach is estimated to sequester 6 tons of CO2 each year.**



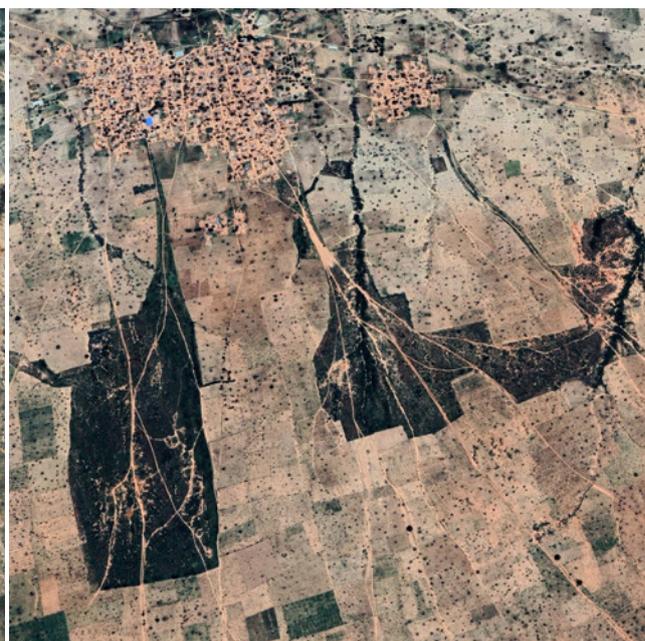
NDVI value ranging from 28% to over 104% compared to the pre-intervention average NDVI values



Estimate of CO2 sequestered by each hectare of land rehabilitated under the integrated resilience approach

6 tons

Data-driven results generated so far provide evidence to support further scale-up of traditional soil and water conservation techniques such as half-moons or zaï as effective land management practices to increase agricultural and/or pastoral production in arid ecosystems and build resilience to drought for subsistence producers. The "after" photo shows the increase in vegetation cover over the 93 ha of degraded rangeland which were rehabilitated through FFA activities in 2014-15 (pastoral half moons), in Niger. Google Earth



5. Healthier and more diverse diets

The increase in agricultural production discussed before materialised not only in terms of the quantity of production, but also in its quality. Across all five countries, resilience beneficiaries are cultivating more nutrient-dense food to cover their own needs. Between 2018 and 2021, the proportion of beneficiary households that draw most of the vegetable consumed within the household from their own production increased from around 8% to over 17%. This trends are combined with other **activities that aim to improve access, availability, affordability as well as the demand of nutritious foods such as community-based learning and rehabilitation centres**, might explain why household food consumption has become increasingly diversified, regular and of good

quality since the start of the programme. Data on the consumption of nutritious foods suggests that **since 2018, the consumption of vitamin A-rich, protein-rich and iron-rich foods increased in most countries** – for instance, in Chad, the percentage of households consuming iron-rich foods increased from 50% to nearly 90%, and in Mauritania, nearly all households reported consuming vitamin A-rich foods in 2022, against just over 60% in 2018.⁸ **Trainings on child feeding practices are also being rolled out successfully:** on average, nearly half of households in Burkina Faso, Chad and Mali were reportedly trained on local food processing techniques to improve the quality of children's diets and over 80% of them declared having a good command of the techniques.

In the village of Rafa, cases of children suffering from malnutrition dropped from around 100 children since the start of WFP's support to four cases just one year later, in 2019. By 2020, no cases of malnutrition were found. WFP/Evelyn Fey



⁸ Even in cases where the consumption of some nutritious foods decreased, such as vitamin A-rich foods in Niger, most households (85%) retained an acceptable level, and the consumption of other nutritious foods increased significantly (protein-rich foods: from 66% in 2018 to 96% in 2022; iron-rich foods: from 31% to 42%).

6. School feeding as an incentive to keep children at school

The school feeding programme has **contributed to the improvement of children's access to education and allowed them to learn and perform better at school.** In Niger, for example, the dropout rate for the 2020/2021 school year was 7% lower in schools with WFP-supported school meals compared to schools without canteens, and the vast majority of parents (78%) said school meals not only relieve children from immediate hunger but also act as an incentive for parents to send their children to school and enable children to concentrate in class.

School feeding also encourages parents to give girls the same opportunity to complete their education as boys. In Mali, among the respondents of the 2022 annual follow up survey, about 95% of households

with children benefitting from school feeding intend to let both girls and boys finish primary and secondary school - against around 55% of households not benefitting from the school feeding component. Similarly, in Burkina Faso and Chad, the majority of households (around 70%) whose children benefit from school canteens intend to let both girls and boys finish primary and secondary school. In Niger, WFP also provides attendance-based cash grants for adolescent girls in the schools supported with school meals. Results from a survey conducted in December 2022 among headmasters in supported schools found that girls receiving a grant had a 63% exam pass rate, compared to 50% for girls in the same class not receiving a grant.

A mother dishes out the school lunch, enriched with the harvest from the school garden that WFP and its partners set-up. The students from the Rafa Primary school sit down in groups of six to share the meal, boys and girls take turns to pick up a large plate with rice, beans and vegetables. WFP/Evelyn Fey





In the community of Goureijma, as in many places across the Sahel, it is often women and children who have to walk long distances to fetch water. Moustapha Souleymane was able to buy this cart with the cash received from WFP's Food Assistance for Asset activities to buy this cart, which is carrying up to five people, water and firewood. WFP/Gioacchino Gargano

7. Reduction of daily hardships and improved access to basic social services

According to survey result, **three in four households stated that the assets created have reduced day-to-day hardships – many of which are traditionally shouldered by women and girls** – and saved time for their family members. 77% of households also indicated that they had an **improved ability to access markets and basic services** (water, sanitation, health, education, etc).

+3/4

of households stated that the assets created have reduced day-to-day hardships



of households reported improvements in their ability to access markets and basic services

And while the challenging contexts still force people to adopt negative coping mechanisms to deal with hardships, data from household surveys indicates that in some countries, the use of crisis and emergency coping strategies **(such as the sale of productive assets, withdrawing children from school, or the accumulation of debts)** that have long-term harmful effects on livelihood opportunities and socio-economic wellbeing, reduced significantly.

For instance, **across all countries, the percentage of household relying on Crisis or Emergency coping strategies reduced from 27% to 17% between 2019 and 2022**, in favour of less harmful (or no) strategies.

8. Improved social inclusion, empowering women and youth

A qualitative study conducted in partnership with the International Food Policy Research Institute (IFPRI) in Burkina and Niger, showed that resilience activities **facilitated gender dialogue and contributed to women's empowerment**: the collaborative planning processes created opportunities of engagement for community members and their leaders, livelihood activities increased women's ability to contribute to household incomes, and participation in peer-support groups enhanced their knowledge on childcare and nutrition. As a result, women expressed a **sense of empowerment** and rapprochement with elders as well as greater respect and decision-making power in their families and communities.

The study also found that resilience offered **opportunities for young people in their villages and reduced distress outmigration**. As a result, community elders increasingly

involved young people in community life and decision-making. In many instances, the fact that men were able to stay also eased the burden on women and children who often had additional chores when their husbands, fathers, or brothers were gone.

"Women have become aware of the role they can play in the development of their communities based on economic activities and active participation in decision-making bodies. Today, there are rare situations where women remain silent in the face of an attempt to exclude them."

- Respondent of a qualitative study conducted by IFPRI on WFP's integrated resilience activities

Photo on the left: Youth learn how to thread mesh wire, which is used for gabion structures to build water retention infrastructure. Photo on the right: Participatory planning provides a platform for inclusive community engagement and planning. WFP/En Haut!





In Tilba, Nord region of Burkina Faso, WFP and Government trainers demonstrated alternative designs to the traditional half-moon technique to the local community and internally displaced persons. WFP/Sebastian Muller

9. A buffer to instability and strengthened social cohesion

WFP uses a combination of quantitative and qualitative tools to better understand social cohesion outcomes in its integrated resilience programme. The results of monitoring surveys suggest that WFP’s **asset creation activities contributed to reducing tensions over natural resources**.⁹ Interactions between different groups, such as internally displaced and host populations in Burkina Faso or farmers and herders in Chad, as well as the ability to rely on support within and outside the respondents’ communities or villages also reportedly improved over the past year.

These findings are corroborated by a study conducted in with IFPRI.¹⁰ Through case studies in Burkina Faso and Niger, the study found that **resilience activities and their planning processes created spaces of encounter, reducing stereotypes, suspicion and mistrust and enabling stronger bonds and bridges within and between communities** (incl. between different ethnic and religious, host and

displaced communities, etc.) as well as with their leaders (community leaders, traditional chiefs, subnational government services, etc.). Moreover, asset creation and livelihood activities **enhanced communities’ natural resource base and economic opportunities**, easing tension between farmers and herders, reducing outmigration, increasing involvement of youth in community life and trust between youth and elders.

“We were able to integrate and work with the natives who now consider us as natives too. We feel loved and we are considered in the same way as the host families.”

“Relations between farmers and herders have improved because there is social cohesion between them. Animals have a place of grazing and no longer spoil farmers’ fields. There is better collaboration between us.”

- Respondents of a qualitative study conducted by IFPRI on WFP’s integrated resilience activities

⁹ For instance, 89% of respondents in Chad and 94% of respondents in Burkina Faso reported that asset creation activities reduced tensions over natural resources; and between 24% and 27% of households reported that their capacity to get support from someone within or outside their village had increased in the previous 12 months.

¹⁰ Report forthcoming.



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