

# IMPACT REPORT

## Impact Assessment of Feed the Future Kenya Livestock Market Systems Activity on the Local Food System



**Presented By**

Horn Population Research Development

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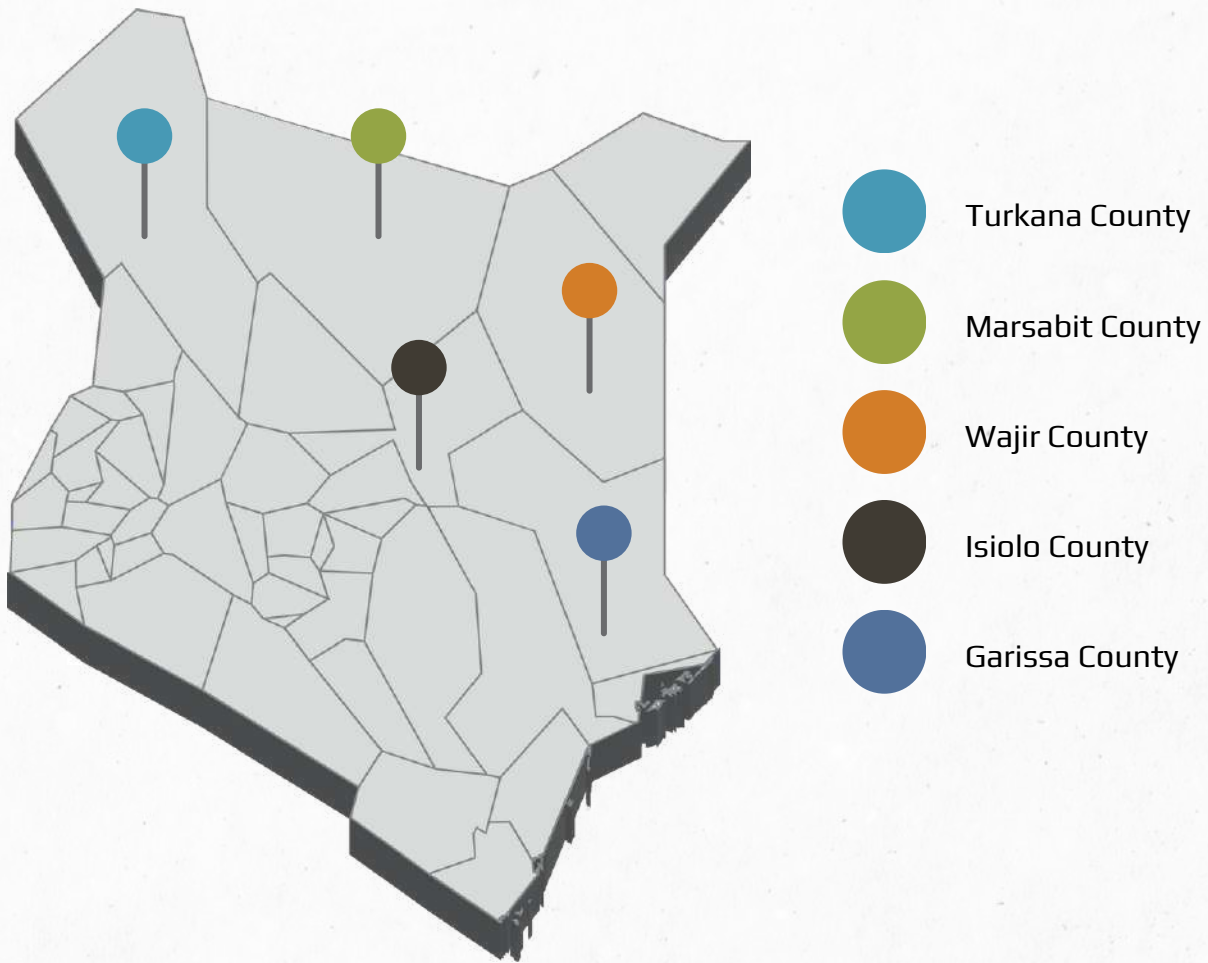
## ABBREVIATIONS AND ACRONYMS

ABBREVIATION	DESCRIPTION
ASAL	Arid and Semi-Arid Lands
CoC	Chamber of Commerce
COVID-19	Corona Virus Disease
CUK	Cooperative University of Kenya
DDQ	Diet Quality Questionnaire
FGD	Focused Group Discussions
GDP	Gross Domestic Product
GIRL	Girls Improving Resilience with Livestock
GLMA	Garissa Livestock Market Association
HH	Household
HPRD	Horn Population Research and Development
ILMA	Isiolo Livestock Market Association
KEBS	Kenya Bureau of Standards
KII	Key Informant Interviews
LMA	Livestock Market Association
LMS	Livestock Market Systems
MLMA	Marsabit Livestock Market Association
NCDs	Non-Communicable Diseases
ODK	Open Data Kit
REAP	Rural Entrepreneur Access Activity
REGAL-Ag	Resilience and Economic Growth in the Arid Lands – Accelerated Growth
SACCO	Savings and Credit Cooperative
SMEs	Small and Medium Enterprises
SMES	Small and Medium Enterprises
SRC	Smart Regional Consultants
ToT	Training of Trainers
US	United States
USAID	United States Agency for International Development
WASH	Water Sanitation and Hygiene
WPC	Ward Planning Committees
ZOI	Zone of Influence

# 1. INTRODUCTION

## Background

The Feed, the Future Kenya Livestock Market Systems Activity was a Five-year (2017-2022) Activity with Leader and Associate Awards funded by USAID and managed in a consortium of ACDI/VOCA, Mercy Corps, and their partners.



The Activity sought to strengthen people's resilience and reduce poverty, hunger, and undernutrition in Marsabit, Turkana, Isiolo, Garissa, and Wajir Counties in Northern Kenya by:



Expanding and diversifying viable economic opportunities through developing livestock related businesses; diversifying livelihoods; improving access to capital; strengthening the policy environment, institutions, and governance; and improving youth employability and work readiness skills; and



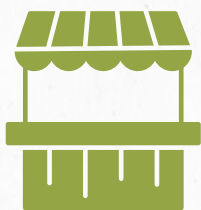
Strengthening community capacities for resilience and growth through strengthened rangeland and water management; drought cycle management and conflict management; and improved health, nutrition, hygiene, and WASH practices, literacy, numeracy, and life skills.

As the first phase ended, the LMS was granted a nine-month extension from October 2022 to June 2023. Additionally, a subsequent 12-month extension was approved, stretching the LMS's duration until June 2024. These extensions aimed to provide crucial aid to communities in six ASAL counties (Garissa, Isiolo, Marsabit, Samburu, Turkana, and Wajir), mitigating the repercussions of five successive failed rain seasons and food shortages exacerbated by the Ukraine crisis. The initiative is essential in preserving the progress achieved through existing USAID and other developmental interventions. This is being achieved through:



**Promoting water, sanitation, and hygiene interventions through:**

- Water sector coordination and planning at county and community levels.
- Support major water utilities and water service providers to resume or maintain service provision.
- Strengthen the security of WASH infrastructure with consideration to climate-resilient schemes.



**Provision of market-based solutions to avail food commodities in LMS counties by:**

- Stimulation of operations in existing markets and ensure that SMEs can continue to provide food commodities.
- Reducing the impact of price increases on basic food commodities by maintaining the flow of food commodities to ASALS and the sale of livestock from the target counties



**Building local capacities:**

- Strengthening institutions and systems aligned to localization.
- Ensuring efficient and effective county government transitions
- Scaling up and sustaining the GIRL and REAP models.

## Objectives of the Analysis

The primary objective of the impact assessment was to develop a comprehensive understanding of the impact of the LMS initiatives on the food environment within the Zone of Influence (ZOI) of the Feed the Future Kenya Livestock Market Systems Activity (LMS). This involved exploring the intricate relationship between LMS activities, the broader food system, and consumer behavior. By doing so, the assignment sought to uncover how LMS interventions impacted the availability, affordability, accessibility, convenience, and desirability of nutritious foods in the ZOI, influencing consumer choices and nutrition outcomes. The assessment aimed to provide a solid understanding of how LMS activities have shaped the food environment and consumer behavior within the ZOI. By examining the function and interplay of the food system, the food environment, and consumer behaviors, the assignment sought to shed light on the broader impact of LMS development interventions on nutrition and food security in the region, informing future strategies for maximizing positive nutritional impact while minimizing risks.

# EXECUTIVE SUMMARY

The study indicated an improvement in the mean per capita income from Kshs. 1,940 (\$0.65 per person per day) at baseline to Kshs. 2,776 (\$0.83 per person per day) at endline. Majority of the population is still living below the poverty line of US\$ 1.90 per person per day, with only 11% of the respondents being above the poverty line.

## MEAN CAPITA PER INCOME

- Kshs. 1,940 (\$0.65 per person per day) at baseline
- Kshs. 2,776 (\$0.83 per person per day) at endline



**11%**

Only 11% of the respondents being above the poverty line.

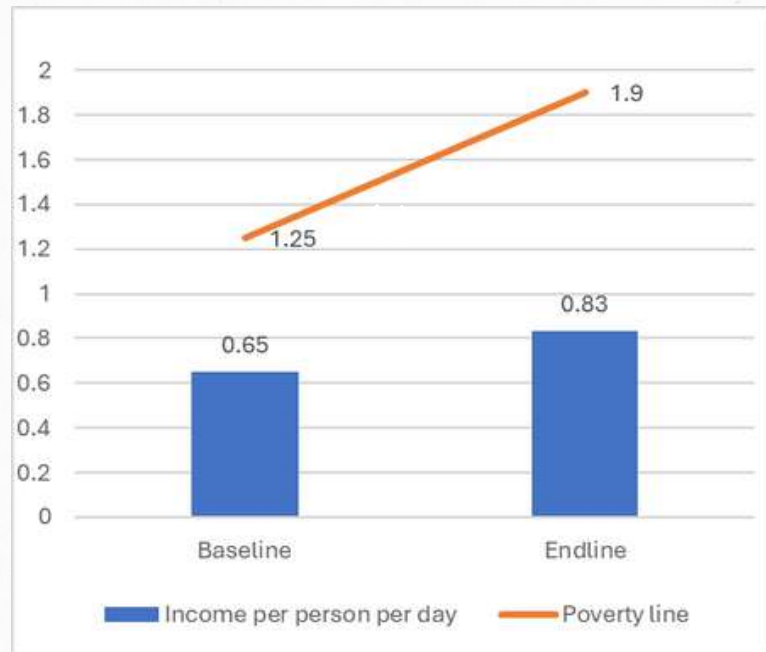


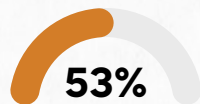
Figure: 1 LMS impact on Income per Capital

LMS interventions resulted in a 43% increase in incomes with 53% of the participants now thriving on trade of livestock including poultry and animal products including honey and eggs compared to baseline where only 34% were selling livestock in the LMS target counties. a shift from reliance on casual labour to business income was noted with 37% of the respondents now relying on businesses for a livelihood compared to 24% at baseline replacing casual labour as the second most common source of income. 87% of the supported SMEs reported increased customer base after LMS intervention.

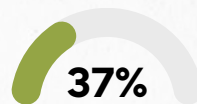
An improvement in household spending on food was noted from 85% at baseline to 63%. This was mainly attributed to the nutrition trainings offered by LMS which promoted kitchen gardening and consumption of the locally produced products including eggs and vegetables.



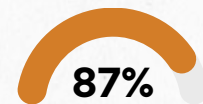
Increase in Incomes



Thriving on trade of livestock



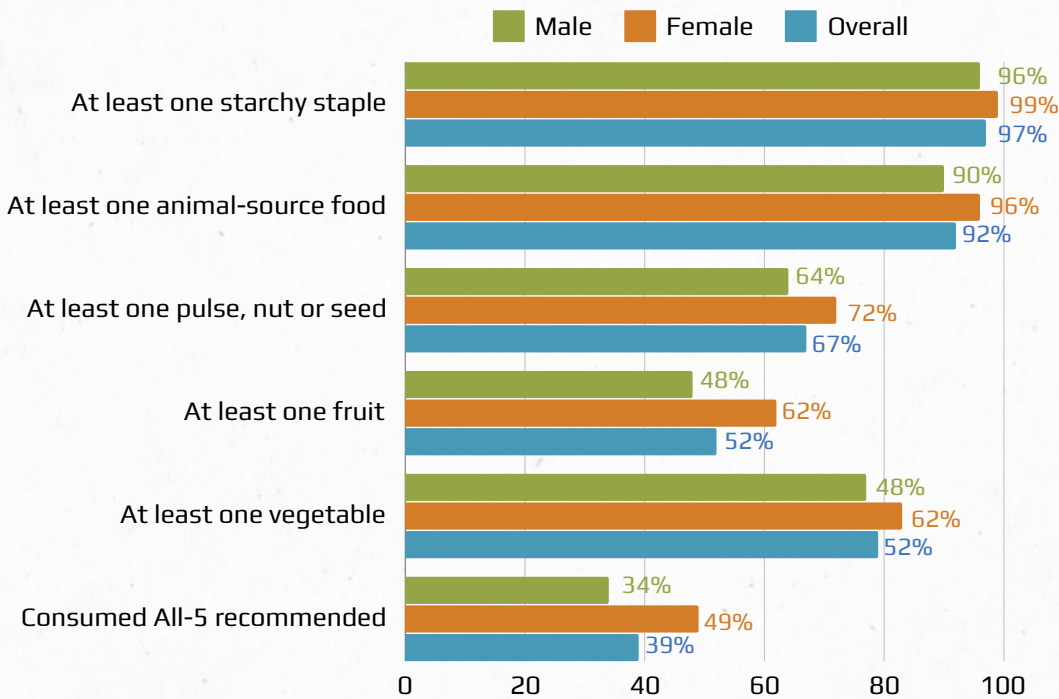
Relying on businesses for a livelihood



Increased customer base for SMEs

## Impact of LMS Interventions on Respondents and Supported SMEs

## Dietary Adequacy



54% of the respondents reported increased knowledge of benefits of nutritious foods and how to use them. An analysis of data collected using the Diet Quality Questionnaire to assess diet quality indicated that the 71% of women of reproductive age consumed diets that met minimum dietary diversity of at least 5 of 10 food groups, which means that the remaining 29% of women have a lower probability of micronutrient adequacy from their diet.

39% of the respondents were consuming all the five food groups that are recommended for daily consumption with a Food Group Diversity Score (reflecting the probability of meeting micronutrient requirements) of 5.6 out of ten. 79% of the respondents consumed vegetables while 50% consumed some fruit, which help to provide dietary adequacy and protect against diet-related non-communicable diseases.

### Dietary Change After Interventions



Increased knowledge of benefits of nutritious foods and how to use them



Women of reproductive age consumed diets that met minimum dietary diversity



Have a lower probability of micronutrient adequacy from their diet



Consumed all the five food groups that are recommended for daily consumption

LMS integrated nutrition on the trainings that were offered to the GIRL and REAP models' beneficiaries where local food production through kitchen gardening and consumption of what was locally produced was promoted. 54% of the respondents indicated that their knowledge of benefits of nutritious foods and how to use them have increased since they started interacting with LMS. LMS also supported non-traditional value chains which included poultry and apiculture which contributed to the availability of nutritious foods to the local communities. This coupled with the increased incomes resulted in improved nutrition outcomes for the targeted households.



# 54%

**Respondents indicated that their knowledge of benefits of nutritious foods and how to use them have increased since they started interacting with LMS**

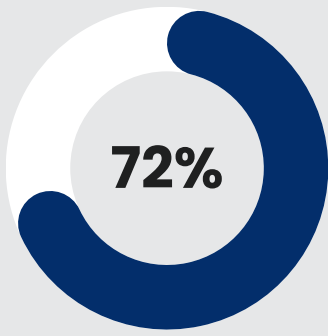
# “

*“Before LMS, we used to buy only maize flour and beans for our meals. Now we buy rice, potatoes, carrots, spinach, oranges, bananas, eggs, and milk. We have seen a difference in our health and energy levels.” - P34*

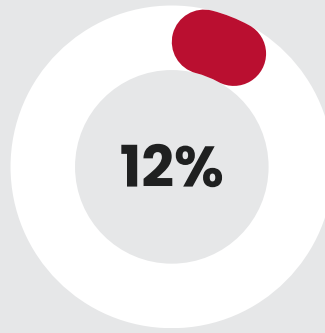


LMS invested heavily in building Livestock Market Association's capacity to improve market management. This led to a significant influx of livestock buyers, from both within and neighbouring Counties trading in both livestock and non-livestock commodities. 72% of the respondents noted an increase in the number of traders both local and non-local who were availing more diversified food commodities. The improvements in management of the markets led to improved security attracting producers who otherwise sold their livestock at farmgate thus attracting better prices. Since food commodities, such as vegetables and fruits were availed in these markets, the pastoralists in turn purchased these for their families with the incomes obtained from the sale of livestock. Additionally, 12% of the respondents reported that there was establishment of small groceries and other food market near their settlement areas due to the consistent supply of fruits and vegetables during the main market days.





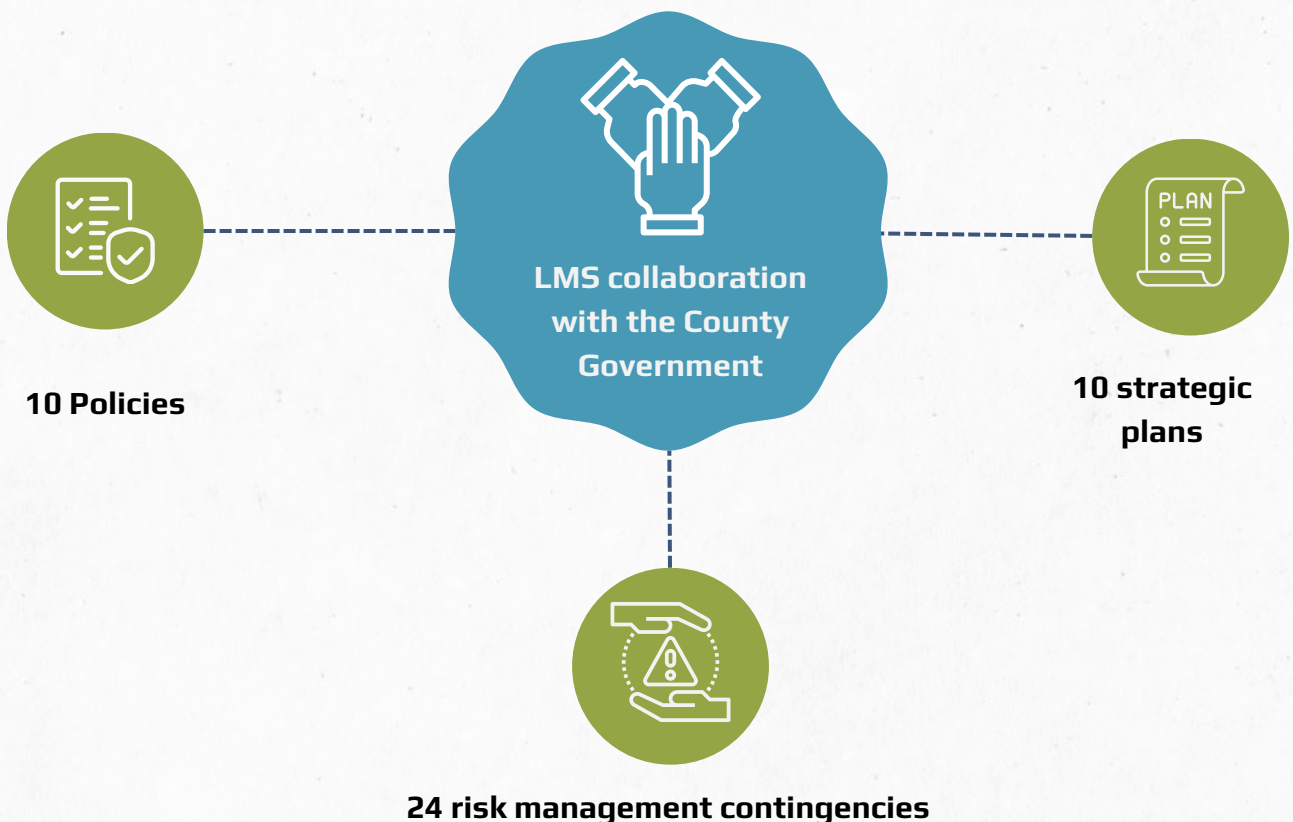
**Respondents noted an increase in the number of traders both local and non-local who were availing more diversified food commodities**



**Respondents reported that that there was establishment of small groceries and other food market near their settlement areas**

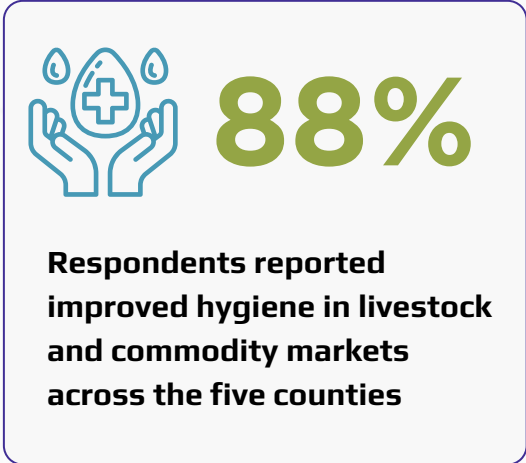
Training on leadership and governance emerged as an effective tool for moulding the LMAs to become intermediaries between traders and government officials, voicing community grievances and leading to locally owned infrastructure improvements. Additionally, the LMAs were facilitated to participate in exposure visits and seminars on how to run the market to benchmark other markets in Kenya and neighbouring Countries. Remarkably, the LMS market transformation incentivized government to invest in road grading to the markets which attracted more traders and spurred increased trading activities from neighbouring communities, leading to an increase in the diversity of food commodities available in the markets.

In collaboration with the County Government, LMS supported the development of 10 policies, 10 strategic plans, 24 risk management contingencies to ensure smooth operations of the activities in the Counties.

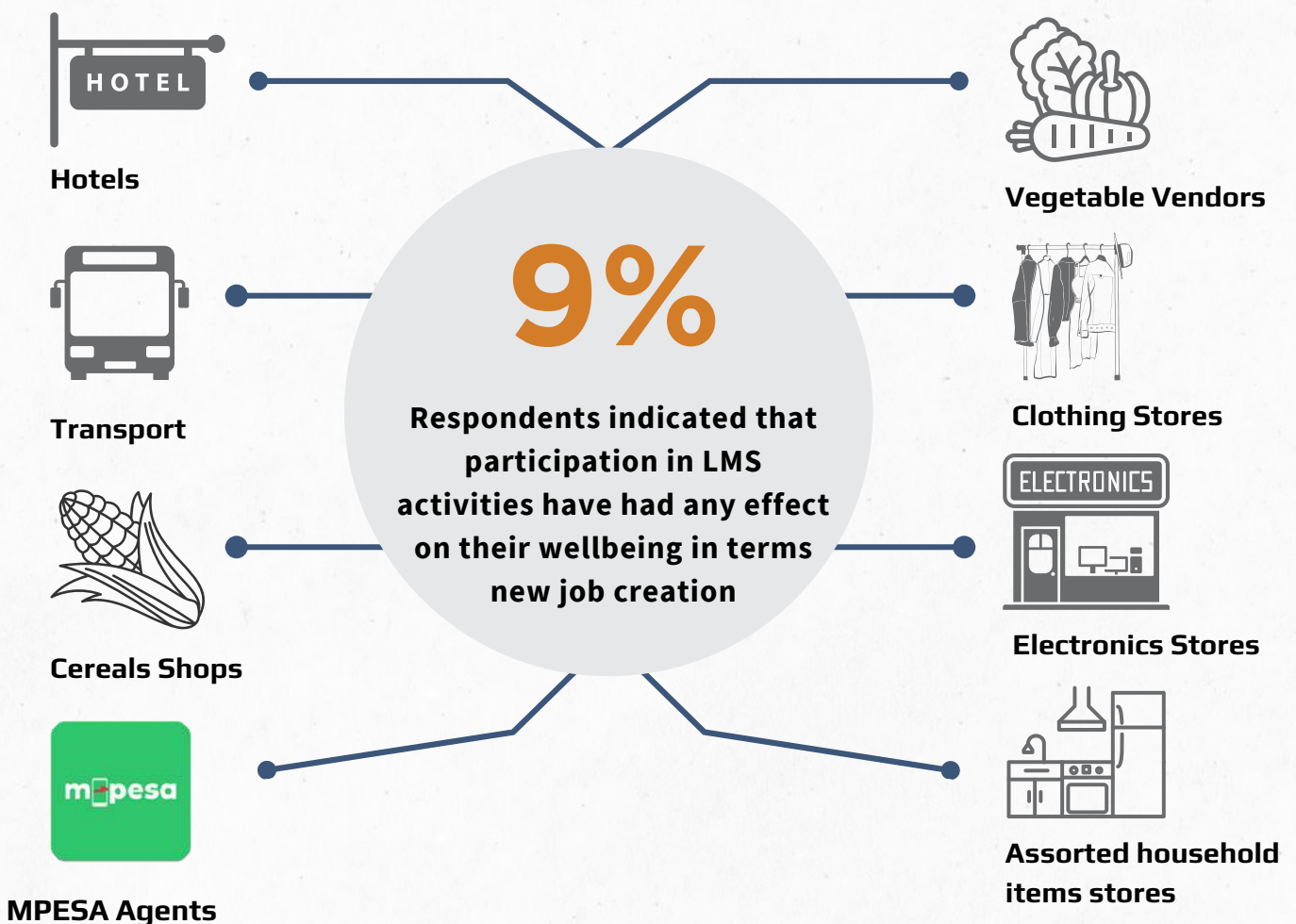


LMS collaborated with the County Government to ensure food safety and quality. This was achieved through the public health officers who inspected and issued licences to complying traders. 88% of the respondents reported improved hygiene in livestock and commodity markets across the five counties. Additionally, LMS, through the cooperative grant, procured insulated meat boxes (cooler) for butchers and aluminium cans for dairy farmers promoting proper handling, improved shelf life, and increased consumption of the animal products. Similarly, producers received training on hygiene handling of produce

from the source to the market. LMS supported grantees were also linked to licencing bodies such as the Kenya Bureau of Standards and Dairy Board for inspection and certification of compliance.



Though only 9% of the respondents indicated that participation in LMS activities have had any effect on their wellbeing in terms new job creation, the assessment showed remarkable emergence and expansion of businesses within the livestock markets and other sites receiving grant interventions. These included transport, M-Pesa services, agrovets, hotels, cereals, vegetables, clothing, electronics, and assorted household items. Respondents collectively linked an increase in self-employment opportunities within the food system to sustainable changes in the type and amount of food available (diversification) in the local markets.



The study established that LMS activities have influenced consumer demand for nutritious foods. The increased access to livestock markets coupled with increased household incomes from enhanced livelihood activities have improved affordability. LMS support has contributed to the increased uptake of farming activities particularly among women's groups. Sensitization and training of GIRL groups and women on kitchen gardening, agri-nutrition, and nutrition awareness have led to establishment of more kitchen gardens, increasing production of nutritious foods thus improving accessibility at household and community level. This has contributed to the availability of fresh farm produce for the farming households and at fairer prices for other community members. Through livelihood diversification, individuals who are not engaged in food production, have been motivated to engage in other income generating activities, which have enabled them to purchase nutritious foods for their families. More so, integrating training and behaviour change campaigns have been critical in promoting consumption of food commodities that were not common in Northern Kenya especially eggs and chicken thus diversifying diets. Security on the roads leading to the livestock markets and in the markets, themselves attracted traders from other Counties that form the food basket of the Northern region, such as Meru.

Notably, LMS invested in the value addition of meat and milk through in-kind grants procuring equipment such as pasteurizers, freezers, and cooler boxes, reducing post-harvest losses and thus increasing incomes for the pastoralists. Value addition of milk and meat included pasteurization, packaging, drying, and labelling, has increased both the value and shelf life of livestock commodities.



## Key Lessons Learned

The following lessons can be taken from the experiences and results across the LMS Activity:

Livestock Market System (LMS) initiatives led to the expansion and diversification of economic opportunities in the Northern region, increasing household incomes and consequently their purchasing power. The provision of grants coupled with training, coaching and mentorship enabled pastoralists to start thriving business activities that they otherwise would not have, due to lack of awareness, confidence, and or funding. The full package of interventions coupled with technical assistance and support provided was necessary to enable the observed levels of entrepreneurial activities; that is, increased incomes alone would not lead to positive changes in dietary habits. Integration of nutrition in all LMS training coupled with the Social Behaviour Change campaign increased awareness among the community members of the need to consume diversified diets, starting with what they produced at home.

The following lessons can be taken from the experiences and results across the LMS Activity:

01

LMS interventions had a discernible impact on the year-round availability and accessibility of nutritious foods, positively affecting households in the targeted zone. Training in crop production, water management activities such as irrigation, kitchen gardening and linkage to markets all contributed to the increased availability of affordable nutritious foods throughout the year.

02

Positive transformations in the livestock market attracted government investments in road grading, but challenges like poor roads to feeder markets and security threats during livestock transportation persisted throughout the activity – addressing these infrastructural challenges was beyond the scope of the LMS Activity. Therefore, future interventions of this nature should seek partnerships and civil investments to maximize market accessibility and catalyze additional investments as transaction costs decrease.

03

Strengthening market organizational structures and comprehensive training sessions for market management actors resulted in more effective, efficient, and pro-growth management of livestock markets.

04

Emphasis on good relationships with stakeholders (such as LMAs, county governments, traders and pastoralists) increased productivity and contributed to a well-coordinated, vibrant and more profitable Market System.

05

Building good relationships with stakeholders (such as LMAs, county governments, traders and pastoralists) was a key lesson learned from the LMS Activity. The Activity worked closely with these actors to create a sense of trust, cooperation, and mutual benefit along the market chain. This led to higher productivity, better coordination, and increased profitability for all market participants.

06

Women's empowerment initiatives through REAP and Girl groups such as business development, financial literacy, and life skills led to diversification of livelihoods into non-traditional activities such as vegetable production, poultry rearing, beadwork, tie-and-die, etc. which led to new income sources to the marginalized groups. This also led to more affordable nutritious food items at the household level. Community support meetings contributed to a healthier population through increased access to nutritious food, positively impacting children's overall health.

# 2. METHODOLOGY

## 2.1 Purpose of the Study

The objective of this study was to document LMS impacts on the food system within the ZOI, primarily those that have an impact on the food environment; namely changes in the availability, affordability, accessibility, convenience, and desirability of nutritious foods in the ZOI. The study aimed to document the mechanisms by which this change occurred, identifying the relevant changes in resources, rules, roles, and relationships of actors within the food system or enabling environment that enabled this change with a view to provide a solid understanding of how LMS activities have shaped the food environment and consumer behaviour within the ZOI. HPRD used both quantitative and qualitative methods to collect data on impact and to better understand and describe these findings. To capture both the expected and unexpected outcomes, outcome harvest approach guided by the USAID 5Rs Framework were used.

## 2.2. Design and Approach

The study applied mixed methods including with the aim of gathering the impact of LMS on the food system in Northern Kenya. This required the application of both quantitative and qualitative data collection methods. Quantitative data was collected through one-on-one interviews with LMS participants as well as mining from relevant secondary sources to measure changes in the availability and affordability of nutritious foods in the LMS's target counties. Qualitative data was obtained through focus group discussions and key informant interviews applying the snowballing technique to reach out to indirect participants based on referrals from LMS direct participants.

The assessment report is oriented around the program outcomes.

### 2.2.1 Household Survey

To gather information on household level impacts, the survey team developed a structured questionnaire that had both household-level and individual-level questions. These were administered by well-trained enumerators using android phones to allow use of Computer Assisted Personalized Interviews (CAPI) supported by the Kobo toolbox as well as geo-referencing of the households.

The study utilized the two-stage cluster design with systematic selection of beneficiaries' survey design option. Applying the formula below to calculate the initial sample size, design effect adjustment of 2 and a nonresponse adjustment of 2% resulted in a final sample size of 637.

$$\text{Initial Sample Size} = n_{\text{initial}} = (N^2 * z^2 * s^2) / \text{MOE}^2$$

where:

N= total number of participants 75,071)

Z= critical value from Normal Probability Distribution (=1.64)

S= standard deviation of the distribution of participant data (=0.2)

MOE= margin of error= p\* target value of the indicator (=1,403)

Through Monitoring and Evaluation department, a list of LMS beneficiaries spread across the counties was shared. This information was used to distribute the sample across the Counties using probability proportion to size as detailed in annex 1. Two-Stage Cluster Design with Systematic Selection of Participants was applied with the first stage cluster frame consisting of the Wards and the second stage beneficiary frame consisting of the complete list of LMS households within the Wards. The first stage cluster frame (Wards) was purposively selected owing to accessibility challenges resulting from the flooding happening at the time of the study in the 5 Counties.



Subsequently, a proportionate cluster sample was derived randomly from the beneficiary database, putting into consideration gender, age, and sub-county distributions for representativeness. Enumerators, supported by supervisors were assigned the randomized sample, and at the beneficiary household level, interviews were conducted. In cases of beneficiary absence, replacements were made from the LMS database.

*Figure 2: Mr Abdi from Garrissa is explaining how LMS through the support in his LMA helped him open a small shop*

## 2.2.2 Key Informant Interviews

Forty (40) KIIs were conducted with key stakeholders to provide insights into the mechanisms of change and the role the various actors played in shaping the food environment. The key informants were selected based on their involvement in LMS activities and their roles in the food system. A non-response rate of 6% was registered especially among the LMS partners whose contracts had closed. The tabulation 1 illustrates the distribution of KII respondents.

**Table 1: Distribution of KII respondents**

Data Category	Turkana	Marsabit	Isiolo	Wajir	Garissa	Total
LMS Technical Team (ACDI VOCA, Mercy Corps, BOMA and SRC)	1	1	2	1	1	6
Department of Agriculture and Livestock		2	1	2	1	6
Department of trade and cooperatives	1	2	1	1		5
Department of Finance			1		1	2
Chamber of Commerce		1	1	1	2	5
Small grant beneficiaries		1	1	2		4
Large grant beneficiaries	1	1	2	2		6
Cereal Traders	2	1				3
Fresh produce Traders	2	2		1		5
Livestock Traders				1		1
Others specified in inception report (Specify by line below)			1		1	2
Weavers				1		1
Songa Milk Depot		1				1
Total	7	12	10	12	6	47

### 2.2.3 Focus Group Discussions

In each of the five counties, two FGDs were organized with GIRL groups, REAP Savings Groups, Ward as detailed in Table 2 below

**Table 2: Distribution of FGDs by number of participants**

Planning Committees/ Water User Associations, Livestock Market Associations, and Co-operatives. The FGDs allowed for exploration of perceptions, preferences, and experiences related to food choices and nutrition in relation to the LMS interventions. FGDs were segmented by gender and age to ensure inclusion and representativeness. Each FGD consisted of 5-8 participants to encourage active participation and in-depth discussions.

## 2.3. Quality Assurance and Control

To enhance independent, impartial, and evidence-driven performance, we established participatory, inclusive, and consultative approaches. Our team worked closely with the LMS technical team to deliver the expected results. Our team lead established regular reporting and feedback mechanisms to allow for supportive consultations and updates for all teams involved in the assignment. We upheld and adhered to international best practices including seeking appropriate informed consent and respect for necessary cultural, legal, ethical, and institutional provisions. Confidentiality of information was also upheld. Additionally, the following measures were observed to enhance quality assurance of the assignment:

### a. Supervision and Monitoring

- The consultant established a system for supervising and monitoring the enumerators' activities in the field which included use of field manuals and toolkits and online/smart data management solutions.
- Field supervisors were assigned to oversee the data collection process, provide guidance to enumerators, and ensure data quality.
- Regular meetings and debriefings were conducted to address any challenges faced by enumerators and provide additional support if needed. There were daily reviews with field teams as part of quality control and assurance.

GROUP	Marsabit		Isiolo		Garrisa		Turkana		Wajir	
	Grp 1	Grp2	Grp 1	Grp 2	Grp 1	Grp 2	Grp 1	Grp 2	Grp 1	Grp 2
REAP	8	15	5	6	7	8	5	5	6	8
LMA	17	15	7	8	5	5	5	6	7	9
WPC	14	15	6	3	6	9	8	4	7	6
GIRL	21	8	7	5	5	9	12	7	7	6
COOPERATIVES	10	7	7	8	5	8	6	5	9	5

### b. Use of SMART applications and technological solutions-ODK

- The consultant established a system for supervising and monitoring the enumerators' activities in the field which included use of field manuals and toolkits and online/smart data management solutions.
- Field supervisors were assigned to oversee the data collection process, provide guidance to enumerators, and ensure data quality.
- Regular meetings and debriefings were conducted to address any challenges faced by enumerators and provide additional support if needed. There were daily reviews with field teams as part of quality control and assurance.



## 2.4. Limitations of the Analysis

- Accessibility challenges in some locations due to the flood situation
- There were logistical challenges relating to cut-off roads after heavy rains or flooding in all the Counties. While fieldwork was delayed by about two weeks, the use of local teams enabled smooth access and review. However, the sampled sites were reviewed to include only secure accessible sites.
- During the data collection, a number of selected LMS beneficiaries were unavailable, with some of the contacts not going through. This was primarily because most of the LMS interventions had closed, making it challenging to reach the sampled respondents. Replacement of initial beneficiaries was done where additional efforts to reach out via phone and indirectly through implementing partners were unsuccessful. This was done in consultation with the LMS MEL and county teams.

# 3. FINDINGS

## 3.1.1 Response Rate

A total of 623 individuals (each representing a household) who participated in different LMS activities were interviewed at the household level, recording a 2% non-response rate as shown in Table 3. Some of the sampled wards were inaccessible during the data collection due to incidences of insecurity and flooding which cut off the roads. 68% of the respondents were females while youths comprised 25% of the respondents.

**623**

Individuals interviewed

**2%**

Non-response rate

**68%**

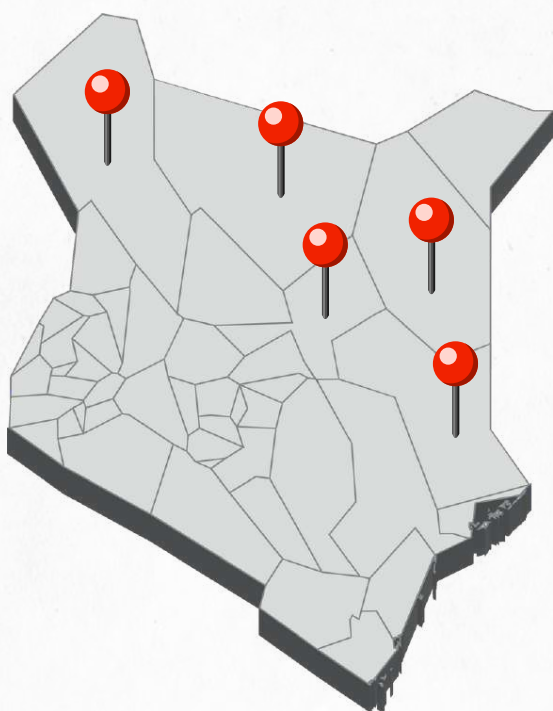
Respondents were females

**25%**

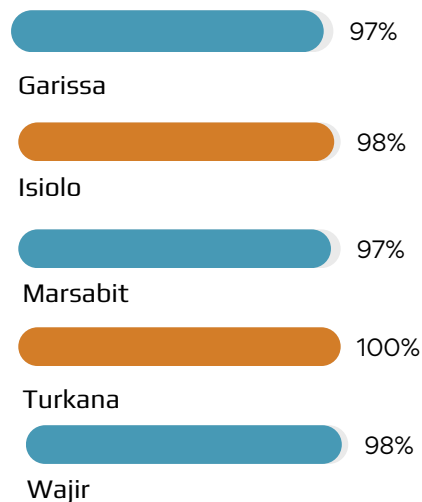
Respondents were youth

**Table 3: Response Rate**

County	Household	Response Rate
Garissa	113	97%
Isiolo	133	98%
Marsabit	139	97%
Turkana	137	100%
Wajir	101	98%
Total	623	98%



### Response Rate Per County

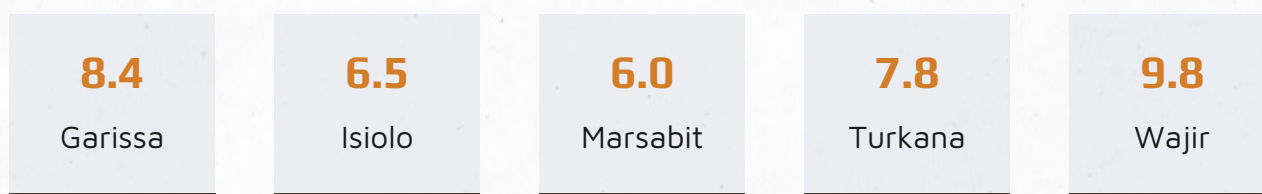


### 3.1.2 Demographic Characteristics

The average household size in the five counties was eight (8) household members with a mean household size of 8.4 members in Garissa, 6.5 in Isiolo, 6 in Marsabit, 7.8 in Turkana and 9.8 in Wajir County as shown in Table 4.

**Table 4: Mean Household Size**

	County					
	Overall	Garissa	Isiolo	Marsabit	Turkana	Wajir
Average Household Size	7.5	8.4	6.5	6.0	7.8	9.8



**Table 5: ANOVA of Household size by County**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1101.789	4	275.447	35.843	0
Within Groups	4749.219	618	7.685		
<b>Total</b>	<b>5851.008</b>	<b>622</b>			

### 3.1.3 Education Level

51% of the respondents did not have formal education as shown in Figure 3. This was followed by 18% and 11% of the respondents who were primary school dropouts and primary school graduands respectively. The high non-attendance of school was attributed to a number of factors, among them the nomadic way of life, early marriages, and inter-tribal conflicts.

### Education Level By County

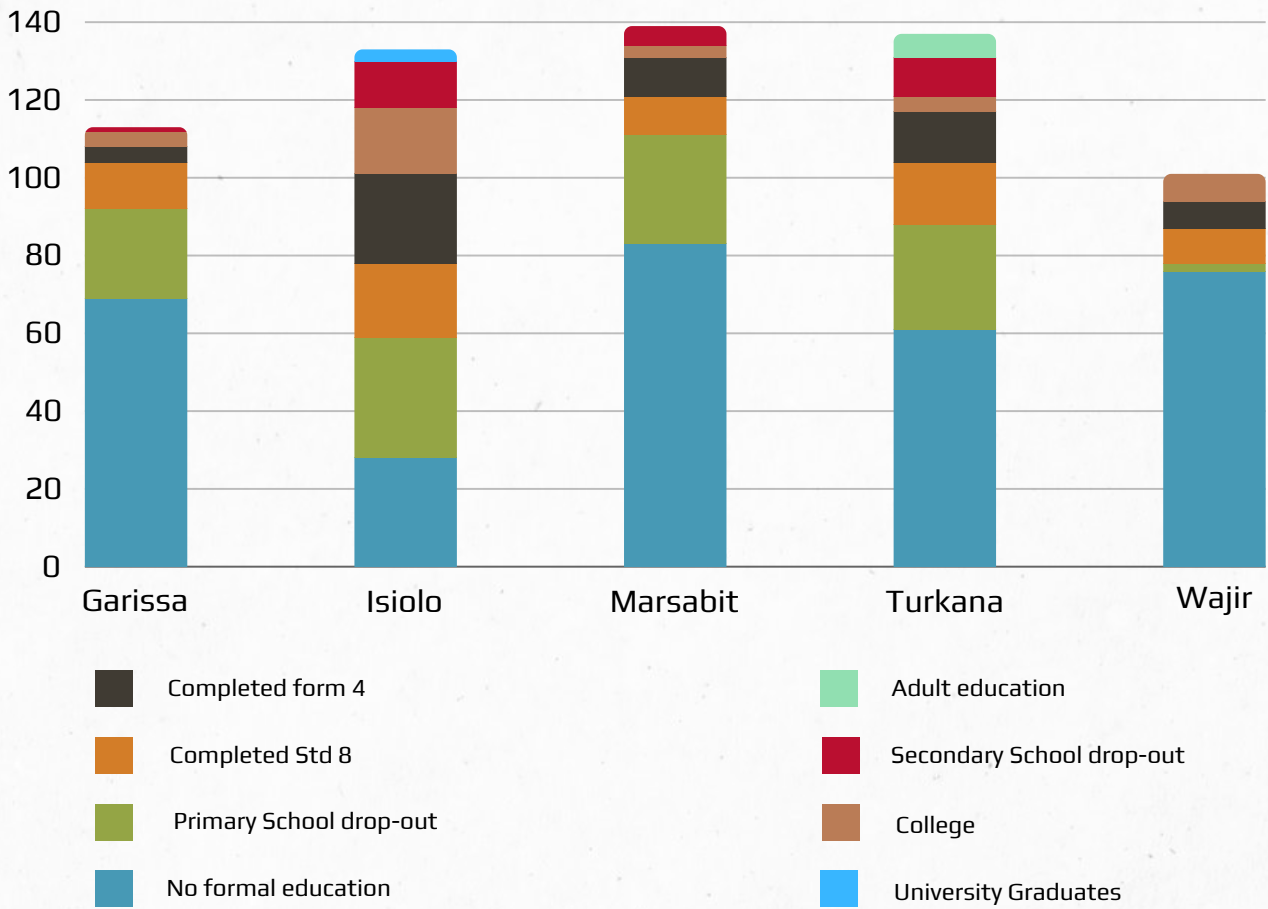


Figure 3: Education level of respondents by county.

An alarming 81% of the individuals with no formal education cannot read and write, while 56% cannot recognize numbers.

The study attempted to test if there were statistical differences in the highest level of education within the County of residence and between the different Counties. The ANOVA results in the table 6 indicated that there were significant differences in the individual’s highest level of education both within the County of origin and between the 5 LMS targeted Counties.

**81%** Individuals with no formal education cannot read and write

**56%** Individuals with no formal education cannot recognize numbers.

**Table 6: ANOVA of Highest level of education**

ANOVA					
Highest level of education					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	209.554	4	52.388	20.176	0
Within Groups	1604.681	618	2.597		
<b>Total</b>	<b>1814.234</b>	<b>622</b>			

## OBJECTIVE 1: EXPANDING AND DIVERSIFYING VIABLE ECONOMIC OPPORTUNITIES

LMS initiatives aimed to strengthen and expand the production of existing, new, and value-added livestock products in the North. The impact of these activities on the food system is as follows:

The analysis established that the Feed the Future Kenya Livestock Market Systems Activity (LMS) has resulted in a positive impact on the local food system, particularly in enhancing the business environment within livestock markets. Respondents across board (households, traders, LMAs, GIRL, REAP, County staff, etc) reported improvements across the livestock market value chain directly attributed to LMS activities as illustrated in the graph below. The study has established that these reported gains have contributed to improvements in the food value chains with direct impact on year-round availability and accessibility of nutritious foods for the households.

### Context

The Kenyan livestock sector, being a crucial contributor to both the national GDP and agricultural GDP, plays a vital role in ensuring food and nutrition security. With approximately 90 percent of employment and over 95 percent of family incomes in Arid and Semi-Arid Lands (ASALs) dependent on this sector. ASAL regions host 70% of the national livestock herd, valued at Ksh.70 billion and contributes to 50% of agricultural GDP in Kenya. The LMS has strategically strengthened functionality and sustainability of livestock markets.

### Kenya Livestock Sector At a Glance

90%

**Employment in ASAL regions dependent on the sector**

50%

**Contribution to agricultural GDP by the livestock sector**

70%

**National livestock herd hosted in ASAL regions**

Building on the success of ACDI/VOCA's previous program, Resilience and Economic Growth in the Arid Lands – Accelerated Growth Activity (REGAL-AG), LMS operationalized 45 livestock markets in Northern Kenya contributing to significant market revitalization efforts. Reviews indicate that LMS facilitated the formation (for markets that did not have LMAs) and capacity building of Livestock Market Associations (LMAs) through sensitization forums, trainings, and exchange visits to 654 Livestock Market Association (LMA) committee members. These were aimed at improving their leadership and management skills as well as promoting community ownership. This led to better maintenance of the infrastructure, and improved security attracting both internal and external traders. These activities made significant contributions to market revitalization efforts that led to the reopening of, 17 livestock markets that had previously collapsed due to drought. Additionally, specific market days were established for over 20 markets, ensuring a predictable schedule for the supply of food and non-food items from neighbouring counties.

To ensure a collaborative approach, LMS supported the development of sales yard bills and livestock policies, promoting co-ownership between the county government and the community. In Isiolo County, revenue sharing from the Oldonyiro livestock market exemplifies this collaboration, with 50 percent allocated to the LMAs. This revenue is utilized for market maintenance and community-centric initiatives, including scholarships for needy students. Through LMS support, LMAs have become integral partners in the livestock markets and sector. They are now actively engaged in market upkeep and collaborate with law enforcement to ensure sustained functionality. It was established that capacitated LMAs lobbied for the establishment of market days as well as the reopening of markets during the COVID-19 pandemic. A respondent commented on the impact of the LMS on livestock resilience, adaptability, and market system agility.



*“LMS trained LMAs on leadership and advocacy facilitating government-led coordinated reopening of markets under strict adherence to safety protocols which could have been impossible without their leadership” - P13*

### Increased Income

Desk review established that LMS invested \$6.4 million in competitive grants (cash transfers) to 261 small and medium-sized enterprises (SMEs) ranging from \$180 to \$245,000, who in turn leveraged \$916,278. Leveraging on SME-oriented training and mentorship on business development, as well as linkages to input and output markets, extension services through respective county government departments, and financial services (linkages to financial institutions), the intervention was linked to successful establishment of new businesses starting up, new products and strengthening of existing businesses developed along the livestock value chain including but not limited to fish, poultry, honey, milk production among others.

LMS Investment

**\$ 6.4 Million**

SMEs

**261**

Leverage

**\$916,278**

### **Building Local Market Value Chain Resilience through Chicken Feed Production; An Impact Success Story of Abayo from Moyale**

Sora Abayo, a farmer from Moyale Town in Kenya’s Marsabit County, would import animal feed from the capital city of Nairobi, almost 800 kilometers away. This distance resulted in reduced animal productivity and business losses. In 2020, he successfully applied for a grant of USD 15,000 from the Feed the Future Kenya Livestock Market Systems Activity (LMS) for his business, known as Moyale Feeds. With the grant, Abayo built a chicken feed factory and purchased a feed machine with the capacity to produce 10 tons of feed per day. This helped him overcome the challenge of ensuring a steady supply of chicken feed.

“The grant enabled us to buy improved chicken breeds, feed, and vaccines. We also received training on poultry management, biosecurity, and marketing. Our poultry production has increased from 50 to 200 birds per month, and we sell them at a higher price. We also consume some of the eggs and meat, which has improved our nutrition” P27

91% of the respondents derive their livelihood through informal sources of income. These include engaging in business activities, trading in livestock and livestock products, selling cereals and vegetables, bead making, basketry and casual labour.

### Main Sources of Income by County

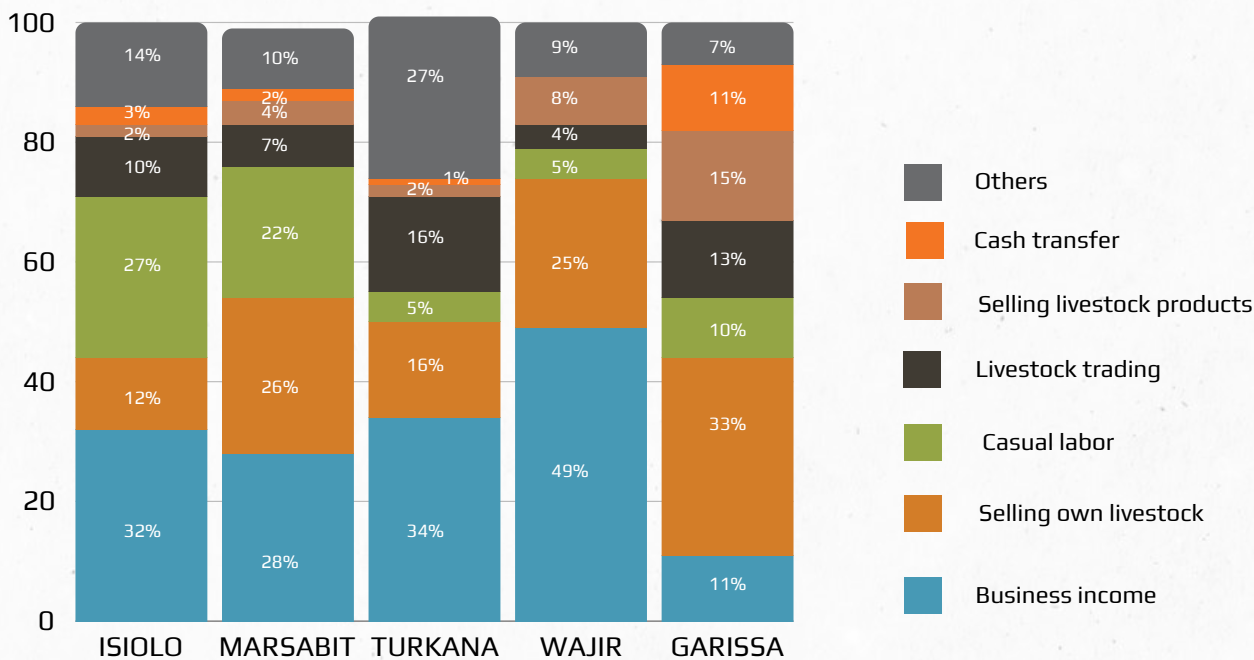


Figure 4 Main Sources of Income by County

One of the findings during the baseline was the need for capacity building of the households in business skills to enhance business growth as an upcoming source of livelihood. LMS invested heavily on this through the grants program and the subsequent coaching and mentorship of its participants. This led to livelihood diversification to not only trade in the traditional live animals (Cattle, camel, and shoats) to production and trading in non-traditional animals like poultry and animal products including honey and eggs as shown in Figure 4.

As a result of these LMS interventions, 53% of the participants are now thriving on trade of live animals including poultry and animal products including honey and eggs compared to baseline where only 34% were selling livestock in the LMS target counties. Notably, there was a shift from the baseline where business income was the second most common source of income; 37% of the respondents are now relying on businesses for their livelihood compared to 24% at baseline replacing casual labour.



Derive their livelihood through informal sources of income

91%

Participants now thriving on trade of live animals

53%

Respondents are now relying on businesses for their livelihood

37%



Figure 5: Winnie has been a trader in Isiolo for the last 10 years selling cereals. She is happy that she has now expanded her business to other smaller markets due to LMS support.

The review found 87% of SMEs reporting increased customer base after LMS intervention. The increased flow of people and goods in and out of the markets, making them more attractive to buyers - transforming the livestock markets into vibrant economic hubs.

The increased supply of food commodities resulting from LMS activities coupled with increased incomes has enabled the beneficiaries to purchase more and diverse foods from the local markets.



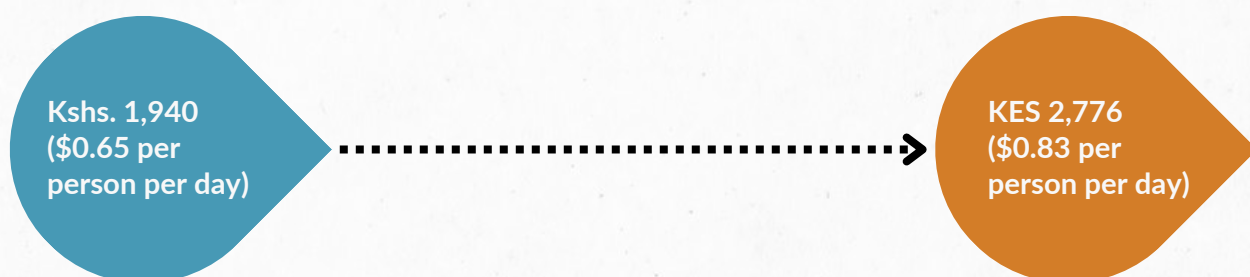
87%

**SMEs reporting increased customer base after LMS intervention**



*“Shorter distances to markets have made commodities cheaper. Maize that would cost high (Kshs 50) due to cost of transport is now sold at 30 per stalk, Watermelon that costed 400 per piece from outside has now reduced to 200 per piece,” P64*

Study findings on household income showed monthly mean per capita income of KES 2,776/= per month as shown in Table 7. This translates to \$ 0.83 per person per day across the five counties indicating that the sampled population is still living below the poverty line of US\$ 1.90 per person per day. However, this is an improvement compared to Kshs. 1,940 (\$0.65 per person per day) at baseline.



**Table 7: Mean monthly income per capita (Kshs)**

County	Mean	N	Std. Deviation
Garissa	4,607.18	113	3,937.79
Isiolo	2,202.53	133	4,442.80
Marsabit	995.92	139	1,318.06
Turkana	4,082.59	137	9,843.41
Wajir	2,159.56	101	3,284.77
Overall	2,775.94	623	5,666.75

An analysis by gender of respondent indicates that the mean monthly income of males is higher by 155% as compared to those of females as shown in Table 8. This is primarily explained by the lower-monetary value of women-owned business activities such as sale of animal products like milk, eggs, beadwork, basketry etc.

**Table 8: Mean monthly income per capita (Kshs) by Sex of respondent.**

Sex	Mean	N	Std. Deviation
Male	4717.05	201	8998.70
Female	1851.38	422	2513.75
Total	2775.94	623	5666.75

The study further indicated statistically significant differences in the means within the Counties and between the different Counties as shown in Table 9.

**Table 9: Anova test- Mean Monthly Income per capita.**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	1.14E+09	4	2.84E+08	9.312	0
Within Groups	1.88E+10	618	3.05E+07		
Total	2.00E+10	622			

The study indicates that 63% of the households were spending money on buying food followed by paying school fees. this is an improvement from baseline where 85% of the households were spending their income on food, an indication of high levels of food insecurity (Figure 6).

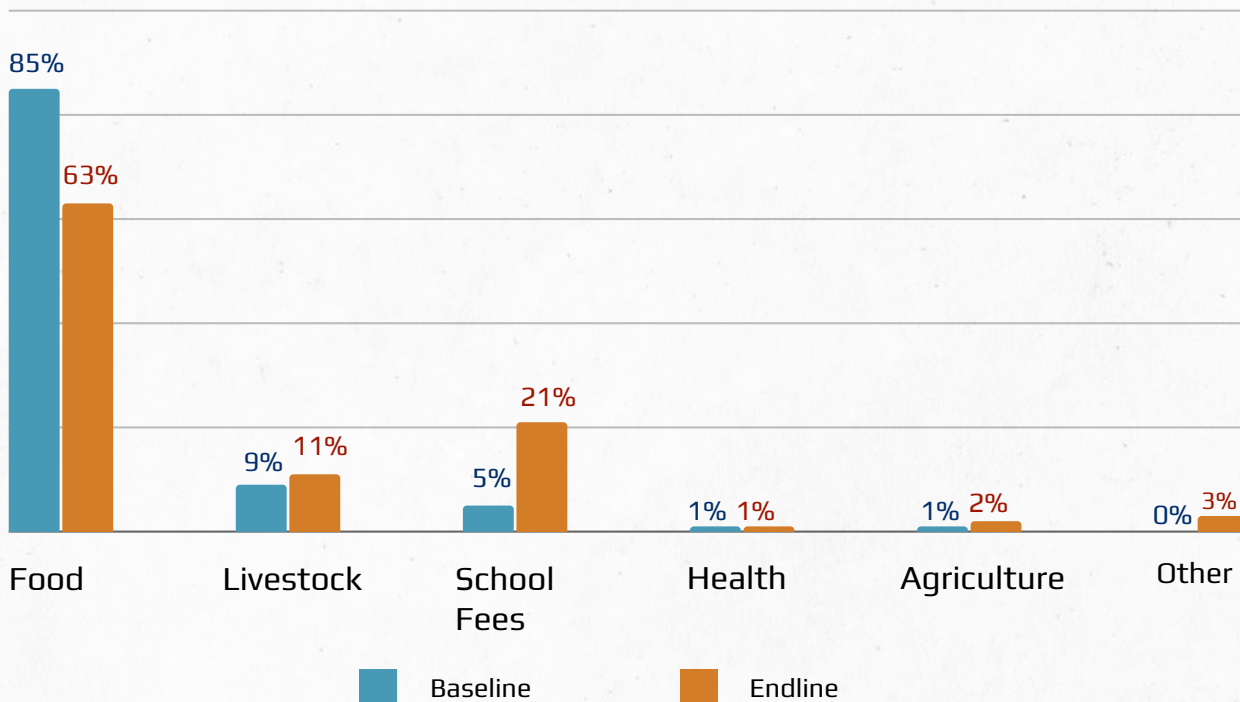


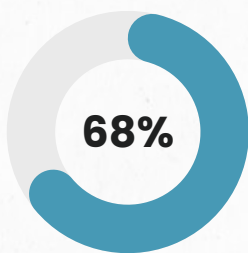
Figure 6: Main expenditures from income earned by households.

This is a marked improvement that suggests that with increased household incomes, families have more resources to invest in other key activities like payment of school fees, restocking of livestock and agriculture. The main food items purchased with the increased income were cereals, vegetables, fruits, eggs, milk, and meat. These foods are rich in micronutrients and protein that are essential for good health and nutrition. This has also contributed to the increased dietary diversity score at household level reported in this study. One of the respondents affirmed,



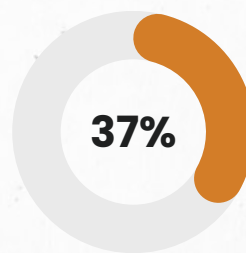
*“LMS has motivated people in this area to produce more eggs, milk, and meat which has enabled us to access nutritious food easily and affordably.” ~ P11.*

68% of the respondents indicated that their incomes have increased since they started participating in LMS activities, 37% being able to buy the livestock and livestock products they want and 19% using the additional income for other things such as school fees, housing and buying clothes.



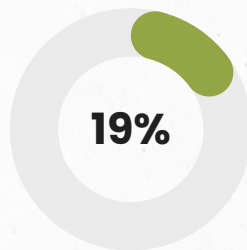
### Income

Respondents indicated that their incomes have increased since they started participating in LMS activities



### Purchasing Power

Respondents being able to buy the livestock and livestock products they want



### Additional Income

Respondents using the additional income for other things

Some of the value-chain improvements that LMS supported include milk packaging and labelling (74%) and quality meat packaging (62%, which are among the business types that got most LMS grant support. One participant said,



*“I work with milk and engage in value addition. I produce yogurt from milk. LMS's support allowed me to expand, purchase more livestock, and set up a kitchen garden.” ~ P58.*



## 74%

Milk packaging and labelling



## 62%

Quality meat packaging

### Value-chain improvements that LMS supported

## Food System Impact; Case Notes

The positive income and interlinked local market transformations have influenced the food environment in various ways, including but not limited to:

- Increasing the variety and quantity of food products available in the markets, which offers more choices and options for the consumers and enhances their dietary diversity and quality.

*Case Note: Fatuma, a mother of six from Isiolo county, said that she can now buy different kinds of fruits and vegetables from the market, which she could not afford before. She said that this has improved the nutrition and health of her family, especially her children.*

- Improving the quality and safety of food products in the markets, which reduces the risk of foodborne diseases and improves the health and well-being of the consumers.

*Case Story: Mary, a meat retailer from Marsabit county, noted that she is now able to sell more meat and attract more customers, because the meat is certified and hygienic. She said that this has increased her reputation and trust among the consumers, as well as her profits and livelihood.*

- Created more economic opportunities and income sources for the producers, traders, and retailers, which increases their purchasing power and food security.

*Case story: Ali, a milk producer from Isiolo county, sells his milk to a cooperative, which pays him a fair and stable price. He said that this has increased his bargaining power and income, as well as his access to credit and inputs.*

Additionally, LMS invested over US\$6 million to provide market-based solutions to avail food commodities in target counties and build local capacities. This aimed to enhance the flow of food items and stabilize prices by collaborating with market actors to ensure food availability, thereby improving the welfare of those whose lives and livelihoods are affected by the Ukraine crisis. To address this challenge LMS in collaboration with the six (6) county governments identified 5,503 businesses trading in food commodities including cereals, groceries, livestock, and livestock products in the six counties for economic stimulus grants worth US\$ 950,194. This grant aimed at boosting businesses during these difficult times when fuel and other commodity prices have been on the rise. This helped in ensuring vibrancy in the markets through supply of essential goods and services that the community needs. 68% of households indicated that their incomes had increased compared to three years ago or before receiving any intervention from LMS, 87% of them noting that their households were doing much better than before.



**5503**

Businesses trading in food commodities identified



**\$ 950,194**

Economic stimulus grants provided



**68%**

Households indicated that their incomes had increased



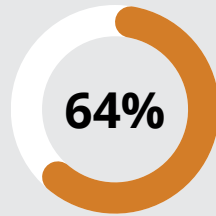
**87%**

Households indicated that they were doing much better than before

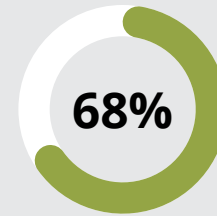
LMS interventions that led to increased incomes coupled with the nutrition training modules that were integrated in the mentorship program that increased knowledge on the need to consume balanced diets starting with what was produced at the household level, were directly linked to the reported increase in accessibility and availability of nutritious foods. As a result of increased incomes, 68% reported increase in access to nutritious food while 64% cited increased affordability of nutritious foods. 54% indicated that the nutrition trainings offered to them increased their knowledge of benefits of nutritious foods and how to use them.



Households reported increase in access to nutritious food

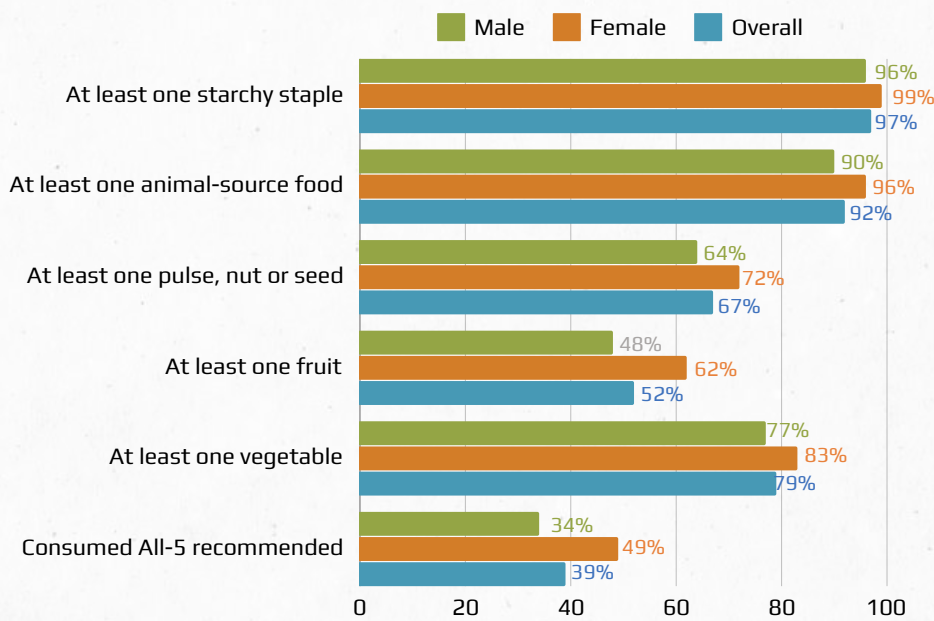


Households reported increased affordability of nutritious foods



Reported that the nutrition trainings increased their knowledge of benefits of nutritious foods

Unlike the baseline study which adopted the Minimum Dietary Diversity for Women measurement guide published by the Food and Agriculture Organization of the United Nations and USAID’s Food and Nutrition Technical Assistance III Project (FANTA), this impact study adopted the Kenya Diet Quality Questionnaire (DQQ). Therefore, the MDD-W score at baseline (9.7%) may not be comparable to the one derived in this study (71%).

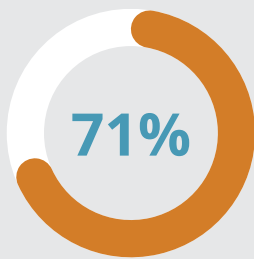


The Diet Quality Questionnaire (DQQ) was developed as a tool to rapidly assess diet quality. The DQQ gathers information on consumption of food groups (29 in total). A food group is defined as a set of foods that share similar nutritional properties or biological or culinary characteristics.

Figure 7 Dietary Adequacy

Based on the 29 food groups for which data in the DQQ was collected, the following indicators about diet quality and diet patterns in the sample were calculated.

Minimum Diet Diversity for Women (MDD-W) score – 71% of women of reproductive age consumed diets that met minimum dietary diversity (MDD-W; at least 5 of 10 food groups), which means that the remaining 29% of women have a lower probability of micronutrient adequacy from their diet as shown in Figure 7.



Women of reproductive age consumed diets that met minimum dietary diversity



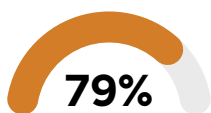
Women have a lower probability of micronutrient adequacy from their diet

Results show that only 39% of adults **consumed all five food groups** typically recommended in food based dietary guidelines, including vegetables; fruit; pulses, nuts, or seeds; animal source foods; and staple foods.

79% of the respondents consumed vegetables while 50% consumed some fruit, which help to provide dietary adequacy and protect against diet-related non-communicable diseases (NCDs). Dietary guidelines recommend consumption of fruit and vegetables daily for all. over 90% also consumed animal-source foods, which are protein-rich and micronutrient-rich. Despite the drought that was experienced in the targeted Counties, 56% of the respondents indicated an increase in consumption of dairy products as indicated by one of the participants.

*“LMS has improved our nutrition status because we are able to produce and buy different types of foods such as vegetables, eggs, milk, and meat.” P17*

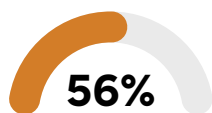
### Changes in Food Consumption



Consumed Vegetables



Consumed some fruit



Consumed dairy products



Consumed animal-source foods

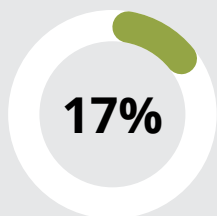
LMS facilitated nutrition trainings increased knowledge of benefits of nutritious foods and how to use them to 54% of the respondents as noted by one of the respondents.

**54%**

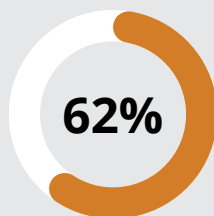
Respondents increased knowledge of benefits of nutritious foods and how to use them

*“Before LMS we used to eat only maize and beans, but now we eat a variety of foods such as eggs, chicken, rice, potatoes, carrots, spinach, oranges, bananas, fish and milk. We have seen a difference in our health and energy levels. We have also learned the importance of eating a balanced diet and how it affects our health and productivity.” P32*

Though only 17% consumed nuts or seeds, 62% consumed pulses and 60% consumed whole grains. Missing these food groups may be a risk factor for nutrient inadequacy. These foods also contain dietary fiber and phytochemicals and help protect against diet related NCDs.



Consumed Nuts



Consumed Pulses



Consumed Whole Grains

## 24%

**Respondents are consuming deep fried foods**

Related to increased NCD risk, 24% of the respondents are consuming deep fried foods, while around a quarter are consuming sweet foods and soft drinks. Action is needed to improve consumption of nuts and seeds, pulses, and whole grains in particular, and to moderate intakes of deep-fried foods, sweet foods, and soft drinks.

Improvement in food consumption patterns can be attributed to several factors, such as the increased availability and a ordability of nutritious foods, especially ASFs, fruits and vegetables, through LMS-supported value chains; the enhanced knowledge and awareness of nutrition among farmers, processors, traders and consumers through LMS-facilitated trainings, demonstrations, and behaviour change communication campaigns; and the improved access to markets and income opportunities for smallholder producers and entrepreneurs through LMS-supported linkages, platforms, and business development services. Some participants also reported positive changes in their health status, such as reduced cases of anaemia, malaria, and diarrhoea, because of improved nutrition. One participant said,



*“Shorter distances to markets have made commodities cheaper. Maize that would cost high (Kshs 50) due to cost of transport is now sold at 30 per stalk, Watermelon that costed 400 per piece from outside has now reduced to 200per piece,” P64*

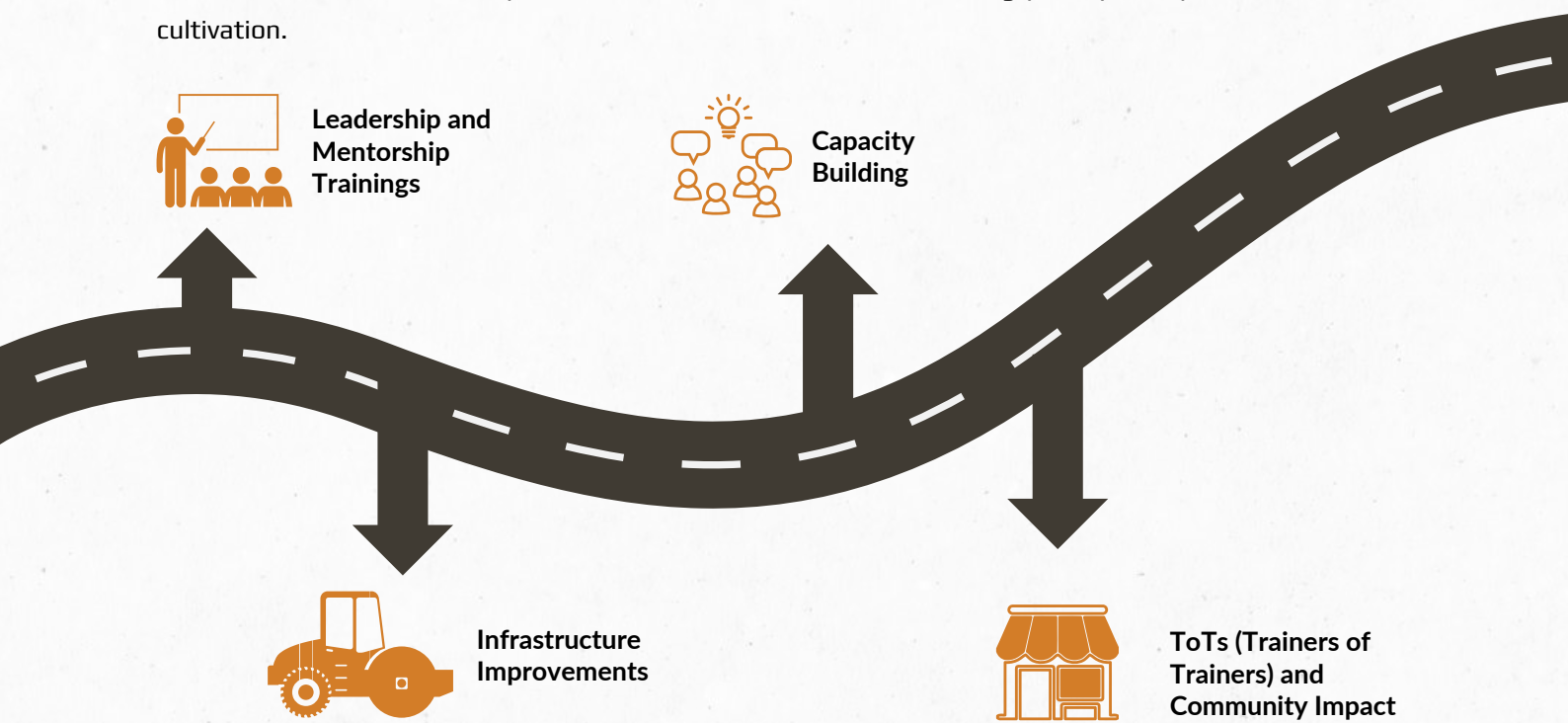
*“Since we started eating more nutritious foods, we have noticed that our children are healthier and more active. They don't get sick often and they perform better in school.” P28*

The educational exchanges conducted among SME local traders or actors facilitated by LMS were helpful in transferring valuable experiences, skills and knowledge to these local traders to undertake these thriving value chain additions. The exchanges focused on successful value chain ventures, lessons, and best practices to stimulate local demand for quality products such as milk, meat, honey among others. Respondents reported several tangible benefits as directly resulting from the support o ered by the LMS. There were reports that during the exchange tours and other trainings, beneficiaries were exposed to alternative practices like poultry rearing, eggs trade, hybrid fodder farming among other practices. It was noted that the communities gained management exposure, as reported by a participant,



*“Training and seminars on how to run market and supported LMA to benchmark other markets in Kenya and Ethiopia.” P41*

This impact is not confined to economic dimensions alone. For instance, the LMAs capacitated with leadership and mentorship trainings have emerged as effective intermediaries between buyers and government officials, voicing community grievances and leading to locally owned infrastructure improvements. Remarkably, the LMS market transformation incentivised government to invest in road grading to the markets which spurred trading activities by attracting traders from neighbouring communities. Another key impact has been transformative service delivery by county government staff through targeted capacity-building initiatives. This has been achieved through LMS facilitated training workshops and exchange visits for 34 county government staff and 56 SMEs who are now ToTs in their localities providing technical support to community members engaging cooperatives and non-traditional value chains such as vegetable farming, apiculture, and poultry rearing. For instance, the ToTs have imparted their knowledge to 100 farmers' cooperatives members and SMEs, contributing to introduction of new resilient and innovative products in the livestock market including poultry, bee products and fodder cultivation.



**LMS facilitated training workshops and exchange visits**



LMS market support was commended for developing sustainable partnership alliances that have strengthened local marketing systems, especially through establishing sustainable local models such as cooperative development and formation of Ward Planning Committees. Community development processes must be lead, owned and driven by communities with the involvement and participation of governments and other stakeholders. LMS facilitated the formation of a ward-based development process in five counties and 33 wards to ensure local community institutions and structures' capacities were strengthened to effectively lead the process and make informed decisions. An inclusive public participation process was critical to a collective community decision. Marginalized and vulnerable groups such as women and youth were at the core of the process and in decision making.

The 33 ward planning committees worked with the county resource team in charge of rangeland management to support the formation of rangeland management sub committees who have been integral in pasture and water management, including addressing associated resource-based conflicts. LMS, through WPCs, actively engaged county governments during public participation in drafting the fiscal paper for initiating the annual development plans. The WPCs ensured their development priorities were included in the fiscal paper to guide technical committees during budget estimations. Across the five counties, community priorities totalling \$8,585,100 were implemented by county governments due to constant advocacy by the WPCs leading to integration of community priorities into the County Annual Development plans and implementation. The WPCs also submitted concepts to the LMS for potential funding. Community projects worth \$1,423,037 aimed at improving water and rangeland management for over 35,000 households with approximately 210,000 individuals and more than 500,000 livestock in the five counties were approved by USAID and are being implemented.

**\$8,585,100**

**Community priorities were implemented by county governments due to constant advocacy by the WPCs**

**\$1,423,037**

**Community projects were approved by USAID and are being implemented**

It is important to note that some of these grants are promoting solar irrigation from already existing earth dams to not only promote nutritious foods and income but also to distribute water for both human and livestock consumption, as well as use vegetative parts of crop residues as feed for milking small stock herds that remain around compounds when larger herds migrate far away for pasture contributing heavily on the nutrition outcomes.



*"We used the grant to establish a greenhouse where we grow tomatoes, cucumbers, and peppers. We also have drip irrigation for our crops. We sell our produce to the local hotels and supermarkets, and we earn more income. The greenhouse also helps us to cope with the drought and climate change" P44*

Similarly, Cooperatives and SACCOs in northern Kenya are essential vehicles for improving people's livelihoods. To help address the various challenges, e.g., poor management, record keeping, and membership recruitment, LMS facilitated training, meetings, and technical assistance for 45 Cooperatives and SACCOs, focusing on how the cooperatives can improve service delivery to their members. These were to provide a platform for community members to save and access informal credit facilities. As a result, the LMS-supported cooperative mobilized savings of over \$150,000 and issued loans amounting to \$108,071 to members. For instance, a participant explained the impact of LMS in strengthening local livestock food chain.

**\$150,000+**

Cooperative mobilized savings

**\$108,071**

Cooperatives issued loans

**45**

Cooperatives and Saccos



*"Different from before the LMS, Ngaremara has a thriving and self-sustaining livestock cooperative system, even if LMS withdrew today. The market operates weekly supported by multiple groups within Ngaremara Ward who have been actively engaged in food production~ " P59*

The state of local actor relationships between NGOs and traders was described as a good example of how LMS initiatives are transforming local food systems. According to local livestock products trader in Kakuma,



*"USAID/LMS has partnered with the business to increase trading stock and distribute varieties of locally sourced and nutritious fresh produce in Kakuma, Turkana." ~P31.*

Local business partnerships between local suppliers and retailers (especially suppliers of fresh produce like vegetables, fruits, and milk to the local markets) have promoted access to range of fresh produce and cereals that have enabled traders to maintain product availability and meet local customer demands. For products like fruits that are seasonal and for those not cultivated in the local areas, the suppliers often source for them in neighbouring regions/counties. Due to the good relationships between the suppliers and the retailers', un-written contracts are entered into where suppliers procure the products with confidence that the retailers will buy them once they reach the market. We observed the practice where suppliers deliver the products to retailers on credit and receive payment after the products are sold. This level of mutual trust is made possible by a stable market environment where both parties are sure the customers will easily access the markets. Respondents indicated that this level of stability has not always been the case. Support provided by LMS in collaboration with the county governments was credited for this. Establishment of cooperative societies was cited as a major contribution since it allowed traders within the markets to self-regulate and manage the relationships between actors by acting as an un-official sanctions system against malpractices. This has directly impacted the all-year accessibility and availability of more diverse food products to the consumers.

Nevertheless, poor roads to feeder markets outside major towns across the counties and associated security threats during livestock transportation remained a challenge to the market transformation initiatives, especially market accessibility. In addition, analysis identified lack of strong coordination mechanisms between local producers and market actors that created market brokerage risks in which some actors would buy animals and products from one market and sell to another. Many traders acted independently – not in cooperatives – which increased risk of exploitation and limited synergy such as in transportation costs and market leverages through pooled marketing and market linkages.

## Food Safety and Quality

LMS collaborated with the County Government to ensure food safety and quality. This was achieved through the public health officers who inspected and issued licences to complying traders. Additionally, LMS, through the cooperative grant, procured insulated meat boxes (cooler) for butchers and aluminium cans for dairy farmers promoting proper handling, improved shelf life, and increased consumption of the animal products. Similarly, producers received training on hygiene handling of produce from the source to the market. LMS supported grantees were also linked to licencing bodies such as the Kenya Bureau of Standards and Dairy Board for inspection and certification of compliance. A participant said,

“

*“Butchers in the market have been given tools to keep their meat free from pathogens and microorganisms for communities consumption of healthy meat.” P24.*

The dairy farmers are trained and encouraged to supply milk within specific health standards. One participant said,

“

*“Dairy farmers are also engaged in promoting the health of the community by ensuring the safety standards of the milk is met all the time.” P70.*

The increased awareness has also contributed to increase in the number of consumers willing to pay more for safe and quality milk, with an average price increase of 23%.

The dairy farmers are encouraged to supply milk within specific health standards. As indicated, one participant said, the analysis established that LMS has created a positive feedback loop between the producers, traders, retailers, and consumers, where improved food safety and quality standards have led to increased market linkages, customer satisfaction, and thriving economic opportunities. This has also contributed to reducing the risk of foodborne diseases while enhancing the nutritional status of the communities.



Figure 8: Yusra is standing next to her packing machine which she acquired through LMS support

The LMS interventions to improve the management of the livestock markets in the targeted counties also aimed at improving hygiene in the environment in which business took place.

It is worth noting that during the COVID-19 pandemic, joint efforts between LMS and the county governments enabled the markets to continue thriving amid the economic slowdown and provided safe livestock trading hubs. The markets were supported through sanitization and fumigation, public address systems to disseminate COVID-19 prevention messages, and business stimulus cash grants to 607 businesses in the livestock sector. This support improved sanitation and hygiene at the community level as well, due to proper disposal of waste and maintenance of cleanliness in public amenities. 88% of the respondents (Figure 9) reported increased hygiene in the market. For instance, hygiene in the slaughterhouses improved because of sensitization on hygiene as indicated by one of the participants.



“... for example, previously, when we went to the slaughterhouse, we used to see the animal blood and other wastes in one place. With better management skills, we’ve learnt to make sure everything is at the right place. Previously, a kilometre away, you could tell there’s a slaughterhouse around because of the bad smell, but today that has changed, you can even pass by a slaughterhouse without noticing. The slaughterhouse is generally clean thus the meat is safe for consumption” P56

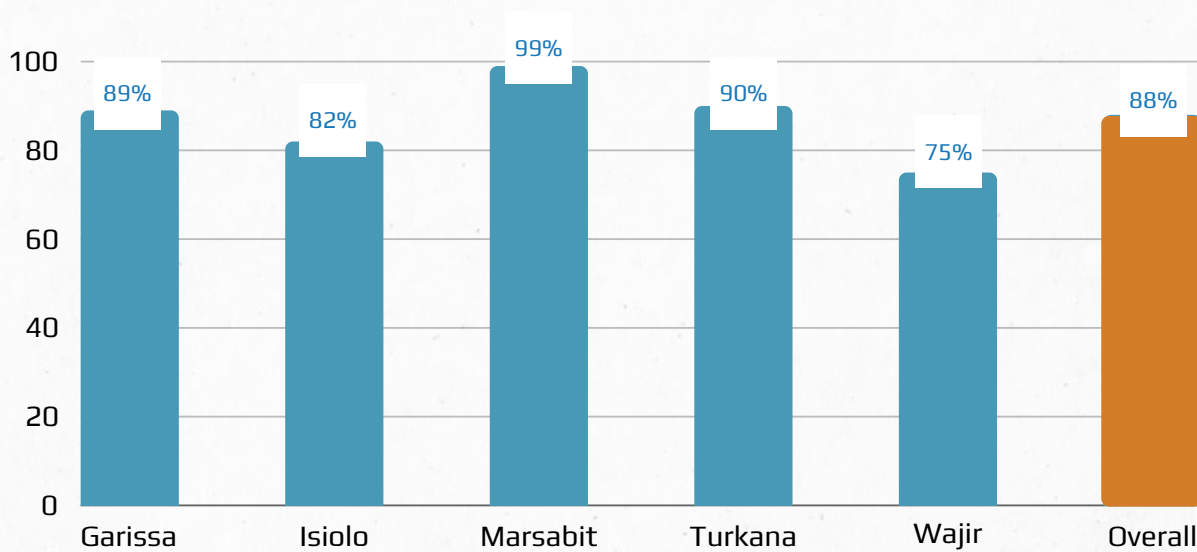


Figure 10 Improved Hygiene in Livestock markets.

From direct support offered for livestock market infrastructure development such as provision of equipment for livestock value addition, there was evidence that this has improved access of the beneficiary communities to diversified nutritious food products. Additionally, 12% of the respondents reported that there was establishment of small groceries and other food market near their settlement areas due to the consistent supply of fruits and vegetables during the main market days. One participant said,

**12%**

**Respondents reported that there was establishment of small groceries near their settlement areas**



“More markets have been opened, because of the community seeing that farming can be done. More people are planting vegetables. Traders from outside are also bringing fresh fruits and vegetables every market day” P10.

Another participant said,



“We have created more vibrant Livestock markets that operate on market days across the larger Marsabit county.” P13.

Through enhanced quality and safety of the livestock products, such as milk, meat, and eggs – achieved through providing training, equipment, and certification to the producers, processors, and retailers – stronger market linkages have emerged because of increased the consumer confidence and demand for these local products, as well as improved compliance with the national and regional standards and regulations. For example, LMS trained 124 meat handling SMEs on hygienic slaughter and meat handling practices, which was attributed to improved quality and safety of the meat sold in the markets. Similarly, on realizing the gap in personnel and skills to adequately deliver services to the community, LMS in collaboration with the various County Governments offered scholarships to 13 youths including an animal health officer for Isiolo County to pursue a course in meat inspection. After graduation, he was deployed as a meat inspector in Isiolo’s main slaughterhouse.

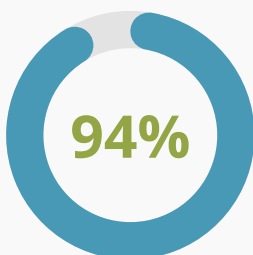
**124**

**Meat handling SMEs trained by LMS on hygienic slaughter and meat handling practices**

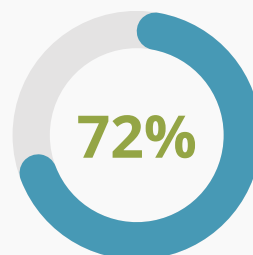
**13**

**Youths offered scholarships by LMS in collaboration with the various County Governments**

Through the LMAs and other cooperatives, LMS facilitated development of stronger market linkages and value addition for livestock products, such as milk and honey which has been linked to improve the income and livelihoods of the producers, processors, and traders involved in the livestock value chain. 94% of the respondents indicated that commodity prices have been on the rise in the last 2 years. this required the management of the livestock markets to be undertaken with professionalism and promote good relationships with all the actors to maintain vibrancy. 72% of the respondents noted an increase in the number of traders both local and non-local thus availing more diversified food commodities.



**Respondents indicated that commodity prices have been on the rise in the last 2 years**



**Respondents noted an increase in the number of traders thus availing more diversified food commodities**

Similarly, LMS facilitated the formation of milk marketing cooperatives, which increased the bargaining power and access to markets for the dairy farmers. This was in addition to the transformative impact of improved equipment and training for milk processing and quality control, enabling the cooperatives to effectively manage markets and produce quality products such as pasteurized milk, yogurt, and cheese. This has reduced the health risk of consuming raw milk commonly practiced in northern counties.



*“We used to sell raw milk at a low price, but now we have a cooperative that processes and packages milk for us. We get better returns, and our customers are happy with the quality of our products.” P25*

Another impact pathway is the LMS role in facilitating beekeepers to form associations and access modern beehives, harvesting kits, and processing facilities. This increased the quantity and quality of honey production and marketing that fetch higher prices (income) in the market. In addition, the increased household level consumption of natural honey could be linked long-term impacts on NCD in protection benefits for conditions such as diabetes, cancer management and better heart health.



*“The LMS gave us modern beehives and trained us on how to harvest and process honey. We also formed a group that helps us to market our honey to different buyers. We have increased our income and improved our standards of living.” P33*

The role of LMS in strengthening regulatory and policy framework was also captured. For instance, improvement in policy and regulatory environment for the livestock sector – achieved through engaging with various stakeholders at the national and county levels – to LMS initiatives including advocacy, joint planning, capacity development and other interventions. For instance, LMS advocated for the harmonization of livestock-related policies and regulations across counties, such as taxation, animal health, and quarantine. The LMS also participated in the review and formulation of national policies and bills, such as the Animal Health Bill, the Dairy Bill, and the Livestock Identification and Traceability System Policies. that has significantly improved the quality and product of livestock market value chains. The LMS also supported the development and implementation of county livestock development plans and strategies, which addressed the needs and priorities of the local livestock actors in responding to local climate shocks and stresses which affect resilience of local food system.

## Increasing commercial production, access, and demand for fodder

The LMS interventions were designed to strategically boost commercial production, accessibility, and creating heightened demand for fodder to support sustainable livestock farming, ensuring adequate nutrition and enhanced productivity. This involved support to livestock and poultry rearing as well as support for fodder production and supply of quality seedlings.

Overall, 13% of the households reported to have received Livestock support such as grant for livestock, poultry and 16% for Livestock fodder production. One participant said,

**13%**

Households received Livestock support



*“The LMS supported construction of hay stores where livestock farmers can buy feeds for their livestock during droughts.”P24*

Interventions on production, access and demand for fodder have contributed to strengthened food systems resilience. First, quality feeds and production support accessed through the grants has enabled livestock farmers to improve their animal husbandry practices, reduce mortality and morbidity rates due to drought, poor quality feed among others. Second, evidence shows that the intervention increased the availability and quality of fodder throughout the year, especially during dry seasons, when most pastoralists face acute shortages of pasture and water hence sustaining productivity while reducing avoidable animal deaths. A livestock farmer remarked.



*"I can now feed my animals well at a lower cost and get more milk and meat. I also save money that I used to spend on buying feeds from far away. This has improved my food security and livelihood." P18*

### Impact Snippet

*The LMS mitigated the impacts of drought on the food systems and livelihoods of the pastoral communities in Kenya by distributing 684 metric Tonnes of feeds to 7,102 households, saving 90,000 livestock (total of 4,384 camels, 9,385 cattle, 50,998 goats, and 25,195 sheep) worth \$6.2 million, and supporting community-based fodder production (including silage making) and conservation groups, which were trained and linked to a viable fodder value chain that increased their income, feed availability, animal health, and resilience. This has allowed a continuous supply of milk, meat, and other nutritious livestock product supplies to local HHs.*

*One of the lasting achievements of the LMS is that the capacitated community-based conservation groups (fodder production) have strengthened the medium-term resilience of the value chain by increasing fodder availability, quality, and access for the pastoralists, as well as improving their linkages to markets and other actors.*

Third, it has reduced the dependency on external sources of feed and increased the self-reliance of livestock producers which cushioned farmers from high cost of feeds which increases risks of poverty. The support has also been directly attributed to new income opportunities for fodder producers, traders, and service providers along the value chain especially those engaged in commercial baling and preservations as explained by one of the respondents:



*"I have increased my income from selling fodder to other livestock farmers. I also use some of the fodder for my own animals, which has improved their health and productivity. I no longer have to buy expensive feeds from the market."P12*



In addition to improving the livelihoods of individual households, these LMS grant support contributed to the resilience of local food systems in northern Kenya, which are often threatened by climate shocks and stresses such as droughts, floods, and pests. By providing equipment, capacity building, and other products, the LMS interventions helped the communities to enhance their food production, storage, processing, and marketing capacities, reducing their dependence on external sources and increasing their self-reliance. One participant explained,



*"The grant support enabled us to purchase a fodder chopper, which has reduced the cost and time of preparing animal feed. We also received training on how to make silage from crop residues, which has increased the availability of fodder during the dry season." P34.*

Another participant said,



*"We received a milk cooler and a generator from LMS, which has improved the quality and safety of our milk. We can now sell our milk at a higher price and access more markets." P48.*

These examples illustrate how the grant support enhanced the resilience of local food systems by strengthening the capacities of the actors involved and enabling them to cope with adverse climatic conditions.

### Access to livelihood opportunities

Though only 9% of the respondents indicated that participation in LMS activities have had any effect on their wellbeing in terms new job creation, the assessment showed remarkable emergence and expansion of businesses within the livestock markets and other sites receiving grant interventions. These included transport, M-Pesa services, agrovets, hotels, cereals, vegetables, clothing, electronics, and assorted household items. Respondents collectively linked an increase in self-employment opportunities within the food system to sustainable changes in the type and amount of food available (diversification) in the local markets.

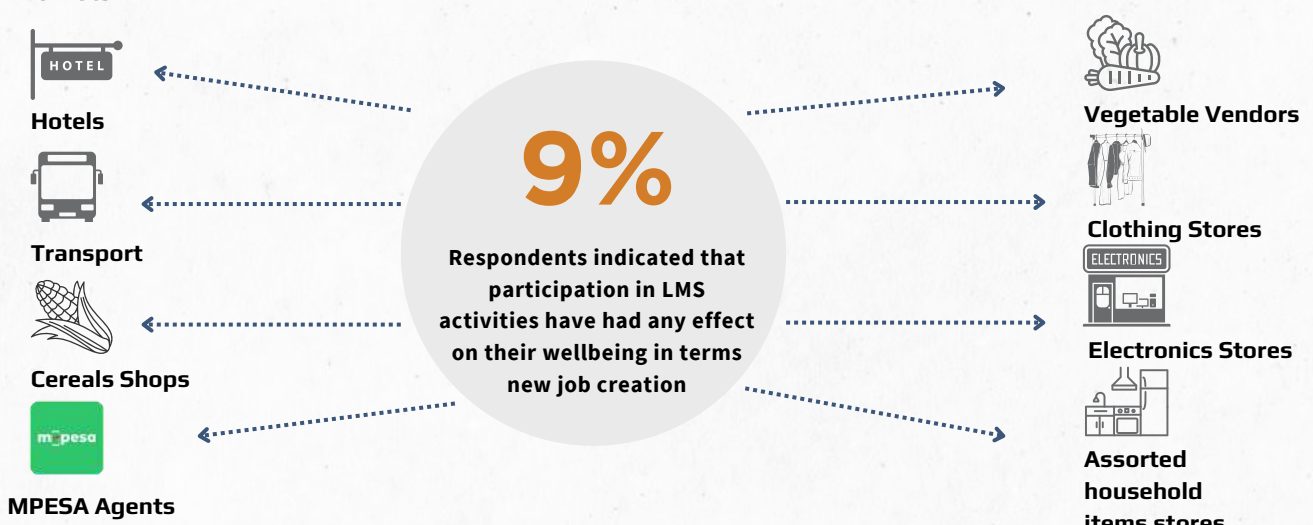




Figure 11 Ali Jelle madey, a vegetable trader at Soko Mjinga market in Wajir explaining how his business benefitted from grants and training offered by LMS

By strengthening and diversifying livelihood opportunities, individuals have reported an uplift in their income levels, fostering financial stability, resilience, and long-term economic growth. The LMS interventions deployed several strategies to create livelihood opportunities for the communities. One participant said,

“

*“Enhanced coordination among traders in Isiolo County and operational markets across the county, providing traders with more opportunities to sell their products, leading to increased profits.” P59. The activities involved creating efficiency in the Livestock market system so to improve market opportunities for the communities.*



Figure 12 Hannah Nyaga, A fruit and vegetable trader at Lodwar Market in Tukana showcasing her thriving business after LMS supported her with a grant.

The LMS interventions enhanced job creation through equipping households with bee hives as an income generating activity as indicated by one participant,

“

*“LMS has supported the creation of job opportunities for the youth and women in our community.” P66.*

Another participant stated:

“

*“Through capacity strengthening we are able to have locally produced honey which has improved income in the household- for example the Malaba bee keeping in Bute which has not only created jobs but also provided exposure to the farmer.” P73*

## OBJECTIVE 2: STRENGTHENED INSTITUTIONS, SYSTEMS, AND GOVERNANCE

This section discusses the extent to which LMS activities contributed to enhancements of institutions, systems, and governance through strengthened organizational structures, improved processes, and effective leadership.

### LMS Institutional Strengthening Impact Note

One of the LMAs that benefited from the LMS is the Isiolo Livestock Marketing Association (ILMA), which was established in 2016 with the support of the LMS. ILMA has grown from 200 to over 1,000 members and has increased its annual turnover from KES 2 million to KES 15 million.

*"The LMS has helped us to organize ourselves and to speak with one voice. We have learned a lot from the trainings and the exposure visits. We have also improved our market access and our income. We are grateful to the LMS for their support."*

The ILMA has also improved its governance and management systems and has established a revolving fund that provides loans to its members at low interest rates.

The ILMA has also been actively involved in the county livestock policy formulation and implementation and has advocated for the rights and interests of the livestock producers and traders.

Further, the rehabilitation and upgrading of Garissa Livestock market Association (GLMA) has been associated with trade volume exceeding 5,000 animals daily, Kenyans, Ethiopians and Somalis are making connections to grow their livestock businesses. The GMLA has increased its membership from about 300 to 2,000 and annual revenue from just Ksh. 10 million to over Ksh 50 million.

One of the key outcomes of the LMS is the institutional strengthening of the livestock market systems in the Zone of Influence (Zoi). LMS supported SACCOs, Chamber of Commerce, LMAs, WPCs, County and National Government, and other local implementing partners. The objective was to empower these entities with knowledge and skills to foster the production, marketing, and consumption of nutritious food to benefit the communities and improve livelihoods. As demonstrated in outcome 1, LMS implemented various interventions that have enhanced the capacity, collaboration, and coordination of the different actors and stakeholders in the livestock sector, such as the livestock producers, traders, processors, service providers, county governments, and civil society organizations. These interventions have improved the governance, efficiency, and sustainability of the livestock market systems, and have resulted in positive impacts on the food systems and its resilience in the Zoi.

For instance, LMS has commendably supported establishment and strengthening the Livestock Marketing Associations (LMAs), which are community-based organizations that represent the needs and interests of the livestock producers and traders. As a result, LMS has reached over 16,000 members across 45 LMAs in the ZOI with trainings, mentorship, and networking opportunities. The LMS trained and mentored the LMAs on how to manage their associations, improve their business skills, access financial services, adopt good animal husbandry practices, and comply with the animal health and welfare standards. As a result, the LMAs have effectively participated in forums and platforms, such as the county budget hearings, the county development planning meetings, and the national livestock dialogues, where they have been able to voice their concerns and recommendations for the improvement of the livestock sector.

**16000** LMA members reached by LMS

**45** LMAs trained and mentored by LMS



*“The MoUs have given us more ownership and control over the livestock markets. We are able to collect and use the revenues to improve the infrastructure and hygiene of the markets, as well as to support our members' welfare.” P67.*

There have also been transformative outcomes linked to rehabilitating and upgrading the livestock market infrastructure and facilities, such as the holding grounds, loading ramps, water points, slaughterhouses, cold rooms, and meat shops. For instance, The LMS operationalised 45 livestock markets across the ZOI, which has increased the market capacity, functionality, and attractiveness. The LMS also facilitated the signing of Memoranda of Understanding (MoUs) between the LMAs and the county governments, which stipulated the revenue sharing arrangements and the accountability mechanisms for the funds generated from the livestock markets. These MoUs have given the LMAs more ownership and control over the livestock markets and have enabled them to collect and use the revenues to improve the infrastructure and hygiene of the markets, as well as to support their members' welfare.



Figure 13 Garissa livestock Market operationalised by LMS.

One of the livestock markets that was operationalised by the LMS is the Garissa Livestock Market, one of the largest and most strategic livestock markets in the region. The LMS constructed a new holding ground, a loading ramp, a water point, and a slaughterhouse, and installed solar panels and a cold room. The Garissa Livestock Marketing Association (GLMA), which manages the market, signed a MoU with the Garissa County Government, which gave them 60% of the market revenue, while the county retained 40%. The GLMA has used the revenue to maintain and improve the market facilities, and to provide services and support to its members, such as water, security, veterinary care, and transport subsidies. The GLMA has also increased its membership from 300 to over 2,000 and has increased its annual turnover from KES 10 million to KES 50 million. One of the GLMA members, a livestock producer, said:



*"The LMS has transformed our market and our lives. The market is now more spacious, clean, and attractive. We can sell our animals at better prices and faster. We also get more services and benefits from the GLMA. We are very happy with the LMS."*

#### BEFORE LMS INTERVENTION



**300**

Membership



**10M**

Annual Turnover

#### AFTER LMS INTERVENTION



**2000+**

Membership



**50M**

Annual Turnover

The markets have progressed to form a cooperative known as "Garissa Livestock and Traders Savings and Credit Society" with over 1000 members. The operationalisation has been associated with trade volume exceeding 5,000 animals daily, Kenyans, Ethiopians and Somalis are making connections to grow their livestock businesses.

LMS has also been commended for supporting the drafting and implementation of enabling legislation that have strengthened the livestock market systems at the county level through joint planning initiatives.

The LMS leveraged on collaborative partnership models to leverage on local resources by partnering with various key stakeholders, such as the county executive committees, the county assemblies, the livestock directorates, the Kenya Markets Trust, and the USAID AHADI project, to support the drafting of bills and policies that focused on livestock development, competitiveness, and other market systems. This has helped standardize and localize the national-level frameworks to the counties, and to adopt a multi-sectoral and consensus building approach that involved the participation and input of the livestock value chain actors.

### Institutional Strengthening Impact; a LMA Member Transformative Experience

One of the impact stories that illustrates the improvement in food availability is that of Mr. Ibrahim, a livestock producer, and a member of the Marsabit Livestock Marketing Association (MLMA). Mr. Ibrahim said:

*“Before the LMS, I used to have only 20 goats and 10 cows, and I used to sell them at the local market at low prices. I did not have enough income to buy food and other necessities for my family. My children were often sick and malnourished. But after joining the MLMA, I received trainings on how to improve my animal husbandry practices, such as feeding, watering, deworming, and vaccinating my animals. I now have 40 goats and 20 cows, and I sell them at the regional and national markets at higher prices. I have increased my income and my food security. I can buy more food and other items for my family. My children are healthier and happier. They eat more meat and milk, and they go to school regularly. I am very thankful to the LMS for changing my life.”*

As a result, the LMS has been commended for supporting drafting and implementation of about ten bills and policies across the ZOI, such as the Turkana County Livestock Marketing Bill enacted in 2018 that established Turkana County livestock Marketing Board, the Marsabit County Livestock Products Bill, and the Garissa County Slaughterhouse Policy among others. LMS participated directly by providing technical and financial support, facilitating sector-wide consultations and the sensitization of the stakeholders. These interventions have been linked to improved governance and the competitiveness of the livestock sector in the ZOI while creating more opportunities and benefits for the livestock market actors.

The review established that these institutional strengthening interventions have led to significant increase in number of sellers and buyers in the markets as shown in figure 13 Increase in incomes has in turn led to increase in food availability, especially the availability of animal-source foods, which are rich in protein, micronutrients, and essential fatty acids, by enhancing the production, marketing, and consumption of livestock and livestock products.

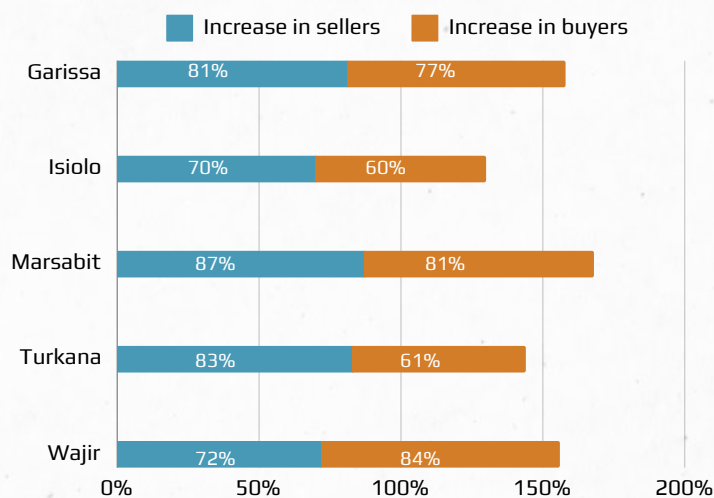


Figure 14 Increase in sellers and buyers in the market.

The LMS has also supported the LMAs to access new and diversified markets, both local and international (as seen in the GLMA which has customers from Somalia, Ethiopia etc) for their livestock and livestock products, which have increased their sales and income.



*"The LMS has helped us to diversify our livestock products and markets, and to access reliable and timely information on prices and demand. This has enabled us to increase our sales and profits, and to cope with the market fluctuations and shocks." P90.*

This has also increased the accessibility of animal-source foods by improving the income and livelihoods of the livestock producers and traders, as well as the other value chain actors, such as the transporters, brokers, processors, retailers, and service providers.



## OBJECTIVE 3: IMPROVED HUMAN CAPITAL

Human capital refers to the knowledge, skills, abilities, and health of individuals that enable them to participate in economic activities and improve their well-being. LMS implemented several initiatives that aimed at enhancing the human capital of the livestock producers, traders, processors, and consumers in the Northern region.

In the life of LMS, training and capacity building has been a core component of the interventions targeting diverse actors, including LMAs, WPCs, REAP, GIRL among others. The capacity building initiatives were designed to integrate nutrition aspects that led to improvement in nutrition knowledge. 54% of the respondents indicated increased knowledge of benefits of nutritious foods and how to use them.

One of the key initiatives was the provision of training and mentorship on various topics related to livestock production, marketing, processing, and consumption. This equipped the livestock keepers on improved animal husbandry practices, such as feeding, breeding, disease prevention, and vaccination. These trainings have improved the quality and quantity of the livestock products, as well as the income and nutrition of the producers. A beneficiary reported,



*"We have been trained on how to take care of our animals, how to feed them, and how to prevent diseases. We have seen an improvement in milk production and animal health." P8*

Another initiative that LMS implemented to improve human capital was the establishment and support of cooperatives and self-help groups among the livestock actors. These groups provided a platform for access to credit, inputs, markets, and information, which enhanced the food system productivity and resilience of the livestock actors. For instance, LMS supported 45 cooperatives and self-help groups, with a cumulative membership of over 2,000 individuals. A cooperative official said,



*"LMS has helped us to form and register our cooperative and has provided us with training and equipment. We have been able to pool our resources, access loans, buy inputs, sell our products, and share information. We have also developed trust and friendship among ourselves." P21*

**45**

**Cooperatives and self-help groups**

**2000+**

**Cumulative membership**

The groups have also provided a platform for collective action, mutual learning, peer support, and social cohesion among the members that has improved their well-being.

Collectively, the human capital improvement initiatives resulted in positive impacts on the food systems environment in both medium and long-term such as through promotion of kitchen gardening initiatives by the groups. The improved human capital increased the availability, accessibility, affordability, and quality of livestock products in the markets, which improved the food security and nutrition outcomes of the population. This was due to compounded effects of enhanced skills, knowledge, and networks of the livestock value chain actors, which has enabled them to produce more, diversify their products, reduce losses, and access markets. The improved market products have contributed to the food security and nutrition outcomes of the consumers, as well as the income and livelihoods of the producers and traders.

# Conclusion

The Livestock Market System (LMS) interventions in the Northern region of Kenya had a positive and significant impact on food system and nutrition outcomes, as well as on the livelihoods, incomes, and empowerment of the beneficiaries. LMS improved the availability, affordability, and diversity of food for both producers and consumers, contributing to improved dietary intake and reduced food insecurity. LMS also increased the income and assets of the pastoralists, traders, and entrepreneurs, enabling them to access more and better food, health, and education services. LMS empowered women and girls by enhancing their skills, knowledge, and agency in the livestock market system, improving their status and well-being.

However, LMS also encountered some challenges and limitations that affected its performance and sustainability. LMS lacked a comprehensive and reliable data management system that could monitor and evaluate its activities and results real-time, thus limiting its ability to learn and adapt. LMS also faced some coordination and collaboration issues among the various actors and institutions involved in the livestock market system, leading to inefficiencies and gaps in service delivery.

## Lessons Learnt and Observations



### 1) Economic Opportunities and Market Expansion:

- Successful Livestock Market System (LMS) initiatives led to the expansion and diversification of economic opportunities in the Northern region. Through the provision of grants coupled with trainings, coaching and mentorship enabled pastoralists to start business activities that they could never have thought about. COVID and Drought response cash transfers boosted businesses that were at the verge of collapse thus ensuring a stable supply of food commodities in the region.
- The interventions attracted livestock buyers, fostering growth in both livestock and non-livestock businesses.
- Notable support for value additions, such as milk and meat packaging, showcased the positive impact of LMS grant support.



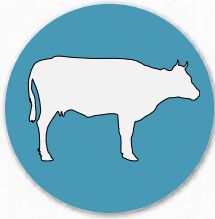
### 2) Infrastructure and Accessibility Challenges:

- Positive transformations in the livestock market attracted government investments in road grading, but challenges like poor roads to feeder markets and security threats during livestock transportation persisted.
- Addressing infrastructure challenges is crucial for enhancing market accessibility and sustaining positive multiple effects.



### 3) Year-round availability of Nutritious Foods:

- LMS interventions had a discernible impact on the year-round availability and accessibility of nutritious foods, positively affecting households in the targeted zone. This was achieved through training on crop production, water management activities such as irrigation, kitchen gardening and linkage to markets.
- Establishing robust connections and networks facilitated efficient trade, optimizing economic opportunities for producers, markets, and consumers.



#### 4) Professional Livestock Market Management:

- Strengthening organizational structures and comprehensive training sessions resulted in professional livestock market management.
- Emphasis on good relationships with stakeholders increased productivity and contributed to a well-coordinated and strengthened Livestock Market System.



#### 5) Policy Formulation and Partnerships:

- Conducive policies, regulations, and standards played a pivotal role in creating an enabling environment within the livestock market system.
- Partnership alliances and transformative interventions positively impacted leadership dynamics, leading to improved stakeholder engagement and enhanced product quality.



#### 6) Human Capital Development:

- LMS played a pivotal role in enhancing human capital through organized seminars and training sessions.
- Empowering diverse groups, including farmers and traders, with essential skills showcased the broader impact of LMS interventions on economic activities.



#### 7) Women's Empowerment and Community Support:

- Women's empowerment initiatives through REAP and Girl groups focused on crucial aspects like business development, financial literacy, and life skills.
- Community support meetings contributed to a healthier population through increased access to nutritious food, positively impacting children's overall health and school attendance.



#### 8) Cooperative Movement and Financial Avenues::

- Support for cooperative movements strengthened the aggregation of livestock products, showcasing the importance of collective efforts.
- LMS interventions strategically created livelihood opportunities, expanded financial avenues, and supported mechanisms for the development and sustainability of livestock value chains.



#### 9) Sustainability and scale :

- There are concerted efforts aimed at ensuring the long-term viability, expansion, and effective management of the entire livestock market ecosystem. For institutions, the key is capacity building, improved financial management, and the establishment of collaborative partnerships to strengthen the overall structure of the livestock market. The LMS performed commendably as picked in the quotes below:



*“The knowledge instilled in the businesspeople through training on how to run business helped in its success” P18.*



*“Nutritious food sensitisations by LMS and its partners are useful in the long-term sustainability.” P12.*



*“Different stakeholders have come together to address the livestock markets (Nawiri) and have also provided training to LMAs and cash transfers for people doing livestock business.” P22*



**10) Collaborative partnerships, particularly through alliance-building are central to the success of complex programmes like LMS.**

## Key Recommendations

01

Review findings indicate that as part of systems strengthening work done under LMS, ten bills and policies are in different levels of implementation across the Zol. There is need for LMS and other partners to support the county governments to finalize the enactment processes to make the instruments operational.

02

The county governments should strengthen their capacity to supervise and enforce legal compliance within certain food-related entities. This would ensure local entities comply with existing regulations or standards, potentially resulting in improvements in food safety or quality.

03

The livestock market system actors at the county level should invest in technology, such as digital tools for inventory management, online sales platforms, or traceability systems. This would further enhance operational efficiency and meet the growing demand for technological solutions in the industry.

04

While acknowledging impact-level gains under LMS, there is need to expand livestock market systems programming for a more sustainable impact. Although the community has gained valuable skills and improved financial literacy through LMS activities, there is room for further growth. The beneficiaries exposed to learning opportunities have clearly improved their roles in the food value chain. Community-level impact is however still limited due to the relatively small-scale nature of their operations.

05

Adopt a real-time data management system that can capture the outcomes of the livestock market system (LMS) and inform evidence-based decision making and adaptation.

06

Scale-up efforts to strengthen dialogue and partnership among the LMS stakeholders, to foster trust, accountability, and synergy.

07

Enhance and institutionalize collaboration between county governments and LMS initiatives/actors, to facilitate more robust support structures and broader reach and deeper impact.

08

For a more substantial and far-reaching effect, it is imperative for the county governments to enhance and institutionalize collaboration with LMS initiatives/actors. Such partnerships would facilitate more robust support structures, ensuring broader reach and deeper impact.

# Annex 1: Impact Assessment Framework

Lms Impact Assessment Area (5Rs)	Proposed Assessment Questions
Results	
<b>Improved Access</b>	Has the LMS contributed to enhanced economic opportunities and market linkages for livestock products?
	Has it led to improved access to diverse and nutrient-rich foods?
	Have better market systems increased the availability and affordability of these foods to consumers?
	Which LMS activities have produced the most positive impacts among actors, and why?
	How have LMS activities impacted the capacity of food system actors to produce/process more safe and nutritious foods?
	How have these activities impacted the food environment at the consumer level?
	Have LMS activities increased consumer demand for nutritious foods? How was this accomplished?
	Has the increase led to consumption of more nutritious diets? Why or why not?
	What other results (positive/negative) do actors note about the local system?
<b>Diversification of Diets</b>	Have efforts to promote livestock production and market systems encouraged farmers and producers to diversify their offerings?
	If yes, has this led to a wider variety of foods available in local markets?
	Is there evidence that this has contributed to more diverse diets for consumers, which is crucial for improved nutrition?
	Is there evidence that LMS activities have contributed to increased consumption of nutritious foods without concerns about safety?
<b>Value Addition and Processing</b>	If the LMS has supported value addition and processing of livestock products, has it resulted in the availability of processed and packaged foods?
	Do these value-added products have longer shelf lives and, therefore, are more convenient for consumers?
<b>Increased Incomes</b>	By enhancing economic opportunities, has the program increased incomes for households involved in livestock production and related activities?
	Has this led to improved purchasing power? If yes, how do you use the extra income? Use following probes: It is used to buy diverse nutritious foods potentially including more nutrient-dense options. It is used to buy additional staple foods to better assure year-round food security, Used to buy other purchases that improve the wellbeing of the household?

<b>Roles Played by Actors</b>	What roles are actors currently performing and how have the roles changed or evolved over time due to LMS activities lead to changes in food environment? Probe for LMS influence on the roles played by households, SMEs, market committees, cooperatives, Chambers of Commerce, policy bodies.
	Are some actors performing multiple roles? Which actors? What roles?
	How have LMS activities affected different types of actors in the performance of their roles such as production and consumption? Is there potential conflict of interest in any of the roles?
	How have LMS activities supported actors to effectively fulfil their roles they have taken on in the food systems?
	Are there any roles that seem to be neglected? Why? What could be done to change this situation?
<b>Relationships</b>	
<b>Types And Strength of Relationships</b>	What types of relationships exist between role-players? Between producers, processors, marketers, regulators, consumers, donors?
	Are there relationships identified as missing, weak, unnecessary, or illegitimate, mutual, predatory, conflictual, or collaborative? Why and why not
	How have these relationships impacted LMS outcomes and performance? Which aspects could have been strengthened for better results
<b>Rules</b>	
<b>Sector Coordination</b>	How has the LMS supported the enactment of policies and regulations that incentivize the food value chain actors to invest in nutritious food systems? How have the resultant policies supported or impacted consumer food acquisition and diet diversification? Probe for availability, accessibility, affordability, safety, and quality of nutritious foods.
<b>Environmental Regulation</b>	Has the LMS promoted sustainable and environmentally friendly practices in livestock production?
	Has this influenced consumer preference for more sustainable food options?

Food Safety and Quality	Has the LMS addressed issues related to food safety and quality?
	How has this been achieved?
	Has this led to increased awareness of food safety issues and demand for safe foods and willingness to pay for these safer foods?
Resources	
Resources Utilization and Value for Money	How have the investments made under LMS by ACDIVOCA impacted the food systems? How has the resources leveraged government, private and other actor resources create a lasting impact on food systems? Which of the LMS investments have generated the great impact in the food systems?
	Was the investment of a scale to produce long term impact?
Government Contribution and Trends	What is the government contribution (National and County) to strengthening systems in the LMS in the ZOI?
	Are there trends (increasing, decreasing) or patterns (cyclical) in resource inflows?
Community Sustainability Efforts	What are the community actors (committees, households) doing to sustain the gains made under the LMS Activity?