

Assessment of household livelihoods in Mumias West Sub County, Kakamega County, Kenya



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August, 2025

Acknowledgements

Evidence for Development would like to thank the staff of The Nasio Trust who undertook this survey and the community of Buchirinya B village who gave their time to participate in focus group and individual household interviews. This work was generously funded by supporters of The Nasio Trust

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Background

This report is a follow up to an initial baseline assessment conducted in Buchirinya B village¹, Kakamega County, Kenya in August 2024. The same households were interviewed as in the initial study, and the same research protocol, the Individual Household Method (IHM), was used. The purpose of the study was twofold: firstly, to provide detailed information on changes in household livelihoods that had taken place over the 12 month period separating the two studies and secondly to explore a new modality for decentralised, quantitative livelihoods assessment. Building on the intensive IHM training provided locally by Evidence for Development (EfD) in 2024, the 2025 assessment relied on distance support from EfD's Director of Operations. Field logistics and local leadership were provided by/ Nasio's Monitoring and Evaluation Officer who worked alongside 4 staff members trained in 2024. Each of the trained staff mentored a further 2 new members of Nasio's field team throughout the assessment. EfD was responsible for an initial 'refresher' training and orientation, in addition to survey design, data quality control and generating the analysis shown in this report.

In prioritising this work, Nasio has once again demonstrated its commitment to addressing the underlying causes of poverty in communities where they have been working for over 20 years. The partnership with EfD is important to both organisations which share a common ethos and a commitment to evidence-based development and to building local capability in livelihood assessment and impact research.

This information described in this report will inform Nasio's strategic approach to interventions that support the well being and economic resilience of households in its project areas including the poorest and most vulnerable.

Executive Summary

There has been little overall change in Village B since the 2024 survey. Poverty levels remain extremely high with around 11% of households unable to meet the locally defined 'standard of living threshold', based on the cost of a basket of essential items required to meet the norms for 'social inclusion'. Just under 8% of households (13 out of 59) are headed by women including elderly grandmothers, which may reflect the continuing impact of HIV/AIDS in this community.

There has been no change in land holding size, which is generally between 0.25 and 0.5 acres and crop yields remain low. This means that households are highly dependent on the market to purchase staple foods; only 3 households in this rural community were able to meet their household's food energy needs through their own production. The most important source of cash income was from agricultural day labour and overall the proportion of village income derived from crop sales was less than 10% of that derived from employment. In addition to agricultural work, better off households gain income from factory work, as skilled tradesmen (eg mechanic, plumber) or for a small number, salaried work eg teaching. Around a quarter of households own cattle (mainly a single dairy cow) but milk yields are low and cattle rustling noted in the 2024 baseline report remains a problem. Most households also keep chickens, with some selling eggs locally. The other main sources of income come from cash and food transfers, made by family members. Very few receive transfers from 'official' sources ie government pensions or NGOs.

¹ Referred to in this report as Village B

Methodology

The Individual Household Method (IHM) was selected for the 2024 and 2025 surveys, as it provides detailed insight into the circumstances of individual families. This is important to The Nasio Trust as its aim is to intervene in ways that best address the immediate and longer term causes of poverty. The approach is fully described in the 2024 survey report.

About the IHM approach

The IHM is a method for measuring household income, developed by Evidence for Development². In common with other household budget surveys, the IHM involves the collection of household income data. However, the IHM differs from other approaches in the following ways:

- (i) The method of data collection. This involves a semi-structured interview, rather than a standard questionnaire format. It allows interviewers to engage in a direct and meaningful way with interviewees, to ask for clarification and to probe more deeply when answers are seen incomplete.
- (ii) A recognition that in most rural areas in the global South, household food security is based on a combination of food produced by the household and retained for consumption, as well as income from the sale of agricultural products, local employment, remittances from kin who are working away from their communities and from wild foods. The IHM takes account of this by recording the kcal value of food the household produces and retains for its own use as well as cash income from employment. This allows the survey team to assess levels of 'Disposable income' i.e. the cash that remains to a household when it has met its kcal needs from a combination of own production and market purchase.
- (iii) The use of specialised software. This allows data checking and analysis to be carried out in the field and reduces the risk of errors in data collection, allowing errors to be identified and corrected.

The IHM Survey Process

The household survey involved the following steps:

1. Livelihood zoning.

At the start of the 2024 study, a livelihood zoning exercise of Kakamega County was carried out. Three distinct livelihood zones were identified, based on their dominant characteristics: a Maize Industrial Livelihood Zone; a Maize, Sweet Potato and Cattle Livelihood zone; a Maize Livelihood Zone. Appendix III includes a map and details of the 3 zones.

2. Contextual interviews and village mapping in the selected survey village

The team updated contextual information on average crop yields and market prices collected the previous year. This information is important, as it allows interviewers to ask informed questions when seeking clarification in the course of individual household interviews, for example if reported prices or yields appear to be outliers.

² For further information on IHM methodology see Petty C, et al (2022) Adaptation Planning: An Integrated Approach to Understanding Vulnerability in the Lake Victoria Basin. *Front. Clim.* 3:782534. doi: 10.3389/fclim.2021.782534; See also the Evidence for Development website (www.efd.org/)

The village map with household names and numbers drawn up in 2024 was checked and updated. This was a complex task and the team noted that in future, more time should be allocated for this activity. However, without this detailed work, the comparisons we were able to make in the circumstances of individual households would not have been possible. This process also ensured that no household was left out in the survey.

3. Individual household interviews

Individual household interviews were carried out in teams consisting of one Nasio staff member trained the previous year and two new field staff. After 2 days of observation and supervised interviews, new trainees were permitted to interview independently if the experienced team leader considered they fully understood the 'structured interview' process, could follow ethical guidelines and were able to accurately record interview details. Each team was allocated two households to interview per day.

4. Data upload and analysis

At the end of each day, information recorded in the village on household interview forms was transferred onto spreadsheets, checked and forwarded to the EfD. This data was re checked and any queries forwarded to the field. Data was then uploaded into the IHM database. Where the information required further clarification or appeared to be incomplete, the household was re-visited. Regular contact was maintained between EfD and Nasio's M & E officer who supervised the exchange of data, passed on technical queries from colleagues, and organised follow up enquiries.

The study village

The survey village is located in Musanda ward, Mumias West and is situated in the 'Maize' Livelihood sub Zone. The village is considered by Nasio field staff to be typical of other villages in the zone..

The main crops grown include maize, beans, sweet potato and cassava. The main livestock kept include cattle, goats, chicken and sheep. The main sources of employment include agricultural labour, petty trade and small informal businesses. Markets are held in Musanda and Ibinda towns.

Community members described the main challenges they face as: cattle rustling, general insecurity and drought. They noted that the road network had improved recently

Field research method

A total of 59 households were identified and interviewed out of the original 66 households included in the previous year's study. 6 of these households were no longer residing in the village. 1 household that had been interviewed previously declined to take part this year. The rate of attrition (around 4%) is low for a study of this kind.

Survey Findings

The following sections provide a quantitative analysis of the main sources of income recorded in the individual household interviews and a short summary of changes recorded between the studies conducted in 2024 and 2025. It should be noted that none of the field assessors had any experience of the IHM interview process in 2024, whereas the 4 team leaders had both a refresher training and were able to build on their previous experience.

Data is shown in a series of charts, which are derived from the EfD's software (OIHM).

Charts include

- Distribution of Disposable Income and Disposable income after Standard of Living costs
- Distribution of Disposable income showing female and male-headed households
- Main sources of Food Income
- Main sources of Cash Income
- Landholdings
- Livestock holdings

Note: Data in the summary charts are all shown in order of disposable income.

Disposable Income (DI)

CHART 1 DISPOSABLE INCOME

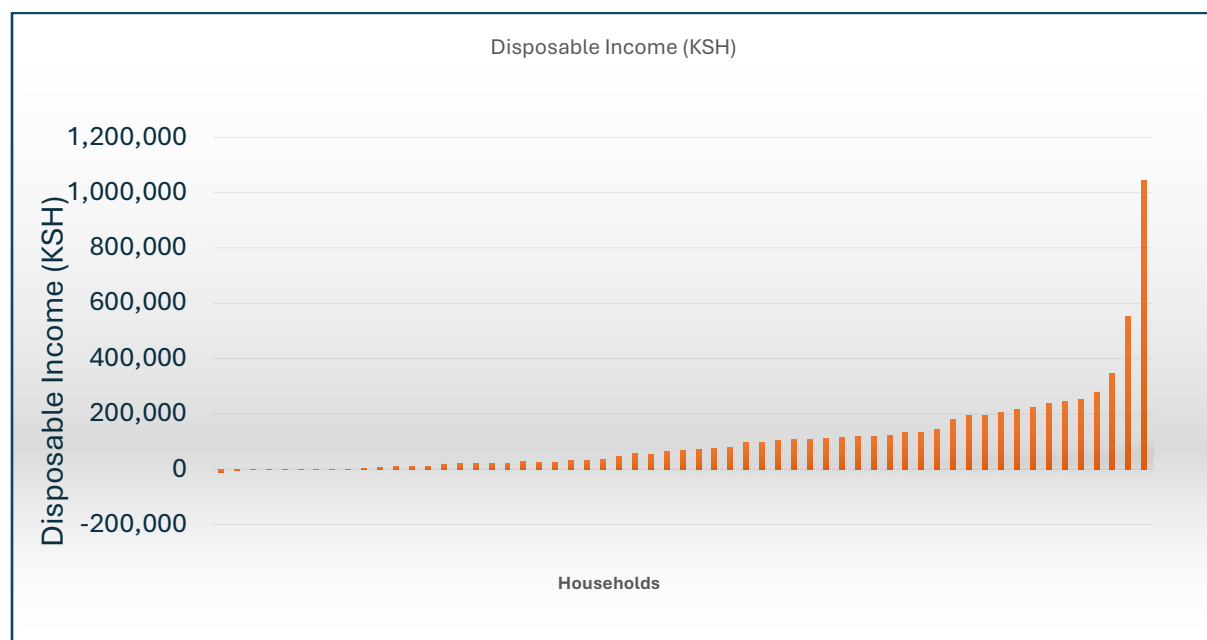


Chart 1 shows the distribution of Disposable Income (DI) across the community. In IHM studies, DI measures the cash remaining to each household after it has met its food energy requirements to WHO (1985) standards (see Appendix I). Those households with income too low to meet this standard are shown below the x axis. Each bar represents an individual household. The deficits are not great and range between 3kg and less than 0.5 kg.

In this study 5 households (around 3%) fell into the absolutely poor category-they do not have access to sufficient income to meet their basic food energy needs. However, a further 18 households (just under 11%) can meet their

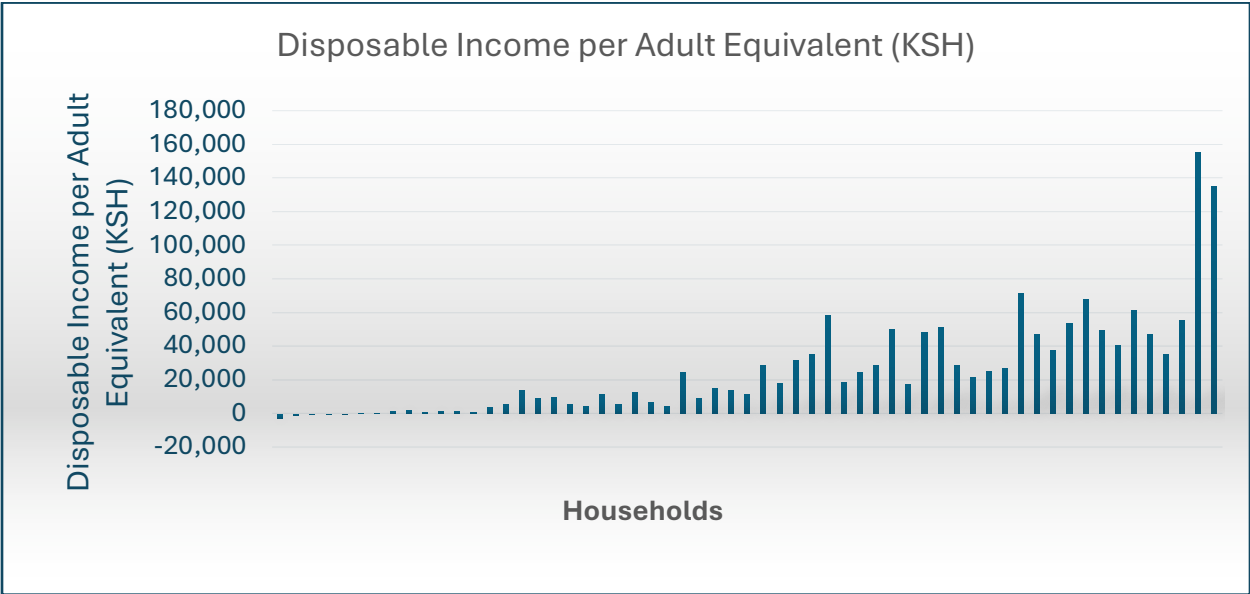
food energy needs but do not have sufficient income to purchase all the basic standard of living items identified in focus group discussions.

There is no change in the overall distribution of income between Years 1 and 2, although in Year 1 a larger number of households fell below the food poverty and standard of living thresholds (16% and 25% respectively). Not too much should be read into this as the threshold between these cut offs is very small and some of the difference could be due to less experienced interviewers in Year 1. The income gap between the richest and poorest households in the village remains extremely high, with a majority of households falling into the ‘Poor’ or ‘Very poor’ category.

Disposable income per Adult Equivalent

As household size varies significantly, we have also analysed income per ‘adult equivalent’ i.e. based on the age and sex of household members (see Appendix I).

CHART 2 DISPOSABLE INCOME PER ADULT EQUIVALENT



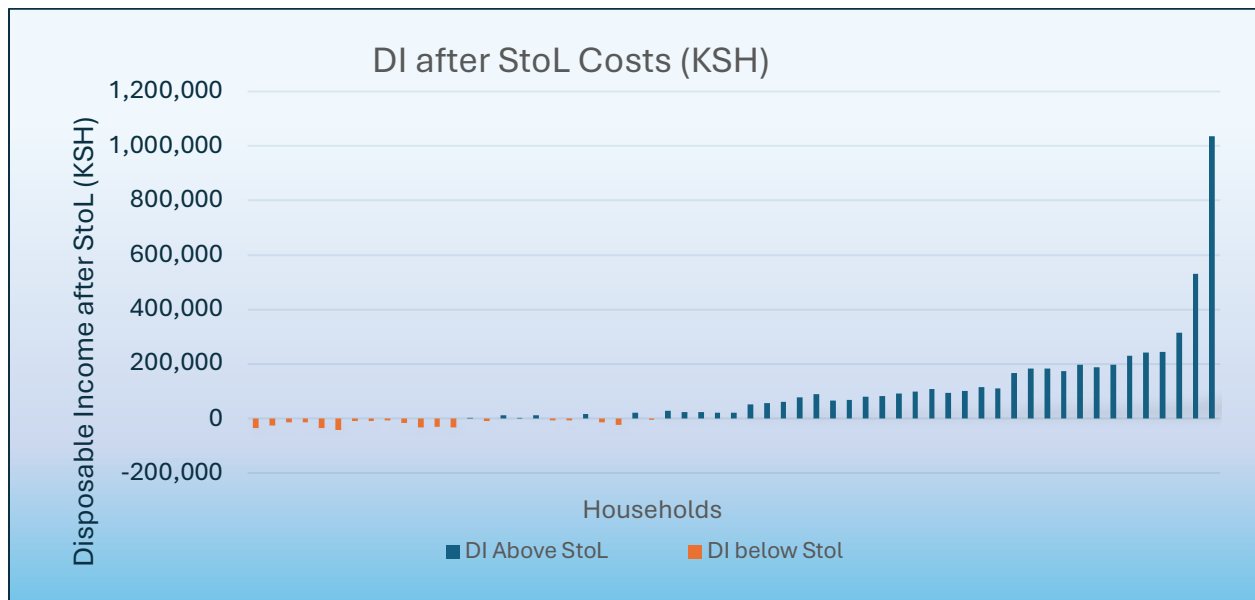
The ‘jagged’ distribution reflects the fact that larger households have less disposable income ‘per adult equivalent’ than smaller households although their overall income may be higher.

Standard of living threshold

In addition to analysing absolute ‘food poverty’, we also look at the income required to meet a basic standard of living threshold. A full list of the items considered to be necessary of ‘social inclusion’ was identified by a focus group made up of local women and men at the start of the 2024 survey and updated in the current year. This list together with the costs of items is shown in Appendix II

Chart 3 shows DI remaining after standard of living costs (StoL) have been deducted. In this year’s survey, 19 households (11%) are below the StoL threshold.

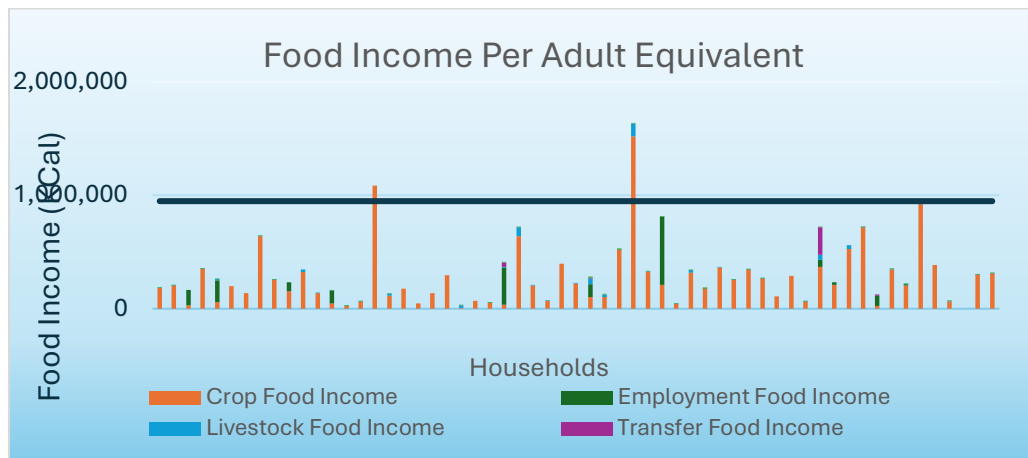
CHART 3 DISPOSABLE INCOME AFTER STOL



Sources of Food Income

Chart 4 shows sources of food income. This is food that is available to the household either through their own production, through gifts from kin, or through payment for work in food, and is measured in kcals. Data in Chart 4 is presented 'per adult equivalent'³. This gives a clear indication of the level of market dependence in the community. The dark horizontal line at around 1,000,000 kcals indicates the food energy requirement for an adult.

CHART 4 SOURCES OF FOOD INCOME



³ See Glossary, Appendix I for the method of calculating the 'adult equivalent'

Observations on households that are able to meet all their food energy needs from their own production

As shown in Chart 4, only two households clearly met all their food energy needs per adult equivalent from their own crop production and a third is very close to the threshold. (This is a similar result to the previous year's study in which only one household met all their food energy needs from their own production). Of these households one is in the poorer half of the income distribution, one is in the middle, and one is towards the top. Given the relevance of this data to Nasio's overall objective of raising living standards and increasing household resilience, we have looked in more detail at the characteristics of these household, which are as follows:

HH 15 (poorer end of the income distribution): Extremely small household: elderly female household head with young adult present only part of the year, so the household has a very low food energy requirement. They have half an acre of land and produced 588 kg maize. Inputs include 16 kg fertiliser and seeds. The household also keeps chickens. This is not a typical household.

HH 48 (middle of the income distribution) Household of 4, 2 adults, 2 children. Own 0.75 acres upland, and rent in a further 0.5 acres. They produce a wide range of crops including maize (880 kg,) Sweet Potato (489 kg) and Cowpeas (108 kg) as well as various green leafy vegetables. They also have livestock (a cow and chickens). The household purchased 50kg fertiliser and paid for additional labour to help with land preparation. This household is not typical of others in terms of their land holdings and the range of crops grown.

HH 57 (upper end of the income distribution) Household of 5 including 1 child. They own 0.75 acres. They grow a wide range of crops some of which they sell. The household produces 1,080 kg maize and sell 180 kg. They also produce Sweet Potato, Beans and a range of green vegetables. They have livestock (chickens and goats). They pay for tractor hire (3,000 KSH) and purchase fertiliser (25 kg) and seeds. In addition to working on their own land, there is some additional income from agricultural day labour. This is another atypical household but demonstrates the higher yields that can be achieved on larger plots.

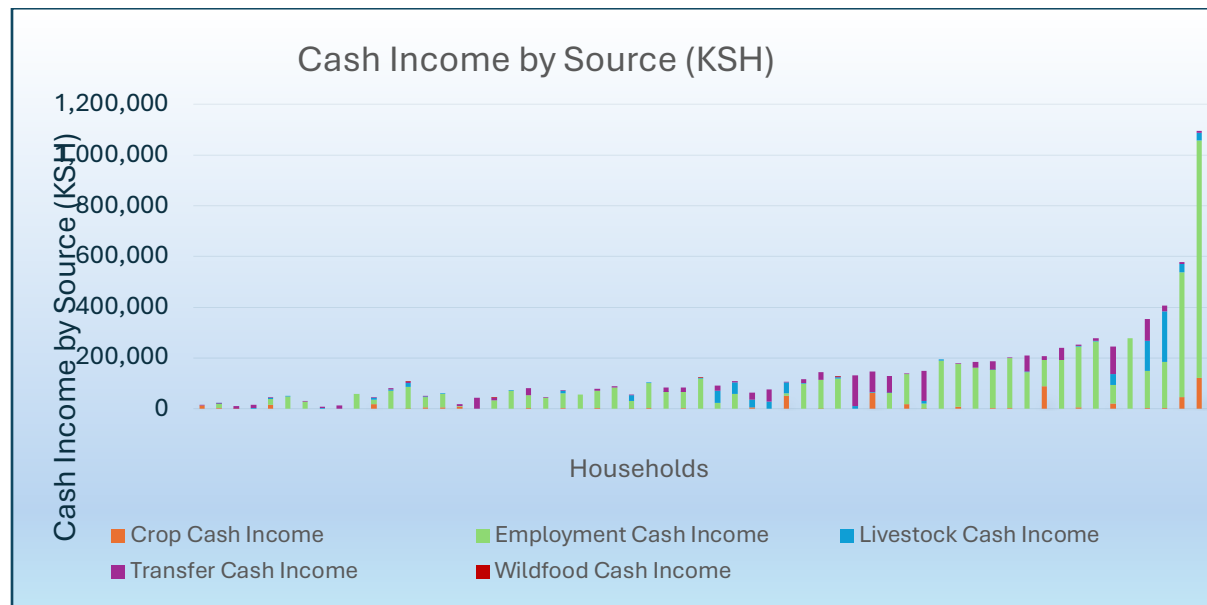
Sources of Cash Income

Sources of Cash Income are shown in Chart 5. There has been no change in the main sources of cash income. Most is derived from employment and is mostly in the form of casual agricultural day labour, paid at a rate of 200 KSh/day. The rates of pay are unchanged from last year, and again in some cases work is paid in food. As noted last year, 200 KSH would purchase around 5 kg of maize-sufficient to feed a larger household, but leaving very little for other needs. Other sources of employment income include petty trade, casual off-farm work in construction and factories, and, for a minority of households salaried work eg teaching or work as security guards.

Cash income is also derived from the sale of crops, the sale of livestock and livestock products and cash from kin. Income from crop sales is shown in orange in the chart. It is extremely low and concentrated in the upper half of the income distribution. Similarly, income from livestock and livestock products is limited.

It is notable that over half of all households receive some cash support from relatives. This varies from very small amounts (2,000KSh-3,000KSh) to over 50,000KSh. However, for many households, money sent from kin working outside the village (shown in Chart 5 in purple) is an important to their ability to meet their livelihood needs.

CHART 5 SOURCES OF CASH INCOME



Land holdings

Land holdings are small with most plots measuring from 0.25- 0.5 acres or less. Soils are generally poor, lacking organic fertiliser, and crop yields are low. The most commonly grown vegetable is kale which can be dried and preserved. However, this year saw a marked increase in reported income from the sale of indigenous green leafy vegetables (eg Aramanthus, Dodo) which have a higher market value than vegetables such as Kale. Poor roads and lack of transport is a constraint on profitable vegetable production.

Livestock Assets

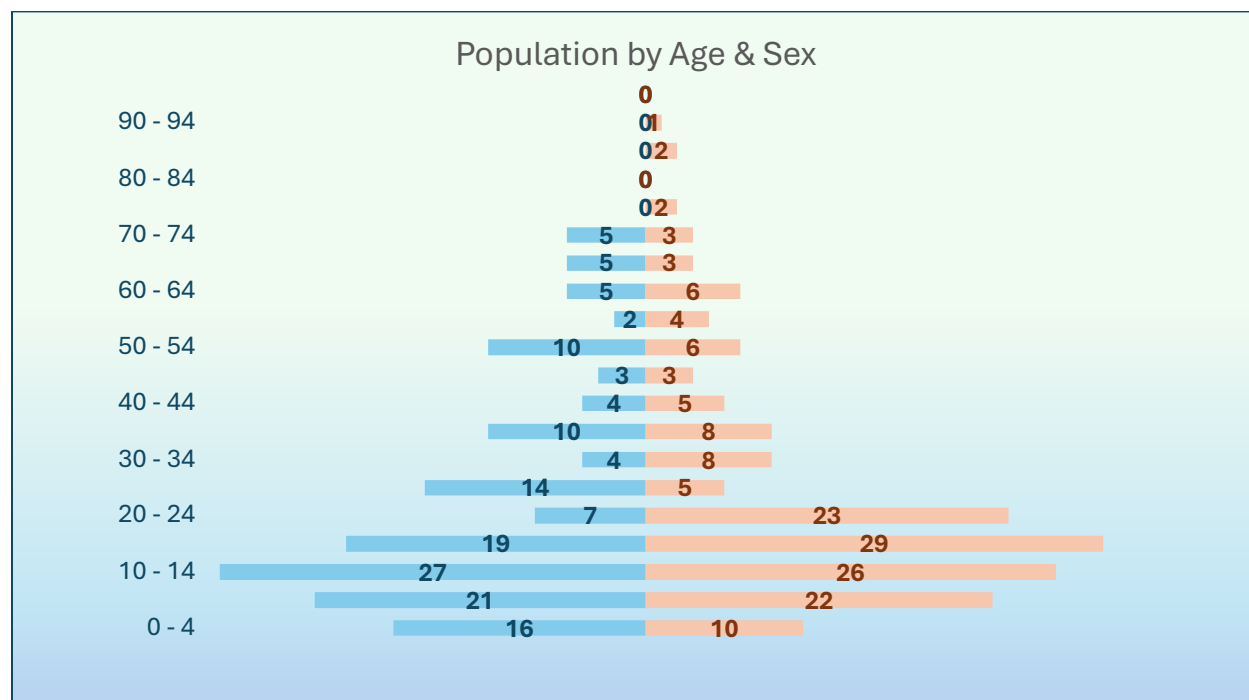
The main livestock kept by this community include chickens, dairy cows and smaller numbers of sheep and goats. Although this area is suitable for cattle rearing, numbers have reduced in recent years due to cattle rustling and associated violence. As the Cash Income chart shows, earnings from the sale of livestock and livestock products are low and made up largely of sales of small quantities of milk and eggs. The reduction in the number of cattle has had a wider impact, contributing to the lack of organic fertiliser and low crop yields.

Population Pyramid and Note on Demography

The population pyramid of this community is fairly typical of countries in sub Saharan Africa, with the majority of the population under 20 years of age. The small numbers in the middle age group (35-55 years) is interesting: this may be an anomaly due to the small sample size or it may be typical of the area and merit further local enquiry. Around 8% of households are currently headed by women. Whilst female headed households are found across the income distribution, the majority are among the poorer households in the lower half of the income distribution. The

proportion of female headed household is high compared with other countries, including those in Africa. However the figure is broadly in line with the average for rural communities in Kenya (and lower than the average figure for Kenya's urban communities).

CHART 6 POPULATION PYRAMID



Comparisons in the main sources of food and cash income, 2024 and 2025 studies

As we now have two years of data collected using the same methodology in the same village, it has been possible to compare overall changes in the main sources of food income and cash income. These are shown in the following tables.

TABLE 1 SUMMARY, MAIN SOURCES OF **FOOD INCOME (KCALs)** (IE FOOD PRODUCED BY THE HOUSEHOLD AND RETAINED FOR ITS OWN CONSUMPTION)

Food Income Sources	Year1 KCals	Year2 Kcals
Crops	50,583,649	61,509,320
Wild Foods	1,515,732	348,437
Employment paid in food	13,930,020	10,618,980
Livestock Products	1,217,851	1,584,550
Transfers	1,986,940	1,314,480
Total	69,234,191	75,375,767

TABLE 2 DISAGGREGATED **TOP 10 SOURCES OF FOOD INCOME** FROM CROPS PRODUCED BY THE HOUSEHOLD AND RETAINED FOR HOUSEHOLD CONSUMPTION (MEASURED IN KCALS).

Top Food Income Source Yr 1 (2023)	Value (Kcals)	Observations	Top Food Income Source Yr 2 (2024)	Value (Kcals)
Maize, dry	40,804,830	No change	Maize, dry	51,339,090
Agricultural Labour	13,842,900	No change	Agricultural Labour	10,185,780
Cassava, dry	2,120,400	Cassava not widely produced yr 2: crop rotation local practice	Beans, dry	3,531,360
Maize, green	1,367,650	No change	Maize, green	1,623,160
Beans, dry	1,280,160	Pulses grown, different type	Cowpeas, fresh	1,191,402
Milk, cow	1,069,696	Slightly lower milk consumption, increase in Sweet potato (see above, crop rotation)	Sweet Potato, fresh	975,840
Avocado - wild	891,000		Milk, cow	934,080
Kale	875,832	Lower reported Kale	Cowpeas, green	554,850
Cassava, fresh	698,445	See above: reduced cassava year 2	Kale	483,552

Sweet Potato, fresh	697,680	See above, increased SWP year 2.	Egg, chicken	402,675
Other	5,585,598		Other	4,153,978

There has been a slight overall increase in food produced by the household and retained for its own consumption. The main changes are in Sweet Potato and Cassava production. These are both root crops and local information has confirmed that this is due to the practice of crop rotation.

Cash income

TABLE 3 SUMMARY, MAIN SOURCES OF CASH INCOME, Yr 1 AND Yr 2 COMPARED

Top Income Source	Year1	Year2
Crops	373,400	435,821
Wild Foods	26,674	2,270
Employment	5,330,970	5,821,410
Livestock Products	193,608	134,290
Livestock Sales	265,000	620,200
Transfers	791,152	1,256,350
Total	6,980,804	8,270,341

There is a slight increase in cash from employment and from crop sales. The increase in income from livestock sales is interesting and merits further enquiry locally. This could be due to market conditions, distress sales from households facing particular hardship or most likely a combination of the two. There is also an increase in transfer income. The majority of transfers are from kin, and may reflect rising incomes in urban areas, or an increase in the number of young people leaving the village and sending cash home.

TABLE 4 DISAGGREGATED MAIN SOURCES OF CASH INCOME DERIVED FROM THE SALE OF CROPS

Table 4 provides further disaggregation of cash income sources, showing the changes in cash received from the sale of specific crops. Comments and observations are shown in column 3.

Top Crop cash income source Year 1 (2023)	Value (KSH)	Observations	Top Crop cash income source Year 2 (2024)	Value (KSH)
Maize, dry	88,120	No change	Maize, dry	85,620
Sugar cane	70,000	Sugar cane not recorded yr 2. SWP important cash crop -see note on rotation in Table	Sweet Potato, fresh	81,000
Kale	47,270	Pulses more important cash income source Yr2	Cowpeas, fresh	76,800
Banana	32,700	No bananas noted in Yr 2	Leaves, dark green	68,368
Leaves, dark green	28,730	Dark green leaves (traditional crop) much more important income source in Yr 2	Kale, bunch	64,440
Yams	27,875	No Yams noted in Yr 2	Cowpeas, green	39,120
Kale, bunch	20,000	See above, notes on Green leaves,	Leaves, light green	28,575
Matoke	18,000	More beans and cowpeas produced Yr 2	Beans, dry	22,700
Sweet Potato, fresh	17,800	See note on SWP -crop rotation Yr 2	Cowpea leaves	20,954
Beans, dry	13,900	No Soya noted in Yr 1	Soya, dry	14,250
Other	28,005		Other	14,994

Note on changes at individual household between Year 1 and Year 2

Of the poorest 10 households, half are significantly poorer than they had been the previous year, when they did not appear among the poorest households. This shows how precarious life is for households in this community. The main cause of their drop in income is the loss of higher paid employment, and in one case the death of the household head. For example, in one household, work was lost from the sugar factory (HH 80) and in another two adult males who had previously contributed income from skilled labour left the household. Conversely, the

reason for significant improvements in disposable income were due to individuals accessing more skilled work, or from the income provided by economically active adult males joining the household. This reflects the importance of household participation in the labour market, rather than on crop sales in determining living standards. It is not to say that income from the sale of crops and/or livestock is unimportant, but in terms of scale of impact, employment appears to be the key factor. At a village level, analysis of total cash income derived from different sources shows that overall, income from employment is more than 10 times greater than income from crop sales. It is around 7 times greater than income from livestock and livestock products and about 5 times greater than cash gifts which are derived mainly from kin. This shows the greatest overall exposure to income loss after employment, is loss of income from external cash remittances.

Appendix I

Glossary of terms used in IHM analysis

- Household food energy requirement: The sum of the food requirement of each individual in the household, according to their sex and age⁴ and time present in the household during the study period.
- The staple diet (and price per kcal of the staple diet): The staple diet consists of the foods that form the basis of the local diet purchased by poor households after their own food production (and/or rations, in the case of refugee households) has run out. This is identified in consultation with local key informants.
- Disposable Income After taking account of food energy already derived from the household's consumption own-produced food, the price per kcal of the staple diet is used to calculate the cost of purchasing the remaining calories needed to make up the household's total annual household food energy requirements.
Equation 1: Disposable income
Disposable income = Sum of all household cash income – ((Household food energy requirement [kcal] – Sum of all household food income [kcal]) × Price per kcal of staple diet)
- Cash income: All cash income from all sources (i.e. crop sales, sale of livestock and livestock products, employment/self-employment, cash transfers, and the sale of wild foods).
- Food income: All sources of income as food consumed (e.g. from crops, livestock products, payment in kind, food gifts and transfers and wild foods). Recorded in kilocalories (kcal).
- Disposable income: The cash remaining to each household after it has met its total food energy needs, based on WHO reference standards⁵. This can be a negative value, if the household is unable to meet its full food energy needs with its available income.
- Adult equivalents: Disposable incomes and other figures can be standardised to take account of variation

⁴ Food energy requirements derived from 1985 WHO reference standards: 'Energy and protein requirements', *Report of a Joint FAO/WHO/UNU Expert Consultation* (1985), World Health Organization Technical Report Series 724. Available online at <http://www.fao.org/docrep/003/aa040e/aa040e00.HTM>

⁵ Food energy requirements derived from 1985 WHO reference standards (see above).

in household size by dividing them by the number of 'adult equivalents' in each household. The number of adult equivalents is calculated as the total household energy requirement divided by the energy requirement of a young adult (2,600 kcal per day)⁶. The standard IHM income distribution chart shows 'disposable income per adult equivalent' (DI/AE).

- The food poverty line: Households that cannot access their basic food energy requirements⁷ – either through own production, transfers, food purchase using cash income, or a combination of these – are described as being 'below the food poverty line'. Data for these households appears below the x axis (as negative y axis values) on the disposable income charts. The income deficit shown on the chart is equivalent to the cost of purchasing the quantity of food required to meet reference food energy standards, based on the cost of the cheapest staple(s) that form the local staple diet, established with key informants.

Appendix II

Cost of Minimum Standard of Living Items

GOODS AND SERVICES REQUIRED TO MEET MINIMUM STANDARD OF LIVING AT BUCHIRINYA B VILLAGE⁸ COMPARISON OF 2024 COSTS WITH 2025 COSTS

Item	Cost (Kshs) 2024	Applicable to	Costs (Kshs) 2025
Clothes – man	400	Adult male aged over 15 years	600
Clothes – women	500	Adult female aged over 15 years	800
Clothes – child	1000	Child aged 4 to 14 years	1000
Primary school costs	9000	Child aged 6 – 14 years	10000
Soap	2600	The household	3600
Matches	120	The household	180

⁶ Food energy requirements derived from 1985 WHO reference standards (ibid).

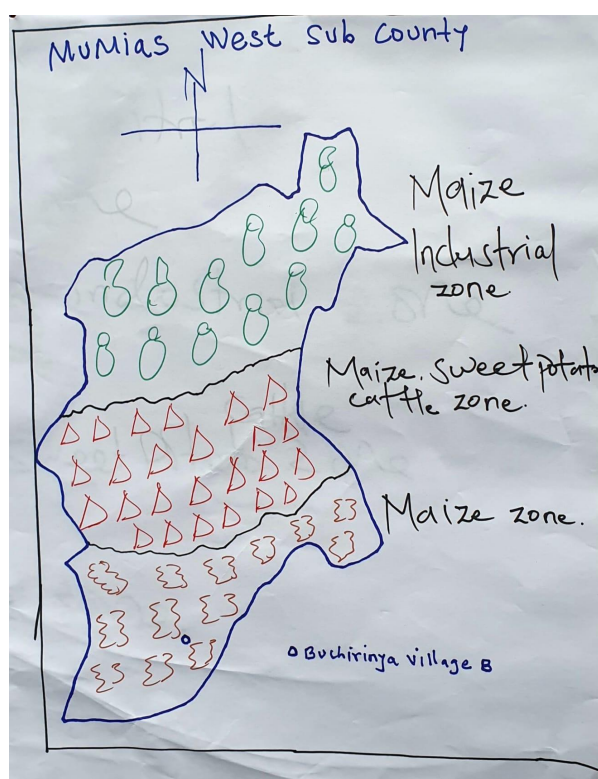
⁷ Food energy requirements derived from 1985 WHO reference standards (ibid).

⁸ Note: These items were common to most households.

Kerosene/paraffin	3640	The household	3640
Salt	240	The household	360
cooking oil	2080	The household	2400
sugar	2080	The household	2160
Primary school costs	1400	The household	2000

Appendix III

Livelihood Zones of Mumias West Sub county



Three distinct agro-ecological economic areas were identified by a locally convened focus group at the start of the 2024 assessment:

Maize Industrial Livelihood Zone: The main economic activities carried out in this zone include agriculture, trading, service industries e.g. Boda Boda and petty trade. The main crops grown include maize, sugarcane, beans, sweet potatoes, yams, vegetables (Kales, local vegetables) and groundnuts. The main livestock kept chicken, cattle, goats, sheep, pigs, rabbit, ducks, fish pond.

Maize Sweet Potato Cattle Livelihood Zone. The main economic activity in this zone is agriculture. Main crops grown and sold include maize, sweet potatoes, kales and pumpkin leaves. Animals kept include cows, sheep, goats and sheep. Quarrying activity takes place in the Bukaya rock area. This is an important trading centre for the sub county, with a weekly market that takes place in Buhuru market where cows, goats, sheep and chicken are sold. The main type of employment include Boda Boda and matatu transport services, but the majority of people engage in casual jobs, including agricultural day labour alongside their own farming. There are few employment opportunities in social amenities such as hospital and schools.

It's a rocky zone with Bukaya being the main rock and a tourist attraction where locals and tourists visit for adventure. The zone is majorly upland with a few lowland areas.

The main Challenges within this zone include; poor infrastructure like impassable roads, cattle rustling, insecurity, availability of small loose rocks in the farms which interferes with the soil fertility, drought in some season, unemployment rate is high.

Maize Zone The main crops grown in this zone include maize, beans, sweet potato and cassava. The main livestock kept include cattle, goats, chicken and sheep. The main sources of employment include agricultural labour, petty trade and small informal businesses. Markets are held in Musanda and Ibinda towns.

Community members described the main challenges they face as: a poor road network, cattle rustling, general insecurity and drought.

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