



MAZIWA PROJECT
Empowering dairy cooperatives in Meru county
NGUSISHI DAIRY FARMERS COOPERATIVE

Maziwa (milk) - Empowerment of dairy cooperatives in Meru County, Kenya

AVSI/KEN/AICS/011510.

Final Evaluation Final Report

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Final Evaluation Final Report

This report is a product of Environomica Consulting authored by the consultants Mr. Marco De Milato, Mr Michele Galli, and Mr David Ojwang pursuant to contract order from AVSI Foundation signed on October 10, 2019, for the project Maziwa (milk) – Empowerment of producer dairy and supply chain cooperatives in Meru County, Kenya (AVSI/KEN/AICS/011510/ITA/08-2019). The findings and conclusions expressed herein do not necessarily reflect the views of AVSI nor of the AICS. The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of AVSI and AICS concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The designations “developed” and “developing” countries are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

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About the authors

Environomica Consulting (ENV) is a collective of experts, consultants and activists committed to improve the living conditions of local communities in developing and fragile contexts by promoting more sustainable and inclusive livelihoods. The ENV evaluation team for this project is comprised of three associated consultants with complementary and extensive international and field experience.

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Acronyms

AICS	Italian Agency for Development Cooperation
AVSI	International Service Volunteer Association
IPSIA	ACLI Institute for Peace, Development, Innovation
ENV	Environomica Consulting
EU	European Union
FGD	Focus Group Discussion
GAM	Global Acute Malnutrition
GAP	Good Agronomic Practice
HDI	Human Development Index
KES	Kenya Shillings
KI	Key Informant

KII	Key Informant Interviews
MAM	Moderate Acute Malnutrition
MAM rains	March, April, and May rains
MEAL	Monitoring, Evaluation, Accountability and Learning
M&E.	Monitoring and Evaluation
NDMA	National Drought Management Authority
NRM	Natural Resource Management
OVI	Objectively Verifiable Indicators
SAM	Severe Acute Malnutrition
SPSS	Statistical Package for Social Science
ToC	Theory of Change
ToT	Training of trainers
TOR	Terms of Reference
UN	United Nations
WHO	World Health Organization

Currency equivalent, weights, and measures

Currency Equivalent – September 2021

Currency Unit - Kenya Shillings (KES)

USD 1.00 - KES 110

EUR 1.00. - KES 129

Weights and Measures

1 Kilogramme (Kg) - 2 204 lb.

1,000 kg - 1 Metric Ton (MT)

1 Kilometre (Km) - 0.62 Mile

1 metre (m) - 1.09 yards

1 square metre (m²) - 10.76 square feet

1 acre (ac) - 0.405 hectare (ha)

1 hectare (ha) - 2.47 acres

Executive summary

Introduction

The “MAZIWA – Improvement of dairy and supply chain cooperatives in Meru County, Kenya” project was a €1.845.596,62 project funded by the Italian Agency for Cooperation and Development (AICS) and implemented by AVSI Foundation as lead implementing agency in partnership with IPSIA, Don Bosco and Meru County government for over 36 months targeting 2,988 direct beneficiaries. The project tackled the lack of food security, nutrition, and sustainable agriculture in Meru County through an intervention on the dairy industry to improve management and production system of 5 producers’ cooperatives.

The contract for the external Final Evaluation of the project was assigned to Environomica Consulting, who implemented the work from September 21st, 2021, through December 1st, 2021. Mixed methodology data collection techniques (Key informant interviews, focus group discussions, desk review and onsite observation) were employed and the instruments were designed based on the evaluation matrix, the associated data collection tools, and the objectives of the assignment. As a result, the study team has gathered the following key findings which have led to draw the following ratings, conclusions, and recommendation for future interventions.

Summary of key findings & conclusions

Taking into consideration the performance of the project as rated per each evaluation criteria, the evaluation team rates the performance of the Maziwa project as **satisfactory overall**.

Table 1. Summary of the project rating.

CRITERION	Relevance	Effectiveness	Efficiency	Sustainability	Impact	Overall performance
1. Highly Satisfactory (HS)						
2. Satisfactory (S)						
3. Moderately Satisfactory (MS)						
4. Moderately Unsatisfactory (MU)						
5. Unsatisfactory (U)						
6. Highly Unsatisfactory (HU)						
Unable to Assess (UA)						

Relevance

Total relevance rating: Satisfactory

Evaluation questions: To what extent has the program addressed the needs of the community? How well did the program align with government and agency priorities?

The project strategies were found to be relevant to a **satisfactory** degree to the key challenges faced by the target groups. Interventions tackling improved production, increasing the capacity for processing and preserving milk, and improving value addition, management, savings, marketing and trade skills of cooperatives and farmers are relevant to the target communities. The project design resulted clearly and fully described in the project document and based on a clear logical framework that shows good vertical consistency. However, the objectives and targets set for the newly established cooperatives appeared overestimated for a 36-months project limiting their scope for sustainability.

By targeting the dairy sector, the project intervened at the heart of an economy fuelled by women. The establishment of collection centres near the production centres has reduced the distance to 2 km, down from 7 km on average before the project. The increased profitability of the dairy sector has hence enabled greater independence of women from men and empowered them to make decision on household spending. The project was implemented through a multi-stakeholder approach in partnership with private sector and county government stakeholders and it addressed key priority issues contemplated by all relevant local, national, and international policies, including especially those of the donor.

Effectiveness (Progress towards achieving results)

Total effectiveness rating: Satisfactory

Evaluation questions: To what extent has the project contributed to improve management and production capacity of dairy cooperatives in Meru County?

The project has contributed to increase the capacity of the targeted dairy cooperatives to effectively manage their units to a **satisfactory** degree. The establishment of the milk chilling plants acted as a pull of the milk to the market, motivating the community to invest, while the capacity building acted as the push to the market. The strategy chosen for implementation including for stakeholder collaboration have contributed to the success of the project. However, the lack of adequate, continuous and financially viable extension service system may hinder the sustainability of the instruments created.

The project has had some unintended positive outcomes including increased access to education and health as well as the proliferation of new businesses. Indeed, the project

impact has improved the local economy on the target areas. Importantly, it has improved nutrition for the children through increased milk consumption due to increased milk production. As the impact varied among the five target cooperatives, a relation was observed between the progress on operationalizing the processing units and the performance of participants in terms of productivity, income and hence access to education, health, credit, and income diversification.

Expected result 1. Capacity building on fodder and pasture establishment, management, and preservation (silage making and hay bailing) have contributed to improve productivity from 5.7 lt per cow per day to 9.3 lt per cow per day. However, the impact of these trainings is less visible in those locations (only) that were affected by disruptions caused by COVID19. Some cooperatives have opened input stores through which farmers can access concentrates, mineral supplements, fodder seeds and pay it with the revenues from the milk sales. Conversely, access to Artificial Insemination (AI) services for most cooperative members is still a challenge due to their inherently high cost and availability. On average the overall income of participants grew twofold (98%) with an 89% increase in dairy income alone. Income from other sources has increased by 104%.

Expected result 2. The project constructed four (4) new milk processing units and renovated one facility. Their producers are no longer at the mercy of the brokers as they can rely on a ready market for their milk through the main processors like Meru Union. The prices have improved from KES 33 per litre at baseline to KES 40. The number of farmers delivering milk to the dairy cooperatives has increased by 88%. The integration of ICT systems in milk recording has contributed to this outcome as well as milk collection centres near the farm gate and the chilling systems at the cooperatives. The average milk spoilage per month was reduced by 62%. These improvements have translated into mitigated losses and have enabled youth employment. The current challenge for these cooperatives is to invest in their own transport system to become more competitive.

Expected result 3. Most of the responding beneficiaries (68%) now invest more in various income generating activities including 40% of women because the project improved their livelihoods. Some cooperatives have established a one stop shop for farmers who purchase on credit through their milk supply accounts. As a result, 47% of the farmers are now buying more farm inputs. The key challenge that is still affecting the target groups is record keeping at the farm level as most farmers are illiterate. The Maziwa project has contributed to improve confidence with 81% of participants who now feel that they are in control of their life and many households now accessing credit (59%). These findings were found consistent with the scale of the impact achieved by the project in each of the target locations.

Expected result 4. To improve on the service delivery, seventy-four cooperatives' leaders were trained on leadership and governance, management, and marketing in collaboration with the Meru County department of cooperatives. Secondly, about 186 both public and

private veterinary practitioners from the 9 sub-counties of Meru County were reached by the project workshops. Thirdly, twenty-eight department of cooperative staff were also reached. The project supported the dairy cooperatives with a motorbike each and 6 other motorcycles were provided to the department of livestock and cooperative in Meru County. Maziwa has facilitated the participation to learning tours targeting farmers and cooperative members to increase their awareness and adoption of best practices. Milk consumption has improved overall by 25% as a result of increased production and sensitization activities.

Expected result 5. The project invested in significant infrastructural development which included purchase of land and setting up of 5 facilities with chilling and value addition equipment. Special attention was given to capacity development to make the cooperative management improve on their procurement and asset management. In an effort to promote green energy, Ngusishi and Ariithi cooperatives were supported by photovoltaic solar systems. All the five cooperatives were supported with solar system for heating water for washing the containers and equipment. Three demonstrations biogas plants were offered at selected farmer locations as a learning site to other farmers on the benefits of BIOGAS plants. However, the uptake of such technology was not widespread since the cost of installation acted as a disincentive for them to engage in biogas production.

Efficiency

Total efficiency rating: Satisfactory

Evaluation questions: How efficient was the implementation, management and monitoring of the project?

The evaluation team rated the overall project efficiency **satisfactory**. A total of 3,035 individuals were reached with a 275 individuals per staff ratio. For every EUR 1 invested, farmers made EUR 1.46 annually: real value creation when considering that the project was infrastructure intensive. Confidence and loyalty among members spurred from the improved efficiency and transparency at the cooperative attracting new members. The project has adopted a clear and detailed procurement plan that enhanced value for money. It was implemented with a public-private sector approach which was participatory in nature and considered adequate under the circumstances. Reaching the target population with locally available resources was seen as an efficient strategy to achieve the adoption of the promoted practices transferred from within the community. The project activities were delivered on time, yet the pandemic affected the project in different ways including especially follow up trainings and meetings that could not take place. This negatively affected the project implementation pace.

Sustainability

Total sustainability rating: Moderately satisfactory

Evaluation questions: How sustainable are the instruments created with the intervention likely to be in the medium to long run?

The overall project sustainability is rated as **moderately satisfactory**. The target cooperatives have benefited from exchange visits, trainings, and mentorship programs that have triggered a learning process and formed the basis for their institutional sustainability. There is an encouraging number of youth (51) in the collection points as well as an initial positive number (9) of youths (below 35 years) in the cooperatives management (Ngusishi-3, Arithi Mutuati -1, Meru North-1, Mikinduri-2, Nyaki Kiburine -2) Their presence and participation are considered relevant for the sustainability of the action and the evaluation team recommend continuing to promote youth participation among the cooperatives. As for the environmental sustainability, the intervention worked extensively to reduce or minimize the impact of dairy production and processing on the environment towards the achievement of the Sustainable Development Goal # 13. The project invested significantly in building the capacity of the beneficiaries to cope with dairy business challenges. The capacity development offered by the project have strengthened critical technical capacities of the county staff. However, the capacity (mainly in terms of financial resources) of county authorities to provide adequate extension services in the future is limited. This may hinder the sustainability of the outcomes created with the project. The evaluation team recommend exploring possibilities of establishing sustainable extension service mechanisms offered directly and systematically by the cooperatives.

The households targeted by the project are now generating more income and food from diversified sources largely financed with the dairy enterprise. Women have been empowered through the dairy enterprise and improved incomes have enabled improved access to health for many participants. The establishment and capacity development of the five (5) dairy cooperatives has provided a platform that supports farmers, inspires confidence, and enables peer-to-peer learning. The chosen strategies for partnerships have certainly shown a way to cooperate and integrate along the dairy value chain for greater impact.

Project impact

Total impact rating: Satisfactory

Evaluation questions: What kind of impact has the project had on the target area?

The project has contributed to improve women and youth participation in the dairy value chain. Less progress was made with ensuring gender balance on the cooperatives' management boards as only 35% of the leadership positions are held by women.

Households have recorded improved food and nutrition security thanks to strategies promoted with the project. The increased access to food among the targeted communities was a result of a sharp increase in disposable income, as was the case for continuous access to health and education services. Indeed, the project has benefited the whole dairy sector in the county. There has been significant change in attitude towards the dairy enterprise. Importantly, the study has observed a positive correlation between increased production and milk consumption at household level. Overall, the evaluation team concluded that project has managed political, technical, social and partnership risks adequately and activated mechanisms to cope with the changing environment. Maziwa truly has had an appreciable positive income on the target communities, which is therefore rated **satisfactory** by the evaluation team.

Summary of recommendations

Recommendation 1. The newly established cooperatives would have required a longer supporting period to achieve full independence and sustainability of their respective business. The study team therefore recommends to continue the mobilisation of new resources and **design a follow up intervention to strengthen the capacities of the newly established cooperatives** and to **allow for a 5 years follow up and supervision on the new cooperative structures.**

Recommendation 2. The evaluation revealed that the project has not promoted a sustainable extension service system owned and financed by the cooperatives. For this reason, the evaluation team recommends to **intervene on the business model of dairy cooperatives to include a financial mechanism for the provision of technical assistance to the production base that makes the most of ICTs.**

Recommendation 3. Access to AI is still a challenge for most dairy producers. The study team recommends to **design a strategy to establish semen cold chains managed by the cooperatives to help reach more cooperative members with the service.**

Recommendation 4. Learning from the case of NGUSISHI who transport their own milk to Meru Union and have not reported milk rejection recently, the evaluation team recommends to **promote the purchase and sustainable management of product logistics from within the cooperatives based on cost-sharing approach.**

Recommendation 5. To reduce paperwork and improve process efficiency, it is recommended to **establish a direct link between the milk collection centres and respective main server at the cooperative.** In addition, to **enable access of financial institution to the system to improve access to credit for the cooperative members.**

Recommendation 6. More work is needed to **ensure that these cooperatives attract more young men and women to join the board for their long-term institutional**

sustainability as well as to deploy a sustainable mechanism to provide technical assistance to its suppliers (see recommendation 2).

Recommendation 7. The study found that most of the cooperatives have allocated roles to the board. As per the management and marketing training each committee position was well stipulated on their roles. Nevertheless, there is need to continue the follow up and supervision of the cooperatives and strengthen **the adoption of roles accompanied by clear mandates including especially for finance, extension, processing, handling and sales.**

Recommendation 8. The evaluation team believes that the project implementation would have benefited from **having the committee chaired by a senior staff** such as the regional or country director, or the director of livestock at the county level. This is **to minimize the scope for the project manager to answer to her/himself at the committee meetings.**

Recommendation 9. The introduction of water-dependent technologies such as fodder production, green maize and increased number of dairy animals requires commensurate investment in rainwater harvesting structures to cater for livestock and crop production during off seasons. Hence, the team recommends to **promote the creation of rainwater harvesting structures such as farm pods, roof catchments, and water storage through underground tanks to avail water during dry season.**

Recommendation 10. The sustainability of the targeted cooperatives will depend on their competitiveness and therefore their capacity to mobilize resources. The team hence recommends to **build the fundraising capacities of cooperatives to enable them to solicit for funds from impact capital institutions, government projects and private sector investments competitively.**

1. Background to the study

1.1 Introduction

The Final Evaluation of the Maziwa Project was based on an evaluation matrix to assess qualitative progress against the quantitative and timely achievement of the project indicators with regard to the project implementation period. The evaluation ascertained the relevance of the project's management arrangements against its framework and relevance to the needs and priorities of the target communities. It assessed the coherence of the intervention with Meru County Government and Kenya National Government inherent policies. The study team evaluated the efficiency in the use of funds with regard to the implementation of project activities and partnerships. Furthermore, it looked at whether the chosen design and implementation strategies have the capacity to produce a sustainable positive impact.

The scope of the evaluation was hence to ponder whether the initial Theory of Change is capable of producing the foreseen chain of results. In this sense, the study team looked at whether the logic of intervention and the performed activities are resulting into the expected short, medium-and long-term outcomes, and whether more effective and efficient options are available. Similarly, it looked at the unexpected outcomes of the intervention's framework and performance, both in positive and negative terms. The Key Evaluation Questions sought to establish the extent to which changes in production and sales patterns, cooperative dynamics and energy supply can be linked with the intervention. In so doing, the ENV team recorded the main constraints faced by project stakeholders during the project implementation as well as best practices and lessons learnt as to inform future actions.

Finally, the study team drew conclusions based on the evaluation findings and formulated recommendations.

1.2 Methodology

To fulfil the objectives, respond to reporting needs and achieve the requested outputs, a mixed, learning-oriented, participatory method evaluation approach based on the logical framework was used. Thus, qualitative collection instruments and techniques were developed and applied. After applying them, each of the resulting findings were retrieved and subsequently analysed, a data triangulating was performed to obtain a reliable basis for explaining the assessment of the different aspects of the project. The reporting needs of the evaluation are determined by five criteria and the related evaluation questions and sub-questions. Each of these was answered based on description, analysis, and measurements, taking the programme design, management structure, processes driven and mid-term results of the intervention into consideration. A list of the key evaluation questions for each of the evaluation criteria is shown below

Table 2. Evaluation criteria.

Criterion	Key Evaluation Question
Relevance	1) To what extent has the program addressed the needs of the community? 2) How well did the program align with government and agency priorities?
Effectiveness	3) To what extent did the program contribute to improving the resilience and self-sufficiency of community in Meru County, Kenya?
Efficiency	4) How efficient was the implementation, management and monitoring of the program?
Sustainability	5) How sustainable are the benefits created with the intervention likely to be in the medium to long run?
Impact:	6) What kind of impact has the program had on the target area?

The evaluation provides ratings for each the evaluation criteria. Criteria are rated on a seven-point scale as follows:

- 1) **Highly Satisfactory (HS)**: There were no shortcomings; quality of implementation/execution and level of outcomes achieved clearly exceeded expectations
- 2) **Satisfactory (S)**: There were no or minor shortcomings; quality of implementation/execution and level of outcomes achieved met expectations.
- 3) **Moderately Satisfactory (MS)**: There were some moderate shortcomings; quality of implementation/execution and level of outcomes achieved met expectations partially.
- 4) **Moderately Unsatisfactory (MU)**: There were significant shortcomings; quality of implementation/execution and level of outcomes achieved was somewhat lower than expected
- 5) **Unsatisfactory (U)**: There were major shortcomings; quality of implementation/execution and level of outcomes achieved was substantially lower than expected
- 6) **Highly Unsatisfactory (HU)**: Only a negligible level of outcomes achieved and there were severe shortcomings in quality of implementation/execution.
- 7) **Unable to Assess (UA)**: The available information does not allow an assessment of the quality of implementation and execution and the level of outcome achievements

In line with the consultancy ToR and with the aim of ensuring a comprehensive analysis, sub-questions were developed and associated with indicators, assessment criteria, collection methods and information sources to shape the matrix of this evaluation (see annex 2), which guided the data collection.

The evaluation study was conducted starting on the 21st of September 2021 and included 4 days of qualitative data collection. Key informants included beneficiaries, decision-makers,

county government officers, desk officers, head of mission and project manager of the partners linked to project execution (see annex 3 list of key informants).

Mixed methodology data collection techniques (Key informant interviews, focus group discussions, desk review and onsite observation) were employed depending on the kind of information that each of the key stakeholders could supply. The instruments were designed based on the evaluation questions, judgement criteria and objectives of the assignment (see annex 2: Data collection tool).

1.3 Limitations

- 2 During the evaluation, certain limitations affected the collection and analysis of background data relating to the project progress. These are isolated factors that do not compromise the work or quality of the evaluation. The main limitations include:
- 3 **Restrictions to mobility.** COVID19-related mobility restrictions experienced by the evaluation team meant only one of the team members was able to conduct the data collection on the project area. Nevertheless, the team was able to collect sufficient data to yield valuable findings and deliver a high-quality evaluation.
- 4 **Translation reduces data fidelity.** The team had to conduct some interviews with respondents in local languages. Translation impedes accurate communication and makes it difficult to collect reliable and valid data. The team probed persistently to clarify issues and improve understanding. However, translation inevitably results in a loss of data fidelity.

1.4 Reader's guide

- 5 This report is composed of six sections. After the introduction, the report provides background information describing the context in which the evaluation takes place. The following section describes, analyses, and discusses the main findings of the evaluation arranged by evaluation questions (section 3). A list of conclusions in section 4 is followed by a record of lessons learnt in section 5 and operational and strategic recommendations in sections 6. The appendixes and annexes provide information about the evaluation process, methodology and the analysis conducted to back the findings, conclusions, and recommendations.

2. Background & context of the project

2.1 Context of the project

The Kenya Dairy Sector

- 6 Dairy is the largest sub-sector of the agriculture sector in Kenya, contributing about 30% of the livestock Gross Domestic Product (GDP), 14% of agricultural GDP and more than 22% of livestock gross market value (Odero-Waitituh, 2017). The importance of the value chain in Kenya is indicated by the number of households engaged: 50% keep dairy animals of which 15% keep exotic dairy breeds producing 10 to 30 lits/cow/day and 36% keep purely indigenous dairy zebu, producing 3-10 lits/cow/day (Population census 2019). The smallholder dairy producers in Kenya account for over 80-85% of the total milk production in the country (Kenya Dairy Master plan, 2010). In 2018, the total milk production in Kenya stood at 4.8 billion litres with milk from cattle, camels and goats contributing 75%, 18% and 5% respectively to the total production. Dairy cattle alone contributed 3.8 million lits in 2018 (FAOSTAT 2018). Overall, the industry contributes to household income and to food and nutritional security of many households who are engaged along the value chain. Yet dairy farming households in Kenya face myriad challenges including prevalence of diseases and pests, high costs of feeds and poor access to breeding services, lack of technical capacity on dairy farming and scarcity of fodder and other concentrates. In turn, these challenges reduce the returns from dairy farming and discourage many potential upcoming farmers from undertaking the activity.
- 7 The foundations for the development of the dairy sector in Kenya were laid by the Kenya National Dairy Master Plan (KDMP): a policy anchored on a vision of becoming a globally competitive milk producing country and envisaged to promote a shift from informal to formal supply chains by reducing the market share of low-quality liquid milk, encouraging progressive investments in the development of the dairy industry, and assuring public health for consumers (MoALF 2010). The annual per capita consumption of milk and dairy products in Kenya is currently 110 litres of liquid milk, equivalent to 5.23 billion litres demand in a year, and it is projected to double to 220 litres by 2030 (Kenya Market Trust 2019). According to FAO, per capita milk consumption in Kenya is typically 45-49 percent higher for urban consumers' vis-à-vis rural consumers.
- 8 The KDMP maintains that should Kenya's population increase to 58 million by 2030, then the country will require about 12.76 billion litres of milk annually. According to the latest comprehensive study on the subject (USAID, 2014), the projected urban milk demand would grow at an annual rate that nearly doubles that of rural demand over the period 2012-2022 to 3.91 billion litres. Hence Kenya would require an additional 3.52 billion litres of milk by 2022 (79 percent over the 2012 levels) to satisfy demand with urban areas accounting for 59 percent of the total growth (USAID KAVES, 2014). This provided conceptual base for

significant income generation opportunities as well as employment creation along the dairy value chain in the country. The dairy products market is dominated by packed pasteurized milk particularly in the urban areas, while raw fresh milk is mostly consumed in the rural areas. Other common products include fermented packaged milk (commonly referred to as *Mala*) and yoghurts which are mostly consumed in urban areas and come in different flavours and colours. Other products such as butter, cheese and ghee have lower consumption levels although their demand has been increasing following increased income levels and hence purchasing power for consumers.

Meru Dairy Sector

- 9 Meru County is one of the Forty-Seven (47) counties of Kenya strategically located east of Mt. Kenya, which peak cuts through the outskirt of its southern boundary. The Meru County farmers keep livestock both for subsistence and commercial purposes. These include dairy and beef cattle, goats, sheep, poultry, and honeybees. The development plan for the agriculture sector is embedded in the MERU County Integrated Development Plan (CIDP, 2018-2022), in which the county emphasizes on strengthening agricultural cooperatives, prioritizing the enhancement of food and nutrition security, as well as encouraging and supporting Climate Smart Agriculture through soil and water conservation initiatives.
- 10 Dairy production is relatively developed in Meru County due to its favourable climate, providing employment to thousands of people as well as quality milk for consumption. However, the County is marked by shrinking grazing land sizes due to the increasing population which has led to land subdivisions and hence cows are confined and feed materials are brought to them in an intensive production system. Most of the dairy farmers in Meru County practice intensive zero grazing system (77.5%), while 12.4% semi-intensive or semi-grazing and 10.1% of the producers practice open grazing (Maziwa Project baseline report, 2018). The high adoption of zero-grazing management implies that production potential is high in Meru and requires constant training to assure efficient management especially housing, breeding, feeding, watering, disease control and milking practices
- 11 The Maziwa baseline report indicates that there are more than 190,000 dairy cows in Meru County, producing an average of 670,000 litres of milk daily out of which 240,000 litres processed and packaged by the Meru Union factory. This production level is below demand of the 1.2 million people of the county and the Mt Kenya region in general, which results in buying milk from other regions of Kenya. On average, the yield per cow is 9 lt / day but the actual yield depends on several factors including: dairy breed type, feeds and their availability, seasonality alongside the agroecological zone with 4-9 lt/day in mid zones and 9-30 lt/day in upper zones. Some cows produce up to 40L per day. Higher milk yields were reported in the Imenti area being wet and with great potential for dairy, while Igembe / Tigania recorded lower yields being dryer areas. With a mixture of dry / wet areas, Buuri has an advantage of enough land for feed production compared to the Imentis. The milk yield in

the county is higher than the national average of 3 to 5 liters per day (Maziwa Project Baseline, 2018). Market outlets are a mixture of both formal and informal systems. The Meru Dairy and the Highlands Dairy are the main formal market for farmers' milk. The many dairy cooperatives also market milk but on behalf of and in affiliation to the Meru Union. Opportunities exist for direct marketing, particularly after the introduction of the ECD milk programme by the Meru County administration. The milk market includes Isiolo, Moyale, Marshabit, Wajir, and Mandera.

2.2 Project background

Table 3. Project background.

Project Title	MAZIWA – Improvement of dairy and supply chain cooperatives in Meru County, Kenya
Project goal	Helping to achieve food security, improve nutrition and promote sustainable agriculture (SDG 2)
Specific Objective	Improvement of the management and production system of producers' cooperatives in the dairy industry in Meru County
Expected Result 1	Milk production doubled and quality improved
Expected Result 2	Capacity for processing and preserving milk and improved derivatives at producers / cooperatives
Expected Result 3	Improved management, savings, marketing, and trade skills of cooperatives / breeders
Expected Result 4	System coordination and networking of the system of producers and cooperatives strengthened
Expected Result 5	Increased use and awareness on the use of renewable energy production systems
Target Beneficiaries	2,988 people of which: <ul style="list-style-type: none"> • 2,400 small scale dairy farmers (5 cooperatives) • 423 board members of other dairy cooperatives in Meru County • 165 staff Meru County Gov. and veterinaries
Funded by	Italian Agency for Cooperation and Development (AICS)

2. Background & context of the project

Budget	€1.845.596,62
Donor contribution	€ 1.661.036,96 (90% of the total project cost)
Project duration	36 months
Project area	Meru County
Lead agency	Fondazione AVSI
Partner/s	<ul style="list-style-type: none"> • IPSIA (Institute for Peace Development and Innovation)-Responsible for Results R1 & R2 • Meru County Government- As the key Policy Maker, Host and for provision of guidance. • Don Bosco Association-Mutuati -Contact with local cooperatives • EDUS (Italy)-Participate in the training related to the result 3 • Municipality of Padua (Italy)-Carry out missions on the achievement of Result 4

3. Findings of the evaluation

- 12 The findings are presented following the structure of the evaluation matrix, meeting the reporting needs summarized therein. The questions and sub-questions related to each of the four evaluation criteria are answered. In some cases, sub-questions have been grouped together and given an aggregate response. The evaluation findings are the result of data triangulation between field collections, review of key project documents and internal monitoring reports.

13 3.1 Demographics

- 14 The Household survey reached diverse project participants. Most respondents (89%) were above 35 years, with only 11% being categorised as youth. Focus group discussions indicated that youth participation in the dairy is still low due to limited opportunities along the value chain. To tackle this issue, the Maziwa project has created gainful employment opportunities at the cooperative level through the creation of positions such as milk clerks, secretary managers, value addition and logistics. As a result, 51 collection centres have so far been created with 51 youths participating in milk quality assessment and recording of volumes.
- 15 There was also variation in gender participation within the dairy cooperatives. Overall, 70% of the participants were women while 30% were male. There was low participation of men in all the dairy cooperatives, with the lowest being ARITHI dairy cooperative (13%). Discussions with the group revealed that most male are engaged in the *Miraa/Khat* business that brings fast returns, leaving the dairy and on-farm activities to women. Target groups believe that with the low prices in *Miraa/Khat* and improvement in the dairy sector in the region, the number of men engaged in dairy farming will increase.

3.2 Relevance

Criterion	Relevance
Overall score	Satisfactory

Evaluation question 1: To what extent has the program addressed the needs of the community?

Sub-question 1.1: *Have the needs of the targeted beneficiaries been assessed and included in the intervention?*

- 16 The project undertook a need assessment at both the cooperative and farm levels and later a baseline survey that informed on the intervention result areas. The project was found to

be relevant to the key challenges that the target community and cooperatives faced, since it tackled key systemic and structural issues that were affecting the cooperative management and her members.

- 17 The need assessment revealed that most community members lacked the knowledge in dairy management. Farmers lacked capacity to take care of the calf, provide proper feeding and housing making dairy farming unsustainable. Milk productivity was low below 3 litres per cow per day which constrained motivation and income for farmers to invest in the dairy business. Likewise, marketing was a challenge due to distance and exploitation by the middlemen or existing cooperatives. Women were the most negatively affected as men took over the *Miraa* business, leaving women without a stable source of income. This further deepened gender disparity, poor nutrition, poor access to education and health services for most community members. In addition, the mismanagement of the existing cooperatives coupled with lack of accountability among the traders represented a disincentive, with majority investing in other value chains such as potatoes, *Miraa* (Khat), sorghum, maize, ground nuts and beans and working in the vegetable farms as a source of livelihoods.
- 18 Virtually all board members at the cooperatives were aged between 36 and above (98%). Overreliance on electricity for chilling and lighting at the cooperatives was making their operations inefficient and non-competitive. Milk spoilage and poor quality was a key challenge, due to the lack of preservative equipment, poor milk handling and poor animal health. Poor recording systems acted as key disincentive to many potential producers due to mistrust.
- 19 Interventions targeting improved production, increasing the capacity for processing and preserving milk and improving derivatives, management, savings, marketing and trade skills of cooperatives and Farmers were therefore relevant to this community at the time of the project inception. The establishment of the information management systems through the project has improved confidence among members of the cooperatives. Capacity development on milk quality, distribution of milk cans at farm and cooperative level, quality monitoring at collection level by milk clerks using quality testing equipment coupled with newly established laboratories at the cooperatives has reduced milk loss at both levels leading to profitability and renewed interest in the dairy sector.

Sub-question 1.2: *What kind of mechanisms are in place to adjust according to needs in the changing environment?*

- 20 The project has periodically reviewed and adapted its strategies to respond to needs in the changing environment. The milk monitoring interventions were to be undertaken at the farm level using California Mastitis testing kit (CMT Kit). As the project progressed it became apparent that monitoring somatic cell counts, which is associated with mastitis infections, could not happen at farm level. This required a more detailed analysis and technical person.

The project therefore enhanced milk quality assessment based on other methods such as organoleptic and alcohol test as an indicator of milk quality deterioration. There is need for advocacy and policy influencing at county level to set up laboratories that can monitor more detailed milk quality parameters.

- 21 The advent of COVID19 meant a change on how things are done. These included project management, field visits and product aggregation and marketing. While the project had finalised most trainings before the COVID19 pandemic, meetings among the partners, that were important for project monitoring had to take a different approach. Most of these meetings took place virtually. Discussion with project staff during this evaluation noted that virtual meetings were not impactful compared to face to face in terms of detailed discussions due to limited time.

Sub-question 1.3: *Who are the main target groups and how have they been defined?*

- 22 **The five (5) dairy cooperatives in Meru County.** The selection of these 5 target cooperatives was a result of a detailed analysis of over 60 dairy cooperatives in Meru among which these were found to be the neediest. The cooperatives were managed by about 423 board members who lack capacity to manage the dairy business effectively. Gender parity at leadership level was skewed towards men and the cooperative itself lacked the infrastructure for milk collection, chilling, and marketing. The project tackled these issues through the installation of 2,000 lits chilling tanks, photovoltaic solar equipment, pasteurizers, and value addition equipment. Capacity development was also undertaken on governance, financial literacy, value addition and information management.
- 23 **Small holder Dairy producers.** The project furthermore targeted 1,800 smallholder dairy farming households within the proximity to the targeted cooperative societies. A need assessment was performed to understand their challenges. These farmers were drawn from the project targeted areas of Arithi, Meru North, Mikinduri, Ngusishi and Nyari Kiburine locations. They walked an average of 7 Km to the nearest collection centres affecting mainly women who manage the enterprise within these communities. The project brought this distance down to 2 Km after the establishment of the chilling facilities.
- 24 At the time of the evaluation, there were 3,035 registered members to the target cooperatives of which 1,249 were active (41% of the total cooperative members) and supplied an average of 6,480 litres per day compared to a target of 10,000. Currently all the cooperatives are operating at 35% below their target capacity (Table 1).

Table 4. Membership distribution and milk collection capacity.

Cooperative	Total Members	Active supplier	Chilling capacity	Dairy Collection (Lits) per day (LPD)	Percent Current Capacity based on Chilling capacity	Number of Collection centres
ARITHI Mutwati	1118	110	2,000	300	-85	10
Meru North	399	309	3,000	1200	60	8
Mikinduri	400	230	2,000	1100	-45	7
Ngusishi	518	370	2,000	3300	65	12
Nyari Kiburine	600	230	2,000	580	-71	14
Total	3,035	1,249	10,000	6,480	-35.2	51

- 25 Building the leadership capacity of the larger dairy cooperatives was a success the project has achieved through coordination and networking with key players of the County. The cooperative leaders, animal health practitioners, and county government staff all accessed training in partnership with the department of livestock, the cooperative department, the Kenya Veterinary Board and Kenya Dairy Board. The main objective of these trainings was to improve coordination among key players in the dairy value chain in Meru County and enhance compliance to national and county regulations. About 186 public and private vets from 9 subcounty were reached. In addition, the project organised learning tours and exchange visits for the targeted dairy farmers to attend the Dairy field Day in Meru, Kaguru ATC for field days. These initiatives enabled farmers and cooperative leaders to network and learn best practices from other stakeholders.

Sub-question 1.4: *How clear and realistic are the objectives of the project and its design?*

- 26 The project design resulted clear and fully described in the project document and based on a clear logical framework that shows good vertical consistency. The top-down logic of the intervention (objectives, expected results/outcomes, outputs, and activities) is consistent and relevant for the achievement of the project objectives in multiple ways.
- 27 The strategy of supporting existing and well-established cooperatives in the dairy sector proved to be successful. The objectives and targets set for the newly established cooperatives appeared overestimated for a 36-months project limiting their scope for sustainability. The newly established cooperatives have shown considerable progress compared to the baseline yet would require a longer supporting period (approximately 5 years) to achieve full independence and sustainability of their business.

Sub-question 1.5: *Is the project implemented with a dimension of gender sensitivity?*

- 28 Women drive the dairy sector within the locations targeted by the project. Most men are engaged in other value chains including especially *Miraa* (Khat), motorcycle riding and employment positions within the community. Therefore, by targeting the dairy sector, the project intervened at the heart of an economy fuelled by women. Before the project, women bore the brunt of the distance covered to the nearest milk collection centres which was 7 km on average. The establishment of collection centres near the production centres has reduced the distance to 2 km. Women can now milk their animals and deliver milk on time, freeing time for other income generating activities.
- 29 In addition, the promotion and sensitization of the community on the use of BIOGAS was relevant to women. A discussion with women participants during focus group discussion indicated that the cooking environment has improved within the kitchen as smoke is a thing of the past. They are saving between KES 6,000 to KES 12,000 annually by not buying the LPG gas for cooking. Initially they had to get permits to venture into forests to fetch firewood. This exposed especially girls to risks of gender-based violence. Promotion of BIOGAS therefore bore great potential for a positive impact on women.
- 30 The targeted household members accessed trainings at farm level through a project linkage with animal health assistants. Women and men were therefore not travelling long distances to the local extension offices to access these services. Hence, women could now use their time to engage in other economic activities within the community.
- 31 Discussions with project beneficiaries also revealed that the main cause of gender-based household violence was income, who made the decision on its use and how it was used. Women relied on men to bring home cash for household use who sourced it mainly from the *Miraa* business, employment, and potato farming among others. The increased profitability of the dairy sector has hence enabled greater independence of women from men and empowered them to make decision on household spending. This has been a result of improved productivity (46%) and access to consistent and reliable markets for the dairy product. Women can now contribute and support their households to pay for the cost of health and education of their children.

Evaluation question 2: How well did the program align with government and agency priorities?

Sub-question 2.1: *Have linkages and synergies with complementary development programs in the region been created?*

- 32 There was great collaboration between the project and Farmer Helping Farmers, a project supported by the Rotary Club of Montague in Canada. Their interventions were only in Meru North and Ngusishi, through which they provided fodder seeds, fodder choppers and trained on fodder production. This partnership supplemented fodder business case in the project. The project provided water storage tanks for water harvesting in all the dairy cooperatives. Other cooperatives such as Ngusishi benefited from the project through facilitating extension staff for training, provided a maize chopper, a desk top computer and printer and seed for fodder production. The partnership with the county government was key in promoting the private public partnership (PPP) model. The deployment of the livestock department staffs in delivery of training and services on animal health facilitated the project to achieve its objective. The project organized for training to these staff, therefore contributing to technical sustainability for the county in future. The distribution of motorbikes to the department of cooperatives ensured the staff reach the cooperatives efficiently and effectively. Meru Union participation in the project build synergy in provision of markets to the new cooperatives. The Union supported the cooperatives in extension service provision and access to AI services for breed improvement. These contributions from the county government, farmer to farmer and Meru union supported the project to achieve its overall goal.

Sub-question 2.2: *Is the program aligned with AICS guidelines and the SDG framework?*

- 33 In line with the AICS guidelines, the project was implemented through a multi-stakeholder approach in partnership with private sector and county government stakeholders. These included AVSI, IPSIA, Don Bosco, the county government of Meru, the five dairy cooperatives and indirectly the Meru Union. They created an enabling environment for a successful public private partnership in line with the SDG 17. Furthermore, the project was found relevant to the AICS guideline on “*Agriculture, rural development and food security*” through its focus to small holder farmers with a gender prospective. The project interventions contributed to the achievement of the sustainable development goals, particularly on the SDG 2 (Zero Hunger) through increased incomes and food security, SDG 13 (Climate Action) through promotion of fodder plants and conservation of silage, and SDG 5 (gender inclusivity) by targeting women, youth and men. More specifically, the project promoted sustained, inclusive economic growth, full and productive work opportunities targeting women and youth and contribute to decent incomes in line with SDG 8.

Sub-question 2.3: *How relevant is the intervention to implementation of the Kenya National Dairy Development Policy 2013, Kenya Vision 2030, and Big 4 Agenda?*

- 34 The Kenya's development blueprint is embedded within the Vision 2030¹ and the Big 4 agenda. Vision 2030 is the overarching framework setting out strategic objectives aiming at transforming Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. In this sense, the establishment and operationalization of the five (5) dairy cooperatives with capacity to collect and chill 6,480 litres of milk per day and add value to over 100 litres per day have immensely contributed to the achievement of Vision 2030. It has created jobs, built resilience among community members through increased income, built capacity for development.
- 35 In addition, interventions targeting improved milk production and quality are relevant to the achievement of the National Dairy Development Policy (2013) which looks to increase milk production to feed Kenya's growing population. According to the National Dairy Development Policy, the demand for chilled, high quality processed milk is expected to increase by 5 percent per year and the total milk demand to reach 12 billion litres by 2030. The project has focused on and succeeded in improving milk productivity (46% improvement) and contributed to increase consumption of milk by 25%, thus contributing to the achievement of this policy.
- 36 The project addressed the main objective of the recently approved Kenya Agricultural Sector Transformation and Growth Strategy (ASTGS, 2019-2029), that aims at boosting food security at household level. The project was at the forefront in building the capacity of the dairy producing households through the 25 community-based trainers and animal health assistants, drawn from the county government and private sector to sustainably manage their animals. The establishment and promotion of the kitchen gardens and sensitization of the school children and other household members, which has improved milk consumption by 25%, has improved household food security and nutrition.

¹ Republic of Kenya, 2007. Kenya Vision 2030. A Globally Competitive and Prosperous Kenya. Vision 2030 Delivery Secretariat. Nairobi, Kenya.

3.2 Effectiveness

Criterion	Effectiveness
Overall score	Satisfactory

Evaluation question 3: To what extent has the project contributed to improve management and production capacity of dairy cooperatives in Meru County?

- 37 The project has contributed to increase the capacity of the targeted dairy cooperatives to effectively manage their units. The cooperative management boards have undergone trainings on leadership, governance, financial literacy, and ICT for systemic management. This has improved their management skills along with the confidence and loyalty of their members. These cooperatives have now developed and endorsed a business plan that will guide the processes of milk chilling and value addition for the years to come.
- 38 The project investment in improving the capacity of the producers to increase their production has been successful. By partnering with the county government and local private sector animal health assistants, the project managed to increase milk productivity by 46% (Impact Assessment 2021). Training on different production modules has enhanced the dairy enterprise management at household level and boosted the confidence of farmers to invest in the sector. However, the evaluation revealed that the project has not promoted a sustainable extension service system owned and financed by the cooperatives. The lack of a continuous and financially viable extension service system may hinder the sustainability of the instrument created with the project.

Sub-question: *Are there any external factors that hindered or facilitated achievement of the results? What have been the unintended and unexpected outcomes of the project?*

- 39 The COVID19 pandemic was the main external factor that affected project implementation. Nevertheless, the delivery of trainings to farmers was not greatly affected as most of the modules had been completed by the end of December 2020. Generally, the pandemic affected the operations at the cooperative level since meetings between the staff and leaders to review field activities, address challenges and provide extension services could not happen. Members of most cooperatives such as Kiburine could not hold their annual general meeting (AGM) as a mitigation measure to control the spread of the pandemic. In Ngusishi, the cooperative had to employ extra staff to receive the milk at Meru Union and assist in offloading, which claimed a toll on their budget.

40 The project has had some unintended positive outcomes. These included increased access to education among the children of the targeted households. During the focus group discussions, respondents indicated that they can now negotiate with schools for payment of school fees monthly. Many parents now have their children in academies, paying higher fees due to increased income from the milk enterprise. Access to health has also improved among the community members. They can now pay for health services and for the KES 500 NHIF instalment fees. Respondents of the focus group discussions across all the cooperatives noted that there has been proliferation of new businesses such as sale of second-hand clothes, establishment of liquor stores, hotels business and starting of market vegetable and fruit retailing shops. These developments have improved the local economy. Furthermore, respondents in Ngusishi confirmed that the Kambi market in Ngusishi has become more vibrant since the cooperative became operational.

Sub-question: *To what extent did the project management and arrangements support the achievement of the planned results?*

41 The project was managed in a consortium with AVSI leading and IPSIA, Don Bosco, Meru County and the 5 cooperatives supporting the implementation. The partnership was well selected with diversified capacity for synergy creation. The 11 staff distributed between AVSI, Don Bosco and IPSIA were qualified for the work and their management skills, experience and expertise lived up to the expectations.

42 The project established a project management committee represented by the main partners including the AVSI country director, AVSI regional director, MAZIWA Project Staff, Desk Officer, IPSIA Head of mission, Meru County (Livestock and cooperative departments) and Kenya Dairy Board. The committee was headed by the project manager, with key roles which included to: (a) update the partners and stakeholders on the project implementation progress, (b) evaluate the project activities in the last quarter, (c) approve the next quarter project workplans, (d) provide advisory to staff, and (e) address challenges. The committee would meet 3 times in a year. COVID19 affected some of these meetings and had to be carried out virtually. This committee helped align the project to its mandate.

Sub-questions: *Who has benefited and in what ways? Have any changes been achieved? To what extent has the achievement of the changes/outcomes been influenced by external/other factors? To what extent are changes attributed to the project activities? What were the most effective approaches used to bring about change?*

43 The evaluation team observed that all the community members benefited from the project, including children through access to a balanced diet as 92% of the household were taking 3 meals and more a day. This was due to the introduction of the kitchen gardens for nutritious

foods and increased milk production that availed more milk for home consumption. Focus group discussions with the community representatives during the impact assessment indicated that education has been enhanced with cases of children being sent home drastically reduced. This was due to improved access to income which availed cash for fee payment on time.

- 44 The household members have also benefited from the trainings received on dairy enterprise management, financial literacy and VSLA. Their milk production has increased by 46% thanks to the adoption of better practices (Impact assessment, 2021). Access to credit has been enhanced through linkages to SACCOs such as Thabiti, Capital and ARIMI, where dairy farmers can get loans based on their milk supply rate. Hence, many are now confident of their future as they have a steady income and are able to plan ahead.
- 45 The creation of 51 collection centres enabled young boys and girls to be employed as milk clerks with their capacity improved on milk quality monitoring. Further, many motorcycle riders, who are mainly youths, are now contracted to transport the milk. The establishment of the milk chilling facilities created over 10 expert positions in milk quality control at the laboratory, secretary managers and clerks.
- 46 The PPP approach was the major strength of this project in the delivery of its mandate, where each partner was able to focus on its area of expertise to deliver the diverse project components. The establishment of the milk chilling plants acted as a pull of the milk to the market, motivating the community to invest, while the capacity development acted as the push to the market. The strategy chosen for implementation including for stakeholder collaboration have contributed to the success of the project.

EXPECTED RESULT 1: To increase milk production and improve the quality

Sub-question 3.1: Are cattle farmers associated with the targeted cooperatives producing more and better-quality milk compared to the baseline?

Implementing partner: IPSIA

Sub-components:

A1.1 Training of cooperative members on Pasture and fodder establishment, management and preservation.

A1.2 Training of cooperative members on genetic lines and Artificial Insemination

A1.3 Training of cooperative members on milk production, improvement techniques and animal health and hygiene

A1.1 Training of cooperative members on pasture and fodder

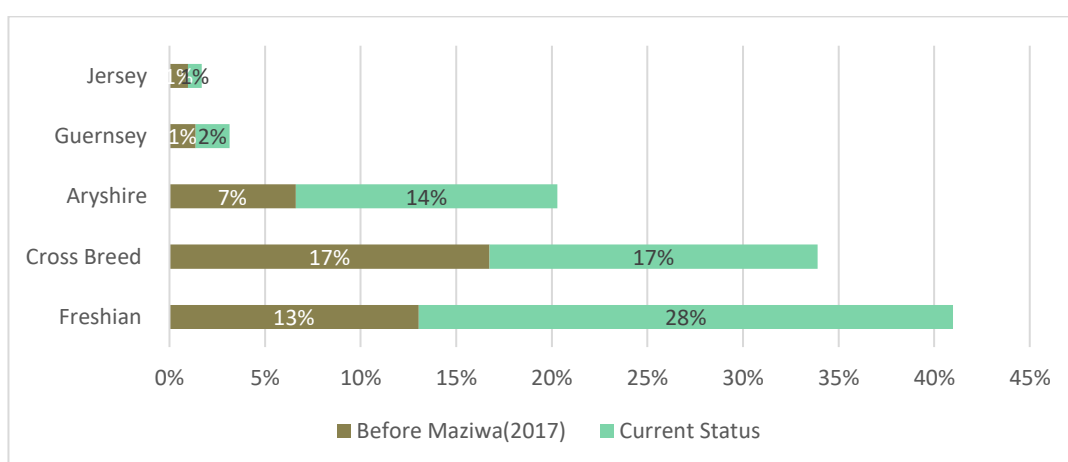
- 47 Before the intervention, access to fodder was a key challenge for most producers within the targeted cooperatives as well as for their neighbours. The project promoted fodder production and conservation through silage making and hay bailing. The project built the capacity of target producers through a team of 10 animal production assistants drawn from the county and 10 Community Based Trainers (CBT). Trainings covered fodder production, feed formulation and silage making. In particular, the aim of these trainings was to transfer knowledge on proper feeding programs, access to quality concentrates through the cooperative, and feed storage through silage making from green maize and Napier grass. Capacity building on fodder production and silage making were ranked the most important trainings by the community during focus group discussions.
- 48 The adoption of these trainings has contributed to improve productivity, from 5.7 lt per cow per day to 8 lt per cow per day at the time of the impact assessment (46% improvement). To support farmers in fodder production, cooperatives such as Ngusishi and Meru North have established input stores through which farmers can access concentrates, hay and fodder seeds at a cost, which is paid through the revenues from the milk sales.
- 49 The promotion of pasture production and conservation as part of improving milk production and productivity was a well thought idea. The evaluation team recommend strengthening the focus on climate smart production systems as a resilience building mechanism against climate change. Majority of the farmers interviewed in the focused group discussions mentioned nippier grass and maize plants as part of the materials they were using for silage making. There is opportunity to promote drought resistant fodder varieties, such as panicum, Bracharia and improved nappies grass varieties such as OUMA I and II, while at the same time introducing conservation agriculture practices for their production.

A1.2 Training of cooperative members on genetic lines and Artificial Insemination

- 50 Breeds and breed improvement initiatives were promoted by the Maziwa project through Artificial Insemination (AI) in partnership with local animal production assistants and county government staff. Yet most cooperative members lack access to these services due to their inherently high cost and availability. In MIKINDURI for example, the cost of sexed semen is KES 5,000, while non sexed sells at KES 1,000. Most members to this cooperative either cannot afford to pay for these costs or are not confident of the quality of semen. There is therefore a need for the cooperatives to develop their own semen bank to serve their farmers. Working with reputable organizations such as International Livestock research institute (ILRI), American Breeders services (ABS) and Gene Plus will enable farmers' access to high quality matching semen for their breeding program.

- 51 The project also sensitised the community to invest in new breeds. Currently members own an average of 2-3 dairy breeds, up from 1 at baseline. The evaluation team observed that the average number of cows owned at household level has increased by 1 cow, from 2 cows to 3 cows, while the number of lactating cows has also increased by the same margin over the same period. Focus group discussions with the beneficiaries revealed that households are buying improved breeds to add to their stock because of increased hope in the dairy sector, improved income through reliable markets, and improved capacity to manage their livestock.

Figure 1. Proportion of households owning different breeds at baseline and at final impact assessment.



- 52 With regard to breed diversity, the number of households owning Friesian has increased by 15%, from 13% to 28%, while those owning Ayrshire has increased by 7%. The proportion of households owning Guernsey, cross breeds and Jersey has remained the same. Compared to the baseline, there was significant increase in the number of cows owned per household in Ngusishi (153%), Nyaki Kiburine (67%), and Meru North (40%), while minor changes were recorded in Arithi (8%) and Mikinduri (1%). The low figures in Arithi were ascribed to the reduced overall income of target beneficiaries due to COVID19 disruptions including especially for the Miraa production systems and frequent droughts. The establishment of semen cold chains managed by the cooperatives would help increase these figures and reach more cooperative members. In Mikinduri, the farmers previously had not prioritised dairy due lack of a dairy cooperative unlike other locations. This was a disincentive factor due lack of market outlet. The minor improvement of 1% at impact indicates the motivation that the construction of the new chilling facility has had on the local dairy producers. Linkage with companies such as ILRI, GENEPLUS, ABS and the county government of Meru will be important for the provision of high-quality semen.

Table 5. Changes in breed diversity before and after the project.

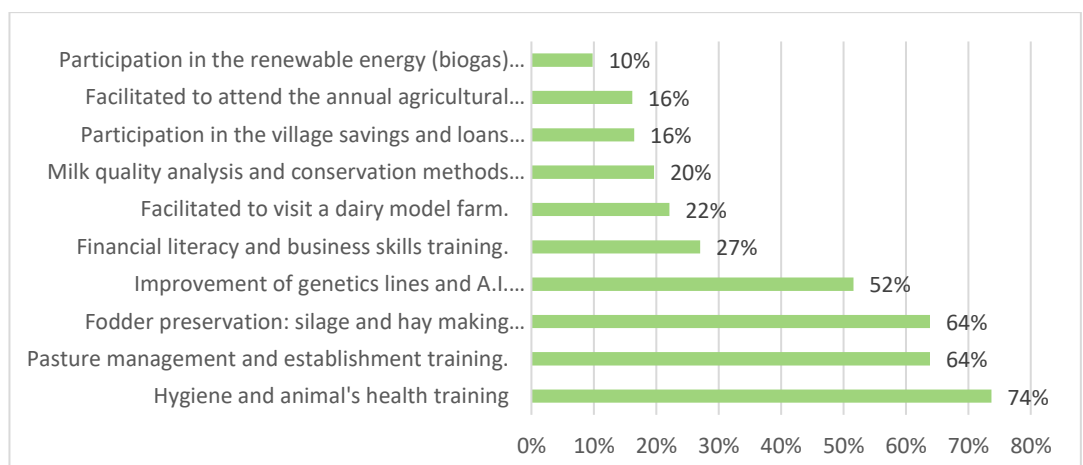
Values	Arithi	Meru North	Mikinduri	Ngusishi	Nyaki Kiburine	Grand Total
# Of cows at Base	1.4	1.7	2.7	1.7	1.9	1.9
# Of cows at Impact	1.5	2.4	2.7	3.9	3.2	2.8
# Of lactating cows at base	1.3	1.2	1.8	1.2	0.8	1.2
# Of lactating cows at Impact	1.4	1.4	1.7	2.4	1.3	1.6
% Change of # Cows	8%	40%	1%	135%	67%	47%

A1.3 Training of cooperative members on milk production, improvement techniques and animal health and hygiene

Milk production and productivity

- 53 The project component targeting improved milk production, productivity and therefore consumption has achieved significant success. The project reached 3,035 beneficiaries, against the target of 2,400 small holder farmers, overachieving the target by 26%. These farmers received a package of training modules targeting attitude change and capacity enhancement, including hygiene and animal health, pasture management and establishment, fodder preservation which included silage and hay making, genetics improvement through A.I., financial literacy and business skills development. Most farmers who benefited from inherent training (74%) have adopted hygiene and animal health practices promoted by the project and many have adopted pasture management and establishment practices (64%) and fodder preservation (64%) (Source: Impact assessment, Household survey, 2021). Only a minority (27%) have adopted financial literacy practices, while participation in the renewable energy (Biogas) attracted the lowest adoption rates (10%).

Figure 2. Proportion of project beneficiaries who have adopted different practices after trainings delivered by the project.



54 The impact of these trainings is visible when considering the significant increase in milk productivity per cow over the past 3 years, which went from an average of 6 lt per cow per day to 8 lt per cow per day (46% improvement). The most significant impact was observed in Ngusishi, which went from 4.2 lt/day to 10.4 lt/day (147% increase). Followed Kiburine with current 9.4 lt/day compared to 6.7 lt/day at baseline (42% increase) and Meru North with current 8.5 lt/day compared to 5.8 lt/day at baseline (45% increase). Mikinduri improved less and went from 6.2 to 7.5 lt/day (21% increase), while Arthi improved the least with current 5.8 lt/day compared to 5.6 lt/day at baseline (5% increase).

Table 6. Milk productivity and consumption trends among the cooperatives at baseline and impact assessment.

Parameters	Arithi	Meru North	Mikinduri	Ngusishi	Nyaki Kiburine	Grand Total
Milk production per cow per day (Ltrs) -Before Maziwa(2017)	5.6	5.8	6.2	4.2	6.7	5.7
Milk production per cow per day (Ltrs) -Current status	5.8	8.5	7.5	10.4	9.4	8.3
Change in Productivity per cow per day (Lit)	0.3	2.6	1.3	6.2	2.8	2.6
% Change in Production	4.5	44.8	21.2	146.5	41.7	46.1
Milk consumed in the household per day (Ltrs) -Before Maziwa(2017)	2.2	1.9	1.7	1.0	2.1	1.8
Milk consumed in the household per day (Ltrs)-Current status	2.0	2.3	2.0	2.1	2.6	2.2
Change in Consumption per day (Lit)	-0.2	0.3	0.3	1.1	0.5	0.4
% Change in Consumption	-8.1	18.0	15.9	108.5	22.3	24.9

55 The impact of low production was felt in household milk consumption which grew overall by 25% to an average of 2.2 lt/day. Therefore, Ngusishi is where consumption grew the most (109% increase, 2.1 lt/day), followed by Kiburine (22% increase, 2.6 lt/day) and Meru North (21% increase, 2.3 lt/day). Similarly, in Mikinduri has grown less (16% increase, 2 lt/day) and in Arithi the least (-8.1% negative growth, 2 lt/day).

56 These inconsistencies can partly be ascribed to disruptions caused by COVID19 and frequent drought. In addition, the study team observed a positive relationship between the operationalization of the dairy cooperatives and changes in milk productivity at household level. Cooperatives that had delayed operationalization of the chilling facility such as Arithi and Mikinduri reported slow growth in milk productivity and consumption compared to the baseline. It appears that the operationalization of the cooperative chilling facility motivated the members to invest further in dairy production and especially in improved breeds, feeding and animal health services. In fact, the Arithi and Mikinduri milk collection centres had not started operations at the time of the evaluation. This finding suggests that members to these cooperatives may have lacked motivation to invest in increasing their milk supply to their

collection centres, compared to other locations where producers could count on operationalized facilities.

- 57 There was a positive correlation between productivity and milk consumption at household level. Cooperative such as Ngusishi, that reported productivity increase of 147%, recorded a 109% increase in volume of milk being consumed at household level. Conversely, where productivity was low consumption grew less or even dropped. This finding suggests that when productivity is low, households are more likely to sell the milk than avail it for household consumption. In the case of Arithi, focus group discussions with cooperative members and leadership indicated that Arithi being a key Miraa zone in Meru County, which was heavily impacted by COVID19, many households have lost income. Many farmers in this location therefore lacked funds to invest in better breeds, feeding regimes and concentrates.

Household Milk consumption - *Insights*

Sensitisation with schools near the cooperative and the community during on-farm trainings on drinking of milk led to increased milk consumption by 25% on average. There was a positive correlation between increased milk productivity and consumption. Discussions with communities indicated that due to the low productivity experienced before the project with some households milking less than half a litre per cow, it was difficult to give children milk to drink. They would take it in tea, which was diluted, and its nutritive value was reduced. With increased production, households can now give a glass of milk to children in the evening before they sleep. One farmer, Murioki Thiayure, from ARITHI dairy cooperative said:

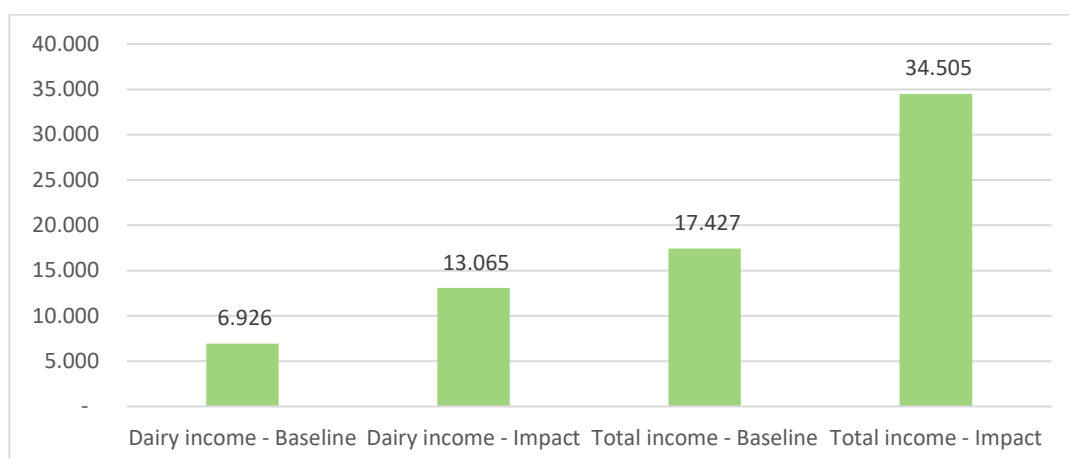
I used to get less than half a litre of milk from my local cow (Kongoni) before the project, which not all members of the family could drink except in tea. Now I get 4 lits due to better feeding and my children can drink a cup.

Household income

- 58 The income of the targeted smallholder dairy producers has grown twofold over the 3-year project implementation: on average 98% increase in overall income and 89% in dairy income alone (impact assessment 2021). Dairy enterprise is now the leading source of income and livelihood within these communities. Analysis of data from quantitative and qualitative sources revealed that such progress can be ascribed to increased management capacity, access to market and increased loyalty to the cooperatives which has in turn stimulated investment into the sector. Members have now access to dairy feeds from the cooperative payable on credit through the milk delivered. These developments combined with capacity development on fodder production, silage making, and feed conservation leading to a 46%

improvement in milk productivity overall have fuelled the increase in income recorded with the 2021 impact assessment of the Maziwa project.

Figure 3. Changes in Income from dairy and aggregated household income over the past 3 years in KES.



- 59 The evaluation team observed how the establishment of the chilling plants has enabled farmers and the cooperative to reduce milk losses and has therefore provided a motivation to members to continue supplying milk. A recorded drop in milk being sold outside the cooperative is linked with the value gained by households compared to the income from the product sold through the cooperatives (impact assessment 2021). While the average monthly income from local sales has dropped by 22% (from KES 941 at baseline to KES 731 at endline), the income accrued from selling to the cooperative has grown by 141% (from KES 3,684 to KES 8,873).
- 60 In terms of other income generating products and by-products of the dairy value chain that were underexploited before the project, the target smallholder farmers have started to sell manure and calves. The overall increase in household income by 98% from both dairy and other sources, can hence be explained with the increase in milk income (higher productivity and better prices) and the identification of other income sources along the dairy value chain.
- 61 Arithi dairy cooperative members recorded a negative change in income from dairy and dairy related activities by 14% and overall household incomes by 5%. Mikinduri dairy cooperative recorded marginal increase in income from dairy and related activities by 22% and total income by 5%. Conversely, Ngusishi experienced a 441% increase in income from dairy related activities and 358% increase in overall income. The impact of COVID19 seriously affected the overall income at Arithi causing the loss of income from the *Miraa* value chain since it relies on the export market. Instead, farmers in Mikinduri produce and trade in other

products such as potatoes and vegetables and their incomes were hence less affected by COVID19.

- 62 Income from other sources that are not dairy related, which include small businesses, employment and crop production has increased by 104% from KES 10,501 to KES 21,440. There has been proliferation of income generating activities such as small merchandises shops, selling of cloths and opening of eateries within the community.

Income diversification – insights from the FGDs

Focus group discussion with Kiburine farmer representatives confirmed that dairy has now generates employment opportunities. *“Nowadays you meet people at your gate asking for dairy related jobs such as cutting of Napier grass, making of silage and even milking”* a woman farmer from Kiburine noted.

A farmer from Ngusishi noted that she reinvested her income from milk into a clothe boutique business, due to high demand in the areas as the town, Kambi, hosts hundreds of flowers and vegetable farm employees.

A visit to a farmer who has done BIOGAS in Mikinduri observed that the bio-slurry from the biogas is being used in production of sweet potatoes and bananas.

A retired teacher affiliated to Mikinduri dairy cooperative, confided to the team that he will now invest in drip irrigation for banana production in the next three months using income from the milk sale revenues.

EXPECTED RESULT 2: To improve the storage capacity and transformation of milk and its derivatives.

Sub-question 3.1: To what extent has the intervention improved the milk processing and conservation capacities of the targeted cooperatives and producers?

Implementing partner: IPSIA

Sub-components:

A2.1 Installation of milk cooling and storage systems

A2.3 Training on milk quality, analysis and storage methods

A2.5 Training on value addition of milk

A2.1 Installation of milk cooling and storage systems

63 The project targeted both the farmers and the cooperative itself to improve milk quality, bulking and chilling. The project distributed 1,441 cans (10 lits, 15 lits, 20 lits, and 50 lits) to the target farmers, while each cooperative received 10 cans of 50 lits for milk transportation. Farmers contributed 20% towards the cost of the cans, while the project paid 80%. Between 2019 and 2020, the project constructed four (4) new milk collection and processing facilities with tank capacity of 2,000 lits in Mikinduti, Arithi, Kiburine and Ngusishi, and renovated one facility at Meru North. Cold room for storage of processed milk were established, with the cooperative staff and leadership being trained on value addition of milk to yoghurt products.

Members of Kiburine confirmed that the establishment of the chilling facility has enabled them to become competitive as they can now negotiate with brokers for the price of their milk. They are no longer at the mercy of the brokers as they can rely on a ready market for their milk through the Meru Union, as a result of the formation of the dairy cooperative. Before the project, most of the target farmers were disenfranchised and sold to brokers and local hotels who would pay lower prices and sometimes delay paying especially when the volumes were high. Farmers were not able to make long term plans with their milk business and project income at the end of the month. The construction and equipping of the chilling facility for the five (5) cooperatives reduced the operation costs as they are now saving on monthly rent.

Milk price competitiveness

64 The establishment of the chilling facility and access to Meru Union market has enabled the members to access better prices. The prices have improved from KES 33 per litre at baseline to KES 40 at impact assessment, representing a 21% improvement in milk prices. The low price at baseline was due to the lack of structured marketing of milk with brokers and the local outlets such as hotels and individuals taking advantage of their bargaining power. Discussions with cooperative members indicated that the brokers were capitalising on the lack of markets, especially during glut to reduce their prices. The increase in milk prices through the cooperatives have become the greatest incentive for many farmers, motivating non-members to register at the cooperative as suppliers. The contractual agreement with Meru Union has further increased confidence among the cooperatives to bring on board more members as the union has capacity to absorb their whole output.

Milk delivery to the cooperative

65 The number of farmers delivering milk to the dairy cooperatives has increased by 88%, from 6% at baseline to 94% at endline. The consistent access to market, higher prices and

consistent payments have acted as an incentive for members to grow confident of and supply their milk to the cooperatives. In addition, greater transparency of the cooperative society due to the integration of ICT systems in milk recording contributed to this outcome. The system involves giving out of receipt to supplier indicating amount of milk delivered. Furthermore, the establishment of milk collection centres near the farm gate has motivated members, especially women, to deliver milk to the cooperatives. They can now walk an average of 2 KM to the milk collection centre compared to 7 Km before the project, indicating a 5 Km reduction. Women of Ngusishi dairy cooperative during the focus group discussions observed that they would travel about 6 Km to deliver milk to Kambi, a shopping centre where the milk collection was happening before the project. They can now wake up at 6am compared to 3am before the project, milk and deliver their milk on time. Finally, the establishment of the chilling systems at the cooperatives has enabled farmers to supply milk in the afternoon, making the collection and storage more efficient for cooperatives (hence the ability to pay higher prices) and time for other income generating activities more readily available for farmers.

A2.3 Training on milk quality, analysis, and storage methods

- 66 There were concerted efforts to improve milk quality through infrastructural investments and capacity development of clerks managing the milk collection centres. The household survey observed that the average milk spoilage per month has reduced by 62%, from 6 litres at baseline to 2 litres at endline. Focus group discussions with members of the five cooperatives indicated that milk quality was a key issue before the project, which led to many farmers losing income. These improvements have translated into mitigated losses and has furthermore enabled youth employment with 51 young members of the target community now employed as clerks.
- 67 At Kiburine collection centre, milk quality issues that persisted at the time of the evaluation are associated with mastitis cases and the use of plastic containers which are difficult to clean. However, the percentage of households using plastic containers has dropped from 70% in 2018 to currently 20%. Importantly, the chilling plant at the Kiburine Cooperative had not been operationalized at the time of the evaluation. Nevertheless, the key informant interview with the manager at Kiburine confirmed that milk quality has greatly improved since 2019, when they would lose 150 litres per month due to rejection by Meru Union. This had been reduced to 20 litres per month at the time of the evaluation.
- 68 Key informant interviews with the leadership of Mikinduri Dairy cooperative indicated that the milk quality is still a challenge for them due to late milk collection by Meru Union and non-operationalization of the chilling plant. Nevertheless, also in their case milk rejection cases have gone down from 200 lt per month to 16 lt per month, representing a 92% loss

reduction. Once operationalized, the chilling facility will help this cooperative with chilling the milk as they wait for the Meru Union truck to collect the milk thus solving their current challenge.

- 69 Discussions with members of the NGUSISHI cooperative has also revealed that the deterioration of milk quality before the establishments of the chilling plant was due to the distance to the milk collection centres and from there to the chilling point. The distance has now reduced from an average of 7 Km to 2 Km improving milk delivery and transportation as a result of the establishment of more collection centres by the project.
- 70 The distribution of collection cans to farmers and cooperatives has improved milk handling and hygiene at household and collection centre level. Capacity building of the milk clerks on assessing milk quality and the provision of milk quality monitoring equipment such as alcohol guns have reduced poor quality milk reaching the cooperatives. The Secretary manager at Meru North Dairy cooperative indicated that cooperative no longer record milk rejections from the 8 collection centres. The investment in the quality monitoring equipment at the collection centres has built confidence and loyalty among the members compared to before the project.

“I am no longer surprised on the day of payment that I lost some cash due to rejection of milk by Meru Union, which I wasn’t informed at the time of delivery. Now, when my milk is bad, I return with it back home. I am now able to plan for my income efficiently” says a farmer at ARITHI dairy cooperative during an FGD discussion.

- 71 The current need is for the cooperatives to invest in their own transport system to become competitive. Relying on transport system from Meru Union may not be sustainable in the future especially when the volumes start increasing. Such investment has been observed at NGUSISHI who transport their own milk to Meru Union and have not reported milk rejection recently.

A2.5 Training on value addition of milk

- 72 The evaluation of the competitiveness of the dairy cooperatives in Meru County carried out by the project revealed that the prices plunge during seasons of high production. The project therefore invested in value addition equipment such as butch pasteurizer, yoghurt filling equipment and linkage to companies such as PROMACO for the supply of cultures. These investments targeted 4 out of the 5 cooperatives. Only Mikinduri was not allocated value addition interventions, due to the setting up of the feed milling business.

73 At NGUSISHI cooperative, the cooperative invests 500 Lt per week, approximately 70 Lt per day, while Meru North allocates 30 Lt per day for production of yoghurt, which is then sold to the local market. NGUSISHI, given its location within flower and vegetable farms, which hosts many employees residing within Kambi, there is a significant demand for value added products that is motivating the investment into production. As at the evaluation, Arithi and Nyaki Kiburine had not started the processing due late finalisation of the chilling unit and launch of the operations. This was planned for the last week of the project lifetime. The milk production in these locations is also low, that supports local demand. Against this, the management and staff of all the four cooperatives earmarked for value addition have undergone training on value addition. This diversification has demonstrated potential to cushion the cooperative and its members against milk price fluctuations.

EXPECTED RESULT 3: To improve management, saving, marketing and trade skills of cooperatives.

Sub-question 3.1: To what extent has the intervention improved the management, saving, marketing, and trading capacities of the targeted cooperatives and producers?

Implementing partner: AVSI

Sub-components:

A3.1 Training Members of cooperatives in financial Literacy, business, and producer capacity on skills of starting dairy cooperatives

A 3.2 Supply of ICT and conducting training on ICT use for each Cooperative

A 3.3 Training the cooperatives board members on administration and management

A 3.4 Start of Village Saving and Loans Association groups to provide financial products for access to new inputs

A 3.1 Training Members of cooperatives in financial literacy, business, and producer capacity on skills of starting dairy cooperatives

Income generating activities

74 The impact of the Maziwa project has also been felt in off-farm activities. The focus group discussions revealed that there has been proliferation of new income generating activities (IGA) at household level, which include cereal trade, poultry keeping, production of vegetables and fruits and second hand clothe sales which triggered by the increase in disposable income. Four out of ten women now have an alternative source of income generating activity apart from dairy production.

- 75 Most of the responding beneficiaries (68%) now invest more in various income generating activities, as a result of the positive impact of the Maziwa project on their livelihoods. When asking for the source of the start-up capital for these businesses, 39% mentioned that they used proceeds from milk sales, while 49% confirmed that they invested in expanding their production capacity through purchase of more inputs. Households can now rely on a stable income stream as confirmed by 92% of the respondents, largely thanks to the diversification of income sources.
- 76 In Kiburine, new income generating activities include sale of vegetables and fruits and small shop businesses (Kiosk) financed with the extra cash generated from the milk sales. This has been the case majorly with women. Beneficiaries were trained on business management, record keeping and village saving and loaning. Strategies that have yielded visible benefits given the significant livelihood improvement that many project participants have experienced.
- 77 The dairy business has also created gainful employment opportunities to many in the village as dairy owners look for casuals to do cleaning, harvest silage, harvest Napier grass and milking cows in Mikinduri. In Ngusishi, both men and women have established income generating activities that have helped the household. Majority have ventured into clothe selling business, while men have ventured into hotels, targeting the demand from workers of the flower farms. Other business models ventured by men include Bars (Liquor selling and drinking points, water selling, small shops (Kiosks) and trading in fresh produce such as vegetable and fruits.
- 78 The key challenge that is still affecting these groups is record keeping. Only 50%, up from 30% at baseline are keeping records of their operations. Focus group discussions with the community members indicated that most farmers are illiterate and have no capacity to do record keeping without assistance, while some mentioned lack of interest in keeping records. Organizations such as EQUITY Foundation have also contributed to improving the literacy of the farmers on record keeping. Yet the impact of this project component is not widespread.

A 3.2 Supply of ICT and conducting ICT use for each Cooperative

- 79 The Maziwa project invested in an integrated ICT system to help improve record keeping and transparency toward the cooperative members. The farmers have received milk record cards that are filled in with the amount of milk delivered. This information is then taken to the main cooperative and fed into the ICT system. At the end of the month, the farmer receives a payslip, indicating all deductions and net payment. In Mikinduri cooperative, members explained that due to the installation of the ICT system, operations have been enhanced

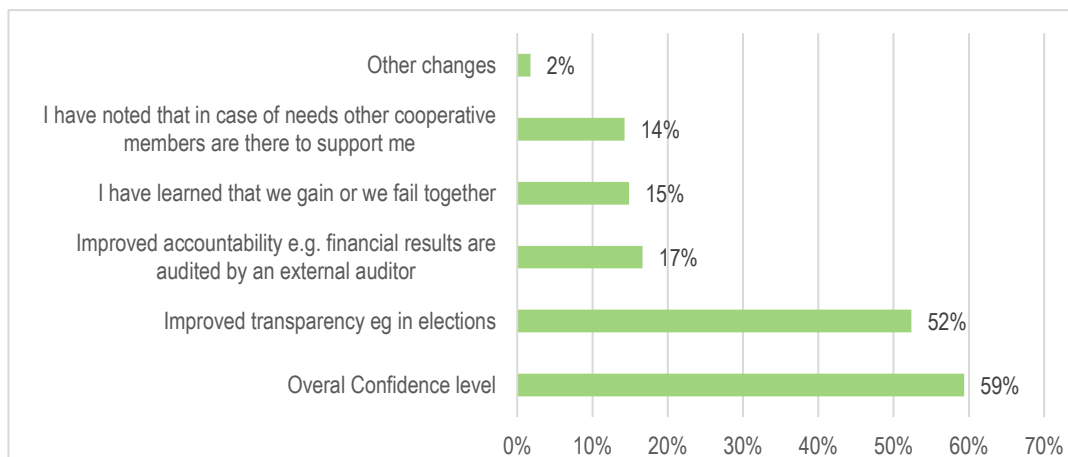
and made more efficient. Farmers now trust the cooperative because of clear records. Milk is weighed and a farmer receives the payslip at the end of the month, said the Chairman. In some cooperatives such as Meru North, the system has been linked to the input stores providing information on the credit worth of a farmer when they purchase feeds. This system has created a one stop shop for farmers that was not there before the project: as a farmer gets approvals from his account at the cooperative, s/he can then walk straight to the stores to purchase inputs on credit.

- 80 The cooperative leadership were trained on managing the information system who have then recruited qualified staff to manage the systems. The secretary manager of the NGUSISHI cooperative alluded that when she reported to the cooperative in 2018, she struggled with manual data collection and entry into the computer. The system has improved performance and efficiency at the cooperative, she maintained. As a result, the cooperative was ranked second among the 80 cooperatives supplying milk to the Meru Union for having the best record keeping system. The introduction of the ICT system has built confidence among the producers as they are now able to track the volumes of milk supplied and plan on their income.
- 81 The evaluation team observed that the system has not been linked to the 51 milk collection centres distributed across the five cooperatives for real time data transmission. The collection clerk must bring the hard copies of the records to feed the data into the system. A direct link with the system through the main server at the cooperative will help reduce paperwork and improve efficiency. Several informants emphasized on the need to link the system to a financial institution to improve access to credit for their members.

A 3.3 Training the cooperatives board members on administration and management

- 82 The project invested in the capacity development of cooperative leaders on the use of ICT, governance, and financial management. These trainings have improved management and the relationship between the board and its members. There is more transparency, accountability and communication between the leadership and the farmers, noted several famers during a FGDs.
- 83 The impact assessment reported that the proportion of members who are more confident than before to their cooperatives are 59%, of which 52% attributed this confidence to improved transparency. They feel reassured by the fact that the leaders of the cooperative are democratically elected. Some felt that there is improved accountability (17%), while other have realised the importance of collective action (15%).

Figure 4. Factors that have contributed to the increase in confidence.

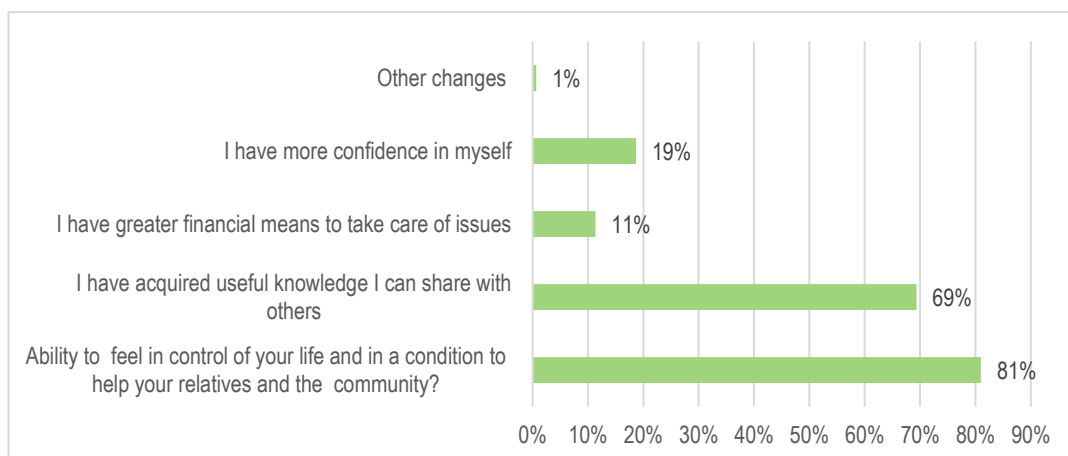


84 Members of Meru North cooperative during FGD manifested that their new leadership is transparent and has a clear vision for their cooperative. Other factors that have improved their confidence with the cooperative are the ability to access dairy production trainings, diversification of the market through value added product, and the chilling of milk. All factors that contribute to the stabilization of prices which respondents also attribute to the enhanced capacity of the leadership to provide guidance and linkages. Farmers are now consistently being paid on time and raw milk prices have improved from KES 25 in 2018 to 40 per litre.

Improved Self confidence

85 The Maziwa project has contributed to improve confidence with 81% of participants who now feel that they are in control of their life and can provide for their households. Most confirmed that they have gained useful knowledge they can share with others (69%), while some mentioned that they have gained confidence in themselves (19%). Only few respondents feel that they have greater financial means to address their challenges (11%). Generally, 81% of the project beneficiaries confirmed that the project has improved the livelihoods of the community. Many farmers are now buying more farm inputs such as fodder from the community as part of the investment into the dairy production (47%), while 40% believe that the community members benefited from the good examples that cooperative members are setting and are able to learn and replicate.

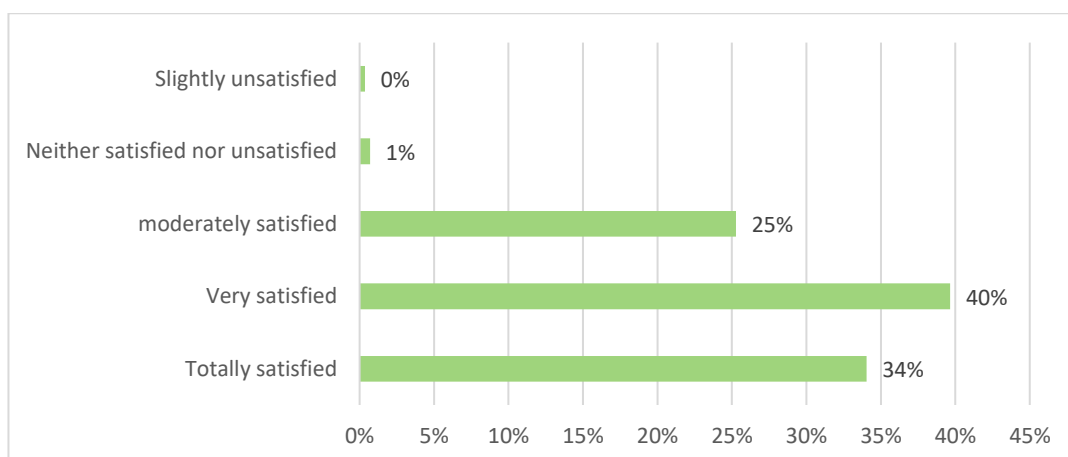
Figure 5. Felt confidence and capacity to control of life and address challenges.



Project satisfaction

86 Most of the target households (74%) are very satisfied to totally satisfied by the project, while 25% were moderately satisfied. The level of satisfaction among respondents within the targeted cooperative was diverse, with the highest level of satisfaction being reported in Nyaki Kiburine (87%), followed by Ngusishi (82%), Meru North (68%) and lastly Arithi (63%). These findings are consistent with the scale of the impact achieved by the project in each of the target locations.

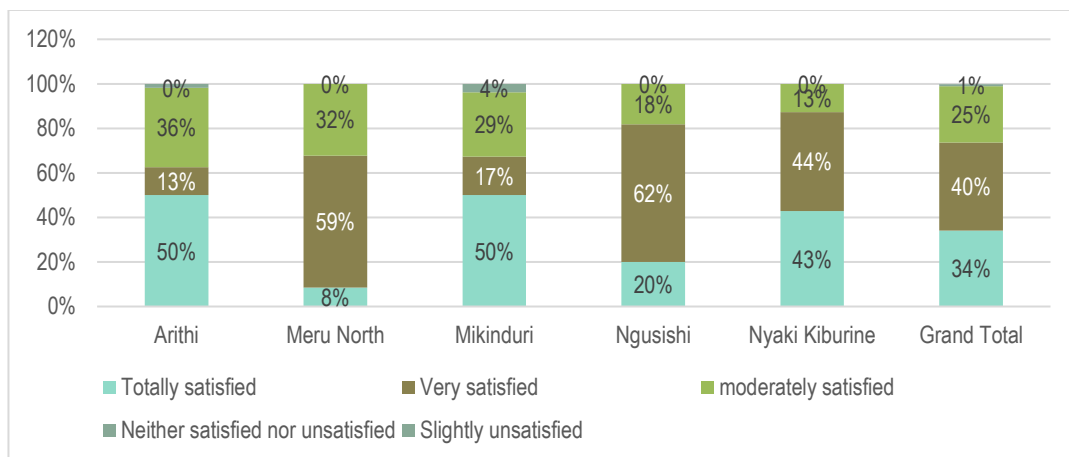
Figure 6. Level of Household satisfaction with the MAZIWA project



87 Respondents also shared what has made them particularly satisfied with the project. The vast majority mentioned that they have gained more knowledge and skills in dairy production (84%), while many others reported that they now have higher incomes (65%). One in two (50%) said that milk cans have enabled them to produce quality milk. Almost one in two (41%) felt that the project has boosted new business opportunities for them, while some

other (22%) felt that they have gained respect from other people thanks to what they have achieved with the project. This is my new profession, 19% maintained, while 17% have created new network of friends and colleagues who they can rely on.

Figure 7. Level of Household satisfaction with the MAZIWA project at different cooperatives.



A 3.4 Start of Village Saving and Loans Association groups to provide financial products for access to new inputs

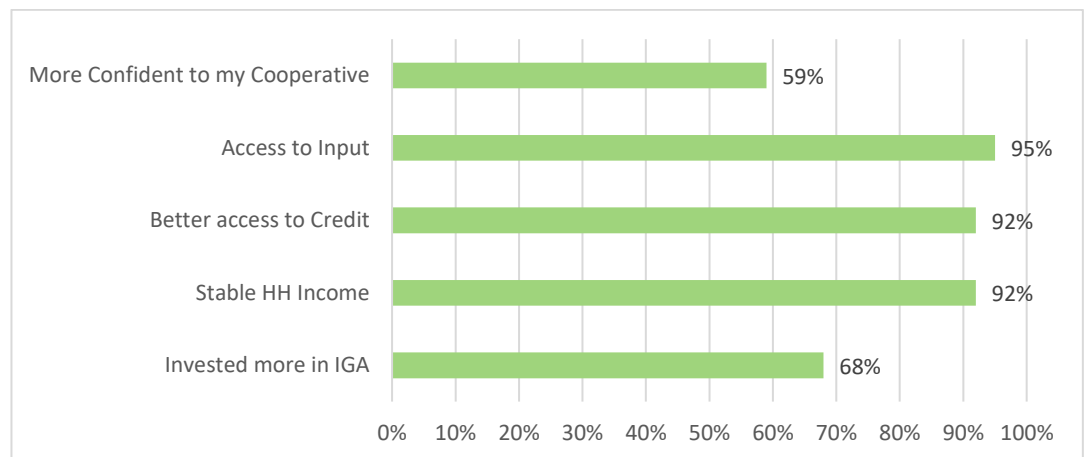
Improved Access to Credit

- 88 The project invested in building relationships with financial institutions for improved access to credit. Most of the targeted households have now access to credit (59%), of which almost all reported that the project has contributed to improve access to credit over the past 3 years (92%). Among those who accessed credit, 48% reported that they it is now easier for them to access credit due to the support from and affiliation to the cooperative, while 28% indicated that they are informed of better ways to access credit opportunities to explore than they were before the project.
- 89 Each of the cooperative has been able to identify a Savings and credit cooperative (SACCO) through which the payment is wired, while enabling members to access credit based on their credit ratings. SACCOS such as Thabiti and Capital partnering with Meru Union among others have been able to provide their members with access to advances for emergencies. The access to credit has been enhanced through proper records at the cooperatives that have been used by the SACCO to evaluate the credit worthiness. This has further helped-build farmer loyalty as the cooperative can provide additional embedded services.
- 90 The enrolment of farmers to the SACCOS has been slow, as observed by the survey. In Arithi Cooperative society, the cooperative has a working relationship with ARIMI Sacco. Currently, out of the 110 active members, only 15 have registered to be members of the

SACCO (14%). The frequent droughts and the related challenges on production can be considered as demotivating factors for registration. One participant, Mr Muriuki, who is a member to this cooperative, confirmed that he can access advances based on the milk he has supplied at any time when he needs cash. At Ngusishi dairy cooperative, farmers have been linked to Capital SACCO, which is owned by the Meru Union.

- 91 Alternative sources of credit have also been promoted through village saving and credit (VSLA) and most of the groups are owned by women. The establishment of the VSLA has enabled women to access smaller amounts of cash to purchase inputs. The project facilitated the VSLA with record books, saving box and officials sensitised on record keeping. The incorporation of five (5) Community Based Trainers (CBT) to build the capacity of these groups has enhanced their operations and capacity. The CBTs were competitively recruited and trained on VSLA before deployment to deliver the trainings at the community level.

Figure 8. Contribution of the project to different aspects of livelihood enhancement.



Increased Access to inputs

- 92 The project sensitised the cooperatives to introduce inputs services to their members as one of the embedded services. Almost all the targeted households confirmed that the project assisted them with accessing affordable inputs (95%), while one in two reported that the improved access to inputs is due to their affiliation to the cooperative (45%) and that they are now able to access the inputs they prefer with their income (45%). Other services are being outsourced such as provision of AI services from the county and Meru Union.
- 93 Cooperatives such as Ngusishi and Meru North have established input stores through which farmers can access concentrates and fodder for their dairy animals. Members are also supporting their neighbours by purchasing inputs from them. The evaluation observed that 47% of the farmers are now buying more farm inputs such as fodder and silage from the

community. Individual cooperatives have also established partnerships with private sector players in the input provision segment. For instance, Meru North has established a working relationship with Chaguo feeds and ALUA animal health to improve access to inputs for their farmers.

EXPECTED RESULT 4: To strengthen the coordination and networking system of producers and cooperatives.

Sub-question 3.1: To what extent has the intervention strengthened the cooperatives and producers' coordination and networking skills?

Implementing partner: AVSI

Sub-components:

A.4.1 Workshops and training for board members of all dairy cooperatives in Meru County on management and marketing

A.4.2 Provide support to department of livestock development and Fisheries and Cooperative through training and logistical support (motorcycles)

A4.3 Participation in the dairy sector events, Annual Show

A4.4 Conduct sensitization Campaigns on the nutrition qualities of milk and its derivatives

A.4.1 Workshops and training for board members of all dairy cooperatives in Meru County on management and marketing

- 94 The project sought to promote networking among dairy cooperatives and their members. This activity targeted all the 80 dairy cooperatives in Meru County. Seventy-four cooperatives were trained on (1) leadership, management, and marketing on an annual basis and on (2). About 186 private and public animal health practitioners from 9 sub counties were reached by the project workshops. twenty-eight cooperative staff were also trained to improve service delivery in 2020.

A.4.2 Provide support to the Department of Cooperative through training and logistics (motorcycles)

- 95 The project supported the dairy cooperatives with a motorbike each and 6 other motorcycles were provided to the department of livestock and cooperative in Meru County. Most of the motorbikes within the cooperatives are being used for transportation of milk. At the county level, the support has helped improve the reach in the provision of AI services to the community. This has been confirmed by increased access to AI services and technical assistance.

A4.3 Participation in the dairy sector events, Annual Show

- 96 The project has facilitated the participation to learning tours targeting farmers and cooperative members to increase their awareness and adoption of best practices. In the past 2 years, farmers have attended the Dairy field Day in Meru and Visited Kaguru ATC field day for networking with other stakeholders.

A4.4 Conduct sensitization Campaigns on the nutrition qualities of milk and its derivatives

- 97 The project raised awareness of the community on nutrition through the promotion of kitchen gardens and sensitisation campaign on consumption of milk and its derivatives sensitizing ten primary schools where cooperatives were established to increase milk consumption at home. Milk consumption has improved overall by 22% as a result of increased production and sensitization activities. One farmer, Murioki Thiayure said, *I used to get less than ½ lt of milk from my local cow (Kongoni) before the project, which not all members of the family could drink except in tea. Now I get 4 lt due to better feeding and my children can drink a cup every day.*

EXPECTED RESULT 5: To increase use and awareness on the use of renewable energy production systems.

Sub-question 3.1: To what extent has the intervention raised awareness over and use of renewable energy sources for dairy production?

Implementing partner: AVSI

Sub-components:

A5.1 Land acquisition and construction of cooperatives offices and labs

A5.2 Installation of biogas system

A5.1 Land acquisition and construction of cooperatives offices and labs

- 98 The project invested in significant infrastructural development which included purchase of land and setting up of the chilling facilities in the five cooperatives. While the land was to belong to the cooperative, focused group discussions with the project staff indicated that the capacity of the cooperatives had not reached a status that they would negotiate for and pay significant amount of cash for land purchase. They reported that before the project started, review of governance of the cooperative indicated that management was poor, and some cooperative management were accused of selling assets such as milk cans. The project therefore decided that land will be purchased by Don BOSCO, a local CBO and later, after

the project, transfer the land to the cooperative. The cooperatives had a memorandum of association on the same with Don BOSCO. The key lessons from this arrangement emphasise the importance of capacity assessment of local organizations to manage procurement processes. Capacity development therefore was important to make the management improve on their procurement and asset management.

- 99 Other support on infrastructure development at the cooperative level included purchase of chilling and value addition equipment, that enhanced the efficiency and effectiveness of the cooperatives, leading to increased loyalty and therefore increased milk collection. Membership have increased as more community members become loyal to the cooperative, incomes at household level has increased due to reduced losses and ability to sale afternoon milk. In effort to promote green energy, two cooperatives, Ngusishi and Mutuati were supported by Photovoltaic solar systems and all five were supported with solar system for heating water for washing the containers and equipment. These reduced the cost of electricity and therefore overall operation costs at the cooperatives.

A5.2 Installation of biogas system

- 100 This project activity was aimed at sensitizing the community on green energy using BIOGAS. This activity was implemented at Kiburine, Mikinduri and Meru North communities. Three demonstrations were offered at selected farmer locations as a learning site to other farmers. The project organised these exchange visits to increase the adoption of the practice. At Kiburine, 3 farmers have so far invested in a Biogas unit.
- 101 Yet most participants mentioned the high cost of installation as a disincentive for them to engage in biogas production. The current cost of establishment was reported to be KES 80,000. The rural electrification project under the World Bank's Last mile project also came in and most farmers preferred the installation fee of KES 15,000 as cheaper option compared to establishing a biogas plant. One farmer with an established demo biogas plant reported that he is now saving KES 8,000 annually from buying LPG gas and his house is now clean as they no longer use firewood.

Sub-question 3.5: *Do the assessed and identified target groups correspond to the beneficiaries of the intervention?*

- 102 The assessed and identified target groups correspond to the beneficiaries of the intervention. The project targeted small-holder farmers and five cooperatives along the dairy value chain in Meru County, as well as county officers and vets. The implementation of the Maziwa project has engaged over 3 thousand small-scale farmers from five communities of Meru County with improving their dairy business and has empowered five dairy cooperatives

with the necessary tools to thrive along the value chain and become more attractive to the production base and to the market.

3.3 Efficiency

Criterion	Efficiency
Overall score	Satisfactory

Evaluation question 4: How efficient was the implementation, management and monitoring of the project?

103 This section measures the efficiency of the Maziwa Project. Efficiency in this context measures the project performance in terms of process and output delivery, timeliness, and value for money. We have measured the ratio of the number of beneficiaries per staff, total cost per beneficiary, and mean annual cost per beneficiary. In total, the project was managed by 11 staff, which included: Project manager (1), Project coordinators (2), Project officers (5) with 1 at Don Bosco, Bookkeeper (1), Office assistant (1), Communication (1). Other staff contributed their time. These included: Procurement, PME, HR and operation among others, who charged part of their time to the project.

104 A total of 3,035 individuals were reached by the 11 staff, translating to 275 individuals per staff, which was within the recommended ratio 1:400². Such ratio ensured an efficient delivery of project activities and that the staff were not overstretched in the delivery of the same. The deployment of 15 Community Based Trainers (CBT) positions, who delivered trainings on financial literacy and VSLA including the 11-project staff led to a total of 26 staff deployed on the ground, and therefore helped reduce the ratio to 1:116. This strategy maximized the impact of the investment on provision of technical assistance.

105 The Project had a budget allocation of EURO 1,705,875.26 for the three (3) years of project implementation. This means that the cost per beneficiary was EURO 562.07 per individual, and a mean annual cost per beneficiary of EURO 187. The impact assessment indicated a EURO 274 income generated per household, up from EURO 138 at baseline, suggesting that for every EURO 1 invested, farmers made EURO 1.46 annually. This is impressive when considering that the project was infrastructure intensive. Overall, 68% of the budget

² Wanyama, R., Mathenge, M. W. K. & Mbaka, Z. S. (2016). Agricultural information sources and their effect on farm productivity in Kenya. Tegemeo Institute of Agricultural Policy and Development, WPS 62/2016.

has been used in the implementation of field activities, indicating a significant budget allocation to activities, especially where conspicuous infrastructural investments were deployed. There were therefore functioning mechanisms in place in terms of budget allocation and monitoring along the budget lines to ensure good performance with regard to output delivery, cost control (minimal allocation to other staff costs, which was 32%) and activity management.

106 Improved efficiency was also noted at the cooperative level. The introduction of ICT systems enhanced efficiency in their operations by tracking the in and outflow of milk. This has reduced misreporting and revenue losses. The establishment of the solar system has reduced the cost of chilling from KES 50,000 per month when using electricity to KES 15,000 per month with the solar power systems. The capacity development of the cooperative leadership has increased the efficiency in decisions making, financial management and governance. Confidence and loyalty among members spurred from the improved efficiency and transparency attracting new members.

107 The project has adopted a clear and detailed procurement plan that enhanced value for money when procuring services and goods. The project initially performed a need assessment on the cooperatives to identify the hardware needs of each targeted cooperative, which was essential to prioritize the items to purchase and increase ownership. Clear procurement policies were in place to guide the identification and purchase of services and goods. Procurement of goods entailed advertisement for service providers to supply equipment for 14 days and analysis of the bids. Other items such as computers and other accessories were procured by terms of reference and shared among the potential suppliers.

Sub-questions: *Was the methodology of implementation the right one under the circumstances? Have results been delivered in a timely manner? If not, what were the factors that have hindered timely delivery of outputs? Any measures that have been put in place?*

108 The project took a public-private sector approach which was participatory in nature and considered adequate under the circumstances. By engaging the county government through the cooperative, livestock, and agriculture departments the project invested on sustainability and contributed to the cost effectiveness of project implementation. The recruitment and deployment of 15 Community Based Trainers (CBT) to deliver financial literacy and VSLA trainings was an efficient method for reaching the target population with locally available resources. This methodology is important for increased and faster adoption of the promoted practices, as they are transferred from within the community. The project built the capacity of about 186 private vets from 9 sub counties to ensure sustainability after its end and imparting of new technologies and innovations.

109 The project activities were delivered on time, with trainings being completed before the COVID19 in March 2020. Yet the pandemic affected the project in different ways. Though the major trainings had been completed before COVID19 hit, follow up training were impacted as the cooperatives and project staff kept social distancing. Meetings among the partners could not take place, which affected project implementation as certain approvals required partners meetings through the management committee. Communication among staff was mainly carried out through digital communication technologies, which was naturally not as effective as face-to-face interactions. This affected the project implementation pace. There were budget variations as some of the item's prices increased due to increased transportation and import costs during the pandemic. The monitoring of the project was also affected as the staff could not travel to the field due to restrictions to mobility.

110 To conform to government requirement of social distancing, Meru North dairy cooperative had to create more collection centres to reduce the number of farmers in one site. This meant more milk transporters and therefore increased operation costs. The cooperative had to set up systems and measures such as hand washing station, thermometer to monitor infections and other government and ministry of health protocols. Meru Union CEO also sent a circular on mitigation measures that the cooperatives need to follow. The project distributed posters sensitising the community on the COVID19 prevention protocols.

111 Thus, the evaluation team rated the overall project efficiency as **satisfactory**.

3.4 Sustainability and impact

Criterion	Sustainability
Overall score	Moderately satisfactory

Evaluation question 5: How sustainable are the instruments created with the intervention likely to be in the medium to long run?

Institutional sustainability

112 The establishment of the five (5) milk chilling plants combined with in-depth training have enabled the transition towards a sustainable cooperative management structure. The development of the constitution and election of executive committees and supervisory committees laid down the foundation for adequate governance. The project was key in enhancing the capacity of these organizations in management, governance, financial literacy, and ability to process information through the ICT system provided by the project.

The cooperatives who benefited from the project were exposed to exchange visits, trainings, and mentorship programs. This has triggered a learning process and formed the basis for their institutional sustainability. However, analysis of the membership on the board based on age and gender, revealed that there is a limited number of youths (9) in the board (below 35 years). Women make up for 35%, while men, 50 years old and above represent 65% of the boards. There is therefore a need for the cooperative leadership to attract more young men and women to join the board for their long-term institutional sustainability.

Environmental sustainability

113 The Maziwa project implemented several strategies that targeted a more sustainable management of the natural resource base. The introduction of photo voltaic solar panels has potential to reduce demand for electricity from the main grid and prevent pollution previously caused with the use of generators. As the cooling systems completely rely on solar energy, CO₂ emissions are prevented while using the solar source. The system furthermore guarantees a sustainable use of natural refrigerants with low global warming potential. The establishment of the solar system has also reduced the cost of chilling from KES 50,000 per month when using electricity to KES 15,000 per month with the photovoltaic cell solar systems. Similarly, the introduction of BIOGAS technology has the capacity to reduce tree cutting as a source of firewood. The reduction in distance from the farm to the collection centre from 7Km at baseline to 2 Km at Impact Assessment also translates in a reduced environmental footprint when milk is transported on motorbikes. On the other hand, the introduction and promotion of Kitchen Garden was a sure way of enhancing efficient water use by upcycling kitchen waters. Finally, the capacity building and monitoring of milk quality and disease and pest control, has reduced chances of zoonotic disease spread within the community.

114 These actions are geared towards the achievement of the Sustainable development Goal # 13, mandating the urgency of taking action to combat climate change and its impacts. They furthermore contribute towards the Paris Agreement goal to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels.

Technical sustainability

115 The project invested significantly in building the capacity of the beneficiaries to cope with dairy business challenges. Training 15 Community Based Trainers (CBT) selected from among the community has created local capacities through individuals who can be referred to by other community members in the aftermath of the project. The CBTs underwent a

series of training on sustainable livestock production, group governance, financial literacy and VSLA.

116 The capacity development of the county staff drawn from the cooperative and livestock department will also enhance technical capacity transfer within and outside the county. By so doing, the project has established a foundational reference to which thousands of community members will resort in the future.

117 Household training through demonstrations and on-farm trainings instilled in the beneficiaries' technical capacity that will be transmitted and spill over to other members of the community. At household level, community members have been trained on improved livestock production such as animal health and fodder production and silage making, financial literacy and enterprise development. With this capacity, beneficiaries have improved the technical management of their dairy animals as well as of their business making it more commercially oriented.

118 However, the project did not envision a sustainable mechanism for embedding the provision of technical assistance among the services offered by the cooperatives. This may hinder the sustainability of the outcomes created with the project.

Socio-economic sustainability

119 The households targeted by the project are now generating more income and food from diversified sources largely financed with the dairy enterprise. Businesses are blooming to tap into demand for services and products, kitchen gardens are being kept as a source of household food, milk is being sold to generate twice the income and consumed at household level at higher rates compared to the baseline. Milk as income source has become more sustainable through on-farm enterprise diversification and capacity building on business management. Women have been empowered through the dairy enterprise, a platform that is gathering momentum to tackle gender disparities including especially with regard to education and emancipation. Improved incomes have enabled improved health for many participants to the project who are now able to access health services and pay for the NHIF charges.

120 The establishment and capacity development of the five (5) dairy cooperatives through which members could come together has provided a platform that supports farmers, inspires confidence, and enables peer-to-peer learning. In addition, these developments have triggered community participation, interaction and exchange of experiences leading to greater social cohesion and extending the benefits of a sustainable platform for technology dissemination and adoption. The promotion of VSLA and record keeping enhanced social

capital through savings and enabled cooperative members to access loans for on-farm and off-farm expenses and investments.

Sustainable partnerships

121 The project adopted a multi-stakeholder partnership for this multi-sectoral livelihood project in line with SDG #17 that emphasises on the need for cross sector collaboration in pursuit of all the goals by the year 2030. In practice this was achieved through the creation of a project steering committee where members of the consortium made decisions and monitored project implementation. The inclusion of the County government ensured that the project was being implement with a strong commitment from the county for sustainability. The project brought together a partnership that resulted in a diverse team with clearly identified and harmonized roles for the delivery of the project outputs. AVSI was in charge of Result 3,4, and 5, while IPSIA was in charge of Result 1 and 2. Meru County complemented and backstopped on all the results, while Don Bosco assisted in land procurement and transfer to the cooperative leadership.

122 Through partnerships, the project was able to achieve its objectives in an efficient way. The project created a conducive environment for other partners such as EQUITY Foundation, farmer for farmers financial institutions such as Thabiti, Capital, ARIMI and the county governments to provide other services and complement the intervention. These partnerships have hence shown a way to cooperate and integrate along the dairy value chain for greater impact.

Criterion	Impact
Overall score	satisfactory

Evaluation question 6: What kind of impact has the project had on the target area?

Gender Equality and Women Empowerment

Sub-questions: *Have women access to and own assets, resources, and services? Have women access to decision making at community level? Has the project had a positive or negative impact on women's income and livelihoods?*

123 The project has contributed to improve women and youth participation in the dairy value chain. This has been largely a result of increased incomes, emancipating women from their husbands in terms of smaller household financial requirements. They reported that conflicts at household level have diminished as there is minimal cash request, which was the main

source of conflict. The quantitative survey indicated that the number of targeted women participating in the dairy value chain was higher than that of men, especially in ARITHI. Cooperatives located in Miraa producing zones such as ARITHI and Meru North have women as majority members. The project has created 51+ gainful employment opportunities in milk collection for youths as clerks and as secretary managers at the main collection centre. When the value addition will start, more employment opportunities are expected to arise.

124 Discussions with women in Mikinduri dairy cooperative confirmed that having a consistent and foreseeable income from milk sales has enabled them to take charge of their lives and pay for their children's school fees. They are now furthermore able to access loans and advances through microcredit cooperatives in which all the members have an account and payments are done through their balance accounts for milk supplies.

125 In Ngusishi, the project has particularly benefited women through the reduction of the distance to the milk collection centre, which used to be a 3 km walk to Kambi. The project has established 12 collection centres reducing to ½ km the distance from their farms. This has freed time to work on their farms and other income generating activities.

126 The capacity development of women farmers on dairy management has transferred knowledge on how to diversify production. Improvements in dairy management, infrastructure and diversification have doubled the income from dairy activities from KES 6,926 at baseline to KES 13,065 at project end, representing a 98% increase.

127 Gender balance at the cooperative level has also been improved. A need assessment commissioned by the project observed that the majority of the leaders in the cooperatives were old men, with 90% being retired teachers. Only 10% of the dairy cooperatives were compliant on the 1/3 gender rule, which required concerted efforts on sensitisation during elections. Less progress was made with ensuring gender balance on the cooperatives' management boards as only 35% of the leadership positions are held by women.

Sub-questions 6.6 & 6.8: *Were the project strategies geared towards environmental sustainability? Were the project strategies geared towards climate resilience?*

128 The project-initiated activities that promoted environmental sustainability. The promotion of BIOGAS with smallholder dairy farmers introduced clean energy while enhancing cyclic economy where the manure from the cow was used to produce biogas, while the slurry was used in crop production. The crops from the field such as banana and sweet potato was used to feed animals. This cyclic nature of the enterprises reduced wastage and poor disposal of byproducts. The introduction and promotion of fodder as a source of animal feeds

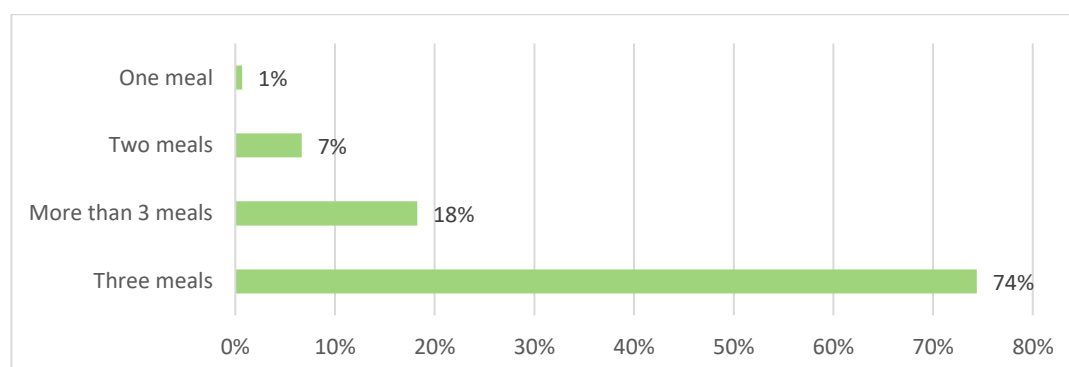
was a pathway to environment conservation. This is part of the integrated soil fertility management (ISFM) as the fodder act as a cover, reducing soil erosion and enhance soil fertility as the biomass is recycled into the soil. The project promoted crop diversity through the kitchen gardening. Field observation noted proliferation of pulses (Cowpeas and green grams), vegetables, fruits that created business opportunities among women as they started selling the products in the local market. The introduction of the cooling systems, with capacity to handle 2,000 lits of milk reduced milk wastage at household level, especially the afternoon milk. Before the project, afternoon milk would be consumed at household level. In case the volumes were high, significant amount would go to waste, further affecting the environment. The improved milk handling at the cooperative have reduced milk spillage due to proper handling and storage. The cooperative now can collect more milk and invest in value addition.

129 In terms of environmental footprint and climate change adaptation practice, The evaluation team recommend to strengthen the focus on climate smart production systems as a resilience building mechanism against climate change. In particular, the consortium shall look at the opportunity of promoting drought resistant fodder varieties, such as panicum, Bracharia and improved nappies grass varieties such as OUMA I and II, while at the same time introducing conservation agriculture practices for their production.

Improved food and Nutrition security

130 Households have recorded improved food and nutrition security, as confirmed by 55% of respondents and most of them (72%) believe that the project contributed to this change. The increased access to food was confirmed by the recorded improvement in food consumption patterns: 92% of the households are now eating three meals in a day and above, with only 7% taking two and 1% taking 1 meal per day.

Figure 9. Proportion of households taking more than three meals per day.



131 The diversity of food being taken by the household members has also improved: 46% confirmed that they are now eating more nutritious food such as meat, while 16% eat tastier

foods as a result of increased disposable income. In 2018, household diets were mainly based on Githeri (maize mixed with beans and boiled) and potatoes. The increased income from the dairy enterprise has enabled the households to purchase rice and meat, with additional glass of milk after meal. Children can now drink a glass of milk a day due to more milk being produced.

132 The increased access to food among the targeted communities was a result of a sharp increase in disposable income. In addition, the promotion of Kitchen gardens has enabled households to access to nutritious vegetables grown in the backyard and in sack gardens. Discussions with the community members indicated that, before the project started, during the seasons of scarcity they would eat less food as a coping strategy. Currently, 16% reported that they are now eating more food during seasons of scarcity.

Improved access to Health services

133 As emerged through the impact assessment, 58% of the household reported that family's health conditions have improved in the past 3 years, with 72% associating this improvement with the project. Access to health services has been improved due to increased disposable income compared to before the project, with 50% being able to comfortably pay for health services. Discussion with the groups indicated that due to increased income at household level from dairy and related activities, they can now pay for hospital services without any problem. Many households (54%) are now able to pay KES 500 monthly to access the NHIF services. Those who are not registered alluded to the fact that the service is not reliable, and it does not cover all medical expenses making them see no reason for taking the cover. This finding signalled the need for sensitising the community on the benefits associated with the NHI. Advocacy will be important for the government to make the cover more comprehensive and hence attractive in the future.

Improved access to quality education

134 The impact assessment has observed that 51% of the households affiliated to the Maziwa project have now continuous access to education services. Children are going to better schools as reported by 55%, while 29% mentioned that more children are enrolling to school than before, while 14% confirmed that adolescents are now proceeding to vocational schools such as village technical institutes, colleges, and universities. Most of these household believe the project has contributed to these changes largely (84%).

135 The percentage of respondents who were satisfied that their family have better access to education services varied among cooperatives: 57% respondents affiliated to ARITHI mentioned that access to education has not improved, compared to 37% in Meru North, 6%

in Mikinduri, 44% in Ngusishi and 29% in Nyaki Kiburine. Hence, the improved access to education appears to be inherently linked with household incomes. Cooperatives that reported higher percentages of members with increased income also reported increased access to better education services.

136 Discussion with members of the five cooperatives indicated that due to increased incomes, parents are now sending their children to academies where quality of education is better even though the fees are higher compared to government school. The frequency at which the children are being sent back for unpaid school fees has dropped as parents can negotiate monthly fee payment based on their monthly milk sale revenues transferred by the cooperative. Before the project started, many respondents sold their milk to local hotels who would refuse to pay at the end of the month especially when the amount supplied was high, making them unable to plan on income. They can now plan in a reliable fashion and buy books and other school requirements without any challenge.

Improved dairy sector

137 The project has benefited the whole dairy sector in the county and has furthermore contributed to achieve objectives of the National Dairy strategy. The county government has been able to achieve part of its goal as entrenched in the county integrated development plan (CIDP) by strengthening agricultural cooperatives and enhancing food and nutrition security.

138 There has been significant change in attitude towards the dairy enterprise among the targeted community members. The establishment of the 5 dairy cooperatives has increased confidence to invest in the sector as farmers may now seize stable market opportunities. Dairy is becoming a leading income-generating sector in these locations surpassing the *Miraa* production business, which was affected by the COVID19 pandemic. The sensitisation on milk consumption has acted as a production stimulant as the study has observed a positive correlation between increased production and milk consumption. This has potential to help reduce household food insecurity, malnutrition, and poor diets.

139 Most of the households (77%) confirmed that the dairy sector in the region has improved. Many such respondents believed it to be a result of increased number of knowledgeable farmers who are now providing advice to their neighbours (56%), while others felt that improved capacity of the dairy cooperatives was decisive (21%) and that farmers have gained greater experience on dairy farming (21%).

Risks – Political, technical, Social and partnership risks**Impact of COVID19 on achieving the project targets**

- 140 The targeted communities were affected by the COVID19 especially on their income. The income from *Miraa* dropped as the market retracted and disruption were suffered by the transport systems. Misinformation circulated holding that leafy products such as *Miraa* were carrying the virus. Many traders stopped purchasing the product. In addition, beneficiaries were hit by COVID19 impacts from within the project as access to training was disrupted and trainers from the cooperatives were not able to visit farms due to fear of contracting the virus.
- 141 Within the cooperatives, the committee members were not able to meet on monthly basis, while also the secretary managers were not able to meet their field team for planning. This affected the daily operations at the cooperatives. Access to inputs was a challenge as the transport prices increased leading to increased costs. Productivity and production dropped as most farmers were not able to access concentrates for livestock feeds. By keeping social distance, they could not visit the cooperative for the services. At Kiburine dairy cooperative, the annual AGM was not done for 2019 and 2020 due to the pandemic. Nevertheless, the financial audit for 2019 and 2020 were done on schedule and the flow in milk supply was not affected by the pandemic.
- 142 At Ngusishi, the pandemic affected the extension delivery system as Meru Union withdrew its staff to headquarters, leaving the farmers with no extension services, such as AI services. The bonus paid to farmers in 2020 dropped from KSH 2 to KES 1. The cooperative was forced to employ an extra staff to be located to Meru Union for offloading milk from the track as they maintained social distancing in the vehicle to 2 persons. This increased operation costs as the staff was to stay in Meru and demanded a higher salary.
- 143 At household level, parents in Ngusishi mentioned that the pandemic impacted on the household incomes as parents with children in schools were not able to match the fee required between April and August 2021. Majority of farmers during the focus group discussions felt that they were more resilient to COVID19 compared to those who were not members of the cooperative as they (non-members) would come to borrow cash from them to purchase food items during the peak of COVID19.
- 144 The county government provided support to vulnerable community members in ARITHI who received cash grant from national government on weekly basis, amounting to KES 1,000. This mainly targeted the people living with disability, old and vulnerable people in the community. In Kiburine, the County government supported the community through supply of forage seed and provision of extension services for planting and maintenance of fodder.

145 Therefore, the project has managed political, technical, social and partnership risks adequately and activated mechanisms to cope with the changing environment.

4. Conclusions

146 **Conclusion 1** (Criterion: Relevance). The project strategies were found to be relevant to a **satisfactory** degree to the key challenges faced by the target groups. Interventions tackling improved production, increasing the capacity for processing and preserving milk, and improving value addition, management, savings, marketing and trade skills of cooperatives and breeders are relevant to the target communities. The project design resulted clearly and fully described in the project document and based on a clear logical framework that shows good vertical consistency. Yet the objectives and targets set for the newly established cooperatives appeared overestimated for a 36-months project limiting their scope for sustainability.

147 By targeting the dairy sector, the project intervened at the heart of an economy fuelled by women. The establishment of collection centres near the production centres has reduced the distance to 2 km, down from 7 km on average before the project. The increased profitability of the dairy sector has hence enabled greater independence of women from men and empowered them to make decision on household spending. The project was implemented through a multi-stakeholder approach in partnership with private sector and county government stakeholders and it addressed key priority issues contemplated by all relevant local, national, and international policies, including especially those of the donor.

148 **Conclusion 2** (Criterion: Effectiveness - general). The project has contributed to increase the capacity of the targeted dairy cooperatives to effectively manage their units to a **satisfactory** degree. The establishment of the milk chilling plants acted as a pull of the milk to the market, motivating the community to invest, while the capacity building acted as the push to the market. The strategy chosen for implementation including for stakeholder collaboration have contributed to the success of the project. However, the lack of a continuous and financially viable extension service system may hinder the sustainability of the instruments created.

149 The project has had some unintended positive outcomes including increased access to education and health as well as the proliferation of new businesses. In addition, it has helped reduce the crime rates, like the case of Meru north where those who were known for illegal business such as illicit brew have turned to be dairy farmers. Indeed, the project impact has improved the local economy on the target areas. Importantly, it has improved nutrition for the children through kitchen gardens and increased milk production. As the impact varied

among the five target groups, a relation was observed between the progress on operationalizing the processing units and the performance of participants in terms of productivity, income and hence access to education, health, credit, and income diversification.

150 **Conclusion 3** (Criterion: Efficiency). The evaluation team rated the overall project efficiency **satisfactory**. A total of 3,035 individuals were reached with a 275 individuals per staff ratio. For every EUR 1 invested, farmers made EUR 1.46 annually: real value creation when considering that the project was infrastructure intensive. Confidence and loyalty among members spurred from the improved efficiency and transparency at the cooperative attracting new members. The project has adopted a clear and detailed procurement plan that enhanced value for money. It was implemented with a public-private sector approach which was participatory in nature and considered adequate under the circumstances. Reaching the target population with locally available resources was seen as an efficient strategy to achieve the adoption of the promoted practices transferred from within the community. The project activities were delivered on time, yet the pandemic affected the project in different ways including especially follow up trainings and meetings that could not take place. This negatively affected the project implementation pace.

151 **Conclusion 4** (Criterion: Sustainability). The overall project sustainability is rated as **moderately satisfactory**. The target cooperatives have benefited from exchange visits, trainings, and mentorship programs that have triggered a learning process and formed the basis for their institutional sustainability. Due to the challenging context related to youth participation in the agricultural sector in the country, there is a limited number (9) of youths (below 35 years) in the cooperative management. This can be considered an encouraging starting point, but it requires extra efforts in the future. As for the environmental sustainability, the intervention worked extensively to reduce or minimize the impact of dairy production and processing on the climate towards the achievement of the Sustainable development Goal # 13. The project invested significantly in building the capacity of the beneficiaries to cope with dairy business challenges. The capacity development of the county staff drawn from the cooperative and livestock department have created technical capacity that will be transferred within and outside the county. However, the project did not envision a sustainable mechanism for embedding the provision of technical assistance among the services offered by the cooperatives and the capacity of county authorities to provide assistance is limited. This may hinder the sustainability of the outcomes created with the project.

152 The households targeted by the project are now generating more income and food from diversified sources largely financed with the dairy enterprise. Women have been empowered through the dairy enterprise and improved incomes have enabled improved access to health for many participants. The establishment and capacity development of the five (5) dairy

cooperatives has provided a platform that supports farmers, inspires confidence, and enables peer-to-peer learning. The chosen strategies for partnerships have certainly shown a way to cooperate and integrate along the dairy value chain for greater impact.

153 **Conclusion 5** (Criterion: Impact). The project has contributed to improve women and youth participation in the dairy value chain. Less progress was made with ensuring gender balance on the cooperatives' management boards as only 35% of the leadership positions are held by women. Households have recorded improved food and nutrition security thanks to strategies promoted with the project. The increased access to food among the targeted communities was a result of a sharp increase in disposable income, as was the case for continuous access to health and education services. Indeed, the project has benefited the whole dairy sector in the county. There has been significant change in attitude towards the dairy enterprise. Importantly, the study has observed a positive correlation between increased production and milk consumption at household level. Overall, the evaluation team concluded that project has managed political, technical, social and partnership risks adequately and activated mechanisms to cope with the changing environment. Maziwa truly has had an appreciable positive income on the target communities, which is therefore rated **satisfactory** by the evaluation team.

154 **Conclusion 6** (Overall rating). Taking into consideration the performance of the project as rated per each evaluation criteria, the evaluation team rates the performance of the Maziwa project as **satisfactory overall**.

5. Lessons learnt

1. Infrastructural developments at the five dairy cooperatives in Meru County have stimulated production as members have become more confident of the market and generated consistent income from their milk products.
2. The Dairy sector is an important value chain in Meru County, due to its ability to provide income to smallholder households. It has become a leading enterprise especially in the face of COVID19, which affected the Miraa (Khat) production and marketing systems. Yet youth participation is still low.
3. The introduction of the ICT system has brought transparency at cooperative level building confidence and loyalty between the cooperatives and their members.
4. The delivery of extension services through the private and county-based animal health assistants and the community representative had a great impact in changing the knowledge, practices, and attitude, that led to 46% productivity increase. These results provide important insights on how to improve access to extension services.
5. There is need for a more market-oriented approach to project implementation. While the project successfully incorporated the County government and other NGOs, there was not a clearly structured relationship with other service providers such as input service providers and financial institutions.
6. A positive correlation was observed between the increase in milk productivity, production volumes and sales and the availability of disposable income to finance access to better education and health treatments as well as the proliferation of small businesses.

6. Recommendations

- R1. **Recommendation 1.** The newly established cooperatives have shown considerable progress compared to the before the project. Yet they would have required a longer supporting period to achieve full independence and sustainability of their respective business. The study team therefore recommends to mobilise new resources and **design a follow up intervention to strengthen the capacities of the newly established cooperatives** and to **allow for a 5 year follow up and supervision on the new cooperative structures.**
- R2. **Recommendation 2.** The evaluation revealed that the project has not promoted a sustainable extension service system owned and financed by the cooperatives. This may reduce the likelihood of the targeted producers to perform to level achieved through the project in lack of access to sustainable extension services. For this reason, the evaluation team recommends to **intervene on the business model of dairy cooperatives to include a financial mechanism for the provision of technical assistance to the production base that makes the most of ICTs.** Several digital tools are available on the market such as DIGIFARM which uses an SSD code to disseminate farming tips via mobile phones, DIGICOW that offers a marketplace for farmers to access animal health services, and RETAIL Pay to facilitate trading between stakeholders.
- R3. **Recommendation 3.** Accessing to AI is still a challenge for most dairy producers. The study team recommends to **design a strategy to establish semen cold chains managed by the cooperatives to help reach more cooperative members with the service.** Linkages with companies such as ILRI, GENEPLUS, ABS and the county government of Meru will be important for the provision of high-quality semen.
- R4. **Recommendation 4.** Relying on transport system from Meru Union may not be sustainable for the cooperatives in the future, especially when the volumes start increasing. Learning from the case of NGUSISHI who transport their own milk to Meru Union and have not reported milk rejection recently, the evaluation team recommends to **promote the purchase and sustainable management of product logistics from within the cooperatives based on cost-sharing approach.**
- R5. **Recommendation 5.** The record keeping process at the collection centres was observed to rely on paperwork before landing on the server at the main cooperative facility. To reduce paperwork and improve process efficiency, it is recommended to **establish a direct link between the milk collection centres and respective main server at the cooperative.** In addition, to **enable access of financial institution to the system to improve access to credit for the cooperative members.**
- R6. **Recommendation 6.** The institutional and socio-economic sustainability of the cooperatives is linked with the ability of its leadership to renew itself and engage the upcoming generation

along with timely responding to the needs of its suppliers. More work is needed to **ensure that these cooperatives attract more young men and women to join the board for their long-term institutional sustainability as well as to deploy a sustainable mechanism to provide technical assistance to its suppliers** (see recommendation 2).

- R7. **Recommendation 7.** The study found that most of the cooperatives have allocated roles to the board. As per the management and marketing training each committee position was well stipulated on their roles. Despite this, there is the need to continue the follow up and supervision of the cooperatives and strengthen **the adoption of roles accompanied by clear mandates including especially for finance, extension, processing, handling, and sales.**
- R8. **Recommendation 8.** The project opted to have a steering committee chaired by the project manager. The evaluation team believes that the project implementation would have benefited from **having the committee chaired by a senior staff** such as the regional or country director, or the director of livestock at the county level. This is **to minimize the scope for the project manager to answer to her/himself at the committee meetings.**
- R9. **Recommendation 9.** The introduction of water-dependent technologies such as fodder production, green maize and increased number of dairy animals requires commensurate investment in rainwater harvesting structures to cater for livestock and crop production during off seasons. Dairy animals require 6 lits of water to produce a litre of milk. Hence, the team recommends to **promote the creation of rainwater harvesting structures such as farm pods, roof catchments, and water storage through underground tanks to avail water during dry season.**
- R10. **Recommendation 10.** The sustainability of the targeted cooperatives will depend on their competitiveness and therefore their capacity to mobilize resources. The team hence recommends to **build the fundraising capacities of cooperatives to enable them to solicit for funds from impact capital institutions, government projects and private sector investments competitively.**

Annexes

Annex 1: Evaluation matrix

Relevance			
Key Question	Sub-questions	Indicator	Collection sources and methods
1. To what extent has the program addressed the needs of the community?	1.1 Have the needs of the targeted beneficiaries been assessed and included in the intervention?	1.1.1 The priority needs of the targeted community have been assessed and included in the intervention 1.1.2 Project beneficiaries find consistency between their priority needs and the response provided with the intervention	- Document review (project paper, project reports) - Interviews with key interest groups representatives, project team and partners - Baseline Study, Mid-Term Study - Field observations
	1.2 What kind of mechanisms are in place to adjust according to needs in the changing environment?	1.2.1 The project has periodically reviewed and adapted its strategies in order to respond to needs in the changing environment	- Document review (project paper, project reports) - Interviews with key interest groups representatives, project team and partners - Field observations
	1.3 Who are the main target groups and how have they been defined?	1.3.1 The main target groups are dairy producers, women, and youth. 1.3.2 The groups have been defined as dairy cooperatives, associated milk producers, government extensionists, veterinarians, and students in Meru County	- Document review (project paper, project reports) - Baseline Study, Mid-Term Study - Field observations
	1.4 How clear and realistic are the objectives of the project and its design?	1.4.1 Targets and indicators in the log-frame are clear and their achievement is realistic 1.4.2 The project sets forth clear assumptions and risk management procedures 1.4.3 Proposed Theory of Change, exit strategy and prospects for sustainability are clear and realistic	- Document review (project paper, project reports) - Baseline Study, Mid-Term Study - Field observations

	1.5 Is the project implemented with a dimension of gender sensitivity?	1.5.1 The project has included a dimension for gender sensitivity in its implementation	<ul style="list-style-type: none"> - Document review (project paper, project reports) - Interviews with key interest groups representatives - Baseline Study, Mid-Term Study - Field observations
2. How well did the program align with government and agency priorities?	2.1 Have linkages and synergies with complementary development programs in the region been created?	<p>2.1.1 Synergies with complementary development programs in the region are in place and respective scope of interventions are not overlapping</p> <p>2.1.2 Synergies with complementary programs resulted into linkages between respective programs</p>	<ul style="list-style-type: none"> - Document review (project paper, activity reports) - Individual interviews with complementary programs' representatives - Interviews with project team - Literature review (benchmark of the project)
	2.2 Is the program aligned with AICS guidelines and the SDG framework?	2.2.1 The program is in line with AICS guidelines for international aid in Kenya and the SDG framework.	<ul style="list-style-type: none"> - Document review (project paper, donor guidelines) - Literature review (benchmark of the project)
	2.3 How relevant is the intervention to implementation of the Kenya National Dairy Development Policy 2013, Kenya Vision 2030, and Big 4 Agenda?	<p>2.3.1 The intervention is in line with national strategies for the development of the dairy industry in Kenya</p> <p>2.3.2 The project is relevant to the implementation of national strategies for the development of the dairy industry in Meru County</p>	<ul style="list-style-type: none"> - Document review (project reports) - Individual interviews with government officials - Literature review (benchmark of the project)
Effectiveness			
Key Question	Sub-questions	Indicator	Collection sources and methods
3. With reference to the first term of project implementation, to what extent has the project contributed to improve	Result 1		
	3.1 Are cattle farmers associated with the targeted cooperatives producing more and better quality milk	3.1.1 Beneficiaries are producing more milk per cow per day compared to the baseline (5 litres)	<ul style="list-style-type: none"> - Document review (project reports, activity reports) - Interviews with key interest group representatives

management and production capacity of dairy cooperatives in Meru County?	compared to the baseline?	<p>3.1.2 Beneficiaries are experiencing less problems with mastitis with their cattle (max 500.000 cell/cm of milk) compared to the baseline</p> <p>3.1.3 Beneficiaries are tracing fats content in the milk they produce</p> <p>3.1.4 Beneficiaries are equipped with the necessary tools to respond to inherent challenges</p>	<ul style="list-style-type: none"> - Baseline Study, Mid-Term Study - Field observations
	Result 2		
	3.2 To what extent has the intervention improved the milk processing and conservation capacities of the targeted cooperatives and producers?	<p>3.2.1 Beneficiaries are equipped with and make regular use of the necessary tools to process and store milk safely</p> <p>3.2.2 The capacities of beneficiaries to process milk into yoghurt (kg produced) has improved compared to the baseline</p> <p>3.2.3 The targeted cooperatives have received a Health Quality Certificate issued by the competent authorities</p> <p>3.2.4 Beneficiaries are equipped with the necessary tools to respond to inherent challenges</p>	<ul style="list-style-type: none"> - Document review (project reports, activity reports, certificates) - Interviews with key interest group representatives - Baseline Study, Mid-Term Study - Field observations
	Result 3		
3.3 To what extent has the intervention improved the management, saving, marketing and trading capacities of the targeted cooperatives and producers?	<p>3.3.1 The cooperatives created with the project are in place and function</p> <p>3.3.2 Group Savings and Loaning associations have been created within each of the targeted cooperatives and function</p> <p>3.3.3 The number of loans issues by the GSL associations is growing</p>	<ul style="list-style-type: none"> - Document review (project reports, activity reports) - Interviews with key interest group representatives - Baseline Study, Mid-Term Study - Field observations 	

	<p>3.3.4 Beneficiaries are increasingly basing their dairy business on ad hoc marketing and business plans</p> <p>3.3.5 The targeted cooperatives are increasingly adopting ICT tools</p> <p>3.3.6 Beneficiaries are equipped with the necessary tools to respond to inherent challenges</p>	
Result 4		
<p>3.4 To what extent has the intervention strengthened the cooperatives and producers coordination and networking skills?</p>	<p>3.4.1 The intervention has organized meetings and trade events and invited the project beneficiaries to partake</p> <p>3.4.2 A growing number of targeted beneficiaries is taking part in such meeting and trade events</p> <p>3.4.3 Trade meetings and events have seen the participation of key actors of the dairy value chain</p> <p>3.4.4 The DoA staff is increasingly in touch with targeted dairy producers on the ground</p> <p>3.4.5 Beneficiaries are equipped with the necessary tools to respond to inherent challenges</p>	<ul style="list-style-type: none"> - Document review (project reports, activity reports, government reports) - Interviews with key interest group representatives, project team and partners - Individual interviews with key actors of the dairy value chain - Baseline Study - Field observations
Result 5		
<p>3.5 To what extent has the intervention raised awareness over and use of renewable energy sources for dairy production?</p>	<p>3.5.1 The biogas power plants installed with the intervention are in use by the targeted beneficiaries</p> <p>3.5.2 The solar power plants installed with the intervention</p>	<ul style="list-style-type: none"> - Document review (project reports, activity reports) - Interviews with key interest group representatives, project team and partners - Baseline Study

		<p>are in use by the targeted beneficiaries and produce the expected levels of Kw/h.</p> <p>3.5.3 The thermal power plants installed with the intervention are in use by the targeted beneficiaries</p> <p>3.5.4 Beneficiaries are equipped with the necessary tools to respond to inherent challenges</p>	- Field observations
Disaggregated data on groups			
	3.5 Do the assessed and identified target groups correspond to the beneficiaries of the intervention?	3.5.1 The intervention is consistent with its scope and is benefiting, respectively, cooperatives of dairy producers, milk farmers, women, youth, the local government and the broader Meru community.	<ul style="list-style-type: none"> - Document review (project reports, activity reports) - Interviews with key interest group representatives, project team and partners - Focus groups with Meru residents who have engaged with the project - Baseline Study, Mid-Term Study - Field observations
Efficiency			
Key Question	Sub-questions	Indicator	Collection sources and methods
4. How efficient was the implementation, management and monitoring of the project?	4.1 Have activities been managed in a cost-efficient manner?	<p>4.1.1 Budget items are consistent with the use of funds</p> <p>4.1.2 Expenditure inconsistencies with budget reflect the project assumptions</p> <p>4.1.3 Inherent risks were assessed and managed adequately</p>	<ul style="list-style-type: none"> - Document review (financial reports) - Individual and group interviews with project team
	4.2 Have results been delivered on time?	4.2.1 The intervention has delivered results in line with its time frame	<ul style="list-style-type: none"> - Document review (project reports) - Individual and group interviews with project team

		4.2.2 Delays on result delivery reflect the project assumptions 4.2.3 Inherent risks were assessed and managed adequately	
	4.3 Are the implementation strategies the most efficient option compared to alternatives?	4.3.1 The chosen strategies are best suited to implement the project in a cost-efficient manner	- Document review (financial reports) - Individual and group interviews with project team - Literature review
	4.4 Have partnerships and consortia been managed in a cost-efficient manner?	4.4.1 Inherent budget items are consistent with the use of funds 4.4.2 Expenditure inconsistencies with budget reflect the project assumptions 4.4.3 Inherent risks were assessed and managed adequately	- Document review (financial reports) - Individual and group interviews with project team and partners
	4.6 Are the partnership strategies the most efficient option compared to alternatives?	4.6.1 The chosen strategies are best suited to implement the inherent activities in a cost/efficient manner	- Document review (financial reports) - Individual and group interviews with project team and partners - Literature review
Sustainability			
Key Question	Sub-questions	Indicator	Collection sources and methods
5. How sustainable are the instruments the intervention has been creating likely to be in the aftermath of the project?	5.1 Institutional level: are the project instruments likely to be sustainable?	5.1.1 The instruments created with the intervention are in line with recent institutional developments 5.1.2 The instruments created with the intervention are likely to be endorsed by Meru cooperatives, communities and institutions beyond the project scope	- Document review (project reports, government reports) - Interviews with key interest group representatives, project team and partners - Individual interviews with government authorities in Meru - Literature review (benchmark of the project)

	<p>5.2 Social level: are the project instruments likely to be sustainable?</p>	<p>5.2.1 Social instruments created with the project have triggered a social change that the targeted communities have been absorbing</p> <p>5.2.1 Target and vulnerable groups are equipped with skills and capabilities to access to the social instruments created with the project</p>	<ul style="list-style-type: none"> - Document review (activity reports, government reports) - Interviews with key interest group representatives, project team and partners - Baseline Study, Mid-Term Study - Filed observations
	<p>5.3 Economic level: are the project instruments likely to be sustainable?</p>	<p>5.3.1 The instruments created with the project are boosting the sustainability of the local dairy economies</p> <p>5.3.2 Target and vulnerable groups are equipped with skills and capabilities to access the economic benefits created with the project</p>	<ul style="list-style-type: none"> - Document review (project reports, government reports) - Interviews with key interest group representatives, project team and partners - Individual interviews with government authorities in Meru - Literature review (benchmark of the project)
	<p>5.4 Environmental level: are the project instruments likely to be sustainable?</p>	<p>5.4.1 The instruments created with the intervention are enhancing the environmental sustainability of the local dairy economy</p> <p>5.4.2 The intervention has equipped target and vulnerable groups with capacity to manage climate-related risks and access the environmental benefits created with the project</p>	<ul style="list-style-type: none"> - Document review (project reports, government reports) - Interviews with key interest group representatives, project team and partners - Individual interviews with government authorities in Meru - Baseline Study, Mid-Term Study - Filed observations - Literature review (benchmark of the project)

Annex 2: Evaluation tools

KII - COOPERATIVE SOCIETIES

INTRODUCTION

Hello, my name is David, and I work for a research firm called **Environomica Consulting** on behalf of FONDAZIONE AVSI – AVSI. Today we are interviewing you, in order to better understand how the **MAZIWA (LATTE)- IMPROVEMENT OF DAIRY AND SUPPLY CHAIN COOPERATIVES IN MERU COUNTY, KENYA PROJECT**. This discussion will take around 1 Hours of your time and will help in future programming. While there is no direct compensation for this, your responses would be greatly appreciated.

Staff Name	
Date of KII	
Persons	Committee member/Chairperson and Manager
Cooperative Name	
Length of KII (start/end time)	

General:

Tell me in brief about your cooperative? Year of registration, compliance? Current membership? What informed its establishment, management systems? What services do you provide to your members? Does the cooperative have a strategic or business plan?

Relevance:

1. What were the main challenges that your group faced that have been solved through this project? How were they solved?
2. Who are the main beneficiaries of the project within your group? What criteria did you use to identify these beneficiaries? Share capital? Registration fees?
3. How does the group address gender issues at management level? Farm level?

Effectiveness:

1. Has your cooperative attained a license for milk processing and transformation (ISO and HACCP)?
2. Has the milk delivery to your cooperative improved over the past 3 years? What is the reason for the trend (Reduction or improvement)
3. Have the milk processing and storage capacities of your cooperative and producers improved through the project? How and why?
4. Have the management, saving, marketing and trading capacities of your cooperatives and producers improved through the project? How and why?
5. Does your cooperative interact with other milk cooperatives and actors of the dairy value chain beyond the associates? If yes, how and what role did the project play in these improvements?
6. What were the challenges affecting the milk quality of your cooperative before the project? How has the project solved these challenges? How do you monitor these changes?

Sustainability:

1. Apart from AVSI, are there other partners and value chain actors who you have worked with in the past 3 years? What has been their roles?

2. How diverse is the operation of the cooperative in terms of products (Fresh, Mala, Yoghurt) and markets? Who does the cooperative sell to? In what proportions?
3. Looking at the incomes and expenditures of your cooperative, do you think you are at break even point? Why? What have you done to achieve the break even point? How has the project assisted you?

Efficiency:

1. What management systems has the cooperative put in place for the efficient management of the business?
2. How did the cooperative monitor inefficiencies in its management system?
3. What measures has the cooperative put in place to eliminate or mitigate these inefficiencies?
4. How relevant was the project assistance in dealing with management inefficiencies? Why?
5. How did COVID19 impact on the daily operations of this cooperative? How did the cooperatives navigate through the COVID19 challenges? Did you receive any support?

Value of Milk Marketed

Please provide the value of milk marketed at baseline and impact

Description	At Baseline year	At Impact (2020)
Total milk Collected for the whole year in litres (As per the records)		
Average buying price from farmers per litre in KES		
Average milk spoilt per month (from the data) in litres		
Total Fresh milk sold in litres		
Average selling price of milk per litre (calculate average from records)		
Total Installed Capacity (litres)		
Management, operation, logistics, and other costs for the whole year in KES		
Mala		
Volume of Mala sold in litres		
Cost of buying Mala per litre in KES (average)		
Or cost of processing Mala per litre in KES (average)		
Selling Price of Mala per litre in KES		
Yoghurt		
Volume of yoghurt sold in kilograms		
Cost of buying yoghurt per litre in KES (average)		
Or cost of processing yogurt per litre in KES (average)		
Selling Price of yoghurt per litres in KES		
Animal feed		
Volume of animal feed sold in kilograms		
Cost of buying raw materials per kilogram in KES		
Cost of processing animal feed per kilogram in KES		

Selling price of animal feed per kilogram in KES		
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Expenditure Reports

Please fill in the total annual expenditures for the period Jan –Dec 2020

ITEM	ACTUALS – DEC 2019
Salaries	
Casuals	
<i>Subtotal - salaries</i>	
Rent and rates	
Utilities	
Generator fuel	
Others	
<i>Subtotal - rent and utilities</i>	
Repairs and maintenance	
Vehicle fuel and repairs	
Transportation costs	
Others	
<i>Subtotal - repairs and transportation</i>	
Licenses	
Marketing	
Farmer training activities	
Packaging materials	
Others	
<i>Subtotal - operation costs</i>	
Stationery and printing	
Telephone, postage and internet	
Travel and subsistence expenses	
Others	
<i>Subtotal - office running costs</i>	
interest on loan	
Board costs	
Audit and legal	
Bank charges	
Depreciation	
Insurance	

Others	
<i>Subtotal - financial and board costs</i>	
Total expenditure	
Cash balance (in bank and in hand)	
Debtor balance	
Debtor days (days taken to pay farmers)	
Creditor balance	
Agro vet expenses	
Total cost of goods (Agro vet)	
Total value of stock in the Agro vet	
Total money held by debtors (Agro vet)	

Summary on Annual Revenues

Description	At Baseline year	At Impact (2021)
Total revenue from Sale of Fresh Milk		
Total Revenue from Sale of Mala		
Total Revenue from sale of yoghurt		
Total Revenue from Agrovet		
Total Revenue from AI services		
Total Revenue from Animal Health Services		
Other revenues		
Other Revenues		

Membership As at the month of project start

Item	Male XX	Female XX	Youth XX	Total XX
Total Registered Members				
Active members supplying milk (Registered members)				
Total Paid up Members (shareholders)				
Total Paid up capital shareholding)				
Value of 1 share				
Main source of energy for the hub (solar, biogas, hydroelectric etc.)				

Membership As at the month of August 2021

Item	Male XX	Female XX	Youth XX	Total XX
Total Registered Members				
Active members supplying milk (Registered members)				
Total Paid up Members (shareholders)				
Total Paid up capital shareholding)				
Value of 1 share				
Main source of energy for the hub (solar, biogas, hydroelectric etc.)				

Board Composition for the cooperative

Position	Gender of Position Holder	Age Cohort	Number of Years in the position
		A. 18-35. B. >35-50. C. >50-60; D. < 60	

Governance and Institutional Sustainability**Key cooperative Documents**

Description	1= Developed 2= Developed and being implemented 3= Developed but not implemented 4= Not Developed
Extension Strategy	
Milk procurement plan	
Strategic Plans	
Business Plans	
Training Curricula	
Milk marketing and promotional Plans	
Health and Safety Policy	
Finance Policy and Manual	
Procurement Policy	
Human Resource Policy	
Remuneration Policy	

PROJECT STAFF

INTRODUCTION

Hello, my name is David, and I work for a research firm called **Environomica Consulting on** behalf of FONDAZIONE AVSI – AVSI. Today we are interviewing you, in order to better understand how the **MAZIWA (LATTE)– IMPROVEMENT OF DAIRY AND SUPPLY CHAIN COOPERATIVES IN MERU COUNTY, KENYA PROJECT**. This discussion will take around 1 Hours of your time and will help in future programming. While there is no direct compensation for this, your responses would be greatly appreciated.

Staff Name	
Date of KII	
Location	
Length of KII (start/end time)	

- Tell me more about the Maziwa Project. What was your specific role in the implementation of the project?
- Did you serve during the whole project term or just for part of it?
- Did anything change during implementation? What were the strategic changes that the project had to make in the implementation to achieve its expected results?

Relevance:

1. How were the beneficiaries/Cooperatives selected? What informed the selection criteria?
2. How relevant proved to be the 5 result areas (Increased production, Storage capacity, Management and trade skills, System coordination and Renewable energy) of the project and its design to the needs of the target areas in the changing environment?
3. How was the project implementation relevant to the strategic objectives of your organizations and that of Meru County, national and international policies? (Meru development plan, Vision 2030, SDGs)
4. Was the project implemented with a gender sensitivity lens?

Effectiveness:

5. What interventions in each of the results areas was the project able to implement? How effective were they in achieving the project objectives? (Increased production, Storage capacity, Management and trade skills, System coordination and Renewable energy)? Which ones had the highest success rate?
6. What are the main challenges the project has faced that have constrained the achievement of the expected outcomes?
7. How effective was the external monitoring system for an adaptive management of the project? What changes took place as a result of the MTE recommendations?
8. How effective was your data management system? How fluent was the information and data flow from the field through the officers to the management team and vice versa? What were the key challenges in the monitoring of the project?
9. What would you change to make the project more effective in a future intervention?

Sustainability:

10. Who were the partners you worked with either directly or indirectly in the implementation of this project? What role did they play? How did they contribute to project efficiency and effectiveness?
11. What were the challenges you faced in the establishment and management of these partnerships? How did you address these challenges?
12. What systems were in place for the engagement of the stakeholders at the ward, sub-county and county level? How effective were these systems?
13. How did this project synergise with other similar projects on the target area?
14. What were the three key learnings from this project that can be used for scaling up and replication in other locations?
15. How was the exit strategy of the project implemented? Who will cater for the sustainability of the instruments created with the project in its aftermath? Do these actors have the capacity to live up to such expectations all other factors being equal?

Efficiency:

1. What systems were in place to ensure value for money, efficient allocation of staff and monitoring of staff activities in the field towards the intended outcomes?
2. What were the internal and external factors that affected the project implementation the most? How did you face these challenges?
3. How did COVID19 affect the delivery of the project activities on the target areas? How did the organization and the project partner navigate through the COVID19 challenges?

KII – PARTNERS – GOK/NGO

INTRODUCTION

Hello, my name is _____ and I work for a research firm called **Environomica Consulting on** behalf of FONDAZIONE AVSI – AVSI. Today we are interviewing you, in order to better understand how the **MAZIWA – IMPROVEMENT OF DAIRY AND SUPPLY CHAIN COOPERATIVES IN MERU COUNTY, KENYA PROJECT**. This discussion will take around 1 Hours of your time and will help in future programming. While there is no direct compensation for this, your responses would be greatly appreciated.

Would you be interested in participating in a survey in order to provide information crucial for future aid programs in this area? Yes (1); No (2)

Staff Name	
Date of KII	
Location/Cooperative	
Location of FGD/Ward	
Length of FGD (start/end time)	

GUIDING QUESTIONS**Relevance:**

1. Were you aware of the Maziwa – Improvement of Dairy and Supply Chain Cooperatives Project being implemented by AVSI? What were the main challenges that this community faced before this project? How did the project tackle these challenges? Are there any challenges left to be addressed or new ones that arose over the course of the project?
2. What was your organization's specific role in the implementation of the project? What was your position within the organization with regard to the project?
3. How relevant were the 5 result areas (Increased production, Storage capacity, Management and trade skills, System coordination and Renewable energy) of the project and its design for the needs of the community and for the objectives of your organization?
4. How relevant were the intervention, especially the 5 result areas to the implementation of the CIDP, Kenya Vision 2030, and Big 4 Agenda?
5. Was the project implemented with a gender sensitivity lens?

Effectiveness:

1. Do you think the livelihoods (Food security, Incomes and Nutrition) of the beneficiaries have changed due to this project? what were some of the specific changes what do you attribute this to (why)?
 2. What are the main challenges the project has faced that have constrained the achievement of the expected outcomes?
 3. *For the partners only:* Regarding the role of your organization in the project, how effective was your data management system? How fluent was the information and data flow from the field through the officers to the management team and vice versa? What were the key challenges in the monitoring of the project on your side?
 4. *For GoK only:* did you receive regular progress report from AVSI? How often?
5. What would you change to make the project more effective in a future intervention?

Sustainability:

1. Which other projects are currently being implemented on the target areas? Do you think the project collaborated effectively with these programs?
2. The project involved AVSI and your organization and others working together. From your perspective how do you feel that collaboration worked in practice? What were the challenges you faced in these partnerships? How did you or AVSI address these challenges?
 3. What were the three key learnings from this project that can be used for scaling up and replication in other locations?
 4. How was the exit strategy of the project implemented? Who will cater for the sustainability of the instruments created with the project in its aftermath? Do these actors have the capacity to live up to such expectations all other factors being equal?

Efficiency:

5. Has the partnership strategy with your organization and its implementation proved to be the most efficient option compared to alternatives?
6. What were the internal and external factors that affected the project implementation the most? How did the project face these challenges?
7. How did COVID19 affected efficiency of the delivery of project activity delivery on the target area? How did the government COVID19 guidelines affect the efficiency in project implementation? How did your organization support dairy farmers to become resilient to the COVID19 pandemic?

FGD - MEMBERS OF THE COOPERATIVES

INTRODUCTION

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Date of FGD	
Cooperative Name	

Relevance:

1. What were the key challenges which you faced before the project? How has the project tackled these challenges? What are the key challenges now? (Production, access to market, access to renewable energy)

Effectiveness:

2. Looking at the five key result areas, (Increased production, Storage capacity, Management and trade skills, System coordination and Renewable energy) How has the project improved your operations (Productivity, market, access to renewable energy)
3. Do you think the project activities tackled effectively challenges faced by women, youth and men? What were the main successes?
4. Do you think this project has improved your relationship with the cooperatives? How has it changed, which areas have changed?
5. What were in your opinion the main strengths and challenges of the project (what worked and what did not)?
 6. What would you change to make the project more effective in a future intervention?

Sustainability:

1. What trainings did the project deliver to you? Which ones were the most important to you? What are the areas where you feel you would need more training? Will any government entity deliver these trainings to you?
2. How effective has been the promotion of renewable energy at your households? In terms of cost? Efficiency? Cleanliness? Health? To what extent has the environment improved due to this action?
3. Do you think household nutrition (Food secure months, HDDS) has improved with the project? What has contributed to this? How effective were the kitchen gardens?
4. What new business if any have you started, recently in the past 3 years? Who are the groups who have started the most businesses (Women, Men, Youth)
5. How do you rate access to credit within this community? Has it improved over the 3 years? What is your rating in 1-10? What are still the challenges

Efficiency:

1. What were the challenges that were affecting your farm operation efficiency? What has the project done to improve on your farm operation efficiency?
2. How many of you keep farm records (Count and get the %). Ask why they keep/don't keep records? Anyone who does farm planning?
3. How has COVID19 affected your farm operations? Which areas has the pandemic affected most? How has your yearly income changed during the pandemic?
4. Has this community received any support from other organizations during the COVID19 pandemic? What support were they?

5. What is your general rating on the value of the project? On a scale from 1 to 10, how many points would you give the project? (10 is the higher and 1 is the lower score). Explain your score