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Food assistance for assets: programme reach and household food security in Mudzi District, Zimbabwe

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Abstract

Recurrent drought and constrained productive assets make rural households in Mudzi District vulnerable to food insecurity. This study assessed the reach and accessibility of the Food Assistance for Assets (FFA) programme and described beneficiary-reported food-security outcomes. A mixed-methods cross-sectional case study combined 30 usable questionnaires from 34 systematically selected beneficiary households, three focus group discussions involving 45 participants, purposively selected key-informant interviews, document review and observation. Survey data were summarized using frequencies and percentages, while qualitative material underwent thematic analysis. Most respondents reported at least intermittent participation in nutritional gardens, small irrigation schemes and weir-dam projects. Although 90% reported two or three meals per day, 86.7% experienced food shortages always or sometimes, indicating continuing seasonal instability and dietary constraints. Limited coverage, subsistence-level production, weak youth inclusion and inadequate irrigation equipment constrained sustained benefits. Because the study involved beneficiaries only and lacked baseline or comparison data, the findings demonstrate reach and perceived contribution rather than causal impact. FFA implementation should combine transparent vulnerability-based targeting, adequate multi-year support, asset maintenance, climate-resilient production and nutrition training, and monitoring with validated food-security indicators.

Keywords: food assistance for assets; programme reach; food access; food availability; household food security; rural resilience; Zimbabwe

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1. Introduction

Food insecurity in Zimbabwe is recurrent rather than episodic. It reflects climatic shocks, weak purchasing power, limited irrigation, uneven market access and constrained livelihood assets. Mudzi District in Mashonaland East is especially exposed because many rural households depend on rain-fed smallholder agriculture. A contemporaneous provincial assessment reported that Mudzi had the highest Coping Strategy Index in Mashonaland East (35) and that 65% of surveyed households were using high consumption-coping strategies (Food and Nutrition Council, 2020). A subsequent district profile, citing the 2015 poverty atlas, reported household poverty prevalence at 90% and identified irrigation establishment and rehabilitation as a district development priority (Food and Nutrition Council and World Food Programme, 2022). The problem remains current: the 2025 Zimbabwe Livelihoods Assessment Committee projected that 31.2% of Mudzi households would face food-access challenges during the January-March 2026 peak hunger period, the highest proportion in Mashonaland East (Food and Nutrition Council, 2025). This pattern cautions against attributing rural food insecurity to rainfall alone. Drought interacts with institutional, economic and livelihood constraints that shape who can obtain food and who can recover from shocks (Sandstrom and Juhola, 2017).

Food Assistance for Assets (FFA) was developed as a bridge between short-term relief and longer-term resilience. It provides food, cash or vouchers while participating households create or rehabilitate productive community assets. These may include water points, weirs, dams, irrigation works, gardens, feeder infrastructure, soil and water conservation structures and rehabilitated land (World Food Programme, 2016, 2022). The programme logic is sequential: transfers protect immediate consumption and reduce distress sales; the created assets expand productive capacity or reduce exposure to shocks; and complementary training, maintenance and market linkages support continued use. In Mudzi, the programme was implemented through collaboration among the World Food Programme, World Vision, local government, community food-security structures and participating households. The principal components examined in this study were nutritional gardens, small irrigation schemes and weir-dam projects.

Evidence on asset-linked social protection is mixed. In Niger, food assistance paired with asset-based programming produced nutritional gains that food assistance alone did not achieve (Brück et al., 2019). In Ethiopia, sustained participation, adequate transfer size and combinations with income-generating or asset-building support were associated with stronger household resilience (Abay et al., 2022). Other studies report limited or uneven results. Cash-for-work and food-for-work offered little durable protection where structural drivers of food insecurity remained unaddressed (Abebe, 2020), while Ethiopia's Productive Safety Net Programme improved child meal frequency but not household food insecurity, dietary diversity or child anthropometry (Bahru et al., 2020). Zimbabwe's independent country-programme evaluation likewise found positive short-term food-security effects among FFA recipients but modest FFA coverage and monitoring systems that were not yet adequate for organizational learning (World Food Programme Office of Evaluation, 2022). The evidence therefore does not support treating programme participation as proof of durable food-security impact.

1.1. Conceptual framing

The study distinguishes programme reach from household food security. Reach concerns whether intended beneficiaries know about, enter and use programme components. Accessibility concerns whether location, eligibility, labour requirements, information and available places permit meaningful participation. Food security is treated as a multidimensional outcome comprising availability, access, utilization and stability. Availability concerns the presence of food from production, markets or assistance. Access concerns the resources and entitlements through which households obtain it (Sen, 1981). Utilization concerns diet quality and the capacity to convert food into adequate nutrition. Stability concerns whether these conditions persist

across seasons and shocks. This distinction is important because a programme may reach households without delivering support of sufficient intensity or duration to alter all four dimensions.

The survey operationalized these dimensions through programme awareness and participation; reported food sources; access to water, land and livestock; the frequency of food shortages; meals consumed per day; the reported availability of broad nutrient groups; and intra-household portioning. These are descriptive proxies rather than a validated food-security index. The analysis therefore asks what the indicators suggest and how participants interpret them; it does not classify households using the Food Consumption Score, Household Food Insecurity Access Scale or another standardized measure.

1.2. Study aim and questions

The study aimed to assess the reach and accessibility of FFA among beneficiary households in wards 14, 16 and 17 of Mudzi District and to describe their reported food-security conditions. It addressed three questions: (1) To what extent were nutritional gardens, small irrigation schemes and weir-dam projects known to and accessed by beneficiary households? (2) What did beneficiary reports indicate about food availability, access, diet and seasonal stability? (3) What constraints and programme changes did beneficiaries and implementers identify? The central argument is that FFA had broad but uneven reach in the sampled wards: participants associated its assets with improved production options and access to water, but seasonal shortages, restricted coverage, intermittent participation and subsistence-level production constrained sustained food security.

2. Methods

2.1. Study setting and design

The research was conducted in wards 14, 16 and 17 of rural Mudzi District, Mashonaland East Province, Zimbabwe. The district's semi-arid conditions, recurrent dry spells and dependence on smallholder agriculture make water access and productive assets central to household food security. This study formed part of the first author's MSc research at Bindura University of Science Education, completed by 31 July 2020. The retained study documentation does not record the exact month or months of fieldwork. A cross-sectional mixed-methods case-study design combined a beneficiary survey with focus group discussions (FGDs), key-informant interviews, programme-document review and contextual observation. Quantitative and qualitative findings were integrated during interpretation to examine convergence, divergence and the mechanisms participants associated with programme reach (Creswell and Plano Clark, 2018).

2.2. Sampling and participants

The programme register contained 100 beneficiary households across the three selected wards. Thirty-four household heads (34% of the programme register) were selected using systematic random sampling. Of these, 30 provided complete and usable questionnaires. Four selected households either did not participate or provided incomplete questionnaires that could not be used, yielding an 88.2% usable-response rate. The numerical analysis therefore uses n = 30. The household survey findings apply to the responding registered beneficiaries; they should not be generalized to non-beneficiaries or the district population.

Three FGDs were held, one for each ward, with 15 beneficiary household heads per group (45 participants in total). Participants were purposively selected because they had direct experience of FFA activities; ward representation was balanced. Key informants were purposively selected for their programme or institutional knowledge and included the programme coordinator, a local government representative and community food-

security and nutrition focal persons. This role-based sampling sought explanatory depth rather than statistical representativeness.

2.3. Data collection

The structured questionnaire covered five domains: awareness of and participation in the three FFA components; access to water, land and livestock; household food sources; food consumption and shortage experiences; and perceived differences in food access by sex of household head. Most programme and availability questions used three-category response options, such as always/sometimes/never or yes/partial/no. The questionnaire was interviewer-administered. Two enumerators translated questions and recorded answers for participants who preferred local-language administration or could not complete the form independently. The retained study documentation does not document formal psychometric validation or the use of a standardized food-security scale.

FGDs explored programme knowledge, participation, seasonality, diet, asset use, targeting and implementation constraints. Discussions were audio-recorded with facilitator notes. Semi-structured key-informant interviews examined programme components, targeting, implementation and observed changes. Programme proposals, activity reports, monitoring reports, registers and work plans were reviewed to compare planned activities with reported implementation. Observation was restricted to contextualizing programme infrastructure and activities; it was not treated as a clinical assessment of nutritional or health status.

2.4. Data analysis and integration

Survey data were analysed descriptively in SPSS using counts and percentages. No inferential test was used, and no causal estimate was attempted. Reported percentages use the 30 complete and usable questionnaires as the denominator. Qualitative recordings and notes were organized by research question. The researcher familiarized himself with the material, coded recurrent statements, grouped codes into themes, compared themes across wards and respondent roles, and selected short quotations to illustrate convergent or contrasting accounts, following a reflexive thematic approach (Braun and Clarke, 2021). Mixed-method integration occurred through side-by-side comparison: survey patterns were interpreted alongside FGD, interview and programme-document evidence.

Table 1. Linkage between research questions, evidence and analysis

Research question	Quantitative evidence	Qualitative evidence	Analysis
Programme reach and accessibility	Component awareness and participation	FGDs, key informants, programme records	Frequencies and thematic convergence
Reported food-security conditions	Food sources, assets, meals, nutrients, shortages and portions	FGDs, key informants and observation	Frequencies organized by food-security dimension
Constraints and programme improvement	Selected access and participation items	FGDs, key informants and programme documents	Thematic comparison across roles and wards

Table 1 summarizes the alignment between the research questions, evidence sources and analytical procedures. It shows how programme reach and reported food-security conditions were examined through complementary quantitative and qualitative evidence, while constraints and improvement priorities were

assessed mainly through thematic comparisons across participant roles and wards. This alignment provides an explicit evidence trail for each research question and makes the integration of the two data strands transparent.

2.5. Ethical considerations

The study was undertaken as part of the first author's Master's degree at Bindura University of Science Education and was approved through the University's institutional processes for postgraduate research applicable at the time. A separate REC approval letter, ethics reference number, or exemption certificate was not issued for the study, reflecting the institutional procedure applicable to postgraduate research at that time rather than an absence of institutional oversight. The study was non-interventional and posed no foreseeable physical danger to participants; it was considered a minimal-risk study involving questionnaires, focus group discussions and key-informant interviews. Nevertheless, appropriate ethical safeguards were observed throughout the research process, including voluntary participation, oral informed consent obtained before participation through affirmative verbal agreement, confidentiality, the right to decline participation or leave questions unanswered or withdraw, and anonymised reporting of participant information and quotations.

3. Results

3.1. Programme components and reach

Programme documents and key informants confirmed three principal FFA components in the study wards: nutritional gardens, small irrigation schemes and weir-dam projects. Participation was widespread but differed in intensity (*Table 2*). For nutritional gardens and weir dams, 86.7% reported at least intermittent participation, yet only 13.3% reported always participating. Irrigation had the strongest reported engagement: 60.0% participated regularly and 33.3% partially. The results show broad exposure among registered beneficiaries, not universal or continuous access.

Table 2. Beneficiary participation in FFA components (n = 30)

Programme component	Regular/always (%)	Partial/sometimes (%)	No/never (%)
Nutritional gardens	13.3	73.3	13.3
Small irrigation schemes	60.0	33.3	6.7
Weir-dam projects	13.3	73.3	13.3

Qualitative accounts explained why knowledge exceeded regular participation. Irrigation places and plots could not accommodate all households simultaneously, so some access was rotational or depended on proximity. Garden targeting also prioritized particular vulnerability or health categories. A programme informant described the intention to include most households within reach of the scheme:

> *"There is a deliberate attempt that most families participate in the scheme as long they are within the proximity of the scheme." (KII, programme representative)*

These accounts qualify the survey percentages. Awareness demonstrates programme visibility, while partial or rotational participation indicates constrained intensity. Reach should therefore be assessed through access frequency, duration and benefit adequacy, not knowledge alone.

3.2. Enabling livelihood assets

Respondents reported access to several water and livelihood assets (*Table 3*). Boreholes and streams or rivers were the most widely accessible water sources, whereas tanked water was rarely available. Seventy percent considered their land sufficient or more than sufficient, and 83.3% reported owning at least one head of cattle. These assets may support production and draught power, but the cross-sectional data cannot establish that FFA created or increased household ownership.

Table 3. Reported access to selected livelihood assets (n = 30)

Indicator	Reported proportion (%)	Interpretation
Borehole water accessed always or sometimes	90.0	Commonly available source
Stream/river water accessed always or sometimes	96.7	Common but potentially seasonal
Dam water accessed always or sometimes	60.0	Uneven access
Tanked water accessed always or sometimes	10.0	Rare source
Owns at least one head of cattle	83.3	Potential draught power and food/income asset
Land described as sufficient or more than sufficient	70.0	Quantity reported; quality and tenure not measured

Water was repeatedly described as the main mechanism linking communal assets to agricultural production:

> *"Water provision has been our major pre-occupation as a pre-requisite for agricultural development. Rain fed agriculture does not and is no longer reliable and it is therefore time to ensure that alternatives are always in place to cover the gap." (KII, community representative)*

Participants also described sharing cattle for draught power and learning animal-husbandry practices. These accounts indicate collective use and knowledge pathways, but the survey did not measure asset values before and after participation. The findings are therefore evidence of an enabling asset base and perceived programme contribution, not measured asset accumulation.

3.3. Food availability, access and seasonal stability

Food came from multiple sources. Almost all respondents produced at least part of their own crops (96.7%), and 93.3% obtained purchased food at least sometimes. Own livestock, food-for-work, food aid and support from friends or relatives were also reported, usually intermittently. This diversity can spread risk, but it also indicates that no single source consistently met household needs.

Table 4. Selected household food-security proxies (n = 30)

Indicator	Response distribution (%)	Food-security dimension
Own crop production	Always 56.7; partial 40.0; never 3.3	Availability
Purchased food	Always 6.7; sometimes 86.7; never 6.7	Economic/market access
Meals per day	One 10.0; two 53.3; three 36.7	Consumption frequency
Food shortages	Always 16.7; sometimes 70.0; never 13.3	Stability
Protein availability	Always 6.7; sometimes 76.7; never 16.7	Diet quality proxy
Carbohydrate availability	Always 93.3; sometimes 6.7	Diet composition proxy
Different household portions	Always 6.7; sometimes 80.0; never 13.3	Intra-household allocation

Ninety percent of households reported two or three meals per day. This is a useful consumption-frequency signal, but it does not establish dietary adequacy. Carbohydrates were reported as always available by 93.3% of households, whereas proteins, vitamins and minerals were more often described as only sometimes available. More importantly, 86.7% experienced food shortages always or sometimes. FGDs explained that shortages were seasonal and often concerned variety as well as absolute quantity:

> *"It is normal to experience some food shortages depending on the time of the year. […] there will not be total shortage, but it is shortage in the sense that what we normally have when it is raining in terms of several options might not be available all year round." (FGD, Mudzi)*

The coexistence of two or three daily meals with seasonal shortages and inconsistent protein availability shows why meal counts alone cannot support the claim that households were food secure or maintained a balanced diet.

3.4. Intra-household and sex-disaggregated patterns

Food portions differed always or sometimes in 86.7% of surveyed households. Participants commonly attributed differences to age and appetite, but they also acknowledged that scarcity, household status and sex could shape allocation. The data do not measure individual dietary intake, so they cannot establish that differentiated portions were nutritionally adequate or harmless.

Table 5. Reported household food-access level by sex of household head (counts)

Household-head sex	High access	Intermediate access	Low access	Total
Female	1	10	4	15
Male	2	11	2	15
Total	3	21	6	30

Most female- and male-headed households fell in the intermediate category (*Table 5*). Low access was reported by four female-headed and two male-headed households. Given the very small cell counts and absence of inferential testing, the pattern cannot support a conclusion that gender inequalities were eliminated. It instead identifies a question for larger, disaggregated research.

3.5. Reported implementation constraints

Participants and programme stakeholders consistently identified five constraints. First, places and deliverables were insufficient relative to perceived need, leading to rotational or indirect participation. Second, production remained largely subsistence-oriented, leaving little surplus for purchasing foods households did not produce. Third, weir dams and irrigation schemes required pumps, pipes, storage, maintenance and more efficient water management. Fourth, respondents requested practical training in nutrition, water management, animal husbandry, climate-resilient production and post-harvest practices. Fifth, youth were often indirect beneficiaries through household heads rather than direct programme participants. These findings explain why programme visibility and participation did not automatically translate into stable, diversified food access.

4. Discussion

4.1. Broad reach did not guarantee adequate participation

The strongest finding is the difference between visibility and intensity. Most respondents knew about and participated at least intermittently in each FFA component, but regular participation was much lower for nutritional gardens and weir dams. Similar beneficiary-perception research finds that public-works activities and selection processes may be viewed positively even when transfer adequacy, timeliness and graduation prospects remain problematic (Borku et al., 2024). This distinction matters because resilience effects appear sensitive to the size and duration of support. Abay et al. (2022) found that transfers below the median were unlikely to generate meaningful resilience improvements, whereas continuous participation and links to income-generating or asset-building initiatives were more promising. Mudzi's rotational access may expand nominal coverage while diluting the support received by each household.

4.2. Mixed food-security signals require cautious interpretation

The results contain positive signals: households drew food from several sources, most produced crops, and 90% reported at least two meals per day. Yet seasonal shortages were widespread and protein availability was inconsistent. This combination aligns with a mixed wider evidence base. Brück et al. (2019) found nutritional spillovers when food assistance was paired with assets-based programming, but Bahru et al. (2020) found improved child meal frequency without corresponding gains in household food insecurity, dietary diversity or anthropometry. Abebe (2020) likewise found limited durable benefits when cash- or food-for-work programmes did not address structural drivers. Within Zimbabwe, greater household resilience has been associated with better dietary diversity and less reliance on adverse food-coping strategies, while assets, market diversity and social capital each contribute to resilience capacity (Murendo et al., 2021; Manyanga et al., 2022). The Mudzi findings therefore support neither a simple success narrative nor a conclusion of programme failure. They show perceived improvements in options and access alongside persistent instability and diet-quality constraints.

4.3. Productive assets need complementary systems

Water, land and livestock provided an important platform for production, but assets do not generate resilience automatically. Earlier Mudzi research found that education, household labour and size, livestock, remittances and access to market information shaped household food security, while transport information, distance, education and land size influenced groundnut market participation and marketing-channel choice (Mango et al., 2014, 2018). Zimbabwean irrigation studies show strong food-security potential but also emphasize infrastructure rehabilitation, farmer capacity, institutional support and income pathways: small-scale schemes can improve reliable farm income when institutional and technical constraints are addressed, and irrigators in a later comparative study had markedly better Food Consumption Scores than non-irrigators (Mhembwe et al., 2019; Mupaso et al., 2024). These observational findings are not causal evidence for the present programme, but they reinforce the need to measure complementary conditions. Small-scale irrigation can reduce dependence on rainfall, yet food-security outcomes also depend on household size, education, markets, livestock and livelihood diversification (Masha and Borku, 2025). Research in Malawi similarly identifies livestock, community support, information, productive land and decision-making power as components of adaptive capacity, while exclusion from food-for-work can deepen vulnerability (Munthali et al., 2025). The 2022 Mudzi profile reached the same implementation diagnosis: the district had six irrigation schemes and 94 nutrition gardens, but silted dams, broken pumps, failing canals and small plots constrained their use (Food and Nutrition Council and World Food Programme, 2022). For Mudzi, construction should therefore be accompanied by maintenance funds, water-governance arrangements, extension support, climate information, input access, post-harvest management and market linkages. The objective should not be to force all households to become commercial farmers, but to enable sustainable food access and diversified livelihoods appropriate to their resources and preferences.

4.4. Targeting, gender and inclusion

The programme's use of household heads and labour-based participation can unintentionally disadvantage youth, persons with disabilities, older people and labour-constrained households. Transparent vulnerability criteria, direct-support options and a grievance mechanism are therefore central to accessibility. Evidence from Ethiopia suggests that productive safety nets can improve food security among female-headed households when selection bias is addressed and support builds sustainable income opportunities (Belete and Bayu, 2023). The Mudzi sample, however, is too small to demonstrate gender effects. Future monitoring should disaggregate reach, transfer adequacy, asset control and food-security outcomes by sex, age, disability and household labour capacity.

4.5. Study limitations

This study is exploratory and descriptive. It has a small household sample from three wards and includes registered beneficiaries only. It lacks a baseline, a non-beneficiary comparison group and longitudinal follow-up, so it cannot identify causal programme effects. Food security was measured through study-specific self-reported items rather than a validated composite instrument. Recall error, social-desirability bias, interviewer translation and seasonal timing may have influenced responses. The quantitative analysis is descriptive and the sex-disaggregated cells are too small for meaningful statistical testing. Finally, the original microdata were not available for reanalysis. The analysis is based on 30 complete and usable questionnaires from the 34 selected households; four selected households did not participate or provided incomplete questionnaires that could not be used. The exact fieldwork dates are absent from the retained study documentation. Institutional ethics procedures and consent safeguards are described in Section 2.5; a separate REC approval record was not issued. These limitations narrow the claims to programme reach, participant perceptions and reported

household conditions. Future evaluations should use baseline and follow-up measurement, validated indicators and a credible comparison design.

5. Conclusion and recommendations

FFA was visible and accessible to many registered beneficiaries in the three sampled Mudzi wards. Nutritional gardens, irrigation schemes and weir dams expanded the set of productive options participants could draw upon, particularly through water access and communal assets. Nevertheless, participation was often intermittent, production remained mainly subsistence-oriented, seasonal shortages were common and diet quality was uneven. The evidence therefore supports a conclusion of broad but constrained reach and perceived contribution, not a causal claim that FFA transformed household food security.

Programme expansion should begin with a ward-level coverage and vulnerability assessment rather than a generic call for a larger budget. Targeting criteria should be public, multidimensional and independently verifiable, with direct-support or labour-exemption pathways for households unable to undertake public works. Youth, women, persons with disabilities and other groups at risk of indirect exclusion should have defined participation routes and access to an appeals mechanism.

Resource decisions should prioritize adequate and timely transfers, pumps, pipes, water storage, repair funds, seeds and tools, alongside clear asset-ownership and maintenance arrangements. Agricultural extension services, WFP, implementing partners and community committees should jointly provide practical training in water management, climate information, crop and diet diversification, animal husbandry, post-harvest handling and market access. Multi-year support is more defensible than short cycles where resilience is the intended outcome.

Monitoring should separate outputs from outcomes. Programme registers should record who participates, how often, for how long and with what transfer value. Baseline and follow-up surveys should use validated measures such as the Food Consumption Score, Household Food Insecurity Access Scale, Household Dietary Diversity Score or Months of Adequate Household Food Provisioning. A larger quasi-experimental or phased evaluation, with comparison households and sex-, age- and disability-disaggregated reporting, is needed to determine whether FFA improves food security sustainably.

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