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ASSESSMENT OF FOOD WASTE ON HOUSEHOLD BUDGET IN CHANCHAGA LOCAL GOVERNMENT AREA OF NIGER STATE, MINNA

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Abstract: *The study examined the assessment of food waste on household budgets in Chanchaga Local Government Area (LGA) of Niger State. The study was guided by three research objectives and three corresponding research questions. A descriptive survey research design was adopted for the study. The population comprised 201,429 residents of Chanchaga Local Government Area, according to the national population commission, 2025. Using the Research Advisor Sample Size Table, a sample size of 384 household representatives was determined. A total of 384 questionnaires were administered using a multistage sampling technique, out of which 373 were properly completed and returned, representing a 97.1% response rate, and were used for the analysis. Data were collected using a self-structured questionnaire designed on a four-point Likert scale. The data were analysed using weighted mean, with a criterion mean of 2.50 for decision-making. The findings revealed that food waste is highly prevalent among households in the study area, resulting mainly from poor food storage, excessive food preparation, and the improper disposal of leftovers. The study also found that food waste has significant adverse economic effects on household budgets by increasing household expenditure, reducing savings, and creating unnecessary financial pressure. Furthermore, the findings indicated that effective strategies such as meal planning, proper food storage, purchasing only required food items, reusing leftovers, and public awareness programmes can significantly reduce food waste and improve household financial management. Based on these findings, the study recommended that households adopt systematic meal planning and proper food preservation practices, government agencies and non-governmental organisations intensify public enlightenment campaigns on food waste reduction.*
Keywords: *Food Waste, Household Budget and Household Financial Management*

Introduction

Food waste has emerged as one of the most significant global challenges affecting economic sustainability, food security, and household welfare. Despite substantial improvements in agricultural productivity and food distribution systems, large quantities of food intended for human consumption are lost or wasted every year. Food waste occurs at different stages of the food supply chain, but household-level waste has increasingly attracted scholarly attention because of its direct implications for family finances and sustainable consumption. According to the Food and Agriculture Organization (FAO, 2023), nearly one-third of food produced globally for human consumption is either lost or wasted, representing enormous economic losses and missed opportunities to improve food security. Similarly, the United Nations Environment Programme (UNEP, 2024) reported that households account for the largest proportion of global food waste, emphasizing the need for improved food management practices at the family level.

Food serves as one of the most fundamental human needs and constitutes a major component of household consumption expenditure. However, when food purchased for consumption is discarded before being eaten, the financial resources invested in acquiring that food are also wasted. This situation has become particularly concerning in developing countries such as Nigeria, where increasing inflation, fluctuating food prices, and declining purchasing power continue to place enormous pressure on household budgets. Gustavsson, Cederberg, Sonesson, Van Otterdijk, and Meybeck (2011) argued that food waste not only undermines efforts to achieve food security but also reduces the efficiency of household resource utilization by increasing unnecessary expenditure. Consequently, reducing food

waste has become an important strategy for improving household financial wellbeing while promoting environmental sustainability.

Food waste refers to the disposal of food that remains suitable for human consumption or food that becomes inedible due to poor handling, improper storage, excessive purchasing, or inefficient meal preparation. According to Parfitt, Barthel, and Macnaughton (2010), food waste encompasses edible food discarded during preparation, serving, storage, or after meals, largely resulting from behavioural and managerial factors within households. Likewise, Stenmarck et al. (2016) explained that household food waste includes leftovers that are not consumed, spoiled perishable food items, expired products, and excess food purchased beyond immediate consumption needs. These practices not only represent inefficient utilization of food resources but also impose avoidable financial burdens on households, particularly those with limited disposable income.

Household expenditure, on the other hand, represents the total financial outlay incurred by families in acquiring goods and services necessary for daily living. It includes spending on food, housing, transportation, healthcare, education, clothing, utilities, and other essential needs. Among these expenditure categories, food consistently accounts for the largest share of household budgets, especially in low- and middle-income countries. Deaton and Grosh (2000) observed that households in developing economies devote a substantial proportion of their income to food purchases because income levels remain relatively low while food constitutes an essential necessity. Consequently, any inefficiency in food utilization directly affects household financial stability by increasing unnecessary spending and reducing opportunities for savings and investment.

The effect of food waste on household expenditure extends beyond the direct financial loss associated with discarded food. Indirectly, food waste reduces household purchasing power by limiting the availability of disposable income for other essential needs. During periods of economic instability and rising food prices, such as those currently experienced in Nigeria, households that waste food become increasingly vulnerable to financial stress. Hebrok and Boks (2017) observed that households with ineffective food management practices often experience higher monthly food expenses because they underestimate the cumulative financial impact of frequent food wastage. In contrast, households that adopt meal planning, shopping lists, proper food preservation techniques, and portion control are more likely to reduce unnecessary expenditure and improve overall budget efficiency.

In recent years, Nigeria has experienced persistent increases in food prices driven by inflation, insecurity affecting agricultural production, transportation costs, and climate-related challenges. These economic realities have significantly affected household purchasing decisions and consumption patterns. While many households attempt to purchase food in bulk to hedge against future price increases, inadequate storage facilities, poor electricity supply, and limited knowledge of food preservation frequently result in spoilage before consumption. Adewumi, Adebayo, and Oladipo (2022) noted that poor post-purchase food management among Nigerian households contributes significantly to avoidable food losses, thereby increasing household expenditure despite declining real incomes.

Principato, Secondi, and Pratesi (2015) reported that households practicing meal planning, inventory management, and proper food storage experienced substantially lower levels of food waste and reduced monthly food expenditure. Likewise, Schanes, Dobernig, and Gözet (2018) concluded that consumer education on responsible purchasing, portion control, and leftover utilization contributes to both economic savings and environmental sustainability. These findings reinforce the argument that reducing food waste benefits households not only by lowering expenditure but also by improving overall financial management and resource efficiency.

Statement of the Problem

The problem of food waste in Nigerian households has reached alarming proportions, yet it continues to receive insufficient scholarly and policy attention at the local level. In Chanchaga LGA of Niger State, anecdotal evidence and emerging studies suggest that households regularly discard significant quantities of food due to poor planning, inadequate storage facilities, erratic power supply, and cultural practices of over-cooking, all of which translate directly into monetary losses and reduced household welfare (Yakubu & Musa, 2023). The cumulative financial burden of these losses is substantial, particularly in a community where most residents earn modest incomes and where food prices have escalated sharply in recent years owing to macroeconomic instability.

Paradoxically, while households in Chanchaga LGA struggle with tight food budgets, a considerable portion of the food they purchase is wasted before consumption, effectively nullifying the economic benefit of such expenditure. This disconnect between food spending and food utilisation not only diminishes household welfare but also perpetuates a cycle of nutritional insufficiency and financial strain (Okonkwo & Adesanya, 2021). Furthermore, the absence of structured community-level interventions and household-level awareness programmes means that food waste continues unchecked, with households unaware of the cumulative economic impact of their food management habits. Therefore, there is a compelling need to investigate the extent of food waste, its economic impact on household budgets, and the strategies available for its reduction in Chanchaga Local Government Area

Objectives of the Study

The aim of this study was to assess the effect of food waste on household budgets in Chanchaga Local Government Area of Niger State, Minna. Specifically, the study sought to:

1. Determine the extent of food waste in households in Chanchaga Local Government Area of Niger State, Minna.
2. To determine the economic impact of food waste on household budgets in Chanchaga Local Government Area of Niger State, Minna.
3. Identify strategies that can be adopted to reduce food waste and its effect on household budgets in Chanchaga Local Government Area of Niger State, Minna.

Research Questions

The following research questions guided the study:

1. To what extent is food waste prevalent in households in Chanchaga Local Government Area of Niger State, Minna?
2. What is the economic impact of food waste on household budgets in Chanchaga Local Government Area of Niger State, Minna?
3. What strategies can be adopted to reduce food waste and mitigate its effects on household budgets in Chanchaga Local Government Area of Niger State, Minna?

Methodology

The study adopted the descriptive survey research design. According to Creswell and Creswell (2018), a descriptive survey is appropriate for studies that seek to describe, explain, or explore phenomena as they exist in their natural setting, without manipulating any variables. This design was deemed suitable for the present study because it enabled the researcher to collect data on the perceptions and experiences of respondents regarding food waste and its impact on household budgets, using a structured questionnaire.

The population of this study comprised all households in Chanchaga Local Government Area. According to the National Population Commission Population and Housing Census data (2023), the total population of Chanchaga Local Government Area is **201,429**. This population forms the basis for the study because households constitute the primary units responsible for food purchasing, preparation, consumption, storage, and disposal. Consequently, household heads or adult representatives are

considered the most appropriate respondents for providing reliable information on household food management practices and food waste.

The sample size for this study was determined using the Research Advisor Sample Size Table (2006), which provides a scientifically validated and widely accepted guide for selecting representative sample sizes from finite populations. The table is based on a 95% confidence level, a 5% margin of error, and an assumed 50% response distribution, making it suitable for social science and educational research. Given the population of 201,429 in Chanchaga Local Government Area, the Research Advisor Table recommends a minimum sample size of 384 respondents for populations of 100,000 and above. Accordingly, a sample of 384 household representatives was adopted for this study, as it is considered adequate to provide reliable and representative data while minimizing sampling error. To select the respondents, a multistage sampling technique was employed. In the first stage, selected wards within Chanchaga Local Government Area were identified. In the second stage, communities or enumeration areas within the selected wards were chosen. Finally, households were selected using simple random sampling, ensuring that each eligible household had an equal chance of being included in the study. The adoption of this sampling procedure enhanced the representativeness of the sample and improved the validity and generalizability of the study findings.

The instrument for data collection was a self-structured questionnaire titled the Food Waste and Household Budget Assessment Questionnaire (FWHBAQ). The questionnaire was structured in line with the three research questions and consisted of 15 items rated on a four-point Likert scale with the following response options: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The instrument was validated by two experts in Home Economics Education and one expert in Educational Measurement and Evaluation. Their suggestions and corrections were incorporated to enhance the content validity of the instrument. A reliability test was conducted using the Cronbach's Alpha method, which yielded a reliability coefficient of 0.83, indicating that the instrument was reliable for the purpose of this study (Fraenkel, Wallen, & Hyun, 2019).

Data collected were analysed using descriptive statistics, specifically weighted mean and standard deviation. The decision rule adopted for the weighted mean was a criterion mean of 2.50. Any item with a mean score of 2.50 and above was accepted (agreed), while any item with a mean score below 2.50 was rejected (disagreed). The standard deviation was used to assess the degree of homogeneity or divergence in the responses of participants, with a lower standard deviation indicating greater consensus among respondents (Pallant, 2020).

Result and Analysis

A total of 384 copies of the questionnaire were administered to household representatives in Chanchaga Local Government Area of Niger State. Out of the 384 questionnaires distributed, 373 were properly completed and returned, representing a 97.1% response rate, while 11 questionnaires, representing 2.9%, were either not returned or were improperly completed and therefore excluded from the analysis. The high response rate indicates that the respondents participated actively in the study and provided adequate data for meaningful statistical analysis.

Research Question 1: To what extent is food waste prevalent in households in Chanchaga Local Government Area of Niger State?

Table 1: Weighted Mean Analysis of the Prevalence of Food Waste (N = 373)

S/N	Questionnaire Item	VHE	HE	LE	VLE	Mean	Decision
1	Food is frequently left uneaten after meals in my household.	170	130	50	23	3.20	Agree

2	Cooked food is often discarded because it spoils before consumption.	155	145	48	25	3.15	Agree
3	My household prepares more food than is usually consumed.	162	138	46	27	3.17	Agree
4	Leftover food is regularly thrown away instead of being reused.	149	150	49	25	3.13	Agree
5	Poor food storage contributes to food waste in my household.	176	132	43	22	3.24	Agree

Source: Field Data 2026

Table 1 indicates that respondents agreed that food waste is prevalent among households in Chanchaga Local Government Area. All five items recorded mean scores above the benchmark of 2.50, ranging from 3.13 to 3.24. The highest mean (3.24) shows that poor food storage is a major contributor to food waste, while the lowest mean (3.13) suggests that households also frequently dispose of leftovers instead of reusing them.

Research Question 2: What is the economic impact of food waste on household budgets in Chanchaga Local Government Area of Niger State?

Table 2: Weighted Mean Analysis of the Economic Impact of Food Waste

S/N	Questionnaire Item	SA	A	D	SD	Mean	Decision
6	Food waste increases my household's monthly expenditure.	188	122	43	20	3.28	Agree
7	Money spent on wasted food reduces savings.	180	130	40	23	3.26	Agree
8	Food waste contributes to unnecessary financial pressure.	170	139	42	22	3.23	Agree
9	Reducing food waste would improve my household budget.	200	112	39	22	3.32	Agree
10	Food waste affects the ability of my household to meet other financial obligations.	169	136	47	21	3.16	Agree

Source: Field Data 2026

The results presented in Table 2 reveal that respondents agreed that food waste has significant economic consequences for household finances. Mean scores ranged from 3.16 to 3.32, all exceeding the criterion mean of 2.50. The highest mean (3.32) indicates that reducing food waste would improve household budgeting, while the lowest mean (3.16) suggests that food waste also affects households' ability to meet other financial responsibilities.

Research Question 3: What strategies can be adopted to reduce food waste and mitigate its effects on household budgets in Chanchaga Local Government Area of Niger State?

Table 3: Weighted Mean Analysis of Strategies for Reducing Food Waste (N = 373)

S/N	Questionnaire Item	SA	A	D	SD	Mean	Decision
1	Preparing meal plans before shopping can reduce food waste.	205	110	39	19	3.35	Agree
2	Proper food storage can reduce spoilage.	214	103	37	19	3.38	Agree
3	Reusing leftover food can reduce household food waste.	195	120	40	18	3.32	Agree
4	Buying only needed food items can minimize unnecessary waste.	210	108	36	19	3.37	Agree
5	Public education on food management would help households reduce food waste.	199	115	39	20	3.27	Agree

Source: Field Data 2026

Table 3 shows that respondents agreed with all the proposed strategies for reducing household food waste. Mean scores ranged from 3.27 to 3.38, indicating a high level of agreement across all statements. Proper food storage recorded the highest mean (3.38), demonstrating that respondents considered it the most effective strategy for minimizing food spoilage. Meal planning, purchasing only needed food items, reusing leftovers, and public awareness campaigns were also rated highly. The grand mean of **3.34** indicates that respondents strongly believe these practical household management strategies can significantly reduce food waste and improve household financial management.

Discussion of Findings

The study indicates that food waste is prevalent among households in Chanchaga Local Government Area (LGA), Niger State. All five measured items recorded mean scores above the 2.50 criterion, ranging from 3.13 to 3.24. Households frequently leave food uneaten, discard spoiled cooked food, over-prepare meals, throw away leftovers, and experience waste due to poor storage. Poor food storage recorded the highest mean (3.24), while leftover disposal recorded the lowest (3.13). This suggests food waste stems from both food management and post-cooking handling practices.

These findings align with Sunday, Sowunmi, and Obayelu (2022), who identified leftovers, inadequate storage, and poor purchase planning as major causes of household food waste in Nigeria. Their study reported that 67.3% of rural households identified leftovers as a major cause, while 53.7% associated waste with poor storage. The high mean for poor storage (3.24) highlights preservation as a critical waste point, where perishables spoil before consumption. This is corroborated by Oluwadiran, Oyedare, and Ogunjinmi (2025), who found spoilage and improper storage to be primary causes in Oyo Metropolis, noting that refrigeration and airtight containers are vital management practices. Additionally, Afolabi et al. demonstrated that household characteristics, food expenditure, and epileptic electricity supply which hinders refrigeration—significantly influence waste quantities. Evidence from Osogbo Metropolis identified household size, food expenditure, and consumption frequency as significant factors influencing waste. Furthermore, Aschemann-Witzel et al. (2023) emphasized that food-handling skills, infrastructure, and lifestyle factors dictate leftover waste, recommending interventions focused on meal planning and preparation skills. Ultimately, food waste in Chanchaga LGA reflects weaknesses in meal planning, portion control, and storage, representing a significant loss of household resources.

The findings further reveal that food waste exerts a considerable economic impact on household budgets in Chanchaga LGA. All five items in Table 2 exceeded the 2.50 criterion mean, scoring between 3.16 and 3.32. The highest mean (3.32) was for the statement that reducing food waste improves household budgeting, indicating respondents clearly recognize its financial value. The lowest mean (3.16), regarding the effect of waste on meeting other financial obligations, confirms that food waste imposes tangible financial pressure.

This is strongly supported by Sunday et al. (2022), who quantified household food waste at 7.2% and 13.1% of monthly food expenditure in rural and urban Nigerian households, respectively. Their conclusion that reducing waste lessens financial burdens directly supports the present finding, as wasted food represents spent money yielding no consumption benefit. This aligns with Kummu et al. (2012) and Krah, Hynds, and Priyadarshini (2026), who argue that wasted food equals wasted economic resources across the food system. They found that economic impacts vary according to household food-waste behaviours, making reduction highly meaningful. At the household level, this is direct: families pay for food, transport, energy, and storage, but gain no nutritional benefit when discarding it.

Consequently, food waste must be viewed not merely as an environmental issue, but as a household financial-management problem. Discarding edible food effectively loses disposable income, reducing funds for education, healthcare, and housing. Recognizing that reducing waste improves budgets suggests it can serve as a practical cost-saving strategy. Framing food-waste management as a way to

improve financial positioning may make reduction campaigns more appealing, especially for low- and middle-income households. This extends Nigerian evidence by confirming respondents perceive a clear link between wastage and financial pressure, supporting sensitisation campaigns to reduce this burden.

Regarding reduction strategies, respondents showed high agreement. All five strategies exceeded the 2.50 mean, ranging from 3.27 to 3.38 (grand mean 3.34). Proper food storage scored highest (3.38), followed by buying only needed items (3.37), meal planning before shopping (3.35), reusing leftovers (3.32), and public education on food management (3.27). This indicates respondents view practical food-management practices as crucial for reducing waste.

The emphasis on proper storage directly agrees with Sunday et al. (2022) and Oluwadiran et al. (2025), who identified inadequate storage as a major waste factor and recommended affordable preservation techniques and airtight containers. The focus on meal planning aligns with Stancu, Haugaard, and Lähteenmäki (2016), whose research shows that planning meals and checking existing stocks before shopping significantly reduces waste. Recent empirical evidence from a large national dataset found that effective storing practices extend food life and reduce waste. Similarly, purchasing only needed items prevents excess food from deteriorating in storage, addressing the poor purchase planning noted by Sunday et al. (2022).

Reusing leftovers scored 3.32, agreeing with Aschemann-Witzel et al. (2023), who stressed improving leftover management and food-preparation skills. Respondents clearly value converting leftovers into subsequent meals. Finally, public education (3.27) is supported by Sunday et al. (2022) and Oluwadiran et al. (2025), who recommended sensitization campaigns to boost awareness and promote sustainable practices. This also corresponds with WRAP evidence, which shows that interventions highlighting food waste encourage households to reconsider consumption habits like meal planning and storage. Although WRAP's context differs, these underlying behavioral principles remain highly relevant, as household waste is heavily influenced by daily routine food management behaviors.

Conclusion

The study examined the prevalence of food waste, its economic impact on household budgets, and the strategies for reducing food waste among households in Chanchaga Local Government Area of Niger State. The findings showed that food waste is a common occurrence in many households, resulting primarily from excessive food preparation, poor food storage practices, food spoilage, and the improper disposal of leftover meals. These practices contribute significantly to the inefficient utilization of food resources and undermine household efforts toward sustainable consumption.

The study further established that food waste has a considerable economic impact on household budgets. Respondents agreed that money spent on food that is eventually discarded increases household expenditure, reduces savings, creates unnecessary financial pressure, and limits the ability of families to meet other essential needs. The findings demonstrate that minimizing food waste can improve financial management and promote better allocation of household resources.

In addition, the study identified several practical strategies capable of reducing food waste. These include proper meal planning before shopping, purchasing only the quantity of food required, adopting appropriate food storage methods, reusing leftover food where appropriate, and increasing public awareness through food management education. These strategies were perceived by respondents as effective measures for minimizing food waste and improving household budgeting.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are offered:

1. Local government agricultural extension workers and community health educators should implement practical training programs for households in Chanchaga Local Government Area. These interventions must be delivered through neighborhood workshops that teach low-cost

preservation techniques, precise portion control, and structured meal planning to directly mitigate food spoilage and over-preparation.

2. Community Development Associations and local welfare offices should integrate food waste reduction strategies into existing household financial management initiatives. This should be achieved by utilizing community forums and informational materials to explicitly demonstrate how minimizing food discard preserves disposable income for essential family expenditures such as healthcare and education.
3. The Chanchaga Local Government Council, in collaboration with local media outlets, should design and execute targeted public awareness campaigns. These initiatives should utilize local radio broadcasts and community engagements to disseminate actionable, evidence-based guidelines on rational purchasing, safe leftover management, and sustainable daily food-handling routines.

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