WFP EVALUATION

Evaluation of Mozambique Gender Transformative and Nutrition Sensitive (GTNS) Project (2019 to 2023)

Evaluation of the performance and outcomes of the project across 49 villages in the Chemba district, Sofala Province, Mozambique

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Executive Summary

BACKGROUND OF THE EVALUATION

1. The final evaluation of the Gender Transformative and Nutrition Sensitive (GTNS) project aims to assess the performance and outcomes of the project across 49 villages in the Chemba district, spanning from October 2019 to July 2023. GTNS focuses on enhancing households' resilience, diversifying diets, and empowering women to address chronic malnutrition. The integrated package includes Food for Assets (FFA) using commodity vouchers, Post-Harvest Loss (PHL) management, and Social and Behaviour Change (SBC) through an integrated approach.

2. Framed within strategic outcomes (SO) 2 and 3 of the World Food Programme's (WFP) Country Strategic Plan (CSP) for Mozambique (2022-2026), GTNS aims to scale up gender-transformative interventions and improve livelihoods for the most vulnerable. The project also serves as a prototype for mitigating chronic malnutrition while enhancing women's empowerment, with a focus on accountability and learning. The evaluation, conducted from October 2019 to June 2023, covers activities related to FFA, PHL management, and SBC, assessing performance, generating information for policy dialogues, and facilitating decision-making for upscaling.

3. Implemented in the Chemba district of Sofala, the GTNS evaluation specifically covers activities executed as part of SO 2 and 3, including the construction of gender- and nutrition-sensitive household and community assets, training on post-harvest loss for smallholder farmers, and multi-level SBC addressing gender inequality, early marriage, sexual and reproductive health, and health-seeking behaviours.

4. The primary users of the evaluation include the WFP Mozambique CO and its partners involved in the implementation of GTNS, aiming to generate information for policy dialogues and decision-making on upscaling. Findings will be actively disseminated, and lessons learned will be incorporated into relevant systems, emphasizing both accountability and learning. The main objective of the final evaluation is to appraise the performance and outcomes attained through the Gender Transformative and Nutrition Sensitive (GTNS) project across 49 villages in the Chemba district, spanning from October 2019 when the GTNS project started, to July 2023, when the data collection for this evaluation ended. GTNS is aimed at strengthening households' resilience, diversifying diets, and empowering women, which are the key elements in tackling chronic malnutrition. To that end, GTNS implemented an integrated package comprising FFA using commodity vouchers, PHL management and SBC using an integrated approach.

5. Chemba district, located in the central semi-arid zone of Sofala province, features sandy-clay soils and moderate fertility. The main livelihood source is rain-fed agriculture, but production is insufficient due to the semi-arid climate and low precipitation. Baseline nutrition surveys at the provincial level revealed significant challenges: stunting and wasting rates for under-five children were 41.2 percent and 7 percent, respectively. In GTNS sampled villages in Chemba, average stunting rates were 42 percent for boys and 36 percent for girls, and average wasting rates were 6 percent for boys and 5 percent for girls in intervention villages, and 9 percent for boys and 8 percent for girls in control villages. For women of reproductive age, overweight and obesity were at 16 percent, while thinness (low BMI) was at 8 percent, negatively impacting child nutrition.

6. The GTNS project experienced a no-cost 18-month extension due to the 2019 national elections and the COVID-19 pandemic, causing delays in SBC and PHL field operations. External events, particularly tropical cyclones, further worsened the already fragile humanitarian and development situation.

METHODOLOGY

7. The evaluation employed a mixed-methods approach, combining quantitative and qualitative methods through a sequential design. This approach included an analysis of secondary data, followed by the endline household survey and qualitative interviews and focal group discussions (FGDs), enabling a comprehensive understanding of the evaluation findings for each question through triangulation.

8. To assess the contribution of the GTNS project on outcomes of interest, a quasi-experimental design was selected. This allowed for simultaneous measurement of indicators of interest in both intervention

and comparison villages and enabled an assessment of GTNS's contribution to changes across both groups (intervention and comparison). The quasi-experimental design facilitated the comparison of key indicators, e.g., of nutrition, livelihoods, and women's empowerment, at a specific moment, providing insights into the differences between these groups.

9. The evaluation addresses the overarching question "what is the contribution of GTNS to improved nutritional diversity, reduction of stunting and empowerment of women and girls?". To answer this question, the evaluation applied the Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria of effectiveness, efficiency, impact, and sustainability to explain the contribution of GTNS to the impact level indicators and to address questions on scalability. Relevance and coherence had been deprioritized at different phases and as such omitted from the evaluation framework. First, the relevance of programs addressing malnutrition and gender issues s well-established and proven Mozambique. Second, coherence was deprioritized after considering the specific project context and stakeholders' priorities.
10. The questions covered by the evaluation are detailed in Annex 14, and systematically presented in the evaluation matrix in Annex 5.
11. As to the quantitative methods, endline data were collected through a household questionnaire, which targeted 784 households (HH) (392 HH for the treatment group, and 392 HH for the control group) across 49 villages in Chemba. The achieved sample was 719 HH (341 HH for the treatment group and 378 HH for the control group). The questionnaire encompassed four main sections:
    - Household data, including socio-demographic information, measures against PHL, livelihoods, food consumption, and nutrition security experiences.
    - Level of empowerment of the sampled pregnant women/mothers of children under-five.
    - A Knowledge, Attitudes and Practices (KAP) module with questions concerning maternal nutrition; care of pregnant and lactating women (PLW) and babies; infant and young child feeding; dietary diversity; food preservation; sanitation and hygiene, and sexual and reproductive health.
    - Details about the sampled children under-five, including information on feeding practices, dietary intake, and anthropometric measurements (height-for-age, weight-for-height, weight-for-age, and middle upper arm circumference [MUAC]).
12. The qualitative component of this evaluation includes the conduct of seven Focus Group Discussions equally distributed across four localities: Mulima-sede, Tomucene, Zondane and Nhamaliwa. Moreover, 21 Key Informant Interviews were conducted with various stakeholders, including ADA representatives, WFP staff & implementation partners, representatives of related local and international NGOs/CSOs, government representatives, and human rights and gender advocates, as well as local leaders at each of the localities where the FGDs were held.
13. Limitations in the evaluation process include the following:
    - Challenges in achieving targeted sample sizes due to an insufficient number of eligible respondents.
    - Participants from the baseline survey originally intended for endline assessment became ineligible as the delayed execution of the endline survey implied that they reached the age of two.
    - The extensive nature of the Women Empowerment in Agriculture Index (pro-WEAI tool) used in the baseline survey was considered less suitable for the project's endline evaluation.
    - Challenges in comparing baseline and endline results due to changes in indicator measurement methods and the inability to track back to baseline respondents. This led to the adoption of a cross-sectional study design rather than a longitudinal one.
    - The absence of a project-specific indicator reference sheet presented a significant challenge in ensuring consistent and uniform indicator measurement in line with baseline and monitoring assessments.
    - The presence and activities of other organizations, which provided assistance to the control population, introduced complexity when attributing observed differences between treatment and control groups.
    - Data disaggregation by gender, age, and disability was limited. While the study aimed to explore differences in GTNS intervention among various subgroups, the interview guide provided by WFP did not explicitly include disaggregation by such categories, constraining the integration of differences in impacts among demographic categories.

14. The above limitations affect the internal and external validity of the evaluation findings, and highlight constrains to the generalizability of the results. Such limitations need to be taken into consideration when interpreting and using the findings for decision making and program improvement.

EVALUATION FINDINGS

Achievement of GTNS targets for target populations

15. **Finding 1:** The GTNS project has had a positive impact on enhancing dietary quality and micronutrient adequacy in the intervention villages, notably influencing an improvement in the food consumption scores, households' dietary diversity and nutrient intake when compared to control villages. However, coping strategies did not significantly differ between the two groups, except for reduced crisis coping strategies for the treatment group, highlighting the effectiveness of the interventions in improving nutrition and food security outcomes in the targeted villages.

16. **Finding 2:** The introduction of hermetic bags and solar dryers, alongside the associated PHL training, has been well-received, with stakeholders acknowledging their enhancing of food preservation techniques and potential contributions to elevating household food security and women's economic empowerment. There are concerns regarding the adaptability of solar dryer technology to adverse weather conditions and the sustainability of hermetic bag supply. Also, these technologies have not markedly reduced PHL as expected, suggesting a gap between perceived benefits and measured outcomes.

17. **Finding 3:** Community radio emerged as a pivotal platform in disseminating critical information on sexual and reproductive health (SRH), prevention of polygamy, early marriages, water sanitation, and hygiene (WASH), reaching beyond the primary audience. Its effectiveness was enhanced through synergies with other initiatives like gender clubs, which promoted suitable SBC messages. However, there is a need to further investigate the apparent discrepancies in opinions between communities and cooperating partners (CPs) concerning the most potent avenues for conveying SRH information.

18. **Finding 4:** Despite the intervention group's perceived improvement in health and SRH services usage as noted by the implementers, actual data indicates only moderate improvements. The minor disparities between the intervention and control groups in terms of seeking health advice for children might be a result of pre-existing or concurrent health sector initiatives, not solely the GTNS project interventions.

19. **Finding 5:** A considerable proportion of women, both in the intervention and control groups, exhibited a concerning level of acceptance towards violence in various situations, indicating deeply entrenched gender inequality in both groups. Surprisingly, the acceptance rate was higher in the intervention group across all the scenarios presented, signalling that transformative change in gender dynamics is a gradual process and that, within its timeframe, the GTNS project has not significantly impacted the intervention group in this regard.

20. **Finding 6:** The intervention group displayed substantial improvements in the consumption of nutritious foods across all categories when compared to the control group. Young people were not fully engaged in the GTNS project, as evidenced by the minor discrepancies in nutrition practice awareness among the 18-49 age group.

21. **Finding 8:** Robust funding and political will, as well as active participation and ownership from community leaders and government structures at various levels contributed to positive results. The COVID-19 pandemic necessitated adjustments in the implementation plan, and climatic factors disrupted timelines and hindered access to beneficiaries during certain periods. Internal challenges related to coordination among partners and logistical complexities, underscored the necessity for streamlined communication and coordination mechanisms from the outset to enhance monitoring and dialogue among partners. The concept of integration was new to all parties, requiring a transitional period for synchronizing activities. Not all activities were gender inclusive, resulting in limited involvement from certain groups and gradual behavioural changes.

22. **Finding 9:** Overall, the project had positive impacts and introduced new beneficial activities, but there is a need for better coordination and longer timeframes to foster significant changes in decision-making dynamics and in early marriages and polygamy prevention.

23. **Finding 11:** The GTNS project has made significant efforts in improving child nutrition outcomes but has encountered persistent challenges to reducing stunting and wasting levels among children under-five due to entrenched societal, economic, and environmental factors.

24. **Finding 13:** The project laid solid sustainability groundwork through extensive capacity building in the community, fostering a strong awareness of the importance of gender transformative approaches to address malnutrition. Specific demographic groups (like adolescents) remain resistant to change and more time is required to irreversibly change social and gender norms.

Exposure of GTNS primary target groups to the project's integrated intervention model

25. **Finding 7:** The project's integrated intervention model successfully engaged and influenced its target audience, particularly in areas such as asset training and construction, with exposure rates exceeding 90 percent. This indicates the project's effectiveness in empowering beneficiaries through capacity-building initiatives and fostering resilience and self-sufficiency. For each activity included in the model, a significant difference was observed between the control and intervention groups ($p = 0.000$ for all). The timing of certain interventions, like the food basket distributions and community dialogues, may have impacted the levels of participation and engagement in the dialogues.

Major factors influencing the achievement of objectives

26. **Finding 6:** The integration of gender transformative approaches in activities was affected by funding disbursements and a coordination gap in the project's implementation.

27. **Finding 7:** The integrated intervention model of the project successfully engaged and influenced its target audience, particularly in areas such as asset training and construction, with exposure rates exceeding 90 percent. This indicates the project's effectiveness in empowering beneficiaries through capacity-building initiatives and fostering resilience and self-sufficiency. For each activity included in the model, a significant difference was observed between the control and intervention groups ($p = 0.000$ for all). The timing of certain interventions, like the food basket distributions and community dialogues, may have impacted the levels of participation and engagement in the dialogues.

28. **Finding 8:** Robust funding and political will, as well as active participation and ownership from the local community leaders and government structures at various levels contributed to positive results. The COVID-19 pandemic necessitated adjustments in the implementation plan, and climatic factors that disrupted scheduling and made access to intervention villages difficult during certain periods. Internal challenges related to coordination among partners and logistical complexities, underscored the necessity for streamlined communication and coordination mechanisms from the outset to enhance monitoring and dialogue among partners. The concept of integration was new to all parties involved, requiring a transitional period for synchronization of activities. Not all activities were gender inclusive, resulting in limited involvement from certain groups and a gradual pace of behavioural change.

Efficiency of GTNS project in terms of timely implementation and cost reduction strategies

29. **Finding 9:** Overall, the project had positive impacts and introduced beneficial new activities, but there is need for better coordination and longer timeframes to foster significant changes in decision-making dynamics and preventing early marriages and polygamy.

30. **Finding 10:** There are significant opportunities for enhancing the efficiency and effectiveness of the project implementation, specifically in terms of resource allocation, collaboration, and sustainability strategies.

Impact of GTNS project

31. **Finding 11:** The GTNS project has made significant efforts and achieved some progress in improving child nutrition outcomes but has encountered persistent challenges in reducing stunting and wasting levels among children under five years old due to entrenched societal, economic, and environmental factors.

32. **Finding 12:** The interventions of a project significantly improved women's economic empowerment in agriculture across all measured indicators but had a lesser impact on women's access to financial

services and did not significantly alter women's roles in terms of time allocation and physical mobility, indicating that women's daily activities and movements did not experience significant shifts.

Sustainability of GTNS project

33. **Finding 13:** The project laid solid sustainability groundwork through extensive capacity building in the community, fostering a strong awareness of the importance of gender transformative approached to addressing malnutrition. Challenges remain in resistance to change among specific demographic groups (like adolescents) and more time required to effect irreversible change in social and gender norms.

CONCLUSIONS

34. **Conclusion 1:** The GTNS project has been successful in improving dietary quality and micronutrient adequacy in the intervention villages, leading to enhanced food consumption scores, dietary diversity, and nutrient intake. While the introduction of hermetic bags, solar dryers, and PHL training has been well-received and recognized for their potential to enhance food preservation techniques and promote women's economic empowerment, concerns remain about the adaptability of solar dryer technology to adverse weather conditions and the sustainability of hermetic bag supply. Additionally, these technologies have not significantly reduced post-harvest losses as expected, there is limited marketable surplus and the complexity of integrated programming and varying partner capacities undermined collaboration efforts.

35. **Conclusion 2:** While the intervention group perceived an improvement in SRH services, actual data reveals only moderate enhancements. Potential pre-existing or concurrent health initiatives may contribute to minor disparities between the intervention and control groups. This underscores the necessity for a comprehensive health and SRH approach. Gender inequality persists, with concerning acceptance levels of violence among women in both groups. Surprisingly, the intervention group showed a higher acceptance rate, indicating that transformative change in gender dynamics is gradual and not significantly impacted within GTNS's timeframe.

36. **Conclusion 3:** The intervention group exhibits notable improvements in consuming nutritious foods compared to the control group. However, challenges in integrating gender transformative approaches arose due to funding disbursements and coordination gaps in project implementation. Young people's engagement in GTNS was suboptimal, affecting nutrition awareness among the 18-49 age group. Despite these challenges, GTNS effectively addressed gender roles, power dynamics, and cultural norms hindering women's empowerment and nutrition practices.

37. **Conclusion 4:** GTNS made strides in challenging negative gender roles through community dialogues and awareness initiatives. It addressed cognitive and behavioural aspects of change at the contextual level, challenging traditional perceptions of household responsibilities. However, challenges persisted, especially in arid districts like Chemba, where limited marketable surplus and dependence on male income hindered women's economic agency. Partner coordination issues and varying work speeds affected the quality of outputs. Progress in changing deeply ingrained cultural practices, such as initiation rites and polygamy, was slower, emphasizing the need for sustained efforts in challenging traditional gender norms and promoting behavioural change. It's essential to note that while GTNS didn't aim to directly reduce polygamy, it sought to create awareness and foster behavioural change regarding its potential harm to women's decision-making power.

38. **Conclusion 5:** The integrated intervention model has effectively engaged and influenced its target audience, particularly in asset training and construction, with high exposure rates. Significant differences between control and intervention groups were observed for all activities. However, timing of certain interventions, such as food basket distributions and community dialogues, may have influenced the levels of participation and engagement in the dialogues, suggesting that careful consideration of timing and sequencing is essential in optimizing the impact of the project's activities.

39. **Conclusion 6:** Positive results were achieved due to robust funding, political will, and active participation from local community leaders and government structures. However, challenges arose from the COVID-19 pandemic, climate extremes, internal coordination issues, and the need for streamlined communication and coordination mechanisms among partners. The concept of integration required a transitional period for synchronization of activities.

40. **Conclusion 7:** The project demonstrated positive impacts and introduced beneficial activities, but there is a need for improved coordination and longer timeframes to bring about significant changes in decision-making dynamics and preventing marriages and polygamy. Additionally, there are significant opportunities for enhancing efficiency and effectiveness in resource allocation, collaboration, monitoring and evaluation (M&E) and sustainability strategies within the project.

41. **Conclusion 8:** The GTNS project has made significant efforts and achieved some progress in improving child nutrition outcomes. However, it has faced persistent challenges in reducing stunting and wasting levels among children under five years old due to deeply rooted societal, economic, and environmental factors. Furthermore, while the project's interventions have substantially improved women's economic empowerment in agriculture, they had a limited impact on women's access to financial services and did not significantly alter women's roles in terms of time allocation and physical mobility, indicating that women's daily activities and movements did not experience significant shifts.

42. **Conclusion 9:** The project has laid a strong foundation for sustainability by implementing extensive capacity-building efforts in the community and emphasizing the importance of gender-transformative approaches to combat malnutrition. Nevertheless, challenges remain, especially in addressing resistance to change among specific demographic groups, like adolescents, and achieving lasting shifts in social and gender norms will require more time and continued efforts.

43. **Conclusion 10:** The project's M&E system was hampered by the absence of a project-specific indicators reference sheet, resulting in inconsistencies, confusion, and inaccuracies during data collection and analysis. This deficiency had a direct impact on the system's ability to assess the project's impact and effectiveness accurately and reliably. Furthermore, certain indicators lacked the SMART attributes, failing to provide clear measurement methods or variables. Additionally, the system failed to adequately account for shifts in knowledge and attitudes among beneficiaries, which are pivotal components of the project's impact, particularly within the context of disasters. To enhance the system's effectiveness, it is imperative to develop a comprehensive and standardized indicators reference sheet that comprehensively addresses the relevant domains of change and delineates precise measurement methodologies.

RECOMMENDATIONS

44. **Recommendation 1:** Prioritize targeted initiatives aimed at challenging deeply ingrained cultural norms, to further dismantle power dynamics and gender inequalities that hinder women's empowerment and nutrition practices, thereby creating a more supportive environment for sustainable change and continue addressing women's economic constraints and streamline partner coordination to enhance collaboration and the overall effectiveness of the project.

45. **Recommendation 2:** Prioritize climate change as a cross cutting issue of GTNS and ensure that it is well integrated within the WFP CO climate smart activities.

46. **Recommendation 3:** Clearly articulate the gender and social norms change process before upscaling the GTNS project.

47. **Recommendation 4:** Enhance gender-transformative indicators, bolster monitoring, and strengthen partner capacities in M&E.

48. **Recommendation 5:** Take a comprehensive and multisectoral approach to address malnutrition, with a strong emphasis on gender equality, community involvement and decentralized leadership.

49. **Recommendation 6:** Develop a comprehensive indicators Reference Sheet with project-specific indicators that encompasses all critical indicators, specifying measurement methods, variables, and data collection tools. Ensure that all indicators adhere to the SMART criteria, enhancing clarity and consistency in data collection.

1. Introduction

1.1. EVALUATION FEATURES

1. This report is the endline activity evaluation of the World Food Programme's (WFP) Mozambique's integrated Gender Transformative and Nutrition Sensitive (GTNS) project. The project is funded by the Austrian Development Agency (ADA) and is implemented in 49 villages in Chemba district, Sofala province. The evaluation was commissioned by WFP Mozambique Country Office (CO) who provided the Terms of Reference (Annex 1).[1] This endline evaluation follows a baseline assessment conducted in March 2020 by World Agroforestry (ICRAF) and ELIM Serviços Lda.

2. The purpose of this report is to present the main findings, conclusions, and recommendations of the evaluation. It also provides information on the context, the subject of the evaluation, its stakeholders, the approach, and methodology that was used.

3. The main objective of the final evaluation is to appraise the performance and outcomes attained through the GTNS project across 49 villages in the Chemba district, spanning from October 2019 to June 2023. The evaluation serves the dual and mutually reinforcing objectives of accountability and learning, with greater emphasis given to learning as follows:

    - **Accountability**: The evaluation will assess and report on the performance and results of the GTNS project.
    - **Learning**: The evaluation will determine the reasons why certain results occurred or did not occur to draw lessons and derive good practices. Findings will be actively disseminated, and lessons learned will be incorporated into relevant lesson-sharing systems.

4. The evaluation is important since the GTNS project is framed within strategic outcome (SO) 2 and 3 of the new Country Strategic Plan (CSP) (2022-2026) of WFP Mozambique. Strategic outcome 2 aims at upscaling WFP's support to gender-transformative integrated package of nutrition-sensitive and nutrition-specific interventions to address malnutrition.[2] Under SO 3, WFP aims for people to have improved livelihoods and to be better able to prepare for and withstand the impacts of shocks and stressors, by assisting the most vulnerable people and communities in fostering enhanced and diversified income opportunities, climate-adaptive skills and economic capital. Additionally, the GTNS project seeks to develop a prototype model for mitigating chronic malnutrition and enhancing women's empowerment. These expected outcomes target the alleviation of malnutrition and seek to garner insights that can guide and enhance their replication.

5. Thus, the GTNS project aimed to improve women and adolescent girls' empowerment, enhance their nutritional diversity, and reduce stunting among children under-five in the context of a changing climate. Consequently, addressing gender and human rights issues is a focal point in the specific objectives of the evaluation.

6. The evaluation covers the three interrelated activities implemented by the GTNS project: (i) Food Assistance for Assets (FFA) to ensure the food and nutrition security of households through the provision of monthly food transfers (using cash, vouchers, or in-kind modalities) and to enhance gender and nutrition-sensitive asset creation at community and household levels[3] (ii) Post-Harvest Loss (PHL) involving the distribution of and training on the use of hermetic bags (PHL techniques, food processing, conservation and storage) for the reduction of PHLs, and (iii) Social and Behaviour Change Communications (SBC) implemented at the individual, household, and community level to address gender inequality with a focus on early marriage, sexual and reproductive, and health seeking behaviours.

7. The primary users of the evaluation include the WFP Mozambique CO and its partners involved in the implementation of the project in generating information that can inform policy dialogues as well as

[1] All annexes are compiled and presented in Volume 2 of this evaluation report.
[2] Mozambique country strategic plan (2022–2026).
[3] WFP Mozambique, 2017. Project Document- Reaching the furthest behind first – Gender transformative and nutrition sensitive programming to increase food and nutrition security for women, adolescent girls, and children in Chemba, Sofala - a contribution to the WFP Mozambique Country Strategic Plan 2017 - 2021.

decision-making on upscaling. The WFP Regional Bureau in Johannesburg (RBJ) will use these findings to provide strategic guidance, programme support, and oversight to the Mozambique WFP Country Office (CO) as well as other Southern African countries. Moreover, the WFP Headquarters' (HQ) Nutrition Division will find the results useful in its ongoing work to enhance WFP nutrition-sensitive programming, which contributes to the achievement of Sustainable Development Goal (SDG) 2.2.[4] WFP HQ Gender Division as well as relevant divisions responsible for FFA and PHL are key stakeholders that may be interested in the results of this evaluation to inform their WFP-wide guidance materials. WFP HQ Office of Evaluation may use the evaluation findings, as needed, to feed into evaluation syntheses as well as for annual reporting to the Executive Board on evaluation coverage.

8. Lastly, the evaluation will be potentially important to stakeholders beyond WFP. United Nations (UN) partners such as United Nations Children's Fund (UNICEF), Food and Agriculture Organization (FAO) and international organizations (e.g., World Bank, etc.) that may use the findings of this evaluation to inform their interventions on nutrition and gender programming in Mozambique. Cooperating partners such as district technical departments and Non-Governmental Organizations (NGOs) can use the recommendations to enhance their field activities. Austrian Development Agency (ADA), as the donor for this project, will use the evaluation report to meet its accountability needs as appropriate as well as to inform ADA's future support to similar programmes.

9. The evaluation was undertaken by Forcier Consulting. The inception phase was concluded with a final inception report in April 2023. The subsequent data collection phase (May – July 2023) led to the preparation of this evaluation report, finalized in November 2023. The detailed timeline for the evaluation is in Annex 2.

1.2. CONTEXT

1.2.1. General Overview

10. **Economy:** Despite a Gross Domestic Product (GDP) average annual growth rate of 7.9 percent for much of the post-war recovery period (1996-2015), Mozambique's GDP growth plunged to 3 percent in 2016–2019 and to -1.2 percent in 2020, owing to multiple shocks. Driven by a strong agricultural sector, growth reached 4.4 percent in 2022 and is projected to average 5.6 percent during 2022-2024.[5] Economic expansion has had a moderate impact on poverty reduction and Mozambique ranked 185th of 191 countries in the 2021-2022 Human Development Report.[6] About 57 percent live in multidimensional poverty, and 49.9 percent live in extreme multidimensional poverty.[7]

11. **Health**: Malaria is endemic in Mozambique with an estimated prevalence in children aged 6–59 months old that is twice as high in rural areas (46 percent) than in urban areas (18 percent).[8] National Human Immunodeficiency Virus (HIV) prevalence is estimated at 13 percent, with substantial variation across provinces ranging from 5 percent in Tete to 24 percent in Gaza.[9] Sofala has one of the highest HIV prevalence rates in the country at 16.3 percent and an early sexual debut (<15 years old) rate of 28 percent –one of the highest in Africa.[10] There is also poor and unequal access to improved drinking water and sanitation facilities, as well as to healthcare infrastructure and services.[11]

12. **Literacy:** Illiteracy in Mozambique remains among one of the highest in the world, with 2 in 5 adults being unable to read and write. This mainly affects women, whose illiteracy rate is higher (49.4 percent) compared to men (27.2 percent). The illiteracy rate is also higher in rural areas (50.7 percent) than in

[4] SDG 2.2 target: To end all forms of malnutrition by 2030, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons. UN. 2015. *Sustainable Development Goals*.
[5] World Bank. 2022. Macro Poverty Outlook for Mozambique. Washington, D.C.: World Bank Group.
[6] UNDP. 2021-22. Human Development Report.
[7] Ibid.
[8] Afai, G., Rossetto, E.V., Baltazar, C.S. et al. 2022. Factors associated with knowledge about malaria prevention among women of reproductive age, Tete Province, Mozambique, 2019–2020. Malar J 21, 76,
[9] UNAIDS. 2022. Mozambique Country Factsheet.
[10] USAID. 2021. Mwanasana (Healthy Child) project fact sheet, 2021.
[11] Instituto Nacional de Estatística (INE). 2013. Mozambique 2013 Statistical Yearbook. Maputo: INE.

urban areas (18.8 percent). Mozambique is planning to reduce the illiteracy rate by 23 percent by 2029.[12]

13. **Nutrition:** The African Union Commission (AUC)'s Cost of Hunger in Africa (COHA) analysis (2017) found that 10.94 percent of Mozambique's GDP is lost every year because of stunting (chronic undernutrition).[13] The largest share of this cost is the potential loss of productivity due to malnutrition-related mortality, which for 2015 alone was estimated at 53 billion MZN (USD 831 million), or 9.4 percent of the GDP.[14] The most recently published, nationally representative anthropometric survey indicated that the prevalence of stunting (HAZ<-2) in Mozambique is 43 percent, classified as very high by WHO standards and representing only a slight reduction from the 45 percent of 1997.[15,16,17] At this prevalence rate, an estimated 2.15 million children aged under five are affected by stunted growth in Mozambique. The national prevalence of under-five stunting for boys averaged between 45-47 percent, while that of girls averaged between 38-41 percent across the three time periods (2008, 2011 and 2015). The baseline estimates (2020) **for** GTNS intervention and control villages in Sofala revealed a similar trend.[18]

14. **Stunting**: A 2017 study of stunting in Tete province in children under-five found that boys were more likely to be stunted than girls.[19] This is in line with the findings of a meta-analysis of Demographic and Health Surveys (DHS) of 16 Sub-Saharan African countries[20] as well as the 2011 Mozambique DHS and the 2010 DHS in Eastern Africa. Reasons for this might be the association that girls have "more value" as an investment, especially given the high poverty rates in Mozambique. Additionally, epidemiological evidence depicts boys to be biologically more vulnerable to morbidity[21,22]and in a setting like Mozambique, where morbidity incidence is high, this exerts considerable effects on boys. Consequently, Mozambique ranked 123rd out of 132 countries for stunting prevalence in the 2016 Global Nutrition Report (GNR),[23, 24] with 38 percent of children under 5 reported as stunted, [25] , which is higher than the average for Africa (30.7 percent).[26]

15. **New-born health**: Pregnant women and girls who were chronically undernourished and characterized by stunting as children, are more likely to deliver infants with a low birth weight (<2500g) and to experience life-threatening complications during pregnancy and delivery.[27] The fertility rate for women aged 15-45 years is estimated at 5.4.[28] The adolescent birth rate per 1,000 girls aged 15-19 stands at

[12] UNESCO. 2023. The CapED Programme Results Report 2022.
[13] AUC. 2017. Cost of Hunger in Africa (COHA) analysis: Mozambique.
[14] AU, NEPAD, WFP, & ECLAC. 2017. Estudo do Custo da Fome em Africa: Impacto Social e Econômico Desnutrição em Crianças em Moçambique: Impacto Social e Económico da Desnutrição Infantil no Desenvolvimento a Longo Prazo de Moçambique a Longo Prazo. Maputo.
[15] Instituto Nacional de Estatística (INE). 2013. Mozambique 2013 Statistical Yearbook. Maputo: INE.
[16] WHO. 2017. Global Database on Child Growth and Malnutrition: Mozambique.
[17] Direcção de Estudos Económicos e Financeiros (DEEF), Ministério de Economia e Finanças (MEF). 2015. Estimativas e Perfil da Pobreza em Moçambique: Uma Análise Baseada no Inquérito sobre Orçamento Familiar - IOF 2014/15.
[18] WFP. 2020. Decentralized baseline evaluation of the WFP Mozambique Gender Transformative and Nutrition Sensitive (GTNS) Programme (2019 to 2021),
[19] Garcia Cruz, L.M., González Azpeitia, G., Reyes Súarez, D., Santana Rodríguez, A., Loro Ferrer, J.F. and Serra-Majem, L., 2017. Factors associated with stunting among children aged 0 to 59 months from the central region of Mozambique. Nutrients, 9(5), p.491.
[20] Wamani, H.; Åstrøm, A.; Peterson, S.; Tumwine, J.K.; Tylleskär, T. Boys are more stunted than girls in sub-Saharan Africa: A meta-analysis of 16 demographic and health surveys. BMC Pediatr. 2007, 7, 17.
[21] Battles, Heather T. "The biologically vulnerable boy: Framing sex differences in childhood infectious disease mortality." *Boyhood Studies* 9.2 (2016): 56-72.
[22] Thompson, Amanda L. "Greater male vulnerability to stunting? Evaluating sex differences in growth, pathways and biocultural mechanisms." Annals of human biology 48.6 (2021): 466-473.
[23] International Food Policy Research Institute. 2016. Global Nutrition Report 2016: from promise to impact: ending malnutrition by 2030. Washington, D.C. [although publication is dated, it is the most recent with a ranking provided]
[24] Tanya Khara and Carmel Dolan. 2014. Technical briefing paper: The relationship between wasting and stunting, policy, programming, and research implications.
[25] WFP. n.d. Country profiles: Mozambique.
[26] Global Nutrition Report. 2018. Country Nutrition Profiles.
[27] SETSAN. 2013. Baseline Survey for Food Security and Malnutrition. Maputo.
[28] Instituto Nacional de Saúde (INS) e ICF. 2019. Inquérito Nacional sobre Indicadores de Malária em Moçambique 2018. Maputo, Moçambique. Rockville, Maryland, EUA: INS e ICF.

180.[29] In Mozambique, 28 percent of children under six months were already stunted.[30] High stunting prevalence before complementary feeding begins is indicative of poor maternal nutrition status before, during and immediately following pregnancy, including adolescent pregnancy as well as poor breastfeeding practices.[31]

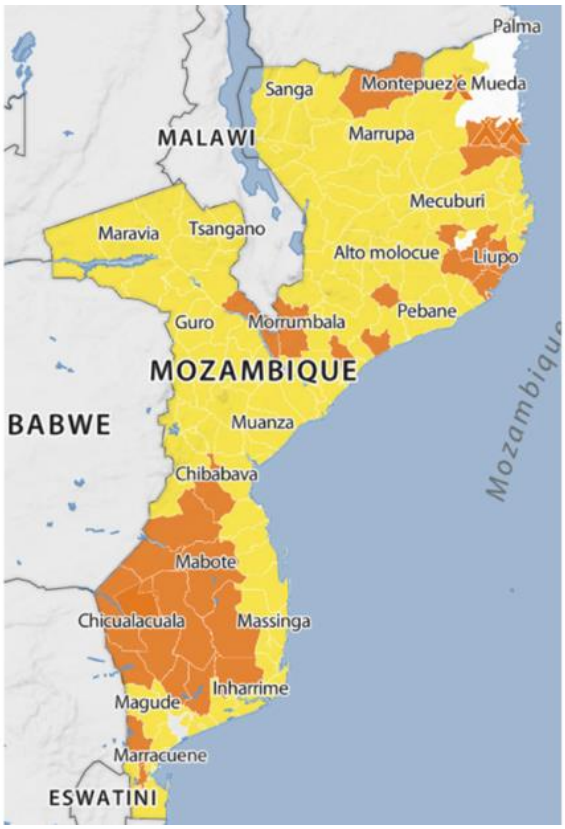
1.2.2. Agriculture, Food Security and Climate Change

16. Agriculture is the mainstay of the economy, contributing to 24.4 percent of Mozambique's GDP in 2019,[32] which has risen to 27.5 in 2021.[33] Agriculture represents four-fifths of the total exports [34] and employs more than 80 percent of the labour force.[35] Smallholder productivity and incomes are low, undermined by a lack of appropriate technologies, the use of traditional agricultural methods, high post-harvest losses (estimated at 30 percent), low-yield seed varieties, low levels of mechanization and limited access to extension services.[36] Furthermore, within rural contexts, a staggering 95 percent of working women are engaged in subsistence farming.[37]

17. The food security situation in Mozambique is dire, with around 2.8 million people classified in IPC Phase 3 (Crisis) and 400,000 in IPC Phase 4 (Emergency) from November 2022 to March 2023 (Figure 1).[38]. Chemba and Cibabava districts in Sofala are among the 34 districts classified in Crisis (IPC Phase 3). Factors contributing to acute food insecurity in IPC 3 and 4 districts include cyclones and strong winds, such as tropical storm Ana affecting Zambezia (32 percent), Tete (24 percent), and Nampula (11percent); cyclone Gombe in Nampula (54 percent) and Zambezia (17 percent)[39]; and cyclone Freddy impacting approximately 4 percent of Mozambique's total population,[40] with 85 percent estimated in Zambezia.[41] Food security is affected by crop losses (production shocks, post-harvest inefficiencies) and isolation (related to food storage challenges for small and remote populations).[42]

[29] UNFPA. 2023. World population profiles: Mozambique.
[30] Instituto Nacional de Estatística (INE). 2013. Mozambique 2013 Statistical Yearbook. Maputo: INE.
[31] ibid.
[32] FAO. 2019. FAO Mozambique Annual Report. Available at: https://www.fao.org/3/cb0459en/CB0459EN.pdf
[33] World Bank. n.d. Databank, World Development Index: Mozambique.
[34] FAO. n.d. Gender and Land Rights Database: Mozambique.
[35] FAO. 2019. FAO Mozambique Annual Report.
[36] IFAD. n.d. Mozambique Country Profile.
[37] JICA. 2015. Country Gender Profile: Mozambique, p. 32.
[38] IPC. 2023. IPC Acute Food Insecurity Analysis November 2022 - March 2023.
[39] Ibid.
[40] IPC. 2023. Mozambique: Acute food insecurity situation, November 2022-March 2023.
[41] ACAPS. 2023. Mozambique: Flooding in the central provinces.
[42] World Bank (2019). Agrarian Sector Transformation: A Strategy for Expanding the Role of the Private Sector. Washington DC: The World Bank.

Figure 1: Acute food insecurity situation (November 2022-March 2023)



Source: IPC. 2022. IPC Mozambique Acute Food Insecurity, November 2022 – March 2023.

18. Agricultural production done by smallholder farmers is under rain-fed systems, which implies that climate change and variability have a considerable impact on livelihoods, food security, and nutrition. Projected climate models for 2050 show increased heat stress, reductions in water availability, and more frequent and intense extreme weather events,[43] which will exacerbate food insecurity and under-nutrition. The impacts of climate change are already felt and will only be aggravated if unaddressed through climate action. Climate change will also increase undernutrition through three main causal pathways: i) impacts on household access to sufficient, safe, and adequate food; ii) impacts on care and feeding practices; and iii) impacts on environmental health and access to health services.[44]

19. Mozambique is ranked the third most vulnerable country to climate change in Africa, and large areas of the country are exposed to tropical cyclones, droughts, and river/coastal storm surge flooding.[45] Droughts are the most frequent, occurring every three to four years, and tropical cyclones mainly occur during the hot, humid season.[46]

1.2.3. Gender Equality and Women's Empowerment

20. In Mozambique, women hold 39.6 percent of parliamentary seats, and 14 percent of adult women have at least a secondary education, compared to 27.3 percent of men. Female labour market participation is 77.5 percent, slightly lower than men's 79.6 percent.[47] The 2021 Gender Inequality Index (GII) ranks Mozambique 136th out of 170 countries,[48] with a value of 0.537. Poverty affects both rural men and women, but women face gender-restrictive norms, limiting their food access, and gender-based

[43] WFP. 2018. Mozambique: A Climate Analysis. Available at https://docs.wfp.org/api/documents/WFP-0000108186/download/
[44] Global Nutrition Report. 2015. Climate Change and Nutrition, chapter 6.
[45] World Bank. 2022. Mozambique Economic Update- Getting Agriculture Support Right.
[46] Ministry of Foreign Affairs.2018. Mozambique Climate Change Profile.
[47] UNDP. 2021-2022. Human Development Insights. Available at: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/MOZ.pdf
[48] UNDP. 2022. Human Development Summary: Mozambique.

violence (GBV) is prevalent.[49] Mozambique ranks tenth globally in child marriages, with one in two girls married before 18,[50] leading to elevated maternal mortality and adverse birth outcomes. Complications from early pregnancies are a global leading cause of death among women aged 15 to 19,[51, 52] contributing to Mozambique's high fertility rate of 6.6 in rural areas and a maternal mortality rate of 489/100,000 live births, one of the world's highest.[53]

1.2.4. Key External Events and Humanitarian Issues

21. The COVID-19 pandemic and several tropical cyclones have deteriorated the already fragile humanitarian and development situation in the country. From 3 January 2020 to 22 November 2023, there were 233,663 confirmed cases of COVID-19 with 2,226 deaths.[54] The restrictive measures against COVID-19 eased throughout the country including GTNS area during the evaluation period.[55]

22. In the past three years, six tropical cyclones (Desmond, Idai, Kenneth, Chalane, Eloise, Guambe, and Freddy) caused significant damage in central provinces. WFP consistently collaborates with the Government in disaster response, as seen in responses to cyclones Eloise in 2021 and Freddy in 2023. Cyclone Freddy struck Mozambique twice in February and March, causing heavy rains and severe flooding in Zambezia, Sofala, Tete, and Niassa.[56] Between May and June 2023, WFP, in collaboration with provincial authorities, worked on the Freddy recovery response, aiming to assist 38,000 households in Gaza, Inhambane, Zambezia, Sofala, and Tete.[57]

23. Mozambique was also affected by a lean season from October 2021 to March 2022, resulting in food scarcity for many communities. During this period, WFP provided food assistance to 427,310 drought-people in Maputo, Gaza, Inhambane, Tete, and Manica.[58]

1.2.5. Chemba District Context

24. Chemba district, located in the central semi-arid zone of Sofala province, features sandy-clay soils and moderate fertility. With an average household size of five people,[59] Chemba's primary livelihood is rain-fed agriculture, faced with challenges posed by the semi-arid climate and low precipitation. The typical farm size is approximately 2 hectares, employing manual farming practices with limited use of animal traction. Main crops include maize, sorghum, kidney beans, sesame, and peas. Key livestock species are cattle, goats, and pigs. Forestry resources are utilized for household goods and handicrafts, contributing to deforestation. Firewood and coal serve as primary domestic fuels, further exacerbating environmental issues. Water shortage problems persist in the district.

25. Chemba faces infrastructure challenges with substandard roads and an ill-equipped health system. There are twelve health units, each serving around 6,083 people.[60] Medical resources are scarce, with one hospital bed for every 1,140 people, and just one technical professional for 1,057 individuals.[61] Challenges include long travel distances to healthcare facilities and a shortage of medications.

26. During a significant portion of the year, a substantial portion of its populace depends on self-produced resources, resorting to foraging for wild sustenance due to limited income sources (predominantly agricultural labour and the sale of natural commodities like charcoal).[62] Additionally, Chemba is prone

[49] WFP. November 2020. Mozambique Gender Analysis.
[50] Ibid.
[51] Black et al. 2013. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet 2013; 382: 427-451.
[52] WHO. 2016. Global health estimates: deaths by cause, age, sex, by country and by region, 2000–2015.
[53] ibid.
[54] WHO. 2023. COVID-19: Mozambique.
[55] Mozambique Food Security Snapshot | November 2021 - September 2022.
[56] UNICEF Mozambique Humanitarian Situation Report No. 6: January-June 2023.
[57] WFP Mozambique Country Brief, June 2023
[58] Mozambique Annual Country Report (ACR), 2021, Country Strategic Plan 2017-2022
[59] The average household size set by the Government for FFA activities is 5 people per household.
[60] INE. 2012. Estatísticas Distritais: Distrito de Chemba.
[61] MAE. 2014. Perfil do distrito de Chemba.
[62] SETSAN. April 2018. Integrated Phase Classification (IPC) for Chronic Food Insecurity,

to floods, drought, and man-wildlife conflicts.[63] Cyclones Gombe, Dumako and Ana, left 27,385 affected people in Sofala,[64] while cyclone Freddy affected 33,435 people in Sofala.[65]

27. Consumption-based coping strategies in Sofala are the second highest in the country, mirroring a IPC 3 situation, or higher.[66] Nutrition surveys conducted at the provincial level reveal the stunting and wasting rates for children under-five are at 41.2 percent and 7 percent, respectively.[67] At the time of the baseline evaluation, the average stunting rates among the GTNS sampled villages in Chemba were 42 percent for boys and 36 percent for girls. Similarly, overweight and obesity affected 16 percent of women of reproductive age and thinness (low body mass index) affected 8 percent, both negatively impacting child nutrition.[68]

28. Gender disparities persist in Chemba despite efforts.[69] Girls face restricted access to education (48.3 percent in 2018),[70] with low retention rates (between 13.3-35 percent in 2017), leading to lower literacy and limited opportunities especially in rural areas.[71] Traditional gender roles shape employment vulnerability, with women often in informal work and burdened with household duties.[72] Economic empowerment is hindered by limited resources. Gender-based violence, including early marriages and domestic abuse, contributes to ongoing inequality. [73]

1.2.6. Relevant National and Sectoral Policies

29. GTNS aligns with national policies, including the Government's Five-Year Plan (2020-2024) [74] focusing on gender equity, poverty reduction, economic development, and food security. It also aligns with the Strategic Gender Plan (2016-2020), the 4th National Plan for the Advancement of Women (2018-2021), the National Multi-Sectoral Action Plan for the Reduction of Chronic Undernutrition (2011-2020) [75] with a Food Fortification Strategy targeting stunting reduction in children and recognizing risks in pregnant and lactating women and children under 2, and The National Food Security and Nutrition Strategy (2008-2015) and the Social Behaviour Change Communication for the Prevention of Malnutrition in Mozambique (2015-2019).

30. Furthermore, GTNS is aligned with the Government's climate adaptation and mitigation plans and strategies, including:

    - The National Master Plan for the Prevention and Mitigation of Natural Disasters (2017-2030), that is the basis for disaster risk management[76]

[63] Mozambique does not have the resources to afford separate wildlife conservation areas, and with the growing population, human-wildlife conflict is a key issue, especially as key resources diminish, such as water and vegetation. In Sofala and Tete, incidence of human-wildlife conflict has been documented. Crocodiles and hippos are the main concern.
[64] IPC. 2023. IPC Acute Food Insecurity Analysis November 2022 - March 2023.
[65] UNOCHA. 2023. Mozambique: Severe Tropical Storm Freddy - Flash Update No. 10.
[66] Even with humanitarian assistance, at least one in five HHs in the area have the following or worse: Food consumption gaps with high or above usual acute malnutrition, or are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gap.
[67] FAO, IFAD, UNICEF, UNFPA, WFP, WHO and REACH (2015). The United Nations Agenda for the Reduction of Chronic Undernutrition in Mozambique (2015-2019).
[68] WFP. 2020. Baseline Report of the WFP Mozambique Gender Transformative and Nutrition Sensitive (GTNS) Programme (2019 to 2021), Decentralized evaluation.
[69] WFP. 2020. Baseline Report of the WFP Mozambique Gender Transformative and Nutrition Sensitive (GTNS) Programme (2019 to 2021), Decentralized evaluation.
[70] Ministry of Education and Human Development. 2018. https://www.mined.gov.mz/DN/DIPLAC/Documents/Brochura_Marco2018.PDF (Currently unavailable online)
[71] UN Women. 2019. Beijing+25: Mozambique report on the implementation of Beijing declaration and platform for action.
[72] Indicatively, in 2021, vulnerable employment among women is 92.2 percent (versus 72.2 percent for men). World Bank. 2021. Gender Data Portal: Mozambique.
[73] WFP. 2020. Gender Analysis, Chemba District, Sofala Province, Mozambique.
[74] PQG_2020.2024_Versao_AR__02042020-min.pdf.
[75] This action plan most likely will be updated based upon results of a mid-term review recently conducted and will likely take place in late 2019 or even 2020.
[76] Additionally, informed by the Strategic Gender Plan of the National Institute for Disaster Management (INGC) 2016-2020.

- The National Climate Change Adaptation and Mitigation Strategy (2013-2025), which aims to increase the adaptive capacity of vulnerable people, and promote tree planting, establishing forests for local use
- The National Adaptation Programme of Action (2007) that prioritizes installing sustainable small-scale irrigation systems and encourages the use of drought-tolerant crops.

31. Despite challenges, GTNS aligned with the Mozambique UNDAF (2017-2020) core principles: leaving no one behind, upholding human rights, fostering gender equality, and promoting resilience, sustainability, and accountability.[77] Mozambique faced economic crises, conflict, cyclones and the COVID-19 pandemic during this period that exacerbated socioeconomic challenges. The conflict in the north of the country displaced around 668,939 people,[78] causing over 4,000 fatalities and extensive infrastructure damage by August 2023.[79] Cyclones Idai and Kenneth struck in 2019, and cyclone Freddy in 2023, causing death, displacement, and destruction. Despite these obstacles, the United Nations System remained committed to assisting Mozambique in achieving the 2030 Agenda,[80] aligning with the UN Sustainable Development Cooperation Framework (UNSDCF) (2022-2026).[81]

32. GTNS aligns with UNFAD 2017-2020 by improving nutritional outcomes, addressing malnutrition (finding 1), focusing on food security and women's empowerment, in line with UNFAD's goals (finding 2 and conclusion 1), and engaging the target audience effectively, supporting UNFAF's aim for vulnerable communities (finding 7 and conclusion 5).

33. GTNS aligns with UNSDCF 2022-2026 by emphasizing capacity-building (finding 7) and establishing a strong foundation for sustainability (finding 13 and conclusion 9), in line with UNDAF's focus on empowering communities and fostering resilience. Additionally, GTNS aligns with UNSDCF's gender equality and women's empowerment objectives through efforts to improve women's economic empowerment (finding 12) and challenge deeply ingrained gender norms (conclusion 6).

34. Further alignment with UNSDCF 2022-2026 is needed in improving the GTNS project's coordination and resource allocation, aligning with UNSDCF's goal for efficient development (finding 9 and conclusion 7). While GTNS impacts climate change action, better alignment with UNSDCF's emphasis on climate-smart activities is suggested by prioritizing it as a cross-cutting issue (recommendation 2). Despite alignment in integrated approaches, additional work may be required, as emphasized by Recommendations 4 and 5, to bring GTNS fully in line with UNSDCF.

1.2.7. Sustainable Development Goals (SDGs)

35. Nutrition is integral to all SDGs, with relevance to SDG 2 (zero hunger), 3 (good health and well-being), 5 (gender equality), 12 (responsible consumption and production), 13 (climate action), and 17 (partnerships) in this gender-transformative, nutrition-sensitive project. Despite national policies and plans addressing hunger and food insecurity, the 2020 Mozambique national voluntary report on SDG2 highlights persistent challenges in implementing a structural approach to address hunger.[82]

1.2.8. International Assistance

36. In Mozambique, long-standing donors fund activities related to this evaluation. The USAID Disaster Recovery Cash Assistance in Sofala program addresses chronic malnutrition and food insecurity in Nhamatanda district through US$ 40 monthly unconditional digital cash transfers via Give Directly, supplemented by SMS messages on health and nutrition.[83] UNICEF partners with Doctors with Africa (CUAMM) in Sofala and Mothers to Mothers in Cabo Delgado and Nampula to expand HIV services for resettled populations. [84] The Swedish International Development Cooperation Agency (SIDA) focuses on

[77] UN Mozambique. 2017. Quadro das Nações Unidas de Assistência ao Desenvolvimento para Moçambique (UNDAF) 2017-2020.
[78] UNHCR. 2023. Operational Update: Mozambique.
[79] ACLED. 2022. Cabo Delgado Monthly: October 2022. Special report on five years of conflicto in Northern Mozambique.
[80] UN Mozambique. 2021. UN Mozambique UNDAF (2017-2021): Results Report.
[81] UN Mozambique. 2022. *UNSDCF (2022-2026)*.
[82] Government of Mozambique. 2020. Voluntary National Review of Agenda 2030 for Sustainable Development.
[83] GiveDirectly is the leading global NGO specialized in delivering digital cash transfers.
[84] UNICEF. 2022. Humanitarian Situation Report Nº9.

environmental and climate-related initiatives, acknowledging Mozambique's climate change vulnerability.[85]

37. Data from the CO (Table 1), reveals donor-driven agricultural and capacity-building initiatives in Chemba. These initiatives align with GTNS objectives and complement WFP activities in Chemba, including the integrated climate risk management (ICRM) approach to climate-resilient food security. Consideration of these concurrent efforts is essential when attributing and evaluating project outcomes.

Table 1: Ongoing donor activities related to GTNS

Entity	Project information	Timeframe
Solidar Swiss	Capacity building and provision of equipment/tools for youth self-employment on carpentry, tailoring, metalworking, and cooking; Capacity building on local governance and development for local government mechanisms and platforms.	6 months, 2022-2023
Caritas	Construction of water pumps/boreholes; Technical assistance and provision of agriculture inputs to stallholder farmers.	Ongoing since more than 10 years.
Austrian Development Agency (ADA)	DELPAZ Project, implemented by the Chemba Government; Provision of agriculture inputs (improved seeds) and technical assistance to smallholder farmers; Small irrigation systems (just introduced); Livestock and agriculture community fairs; Construction of water pumps/boreholes; Construction of a water system (ongoing); Construction and rehabilitation of community roads, bridges, and related infrastructure.	2021-2025
Young Africa	DELPAZ project (ADA): Capacity building and provision of equipment/tools for youth self-employment on painting, beekeeping, electricity, and motorbike mechanics.	2021-2025
AIAS	Behavioural change activities on WASH.	Ongoing
Pathfinder International	Integrated Family Planning Program and Improved Family Planning Initiative to increase use of modern contraceptive methods and address maternal and new-born health challenges, with a focus on rural and vulnerable populations	2016 - Present
FAO	ADA agriculture project on seed multiplication, banking and conservation; Capacity building, technical assistance, and provision of agriculture inputs to smallholder farmers; Material for construction of seed banks.	2015/2016 - 2021

Source: WFP Mozambique Country Office.

1.3. SUBJECT BEING EVALUATED

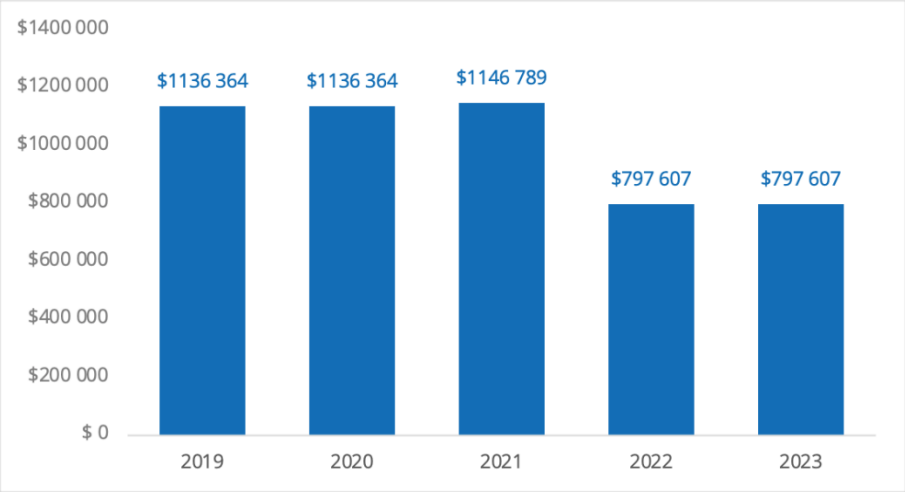
38. GTNS was implemented in Chemba district, Sofala, from October 2019 to June 2023. GTNS had a no-cost 18-month extension necessitated by the 2019 national elections and the impact of the COVID-19 pandemic that caused delays in the implementation of SBC and PHL field operations. The tropical cyclones deteriorated the already fragile humanitarian and development situation. Through additional funding secured in September 2022, WFP was able to continue the implementation and add additional activities within the same timeframe, which are also part of this evaluation. The additional activities included: one month of food assistance during the lean season (2022) in exchange for the continued maintenance of the assets created; scale up of honey production and provision of linkages to markets as an income generating activity; promotion of household assets and conservation agriculture techniques; pilot new sizes/moulds of fuel-efficient cooking stoves and promotion of its use/purchase;

[85] SIDA. 2022. SIDA's international work: Mozambique.

training of associations and local artisans in business management and financial literacy; provision of Participatory Integrated Climate Services for Agriculture (PICSA) and climate information training for agricultural extensionists; training on PHL including conservation and long-term storage options; monitoring of solar dryer use; continuation of cooking demonstrations, among others.

39. The annual resource allocation is presented in Figure 2 below.

Figure 2: GTNS annual resource allocation



Source: WFP Mozambique Country Office

40. Under the GTNS initiative, two rounds of commodity vouchers, which included a nutritious assortment of fortified maize meal, beans, fortified oil, iodized salt, and eggs, were distributed in 2021.[86] However, due to the constraints of CSP reporting, annual planned and actual transfers for GTNS cannot be broken down individually; instead, they are reported at the broader CSP level.[87]

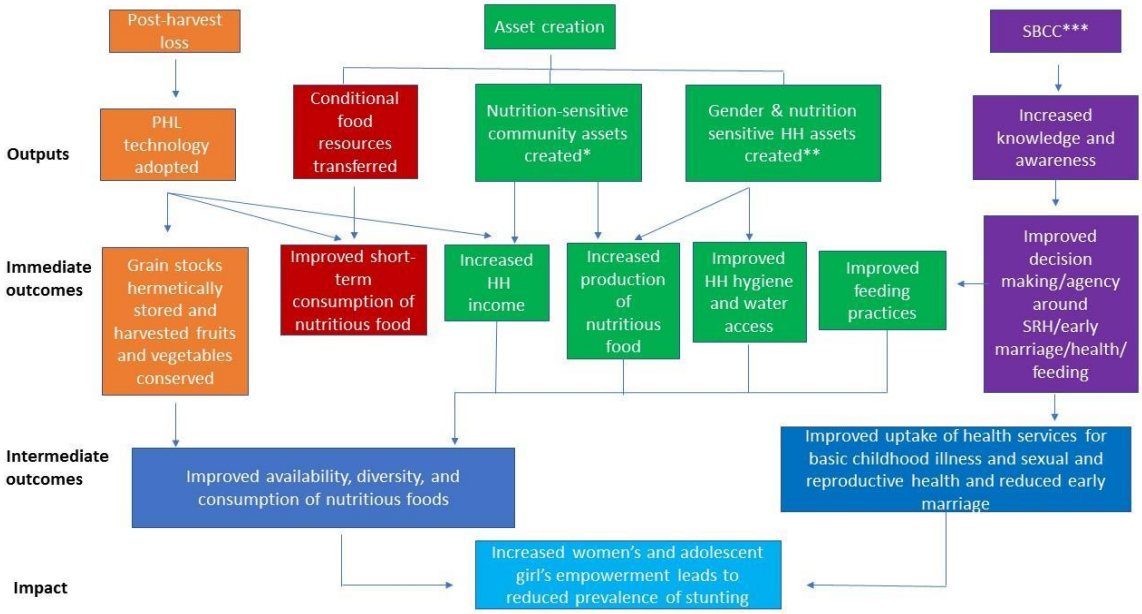
41. As previously mentioned, GTNS is aimed at strengthening households' resilience, diversifying diets, and empowering women, which are key elements in tackling chronic malnutrition. The evaluation covers the GTNS integrated approach, which encompasses activities executed as part of activity 2 and 3 under the WFP Mozambique CSP (2022-2026) (see details on GTNS programming in Annex 4), including:

- **FFA using commodity vouchers - construction of gender-** and nutrition-sensitive household and community assets (fuel efficient cooking stoves, water catchment systems, household gardens and afforestation);
- **PHL management - trainings on post-harvest loss** for smallholder farmers (food conservation, transformation and storage) and linkages to improved products (hermetic storage);
- **SBC - multi-level social and behaviour change communication**, implemented at individual, household, and community levels, to address gender inequality with a focus on early marriage, sexual and reproductive health, and health seeking behaviours.

42. International policies and directives advocate for a multi-faceted and collaborative approach to address stunting reduction.[88] [89] [90] Leveraging its proficiency in food security and nutrition, WFP directs its efforts toward a nutrition-sensitive endeavour encompassing of agriculture, gender, health, and water, sanitation, and hygiene (WASH) sectors. This approach enables the simultaneous targeting of several root causes of malnutrition. GTNS's impact pathway is aligned with this logic (Figure 3).

[86] WFP. 2021. Mozambique Annual Country Report.
[87] This information may be consulted in WFP Mozambique Annual Country Reports.
[88] UNICEF. 2018. Nutrition Thematic Report.
[89] WHO. 2012. *Resolution WHA65.6. Maternal, infant and young child nutrition*. In: Sixty-fifth World Health Assembly, Geneva, 21–26 May. Resolutions and Decisions, Annexes World Health Organization: Geneva. (WHA65/2012/REC/1).
[90] FAO, IFAD, UNICEF, WFP and WHO. 2023. *The State of Food Security and Nutrition in the World 2023. Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum*.

Figure 3: Project Impact Pathway for stunting reduction



* Community assets will be informed directly by the outcome of interest, i.e., increased food availability and diversity could include orange flesh sweet potato, bio-fortified crops, fruit orchards, vegetative fencing, irrigation, among others.
** Household assets are pre-defined, gender-responsive, and nutrition-sensitive. The package includes fuel-efficient cook stoves, kitchen gardens, small-scale water catchment and irrigation systems, and hygiene and sanitation facilities.
*** SBC is focused on increased dietary diversity, increased uptake of SRH and basic childhood health services, reduced early marriage and pregnancy, and improved gender dynamics. It utilizes interpersonal, media, and community mobilization approaches to reach individuals, households, and communities and promote transformative nutrition and gender change.
Source: WFP, 2020. Baseline Decentralized Evaluation of the WFP Mozambique Gender Transformative and Nutrition Sensitive (GTNS) Programme (2019 to 2021).

43. The impact pathway above displays a clear logical interrelationship between the different project levels and provides a clear strategy across the three project components. The results (outputs and outcomes) are clear, logical, and congruent to the needs identified in GTNS design document (Annex 8) The outcome and output indicators include a good analysis of gender differences. The impact and outcomes of GTNS are elaborated below:

    - **Impact**: Women and adolescent girls' empowerment enables improved nutritional diversity and reduced stunting among girls and boys under the age of five in the context of a changing climate.
    - **Outcome 1**: Improved availability, diversity, and consumption of nutritious food by women, adolescent girls, and children under-two through gender and nutrition sensitive household- and community assets creation, and post-harvest loss trainings in Chemba district that contribute to climate risk management.
    - **Outcome 2:** Increased women's and adolescent girls' empowerment related to early marriage, sexual and reproductive health, and health seeking behaviours for basic childhood illnesses through intensive SBC targeted towards men, women, boys, and girls.

44. In GTNS's logical framework, assumptions and vulnerabilities were outlined. Key challenges for achieving outcomes included the difficulty of surveys accurately reflecting stunting reductions due to the extended time span (around five years) for these changes (impact indicator). Risks to outcome 1 included climatic incidents, disruptions, and potential non-adoption of post-harvest loss (PHL) technologies by beneficiaries. Challenges for outcome 2 involved insufficient availability and utilization of health services, low health awareness, and limited support from both beneficiaries and community leaders.

45. GTNS's logical framework delineated the assumptions and vulnerabilities. Primary hazards to attaining the above-mentioned outcomes involved the potential inability of surveys to accurately depict

reductions in stunting, given that these changes transpired over an extended time span, optimally of around five years (impact indicator). Additionally, climatic incidents and disruptions, along with beneficiaries' potential non-adoption of PHL technologies, posed risks to outcome 1. Challenges to outcome 2 encompassed the inadequate availability and utilization of health services, deficient health awareness, and a lack of support from both beneficiaries and community leaders.

46. Assumptions underpinning GTNS's strategy included the belief in a multi-sectoral approach for reducing stunting within three years despite a changing climate. Key assumptions encompassed increased consumption of nutritious foods with improved availability, stable climate events, farmer adoption of PHL technologies, awareness and access leading to health service uptake, positive reception of Gender Dialogue Clubs in communities, and diligent execution of activities by Community Health Activists (CHA) and Agricultural Extension Officers (TEA). Evaluating these assumptions was critical for ensuring GTNS's effectiveness, adaptability, and success.

47. **Target group:** The total number of annual planned and achieved primary beneficiaries was 1,500 households (7,500 individuals), including at least 500 pregnant women, 500 adolescent girls, and 750 children under two years old. The targeting of primary beneficiaries focused on the first 1,000 days, from conception the child turned two years old, as this is the internationally recognized window of opportunity to impact stunting. Therefore, GTNS targeted vulnerable households that met the following criteria:[91] *"Households with a pregnant woman or a child under two-years of age or an adolescent girl; or a woman with obstetric fistula."*[92] Although obstetric fistula was not considered a selection criterion, the evaluation team asked each household whether any member had an obstetric fistula. The treatment group only had 4 out of 341 women with obstetric fistula.

48. The secondary beneficiaries of the programme included:

    - At least 5,000 households (25,000 individuals) benefitted from SBC messaging on dietary diversity, negative impacts of early marriage, positive impacts of accessing SRH and basic childhood health services, and PHL technologies, delivered through talk shows, debates, and dramatic series. To deliver these messages, at least 1 community radio station and its staff were engaged.
    - At least 100 CHAs and *Agentes Polivalentes Elementares* (Elementary Multiskilled Agents) (APE)[93] were trained on optimal dietary diversity practices and family planning, and engaged in generating demand for nutritious foods, SRH services, and basic childhood health services.
    - At least 15 TEAs trained on post-harvest management and technology and optimal dietary diversity practices.
    - At least two agro-dealers engaged to provide hermetic storage products at community level.

49. Table 2 below presents the detailed information on food distributed to each household benefitting from GTNS, and the annual evolution thereof.

[91] Inter-household targeting gave preference to households that match the target criteria and have disabled members, chronically ill family members, elderly with responsibility for children, female-head households, and child-headed households.
[92] Based on discussions with UNFPA, obstetric fistula is included as its own category as it disproportionately affects adolescent mothers, leads to social isolation, and poor quality of life. These women are often turned away from surgery if they are not 'strong 'enough and require benefits of food assistance.
[93] APEs are trained community basic health care providers and paid a salary by the Ministry of Health (MOH).

Table 2: Monthly distribution to GTNS project beneficiaries, per household and project year

	Duration of the monthly distributions	Fortified corn flour	Dried fish	Beans	Fortified oil	Iodized salt	Eggs (unit)	Total value of the food basket (MZN)
Year 1	6 months	40kg		20kg	3L	1kg	48	
Year 2	4 months	40kg		20kg	3L	1kg	48	4,935
Year 3	2 months	40kg		20kg	3L	1kg	48	5,470
Year 4	1 month		2kg		3L	1kg		2,610

Source: Programme Nutrition Unit.

50. **Partnerships:** Establishing robust partnerships in the gender and nutrition sector is vital for GTNS success. Direct collaboration occurs between WFP and the Government at provincial and district levels. Key government stakeholders include the district administration (coordination at the district level), District Services of Health, Women and Social Action (SDSMAS) for health, nutrition, and gender, and District Services for Economic Activities (SDAE) for agricultural development. Recently, GTNS extended support to District Services for Planning and Infrastructure (SDPI) for water pump management and respective committees.

51. NGOs play a crucial role in providing technical assistance at the community level for GTNS. World Vision initially partnered for the FFA component, followed by collaboration with CEFA - The Seed of Solidarity.[94] CEFA's local presence ensured a smooth transition. The NGO Pathfinder offered technical support, focusing on SBC, counselling beneficiaries on various health aspects, including malaria, maternal nutrition, hygiene, sanitation, infant and young child feeding, and sexual and reproductive health. Pathfinder facilitated demand generation activities until March 2021, with CHAs screening and referring malnutrition cases. They also supported Mulima health facility with mobile health brigades. Pathfinder led the formation of dialogue clubs addressing gender equality, women's empowerment, and sensitive topics like gender-based violence, early marriage, and family planning.

52. PCI Media, PCI Media, an international NGO, provided technical aid to Chemba's local community radio, enhancing its capabilities to engage the community through a Social and Behaviour Change (SBC) approach. Working alongside SDSMAS, CHAs, SDAE, and TEAs, the community radio played a vital role in disseminating program segments, conducting live interviews, debates, and presenting dramatic shows. PCI Media assisted in developing content and methodologies for interactive radio programming until October 2022. After their agreement concluded, the community radio demonstrated autonomy and was contracted by WFP in January 2023 to continue broadcasting shows, segments, and theatrical content.

53. **Previous evidence informing the design of GTNS:** This endline evaluation builds on the WFP Mozambique country programme (CP) evaluation (2012-2015).[95] The earlier evaluation recommended prioritizing the reduction of chronic malnutrition in line with the priorities of the Government of Mozambique. While advancements in minimum dietary diversity among women were noted, progress in the proportion of children with a minimum acceptable diet was deemed moderate. The Country Strategic Plan evaluation[96] suggested integrating climate resilience, gender equality, and women's empowerment into defined outputs and activities based on food security analysis. To assess progress on this recommendation, evaluation question 3 was introduced in this evaluation.

54. GTNS design and implementation are guided by gender analyses conducted in Mozambique. In 2018, a gender assessment on the food assistance for assets component was conducted, using the corporate FFA Gender Toolbox, involving consultations with local stakeholders and beneficiaries.[97] Before initiating the cash-based transfer program in 2018, a gender analysis was conducted to understand the

[94] CEFA is an abbreviation for the 'European Commission for Training and Agriculture,' yet the organization is commonly referred to by its acronym as its official name.
[95] Muriel, et al. 2015. Mozambique, 200286 Country Programme: An Evaluation of WFP's Operation (2012-2015): Operation Evaluation. World Food Programme, Office of Evaluation, Rome.
[96] WFP. 2022. Evaluation of Mozambique WFP Country Strategic Plan 2017-2021. Centralized Evalution Report Volume 1
[97] WFP. 2018. Gender Analysis: Food Assistance for Assets in Mozambique.

cultural context, power relations, gender roles, responsibilities, and security threats.[98] In 2019, a protection and gender assessment focused on the transition from in-kind assistance to cash-based transfers.[99] Additionally, in 2020, a gender analysis was conducted on the PHL project. [100] Findings, particularly on roles and responsibilities, empowerment domains, and gender-based violence, informed all components of GTNS, especially its SBC component. A summary of these assessments' findings is provided in Annex 3.

1.4. EVALUATION METHODOLOGY, LIMITATIONS, AND ETHICAL CONSIDERATIONS

55. This section details the evaluation approach and methodology used to assess the changes and effectiveness of the GTNS project implemented by WFP. Employing a mixed-methods approach, it combines quantitative and qualitative methods through a sequential design. The process involves analysing secondary data, conducting an endline household survey, and qualitative interviews to comprehensively address the evaluation questions. Additionally, the evaluation assesses the intervention's monitoring processes and data strength concerning gender, equity, and wider inclusion considerations.

1.4.1 EVALUATION DESIGN

56. To assess GTNS's contribution to outcomes, a quasi-experimental design was chosen. This design facilitates the simultaneous measurement of indicators in both intervention and comparison groups, allowing an assessment of GTNS's contribution to changes across both. The evaluation does not isolate the project's actual attribution of impact by comparing the difference in differences between the intervention and comparison populations before and after project implementation.

1.4.2 EVALUATION CRITERIA AND QUESTIONS

57. The evaluation applied the Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria—effectiveness, efficiency, impact, and sustainability—to elucidate GTNS's contribution to impact-level indicators and address questions on scalability. These criteria were used to assess whether the project achieved its objectives (effectiveness), if changes occurred (impact), if resources were allocated efficiently and activities implemented timely (efficiency), if observed changes could be sustained (sustainability), and the potential for scaling out the GTNS intervention model to other communities (scalability). Relevance and coherence were deprioritized in earlier phases and consequently omitted from the evaluation framework.

58. The decision to deprioritize relevance was made during the Inception phase, citing the well-established and proven relevance of programs addressing malnutrition and gender issues in Mozambique. The absence of coherence from the Terms of Reference (ToR) and lack of specific clarification during inception led the ET to presume that, considering the unique characteristics of GTNS, coherence may not have been a primary criterion of relevance. This decision considers the specific project context, which may not have demanded a high level of coherence, and prioritizes other criteria driven by stakeholders' interests.

59. Table 3 summarizes the evaluation questions, associated evaluation criteria and methods. To reduce redundancy, evaluation questions (EQs) 1.4, 1.6, and 1.7 were consolidated into 1.5. In response to DEQAS external reviewer's feedback impact questions (EQs 3.4 and 3.5) were combined and sustainability-related questions were merged based on recommendations. These adjustments aim to avoid repetition and present results consistently. The evaluation matrix (Annex 5) outlines indicators, information sources and analysis methods for each question.

[98] WFP. 2018. Gender Analysis of CBT in Tete.
[99] WFP, SEPPA and OIKOS. 2019. Protection and gender assessment for change of food assistance modalities in Quissanga Praia and Moçímboa da Praia.
[100] WFP. 2020. Post-harvest loss project: gender analysis report.

Table 3: Methods associated with the evaluation questions vis-à-vis the evaluation criteria

Evaluation questions	Criteria	Method	Relevant section / Notes
1.1. To what extent were GTNS's output and immediate outcomes targets achieved for pregnant women, children under the age of 2, adolescent girls and boys?	**Effectiveness**	Document review Endline Survey (KAP module) FGDs, KIIs	2.1. 2.1.1.
1.2. To what extent were GTNS's primary target groups exposed to GTNS's integrated intervention model?		Document review Endline Survey (KAP module) FGDs, KIIs	2.1.12.
1.3. To what extent were GTNS's knowledge, attitudes, and practices (KAP) outcome indicator targets achieved?		Document review Endline Survey (KAP module) FGDs, KIIs	2.1.13.
1.4. To what extent were GTNS's interventions and implementation processes responsive to emerging challenges and opportunities in the implementation context?		Document review Endline Survey (KAP module) focus group discussions (FGDs), key informant interviews (KIIs)	Findings distributed across section 2.1 and primarily around Finding 1 (section 2.1.2)
1.5. What were the major factors [internal and external] influencing the achievement or non-achievement of the objectives of the intervention?"		Document review Endline Survey (KAP module) FGDs, KIIs	2.2.1.
1.6. To what extent did intervention villages make more or less progress than comparison villages on indicators of interest?		Document review Endline Survey (KAP module) FGDs, KIIs	Findings distributed across section 2.1.
1.7. What factors significantly drive or inhibit the attainment of the desired outcomes across intervention districts/villages?		Document review Endline Survey (KAP module) FGDs, KIIs	Findings distributed across section 2.1.

Evaluation questions	Criteria	Method	Relevant section / Notes
2.1. To what extent were GTNS's activities implemented on time and was the duration of activity implementation conducive for generating GTNS's expected impacts on key target groups?	**Efficiency**	FGDs KIIs Document review	2.3.1.1.
2.2. To what extent did GTNS's interventions adhere to WFP's quality standards?		FGDs KIIs Document review	2.3.2.1.
2.3. Given the context and emerging conditions, to what extent were there opportunities to intervene and implement GTNS's core interventions in alternative ways that would have likely led to similar results but at less cost?		FGDs KIIs Document review	2.3.3.1.
3.1. To what extent did GTNS achieve its higher-level outcome and impact targets, e.g., improve household food security and dietary diversity, empower women, and improve the nutritional status of under-five children?	**Impact**	Document review Endline Survey (KAP module)	2.3.4.1.
3.2. Is there evidence (either quantitative or qualitative) that GTNS impacted sub-groups of targeted beneficiaries differentially, e.g., those from relatively richer and poorer households?		Document review Endline Survey (KAP module)	No relevant evidence reported, leading to question deprioritization
3.3. Did key components of GTNS's intervention model contribute to the generation of any evidence impacts more than others or was there significant synergy among these components? Did GTNS generate any unplanned or unintended social, environmental, or economic impacts, whether positive or negative, and, if so, how significant were these?		Document review Endline Survey (KAP module)	2.3.5.1.
4.1. To what extent did the implementation include sustainability aspects as outlined in GTNS design?	**Sustainability and Scalability**	FGDs KIIs Document review	2.4.1.
4.2. What are key issues that are likely to affect the sustainability of GTNS's key outcomes and impacts and was sufficient action taken to address these? What gaps should be addressed, if any?		FGDs KIIs Document review	2.4.2.1.

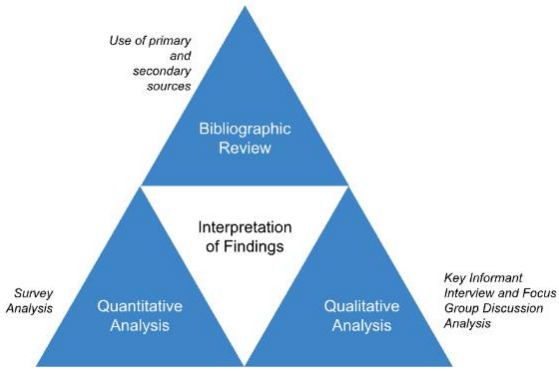
Evaluation questions	Criteria	Method	Relevant section / Notes
4.3. To what extent will any of GTNS's outcomes and impacts that are evidenced likely be sustained into the future? And does this potential vary across intervention categories?		FGDs KIIs Document review	Findings distributed across section 2.4.
4.4. Considering other possible intervention models, would it be cost-effective to scale out GTNS's integrated intervention model in other neighbouring communities and other contexts or would it be better to focus only on specific components? Under what conditions would such replication be fit-for-purpose, and should any adaptation be considered accordingly? What are the barriers/opportunities to scaling up/replicating the GTNS model?		FGDs KIIs Document review	2.4.3.1.

Source: Evaluation team.

1.4.3 RESEARCH DESIGN

50. To evaluate GTNS's impact on nutrition, livelihoods, and women's empowerment, a systematic, mixed methods, cross-sectional research was used. This approach included a structured sequence of data collection detailed in Annex 9. The process began with a comprehensive review of secondary data. Subsequently, a quantitative household survey was conducted in both intervention and comparison villages, guiding the design and focus of qualitative interviews and FGDs. These interviews provided a qualitative dimension, offering deeper insights into the preliminary quantitative results. The methodological strength of this sequence lies in deliberately separating quantitative and qualitative data collection, enabling a thorough exploration of the research subject. In the interpretation and analysis phase, synthesis of the two of primary datasets with literature review results occurred through triangulation (Figure 4), enhancing depth and reliability of the evaluation's findings.[101] This strategic, non-iterative process contributed to the robust and comprehensive understanding of GTNS's impact.

Figure 4: Methodological triangulation



Source: Evaluation team.

1.4.4 QUANTITATIVE COMPONENT

51. The endline evaluation opted for a cross-sectional survey instead of a longitudinal one, influenced by two primary factors:

- Reconfiguration of Key Indicators:
  - Key indicators like the Minimum Acceptable Diet for Children (MAD-C) and the Women Empowerment in Agriculture Index (WEAI) underwent significant revisions.
  - Changes in baseline tools, particularly the lengthy and less adaptable WEIA tool, and the age of children surpassing the WHO-defined range for MAD-C calculation made the longitudinal approach technically unviable.
- Technical Feasibility:
  - Inability to perform a one-to-one assessment, as in a longitudinal survey, prevented a definitive assessment of GTNS's impacts.
  - The endline survey did not isolate the direct attribution of project impact due to these technical constraints.

52. Given these challenges, the evaluation could not employ the differences-in-differences (DID)[102] methodology, comparing changes between intervention and comparison populations before and after implementation. The absence of direct measurement at both the project's start and end of prevents

[101] Triangulation involves using multiple methods or data sources to validate or corroborate findings. In this case, it was achieved by comparing and integrating insights from both quantitative and qualitative analyses, with bibliographic review. By doing so, the evaluation team could cross-verify their findings, looking for patterns that converge or diverge between the two types of data. Quantitative data provided the "what" or numerical aspects, while qualitative data often provides the "why" or contextual understanding. This added depth and reliability to the analysis.
[102] DID is a quasi-experimental design that makes use of longitudinal data from intervention and control groups to obtain an appropriate counterfactual to estimate a causal effect.

definitively ascertaining GTNS's full impact. Nonetheless, this evaluation provides valuable insights by examining differences between intervention and control groups at the conclusion of the GTNS project. Rigorous statistical tests were conducted to determine the statistical significance of these differences, with baseline data providing valuable context to the analysis.

53. In this cross-sectional study, the outcomes for both comparison and intervention populations were measured at the same time. The participants in the cross-sectional survey were selected based on the inclusion criteria set for the evaluation, detailed in the relevant section on sampling.

1.4.5 QUALITATIVE COMPONENT

54. The endline household survey and anthropometric measurements were complemented by gender-disaggregated FGDs and in-depth KIIs in four intervention villages, as well as with project stakeholders. The primary objective was to allow participating women and men, as well as local leaders, to share their experiences throughout GTNS, including how they may have engaged with and benefited from its various components.

55. Participants in the FGDs and KIIs shared their lived experiences and oral histories related to GTNS's impact over time. The process of narrative generation began by inviting participants to provide personal accounts of their experiences and changes observed, focusing on key outcome areas associated with GTNS, such as household food security, child feeding, and agricultural and post-harvest practices. Through these narratives, the ET captured the 'what', 'how' and 'why' of the conditions that had evolved since the baseline.

56. Designed to delve deeper into quantitative findings, qualitative insights informed information gaps and results from the preceding quantitative survey. Probing questions about specific project interventions were introduced after the initial narratives, to offer participants the opportunity to reflect on GTNS's impact on these changes without being biased. These narratives enabled to identify trends and patterns in the data, and to reveal unintended outcomes and impacts, both positive and negative. Unexpected insights were thoroughly examined in line with their nature and significance, enhancing the understanding of GTNS's broader effects.

57. All interviews and discussions were recorded with the respondent's fully informed consent and uploaded to Forcier Consulting's Google Filestream. These recordings were accessible only to the evaluation team, on a need-to access-basis. After anonymization, the conversations were transcribed, translated, and verified to ensure accurate and comprehensive analysis.

1.4.6 DATA COLLECTION METHODS

1.4.6.1 Endline survey

58. Similar to the baseline evaluation, endline data were collected through a household questionnaire, which encompassed four main sections:

    - Section 1: Details about the household, including socio-demographic information, measures of PHL, livelihoods, food and nutrition security experiences,
    - Section 2: Level of empowerment of the sampled pregnant women and mothers of under-2 children,
    - Section 3: A KAP module on maternal nutrition, care of pregnant and lactating women (PLW) and babies, infant and young child feeding, dietary diversity, food preservation, sanitation and hygiene, as well as SRH; and
    - Section 4: Details about the sampled under-2 children themselves, including information on feeding practices, dietary intake, and anthropometric measurements (height-for-age, weight-for-height, weight-for-age, and middle upper arm circumference (MUAC).

59. The data gathered from interviews and anthropometric measurements were inputted onto encrypted and password-protected tablets. The anthropometric measurements were first recorded on a tailored paper template and were subsequently securely destroyed, after being electronically inputted into the tablets. The survey was administered with the mobile data collection application Survey CTO.

60. Considering the cultural context, the male head of household (if present/applicable) was given the opportunity to participate in section 1 of the survey. However, from section 2 onwards, enumerators

interviewed women respondents privately, as the presence of male partners or other male relatives could potentially introduce biases to responses, particularly those related to women's empowerment.

61. In preparation for data collection a five-day training in Chemba equipped the team with the necessary knowledge and skills, covering evaluation objectives, methodology, interviewing techniques, survey instruments, and ethical considerations. Led by the fieldwork manager and the research coordinator, with input from the team leader and the gender specialist, the training ensured the team's proficiency in effectively carrying out their tasks while in the field.

62. Following the training, a pilot testing phase was undertaken in a non-intervention community not belonging to the study's sample to refine the tools based on feedback received. The qualitative tools were further adjusted based on the directions of interest indicated after the piloting of the survey to ensure they were adaptive and aligned with the evaluation's evolving needs and sequential design.

63. Pilot activities were conducted with an open and clear approach, considering the unique dynamics within the non-intervention community. Local guides assisted with explaining the pilot's objectives and evaluation's process to respondents. This decision was guided by ethical considerations, ensuring informed consent and carefully managing community expectations, and mitigating the of pilot participants perceiving potential benefits from participating, safeguarding their rights in terms of autonomy and informed consent.

64. After the training and pilot testing of the survey, both quantitative and qualitative data collection tools were adjusted based on the feedback received during piloting. As per GTNS's sequential mixed-methods design, a second round of refinements was made to the qualitative tools, to incorporate valuable insights gleaned from the survey feedback, all while carefully preserving the research framework's integrity.

1.4.6.2. Key Informant Interviews

65. The team leader and the gender specialist conducted 21 semi-structured key informant interviews (KIIs), including to ADA representatives, WFP staff and cooperating partners, representatives of local and international NGOs and civil society organizations (CSOs), government representatives, and human rights and gender advocates; while two trained qualitative researchers conducted 4 KIIs with local leaders at each of the four intervention villages where FGDs were held. Each KII lasted approximately one hour and included 13 questions.

1.4.6.3 Focus Group Discussions

66. Focus group discussions (FGDs) were conducted in intervention villages, specifically in four localities of Mulima-sede administrative post—Mulima-Sede, Tomucene, Zondane, and Nhamaliwa. Two trained researchers conducted a total of seven FGDs, with two FGDs (disaggregated by sex) in each locality, except Tomucene, where only one FGD was conducted with female respondents. [103] Each FGD hosted around eight participants to maintain both the richness and manageability of conversations (Annex 12). Participants were demographically homogeneous, avoiding participants with community leadership positions to prevent bias from power dynamics. FGDs were held in accessible, safe locations with minimal or no cost. Like KIIs, FGD topic areas and questions were tailored to specific respondent categories. (See Annex 12 for details.)

67. FGDs were organized with either all-male (3 FGDs) or all-female participants (4 FGDs) and were led by male facilitators and interviewers. To mitigate power imbalances and ensure a comfortable environment, a female interpreter assisted, leading all-women FGDs. Each FGD lasted approximately 90 minutes and included 12 questions, and several probing sub questions.

68. The key informant's overview for this evaluation is presented in Annex 11 that presents the number of KIIs and FGDs, and all data collection tools are presented in Annex 7.

1.4.6 SAMPLING METHODS

1.4.6.1 Village selection for evaluation

[103] For the total achieved qualitative sample size Annex 12.

69. The Propensity Score Matching (PSM)[104] technique was employed to identify 49 matched comparison communities in Chemba.[62] The selection process for the four intervention villages for FGDs and KIIs aimed for a balanced representation of rural areas within GTNS's scope. Mulima-sede, the main village, was chosen as the central point of reference. Geographically distant communities were selected to ensure representation from the utmost periphery of GTNS's scope while remaining accessible within a day's travel, ensuring inclusion of even the most distant corners in the study.

70. When comparison communities had more than one village, a random selection process was employed. Each village within the comparison community was assigned a consecutive numerical identifier (e.g., 1, 2, 3). Using a random number generator,[105] and with selection restraints to adhere to the maximum number of villages to be included, one village was randomly chosen from the comparison community based on these assigned unique identifiers.

71. The endline evaluation assessed changes in relation to GTNS in both intervention and comparison communities, focusing on specific improvements, such as stunting prevalence. Given the impracticality of employing cluster sampling due to the limited number of intervention communities (49), conducting the survey in a subset of villages would have reduced statistical power due to clustering of standard errors. Therefore, data was collected from more villages but fewer households to address this constraint.

72. The sample size was calculated as follows:

n = DEFF * 3.84 * (p * (1-p)) / d squared.

- 3.84 was the Z value for 1.96, which assumed the calculation of 95 percent confidence intervals (or using $p<0.05$ as the threshold for statistical significance).
- p was the assumed prevalence,
- d was the 1/2 confidence interval sought for the final estimate of prevalence (for example, if a confidence interval of +/- 3 percentage points, d = 0.03, was sought).
- DEFF is the design effect. A design effect of 1.5, which is commonly used for many nutrition outcomes,[106, 107] was assumed.

1.4.6.2 Sampling for endline survey

73. For each of the 49 comparison villages, a random sample of eight households was chosen. In the 49 intervention villages, the number of households interviewed varied using Probability Proportional to Size (PPS) due to varying village sizes. In comparison villages, eight households were oversampled as a precaution for potential challenges in accessing respondents. Although the sampling calculation suggested randomly selecting six households per village, an additional 25 percent (totalling 8 households) was included to accommodate difficulties in reaching some respondents. The planned sample size was 784 households (392 each for comparison and intervention). However, the achieved sample size was 719 households (378 comparison and 341 intervention), [108] comprising:

[104] Propensity Score Matching (PSM) is a widely-accepted and statistically-rigorous technique used inter alia in impact evaluations to reduce bias when comparing two groups and allow for more robust causal inference. PSM calculates the probability of participating in a program based on observed variables, and then matches each participant with a non-participant who has a similar probability. It aims to balance the observed covariates (characteristics) between the groups by matching individuals with similar propensity scores, which represent the likelihood of being in the intervention group based on their observed characteristics. PSM tries to select a control group that mimics what would have happened to the intervention group if they had not received the program. This helps reduce selection bias and allows for a more valid comparison between the intervention and control groups when estimating the causal effect of a program or intervention. As such, it is deemed to be a fit-for-purpose approach in this context because it provides a systematic and data-driven way to create balanced comparison groups.

[105] An example of a random number generator is: https://numbergenerator.org/randomnumbergenerator/1-10

[106] Kaiser R., Woodruff B.A., Bilukha O., Spiegel P.B., Salama P. 2006. Using design effects from previous cluster surveys to guide sample size calculation in emergency settings. Disasters, 30(2):199-211.

[107] Hulland, E.N., Blanton, C.J., Leidman, E.Z. *et al.* 2016. Parameters associated with design effect of child anthropometry indicators in small-scale field surveys. *Emerging Themes in Epidemiol,* 13(13). https://doi.org/10.1186/s12982-016-0054-y

[108] The underachievement of targeted sample size was due to lack of households meeting eligibility criteria in certain communities.

- A statistically-representative sample of the primary target group: households with pregnant women and under-2-year-old children, adolescent girls, or women with obstetric fistula residing in the 49 villages targeted by GTNS (FFA, PHL and SBC components).
- A statistically representative sample of GTNS comparison group, i.e., households residing in three adjacent localities (Catulene, Chemba-sede, and Goe) that were not directly reached by GTNS activities.

74. Inclusion criteria for the endline survey comprised:

    - For both the intervention and control groups, households with: 1) pregnant women; and 2) under-2-year-old children. From this sampling frame, random samples of eight households per village were drawn. Respondents had to be aged 18 or more.
    - For intervention villages, households had to be among the 1500 registered beneficiaries.
    - For the control group, villages adjacent to the beneficiary households would be selected.

75. Endline interviews were carried out with the heads of household as well as the female caregivers of the under-two-year-old children, each answering only to the assigned section. An exception was made in the case of households headed by women, where women heads of households answered to the entire questionnaire. The opposite was not allowed, men were not allowed to answer sections 2-4, therefore, in the absence of the primary female decision maker, the household was skipped. The achieved quantitative and qualitative sample sizes are presented in Annex 12.

76. In the treatment villages, 88.27 percent of households were headed by men, compared to 91.44 percent in control villages. The rest were headed by women. Overall, 643 men and 715 women were interviewed. This included 342 men and 347 women in the control group and 301 men and 341 women in the treatment group.

1.4.6.3 Household selection

77. Field supervisors and enumerators collaborated with community leaders, local elders, and guides in the chosen 49 villages. They segmented the cluster, assigning a segment to each enumerator without overlap. Supervisors selected a starting point for the random walk,[109] and from there, the enumerator chose the first household and every third household thereafter. Each third house was assessed for interview eligibility. If eligible, the interview commenced; otherwise, the enumerator continued the random walk, repeating the counting process until an eligible household was found. Empty or uninhabited houses were not considered part of the interval, and enumerators determined occupancy before counting or skipping each unit.

78. Enumerators paid close attention to the orientation of the main entrances of the houses. Main entrances facing the walking path and houses with main entrances that were not oriented towards the walking path but could be reached using the path the enumerator was on were deemed eligible for counting. Houses that could only be accessed using a path different to the one the enumerator was on were considered non-eligible.

1.4.6.4 Respondents' selection

79. Upon finding someone (aged 18+) who accepted to answer questions at a selected house (the third from the random walk), the enumerator would perform a brief screening survey to determine if any household member was eligible for interview. Before selecting respondents, enumerators ensured that:

    - The household had not been visited by other enumerators.
    - The maximum number of people to be surveyed in the same household were two: the male or female household head and one woman who could be pregnant or the primary caregiver of a child under-2-years-old.
    - In case of households headed by women, the female head would answer the entire questionnaire.

[109] The random walk method is a frequently utilised method of random sampling used widely in evaluations and surveys to ensure that the sample is drawn randomly and is not biased by any predetermined order or pattern.

80. Although the male members in the household or the caregiver of the child may volunteer to provide responses on behalf of the selected female respondent, no proxy respondents were accepted. Enumerators politely turned down that offer and conducted the interview with the selected female respondent or recorded refusal and moved to the next eligible household.

1.4.6.5 Sampling for focus group discussion participants

81. The process of selecting focus group discussion (FGD) participants followed a deliberate approach to ensure fair and unbiased representation that would provide a well-rounded understanding of GTNS's impact from diverse gender perspectives and geographic contexts. The inclusion criteria for FGDs was based on participation in the GTNS project, either involvement from a working perspective or as a community member.

82. Firstly, four villages were selected from the 49 GTNS intervention villages. Both all-male and all-female FGDs and KIIs were conducted (see Annex 11 for the key informant's overview and Annex 12 for achieved qualitative sample sizes).

83. Village eligibility criteria encompassed:

- **Geographic Intervention Area:** Communities within the Mulima Administrative Post in Chemba that were among the 49 GTNS intervention villages were eligible for selection.
- **Geographic Representation:** The final selection of villages would take into consideration geographic stratification, with the aim of covering different areas that had benefited from various components of GTNS, so that local variations across settings would be accounted for.

84. Inclusion criteria for participants were:

- **Age**: Participants should be over 18 years old, to ensure discussions among adults with direct project experience.
- **Gender:** Male and female participants were included to provide diverse gender perspectives.

1.4.6.6 Sampling for KII participants

85. The process of selecting individuals for interviews was a collaborative effort between WFP and the evaluation team. An initial list of potential interviewees was provided by the WFP as a comprehensive starting point. Based on this, the team proceeded to select or replace participants following a rigorous and impartial approach to ensure representation and diversity, including WFP representatives, donors, government partners, CSOs, media and radio personnel, and community leaders. No predefined exclusion criteria were set for KII participants, aside from non-relevance to GTNS.

86. The qualitative sampling process for the KIIs was designed to consider these factors:

- **Diversity of stakeholders:** With interviewees representing a wide array of GTNS stakeholders.
- **Geographic representation:** Encompassing respondents from central, provincial, district, and administrative levels to provide a comprehensive geographical perspective.
- **Gender balance:** Incorporating both male and female participants.
- **Language inclusivity:** Including individuals proficient in Portuguese or English.
- **Availability and budget considerations:** Working within resource constraints the evaluation team ensured a representative sample.

87. This approach mitigates any potential selection bias and ensures a fair and comprehensive assessment. A total of 24 KIIs were carried out, 4 of which were with local community leaders where FGDs were conducted. The achieved qualitative sample sizes are presented in Annex 12.

1.4.7 QUALITY ASSURANCE

88. WFP has developed a decentralized evaluation quality assurance system (DEQAS) based on United Nations Evaluation Group (UNEG) norms and standards, Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP), and OECD/DAC good practices. This system outlines quality assurance steps, templates for evaluation products, and TORs for an evaluation reference group. The DEQAS was systematically applied during this evaluation, with data quality checks conducted at three stages: in the field, daily data checks and at the conclusion of data collection.

1.4.7.1. Stage 1 - In Field

89. In the field, team supervisors participated in 15 percent of interviews, providing feedback to enumerators. Nightly, the project manager conducted remote data verification, using automated checks to identify problems and provide feedback. Enumerators reported corrective actions taken. Checks ensured valid interviews, sampling performance, key demographics, quality flags, correct data collection locations and duplicate household IDs.

1.4.7.2. Stage 2 - Daily data checks

90. Developed a tailored Stata do file for quality assurance, conducting checks and identifying outliers and logical inconsistencies. Daily reviews of flags were conducted to identify enumerator issues, and follow-up actions were taken as necessary. Enumerators consistently flagged for the same issues more than twice were replaced if additional support did not result in improvement.

91. Audio audits[110] of random selections of the questionnaire were used in all surveys to verify interview quality in case of misreporting or data fabrication was suspected. All quality assurance activities contributed to maintaining data integrity and accuracy throughout the evaluation process.

1.4.7.3. Stage 3 - Conclusion of data collection

92. Upon the conclusion of data collection, the project manager conducted a follow-up to address integer outliers and logical discrepancies. The first step in identifying and addressing outliers and logical discrepancies was to review the distribution of responses for the variables. One-way tables, cross-tabulations, summary statistics, and histograms were created to check the respondent replies against the team's expectations given the local context and the structure of the programmed survey form. Furthermore, a thorough review of specified "other" responses was undertaken, with any required recoding carried out.

1.4.8 ANALYSIS

93. The data analysis approach was designed to ensure the robustness of findings and provide a comprehensive understanding of GTNS's impact.

94. A tailored household survey for the endline context was conducted, differing from the baseline survey. Post-data collection, STATA was used for data cleaning to ensure accuracy. The team performed comprehensive statistical analyses, including generating descriptive statistics and using inferential tests (e.g., t-tests, chi-squared tests) to quantify project indicators. Statistical significance was determined using a p-value threshold of $p < 0.05$. Adhering to this standard provided compelling evidence of GTNS's substantial contribution to observed disparities between the intervention and control groups.

95. Qualitative data was collected through KIIs and FGDs, recorded, and transcribed. The analysis involved both 'closed coding' of predefined categories related to GTNS indicators and exploratory 'open coding' to identify emergent themes. This approach aligned with the sequential design, corroborating and enhancing quantitative results with additional insights.

96. Combining insights from quantitative and qualitative analyses ensured evaluation credibility. Cross-verifying findings and identifying agreement/disagreement areas enriched understanding of the performance of the GTNS project. Triangulation linked the "what" with the "why", establishing causal linkages. Statistically significant changes from quantitative analysis were explored qualitatively to understand underlying factors and mechanisms.

97. The analysis applied a retrogressive (or 'retrospective') approach to trace GTNS's impact. This method involved working from the present state back to the baseline to understand changes and contributing factors. In this evaluation, the retrogressive method was implemented by: i) revisiting baseline data to establish assessment starting points; ii) comparing current findings with baseline data to identify trends and changes in key indicators; c) identifying and analysing factors and events influencing observed changes between the baseline and the present, including examining GTNS interventions,

[110] Audio auditing (also called CARI, computer assisted interview recording)) is used for quality assurance in CAPI surveys, ensuring correct question administration and identifying falsification. Survey designers set audio recording rules, and reviewers assess audio quality and content. This tool enhances data quality and is valuable in remote contexts.

external shifts, and unforeseen factors; d) determining causal relationships between GTNS activities and observed outcomes; and e) extracting lessons learned for future program design.

1.4.9 ETHICAL CONSIDERATIONS

98. WFP decentralized evaluations adhere to WFP and UNEG ethical standards. The evaluation team ensured ethics throughout the evaluation cycle, encompassing informed consent, privacy, confidentiality, anonymity, cultural sensitivity, participant autonomy, and fair recruitment, particularly of women and socially excluded groups. The team diligently followed these ethical considerations. Additional details can be found in Annex 6.

99. The endline survey protocol received approval from the Mozambique Ministry of Health National Bioethics Health Committee, aligning with the 2020 UNEG Ethical Guidelines. This involved obtaining consent, maintaining data confidentiality, respecting participants' values and culture, and responsibly handling data collection involving children, including reporting instances of contact with stunted/wasted children to community health workers (CHW) or relevant health authorities and local leadership.

1.4.10 DATA MANAGEMENT

100. Effective data management is vital for the evaluation, ensuring secure, private, and accessible information. The protocol below guided responsible and secure data handling throughout the process, balancing data retention needs with privacy protection.

101. **De-identification of personal data:** After data collection, personally-identifiable information was removed, and codes were assigned before translation and transcription, safeguarding individual identities and complying with privacy regulations.

102. **Data deletion and archiving**: Post-evaluation and approval, a systematic process managed collected data:

- **Mobile devices and computers:** Data on devices and computers used during the evaluation was deleted to prevent unauthorized access.
- **Google filestream:** Data in Forcier Consulting's Google filestream was also deleted, ensuring no remnants were accessible.
- **Data retention:** After two years, data is permanently deleted from Forcier Consulting's storage, aligning with data protection principles.
- **Archiving and delivery:** Anonymized datasets were submitted to WFP. After discussion and agreement, WFP may archive the anonymized data in a secure cloud-based system for future reference and analysis, maintaining ownership and enabling authorized access.

1.4.11 LIMITATIONS

1.4.11.1. Failure to meet targeted sample sizes

103. During data collection, a shortage of targeted villages with eligible respondents occurred, especially in smaller-populated control areas and intervention areas where beneficiary households lacked children under 2 years old. In cases of villages lacking eligible respondents, letters from village leaders confirming the issue were issued and stamped by the local government.

104. Despite some villages facing challenges in meeting sample targets due to these constraints, the planned oversampling mitigated the impact on the ability to identify statistically significant differences between the intervention and control populations.

1.4.11.2. Impossibility of back trace to the same baseline respondents (under two years old)

105. The design change was prompted by variations in inclusion/exclusion criteria from the baseline assessment, which initially focused on children under 2 and pregnant or recently pregnant individuals. Revisiting households within a 2-year timeframe was necessary for maintaining eligibility at the endline.

However, the endline data collection occurred 3 years later,[111] leading to the ineligibility of under-two-years-old children from the baseline, as they had aged beyond the criteria. This ineligibility hindered tracing back to the same baseline respondents.

1.4.11.3. Configuration of the Women Empowerment in Agriculture Index (pro-WEAI)

106. The extensive and less applicable pro-WEAI tool used in the baseline survey led to a limitation in comparing baseline and endline results, as indicators were measured differently. This factor also prompted a shift from a longitudinal to a cross-sectional research design. The Pro-WEAI index, constructed from nine empowerment indicators, included input in productive decisions, access to credit, work balance, visiting important locations, respect among household members, attitudes about domestic violence, self-efficacy, life satisfaction, and group membership. Women respondents' answers were scored based on meeting the measure for adequate empowerment for each indicator according to the guidance from the International Food Policy Research Institute (IFPRI),[112] with equal weight given to each. If they met adequate empowerment for 75 percent or more of the indicators, they were classified as empowered.

1.4.11.4. Challenge in comparing baseline and endline results

107. The assessment of GTNS's performance by comparing the difference between baseline and endline results was compromised from the onset. The change in indicator measurements methods and the inability to back-trace baseline respondents led to the adoption of a cross-sectional study design instead of longitudinal design. The adoption of a cross-sectional design implied the non-comparability of baseline and endline results. Instead, GTNS's contribution to change was evaluated by comparing control and intervention groups at the endline.

1.4.11.5. Non-utilization of Machine Learning as a data analysis approach

108. While the inception report mentioned the potential use of machine learning, eventually, it was not employed due to data limitations, resource constraints, and the suitability of alternative analysis methods. However, the evaluation team used other rigorous data analysis approaches to provide a comprehensive assessment of GTNS's impact and effectiveness.

1.4.11.6. Understanding control group changes

109. While this evaluation offers valuable insights into GTNS's impact on various indicators, a significant limitation arises in explaining observed changes, particularly within control groups, as other organizations were active in Chemba as well. These activities, benefiting the control population, introduced complexity in attributing differences between treatment and control groups, as seen in high rates of immunization and growth monitoring attendance, among other factors.

110. The evaluation survey lacked tools to thoroughly explore the underlying causes of changes and did not collect data on activities by other organizations. Consequently, GTNS' contribution to these changes is unclear. The absence of clear quantification of external assistance prevented statistical mitigation through Propensity Score Matching or Sensitivity Analysis, and GTNS effects compared to other organizations could only be inferred through qualitative insights into the overall local context.

111. However, this underscores the possibility that unobserved variables, alongside GTNS efforts, may have influenced these observed changes. To overcome this limitation in future evaluations, it is recommended to conduct a more thorough exploration of factors influencing control groups. This could include qualitative research, in-depth interviews, or FGDs to uncover insights into contextual

[111] GTNS started in October 2019, with an inception period of 3 months, and ended in June 2023. Initially, the programme was meant to end in December 2021, but WFP managed to secure additional implementation time, which resulted in an 18-month extension. The 2019 national elections and the impact of the COVID-19 pandemic caused delays, which resulted in some activities such as SBC and PHL field operations to be disrupted. A no-cost extension was agreed with the donor to accommodate the loss of time and ensure the project activities were implemented as planned. In September 2022, WFP managed to secure additional funding to continue the implementation and add additional activities within the same timeframe. The combination of these factors, along with the methodological challenges they introduced during the initial endline evaluation design, necessitated adjustments and consequently led to the delay in its completion.

[112] IFPRI. 2016. WEAI Resource Center: Guides and instruments.

dynamics and external factors impacting control groups. Such an approach would offer a nuanced understanding of changes in control groups and help identify GTNS's specific contributions.

1.4.11.7. Challenges in assessing spill-over effects

112. The aforementioned limitation also extends to the assessment of spill-over effects in control groups. Fully attributing changes in control groups to the spill-over effect of GTNS is challenging due to the absence of specific tools or methods designed for this purpose in this evaluation. GTNS's influence on control groups may be influenced by a complex interplay of unobserved variables, making it difficult to accurately isolate and quantify spill-over effects. Therefore, while recognizing the potential of spill-over effects, it is challenging to precisely determine their magnitude and contribution within control groups.

1.4.11.8. Limitations to FFA analysis

113. While this evaluation offers valuable insights into the impact of FFA activities on food security indicators, there are limitations in the findings, especially in result interpretation. Specifically, WFP's April food distribution included essential items like fish, oil, maize, and beans, which contributing to four food group, and endline data collection coincided with the harvest season, differing from the lean season baseline assessment.

114. Generating new variables to isolate the effects of these food groups would require substantial additional work, causing delays and deviating from the initial scope. Instead, as the upcoming bias adjustment section details, the evaluation team proactively used various methodologies to minimize biases arising from timing, food distribution types, and seasonal variations between baseline and endline assessments.

115. These methods included extensive training, rigorous data quality checks, and the incorporation of mixed-methods techniques at various stages to bolster the trustworthiness and robustness of the findings. However, this limitation emphasizes the necessity for a careful interpretation of the exclusive contribution of FFA activities to the observed improvements in dietary intake indicators.

1.4.11.9. Limitations of data disaggregation by demographic categories

116. Additional limitations pertain to the disaggregation of data by demographic categories such as gender, age, disability, and elderly populations. Despite the study's intention to explore intervention effects across various subgroups, the WFP-provided interview guide lacked explicit questions for this level of detail. The inability to capture nuanced differences among these subgroups was attributed to:

- Participants providing limited information, mainly focusing on gender differences when queried about these specific categories.
- Stakeholder responses indicating the absence of specific interventions or targeted measures for these subgroups within GTNS.
- The beneficiary selection criteria potentially creating misconceptions about primary beneficiaries, further complicating the assessment of subgroup-specific impacts.

117. The analysis emphasizes gender disparities, with women showing the most significant impact from GTNS. Adolescents had a somewhat lesser impact compared to adults, and differentiation between sexes within this age category was challenging. Limited evidence suggests little discernible impact on the elderly and people with disabilities, primarily due to their lack of active engagement in GTNS activities.

1.4.11.10. Limitations in the achieved power of the study

118. Utilizing the achieved sample sizes available in Annex 12, with n1 = 48 for the intervention group and n2 = 49 for the control group, an effect size of 0.5, and an alpha level of 0.05 for a two-sample t-test power analysis gives a statistical power of approximately 0.622 or 62.2 percent. This means that the evaluation may face some limitations in its ability to reliably detect smaller effects, which could be of significance in the context of the study. It also implies that there is a moderate chance of not detecting true effects of the specified size, which could lead to Type II errors. This limitation should be considered when interpreting the study's results. To address this potential limitation and enhance the evaluation's statistical power and reliability, it is strongly recommended that future studies explore options for

increasing the sample size, which would provide a more robust foundation for drawing meaningful conclusion and detecting subtle differences.

1.4.11.11. Limitations regarding project-specific indicators

119. The absence of a project-specific indicator reference sheet significantly impacted the measurement of indicators, compromising the comparability and reliability of baseline and endline data. This challenge led to inconsistencies in data collection and analysis, affecting the accurate assessment of GTNS's impact and effectiveness. Moreover, limitations in project-specific indicators, including the lack of SMART attributes, hindered the system's capacity to monitor shifts in knowledge and attitudes among beneficiaries. The non-standardization of indicators, exemplified by the measurement variations in the indicator "*# of people able to recall three key messages about dietary diversification, early marriage, and SRH and child health services*", rendered baseline information irrelevant. Additionally, the absence of a project-specific indicator reference sheet resulted in unclear measurement methods for certain indicators, such as "*# of radio programmes broadcasted*". The M&E system primarily focused on tracking SBC change, overlooking crucial shifts in knowledge and attitudes related to FFA and PHL. Monitoring changes in knowledge could have provided valuable insights into the stages of behaviour change, guiding future improvement efforts.

1.4.11.12. Lack of sufficient financial data for comprehensive efficiency analysis

120. Lastly, the scarcity of adequate financial data constituted a limitation for a detailed evaluation of the project's efficiency. This absence of comprehensive financial insights restricted the ET's ability to conduct an in-depth examination of financial efficiency-related aspects. Nevertheless, efficiency was probed through qualitative insights gathered through FGDs. However, a qualitative approach alone may cannot provide the depth required for a thorough efficiency analysis, as quantitative financial data is crucial for assessing cost-effectiveness, resource utilization, and other quantitative indicators.

1.4.12 GENDER CONSIDERATIONS

121. This gender-specific project prioritized the assessment of gender dimensions in a unique manner. Instead of the traditional approach of stratifying the sample by sex for a 50/50 gender split, the gender-sensitive methodology employed in this evaluation involved both men and women responding to the same questionnaire but with different sets of questions. Men were queried on household livelihoods and project exposure, while women were asked about children's health, women's health, and their knowledge, attitudes, and practices (KAP) regarding nutrition, WASH, and SRH. Women's empowerment was assessed by exploring their agency in accessing resources, level of control, benefits, and decision-making processes. This approach enabled the evaluation team to gauge the impact of gender inequalities on respondents.

122. While most evaluation questions did not explicitly outline the method for gender-based disaggregation, a comprehensive gender analysis was conducted to assess the empowerment status of women within the evaluated context. Additionally, insights into women's perspectives on GTNS's implementation quality were obtained through in-depth interviews. This dual approach, encompassing both quantitative and qualitative elements, enriched the gender analysis conducted as part of the evaluation process. The findings, conclusions, and recommendations of the evaluation reflect gender analysis, providing lessons, challenges, and recommendations for enhancing gender-transformative programming and the conduct of gender-responsive evaluations in the future.

1.4.13 ADJUSTING FOR BIAS

123. To enhance the accuracy and reliability of the findings, the ET proactively addressed potential biases influencing the data collection process. Key biases considered included food distribution before data collection (at both baseline and endline) and conducting the endline survey in a different season. The following subsection discusses how these biases were adjusted for in the analysis.

124. Regarding the bias related to food distribution before both data collections, it is crucial to note that the evaluation occurred within a specific timeframe, making it challenging to control or avoid food assistance distribution to the target population. This could potentially influence respondents' perceptions and experiences. To mitigate this bias at endline, the team trained enumerators rigorously, making them aware of the potential bias and instructing them to collect data objectively. Participants

were prompted not to inflate responses under the influence of recent food distribution. Thorough data quality checks were also conducted at various stages to address any inconsistencies due to food distribution.

125. Secondly, conducting the endline evaluation in a different season than the baseline may introduce seasonal variations in the data, affecting comparability. For instance, agricultural practices, food availability, and dietary patterns can vary between seasons, potentially influencing measured outcomes. To address this bias, the team examined baseline data to understand seasonal patterns and factors that may have influenced outcomes, helping identify differences attributable to GTNS interventions rather than seasonal variations.

126. While biases related to food distribution and seasonality could not be eliminated, the team employed strategies like rigorous training, data quality checks, and a mixed-methods approach to minimize their impact. This aimed to ensure the validity and reliability of findings for a comprehensive assessment of GTNS's impact.

2. Evaluation findings

127. This section highlights key evaluation findings by main evaluation question (EQ) and sub-evaluation question. Quantitative impact estimates consider disparities between GTNS intervention households and matched control households, accounting for potential baseline differences and incorporating qualitative evidence. Annex 13 provides a summary of all indicators' performance at baseline and endline. Note that these values are for reference and not directly comparable, serving as indicators of performance rather than for direct comparison.

2.1. TO WHAT EXTENT WERE GTNS OUTPUT AND IMMEDIATE OUTCOME TARGETS ACHIEVED FOR PREGNANT WOMEN, CHILDREN UNDER THE AGE OF 2, ADOLESCENT GIRLS AND BOYS?

128. GTNS pursued a dual approach to enhance the availability and consumption of nutritious food for women, adolescent girls, and children under-two. Initially, the focus was on establishing gender and nutrition-sensitive assets at the community and household levels to alleviate women's labour burden and enhance food variety. The program strategically increased food diversity by boosting production, reducing post-harvest losses, and introducing horticulture cultivars such as orange-fleshed sweet potatoes and fruit trees. This comprehensive strategy aimed to improve food and nutrition intake, build resilience, and address post-harvest challenges. To empower beneficiaries, GTNS provided targeted training and support for asset creation and management, fostering the adoption of technologies to mitigate losses and strengthen both food security and resilience.

129. This outcome is measured by the following food security indicators (Table 4).

Table 4: Nutrition and food security related indicators

#	Indicators
1	Minimum Dietary Diversity Score – Women (MDD-W)
3	Minimum Acceptable Diet (MAD) – Children 6 – 23 months
4	Food Consumption Score
5	Food Consumption Score-Nutrition
6	Livelihood Coping Strategies for Food Security (LCS-FS)

2.1.1. Food Assistance for Assets (FFA)

Box 1: Finding 1

GTNS has had a positive impact on enhancing dietary quality and micronutrient adequacy in the intervention villages, notably influencing an improvement in the food consumption score (FCS) and augmenting households' dietary diversity and nutrient intake when compared to control villages. However, coping strategies did not significantly differ between the two groups, except in the context of emergency coping, highlighting the effectiveness of the interventions in improving nutrition and food security outcomes in the targeted villages.

Box 2: Key findings on FFA[113]

- Minimum Dietary Diversity Score – Women (MDD-W): Intervention villages had a significantly higher proportion of women achieving MDD-W (52.8 percent) compared to control villages (27.5 percent), with a difference of 25.3 percentage points (P-value: <0.00).
- Minimum Acceptable Diet (MAD) – Children 6 – 23 months: Intervention villages had a higher MAD achievement (4.5 percent) compared to control villages (0.8 percent) at endline, resulting in a difference of 3.7 percentage points (P-value: 0.013).
- Food Consumption Score (FCS): At endline, the intervention villages had a higher percentage of households achieving acceptable FCS (87.4 percent) compared to control villages (39.8 percent), with a difference of 47.6 percentage points (P-value: <0.00).
- Food Consumption Score-Nutrition (FCS-N): In intervention villages there were statistically significant (P-value: <0.00) positive shifts in the proportion of 'at least daily' consumption of vitamin A, hem iron, and protein-rich foods.
- Livelihood Strategies Coping Index (LCSI): Differences in coping strategies between intervention villages and control villages were not statistically significant, except for crisis coping (P-value: <0.00), where control villages engaged more.

2.1.1.1. Farm assets and food distribution

130. The FFA component of GTNS had dual objectives: ensuring food and nutrition security through monthly transfers (cash, vouchers, or in-kind) and enhancing productivity by creating or rehabilitating assets at both community and household levels. These activities aimed to contribute to disaster risk reduction (community assets) and climate adaptation (homestead focus).

131. FFA, the initial GTNS intervention, involved distributing food rations over a three-year period, The transfer spanned six months in the first year, four months in the second year, and two months in the third year, following a graduated approach: asset creation in the first year, adjustments in the second, and maintenance in the third. The food baskets included 40kgs of fortified maize meal, 20kgs of butter/pinto beans, 3 litres of cooking oil, 1kg of iodized salt, and 48 eggs.[114] Distributions occurred from December 2020 (first) to April 2023 (last), achieving the target of reaching 1500 households (8,492 individuals). [115]

132. Despite achieving its targets, the distribution itself faced challenges (such as transportation issues due to heavy rainfall in areas with poor road conditions), which necessitated rescheduling the distribution rates. Regarding the food basket content, in five out of the seven conducted FGDs at least one participant raised concerns regarding the distribution of deteriorated foods like rotten eggs or maize with bugs, which was agreed among other FGD participants. Unfortunately, these complaints were not reported through any community leaders, district government, cooperating partners, WFP staff, nor the available feedback mechanisms (CFM), preventing the Program team from addressing them. The participants also expressed that the basket quantities were insufficient, lasting one week rather than one month, despite the ration's proportionality to the household size of the household, and regardless of the food's condition. The beneficiaries have been informed that the food basket distributions are provided as an additional support during the lean season and is never meant to provide 100 percent of the household consumption for a month. WFP bases the household coverage through the food security cluster relying on the integrated phased classification (IPC) of food security scores in the districts. In the last year's distribution for the project, the IPC level was lower than previous years and covered a 50 percent coverage in comparison to 75 percent covered in the previous distribution cycles. What is more, some beneficiaries reported sharing their food with non-GTNS enrolled community members in need. Notable observations include:

[113] While the findings in Box 1 reflect the results of the FFA component, they also reflect the effectiveness of the SBC component, as the two are closely intertwined.
[114] WFP ADA Progress Report 1, 2020
[115] WFP GTNS Integrated logframe

"There was very little food because the consumption period was short. We'd run out of food in less than a week." **FGD033MAL**

"I was pleased with the help, but it wasn't enough to help the household, e.g., some products were spoiled like eggs, flour had bugs in them." **FGD028FEM2**

133. Food distribution timing is crucial to consider, as it significantly influences nutrition indicators, potentially impacting data accuracy by affecting people's consumption patterns before data collection. Data collection for this evaluation occurred over two months post-food distribution, and as previously mentioned, despite the initial plan for the food baskets to last a month, they often only lasted a week. This variance in duration minimizes the likely impact on nutrition indicators, suggesting the distribution may not have significantly affected data on food consumption leading up to data collection. Therefore, the timing and duration of distributions are unlikely to have significantly influence the evaluation's analysis of nutrition indicators.

2.1.1.2. Agricultural production and income

134. The FFA component of GTNS aimed to enhance agricultural productivity in intervention communities through comprehensive training programs and tools for climate-resilient agriculture, including technology to reduce PHL. Communities received support with home gardening inputs like seeds, tools, and animal traction. Additionally, training on improved agricultural practices was provided, coupled with in-person follow-up to maximize output.

135. The present evaluation employed retrogressive analysis to estimate agricultural yields, involving engaging farmers and agricultural stakeholders to gather data on previous harvests. However, a key challenge of this method is the potential limitations to the reliability and accuracy of recalled data that may be affected by memory bias, subjective interpretation, or intentional manipulation.

136. Agricultural productivity plays a crucial role in shaping nutrition data. Depending on the season of the agricultural calendar, nutrition indicators may exhibit variations, with more positive outcomes typically observed during the harvest season. These fluctuations are often attributed to the increased availability of fresh produce and dietary diversity associated with harvests. These seasonal dynamics present a challenge when comparing data collected during the lean season with data collected during the harvest season.

137. In both intervention and control villages, rain fed agriculture is the main source of livelihood. The average size of the cultivated plot in both intervention and control groups is about 1 hectare. The selling of crops and livestock is considered the main source of income for both intervention (57.48 percent) and control villages (45.99 percent).

138. The overall mean harvest for all crops was higher for the control group (328.728 kg) than for the intervention group (253.831 kg). The intervention group had a lower mean harvest than the control group for maize, sweet potato (white), cassava, pumpkin, beans, and tomato. These crops are staple foods that provide energy and carbohydrates for the households. The largest difference was for maize (-640.073 kg), which is the main staple crop in Mozambique.

139. The intervention group outperformed the control in harvesting various crops, including nutrient-rich vegetables (millet, peanuts, cabbage, sorghum, lettuce, okra, onion, sweet potato (orange), spinach, carrots, and aubergine). Orange-fleshed sweet potatoes, a vitamin A source,[116] showed a significant 29.78 kg surplus in the intervention group. Despite GTNS promotion, only 1.54 percent of respondents succeeded in cultivating it (2.05 percent in intervention and 1.07 percent in control), yielding 31.28 kg in intervention villages and 1.5 kg in control villages. While cultivating orange sweet potatoes had a notable difference (p=0.131), success rates, especially in intervention locations, remained relatively low. These results highlight the effectiveness of GTNS project in promoting horticulture and improving nutrition in intervention areas, as seen in nutrition indicators. However, the evaluation could not show the same efficacy in crops like maize, the most harvested crop in both intervention and control villages.

[116] Food and Agriculture Organization of the United Nations. N.d. Mozambique at a glance, accessed on 25 Sep 2023.

2.1.2. Minimum Dietary Diversity Score – Women (MDD-W)

140. The Minimum Dietary Diversity for Women (MDD-W) is a recommended indicator for assessing the dietary quality and micronutrient adequacy of women of reproductive age. It is based on a woman's consumption of 10 food groups in the previous 24 hours. She is considered to have achieved minimum dietary diversity if she consumes at least five food groups.

141. The baseline result for the MDD-W was not captured because the baseline team considered the survey long; thus, efforts were undertaken during the survey development, its piloting and review process to reduce its size, resulting in the exclusion of the MDD-W from the questionnaire. Therefore, baseline MDD-W results are not available to provide context.

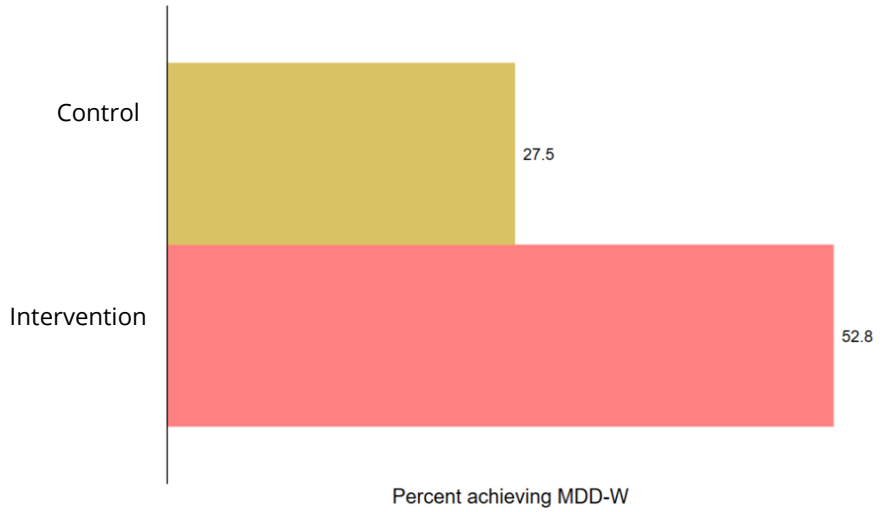
142. However, the endline result shows that the intervention villages have almost twice of the proportion of women who consumed 5 food groups in 24 hours prior to the study, compared with comparison villages. In intervention villages 52.8 percent of women achieved MDD-W compared to the 27.5 percent in the control villages (Figure 5 and Table 5). This means that more women in the intervention villages had a moderate dietary diversity and a higher likelihood of meeting micronutrient requirements, while the women in the control villages had a low dietary diversity and a lower likelihood of meeting micronutrient requirements. Intervention villages had 25.3 percent more women who achieved minimum dietary diversity than the comparison villages at the endline. These differences are statistically relevant (p=0.000). Therefore, GTNS contributed positively on improving the dietary quality and micronutrient adequacy of women in the intervention villages, compared to the control villages.

143. These findings are reinforced by the beneficiaries' perspectives, particularly from discussions with women in FGDs. These beneficiaries have reported a notable shift in their dietary habits. This change is attributed to the increased diversity of foods they now consume, a transformation driven by enhanced agricultural productivity, particularly in horticulture. This surge in productivity is a result of GTNS support, which encompasses the provision of agricultural inputs, the adoption of improved agricultural and cooking techniques, sustained by knowledge regarding the significance of dietary variety.

"We're growing sesame, vegetables, beans and peanuts. We've sown maize and we know how to grow it well. This is already helping our families' diet." **FGD030FEM**

"We have increased the planting of lettuce, vegetables and onions. In the mornings we prepare lettuce with tomatoes, make a salad and eat it with bread together with the children, at midday we prepare pap and eat it, in the evening we eat it with something else, so the children are getting healthy, growing well." **FGD028FEM2**

Figure 5: Percentage of women who achieved MDD-W at endline, control/intervention



Source: Evaluation team.

Table 5: Proportion of women who achieved MDD-W, control/intervention

Variable	Control (%)	Intervention (%)	Difference (% points)
Women achieving MDD-W	27.5	52.8	25,3*** (p = 0.000)
By age of the women			
18 - 49	27.4	54.1	26,7*** (p = 0.000)
50-64	35.7	33.3	2,4%
65+	25.0	50.0	25.0%

* p<0.05, ** p<0.01, *** p<0.001.
No significant difference when disaggregated by sex of Head of Household
Source: Evaluation team.

2.1.3. Minimum Acceptable Diet (MAD) – Children 6 – 23 months

144. Minimum Acceptable Diet (MAD) is an indicator used for assessing the dietary quality and adequacy of children aged 6-23 months. It is based on two components: minimum dietary diversity (MDD) and minimum meal frequency (MMF). The current MDD measures the number of food groups consumed by a child in the previous 24 hours out of a total of eight food groups, including breastmilk.[117] The MDD score for children as per the previous CRF's MDD did *not* include breast milk. The ET did the analysis following the latest CRF and therefore using the eight groups, which incorporated breastmilk. MMF measures the number of times a child has received solid, semi-solid, or soft foods in the previous 24 hours. A child is considered to have achieved MAD if he or she meets both the MDD and MMF requirements. For breastfed children, the MDD requirement is at least five food groups and the MMF requirement is at least two times for infants 6–8 months and at least three times for children aged 9–23 months. For non-breastfed children, the MDD requirement is at least five out of eight food groups and the MMF requirement is at least four times for children 6–23 months.

145. The baseline result for the MAD was low, as almost no children aged 6–23 months met the cut-off for MDD (≥ 5 food groups), which was largely driven by low levels of dietary diversity. The aggregated value of the MAD (intervention and control) was 1.10 percent. This means that only 1.10 percent of children aged 6–23 months in both groups had a minimum acceptable diet at baseline.

146. The endline result shows still very low results in the MAD for both groups. The percentage of children aged 6–23 months who achieved MAD in the intervention villages was 4.5 percent, significantly higher than the 0.8 percent observed in the control villages (Table 5). GTNS contributed positively to the improvement of the dietary quality and adequacy of children aged 6–23 months in the intervention villages, but not enough for a significant change of their nutritional needs (10 percent improvement over the baseline, as per target). The achievement of this indicator is very complex and can be influenced by factors such as low availability and access to diverse and nutritious foods, poor feeding practices and knowledge, cultural barriers such as dietary habits that by nature are slow in change, and environmental shocks. In the case of GTNS, cyclone Freddy resulted into disruptions of food systems, access to clean water, and destruction of overall infrastructure.

147. While no statistically significant differences were noted in terms of MMF, a noteworthy difference was observed with regards to MDD. The percentage of children aged 6–23 months achieving MDD in the intervention villages reached 29.9 percent, a substantial difference compared to the control villages' value of 9.89 percent (refer to Table 5). This finding emphasizes that GTNS has played a pivotal role in contributing to the enhancement of the diversity of foods in the diets of children in the intervention areas. This result is not only statistically significant but is also supported by the insights derived from focus group discussions, where the broader variety of food was identified as a significant change brought about by GTNS's intervention.

[117] The MDD score for children includes eight food groups: 1 - Grains, roots, and tubers; 2 - Legumes and nuts; 3 - Dairy products; 4 - Meat, fish, or poultry; 5 - Eggs; 6 - Vitamin A rich fruits and vegetables; 7 - Other fruits and vegetables.

"Yes, it's improved, because our children weren't healthy, and we were given food like beans, eggs, flour. We didn't know that before they taught us how to raise ducks, we didn't have many fields. We learnt how to raise ducks and how to feed and care for the young. That's what my friend said, we didn't know about other foods and when we received seeds of cabbage, lettuce, carrots and aubergines we started eating other types of food. With the training we've had, I now know that today we should eat vegetables, in the afternoon we should eat beans and tomorrow we should eat chicken, beef and goat." **FGD033MAL**

148. Table 6 shows summary statistics for MDD, MMF and MAD disaggregated by age across the intervention and control villages.

Table 6: Percentage of MDD, MMF and MAD outcomes (means) for children aged 6-23 months

Variable	Control (1) Mean	Intervention (2) Mean	Difference
Pooled sample Breastmilk	97.06%	97.73%	0.67%
MDD	9.89%	29.9%	20.01%***
MMF	14.12%	10.65%	3.47%
MAD	0.85%	4.47%	3.62%**
Observations	354	291	645
Child aged 6-11 months MDD	9.02%	15.12%	6.1%
MMF	11.48%	8.14%	3.34%
MAD	1.64%	2.33%	0.69%
Observations	122	86	208
Child aged 12-17 months MDD	9.92%	36.73%	26.81%***
MFF	18.32%	12.24%	6.08%
MAD	0%	6.12%	6.12%**
Observations	131	98	229
Child aged 18-23 months MDD	10.89%	35.51%	24.62%**
MMF	11.88%	11.21%	0.67%
MAD	0.99%	4.67%	3.68%

Variable	Control (1) Mean	Intervention (2) Mean	Difference
Observations	101	107	208

* p<0.05, ** p<0.01, *** p<0.001.
Source: Evaluation team.

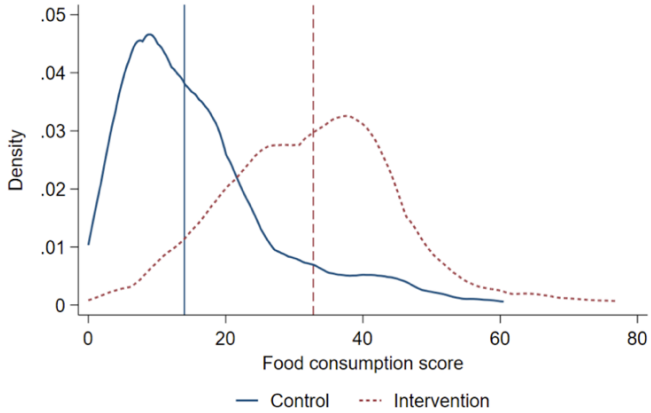
149. The results reveal a notable contrast between the consistently low MDD-C score and the findings related to MDD-W. This discrepancy can be attributed to a range of factors that may impede the enhancement of dietary intake among young children in Chemba. These may include differences in breastfeeding practices, dietary patterns, caregivers' nutritional knowledge and other sociodemographic factors. Further investigation in future research is necessary to uncover the underlying causes of the observed differences, providing insights for future interventions to enhance children's dietary diversity in this context.

2.1.4. Food Consumption Score

150. The Food Consumption Score (FCS) is a composite measure derived from households' dietary diversity, food consumption frequency, and the nutritional value of various food groups. It aggregates household-level food consumption data from the past seven days, weighting it based on the relative nutritional value of the consumed food groups. Acting as a proxy indicator of access to food,[118] the FCS categorizes households into poor, borderline, or acceptable based on score ranges.[119] A higher FCS signifies improved food consumption and a lower risk of food insecurity.

151. The baseline FCS results indicate that intervention villages had a higher percentage of households with acceptable FCS (46 percent) compared to control villages (9 percent), signalling better food consumption and lower food insecurity in intervention areas. The general advantage of intervention households over control households, with median values of 32.75 and 14, respectively, is likely linked to prior benefits from GTNS's FFA component, as suggested by Figure 6 below:

Figure 6: Baseline FCS distributions intervention for intervention and control villages



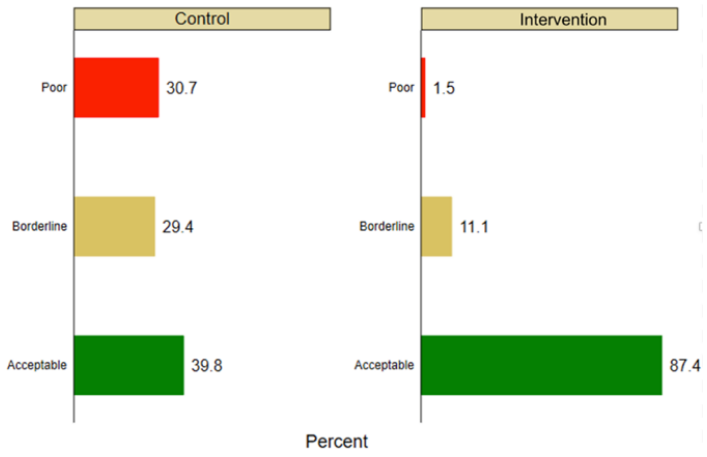
Source: GTNS Baseline Final Report, p.21
Note: The vertical lines indicate median values for the control and intervention groups.

152. The GTNS aimed to increase the percentage of intervention households with acceptable FCS by 5 percent. At the endline, the intervention villages achieved 87.4 percent, compared to 39.8 percent in control villages, a statistically significant difference (p=000) (Figure 7). This signifies GTNS's positive contribution to enhancing dietary diversity and adequacy, meeting its 5 percent improvement target[120]

[118] WFP. 2022. Indicator Compendium, p.17.
[119] According to the WFP Indicator Compendium (p.14), cut-off thresholds are applied to the FCS to classify households into three groups: poor, borderline or acceptable food consumption according to the following standard thresholds: i) Poor food consumption: 0-21; Borderline food consumption: 21-35; Acceptable food consumption: >35.
[120] This evaluation aims to determine whether a particular group is the intended target of an intervention or a primary focus of it. Given that SBC interventions have reached all communities through radio broadcasts and demonstrations, these initiatives have the potential to influence both communities.

and reducing food insecurity in targeted communities. However, potential biases exist, considering differences in the baseline and endline survey seasons and the influence of food distribution before both phases. While GTNS's positive impact is evident, acknowledging the role of timing and food distribution factors is crucial in interpreting the endline results.

Figure 7: Food Consumption Score at endline - Control/Intervention

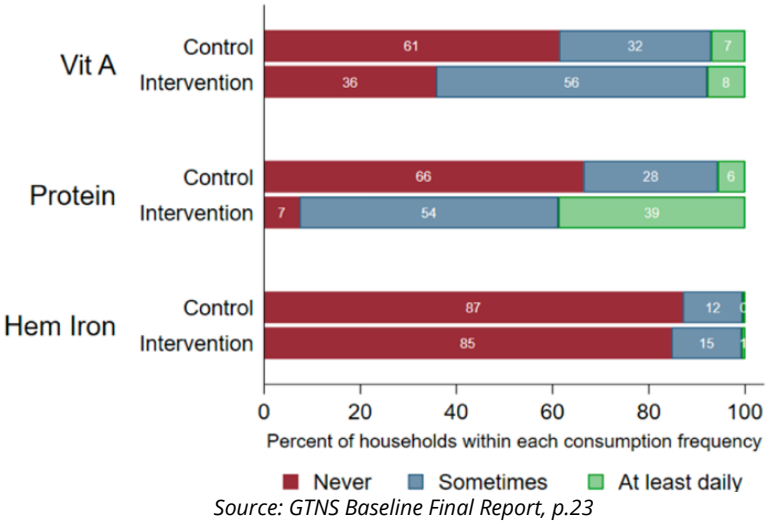


Source: Evaluation team.

2.1.5. Food Consumption Score-Nutrition

153. The Food Consumption Score Nutritional Quality Analysis (FCS-N) is a tool derived from the FCS indicator. It looks at three main nutrients (Vitamin A, Protein, and Hem Iron) of the food items consumed. The FCS-N is calculated by inspecting how often households consume food items from the different food groups during a 7-day reference period.[121] Within the scope of the GTNS, the baseline assessment, following WFP's CARI module[122], revealed that FCS-N among households was distributed by intervention status as presented in Figure 8 below.

Figure 8: Food Consumption Score Nutrition at baseline - Control/Intervention



Source: GTNS Baseline Final Report, p.23

[121] WFP, VAM Resource Center, Food Consumption Score Nutritional Quality Analysis

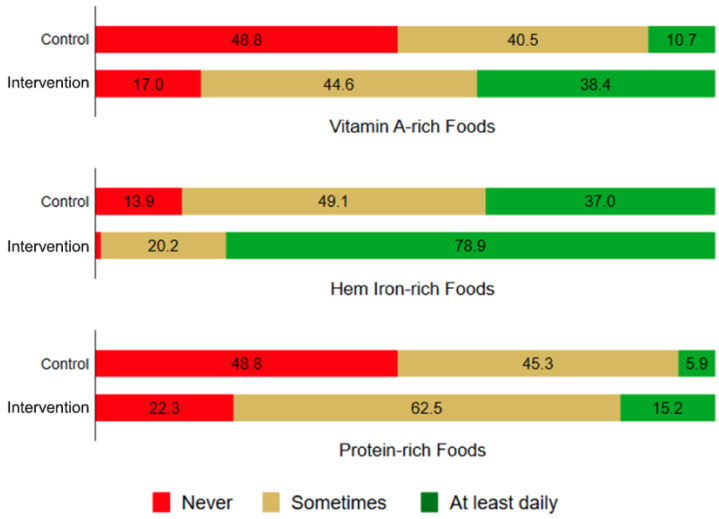
[122] According to the CARI Model, households are categorized into three consumption frequency categories for each of the three nutrient rich food groups. These are zero times in the last 7 days (Never), 1 to 6 times in the last 7 days (sometimes), and every day (at least daily).

154. Figure 8 above presents the three consumption frequency groups of nutrient rich foods at baseline: Never = zero consumption; Sometimes = 1 to 6 times per week; At least daily = 7 times or more per week. For the 'at least daily' category, the results for the intervention group were 8 percent for Vitamin A rich foods and 39 percent for protein-rich foods, while corresponding figures for the control group were 7 percent and 6 percent, respectively. Furthermore, the baseline illustrated a consumption rate of 0.7 percent for Hem iron rich foods 'at least daily' in the intervention group and 0.5 percent in the control group.

155. At GTNS's endline, the situation changed. For the intervention group, the consumption at the 'at least daily' category changed to 38.4 percent for vitamin A rich foods, 78.9 percent for hem iron rich foods, and 15.2 for protein-rich foods (Figure 9 and Table 7). In the control group, the endline data portrayed different average consumption patterns: 10.7 percent for vitamin A rich foods, 37 percent for hem iron rich foods, and 5.9 days for protein-rich foods consumed these micro-nutrients at least daily. Employing a single-difference impact analysis based on the endline outcomes, a discernible positive effect on food consumption patterns emerges in the intervention group compared to the control group for each food category's 'at least daily' value. The intervention group demonstrated a favourable difference of 23.9 percentage points for vitamin A rich foods (p=0.000), 56.9 percentage points for hem iron rich foods (p=0.000), and 10.3 percentage points for protein-rich foods (p=0.001).

156. This result suggests that GTNS had a positive influence on enhancing the nutritional adequacy of households' diets. Specifically, GTNS facilitated increased consumption of vitamin A, hem iron, and protein-rich foods consumed at least daily within the intervention group, thereby demonstrating GTNS's capacity to positively impact dietary diversity and nutrient intake.

Figure 9: Food Consumption Score Nutrition at endline. Control/Intervention



Source: Evaluation team.

Table 7: Percentages of households by three consumption frequency groupings at endline

Variable	Frequency	Control (%)	Intervention (%)	Difference (% points)
Vitamin A-rich foods	Never	48.8	17.0	31.8*** (p = 0.000)
	Sometimes	40.5	44.6	4.1 (p = 0.322)
	At least daily	10.7	38.4	27.7*** (p = 0.000)
Hem Iron-rich foods	Never	13.9	0.9	13.0*** (p = 0.000)
	Sometimes	49.1	20.2	28.9*** (p = 0.000)
	At least daily	37	78.9	41.9*** (p = 0.000)
Protein-rich foods	Never	48.8	22.3	26.5*** (p = 0.000)
	Sometimes	45.3	62.5	17.2*** (p = 0.001)
	At least daily	5.9	15.2	9.3** (p = 0.04)

* p<0.05, ** p<0.01, *** p<0.001.
No statistically significant differences between households headed by men and those headed by women
Source: Evaluation team.

2.1.6. Household Monthly Income

157. The significant relationship between income and food security is evident in this evaluation, especially when comparing the intervention and control groups. The intervention group reports an average monthly income of MZN 4,790.5, considerably higher than the control group's MZN 1,545.2. Despite the statistical relevance (p= 0.000), both incomes are below the national minimum wage of MZN 5,008 This income gap highlights a significant economic divide influencing food security in the surveyed communities.

158. The intervention group's higher income can be attributed to larger harvests of high-value horticultural crops like onions, lettuce, aubergines and cabbage, while the control group relies more on lower-value crops like maize and cassava. This income disparity highlights economic differences and underscores the intricate dynamics of food security. The higher income in the intervention group allows more financial flexibility, enabling them to allocate resources to food without compromising other household needs. Conversely, the control group, with lower incomes from lower-value crops, faces economic constraints, often prioritizing food expenses over other essential needs.

159. This comparative analysis contributes to the explanation of why intervention communities outperform the control communities in nutrition indicators. The disparity in income, driven by the differing crop portfolios and market values, plays a critical role in shaping food security and nutritional outcomes. It highlights that addressing the multifaceted nature of food security requires not only bolstering the food supply but also enhancing the economic well-being of households, especially in the context of low incomes.

2.1.7. Food Expenditure Share (FES)

160. The Food Expenditure Share (FES) is an indicator used to measure a household's economic vulnerability. It is calculated as the share of a household's total consumption expenditure that is spent on food. The higher this share, the more vulnerable the household is considered to be to food insecure. To compute the FES, data on consumption expenditure is collected through a standard expenditure module, which consists of three sub-modules: 1) Food submodule (seven-day recall); 2) Non-food submodule (30-day recall); and 3) Non-food submodule (six-month recall).

161. Each of these modules collects information on the value of purchases made in cash or on credit, as well as the value of consumed items from in-kind assistance and in-kind gifts. The food submodule also captures the value of consumed food from own production.

162. Households were classified into four categories based on their food expenditure share: more than 75 percent; 65 to 74.9 percent; 50 to 64.9 percent; and less than 50 percent of their incomes. The results are depicted in Table 7 below, with control villages exhibiting a higher food expenditure share.

Table 7: Food expenditure share: classification for households - control/intervention

Food expenditure share categories	Control (%)	Intervention (%)	Difference (% points)
<50%	1.12	1.25	0.13
50-65%	2.23	1.25	0.98
65-75%	2.51	0.62	1.89
>= 75	94.13	96.88	2.75

* p<0.05, ** p<0.01, *** p<0.001.
No statistically significant differences between intervention and control
Source: Evaluation team.

163. The high proportion of income allocated to food expenditures, with a substantial majority of households in both intervention and control villages devoting 75 percent or more of their income to this purpose, implies a heightened vulnerability to food insecurity. Households in both the intervention and control groups exhibit reduced flexibility in handling sudden fluctuations in food prices or income reductions, rendering them more susceptible to food insecurity. Additionally, the data suggests that fluctuations in food prices could adversely impact the quality and quantity of food consumed within these households, further exacerbating their food security concerns.

164. Although the intervention group reported higher income levels, it is important to note that this income still falls below the minimum salary in Mozambique[123]. This economic context provides a plausible explanation for the observed similarities in the Food Expenditure Score (FES) between the intervention and control groups. Despite having a higher income, the intervention group, like the control group, likely allocates the majority of their income to food expenditure. This is a common scenario in situations where income levels are generally low, as securing basic nutritional needs often takes precedence. Therefore, even with increased income, food expenditure patterns may not significantly change unless income rises above a certain threshold.

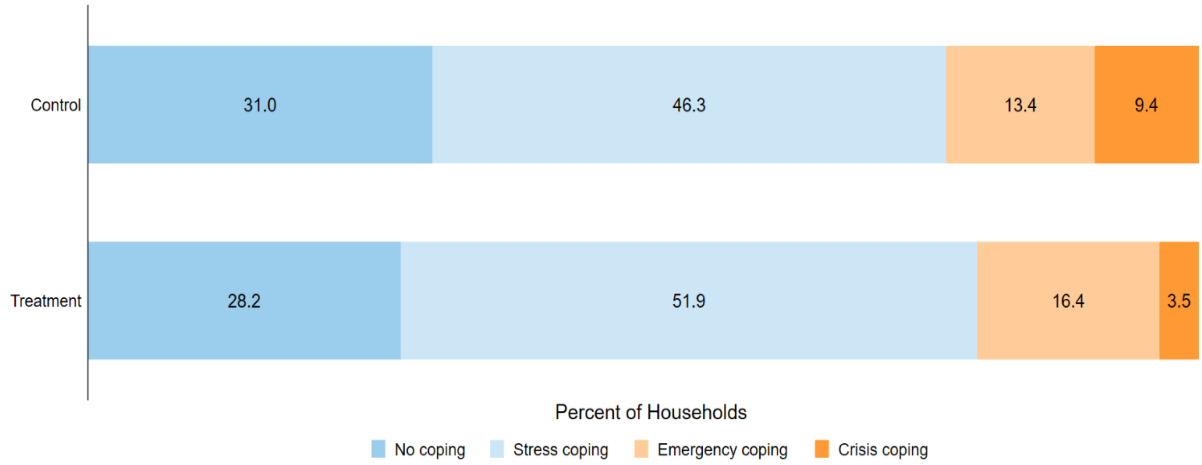
2.1.8. Livelihood Coping Strategies for Food Security (LCS-FS)

165. The Livelihood Coping Strategies for Food Security (LCS-FS) is an indicator used to understand households' medium and longer-term coping capacity in response to lack of food or lack of money to buy food and their ability to overcome challenges in the future. The indicator was calculated from a series of questions regarding the households' experiences with livelihood stress and asset depletion to cope with food shortages. To calculate the LCS-FS indicator 4 stress strategies, 3 crisis strategies, and 3 emergency strategies were selected.

166. The baseline results of GTNS indicated that the LCS-FS was 43 percent in intervention and 26 percent in control for no coping, 14 percent in intervention and 17 percent in control for stress coping, 5 percent in intervention and 4 percent in control for crisis coping and 37 percent in intervention and 53 percent in control for emergency coping. Meanwhile, the endline results indicate 28.2 percent in intervention and 31 percent in control for no coping, 51.9 percent in intervention and 46.3 percent in control for stress coping, 3.5 percent in intervention and 9.4 percent in control for crisis coping and 16.4 percent in intervention and 13.4 percent in control for emergency coping (Figure 10).

[123] https://www.asg.co.mz/en/adjustment-of-the-minimum-salaries-for-the-year/

Figure 10: Livelihood Coping Strategies for Food Security - control/intervention



No coping: p = 0.528 | Stress coping: p = 0.256 | Crisis coping: p = 0.241 | Emergency coping: p = 0.001
Source: Evaluation team.

167. From the endline results, GTNS contributed positively to reducing the use of crisis coping strategies in the intervention group compared to the control group. The difference between the intervention and control groups was -2.8 percentage points for no coping, 5.6 percentage points for stress coping, -5.9 percentage points for emergency coping, and -5.9 percentage points for crisis coping.

168. The improvement in LCS-FS can be explained by the increase in agricultural productivity and the increase of horticulture food reserves for those who are still using solar dryers. Additionally, data was collected during harvest season, which results in higher food reserves, contributing to less engagement with coping strategies that affects future productivity but are more difficult to reverse or more dramatic in nature. This improvement in productivity is a direct contribution of GTNS as reported by project beneficiaries.

We are satisfied, because before they didn't know how to sow, now with the introduction of the project we are making good use of it, with the introduction of line production in the production of sorghum, sesame, peanuts and nhemba beans we are doing well. **FGD027FEM1**

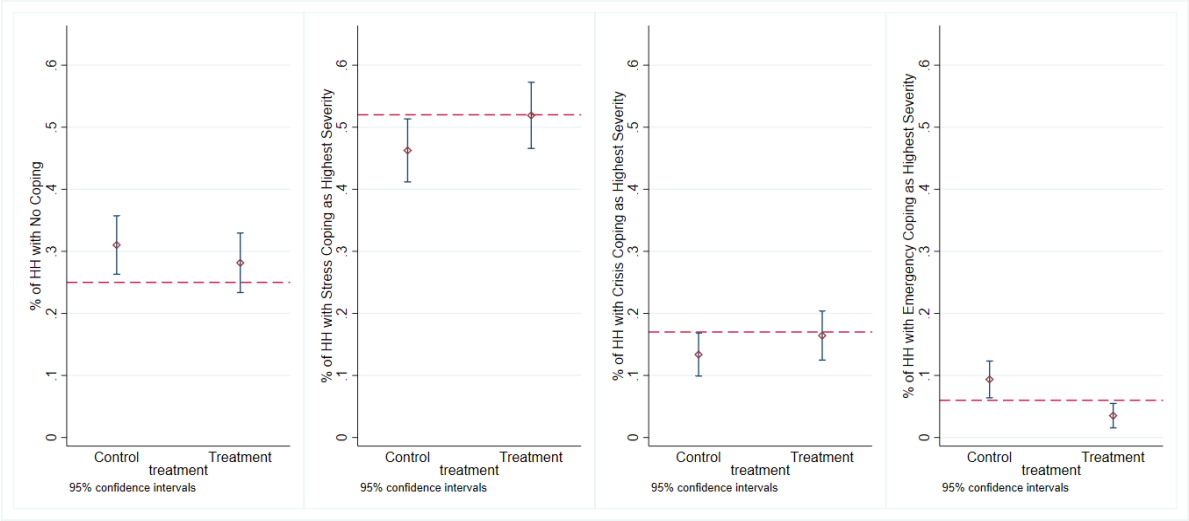
169. The differences between intervention and control in all the coping strategies are not statistically relevant apart from emergency coping strategy level (p=0.001), where the control villages engage more in this strategy compared to intervention (Figure 11). The scatter plots in Figure 11 show the z-scored mean scores for different coping strategies under control and intervention. The error bars represent the range of values within which one can have confidence that the true mean lies, given a confidence level of 95 percent.

170. In the project's case, for most coping strategies, the error bars for the control and intervention groups overlap at all confidence levels. This suggests that any observed differences in mean scores could be due to random variation rather than a true effect of the intervention.

171. However, for emergency coping strategies, the control villages have a higher mean score than the intervention villages, and their error bars do not overlap. This suggests that the difference is statistically significant at all confidence levels examined. The control villages engage more in emergency coping strategies compared to intervention villages.

172. Therefore, both intervention and control present proximately similar levels of vulnerability suggesting that although GTNS positively contributed on improving households' coping capacity by reducing their reliance on emergency coping strategies, largely both intervention and control villages present similar proportion of reliance on coping strategies to overcome challenges caused by the lack of food or lack of money to buy food.

Figure 11: GTNS's effect on the reduction of emergency coping strategy usage, control/intervention



No coping: p = 0.528
Stress coping: p = 0.256
Crisis coping: p = 0.241
Emergency coping: p = 0.001

Source: Evaluation team.

2.1.9. Post-Harvest Loss

173. To improve household food security and dietary diversity, GTNS focused on preserving and diversifying food through the distribution of hermetic bags and the use of solar dryers. The project aimed to reduce PHL and enhance nutrition sensitivity through demonstrations and training on the use of hermetic bags and solar dryers. At an output level, performance was measured by the number of small holder farmers supported/trained on PHL, disaggregated by age and sex and it was assumed that this would contribute to the reduction in PHL measured by rate of post-harvest losses. [124]

Box 3: Finding 2

The introduction of hermetic bags and solar dryers, alongside the associated PHL training, has been well-received, with stakeholders, including female beneficiaries, acknowledging their significant role in enhancing food preservation techniques and potentially elevating household food security and women's economic empowerment. There are concerns regarding the adaptability of solar dryer technology to adverse weather conditions and the sustainability of hermetic bag supply and these technologies have not markedly reduced PHL as expected, suggesting a gap between perceived benefits and measured outcomes.

Box 4: Key Findings on Post-harvest losses

- Stakeholders, including women beneficiaries, unanimously agree that hermetic bags and solar dryers have significantly contributed to reducing post-harvest losses (PHL) and improving food preservation techniques.
- Community leaders, beneficiaries, and other stakeholders express gratitude for the PHL training provided and the promotion of hermetic bags and solar dryers. These interventions are recognized as effective strategies to enhance household food security, diversify diets, and empower women economically.

[124] As per the WFP Indicator Compendium 2022-2025 (p.293), PHL is defined as "the loss of crops to spillage, spoilage, animals or pests after harvesting. Post-harvest losses typically arise because of poor pre-and post-harvest practices, exposure to inclement weather conditions and or lack of relevant infrastructure".

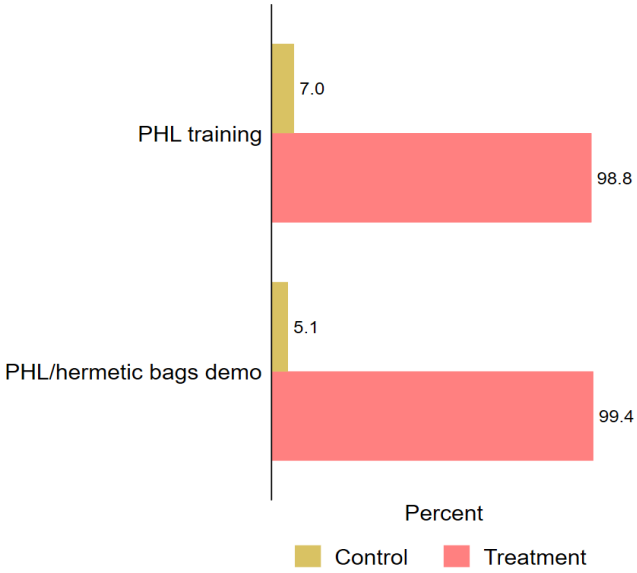
- The initiation of PHL trainings faced delays, and the sensitization regarding hermetic bags encountered challenges due to coordination issues with partners; however, these challenges were eventually resolved. While there are connections with agro-dealers, project partners remain concerned about the long-term supply and affordability of hermetic bags.
- Concerns have been raised by project stakeholders about the adaptability of solar dryer technology to unfavourable weather conditions and its viability during adverse weather.
- Despite the introduction of hermetic bags and solar dryers, the endline data suggests that these interventions did not significantly contribute to reducing post-harvest losses for either group.
- PHL training and hermetic bags demonstration: The overwhelming majority of intervention households had received both PHL training and hermetic bags demonstrations, with 98.8 percent and 99.4 percent, respectively, compared to the control households' 7 percent and 5.1 percent, resulting in a statistically significant difference (P-value: <0.000).
- Post-harvest Loss rate (PHL rate): Despite the overwhelming difference in the receipt of the PHL training and hermetic bags demonstrations, intervention villages experienced a higher rate of PHL, 32.1 percent compared to 28.1 percent in control villages (P-value: <0.05), suggesting that additional time may be needed for the integration of technologies such as hermetic bags and solar dryers to begin reducing PHL rates.

174. In 2020 WFP signed an agreement with the District Services for Economic Activities (SDAE) as part of PHL component. Shortly afterwards, 15 public extension agents from SDAE of Chemba district were trained on post-harvest loss management, focusing on the use of hermetic bags.[125] The 5-day training focused on good management, conservation, processing and storage of grains, legumes, fruits and vegetables, with a focus on those produced in the Chemba district.[126] These extension agents, in turn, were able to train 1,500 households (1,412 women and 88 men).[127] Government and partner stakeholders consulted were generally appreciative of the training provided. They spoke of the relevance of promoting hermetic bags for the conservation of agricultural products, as well as ensuring consumption throughout the year and contributing to improved nutrition.

175. A considerable proportion of intervention households (98.8 percent) reported to have had someone from their household receive training on post-harvest losses. This is significantly higher than the proportion of control households with a household member participating in PHL training (p = 0.000, 95 percent CI) (Figure 12). Similarly, the percentage of households reporting to have had a household member participate in a demonstration of hermetic bag usage was considerably higher in the intervention households' group (99.4 percent) compared to the control households (5.1 percent). Again, this difference was statistically significant (p = 0.000) at the 95 percent confidence level. These results indicate that GTNS has adequately reached households for PHL training and hermetic bag usage demonstrations.

[125] WFP Mozambique Annual Country Report, 2020
[126] WFP ADA Progress Report, Quarter 1, 2020
[127] WFP ADA Progress Report, Quarter 3, 2020

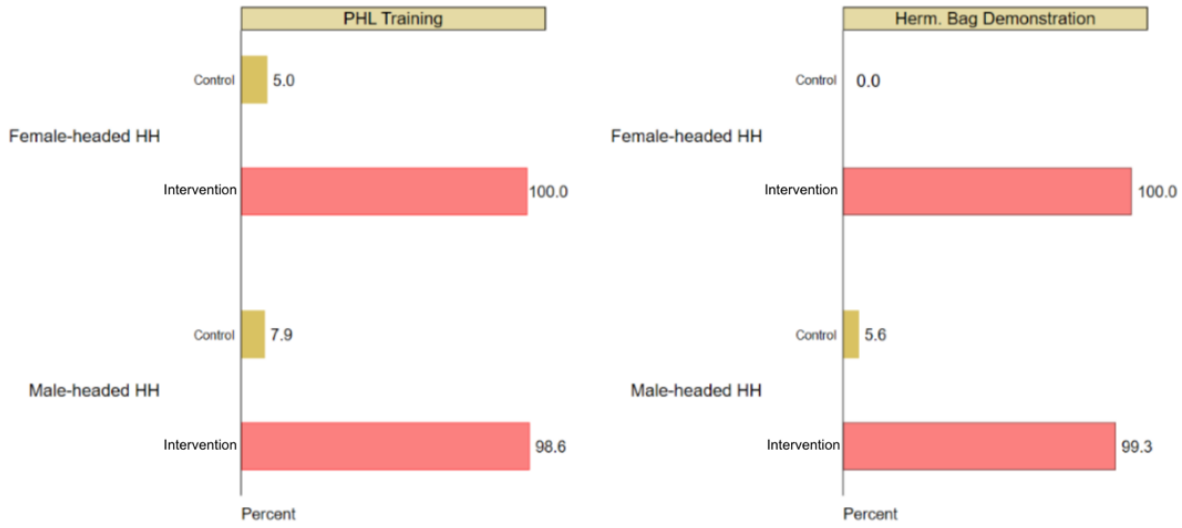
Figure 12: Percentage of households with PHL training and hermetic bag demonstration in control and intervention villages



Source: Evaluation team.

176. Figure 13 below shows that in control villages, the proportion of members from households headed by women participating in both PHL training and demonstrations for hermetic bags is lower compared to members from households headed by men. In the intervention villages, however, the proportion of household members participating in both these activities is similar for households headed by men or women. This indicates that GTNS was successful in targeting households headed by women. For both households headed by men and women, however, the proportion of households reporting to have had a member participate in PHL training was significantly different in intervention villages compared to control villages (p = 0.000). Similarly, the proportion of both female-headed and male-headed households reporting to have had a household member participate in hermetic bag usage was significantly higher in intervention villages compared to control villages (p = 0.000).

Figure 13: PHL training and hermetic bag usage demonstration in female- and male-headed households



Source: Evaluation team.

177. The following Table 8 presents data related to PHL training and the demonstration of hermetic bag usage categorized by different age groups within the intervention and control groups, including statistical significance levels of the differences observed. The results highlight the effectiveness of both PHL training and the hermetic bag demonstration, across all age groups, as indicated by the statistically significant differences in favour of the intervention groups. The impact is particularly pronounced in the oldest age group, where all participants benefited from the intervention.

Table 8: PHL training and demonstration in the use of hermetic bags by age

Intervention	Age Group	Intervention (%)	Control (%)	Difference (% points)
PHL Training	18-49	99.2	7.9	91.3***
	50-64	95.7	7.7	88.0***
	65+	100.0	0.0	100.0***
PHL/hermetic bags demo	18-49	99.2	5.4	93.8***
	50-64	100.0	3.8	96.2***
	65+	100.0	0.0	100.0***

* P<=0.05 **P<=0.01 ***P<=0.001

Source: Evaluation team.

178. Within the intervention households, 44 percent had received three hermetic bags, 25.1 percent had received only one or two hermetic bags, and 31 percent had received four or more hermetic bags. When asked if a household had ever purchased hermetic bags, only 17.9 percent across the sample, including both control and intervention households, had ever purchased hermetic bags. Disaggregating by intervention status, 7.8 percent of control households had ever purchased hermetic bags, while the figure for intervention households was 29 percent. The difference was not statistically significant (P=0.087).

179. Most households received three hermetic bags, resulting in 4,500 hermetic bags being distributed in 2020, which is a notable achievement.[128] In addition, a total of five potential agro-dealers were trained in PHL management and hermetic bag usage, and a strong national distributor was engaged to secure the availability for hermetic bags in Chemba to respond to the demand generated through the programme.[129] To further enhance the sustainability of the project, the partners conducted public demonstrations on the use of the hermetic bags meant to remind beneficiaries on how to properly use the bags.

180. Both men and women intervention groups, consulted confirmed to have received hermetic bags to store dried products, and had been trained on their usage. Women in intervention villages indicated they had shared the knowledge received from the training on hermetic bags with control households. They stated that hermetic bags helped them preserve and access for a prolonged period a variety of nutritious foods, as they facilitated the safe storing of cereals and other dry seeds. They spoke of how the bags were useful in preserving corn, *mapira* (bicolour sorghum), and cereals and how the bags had significantly reduced product wastage. Box 5 below, reflects some of the sentiments gathered from consulted community leaders, men, and women beneficiaries.

[128] WFP ADA Progress Report, Quarter 2, 2020
[129] ibid.

Box 5: Intervention perspectives on hermetic bags and solar dryers

"We were taught to use hermetic bags to conserve seeds so that when the rainy season comes, we can use these seeds that won't spoil."

"The introduction of hermetic bags contributed to better seed and grain conservation for the families."

"The project's support in terms of dryers, graters, and hermetic bags contributed to better food preservation and reduced wastage."

"For example, I saw with great satisfaction the establishment of an Agro dealer in the Mulima Community." [130]

***Source**: Discussions with project beneficiaries and community leaders*

181. As part of the PHL activities, solar dryers for fruits and vegetables were promoted by the project. This is reflected in Table 9 below, that shows that 96 percent of households in intervention villages had received solar dryers (p=0.000) and 98 percent of households in intervention villages affirm having used the solar dryers at least once (p_0.000).

Table 9: Reception of solar dryers per control/intervention communities

Intervention	Intervention (%)	Control (%)	Difference (% points)
Received Solar Dryers	96.19	0	96.19***
Used Solar Dryers at least once	98.17	0	93.8***

* P<=0.05 **P<=0.01 ***P<=0.001

Source: Evaluation team.

182. Between July and December 2021, over 3,500 participants attended cooking demos and vegetable drying sessions using solar dryers and local artisans were assisted to create 135 solar dryers.[131] In addition, GTNS beneficiaries received 2,900 raffia bags to store their products in the solar dryers.[132] Community leaders and beneficiaries, especially women, credited the project for providing solar dryers and hermetic bags. They expressed that these resources were instrumental in preserving and accessing a diverse range of nutritious foods.

183. Solar dryers, despite meeting community needs, faced implementation challenges and low uptake due to issues like the absence of coordination in demonstrations and unclear beneficiary selection criteria. Partners attributed these problems to a lack of needs assessment, impacting the limited continuous use of solar dryers. Additionally, cooperating partners, beneficiaries, and community leaders identified issues such as untimely delivery during droughts, lack of protective sheds leading to equipment damage in adverse weather, and challenges associated with sharing solar dryers among multiple users. Those tasked with oversight encountered difficulties in grasping the communal aspect of these dryers and ensuring fair access for all, indicating that the effectiveness of such initiatives that are hinged on fostering cooperation and maintaining a sense of equity require better coordination and training.

"Why shouldn't it be difficult? Three people using one dryer, that's too complicated. When I wanted to dry my food, I couldn't because someone else was using it. Those who had the responsibility of storing the dryer privatized it, they no longer considered that others needed it too." ***FGD029FEM***

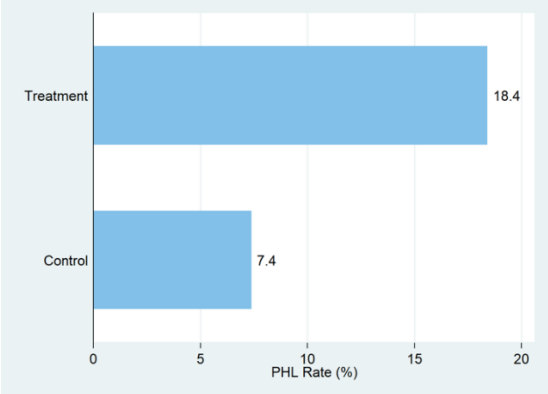
"Yes, we can use them. What we ask is that we should have individualized dryers and radios. The difficulty is in using them collectively, as we said: when one of us wants to use them, we can't because the other one is using them or has gone out to the field." ***KI027FEM***

[130] The agro-dealers were responsible for promoting the use of hermetic bags including by selling it and making available for both intervention and control communities.
[131] WFP Mozambique ACR, 2022.
[132] Storage bags made of raffia, a straw-like material obtained from the raffia palm tree.

184. To reinforce the adoption of PHL technologies, WFP supported the dissemination of three radio shows on a local community radio through which government extension workers from SDAE in Chemba emphasized the efficiency of hermetic bags and solar dryers.[133] All radio programs brought stories of project beneficiaries collected and recorded in the community of Mulima. A project staff from PCI confirmed that a total of 30 programs were produced and broadcast in 2021 and at least 60 programs broadcast in 2022 addressing issues related to harvest preparation, harvesting, transportation, drying, moisture testing, storage of grains in hermetic bags. While the initial goal was to reach out to 120 listeners who were beneficiaries of WFP-supported PHL management, only 13 of them received feedback via phone calls and SMS. The primary hurdle encountered in engaging with the audience, especially women, was their limited access to mobile phones.[134] Additionally, due to occasional unavailability of the SDAE team, certain radio programs had to be pre-recorded. This led to confusion among listeners regarding which segments were open for call-ins and which had already been pre-recorded.

185. At baseline, both intervention and control households recorded a post-harvest loss (PHL) rate of 31percent and 26 percent, respectively. In the endline survey, PHL rates dropped to 7.4 percent for control households and 18.4 percent for intervention households (Figure 15). This significant difference in PHL rate between the two groups ($p = 0.049$) indicates that those households employing PHL mitigation technologies experienced a greater percentage loss of their harvested crops, whether through on-farm or off-farm factors, relative to the control households. Despite the integration of technologies such as hermetic bags and solar dryers, endline data indicates that these initiatives have not significantly reduced PHL for either group. The limited number of distributed hermetic bags (three per household), mainly used for seed storage, and their short lifespan contributed to this outcome. A more extended period might be necessary to witness substantial results.

Figure 15: Endline results on PHL rate for intervention and control households



Source: Evaluation team.

2.1.10. Social Behavioural Change Communication (SBC)

Box 6: Key findings on SBC

- There was a significant improvement in accessing health services and sexual and reproductive health services in the intervention group. A notable difference was observed in the percentage of women/caregivers with four or more antenatal care visits, with all women in households led by women and a higher percentage in households headed by men seeking adequate care in the intervention group compared to the control group.
- Quantitative data revealed that community talks were the primary source of information on Sexual and Reproductive Health (SRH), with 78.9 percent of respondents in the intervention areas relying on them, compared to 27.6 percent in control areas.

[133] WFP Mozambique Annual Country Report, 2022.
[134] PCI Media, 2023. GTNS Final Lessons Learned Report (2019-2022).

- Women in the intervention group were observed to be more accepting of violence in various scenarios compared to those in the control group. This indicates a substantial presence of gender inequality in both intervention and control villages.
- There was a marginal change in attitudes towards deeply entrenched cultural beliefs, such as polygamy. Some participants, including adolescents living in polygamous households, questioned these norms and expressed their intention not to practice them in the future. However, cultural practices like polygamy and selling daughters as bride prices still posed challenges and required more time for change.
- The intervention group exhibited greater improvements in nutrition, particularly in households led by women, with increased consumption of vitamin-A rich foods, iron-rich foods, and protein-rich foods. Households headed by men also showed improvements but to a lesser extent compared to households headed by women.
- The message recall on good nutrition practices was consistent across age groups, with some variation in the 18-49 age group due to their limited involvement in the project.
- The integration of gender transformative approaches into activities, particularly those focused on technical training and nutrition, faced challenges. Delays in funding disbursement hindered the effective integration of these gender transformative components.

186. The objectives of SBC for this project were to contribute to:

- Increased dietary diversity of pregnant and lactating women, adolescent girls, and children 6–23 months through capacity building of partners and community members;
- Increased knowledge and uptake of sexual and reproductive health services by men, women, adolescent boys, and adolescent girls, specifically related to increasing decision-making of women and girls for family planning, ante-natal care, safe delivery, and post-natal care;
- Increased decision making and uptake of basic health services for children under-two by women and girls, specifically related to health seeking behaviors for diarrhoea, fever, acute respiratory infection, malnutrition, and immunizations;
- Decreased early child marriage of adolescent girls, especially in times of hunger, through sustained gender dialogue clubs, early marriage campaigns, including media engagement.

Box 7: Finding 3

Community radio emerged as a pivotal platform in disseminating critical information on SRH, prevention of polygamy, early marriages, and WASH, reaching even beyond the primary audience. This effectiveness was enhanced through synergies with other initiatives like gender clubs, which facilitated suitable SBC messages. However, there is a recognized need to further investigate the apparent discrepancies in opinions between communities and implementing partners concerning the most potent avenues for conveying SRH information.

187. The quantitative data show that of all the respondents, the greatest source of information on SRH comes from community talks, 78.87 percent in the intervention areas compared to 27.61 percent in the control areas, followed by health campaigns, estimated at 71.73 percent for the intervention areas and 55.77 percent for the control areas. Radio was the third source of information, with 38.69 percent in the intervention zone and 19.72 percent in the control zone. The information sources are reflected in Figure 16 below.

188. Despite variations in ranking the most effective information dissemination methods among consulted key stakeholders, community radio emerged as the top choice. Community radio, particularly the 'Ouro Negro ao Vivo,' a weekly 30-minute live talk show in local languages, fostered interpersonal dialogue at the community level. The show featured individuals sharing personal stories that motivated behaviour change, with a focus on sexual and reproductive health and gender discussions. The recorded radio show was replayed, uploaded on a podcast platform (Soundcloud), and promoted on social media (Facebook). While effective, challenges included reaching the target populations due to timing issues. Consideration of when activities take place, especially to reach adolescents (a significant missed target group due to them being at school at that time), is essential.

Figure 16: Source of information on Sexual Reproduction Health in intervention and control villages

Source: Evaluation team.

189. Nevertheless, community radio played a pivotal role in disseminating information and knowledge related to sexual and reproductive health, prevention of polygamy, early unions, and WASH. Importantly, its reach extended beyond primary participants to encompass surrounding communities.[135]

Box 8: Finding 4

> Despite the perceived improvement in health and SRH services usage in the intervention group as noted by the implementers, the actual data indicates only moderate improvements. The minor disparities between the intervention and control groups in terms of seeking health advice for children might be a result of pre-existing or concurrent health sector initiatives, not solely the GTNS project interventions.

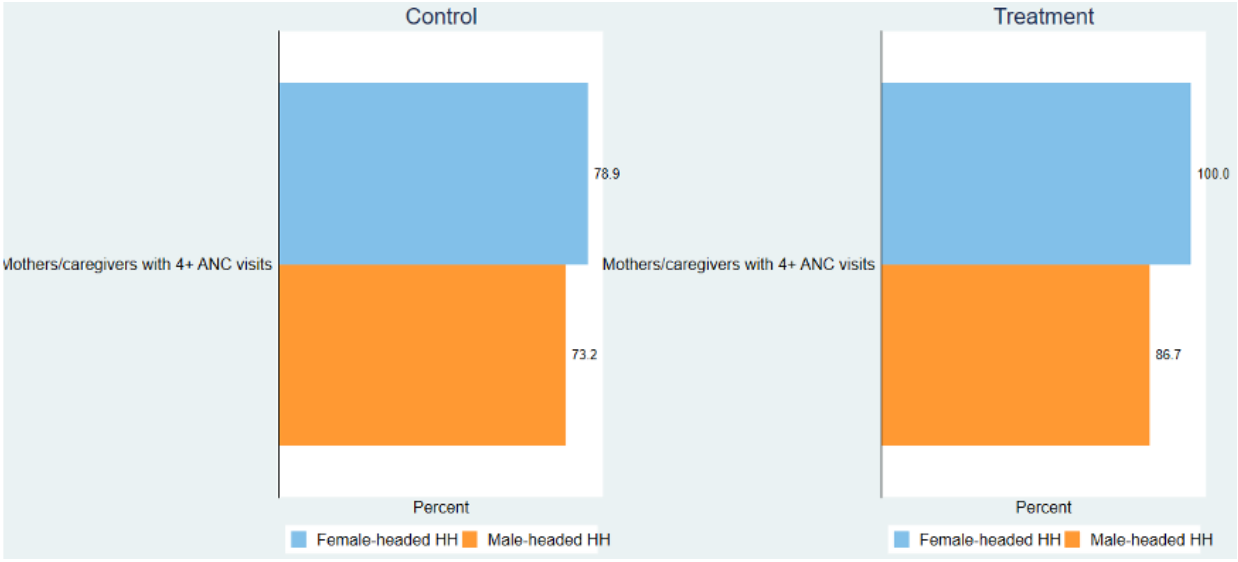
190. Regarding specific health practices, including accessing health services and sexual and reproductive health services, implementors felt that there was an improvement in the intervention group. A significant difference (p = 0.001) was observed between the percentage of women/caregivers with 4+ ANC visits between the control and intervention group. In households, all women/caregivers in the intervention group sought more than four antenatal services, compared to 79 percent in the control group (Figure 17). In households headed by men, the percentage of women with 4+ ANC visits was slightly lower, but also here, this percentage was higher in the intervention group compared to the control group.

191. Stakeholder interviews suggest that the statistically significant difference between the groups could be attributed to health sector initiatives implemented concurrently or prior to the GTNS project. It is

[135] This broader reach was due to the fact that radio broadcasts inherently reach a wide audience. Stakeholder consultations, including insights from CEFA, SDMAS, and SIDAE, revealed evidence of this extended impact. These organizations made community visits and found instances of greater flexibility in gender roles, increased adoption of hygiene and sanitation practices, as well as the utilization of hermetic bags. These accounts provided concrete evidence of the positive changes observed in neighbouring communities.

important to clarify that this difference is based on stakeholder perceptions and may be attributed to concurrent or prior health sector initiatives.

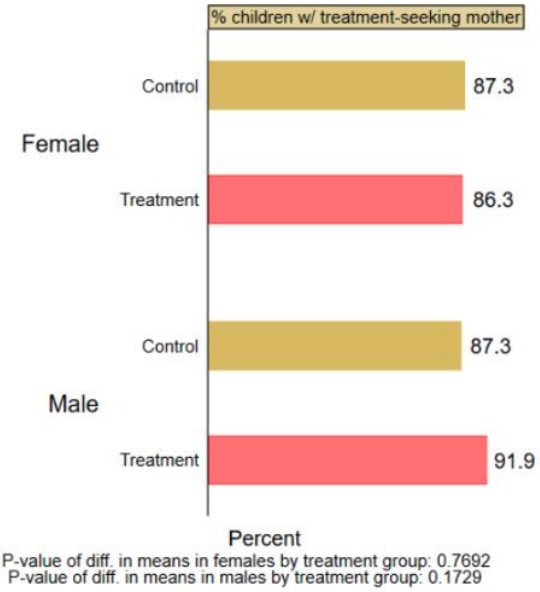
Figure 17: Mothers/caregivers with 4+ ANC visits



Source: Evaluation team.

192. When respondents were asked whether they sought health services or counselling when children had a fever or cough, no significant result was observed between the control group and intervention group. Furthermore, no significant differences were observed between male and female children (Figure 18).

Figure 18: Demand for antenatal services by sex of the child



Source: Evaluation team.

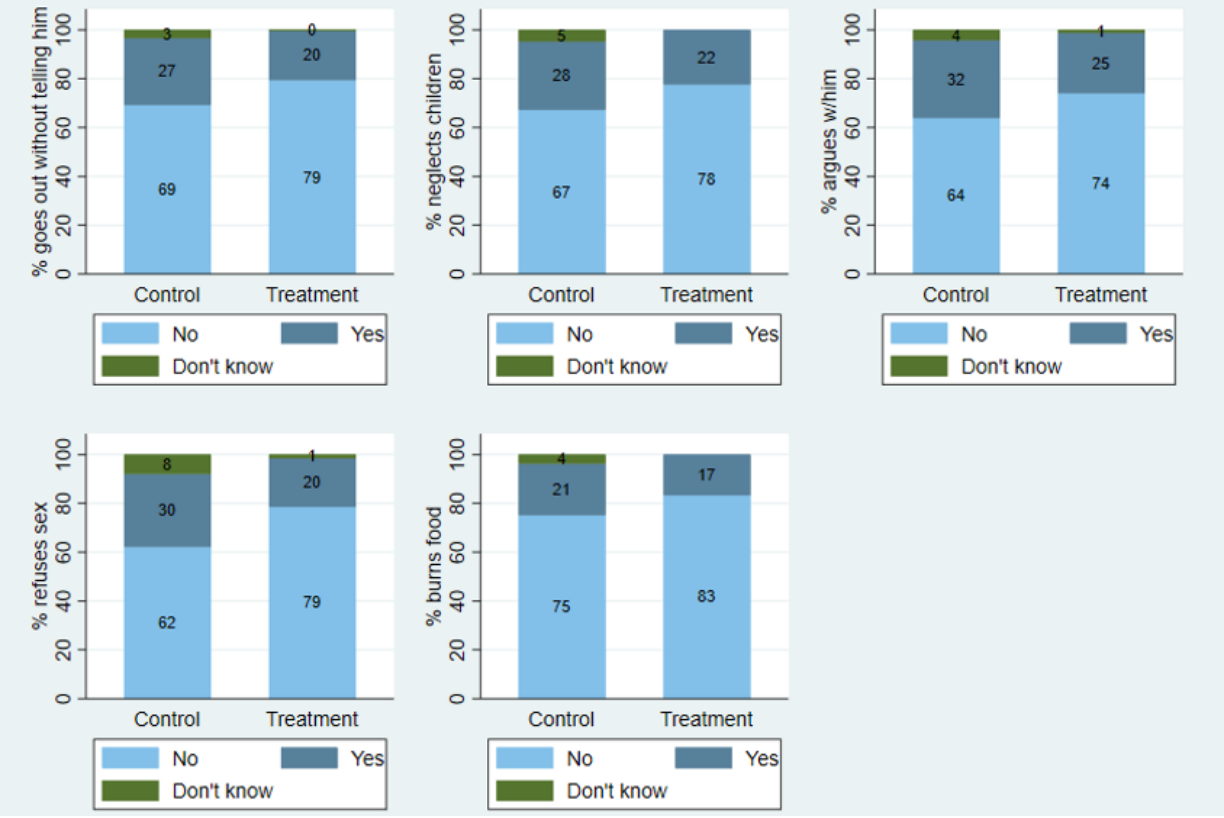
Box 9: Finding 5

A considerable proportion of women, both in the intervention and control groups, exhibited a concerning level of acceptance towards violence in various situations, indicating deeply entrenched gender inequality in both groups. Surprisingly, the acceptance rate was higher in the intervention group compared to the control group across all the scenarios presented, signalling that transformative change in gender dynamics is a gradual process and has not been significantly impacted by the interventions in the intervention group within the timeframe of the study.

193. Women were asked their perspectives on the acceptability of violence by asking them about specific scenarios of violent actions or behaviour. For all these scenarios, women in the control group were observed to be less accepting compared to women in the intervention group (Figure 19)

194. For example, 69 percent of women in the control group said that it was acceptable for her husband to beat her if she went out without telling him, opposed to 79 percent of women in the intervention group. Furthermore, 67 percent of women in the control group said violence was justified if they neglected the children, opposed to 78 percent of women in the intervention group. In situations where women refuse sex with their husband, 62 percent of women in the control group mentioned finding violence justified, opposed to 79 percent of women in the control group. These results indicate that there is a considerable amount of gender inequality in both intervention and control villages.

Figure 19: Perspectives of acceptability towards violence



Source: Evaluation team.

195. Discussions with project staff and partners acknowledged a marginal shift in attitudes toward deeply ingrained cultural beliefs, like polygamy. Some adolescents in polygamous households questioned these norms, expressing a reluctance to practice them in the future. Respondents noted challenges in overcoming entrenched gender norms, especially with many practicing polygamy and engaging in practices like selling daughters despite newly introduced laws against child marriage. While the intervention effectively raised awareness of gender equality, more time is needed for profound changes, particularly in deeply rooted practices like polygamy passed down through generations:

"...I stay home when my wife goes to the machamba, takes care of my son. I make lunch, bathe my children, until my wife comes back, and I cook for my wife." **FGD037MAL**

196. Data is consistent with the report evaluating the impact of the gender dialogue clubs approach under the GTNS Project,[136] showing that despite the majority's disagreement with GBV, it was still considered justifiable under certain scenarios (e.g. a wife's betrayal deserving violence). Several studies indicate the complexity of opinions justifying GBV.[137] Slegh, et al. report that while a relatively small number of men agreed that a woman should tolerate violence to keep the family together (13 per cent), a much larger number agreed that there are times when a woman deserves to be beaten (40 per cent).[138] Many men and women do not consider the use of violence against their wives to be violence in itself. On the contrary, they saw it as "punishment" or "education." Furthermore, the strong perceived influence of ancestral and spiritual worlds in managing conflicts between partners would not be considered violence, but rather control by evil spirits. Macia (2013) highlights that certain men believe in possessing women, measuring their masculinity's visibility by the control exerted over women's sexuality, including sex. Men may resort to violence to fulfil their desires while learning about male sexuality.[139] The prevalent model of masculinity is grounded in two ideologies: one asserting women's obedience to men, drawing from the biblical narrative of the rib, and the other emphasizing the establishment of relationships between men and women through cultural processes, prompting the exploration of reasons for gender violence in social construction. Gender transformation and social behaviour change are gradual, continuous, and ongoing processes that must be integrated into activities. Identifying and addressing the gender norms and behaviors crucial for the effectiveness of a technical activity should occur at the outset, with appropriate approaches developed accordingly.

Box 10: Finding 6

The intervention group displayed substantial improvements in the consumption of nutritious foods across all categories when compared to the control group. However, the integration of gender transformative approaches in activities was affected by funding disbursements and a coordination gap in the project's implementation. The young people were not fully engaged in GTNS, as evidenced by the minor discrepancies in nutrition practice awareness among the 18-49 age group.

2.2. TO WHAT EXTENT WERE GTNS PRIMARY TARGET GROUPS EXPOSED TO THE PROJECT'S INTEGRATED INTERVENTION MODEL?

Box 11: Finding 7

The integrated intervention model of the project successfully engaged and influenced its target audience, particularly in areas such as asset training and construction, with exposure rates exceeding 90 percent. This indicates the project's effectiveness in empowering beneficiaries through capacity-building initiatives and fostering resilience and self-sufficiency. For each activity included in the model, a significant difference was observed between the control and intervention groups ($p = 0.000$ for all). The timing of certain interventions, like the food basket distributions and community dialogues, may have impacted the levels of participation and engagement in the dialogues.

197. The integrated model incorporates diverse activities for beneficiary empowerment and education. The evaluation primarily examined the intervention group, which received specialized project interventions, assessing their engagement with the integrated model's components. However, the same aspects were evaluated in the control group for a comparative analysis of project contributions to changes observed

[136] Rede HOPEN (2022). Avaliação do impacto das abordagens dos clubes de diálogo de género no projecto "Empoderamento da Mulher e Sensível à Nutrição (GTNS)" no distrito de Chemba, província de Sofala, Moçambique. WFP/PATHFINDER.
[137] ONU Mulheres & CeCAGe-UEM. 201). Relatório do estudo exploratório sobre a Situação da Violência contra as mulheres e raparigas nos Espaços Públicos na Cidade de Maputo. ONU Mulheres, Maputo, Novembro de 2016.
[138] Slegh, H.; Mariano, E., Roque, S.; and Barker, G. (2017). Ser homem em Maputo: Masculinidades, pobreza e violencia em Moçambique. Resultados do inquérito Internacional sobre homens e igualdade de genero
[139] Macia, M. (2013). Eu não perco templo com bla, bla, blas..., ajo: violência como elemento estruturante da masculinidade hegemónica em sociedades africanas. Outras Vozes, p. 43-44, 2013.

in the intervention group. The analysis of the intervention group's exposure demonstrated the project's success in reaching and influencing its target audience. Higher engagement levels across all evaluated areas in the intervention group indicate the project's effective delivery of a comprehensive intervention approach.

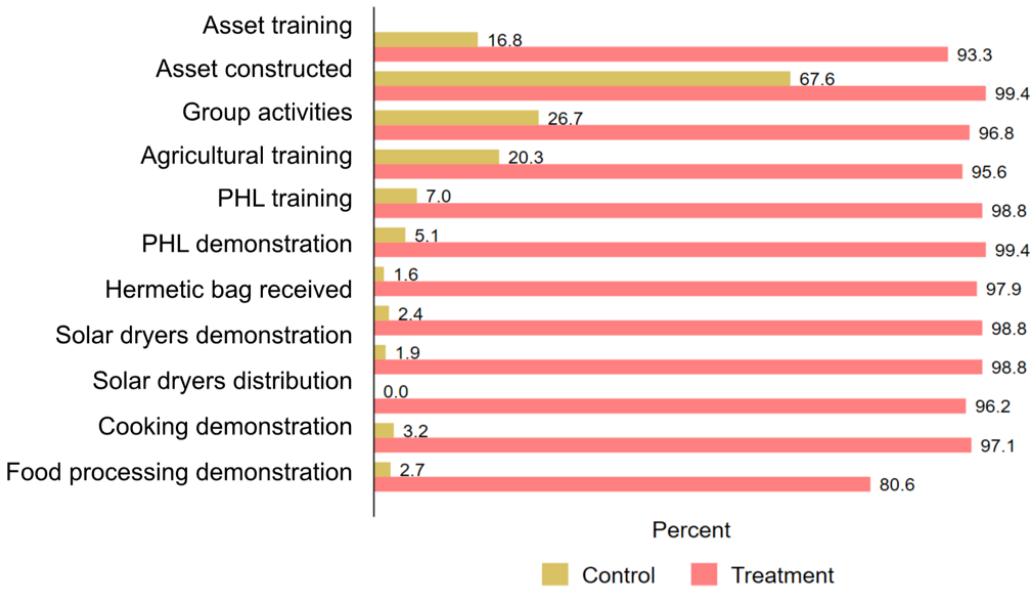
198. Training on the creation and maintenance of assets such as home gardens, fuel efficient stoves, ducks, agricultural practices, and others was an important part of the integrated model. There was an exposure rate of 93.3 percent among the intervention group on asset training (Figure 20). Agricultural training had an exposure rate of 95.6 percent among the intervention group. This elevated level of engagement indicates that many beneficiaries received training related to asset development, showing the project's success in building their capacity.

199. With the newly acquired skills and capacity, beneficiaries created household and community assets. The construction of assets, another key part of the integrated model, had an exposure rate of 99.4 percent among the intervention group. This high achievement shows the project's success in empowering beneficiaries to create and manage productive assets, increasing their self-sufficiency and resilience.

200. The exposure to the project's integrated intervention model within the intervention group revealed a resounding success, with exposure rates consistently surpassing 90 percent across a multifaceted array of activities, contrasting the control group.[140] From asset training and construction to group activities, agricultural and post-harvest training, hermetic bag distribution, solar drying demonstrations, cooking, and food processing, the project achieved remarkable engagement levels, underscoring its exceptional capacity to effectively disseminate knowledge, empower beneficiaries, and foster transformative impact.

201. Nonetheless, the high exposure rates in activities such as "assets constructed," "assets training," and "agriculture training" among the control groups can be attributed to the focus on these sectors in national development agendas. These activities are often linked to agricultural and WASH-related initiatives and are supported by government entities and partner organizations, leading to their widespread adoption in both intervention and control areas. The presence of specialized personnel (e.g., extensionists) and collaborative partnerships further increases the reach and impact of these efforts.

Figure 20: Exposure to GTNS activities by control and intervention groups



Source: Evaluation team.

[140] This evaluation aims to determine whether an intervention was the intended target or part of the primary target group. Given that there were SBC interventions that reached all communities through radio and demonstrations, these interventions could have influenced both communities.

202. Most respondents noted a gender imbalance in the participation in SBC interventions, with women demonstrating greater engagement compared to men. This discrepancy was attributed to men displaying lower interest or resistance to certain sensitive topics, including gender issues, violence, and early marriage, which manifested in their reduced involvement or resistance. Moreover, within the community, community dialogues primarily comprised women participants, as men often delegated tasks that were more community-focused and were less actively engaged in these matters.

203. Another respondent commented that women showed greater engagement and participation in the projects. They felt that men did not feel as involved, as they perceived that some of the activities were aimed at women. This was evidenced by the name on the documentation and project identification which gave the impression that activities and interventions were exclusively aimed at women. This is a critical shortcoming as gender transformative approaches require the involvement of men. Some respondents said that they very practices that they were trying to transform, such as addressing polygamy, ending child marriage, ending violence against women and children and male decision making could only be addressed if men were involved.

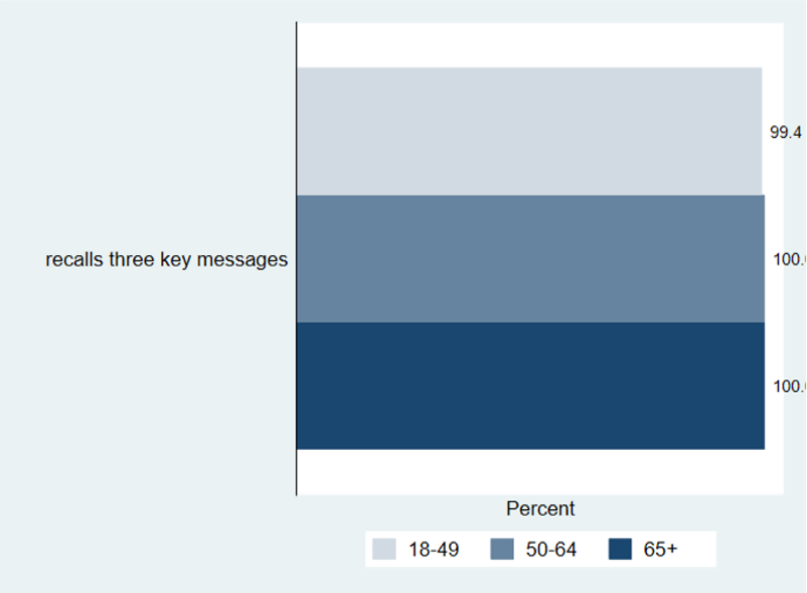
204. The timing of intervention for participation was also of critical consideration. For example, the food basket distribution that were sometimes held at the same time as community dialogues influenced the levels of participation and engagement. Those who were eligible to receive food baskets may have prioritized receiving these resources and not engaging in the dialogues, which may have impacted on their availability and interest in participating in the dialogues. The low participation or involvement of men according to many respondents weakened the full implementation of the knowledge received.

205. For example, women seeking more than four antenatal services were 87 percent in the intervention group compared with 76 percent in the control group.[141] However, for children with mothers seeking advice for health services there was little difference between the intervention (89 percent) and control group (87.4 percent).

2.3. TO WHAT EXTENT WERE GTNS KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) OUTCOME INDICATOR TARGETS ACHIEVED?

206. There were no significant differences (p=0.024) between the three age groups when participants were asked to mention at least 3 messages they remembered about good nutrition practices (Figure 21). The slight differences found in the 18-49 age group could be associated with the fact that young people were not fully involved in GTNS.

Figure 21: Recalls of 3 key messages in intervention villages by age group



Source: Evaluation team.

[141] NB this might be higher as Mozambique has increased the recommended ANC to 8 visits.

207. Most stakeholder consulted indicated that there had been intense efforts to implement the social and behaviour change components to increase and improve knowledge, attitudes, and practices related to early marriage, sexual and reproductive health, nutrition and care, and basic childhood illnesses**.** The lack of correlation between the gender transformative approaches and the technical training was referenced on numerous occasions by different respondents. No one specific technical training or gender transformative approach was spoken about. It was a comment that stakeholders referenced that the implementing partners receiving funding at different times meant that they had to go to communities at different times and were not able to integrate the technical training with the gender transformative approach. Therefore, the respondents (who may largely be men) for the technical training did not receive gender transformative messaging for example. Therefore, while the activities would have benefited from being implemented jointly it was not always feasible due to the delays in disbursement. In addition, in some cases, partners (Pathfinder, SEFA, PSI and Community Radio for example) were not always introduced to each other so where they might have benefited from collaborating with each other they were not aware of the potential to do so.

208. Lastly, although the project's M&E system was primarily geared towards tracking behaviour change, with less emphasis on monitoring and evaluating shifts in knowledge and attitudes related to FFA and PHL, qualitative data indicates that these overlooked areas were where the project had its most profound impact. This is especially true in the aftermath of cyclones and heavy rains, where physical assets may have been destroyed, but beneficiaries retained the imparted knowledge and demonstrated a willingness to apply learned practices. Monitoring these changes in knowledge could have offered valuable insights into the stages of behaviour change beneficiaries were experiencing in relation to different aspects of the project. This information could have guided decisions on where to focus efforts to improve future.

2.4. WHAT WERE THE MAJOR FACTORS (INTERNAL AND EXTERNAL) INFLUENCING THE ACHIEVEMENT OR NON-ACHIEVEMENT OF THE OBJECTIVES OF THE INTERVENTION?

Box 12: Finding 8

Robust funding and political will, as well as active participation and ownership from the local community leaders and government structures at various levels contributed to positive results. The COVID-19 pandemic necessitated adjustments in the implementation plan, and climatic factors that disrupted scheduling and made access to intervention villages difficult during certain periods. Internal challenges related to coordination among partners and logistical complexities, underscored the necessity for streamlined communication and coordination mechanisms from the outset to enhance monitoring and dialogue among partners. The concept of integration was new to all parties involved, requiring a transitional period for synchronization of activities. Not all activities were gender inclusive, resulting in limited involvement from certain groups and a gradual pace of behavioural change.

209. The achievement or non-achievement of the intervention's objectives was influenced by several factors, both internal and external. External success factors included the presence of funding and political will from both donors and the government, which highlighted a commitment to development initiatives. Additionally, the unique characteristics of the intervention context, including the challenges posed by climate change and the scarcity of gender intervention opportunities, acted as catalysts that facilitated intervention acceptance.

210. Internally, the project's accomplishments were driven by a multifaceted approach that combined nutrition and agriculture intervention indicators along with gender inclusiveness, as a means of addressing chronic malnutrition. The implementation was guided by quality control criteria, notably emphasizing monitoring visits, community willingness to adapt, and capacity-building efforts. Some WFP project staff highlighted one of the [internal] factors that changed was the influence of the behaviour change messages. This was explained in its various forms, whether it was a visual form, posters, via radio, and the activists themselves, who were constantly in the communities and conveying various messages. The fact that adults were already living in a context of rigid gender roles and of

limited decision-making power, made them more open to transformation, and to changing their behaviour.

211. However, several challenges and barriers influenced the intervention's outcomes. The COVID-19 pandemic emerged as a significant external factor that disrupted the project's progress. Delays, resource constraints, and changes in activities were experienced due to the surge in cases in Mozambique in late July 2021. The interruption of SBC community sessions due to safety concerns led to efforts such as distributing face masks and adjusting thematic plans to continue program delivery. WFP immediately engaged with the Sofala Health Authorities (DPS) to procure 7,750 locally made face masks for the assisted population under the project. Certain challenges faced were with regards to changes in the thematic plan due to COVID-19 which affected the work of radio producers, as they were unable to plan the collection of the stories to be collected in Mulima. However, they managed to overcome the challenges faced and to deliver all agreed programs.[142]

212. Considering the district's vulnerability and given the ongoing COVID-19 pandemic, WFP decided to scale up the March food distribution to include all products with sufficiently long shelf-life for the final distribution cycle of April. This effectively resulted in a double ration of all food items in March.[143] In terms of FFA, the focus of WFP activities shifted to the creation of household assets. An emphasis was placed on prioritizing the finalization of assets that could present environmental or physical risk (i.e. latrines, garbage pit), to avoid deterioration of unfinished constructions and ensure safety of the community members frequenting the sites. For the SBC training sessions, this included a partially virtual training of government staff as well as training of GTNS beneficiaries on the proper use of face masks, hand-washing techniques, Tippy Tap constructions, and distribution of WHO recommended personal protective equipment (PPE).

213. Climate factors also played a pivotal role in the implementation of the project, affecting scheduling and access to intervention villages, particularly during farming seasons and rainy periods. The impact of climate change and unanticipated natural disasters, exemplified by cyclone Freddy, disrupted planned activities, and underscored the need for enhanced preparedness and resilience-building measures. Partners and WFP project staff mentioned that some activities had to be postponed despite the prior mobilization of communities and local authorities, due to challenges posed by climate factors. An example of this were the heavy rains that made it logistically impossible to hold the community-based participatory programming (CBPP). Other external factors related to climate change, such as dry land aquaculture and water storage limitations, may have also contributed to the project's inability to achieve expected results.

214. Infrastructure and accessibility challenges arose in areas with poor transportation infrastructure, hindering the implementation of FFA activities.

215. Improved coordination and communication among project partners and activists emerged as a crucial factor in ensuring seamless project implementation, incentivize field workers, and provide necessary support. While challenges in selection criteria in intervention villages and coordination were noted at the onset, recommendations were made, and improvements were observed in subsequent visits. The absence of a coordination mechanism at the project's outset hindered monitoring and dialogue among partners and did not allow for better monitoring of all activities, whether from SBC, FFA and PHL. This highlights the need for early establishment of coordination structures, as one respondent stated:

> *"I think [that what] you have to do better, is to have a mechanism at the very beginning of the project. So, that's the first thing, to define the coordination structures, at which levels we are going to coordinate… but at some point, we didn't, we managed to bring the official government to the district as often as we expected"* ***KI005MAL***

216. Project logistics related to financial decision-making decentralization, and coordination complexities among partners as well as the coordination of nutrition and agriculture within WFP posed additional internal challenges. These factors led to a cumbersome machinery and highlighted the importance of addressing logistical and partnership-related issues to streamline implementation.

217. The innovative "technology transfer" approach was found to overlook critical elements, including agricultural production, marketing, and disposal. The challenges in grasping the GTNS concept of

[142] GTNS progress report Q4, 2021.
[143] Q1, 2020.

technology transfer and multisectoral collaboration were evident at the project's outset, as highlighted in the following quote:

"Understanding the concept. That was the main challenge, understanding the concept of integration…Local government was only there on paper, when you went to check, it was not there. And it was left for the PMA…it was at the end of the day to give the aggregated accounts to the government, then all those people created conflicts…delay in implementation" ***KI011MAL***

218. For instance, post-harvest, there was a need to sell the produce and manage surplus, but the GTNS had not accounted for repairing access roads or organizing producers into associations to address arising issues. By selling some of their surplus produce, including the income from the sale of wood-saving cookers, some women were able to buy assets such as ploughs to save time spent farming. In addition, some partners did not understand the concept of the project better, thinking that all the interventions should be dynamized by the WFP, which led to a certain passive attitude towards the missing assets as well as some conflicts resulting from a misconception about the project.

219. Partners and WFP project staff emphasized that the concept of integration was novel for all involved parties. While each partner and WFP staff were proficient in implementing their respective components, a period of adjustment was necessary for all stakeholders to synchronize activities in a cohesive manner. This transition was facilitated through partner quarterly coordination meetings, and in some instances, monthly meetings. At the provincial level, WFP took the lead in organizing quarterly meetings for comprehensive planning, review, and problem-solving throughout the project's course. Additionally, WFP provided support for integrated events that displayed project components from each partner collaboratively.

220. The impact pathway for stunting reduction in the GTNS appears to overlook the basic causes of malnutrition. This failing likely contributed to the outcome observed during the evaluation, where stunting rates remained statistically insignificant. This issue warrants immediate attention and should be incorporated into the program design process by WFP.

221. Gender inclusiveness presented both opportunities and challenges. While the project included an element of challenging traditional gender roles, not all assets were formulated to be inclusive of both women and men. For instance, in cooking activities, men were not primarily targeted as beneficiaries, leading to limited involvement from their side. Additionally, as the project aimed to engage both genders across various assets, the pace of behaviour change was gradual. This situation led to women feeling overwhelmed due to the gradual acceptance by men and the way activities were organized and executed in collaboration with different partners. One respondent noted:

" There was a risk that the project was overburdening women, rather than empowering them. Because they were the ones who had to participate in the activities, as they say, there are several. So, this ended up giving us a wake-up call already in the middle of the implementation, when we noticed that participation was being almost exclusively women. We had several cases in several activities… with a majority participation of women" ***KI007MAL***

222. The external factors that contributed to the achievement of the intervention objectives include the existence of funding and political will on the part of both donors and the government to implement development initiatives. Moreover, although at the beginning of the implementation of the GTNS there was a weak participation of the leaderships created by the bad understandings between one of the partners responsible for the definition and selection of the beneficiaries, when the bottlenecks were clarified, there was a strong adhesion, participation and sense of ownership of the project by the majority of the local community leaders as well as the government structures at the level of the province, district and administrative post, which constitutes another internal fact.

223. Implementers felt that there were missed opportunities to coordinate activities in particular the gender components. In addition, they felt that inadequate time lacked to do follow up interventions. Respondents also felt that they required more time to reach target populations such as adolescents. They noted that restrictions were imposed by parents for them to participate in activities and longer time was required to work with parents so that they understood why their participation was important. Adolescents were also unavailable during holidays when cultural customs such as initiation were performed, and more time was required to understand and shift these embedded practices. In

addition, more emphasis was required to engage community leaders. Partners believed leaders have influence and mobilizing power in the community, so engaging them in promoting participation and gender equality in community dialogues can have a significant impact.

224. Another respondent commented that some activities targeted specific groups such as parents and this may have limited the breadth and diversity of the voices present in the dialogues, since other parts of the community may not have been directly involved or represented. More attention in was required for coordinating activities for maximum input and particularly ensuring that the components reached more vulnerable community members.

2.5. WAS THE DURATION OF ACTIVITY IMPLEMENTATION CONDUCIVE TO GENERATING GTNS EXPECTED IMPACTS ON KEY TARGET GROUPS?

Box 13: Finding 9

Overall, the project had positive impacts and introduced beneficial new activities, but there is need for better coordination and longer timeframes to foster significant changes in decision-making dynamics and preventing marriages and polygamy.

225. SBC activities, though mostly implemented during the project, lacked coordinated execution due to decentralization issues, insufficient coordination, and leadership gaps among involved institutions with varied implementation cycles. Challenges in retaining human resources, particularly in community radio partners, affected the accompaniment of Pathfinder sessions, hindering life story collection for CBS activities. Participants expressed general awareness of the gender transformative approach in the SBC domain but lacked specific details about its defining characteristics. This limitation resulted in varied activity paces, lead to participant complaints about the excessive project activities and a disconnection in required SBC activities, as they were implemented by different partners.

226. Collaboration challenges arose between Pathfinder and local radio in Chemba, particularly in coordinating activities. The gender dialogues necessitated on-site radio presence for life story collection, crucial for programs like the radio telenovela Ouro Negro. However, the radio faced difficulties having staff in target communities promptly, impacting the articulated and interconnected delivery of services. Additionally, limited access to solar power and batteries affected the overall implementation of activities.

227. Unforeseen activities were introduced during the project, indicating a lack of in-depth analysis of beneficiary needs at the intervention's outset. These activities, like duck rearing and animal traction, were prompted by community demand. Certain planned initiatives to enhance dietary diversity, such as cultivating sweet potato stems, were overlooked, leading to wasted production. Respondents observed that assets, both included (e.g., duck farming and animal traction) and omitted (e.g., related to sweet potato), could contribute to diversifying food consumption and addressing the impacts of climate change.

228. While stakeholders and beneficiaries gave the project high ratings for its positive impact, concerns were raised about the insufficient timeframe for implementing activities to achieve the expected significant impacts of the GTNS. All stakeholders recognized WFP's support in building community assets and providing training on the project's three components. However, the designated four-year period to address malnutrition prevalence was deemed too short to effectively reduce chronic malnutrition. To tackle stunting, a more focused, coordinated, and comprehensive multisectoral approach, addressing basic, underlying, and immediate causes of malnutrition over an extended period, is needed.

229. For SBC activities, changing mindsets about gender roles, habits regarding hygiene and sanitation, particularly open defecation, and polygamy were also recognized as challenges. A lack of targeted approaches to adolescents was observed, which was reflected in the resistance they showed to shifting gender roles, the timeframe remains inadequate to observe substantial shifts in targeted behaviours. These include decision-making, women's agency, the ability to resist early unions, prevention of polygamy, limiting the number of children, and men's full utilization of SRH services.

230. Regarding the adoption of healthy eating habits, the critical factor was not perceived as time but rather the challenge for intervention families to transition from the basic food basket. This poses a medium to long-term challenge, especially considering the influence of climate change on food production and the necessity to cultivate suitable alternative nutritious food.

2.6. TO WHAT EXTENT DID GTNS INTERVENTIONS ADHERE TO WFP QUALITY STANDARDS?

231. Some partners fell short of the quality standards expected by WFP, particularly in the initial stages of activity implementation, with issues related to timeliness and compliance with monitoring visits. Primarily, irregularities were noted in the submission of financial reports, causing delays in fund disbursement and subsequently impeding the progress of specific activities. Qualitative interviews revealed that none of the partners explicitly addressed WFP's SBC approach or gender-transformative methods, instead referencing GTNS more broadly.

232. The FGDs lacked explicit mention of WFP's technical quality standards. Respondents discussed supervision and monitoring processes but did not reference WFP's guidance on GTNS. The ET did not receive guidance on WFP's quality standards or gender-transformative approaches before the evaluation, missing opportunities to establish indicators for gender transformation and monitor approach appropriateness. This oversight, related to the focus on technology training, could have been corrected at midline.

2.7. GIVEN THE CONTEXT AND EMERGING CONDITIONS, TO WHAT EXTENT WERE THERE OPPORTUNITIES TO INTERVENE AND IMPLEMENT GTNS CORE INTERVENTIONS IN ALTERNATIVE WAYS THAT WOULD HAVE LIKELY LED TO SIMILAR RESULTS BUT AT LESS COST?

Box 14: Finding 10

There are significant opportunities for enhancing the efficiency and effectiveness of the project implementation, specifically in terms of resource allocation, collaboration, and sustainability strategies.

233. There were missed opportunities for cost-effective intervention in the GTNS activities. Participants shared the perception that the project could have collaborated with national and local partners at a lower cost compared to international organizations and their sub-contracted partners. While some stakeholders, including WFP staff and ADA, expressed concerns about subcontracting local implementers, others did not object to involving international organizations. The decentralization of leadership hindered coordination by WFP, weakening the overall coordination of GTNS components, especially in agriculture and nutrition. Additionally, the decentralization of funds further complicated the management of substantial funds for an intervention benefiting only about 1,500 households.

234. Although the concentration of activities in a geographical area was considered an approach that may have led to results with low investment costs, the limitations in covering expenses with activists (example, in terms of subsidy and equipment that can give visibility to the work they do), raises some questions about the extent to which resources are used effectively or not.

"Despite the complexity of the project, I think what makes the project simpler to understand is the aspect of being very centralized, in geographical terms....because it saves resources, because resources are not moved to different locations, you work with a certain number of partners....So I think that this model, in terms of scaling it up is a project that can be replicated...In relation to whether or not the resources were sufficient, I would say that, given what, for example, the challenges that I just mentioned about the issue of activists, the training of the activists themselves, is a very important aspect to consider. So, I wouldn't be able to answer to what extent the resources were used to develop the activities" ***KI026MAL***

235. Providing a basic food basket to address chronic malnutrition in Chemba, while necessary in the short term, incurred excessive costs according to donor and WFP respondents. An alternative approach incorporating non-dependent assets, such as introducing ducks and aligning sweet potato provision

with the production cycle, would promote sustainability, reduce dependency, and optimize resources for broader impact in other areas or additional impactful assets within the project.

236. Further focus on sustainability would also improve the distribution strategy of nutrition-sensitive assets to social assistance beneficiaries. For those not covered by these programs, introducing livelihood initiatives to strengthen food systems and enhance community resilience becomes crucial. This strategic adjustment could have a significant impact on long-term goals and program sustainability.

237. While some stakeholders acknowledge efficient use of financial and technological resources in achieving GTNS goals, the majority argue for more efficient resource utilization, given the substantial budget of over 3 million Euros allocated to around 1500 families. Concerns highlight a significant portion directed to international organizations, substantial investment in basic food, and limited direct beneficiary support in one geographical area. Project operational costs were deemed high, reflecting a perception of ambitious incorporation of multiple aspects.

238. Stakeholders, including the donor, WFP staff, and CEFA, suggested redirecting funds to essential infrastructure like dam rehabilitation for improved water access, benefiting agriculture and nutrition. Additionally, a lack of resources for catalysing nutrition interventions was reported, such as low-cost initiatives like behaviour changes around low-cost activities such as planting fruit trees.

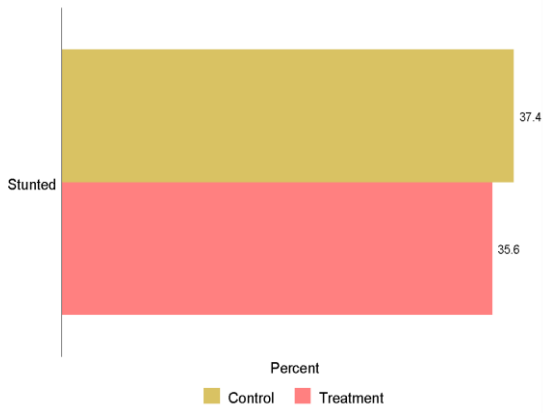
2.8. TO WHAT EXTENT DID GTNS ACHIEVE ITS HIGHER-LEVEL OUTCOME AND IMPACT TARGETS, E.G. IMPROVE HOUSEHOLD FOOD SECURITY AND DIETARY DIVERSITY, EMPOWER WOMEN, AND IMPROVE THE NUTRITIONAL STATUS OF UNDER-FIVE CHILDREN?

Box 15: Finding 11

GTNS has made significant efforts and achieved some progress in improving child nutrition outcomes but has encountered persistent challenges in reducing stunting and wasting levels among children under five years old due to entrenched societal, economic, and environmental factors.

239. GTNS has made significant strides in improving women and household nutrition, but challenges persist in addressing stunting and wasting among under-five children. Stunting, characterized by insufficient growth and development, remains a complex challenge influenced by factors resistant to rapid change. Endline results reveal a statistically insignificant difference (p=0.629) in stunting levels between intervention (35.6 percent) and control (37.4 percent) groups (Figure 22). While slightly below the national rate of 37.5 percent, these figures exceed the African region's average of 30.7 percent.[144] Although seemingly marginal, these changes emphasize the formidable task of altering ingrained socioenvironmental factors contributing to stunting.

Figure 22: Stunting comparison between control and intervention groups at endline



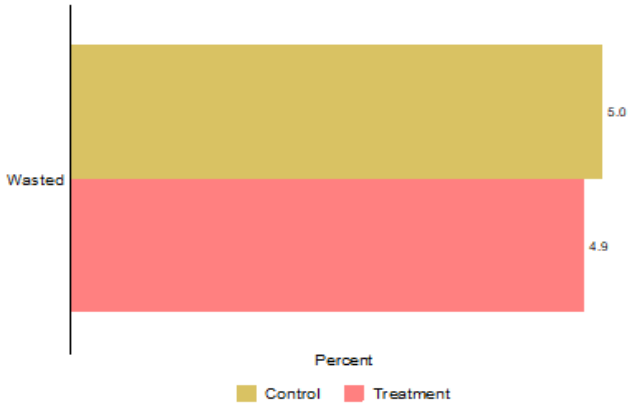
Source: Evaluation team.

[144] Global Nutrition Report. 2022. Country Nutrition Profiles: Mozambique.

240. Addressing wasting, the acute manifestation of malnutrition, necessitates a multifaceted approach beyond the project's scope. Endline data shows minimal differences in wasting levels between intervention and control groups, emphasizing external factors shared influence (Figure 23). Although both groups still exhibit higher wasting rates than the country average of 3.9 percent, the wasting rates in the intervention areas are still lower than the African region's average of 6 percent.[145] Average wasting among the GTNS sampled villages in Chemba is 6 percent for boys and 5 percent for girls in intervention villages and 9 percent for boys and 8 percent for girls in control villages. Wasting's vulnerability to a range of environmental, economic, and health-related influences displays the challenges in isolating the project's direct contribution to impact. While the changes may not be as pronounced as desired, they affirm the project's role in contributing to combat wasting within these communities by influencing nutrition aspects. Challenges in isolating the project's direct contribution to impact underscore wasting's vulnerability to environmental, economic, and health-related influences. Despite less pronounced changes, the project contributes to combating wasting within these communities by influencing nutritional aspects.

241. Influencing stunting and wasting faces challenges due to resistant societal norms, cultural practices, and traditional beliefs related to child feeding and care. Barriers such as limited access to diverse and nutritious foods, lack of market linkage, and distance to healthcare services persist despite GTNS's efforts. The complex interplay of these factors underscores the difficulty of achieving transformative change in child nutrition.

Figure 23: Wasting comparison between control and intervention groups at endline



Source: Evaluation team.

242. While the endline comparison between intervention and control groups may not demonstrate statistically significant changes in stunting and wasting levels, it highlights the intricate and multifaceted nature of these indicators. GTNS has effectively addressed the complex landscape influencing child nutrition outcomes, reflecting broader societal, economic, and environmental complexities associated with stunting and wasting. The interventions, though not yielding immediate drastic changes, establish a foundation for sustained progress, emphasizing the importance of comprehensive and multi-pronged approaches to tackle these critical challenges.

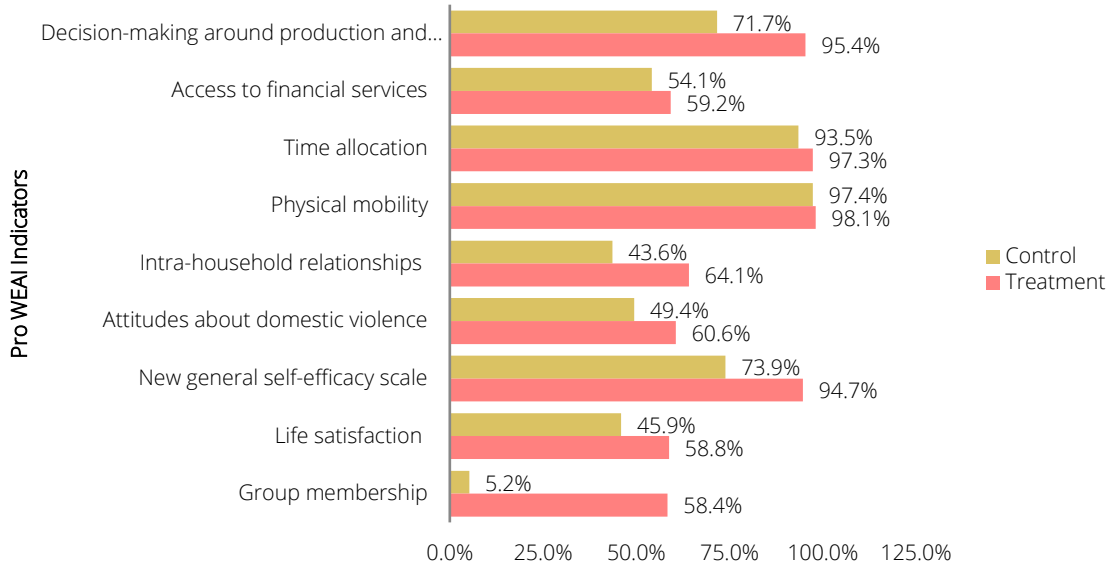
Box 16: Finding 12

The interventions of a project significantly improved women's economic empowerment in agriculture across all measured indicators but had a lesser impact on women's access to financial services and did not significantly alter women's roles in terms of time allocation and physical mobility, indicating that women's daily activities and movements did not experience significant shifts.

[145] Ibid.

243. The data in Figure 24 reveals noteworthy improvements in the Women's Economic Empowerment in Agriculture Index across all indicators. Notable distinctions between control and intervention groups include a substantial increase in group membership, rising from 5.2 percent in the control to 58.4 percent in the intervention group. Quantitative findings align with qualitative observations, indicating enhanced communication between men and women in households. Specifically, 95.4 percent of women in the intervention group assumed increased roles in household decision-making, production, and income, surpassing the control group at 71.7 percent. Additionally, intrahousehold relationships saw improvement, with 64.1 percent in the intervention group compared to 43.6 percent in the control group. The results also highlight a positive shift in social norms, with an 11.2 percent increase in unacceptability towards domestic violence in the intervention group.

Figure 24: Women Empowerment in Agriculture Index for control and intervention sites



Source: Evaluation team.

244. Despite less coordination observed in the qualitative findings regarding gender transformative approaches, the interventions effectively shifted social norms and harmful attitudes towards gender inequality and violence. Minimal differences between control and intervention groups were noted in access to financial services, with a 5.1 percent increase in the intervention group. Similarly, time allocation and physical mobility indicated no significant changes in women's roles. On the positive side, self-efficacy, measuring the belief in the ability to successfully complete tasks or achieve goals, significantly improved in the intervention group, with over 20 percent expressing increased confidence in their capabilities.

2.9. DID GTNS GENERATE ANY UNPLANNED OR UNINTENDED SOCIAL, ENVIRONMENTAL, OR ECONOMIC IMPACTS, WHETHER POSITIVE OR NEGATIVE, AND, IF SO, HOW SIGNIFICANT WERE THESE?

Box 17: Key findings on impact

- Government authorities at provincial, district, and community levels actively participated in the project after their interests and expectations were incorporated. The establishment of a committee and regular meetings facilitated ownership of the project.
- The project's use of various approaches involving government authorities, community activists, and radio interventions not only raised awareness but also promoted teamwork and community asset appreciation.
- The project did not significantly impact people with disabilities and adolescents, as they were treated as a homogeneous group within households, leading to a lack of ownership.

- While the project raised awareness of gender roles and responsibilities, it inadvertently placed a burden on women beneficiaries, as they were more engaged in implementing community assets than men and other social groups.
- The project could have reduced operating costs by hiring local companies, allowing for more investment in irrigation, which was identified as a potential area for improvement.
- While the project raised awareness on gender issues, it did not significantly change gender relations, particularly in terms of control over community resources and opportunities for women, regardless of their maternal status.
- The project used numerous indicators, which, while relevant, may have prevented in-depth assessment of all project components.

2.9.1. Unanticipated positive results

245. **Changing attitudes and behaviours**: GTNS demonstrated noticeable changes in attitudes and behaviours among intervention group members, particularly regarding gender roles, SRH services, nutrition, and hygiene practices, surpassing the project's awareness-raising objectives.

246. **Government engagement and project ownership**: Successful engagement with government authorities at various levels, incorporating their expectations, establishing committees, and holding regular meetings, enhanced project coordination and ownership, ensuring shared experiences.

247. **Multiplier effects of GTNS investment**: Despite targeting 1,500 beneficiaries, the substantial 3 million euros investment in GNTS led to multiplier effects, influencing neighbouring populations and border towns in adopting practices like hermetic bag use, improved eating habits, and awareness of hygiene, sanitation, and SRH services.

248. **Holistic approaches, community strengthening and gender equity:** The combined use of diverse approaches involving government authorities, community activists, and radio interventions not only raised awareness and changed mentalities but also fostered teamwork and appreciation for community assets, with active participation from both men and women, promoting gender equity.

2.9.2. Unanticipated negative results

249. **Solar dryer community assessment**: Inadequate community needs analysis hindered effective implementation of solar dryers in targeted areas, leading to underutilization of this asset.

250. **Neglecting needs of specific groups**: People with disabilities and adolescents experienced minimal project impact due to their homogenous treatment within households, lacing tailored interventions for these two groups, and contributing to low project ownership.

251. **Gender transformative approach impact**: Despite fostering awareness of the shared responsibilities within households, GTNS indirectly placed a burden on women beneficiaries, who were more engaged in implementing all community assets compared to men, adolescents, and people with disabilities.

252. **Coordination complexity**: WFP overlooked the potential coordination challenges arising from decentralized leadership and management by the various stakeholders, impacting collaboration among partners and sectors, including nutrition and agriculture, potentially hindering GNTS objectives.

253. **Cost efficiency and investment**: Overlooking the option to hire local companies limited operational cost efficiency, hindering increased investments in the irrigation component, a critical concern throughout the project, which in turn negatively impacted agriculture and nutrition.

254. **Holistic interventions needed:** The GTNS project focused on technology transfer and awareness, overlooking the necessity for holistic interventions addressing climate change, production cycle aspects, infrastructure, and product disposal.

255. **Gender transformative approach**: The GTNS project primarily focused on awareness-raising, responsibility-sharing, and resource access activities, overlooking the need for efforts to transform gender relations holistically, as reflected in the weak interventions regarding community resource control and women's opportunities, regardless of maternal status.

256. **Excess of indicators**: While the project included a substantial number of relevant indicators, their excess hindered a comprehensive assessment of project components, including FFA, PHL, and SBC.

257. **Lack of simultaneous implementation**: The project design envisioned joint partner activities, but the lack of simultaneous and articulated implementation, impeded achieving substantial project objectives.

2.10. TO WHAT EXTENT DID THE IMPLEMENTATION INCLUDE SUSTAINABILITY ASPECTS AS OUTLINED IN THE PROJECT DESIGN?

258. The ability of GTNS to enhance sustainability relies on its capacity to achieve a balance between financial, social, institutional, and environmental aspects. In a broader sense, sustainability has been incorporated into all project components, but application has been uneven. Financial sustainability has not been actively pursued under all the components.

Box 18: Finding 13

> The project laid solid sustainability groundwork through extensive capacity building in the community, fostering a strong awareness of the importance of gender transformative approached to addressing malnutrition. Challenges remain in resistance to change among specific demographic groups (like adolescents) and more time required to effect irreversible change in social and gender norms.

2.10.1. Financial Sustainability

259. The CO has promoted integration of the GTNS across several WFP Mozambique units including Nutrition and HIV, Resilience and Climate, Cash Based Transfer and Supply Chain (retail), Smallholder Farmer Support, and Gender.[146] While the primary goal was maximizing the impact on food security and nutrition, and build resilience, achieving financial sustainability was not the primary focus. Although the presence of a budget line for GTNS across all the mentioned units remains unclear as of the time of this evaluation, this integration had the potential of enhancing programme efficiency and effectiveness by optimizing costs across units in terms of personnel, training, and infrastructure; streamlining resource allocation and enhancing funding attraction. Despite these integration efforts, challenges persist in sustaining various project components. Establishing sustainable financing mechanisms remains a challenge, as consistent funding is crucial for maintaining PHL technologies. Stable and adequate financial resources are essential for expanding interventions, extending their reach to vulnerable populations, and ensuring the program's overall success.

260. In addition to farming activities, non-farming initiatives, such as the production of firewood-saving cookers, have been implemented to create an income for women in Chemba. Engaging in income-generating activities has empowered communities, catalysing the dynamization of other assets and contributing to the economic sustainability of families for both men and women.

261. Redirecting funds towards essential infrastructure, like rehabilitating or constructing dams, to secure water access during dry periods was suggested by participants as a potentially better allocation of funds. This intervention could yield greater agricultural impact, subsequently influencing nutrition outcomes, sustaining dietary diversity, and ensuring long-term success

2.10.2. Social Sustainability/Ownership

262. Across all three components, the project strongly emphasized community and individual empowerment for self-development (social sustainability). This is exemplified by the transfer of technology to communities through family assets and PHL technologies. Training extension officers in PHL has proven effective in promoting sustainability and local ownership among intervention households.

263. The community radio component facilitated information transfer on technologies, domestic violence, early marriages, and health issues like malaria and HIV/AIDS. The assumption of responsibility for information and knowledge dissemination, financing activities for radio recordings to reach all communities, and sharing experiences in the voice of beneficiaries demonstrate a commitment to

[146] WFP Mozambique Nutrition Unit. 2021.

sustainability. The community radio has taken responsibility for continuing its efforts to maintain Social and Behaviour Change (SBC) activities in the medium and long term with the support of WFP, which was reiterated after a meeting between WFP and the community radio, where WFP committed to funding basic activities to sustain SBC activities carried out by the radio for a certain time-period.

264. Participation in gender clubs, demonstrations of hermetic bag, solar dryers, food processing and cooking, and capacity-building sessions significantly contributed to developing skills for managing community assets and instilling a new mindset on gender roles. This was particularly strong for men and women compared to adolescents, fostering creativity and informed decision-making on various needs, including family planning and SRH services. Female participants for example, reported utilizing information on solar dryers, and FGDs revealed that many women chose to use family planning and SRH services based on their participation in gender clubs, indicating better-informed decision-making among participants. Qualitative data also indicated that men and women have gained agency through income-generating activities, acting as a catalyst for the activation of other community assets and contributing to the economic sustainability of families.

2.10.3. Environmental sustainability

265. Most stakeholders perceive that basic conditions for project sustainability are ingrained in the community due to extensive capacity building for GTNS beneficiaries. There's a strong awareness of the importance of transferred assets and everyone's responsibility in the implementation. This awareness extends beyond direct beneficiaries, influencing indirect ones who see advantages in continuing GTNS activities amid challenges of poverty, climate change, and limited resource access.

> *"PMA helped us with a lot of things, in the hygiene part we didn't know how to do hygiene. We already do good cleaning in the house; we wash the dishes and we have already built cupboards for drying the dishes. Our husbands are also helping with the cleaning of the house and other work, as well as other work in the field. All this we have learnt from WFP" FGD Women, Mulima Headquarters,* ***FGD034FEM1***

266. The project's sustainable agriculture focus, reducing PHL with technologies like hermetic bags and solar dryers, yielded positive results. However, challenges adapting to changing weather patterns and accessing water affected production consistency. Concerns about implementing improved latrines raised issues of sanitation practices and potential negative environmental impacts, posing a threat to project sustainability.

2.10.4. Institutional sustainability

267. Efforts to enhance institutional sustainability in the project have been notable.[147] Despite initial bottlenecks where some local leaders faced challenges in assuming their responsibilities and roles, the project demonstrated strong ownership, both from leaders (government structures and civil society implementing partners) and beneficiaries. The elevated level of engagement and participation is acknowledged, accompanied by evidence of a transformation of mentalities.

268. The positive inclusiveness and participatory approach of the project, involving all actors, including government structures, were acknowledged by most stakeholders. This inclusive approach played a pivotal role in fostering ownership among government structures and policy makers, with the project being embraced as their own without constant reference to WFP.

269. Sustainability, however, exhibits variations not only among types of participants but also across implemented activities. Adolescents emerged as the most resistant group to changing habits and customs when compared to adults. Within the adult group, women displayed greater openness and receptivity to change, especially in cooking and decision-making activities. However, these two components showed limited evidence of change. Pathfinder and CEFA provide qualitative evidence on how the GTNS impacted sub-groups of targeted beneficiaries.:

> *"It's had a different impact because those people who were at a lower level... they've moved on to at least acquiring some things because they didn't realize that producing vegetables brought income and a very strong nutritional issue, and with the implementation of duck promotion they already have a duck, they already own a duck and sell the duck. Some people had very small areas and in terms of production technology there was*

[147] In the context of WFP, institutional sustainability encompasses effective management, strong partnerships, stakeholder engagement, and ensuring the consistent delivery of services over time.

very little, now with a small field, with ducks, yields have gone up. Some people have changed their life cycle, not in the same way as those who are already better off, a little richer within the community, but it was different, at least they've moved from one phase of their life cycle to another…at least they already have the pathways to orientate themselves, they already have the pathways to orientate themselves" ***KI015MAL***

But we were no longer in time to build a very targeted intervention for adolescents and young people…. Parents were involved…somehow, it may be that the knowledge is a little diluted. Because I'm always going to have my filters in relation to what I'm going to say, what I'm not going to say or what goes against what my knowledge is in relation to that topic ***KI018FEM***

270. One major challenge encountered in the project revolves around influencers and role models, including community leaders and activists engaged in polygamous practices and the promotion of early unions. Some of them exhibit resistance to change. Comparing SBC activities to FFA and PHL, SBC activities prove to be the most intricate due to the prolonged time required for a fundamental shift in social and gender norms. In contrast, FFA and, to some extent, the PHL components rely on external factors, facing challenges beyond control, often related to climate change.

271. SBC stakeholders express the need for continuous monitoring of these activists, who encounter difficulties in comprehending the content they are expected to disseminate, limiting the impact of the information conveyed to households. Pathfinder plays a pivotal role in ensuring the quality and delivery of content at the household level, highlighting a potential sustainability issue as it heavily relies on Pathfinder's continued involvement. The persistence of detrimental practices like early marriages and polygamy within the context of extreme poverty, limited opportunities, and inadequate infrastructure may pose a significant barrier to the sustainability of GTNS. Furthermore, the reality is that some leaders and activists, who should be catalysts for behavioural change, are themselves involved in polygamous and early marriage practices.

"When we started to talk about this issue to decrease to one woman, it was a big challenge because first it was the community leader himself who had so many women. To decentralize these women or to refuse these women, it's not, for him to speak the same language according to our theme, it was a big challenge and in early marriage, it was exactly the community leaders themselves who were taking exactly 14-year-old girls to serve him as wife, it was a big challenge too." ***KI023MAL***

2.11. WHAT ARE KEY ISSUES THAT ARE LIKELY TO AFFECT THE SUSTAINABILITY OF GTNS KEY OUTCOMES AND IMPACTS AND WAS SUFFICIENT ACTION TAKEN TO ADDRESS THESE? WHAT GAPS SHOULD BE ADDRESSED IF ANY?

272. The lack of adaptability in methods and approaches adopted to integrate adolescents and young people into gender clubs potentially resulted in their low participation. One significant factor influencing the sustainability of results and impacts was the observed resistance to participate. However, concurrently, there was a positive aspect - the acceptance of equal roles between men and women. This dual dynamic of resistance and acceptance among adolescents and young people highlights a critical element that may impact the long-term sustainability of the project's outcomes. The interventions, initially more targeted towards adults, failed to effectively engage adolescents. To enhance participation among this demographic, it's imperative to consider different timings for interventions and adapt materials to better resonate with their needs and preferences.

273. The assumption that training community activists would increase acceptance of messages by the intervention groups faced challenges due to low literacy among activists and entrenched cultural practices hindering sustainability.

274. For the sustainability of the project, it was crucial to have health personnel trained in both gender and nutrition components for the achievement of indicators on utilization of health services, spacing and limiting the number of children, and meeting family planning needs. However, constant changes in health personnel and the need for ongoing training, which could explain the minimal differences between intervention and control sites in accessing services.

275. The GTNS interventions also addressed capacity building for health staff and monitoring of activists. However, specific approaches for adolescents, an integrated strategy to mitigate early unions, and addressing initiation rites proved challenging.

276. GTNS timely enhanced health staff capacity, monitored activists, and replaced those in early unions or polygamy. Crafting an approach for adolescents and implementing an integrated strategy to mitigate early unions faced challenges. Addressing early unions requires a holistic approach, including the SBC component, and provision of essential social services (education, health, justice, police). Offering resources like scholarships and vocational courses is vital for young people facing extreme poverty, providing alternative paths to fulfil aspirations.

277. Some stakeholders (WFP, ADA, Pathfinder, CEFA, government partners) acknowledge gaps in (i) coordination; (ii) reaching adolescents through intervention; (iii) addressing deeply ingrained harmful practices like initiation rites, and (iv) providing assets to respond to climate change.

278. Decentralization in project leadership led to multiple semi-autonomous entities operating independently, hindering efficient coordination, especially within agriculture and nutrition. Decision-making dispersed among various stakeholders, including implementing partners, compromised efforts to harmonize and synchronize project activities.

279. Decentralized leadership also extended to funds, granting each implementing partner autonomy in managing allocated resources. While not exhaustively examined, this decentralized fund allocation influenced the pace of activities. Divergent speeds among partners, impacting the progress alignment, posed challenges in maintaining project coherence for the benefit of 1500 households. The decentralization approach's outcome impacted coordination in project components and resource management, hindering resource optimization. Ensuring synchronization and complementarity of all project activities became challenging.

280. The persistence of harmful practices and cultural influences among adolescents and young people contributes to resistance in shifting gender roles and a perception that violence is justified in certain situations. Unlike adults, adolescents throughout this intervention exhibited resistance to changing gender roles, with a prevailing perception that men should have the final decision-making authority.

281. The project lacked tailored activities for female teenagers in a context marked by early unions and prevalent initiation rites across all regions of the country. Gender clubs were predominantly attended by adults, highlighting their perceived lack of inclusivity for adolescents. Furthermore, the project failed to provide resources to counter early unions, such as scholarships, short-term vocational courses, and gender club activities in schools.

282. Access to water for irrigation was identified as a persistent gap throughout the project, as acknowledged by most participants. Despite being recognized as a fundamental need to address the effects of disaster risks, the absence of budget allocation prevented the adjustment of this need during the GTNS implementation.

283. The sustainability of the results and impact observed in the future is contingent upon specific conditions created on the ground to facilitate replication and adaptation. This entails assessing the needs of the target group and the conditions under which the activities of the agriculture and nutrition component are established, ensuring participants have opportunities that they can leverage and utilize.

284. This evaluation underscores that there is no necessity to introduce a different approach but rather to glean insights from the lessons of the current implemented approach and enhance integration and consolidation. Some stakeholders advocate for improved integration and complementarity among actions, implementing key activities concurrently, incorporating gender transformative elements, and streamlining indicators for more effective monitoring and response to unforeseen challenges.

2.12. CONSIDERING OTHER POSSIBLE INTERVENTION MODELS, WOULD IT BE COST-EFFECTIVE TO SCALE OUT GTNS INTEGRATED INTERVENTION MODEL IN OTHER NEIGHBOURING COMMUNITIES AND OTHER CONTEXTS OR WOULD IT BE BETTER TO FOCUS ONLY ON SPECIFIC COMPONENTS?

285. Stakeholders generally agree that scaling up the project does not necessarily demand a novel approach but rather a reduction in indicators. The extensive and disaggregated indicators, while relevant, hindered effective monitoring and evaluation (M&E) due to their impracticality within the project's timeframe.

286. The implementation of GTNS interventions underscores the importance of understanding the geographical characteristics, farmers' routines, and gender-related activities in daily life at the implementation site. The challenges, such as community dispersion and poor road quality leading to lengthy travel times, impacted the technicians' ability to convey messages effectively, potentially compromising service quality.

287. While stakeholders unanimously support the scalability of GTNS interventions, certain considerations must be addressed. Firstly, reflecting on operational costs, technical skills, and investments is essential, especially given the variation in project funds and the potential to reach a broader target group. Secondly, a review of partner interventions is necessary to avoid an overload of activities for the target group. Lastly, ensuring access to resources and maintaining roads is crucial for sustained scalability.

3. Conclusions & Lessons Learned

3.1. CONCLUSIONS

3.1.1. Achievement of GTNS targets for target populations

288. **Conclusion 1:** GTNS has been successful in improving dietary quality and micronutrient adequacy in the intervention villages, leading to enhanced FCS, dietary diversity, and nutrient intake. While the introduction of hermetic bags, solar dryers, and PHL training has been well-received and recognized for their potential to enhance food preservation techniques and promote women's economic empowerment, concerns remain about the adaptability of solar dryer technology to adverse weather conditions and the sustainability of hermetic bag supply. Additionally, these technologies have not significantly reduced PHL as expected, there is limited marketable surplus and the complexity of integrated programming and varying partner capacities undermined collaboration efforts.

289. At the structural level, the project implemented various interventions such as training on nutrition and hygiene, and the distribution of assets like solar dryers and hermetic bags. These efforts aimed to create an enabling environment for sustainable change in nutrition practices. The project's focus on building community capacity to preserve and utilize agricultural products throughout the year addressed food insecurity while empowering the communities to become more self-reliant. Additionally, the involvement of government officials and local leaders demonstrated their commitment and ownership of the project, further reinforcing the structural aspects of change.

290. **Conclusion 2:** While the intervention group perceived an improvement in SRH services, actual data reveals only moderate enhancements. Potential pre-existing or concurrent health initiatives may contribute to minor disparities between the intervention and control groups. This underscores the necessity for a comprehensive health and SRH approach. Gender inequality persists, with concerning acceptance levels of violence among women in both groups. Surprisingly, the intervention group showed a higher acceptance rate, indicating that transformative change in gender dynamics is gradual and not significantly impacted within the project's timeframe.

291. **Conclusion 3:** The intervention group exhibits notable improvements in consuming nutritious foods compared to the control group. However, challenges in integrating gender transformative approaches arose due to funding disbursements and coordination gaps in project implementation. Young people's engagement in GTNS was suboptimal, affecting nutrition awareness among the 18-49 age group. Despite these challenges, the project effectively addressed gender roles, power dynamics, and cultural norms hindering women's empowerment and nutrition practices.

292. **Conclusion 4:** The project made strides in challenging negative gender roles through community dialogues and awareness initiatives. It addressed cognitive and behavioural aspects of change at the contextual level, challenging traditional perceptions of household responsibilities. However, challenges persisted, especially in arid districts like Chemba, where limited marketable surplus and dependence on male income hindered women's economic agency. Partner coordination issues and varying work speeds affected the quality of outputs. Progress in changing deeply ingrained cultural practices, such as initiation rites and polygamy, was slower, emphasizing the need for sustained efforts in challenging traditional gender norms and promoting behavioural change. It's essential to note that while GTNS didn't aim to directly reduce polygamy, it sought to create awareness and foster behavioural change regarding its potential harm to women's decision-making power.

3.1.2. Exposure of GTNS primary target groups to the project's integrated intervention model

293. **Conclusion 5:** The integrated intervention model has effectively engaged and influenced its target audience, particularly in asset training and construction, with high exposure rates. Significant differences of exposure between control and intervention groups were observed for all activities. However, timing of certain interventions, such as food basket distributions and community dialogues, may have influenced the levels of participation and engagement in the dialogues, suggesting that careful consideration of timing and sequencing is essential in optimizing the impact of the project's activities.

3.1.3. Major factors influencing the achievement of objectives

294. **Conclusion 6:** Positive results were achieved due to robust funding, political will, and active participation from local community leaders and government structures. However, challenges arose from the COVID-19 pandemic, climate extremes, internal coordination issues, and the need for streamlined communication and coordination mechanisms among partners. The concept of integration required a transitional period for synchronization of activities.

3.1.4. Efficiency of GTNS project in terms of timely implementation and cost reduction strategies

295. **Conclusion 7:** The project demonstrated positive impacts and introduced beneficial activities, but there is a need for improved coordination and longer timeframes to bring about significant changes in decision-making dynamics and preventing marriages and polygamy. Additionally, there are significant opportunities for enhancing efficiency and effectiveness in resource allocation, collaboration, M&E and sustainability strategies within the project.

3.1.5. Impact of GTNS project

296. **Conclusion 8:** GTNS has made significant efforts and achieved some progress in improving child nutrition outcomes. However, it has faced persistent challenges in reducing stunting and wasting levels among children under five years old due to deeply rooted societal, economic, and environmental factors. Furthermore, while the project's interventions have substantially improved women's economic empowerment in agriculture, they had a limited impact on women's access to financial services and did not significantly alter women's roles in terms of time allocation and physical mobility, indicating that women's daily activities and movements did not experience significant shifts.

3.1.6. Sustainability prospects of GTNS project

297. **Conclusion 9:** The project has laid a strong foundation for sustainability by implementing extensive capacity-building efforts in the community and emphasizing the importance of gender-transformative approaches to combat malnutrition. Nevertheless, challenges remain, especially in addressing resistance to change among specific demographic groups, like adolescents, and achieving lasting shifts in social and gender norms will require more time and continued efforts.

3.1.7. Monitoring and evaluation challenges

298. **Conclusion 10:** The project's M&E system was hampered by the absence of a project-specific indicators reference sheet, resulting in inconsistencies, confusion, and inaccuracies during data collection and analysis. This deficiency had a direct impact on the system's ability to assess the project's impact and effectiveness accurately and reliably. Furthermore, certain indicators lacked the SMART attributes, failing to provide clear measurement methods or variables. Additionally, the system failed to adequately account for shifts in knowledge and attitudes among beneficiaries, which are pivotal components of the project's impact, particularly within the context of disasters.

3.2. LESSONS LEARNED

299. The cross-referencing of key FFA, PHL and SBC indicators in a single project allows for better tackling of the risks and threats surrounding malnutrition interventions that require a comprehensive approach.

300. Regular meetings involving various partners and stakeholders have contributed to the exchange of experiences and sharing of risks and uncertainties, as well as a better way of planning and coordinating GNTS activities.

301. Decentralized model:

- The creation of a multisectoral working group to coordinate activities at the local level of project implementation can contribute to a greater achievement of results when the group is established from the start of the project.
- The decentralization of leadership and of funds managed by each intervention partner contributed to greater ownership of the project by the players involved.

302. Adoption and integration of approaches:

- The adoption of a nutrition-sensitive approach, coupled with the integration of transformative gender interventions addressing unequal power relations, including issues like polygamy, GBV, and SRH, has proven crucial and functional. This integration is evident in the active involvement of women in activities like vegetable production and men in food preparation, aligning with messages promoting healthy eating practices and preserving the food produced.

4. Recommendations

Recommendation	Recommendation grouping	Responsibility	Other contributing entities	Priority: High/medium	By when
Recommendation 1: Prioritize targeted initiatives aimed at challenging deeply ingrained cultural norms, to further dismantle power dynamics and gender inequalities that hinder women's empowerment and nutrition practices, thereby creating a more supportive environment for sustainable change and continue addressing women's economic constraints and streamline partner coordination to enhance collaboration and the overall effectiveness of the project. ***Sub-recommendation 1.1*:** As a way to maximize the results and positive impact of the GTNS, support production of nutritious food that improve food availability and increase marketable surplus particularly for women. ***Sub-recommendation 1.2:*** Maintain on a regular and consistent basis the sensitization campaigns in the component of dissemination of diversified dietary habits, SSR, GBV, early unions including home visits and open fairs demonstrating the main activities and assets implemented by GTNS. ***Sub-recommendation 1.3:*** Employ various interventions, approaches, and strategies specifically tailored to empower adolescents, as they have unique needs and require distinct methods of engagement.	Operational	Programme management - HIV and nutrition Unit Gender and Protection Unit	Head of Programme; RAM Unit. Requires consultation with Government counterparts, other United Nations agencies, and cooperating partners	High	March 2024

Recommendation	Recommendation grouping	Responsibility	Other contributing entities	Priority: High/medium	By when
Recommendation 2: Prioritize climate change as a cross cutting issue of GTNS and ensure that it is well integrated within the WFP CO climate smart activities. ***Sub-recommendation 2.1.*** Refocus the project's climate change work around prevention, preparedness on climate extremes, such as floods, cyclones and droughts, and ensure attention to key climate change adaptation strategies across all of components of the project. ***Sub-recommendation 2.2:*** At the start of GTNS 2 conduct capacity building for beneficiaries on the required behaviours for climate change issues, preparedness response and recovery from the effects of disaster risks. ***Sub-recommendation 2.3****:* Implement comprehensive interventions aimed at addressing climate change challenges holistically within the entire production cycle, with a specific focus on involving farmer associations.	Operational	Programme management- HIV and nutrition Unit Resilience Unit	Head of Programme; Disaster Risk Reduction Team; VAM Team. Requires consultation with Government counterparts, other United Nations agencies, and implementing partners	High	March 2024

Recommendation	Recommendation grouping	Responsibility	Other contributing entities	Priority: High/medium	By when
Recommendation 3: Clearly articulate the gender and social norms change process before upscaling the GTNS project. ***Sub-recommendation 3.1:*** Train all project staff in gender transformative approaches, at least to the level that they understand approaches such as the Gender Transformative Learning System have a compelling evidence base in agriculture and nutrition programmes. ***Sub-recommendation 3.2:*** Conduct a rapid analysis across all project sites to explore social norms. Understand the barriers that may prevent the inclusion of more vulnerable populations. Additionally, identify specific locations or environments within these sites where individuals from vulnerable groups feel secure and comfortable to gather, share perspectives, and participate in discussions. ***Sub-recommendation 3.3:*** Continuously employ suitable gender and social norms tools throughout the second phase of the project implementation to identify changes or barriers to change. These refer to specific methodologies, instruments, or frameworks designed to assess, analyse, and measure the prevailing gender and social norms. Tools may include surveys, interviews, focus group discussions, or other research methods tailored to assess and monitor shifts in gender and social norms.	Operational	Programme management-HIV and nutrition Unit in consultation with Gender and Protection Unit	Head of Programme; RAM Unit. Requires consultation with Government counterparts, other United Nations agencies, and implementing partners	High	March 2024

Recommendation 4: Enhance gender-transformative indicators, bolster monitoring, and strengthen partner capacities in M&E. ***Sub-recommendation 4.1*:** Establish a project-specific Indicators Reference Sheet to ensure consistency and in data collection, minimizing the risk of confusion and inaccuracies. This will also enhance the precision of evaluating the project's impact and effectiveness. ***Sub-recommendation 4.2*.** Expand the scope of M&E. In addition to assessing behaviour change, the M&E system should also scrutinize shifts in knowledge and attitudes related to food assistance for assets and PHL. This will provide a more comprehensive understanding of the project's impact. ***Sub-recommendation 4.3*** Track knowledge changes to gain insights into the stages of behavioural change among various project aspects' beneficiaries regarding. This information can guide decisions on strategically focusing efforts to enhance both assets and knowledge. ***Sub-recommendation 4.4:*** Actively build the M&E capacities of external partners. Ensure that partners are equipped with the skills and resources to effectively contribute to the M&E processes, fostering collaboration and comprehensive approaches. ***Sub-recommendation 4.5:*** Expand the monitoring scope to include knowledge and attitudes shifts regarding FFA and PHL to recognize GTNS' significant impact in these areas. Monitoring knowledge changes offers strategic insights into beneficiary behaviour stages, aiding targeted improvements and decision-making in both assets and knowledge.	Operational	Programme management, Nutrition and Resilience Units.	Head of Programme; Protection and Gender Unit. Requires consultation with Government counterparts, other United Nations agencies, and implementing partners	Medium	December 2024
Recommendation 5: Take a comprehensive and multisectoral approach to address malnutrition, with a strong	Strategic	CO Management	All units in the CO	High	March 2024

Recommendation	Recommendation grouping	Responsibility	Other contributing entities	Priority: High/medium	By when
emphasis on gender equality, community involvement and decentralized leadership. ***Sub recommendation 5.1.*** Establish a dedicated working group comprising of representatives from diverse sectors from the project's inception (health, agriculture, gender, and nutrition) to ensure a coordinated and holistic approach. Regular meetings will be instrumental in aligning strategies, facilitating knowledge exchange and closely monitoring progress, which will enhance synergy across sectors for more effective future interventions. ***Sub-recommendation 5.2.*** Empower local leaders and organizations by decentralizing decision-making and fund management. This approach fosters a sense of ownership and accountability among project participants and ensures that interventions are culturally and contextually relevant. ***Sub-recommendation 5.3.*** Reinforce coordination and communication mechanisms among partners by consistently organizing meetings with all stakeholders, providing them with a vital platform for sharing experiences, discussing risks and uncertainties, and planning activities collaboratively. Streamlining these interactions will contribute to better coordination, fostering a shared understanding among partners, and ultimately enhancing the overall efficiency of the project.					

Recommendation	Recommendation grouping	Responsibility	Other contributing entities	Priority: High/medium	By when
Recommendation 6: Develop a comprehensive Indicators Reference Sheet with project-specific indicators that encompasses all critical indicators, specifying measurement methods, variables, and data collection tools. Ensure that all indicators adhere to the SMART criteria, enhancing clarity and consistency in data collection. ***Sub-recommendation 6.1:*** Regularly review and update indicators, recognizing the dynamic nature of projects and goals. Commit to periodic reviews and updates of the indicators reference sheet to ensure alignment with evolving project objectives and to maintain quality and relevance ***Sub-recommendation 6.2:*** Include knowledge and attitude indicators that measure changes in beneficiaries' knowledge and attitudes, especially in disaster prone contexts. These indicators can offer valuable insights into the lasting impact of the project beyond tangible assets. ***Sub-recommendation 6.3:*** Specify measurement methods for complex indicators from the outset to ensure consistency and accuracy. This clarity is essential for accurate assessment and reporting	Operational	Programme management. RAM Unit	Head of Programme; RAM Unit.	High	March 2024

Acronyms

ADA	Austria Development Agency
AIDS	Acquired Immunodeficiency Syndrome
ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
APA	Agentes Polivalentes Elementares (Elementary Multiskilled Agents)
CBPP	Community-based Participatory Programming
CHA	Community Health Activist
CHW	Community Health Worker
CO	WFP Country Office
CP	Country Programme
COVID-19	Coronavirus Disease 2019
CSO	Civil Society Organization
CSP	Country Strategic Programme
CUAMM	Doctors with Africa
DAC	Development Assistance Committee
DE	Decentralized Evaluation
DEFF	Design Effect
DEQAS	Decentralized Evaluation Quality Assurance
DPS	Sofala Health Authorities
EQ	Evaluation Question
ET	Evaluation Team
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FCS-N	Food Consumption Score – Nutrition
FEWS NET	Famine Early Warning Systems Network
FFA	Food Assistance for Assets
FGD	Focus Group Discussion
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GEMS	Gender Equitable Men Scale
GII	Gender Inequality Index
GNR	Global Nutrition Report
GTNS	Gender Transformative and Nutrition Sensitive Project
HAZ	Height-for-Age Z-score
HH	Household
HIV	Human Immunodeficiency Virus

HQ	WFP Headquarters
ICRAF	International Council for Research in Agroforestry
IPC	Integrated Food Security Phase Classification
KAP	Knowledge, Attitudes and Practices
KII	Key Informant Interview
MAD	Minimum Acceptable Diet
MAD-C	Minimum Acceptable Diet for Children
MDD	Minimum Dietary Diversity
MICOA	Ministry for Coordination of Environmental Affairs
MOH	Ministry of Health
MUAC	Middle Upper Arm Circumference
NAPA	National Adaptation Programme of Action
NGO	Non-Governmental Organization
OF	Obstetric Fistula
OECD	Organization for Economic Co-operation and Development
PHL	Post-Harvest Loss
PQG	Government of Mozambique's Five-Year Programme (Plano Quinquenal do Governo)
PLW	Pregnant and Lactating Women
PPE	Personal Protective Equipment
PPS	Probability Proportional to Size
PSM	Propensity Score Matching
QA	Quality Assurance
SBC	Social and Behavior Change Communications
SDAE	District Services for Economic Activities
SDG	Sustainable Development Goals
SDSMAS	District Services of Health, Women and Social Action
SDPI	District Services for Planning and Infrastructure
SEQ	Sub-Evaluation Question
SIDA	Swedish International Development Cooperation
SIDAE	District Services of Economic Activities
SMS	Short Message Service
SRH	Sexual and Reproductive Health
TEA	Agricultural Extension Officer (Technicos Extensionistas de Agricultura)
UN	United Nations
UNDAF	United Nations Development Framework
UNEG	United Nations Evaluation Group
UNHCR	United Nations High Commissioner for Refugees

UNICEF	United Nations Children's Fund
US	United States of America
USAID	United States Agency for International Development
US$	United States Dollar
WASH	Water, Sanitation, and Hygiene
WEAI	Women Empowerment in Agriculture Index
WFP	World Food Programme
WHO	World Health Organization

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