Ministero degli Affari Esteri
e della Cooperazione Internazionale

2025 | Evaluation Report Summary

Impact Evaluation - Kenya

“Maziwa, Improvement of Dairy Value Chain Cooperatives in Meru County, Kenya”

AID 11510

Action Research for Co-development

Action Research for Co-development (ARCO) is a research centre established in 2008 at the PIN Foundation, Prato Campus, University of Florence. The ARCO team is organised into six strategic units: Monitoring & Evaluation (M&E) and Impact Evaluation, Local Development, Inclusive Development, Social Economy, Circular Innovation, and Behavioural Insights. These units work in close synergy to provide research services, qualified consultancy, and training.

ARCO's mission is to offer scientific and strategic support to organisations engaged in projects that yield a positive social impact. With over ten years of experience in monitoring, evaluation, and impact assessment of international cooperation projects and programmes, ARCO is strengthened by rigorous research and training activities.

ARCO at PIN Foundation, Prato Campus, University of Florence

Piazza dell'Università, 1

59100 Prato (PO), Italy

Tel: +39 0574 602561

Email: info@arcolab.org

Website: https://www.arcolab.org/

LinkedIn: arco lab

Facebook: @ARCOcentre

Instagram: @arco_lab

This Impact Evaluation was commissioned by Office III of the Directorate General for Development Cooperation of the Italian Ministry of Foreign Affairs and International Cooperation to Fondazione PIN through a direct award procedure, pursuant to Art. 50 of the Public Procurement Code.

The Impact Evaluation Report was prepared by Linda Terenzi, with support from Tommaso Iannelli, Elena Banda, Leonardo Borsacchi, Caroline Kawira, Ashagrie Zewdu, and the coordinator of the ARCO M&E and Impact Evaluation Unit, Marta Russo.

The evaluation exercise officially commenced on May 16, 2025.

TABLE OF CONTENTS

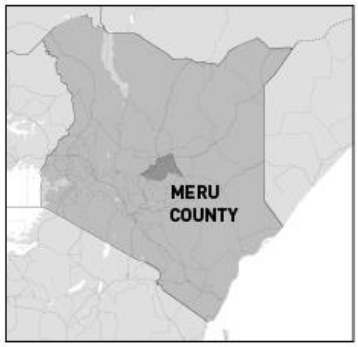
ACRONYMS

AICS	Italian Agency for Development Cooperation
ASDSP	Agricultural Sector Development Support Program
CMT	California Mastitis Test
CSO	Civil Society Organisation
DAC	Development Assistance Committee
DGCS	Directorate General for Development Cooperation
ER	Expected Result
FGD	Focus Group Discussion
FHF	Farmers Helping Farmers
GDP	Gross Domestic Product
IPSIA	Institute for Peace, Development, and Innovation Acli
HR	Human Resource
KBNS	Kenya National Bureau of Statistics
KDB	Kenya Dairy Board
KEBS	Kenya Bureau of Standards
KES / KSh	Kenyan Shilling
KII	Key Informant Interview
M&E	Monitoring and Evaluation
MAECI	Ministry of Foreign Affairs and International Cooperation
MEAL	Monitoring, Evaluation, and Learning
MoU	Memorandum of Understanding
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PIP	Multiannual Indicative Plan
RBM	Result-Based Management
SDG	Sustainable Development Goal
SME	Small and Medium-Sized Enterprise
ToC	Theory of Change
VNO	Non-Burdensome Variants
VSLA	Village Savings and Loans Association

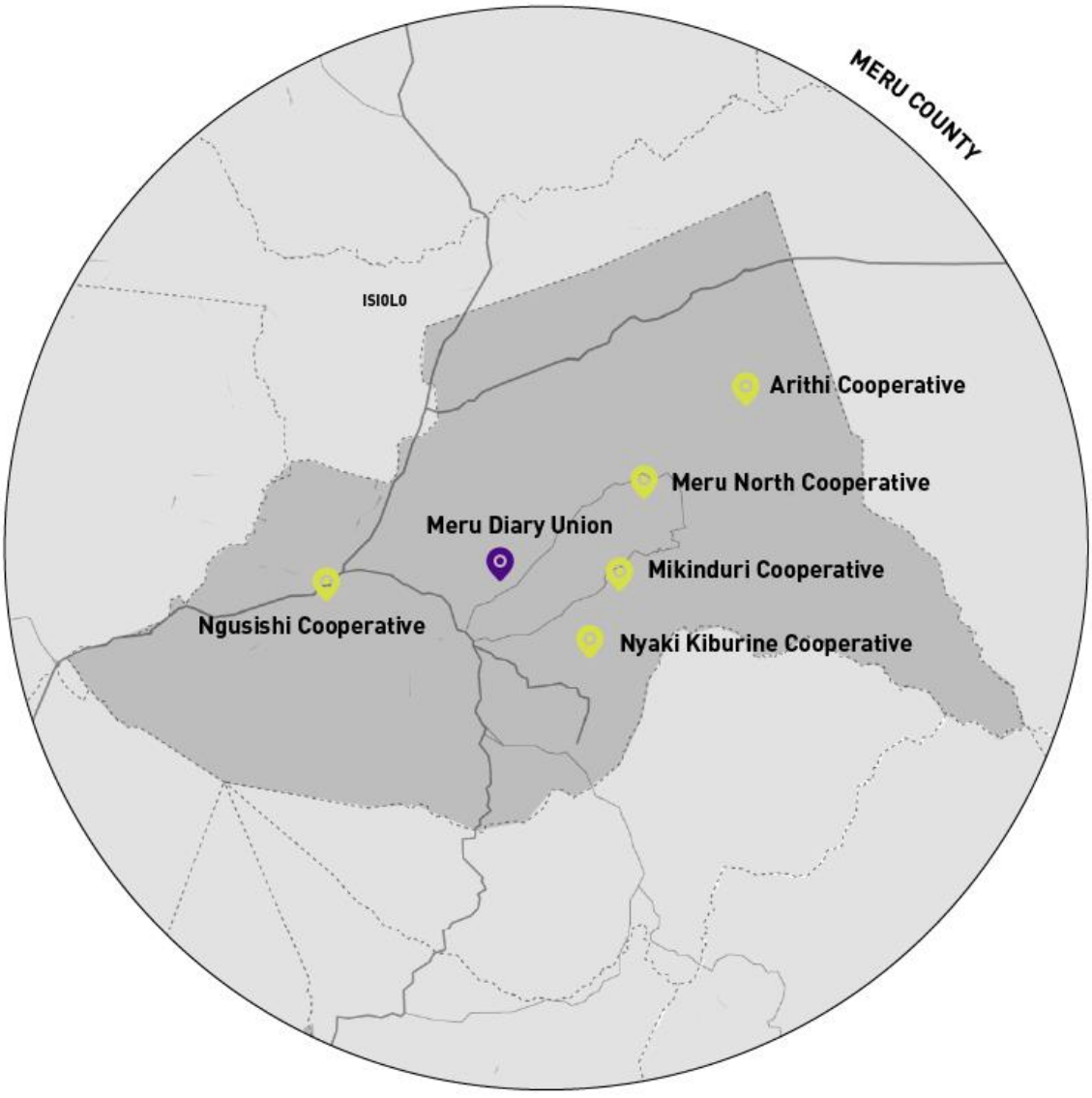
1 LOCATION AND DESCRIPTION OF INTERVENTION

The initiative “Maziwa - Improvement of Dairy Value Chain Cooperatives in Meru County” (hereafter “Maziwa”), Kenya AID 11510, was implemented between April 2018 and September 2021 by a partnership composed of Fondazione AVSI, IPSIA, the Municipality of Padua, EDUS, the Meru County Government, and the Don Bosco Association. The project involved five dairy cooperatives located in five sub-counties of Meru County, intending to contribute to food security, improve nutrition, and promote sustainable agriculture (general objective) through the enhancement of management and production systems of dairy producer cooperatives in Meru County (specific objective).

Cooperative	Sub County
Arithi Cooperative	Igembe North
Meru North Cooperative	Tigania East
Mikinduri Cooperative	Tigania Central
Ngusishi Cooperative	Buuri West
Nyaki Kiburine Cooperative	Imenti North



KENYA



To trigger these long-term changes, Maziwa worked on five action areas:

ER1: Improved milk production and quality

ER2: Improved capacity for processing and preserving milk and dairy products at the producer/cooperative level

ER3: Enhanced management, savings, marketing, and trade capacities of cooperatives

ER4: Strengthened coordination and networking systems for producers and cooperatives

ER5: Increased use and awareness of renewable energy production systems

Project Title	Maziwa, Improvement of Dairy Value Chain Cooperatives in Meru County, Kenya		
Project Code	AID 11510		
Type	Donation – CSO Promoted Project – 2017 Call		
Country	Kenya		
Region	Meru County Sub-counties: Igembe North, Tigania East, Tigania Central, Buuri West, Imenti North		
Implementing Agency	Fondazione AVSI		
Local Counterpart	Meru County Government (Department of Agriculture)		Don Bosco Association
Partners	IPSIA - Istituto Pace, Sviluppo, Innovazione Acli	EDUS – Educazione e Sviluppo – Trento	Comune di Padova
SDGs	SDG 2 (T.2.4)	SDG 8 (T.8.2)	SDG 10 (T.10.1)
Start Date	1 April 2018	**End Date**	30 September 2021 *(with 6-month extension)*
Total Cost	€ 1,845,596.62	**AICS Contribution**	€ 1,661,036.96
		% AICS Contribution	90%
Beneficiaries Reached	5 dairy cooperatives	2,863 farmers	423 cooperative leaders 165 Meru County Government staff
Non-Costly Variants (NCV)	**VNO 1 year**	Changed a target cooperative (Kibirichia in Mikinduri instead of Solidarity House)	
	VNO 2 year	3 months extension.	
		Moved budget lines from year 2 to year 3	
	VNO 3 year	3 months extension	

2 CONTEXT

2.1 Country Overview

Defined by the World Bank as a **low-middle-income** country, Kenya is the sixth-largest economy in Africa, with a Gross Domestic Product (GDP) of USD 124.5 billion and an annual growth rate of 4.7% (KNBS, 2025). The country's economy comprises agriculture, forestry, and fishing, contributing 22.5% of GDP; industry, 16.5%; services, 55.3%; and other activities, 5.8% (KNBS, 2025).

In recent decades, Kenya has undergone significant **institutional changes,** initiated with the adoption of the new Constitution (2010), which includes a decentralised governance system that grants greater powers and responsibilities to the 47 counties.

Kenya's population is **young, with a** median age of 20, with over 80% of the population under 35. This demographic structure suggests a possibly rapid population growth in the coming years. If appropriately harnessed and equipped with the requisite skills, the youth workforce could represent an important lever for the country's economic development (Kenya Vision 2030, 2021). However, Kenya is classified as a "low youth development" country according to the Youth Development Index, and this demographic profile could become a "ticking time bomb": each year, around 800,000 young people enter the labour market, but youth **unemployment** remains four times higher than the national rate, making it a crucial public policy issue (Kenya Institute for Public Policy Research and Analysis, 2024). Many young people face unemployment, a mismatch between acquired skills and labour market demands, and a lack of entrepreneurial capacity, all of which hinder their contribution to sustainable and transformative development (Okello and Iberi, 2023; National Council for Population and Development, 2017).

Political and economic reforms implemented over the past decade have supported economic growth, social progress, and greater political stability. However, significant development **challenges** persist: 46.4% of the population lives below the poverty line of USD 3 per day, the Gini Coefficient stands at 38.7%, indicating notable social inequalities, while youth unemployment, scarcity of quality jobs, and a lack of transparency and accountability in institutions continue.

Although Kenya's economic outlook is generally positive, the country continues to face high levels of uncertainty, particularly due to unmet fiscal consolidation goals, debt vulnerability, inflationary pressures, and food insecurity. Added to this are recent international geopolitical tensions and the resulting increase in commodity prices. Further, Kenya is highly exposed to **climate-related risks**, ranking 51st among the most vulnerable countries, while its capacity to respond to climate shocks is limited, as indicated by its 157th position in readiness (ND-GAIN Country Index Rank, 2023).

Classification	**Lower-Middle income group** World Bank, 2024
Total Population	56.432.944 World Bank, 2024
Land Area	582.646 Sq. Km KNBS, 2024
GDP (Current USD)	124.5 billion World Bank, 2024
GDP Growth (Annual %)	4,7% KNBS, 2025
GDP per Employed Person (Constant Prices, PPP 2021)	14.613 World Bank, 2024
Inflation Rate (% as of June 2025)	3,8% KNBS, 2025
Total Unemployment (% of Labour Force)	5,4 % World Bank, 2024 on estimation ILO
Formal Employment	16,4% (3,4 m) KNBS, 2025
Informal Employment	83,6% (17,4 m) KNBS, 2025
Multidimensional Poverty Incidence (National)	0,113 OPHI, 2024
Poverty Incidence at $3/day (PPP 2021)	46,4% World Bank, 2021
Poverty Incidence According to the National Threshold	38,6% World Bank, 2021
Gini coefficient	38,7% World Bank, 2021
Human Development Index (HDI)	0,628 UNDP, 2023
Youth Literacy Rate (% Aged 15–24)	96% World Bank on UNESCO, 2022 data
Youth Development Index	0.673 (low) Commonwealth, 2022
Prevalence of Undernutrition (% of Population)	17,6 World Bank on estimation UNICEF, WHO, World Bank, 2022
Prevalence of Severe Food Insecurity in the Population (%)	28,0 World Bank on FAO, 2022 data
Country Ranking in the ND-GAIN Index	Vulnerability: 0.500 Readiness: 0.261 ND GAIN, 2023

2.2 Dairy sector overview

Dairy Sector's Contribution to GDP	4.5% KDB, 2024
Average Production of the Formal Sector	908 million litres KDB, 2024
Average Production of the Sector, Formal Meru sector, formal MERU	464 million litres Estimations KBD, 2024
Quantity of Milk and cream imported	67,335 tonnes TradeMap, 2024
Rejected Product (%)	1.51% KDB, 2024
Dairy Cattle Stock	5.02 million State Department of Livestock Development, 2023
Average Production per cow per day	9 litres KDB, 2024
Average Gross Value of Milk per litre	46 KSh KDB, 2024
Average Total Production Cost of 1 Litre of milk	36.2 KSh KDB, 2024
Number of Dairy Cooperatives	670 KDB, 2021
Number of Production Plants	32 large plants 186 small-medium USDA, 2024

Kenya's dairy sector is among the most advanced in Africa and ranks as the continent's second largest in herd size (after Ethiopia). The industry is steadily expanding, with an estimated annual growth rate of 3–4%. A key component of the national economy, the dairy value chain contributes approximately **4.5% to the national GDP**, 14% to agricultural GDP, and 44% to the livestock sub-sector GDP (Kenya Dairy Board, 2024). Despite this, Kenya is not a net exporter of milk and relies on imports of fresh milk and cream from Uganda to meet domestic demand.

The sector supports approximately **1.8 million smallholder farming households,** providing direct employment to around 750,000 people, with an additional 500,000 engaged in related activities.

Milk production is primarily driven by smallholder farmers organised into cooperatives, who contribute about 80% of the country's milk output. These farmers typically own between one and five cows and produce an average of 7.6 litres of milk per cow per day.

The sector includes both **formal** and **informal** segments, with the latter accounting for approximately 45% of milk sold, according to Kenya Dairy Board estimates. The formal sector produces, on average, over 700 million litres of milk, placing Kenya among the largest dairy producers in Africa and giving it one of the highest per capita milk consumption rates on the continent. Milk production in Kenya has generally trended upward between 2019 and 2024, despite some fluctuations, with the sector regaining momentum from 2023 onwards.

The sector is crucial for national **food security**, accounting for over 7% of total caloric intake. However, notably, milk sold informally can pose public health risks, as it is not subject to production, storage, and transport inspections.

The dairy industry faces a range of **complex challenges** that must be addressed to evolve the sector into a more specialised and market-oriented model, including limited access to quality inputs and technologies, poor feed quality, inadequate animal genetics, low yields due to post-harvest losses, and weak market integration. Additionally, structural factors limit growth opportunities for small producers: the fragility of small and medium enterprises, insufficient infrastructure for milk collection and cooling, seasonal variability in milk production, underutilisation of processing capacity, disengagement of youth from the dairy sector, and increasing climate-related risks.

3. EVALUATION SCOPE AND OBJECTIVE

3.1 Evaluation Objective and Purpose The impact evaluation of the Maziwa initiative is being conducted approximately four years after the conclusion of the project. The general objective is to analyse the changes generated by the intervention in the medium term, focusing on the results achieved and the impacts recorded among the main beneficiaries and stakeholders in Meru County, as well as to understand the extent to which such changes can be attributed to the project's actions.

This study aims to evaluate the aid effectiveness of the initiative vis-à-vis the project's five expected results, using the OECD DAC (2019) criteria as a reference. It will analyse the **relevance** of the intervention, the internal coherence of the Theory of Change (ToC) and the partnership, the external **coherence** with local, national, and international policies, the **effectiveness** of the actions undertaken, the **efficiency** in the use of human and financial resources, and the governance mechanisms and decision-making processes. Further, it will assess the **sustainability** of the results over time—from social, economic, technical, institutional, and environmental perspectives—and the long-term changes generated by the project, with particular attention to the social, economic, and environmental **impact** on beneficiaries and the territory. The evaluation will also analyse the impact generated by the agricultural, livestock, and economic development model promoted by Maziwa, to assess its potential for replicability. Finally, the evaluation pursues three purposes: accountability, learning, and empowerment.

3.2 Methodology and Information Sources

The evaluation adopts three complementary approaches: **theory-based**, **results-based**, and **gender-sensitive**. The evaluator also applied mixed research methods, both qualitative and quantitative, to triangulate the data collected and provide a more detailed picture of the effects analysed. The main methodological elements include the analysis of project documentation, desk research, contribution analysis (Mayne, 2001; 2012), and market and value chain analysis. The central tool of the evaluation analysis is the ToC, reconstructed at the start of the evaluation through the analysis of the Logical Framework, project documents, and internal and external evaluation reports. The ToC was then tested and validated during the primary data collection, updated, modified, and finalised based on the evidence gathered, to illustrate Maziwa's contribution to change, in line with the contribution analysis approach.

The primary data collection tools, designed to address the evaluation questions, were administered during the field visit by the Team Leader and the Local Expert, carried out between June 30 and July 24, 2025. The triangulation of the data collected enabled comprehensive information on the project, combining the different perspectives of stakeholders and beneficiaries. Particularly, the evaluation employed the following tools:

- 13 semi-structured interviews – partners
- 15 semi-structured interviews – local and international institutions and stakeholders
- 10 case study interviews with cooperatives
- 10 structured focus group discussions with 98 farmers
- Direct observation: 5 cooperatives, 11 farmers, 3 collection centres, and project sites.

4 PRESENTATION OF FINDINGS

This section presents the results of the impact evaluation. Section 4.1 provides an analysis of the five project beneficiary cooperatives, detailing findings from direct observation and the collection of stories from the cooperatives and their member farmers. Section 4.2 then presents the results organised according to the evaluation criteria.

4.1 Assessment of the cooperatives

Currently, the five cooperatives are still operational and, compared to 2021 (the year the project ended), have increased their membership by 11%, reaching a total of 3,394 members, of whom 1,345 are active in daily milk supply. Each active member provides an average of 7.6 litres of milk per day (compared to the 5.2 litres average in 2021), earning approximately 380 KSh per day, with a monthly average of 11,400 KSh. There has also been an increase in the average number of cattle per family, from 1.8 to 2.3. Among the most significant impacts is the improvement of facilities: the cooperatives have moved from temporary rented premises to a permanent office, enabling better organisation of daily activities and product processing (although none of the processing plants are currently operational).

Table 1: Information on the Five Cooperatives, 2021 and 2025

COOPERATIVE	YEAR	Total Members	Active Members	Average Litres of milk collected	No. of Milk Collection Centres	Average No. of cattle
Ngusishi	**2025**	**700**	**350**	**3,600-4,000**	**13**	**2.7**
	2021	518	370	3,300	12	2.5 (*)
Nyaki Kiburine	**2025**	**400**	**203**	**900**	**13**	**2.3**
	2021	600	230	580	14	1.7 (*)
Mikinduri	**2025**	**700**	**400**	**2,200**	**11**	**2.4**
	2021	400	230	1,100	7	1.0 (*)
Meru North	**2025**	**474**	**272**	**1,966**	**10**	**2.2**
	2021	399	309	1,200	8	1.5 (*)
Arithi	**2025**	**1,120**	**120**	**500**	**10**	**1.6**
	2021	1,118	110	300	10	2.2 (*)

(*) Data reported by farmers during the FGD in the impact evaluation.

Source: Authors' elaboration based on the impact evaluation data (2025) and the external final evaluation data (2021).

4.1.1 NGUSISHI COOPERATIVE

NGUSISHI COOPERATIVE

Established in 1978, the cooperative ceased operations due to several issues and was reorganised in 2014 through the merger of three different cooperatives.

It is a member of the Meru Dairy Union.

Current number of active members: 200, with a production capacity of 3,600–4,000 litres per day.

DIRECT OBSERVATION

The cooperative's facilities, flooring, and machinery appear suitable for carrying out efficient milk collection activities. A solar power system has been installed, although it is undersized relative to the energy needs of the machinery.

The machinery available includes a batch pasteuriser, packaging machine, cap sealer, milk cooler, cold storage room, refrigerators, milk cans, weighing scales, processing table, laboratory, efficient drainage system, external refrigeration unit, milk jug, and cooling tank.

All machinery is in good condition, but is currently not in use due to issues related to the lack of a stable electricity supply.

VALUE ADDED AND MAZIWA'S CONTRIBUTION

Among the most significant impacts is the improvement of the infrastructure: the cooperative has moved from temporary rented premises—subject to frequent relocations—to a permanent office, enabling better organisation of daily operations.

The increase in the number of members has led to higher milk production, enabling the cooperative to expand the services offered to its members. The management and governance system has also been strengthened thanks to annual democratic elections for leadership roles and participatory general assemblies.

Training has improved managerial skills.

Members have also benefited from more appropriate equipment, transitioning from plastic containers to aluminium milk cans, which are more suitable for milk collection.

Lastly, in investment decisions—such as purchasing milk ATMs—the cooperative relied on technical support from the Maziwa team.

OTHER CONTRIBUTIONS

Besides the Maziwa project, the cooperative receives support from:

- Meru Dairy Union: for training, technical services, milk collection, etc.
- Farmers Helping Farmers: for training, biogas systems, and water tanks.

4.1.2 NYAKI KIBURINE COOPERATIVE

NYAKI KIBURINE COOPERATIVE

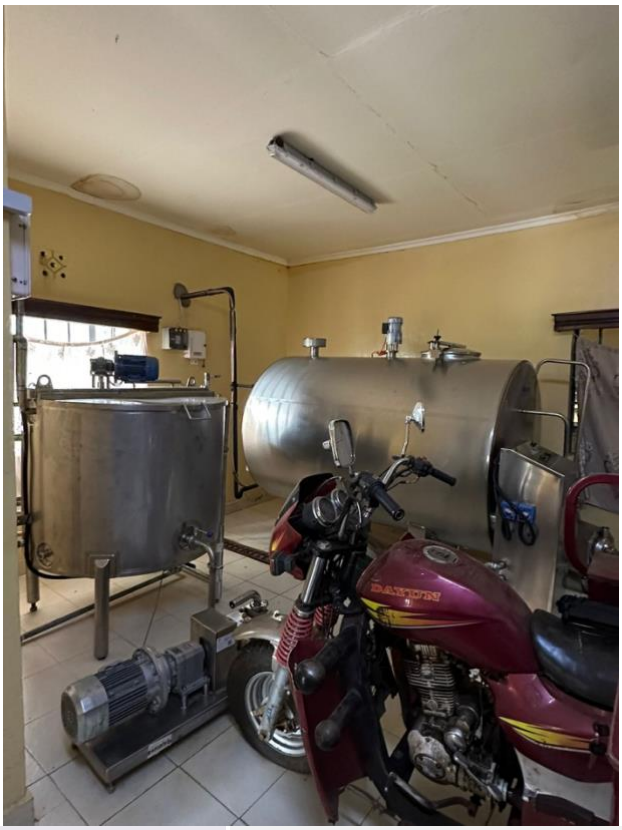
Created by the Maziwa project in 2018, the cooperative started with 130 members. Today, it has 400 members, of which 203 are active.
Member of the Meru Dairy Union. The Secretary and the milk collection truck are provided by the Union.
Current number of active members: 203, with a production capacity of 900 litres per day.

DIRECT OBSERVATION

The cooperative's structures, floors, and machinery are present, although the machinery and laboratory are currently not in use.

Available equipment includes a batch pasteuriser, packaging machine, cap sealer, milk cooler (never used and never tested), cold room, two refrigerators, milk cans, scales, processing table, lab area, drainage system, external refrigeration unit, cooling tank, and a separate room for storing dairy products.

The connection to the Kenya Power electricity grid was completed at the end of the Maziwa project. The existing solar power system is connected to the milk cooler, but both are currently not in use.



VALUE ADDED AND MAZIWA'S CONTRIBUTION

Maziwa created the cooperative from scratch, mobilising people to form an association, building trust, and developing governance capacities, all required time.
During the construction phase, there were numerous delays, including the connection to the electricity grid, and the machinery was delivered only at the end of the Maziwa project.

Consequently, the mere fact that the cooperative still exists and is operational four years after the project's end already represents a significant achievement, despite the low quantity of milk produced and collected by members, and the fact that the equipment remains unused.

OTHER CONTRIBUTIONS

Besides the Maziwa project, the cooperative receives support from the Meru Dairy Union, particularly through the provision of a secretary and milk collection services.
No other organisations are currently involved.

4.1.3 ARITHI COOPERATIVE

ARITHI COOPERATIVE

Created by the Maziwa project in 2018, the cooperative originated from an informal group of about 15 people, thanks to the mobilisation of the partner Don Bosco Association. Today, it has 1,120 members, 120 of whom are active, with a production capacity of 500 litres.

It is not a member of the Meru Dairy Union. The cooperative sells raw milk to small businesses and local consumers.

DIRECT OBSERVATION

The cooperative's facilities and machinery appear overall in good condition and suitable for milk collection and processing activities. A solar system is available, used to power the cold room and meet the office's electrical needs.

Available machinery includes pasteuriser, collection tank, packaging machine, cap sealer, cooler, cold room, refrigerators, milk cans, scales, processing table, laboratory, efficient drainage system, external refrigeration unit, milk buckets, cooling tank, as well as laboratory equipment such as a lactoscan, Kerba test for mastitis, graduated cylinder, and alcohol test gun, along with a computer and printer. Currently, the cold storage room and the scales are in use, but not the cooler and the processing machines, due to the limited milk collection capacity. The staff, consisting of the secretary, manager, and his assistant, is trained and able to operate the machinery correctly.

VALUE ADDED AND MAZIWA'S CONTRIBUTION

The cooperative started as an informal group, thanks to the mobilisation of the partner Don Bosco Association. In the area, miraa (khat) cultivation is predominant; however, due to its declining economic relevance, many families are shifting to the dairy sector. The project provided the structure and formal registration of the cooperative, and now 120 active members supply milk to the local market. Eleven people are employed at the milk collection centres and for milk transportation, and 2 as the secretary and assistant. Most of the machinery is currently not in use, although there is a strategic plan for its utilisation.

OTHER CONTRIBUTIONS

Besides the Maziwa project, the cooperative has received visits and support from:

- The Kenya Dairy Board, which provided practical guidance on home pasteurisation of milk in case of surpluses.
- In March 2025, LEAMINGTON AFRICA provided training for farmers.
- In 2024, AVSI, together with ENI and SAFA, promoted castor cultivation, providing seeds, training, and purchasing the oil produced.

4.1.4 MERU NORTH COOPERATIVE

MERU NORTH COOPERATIVE

The cooperative existed when the Maziwa project arrived, but was in crisis: in 2017, it had 57 members delivering 100 litres of milk per day. It now has 272 active members and collects 1,966 litres daily. Member of the Meru Dairy Union.

DIRECT OBSERVATION

The cooperative's facilities and machinery appear to be in generally good condition, with mostly new milk processing equipment. Available machinery includes batch pasteuriser, packaging machine, cap sealer, two coolers (one with a water heating/cooling system currently not functioning), receiving tank, cold room, refrigerators, milk cans, lactoscan with cleaning supplies, scales, processing table, laboratory, drainage system, external refrigeration unit, milk bucket, cooling tank, as well as spaces dedicated to specific functions. Despite availability, most of the equipment is not operational due to difficulties related to water supply and the lack of solar or adequate electrical systems.

VALUE ADDED AND MAZIWA'S CONTRIBUTION

The Maziwa project built some of the facility's rooms, located on land that belonged to the cooperative. Among the main effects of the project are a significant increase in milk collection, increased member trust, and more consistent milk deliveries, with a very low rejection rate thanks to improved practices. Initially, the cooperative had few members and only one collection centre, while today it manages more than ten. The project also provided a motorcycle to facilitate milk transport from more remote areas, built the office with furniture, and trained members on how to produce Mala and yoghurt. A digital record-keeping system was introduced, ensuring transparency in payments.

The cooperative now generates monthly profits after covering all expenses and has contributed to the creation of both direct and indirect jobs.

However, challenges remain, such as high electricity costs and water scarcity.

OTHER CONTRIBUTIONS

Besides the Maziwa project, the cooperative receives support from the Meru Dairy Union, particularly through milk collection activities.

4.1.5 MIKINDURI COOPERATIVE

MIKINDURI COOPERATIVE

Maziwa supported the creation of the cooperative, registered in 2018, starting from 3 informal groups.
Currently, the cooperative has 400 active members and collects about 2,200 litres of milk per day.
It is a member of the Meru Dairy Union, to which it delivers all the milk collected.

DIRECT OBSERVATION

The cooperative's facilities and equipment are adequate for milk collection and management activities, although there is no processing plant, as the cooperative requested facilities for animal feed production.
Available machinery and tools include a cooler (currently not in use), milk containers, scales, an external refrigeration unit, equipment for milk testing (lactometer, alcohol gun, lactoscan), a building for feed production and a meeting room, a solar system, and a motorcycle used for transporting milk from the collection centres.

VALUE ADDED AND MAZIWA'S CONTRIBUTION

Maziwa created the cooperative starting from informal groups, built the cooperative's infrastructure, and provided training and machinery. Delays in electricity connection and depleted funds, which prevented the start of feed production, have posed a challenge. Nevertheless, a significant outcome is the existence of the cooperative, milk collection, and increased membership.
The Mik Induri cooperative was born with Maziwa, which transformed informal groups into a structured society, equipping it with land, infrastructure, equipment, and training. Maziwa enabled investment in feed production machinery. However, available funds covered only the purchase of equipment without the necessary materials, preventing start-up. Despite these challenges, the cooperative collects milk, distributes inputs, and has increased its membership.

OTHER CONTRIBUTIONS

Besides the Maziwa project, the cooperative receives support from the Meru Dairy Union, particularly through milk collection activities.
Thanks to Maziwa, the cooperative got started but now operates independently and has accessed other contributions promoted by other initiatives.

4.2 Assessment of the OECD DAC evaluation criteria

4.2.1 RELEVANCE

The extent to which the objectives and design of the intervention have addressed the needs and priorities of the country, beneficiaries, partners, and institutions, including their ability to remain relevant amid changing contexts and circumstances

RELEVANCE TO THE CONTEXT AND THE BENEFICIARIES' NEEDS

The dairy sector is strategic for millions of small producers and for food security. The project was designed based on prior knowledge of the county and a needs assessment that involved key beneficiaries, ensuring inclusion of their priority issues (limited access to quality inputs, post-harvest losses, weak cooperatives, lack of technical services, and limited processing). Although this analysis was limited in scope and conducted within a short timeframe to meet project submission deadlines, it still served as a valuable foundation for defining the project activities.

However, some of the proposed activities showed critical issues during the impact assessment. Particularly, the machinery supplied to the cooperatives (RA2 activities) is currently not being used. This can be attributed to several factors, such as the undersizing of solar systems compared to energy needs, the instability of the national electricity grid, the placement of the machinery without a proper analysis of the specific needs of each cooperative, as well as the lack of support from the Meru Dairy Union in initiating local production, perceived as competition. All this has highlighted the need for more accurate needs assessments tailored to each cooperative, thorough engineering studies, longer support periods, and greater involvement of the cooperatives in defining investments. Moreover, such projects require a much longer timeframe and more intensive support than the 36 months foreseen by the donor, to enable production consolidation.

BENEFICIARY SELECTION AND INCLUSIVITY

The project involved five dairy cooperatives, selected in collaboration with the Meru County Government for strengthening vulnerable and underdeveloped groups. Three cooperatives were formally established from scratch, while two existing cooperatives benefited from restructuring and governance interventions. Although there was no formal gender mainstreaming strategy, the project involved many women due to their role in the value chain, with awareness-raising measures and the collection of disaggregated data. Youth involvement was a secondary effect of some project activities, which could have been further strengthened through targeted actions, such as promoting youth cooperatives capable of providing structured services along the value chain.

RELEVANCE TO LOCAL INSTITUTIONS

The Maziwa project was launched with the support of, and in partnership with, the Meru County Government, which was involved from the planning phase and through the active participation of key institutions such as the Directorate of Cooperatives, the Kenya Dairy Board, and the Meru County Department of Agriculture. Thus, the project's objectives and the design of its activities also sought to respond to the concrete needs of these institutions.

However, structural limitations persist, particularly in the continuity of technical and veterinary services, due to the limited resources of the institutions. The experience suggests enhancing the role of cooperatives as service providers as well, to ensure greater sustainability and closer support for farmers.

ELEMENTS FOR OPTIMAL INVOLVEMENT OF INSTITUTIONS IN FUTURE INITIATIVES

- Involve institutions from the project design phase, collecting their needs.
- Identify a focal point for each institution and keep it regularly informed.
- Include institutional representatives in a steering committee to ensure open and transparent information sharing.
- Organise quarterly meetings with relevant institutions to provide updates on activity progress.
- Formalise roles, responsibilities, and mutual expectations through a Memorandum of Understanding (MoU).
- Share offices with county officers to ensure rapid and efficient communication.

4.2.2 COHERENCE

Compatibility of the intervention with other initiatives in the Kenyan dairy sector, implemented both by the Italian Cooperation and other stakeholders. The analysis covers the project implementation period as well as the current context.

COHERENCE WITH OTHER INITIATIVES

The Maziwa project was developed in full coherence with other Italian and international initiatives in Meru County, integrating with projects by AVSI and IPSIA, as well as with governmental and international partner interventions. Some partial overlaps were offset by complementarity and greater continuity of actions, while collaboration with the Meru Dairy Union ensured an improvement in the services provided. An important lesson from Maziwa was the need to ensure better coordination among different actors and interventions to avoid duplication and optimise resources. In response, AVSI's subsequent project, Agrifood Economic Recovery, established a **stakeholders' forum** including the Meru County Government, operational organisations in the county, the Livestock Directorates, Meru Dairy Board, Kenya Dairy Board, cooperatives, and AVSI to promote more structured and sustained collaboration.

ALIGNMENT WITH INTERNATIONAL POLICIES

In Kenya, international cooperation agencies from various countries operate, each with its own thematic priorities, alongside bilateral credit-based cooperation programmes. **Italy**, in the AICS **Three-Year Programming and Guidance Document**, outlines the strategy of Italian Cooperation for 2024–2026 with the objective of promoting sustainable development, equitable partnerships, and addressing the root causes of migration. Particularly, Kenya is included among the priority countries in the Horn of Africa. The common development priorities of the two countries are defined in the **Multi-Year Indicative Cooperation Plan (PIP) 2023–2027** ("Kenya-Italy Sustainable Development Partnership"). The Plan focuses on three areas, in line with Kenya Vision 2030: i) Training, employment, and entrepreneurship for youth and women, with attention to innovation in the agro-food, manufacturing, and fintech sectors; ii) Climate change adaptation and combating desertification; iii) Social and health services in vulnerable areas (urban informal settlements and arid zones), focusing on maternal and child health, sexual health, gender equality, and violence prevention. Maziwa is consistent with the priorities of Italian cooperation (agri-food development, inclusion and gender, value chains), and partly with European priorities on climate, innovation, and green energy, where it piloted experimental actions. Although the project's approach to climate-smart practices was limited, it contributed to food security and sustainable growth, in line with the EU Gateway.

COHERENCE WITH NATIONAL AND LOCAL POLICIES

Kenya's national strategy, **Kenya Vision 2030**, is promoted by the Government and implemented through medium-term development plans. The strategy is based on four priority pillars: i) Development of the manufacturing sector and job creation; ii) Social housing; iii) Universal access to health services; iv) Food and nutrition security. This national development plan aims to transform Kenya into an industrialised, middle-income country by 2030. To implement Vision 2030, Kenya has launched the **Medium-Term Plan IV 2023–2027**, adopting a multisectoral approach with objectives for inclusive economic transformation. The project **aligns with the objectives** of Kenya's Vision 2030, the Cooperative Act 2014, and the Kenya Dairy Sustainability Roadmap 2023–2033, which promote a modern and inclusive dairy sector. The Meru region, thanks to its local dynamism, has been strengthened as a strategic hub, with reinforced cooperatives and more accessible services.

COHERENCE OF THE PROJECT LOGIC

The reconstruction of the ToC confirmed that training activities for farmers (ER1), together with the strengthening of cooperatives (ER3), were crucial for achieving the project objectives and ensuring the sustainability of actions after project completion. The presence of a **functional market outlet**, represented by the **Meru Dairy Union**, enabled an effective supply chain. Conversely, efforts to establish a complete supply chain at the level of individual cooperatives through local processing plants (ER2) were unsuccessful due to the Union's opposition, problems with electricity caused by undersized photovoltaic systems (ER5), and the unreliability of the local grid, which is subject to frequent power cuts.

Areas for improvement emerged regarding water resource management, circular economy practices, and more structured climate-smart strategies, which could support further consolidation of the project logic.

4.2.3 EFFECTIVENESS

The degree of achievement of the initiative's direct and immediate results, considering any differentiated outcomes among the various beneficiary groups, the logic and coherence of the project design, and its overall validity.

ACHIEVEMENT OF RESULTS

The evaluation highlighted that all planned activities were implemented and the targets set for the project's indicators were achieved. Overall, the analysis shows that for each Expected Result, activities were completed according to the plan, and the output indicator targets met. However, medium-term effects are heterogeneous. Particularly, for Expected Result 2, related to milk processing and storage facilities, medium-term effects were limited, as the facilities were not yet operational at the time of the evaluation. Similarly, the effects associated with Expected Result 5, concerning the use and awareness of renewable energy sources, were not fully achieved.

ER	MAIN OUTPUTS AND OUTCOMES	LEVEL
ER1	Training 2,400 farmers. Procurement and distribution: 245 California Mastitis Test (CMT) kits; 1,080 milk cans; a total of 1,441 milk cans distributed to target farmers (capacities of 10, 15, 20, and 50 litres); 10 additional 50-litre cans delivered to each cooperative for milk transport.	**High**
ER2	Training 2,400 farmers and 50 milk collection point operators. Four new milk collection and processing facilities constructed (2,000-litre capacity each) in Mikinduri, Arithi, Kiburine, and Ngusishi; one facility in Meru North refurbished. Innovations introduced: initiation of milk quality testing at collection points (e.g. alcohol test, density measurement); cold storage cells for processed milk; training of cooperative members and staff in milk processing (e.g. yoghurt production). Facilities are not currently operational due to electrical issues, lack of testing, and delayed delivery of machinery during the project closure phase.	**Medium-low**
ER3	900 members trained in financial literacy, 1,800 in Village Savings and Loans Associations (VSLAs), and 2,400 in marketing strategies. 45 committee members trained in ICT and 45 cooperative managers in management. Technological equipment: 5 cooperatives provided with laptops.	**Medium**
ER4	Training: 423 board members participated in a workshop on management; 165 Meru County Government officials and district veterinarians were trained. Institutional equipment: the Departments of Agriculture, Livestock, and Cooperatives were each provided with two motorcycles. Awareness raising: 7,200 people sensitised on the nutritional value of milk.	**Medium**
ER5	Structural investments: purchase of land for 3 cooperatives, installation of 3 biogas plants, installation of 2 photovoltaic systems in 2 cooperatives, and installation of 5 solar thermal systems across the 5 cooperatives. Awareness raising and campaigns: 7,200 individuals sensitised on renewable energy topics, implementation of 3 dedicated awareness campaigns.	**Medium**

EFFECTIVENESS AND RESULTS-BASED APPROACH

The "AICS - OSC 2017" call did not explicitly require the adoption of a Results-Based Management (RBM) logic; consequently, the indicators proposed by the project focused primarily on output-level measurement. This approach enabled precise monitoring of the activities implemented, but did not provide a direct measure of the results and impacts generated.

Aware of the limitations of an output-only approach, AVSI initiated the collection of unplanned outcomes and impacts triggered by the Maziwa project (AVSI, 2021) through an internal evaluation that investigated the project's multidimensional secondary effects. The evaluator considers that adopting an outcome indicator system *ab initio* would have encouraged a more strategic and effectiveness-oriented approach, fostering continuous reflection on how planned activities genuinely contributed to improving the value chain and strengthening the cooperatives.

4.2.4 EFFICIENCY

The extent to which available resources were optimally allocated to achieve the project's results, both in terms of financial management and operational efficiency.

COMPOSITION, GOVERNANCE, AND COORDINATION OF THE PARTNERSHIP

The partnership consisted of six actors: AVSI (lead partner responsible for ER3, ER4, and ER5), Meru County Government and Don Bosco Association (local counterparts), IPSIA (responsible for ER1 and ER2), the Municipality of Padua (an Italian institution with expertise in ER4), and EDUS (participating in ER3 training activities). The evaluation activities highlighted that the partnership possessed all the **technical skills** necessary to carry out the activities. Moreover, all partners involved reported that through Maziwa, they had consolidated their **expertise** in the agri-food sector and value chains, subsequently applying it in other projects. The collaboration required an initial adjustment period and experienced divergences between AVSI and IPSIA on strategic and managerial aspects. Partner activities were largely carried out independently, with limited interaction; however, shared offices and relations with the Meru County Government facilitated a certain degree of alignment.

HUMAN RESOURCES AND INCLUSIVITY

The permanent staff included managerial, technical, and support roles, complemented by external consultants and part-time resources. While adequate, the staff could have been expanded to better support ER1 and ER2. A positive aspect was the continuity of certain key personnel from AVSI, Don Bosco Association, and Meru County Government, who maintained connections with the cooperatives even after the end of the project.

PROJECT TIMELINES AND FINANCIAL RESOURCES

The planned timelines for the implementation of the Maziwa project proved particularly tight, considering the agricultural and value chain context of the intervention, which involves mandatory and sequential steps. Specifically, activities aimed at training farmers represented an essential initial phase necessary to ensure the effectiveness of subsequent actions. Some activities were also prerequisites for others. Consequently, any delays in the land acquisition phase (A5.1) had a cascading effect on subsequent project actions (activities ER2). Although the overall schedule was substantially respected, by the end of the project, two cooperatives still lacked electricity connections, and in one cooperative, the delivered machinery had not been commissioned. These delays prevented production from starting during the project period, hindering the testing and consolidation of this component, and contributing to the non-achievement of some expected results. An analysis of the budget composition by component revealed that 48% was allocated to personnel costs and on-site management expenses, including communication, monitoring, and evaluation activities, as well as general costs; 14% covered expenses for implementing activities (international travel, local transport, insurance, etc.); while the remaining 38% was allocated to equipment and investments (purchase of land and plants, as well as purchase or rental of vehicles, office materials, and equipment).

Expected Results	HR and activity costs	ER1	ER2	ER3	ER4	ER5
Total Expenditure	48%	5%	20%	6%	8%	14%
COST-EFFECTIVENESS	High	High	Medium-low	Medium	Medium	Medium-low

Examining the budget distribution by Expected Result, the share of financial resources allocated specifically to the direct implementation of activities appears limited. However, this should be understood considering that a significant portion of activities under ER1 and ER2 was carried out through staff engagement, whose costs primarily cover training and follow-up. In agricultural and value chain projects, adequate human resources are critical: they ensure quality training, continuity in support, and ultimately represent an essential condition for achieving expected results. ER2 and ER5, which involved the purchase of machinery and plants, absorbed a significant portion of the budget; however, the impact generated by these investments has so far been limited, mainly due to the underutilisation of the plants. This highlights the importance of accompanying material investments with strategies aimed at strengthening their use and long-term sustainability.

4.2.5 SUSTAINABILITY

The extent to which the benefits generated by the project have persisted in the medium term, and their potential to be maintained over the longer term.

PROJECT ELEMENTS FOR SUSTAINABILITY

The Maziwa project was planned with elements to ensure economic, technical, institutional, socio-cultural, and environmental sustainability, although further interventions could have strengthened its impact. Technically, training for beneficiaries, veterinarians, and institutions consolidated skills, while at a socio-cultural level, there was a shift in mindset towards the dairy sector. However, challenges emerged that need to be addressed, such as follow-up with farmers and cooperatives, continuity of training, and mechanisms for machinery and energy maintenance.

Regarding **veterinary services**, although veterinarians were trained as part of the project, they were unable to provide systematic coverage for cooperative members either during implementation or thereafter. At the time of this impact assessment, some trained veterinarians were still operating in Meru County, but no stable collaborations or service agreements had been established with the five project cooperatives. Currently, farmers contact veterinarians independently as needed. From this perspective, the project could have strengthened links between cooperatives and technical service providers, given that access to veterinary support remains one of the main challenges for local producers.

SUSTAINABILITY OF RESULTS

The impact evaluation assessed which results proved to be long-lasting, continuing even after the project's closure. Some issues that required particular attention had already been highlighted in the project's final external evaluation and were confirmed during the impact evaluation: the need for longer-term support to cooperatives to enable them to start their businesses sustainably and to strengthen technical services for farmers, including through cooperatives.

Four years after project closure, the impact evaluation found high sustainability in **ER1**, with beneficiaries continuing to apply the practices learned. In **ER2**, the machinery remains largely unused, while in **ER3**, cooperatives are still using ICT tools and have improved access to credit. In **ER4**, institutional collaboration continues, albeit with limited impact on service delivery capacity, while the nutritional knowledge acquired by farmers is being applied. In **ER5**, cooperative facilities remain operational, and the biogas plants are maintained and kept active by the beneficiaries themselves.

4.2.6 IMPACT

The estimate of the significant effects of the intervention, both positive and negative, foreseen or unforeseen, in a broader scope and over a longer period, compared to the direct and immediate results. Specifically, the impact on the social, economic, and environmental spheres.

Four years after the conclusion of the intervention, the evaluation examined the impacts still present, which continue to manifest over time. These effects, both positive and negative, whether foreseen or not, fall within the area of influence and interest of the project's ToC and enable reflection on the change produced by Maziwa. The evaluation verified the existence and durability of these impacts, the specific contribution of the Maziwa project, and the other contributory factors thereto.

By applying the contribution analysis methodology and reconstructing the project's ToC, the evaluation analysis identified intermediate outcomes and specific impacts to which the project contributed. Consequently, the framework was enriched with intermediate steps that contribute to achieving both the Specific Objective and the General Objective.

In particular, the Maziwa project generated significant impacts on the economic, social, and environmental levels.

ECONOMIC IMPACT

From an **economic perspective**, cooperatives reduced management costs, improving their financial sustainability and savings capacity. The introduction of more efficient data collection and payment systems for farmers increased transparency, traceability, and internal governance, in line with the

provisions of the 2014 Cooperative Act. Female participation on boards grew, as did the attractiveness of cooperatives, which registered an increase in members and strengthened their bargaining power. The range of services offered expanded, including loans to members and an increase in milk collection centres, thereby reducing milk losses and improving connections with the Meru Dairy Union and local markets. Obtaining KEBS certifications laid the groundwork for future milk processing, strengthening the vitality of the local market and encouraging new investments in the sector. Institutions had the opportunity to strengthen public services supporting farmers and to increase available technical services, although this result was only partially achieved.

SOCIAL IMPACT

Social impacts particularly concerned family living conditions, ensuring a more dignified life. Increased income enabled better access to education, including for girls. Families were able to secure more and higher-quality meals, reducing malnutrition and improving health. Opportunities for (self)employment along the dairy value chain expanded, increasingly involving young people and women. Economic opportunities strengthened the attractiveness of the sector, increasing youth employment and encouraging a greater willingness among young people to seek work in the value chain: many youth chose to remain in their territory and invest in agriculture and livestock, although land ownership remains with their fathers, making it challenging for young people to make new investments. For women, through direct access to income and credit, the project promoted economic empowerment, potentially resulting in a redistribution of decision-making power within families and a transformation of time use, improving household conditions and, more generally, consolidating women's role in the community.

WOMEN'S EMPOWERMENT IN AGRICULTURE

Empowerment is a multidimensional and long-term process, inherently potentially conflictual, that involves the individual in her relationships with others, society, and the prevailing culture. Many cultures present beliefs, norms, and social structures that legitimise the subordination of women, perpetuating violence against them. These norms, which reinforce women's dependence on men, become institutionalised and appear natural and immutable. They are central in explaining why and how gender differentiation occurs, how it is legitimised through the division of labour between the sexes, and how this division determines the different values attributed to the contributions of boys and girls (Mulwa, 2007).

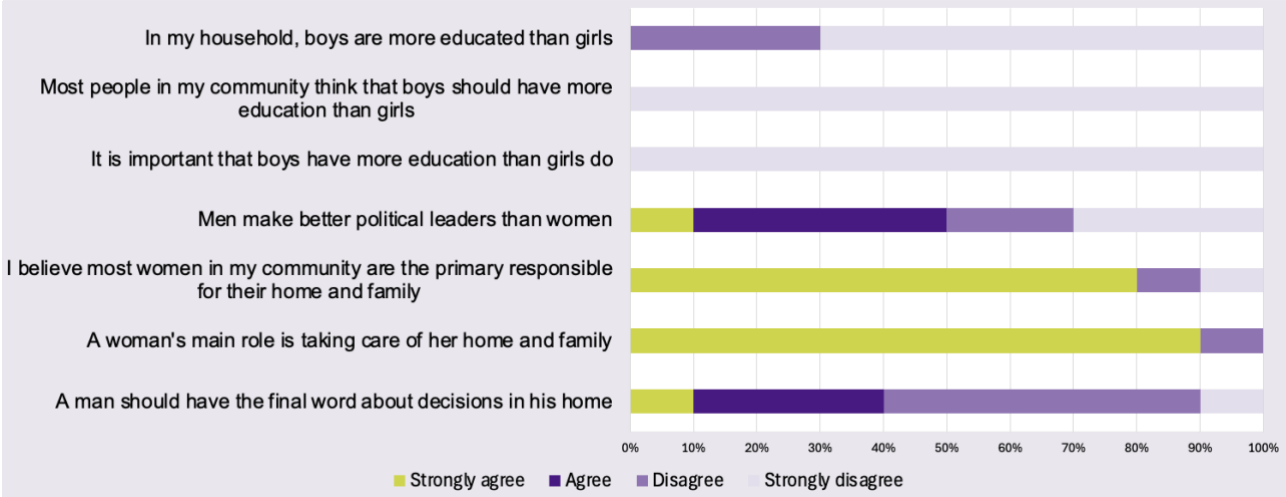
As shown by a recent Kenyan study by Arciprete and Nannini (2025), when social norms are deeply internalised, women—more than men—tend to justify or normalise violence. This confirms a widespread acceptance of unequal power relations, discriminatory attitudes, and behaviours that hinder the full realisation of women's rights and gender equality.

While social change is underway, continuous efforts are required to transform these deeply rooted dynamics. Access to education, decent work opportunities, and economic empowerment are all preconditions to trigger a transformative empowerment process that can ensure gender equality. Education consistently emerges as a key protective factor: higher levels of education are associated with more egalitarian attitudes, stronger rejection of gender-based violence, greater health literacy, and a more accurate understanding of issues related to sexual and reproductive health and rights.

Impact evaluation activities (Figure 4) revealed a social context where women remain somewhat subordinate to men. In particular, according to 90% of respondents, the role of women is to take care of the family; attitudes towards political leadership show that 1 in 2 people think men are "much" or "somewhat" better than women; and 40% of the sample believes that ultimate decision-making in the household belongs to men.

However, when it comes to education, attitudes are more egalitarian: all respondents believe that both boys and girls should have equal educational opportunities. Respondents also reported that, thanks to increased household income, they are now able to ensure greater access to education for their children, both boys and girls. They noted that daughters often show greater commitment to their studies and are more likely to continue schooling. With the decline in the attractiveness of the miraa sector, boys have also increasingly begun attending school.

Figure 1: Attitudes and behaviours regarding Gender Equality



Source: Authors' elaboration based on a selection of questions posed to the 98 participants of the FGDs.

Considering the dimensions of the **Women's Empowerment in Agriculture Index (WEAI)** by IFPRI, the evaluation activities highlighted the following:

- **PRODUCTION:** Women are involved in production but less involved in decision-making regarding the productive inputs to use.
- **RESOURCES:** Property rights are still predominantly held by the husband.
- **INCOME:** Decisions on the use of economic resources are often made jointly by men and women, although the final decision usually rests with the husband. The increased economic independence provided by income from the dairy sector allows women to make autonomous decisions regarding minor household expenses.
- **LEADERSHIP:** Women participate as cooperative members, with their number on cooperative boards beginning to increase. However, they often occupy subordinate, non-top positions, and during FGDs, many men reported that women are not suitable for leadership roles.
- **TIME USE:** The workload for women has increased due to greater involvement in the sector, but concurrently, improved efficiency in practices and the proximity of milk collection centres enable a more balanced distribution of time.

In conclusion, Maziwa has contributed to strengthening the role of women, primarily through increased household income and higher education levels for girls and boys—factors crucial for building a more equitable and gender-balanced society.

ENVIRONMENTAL IMPACT

Maziwa promoted sustainable practices and investments in agro-ecological techniques. Attention to animal welfare—in terms of nutrition, veterinary services, and hygiene—improved, as did soil fertility and quality. The introduction of biogas systems increased the availability of gas for households, while ensuring economic savings on energy and helping reduce environmental impact.

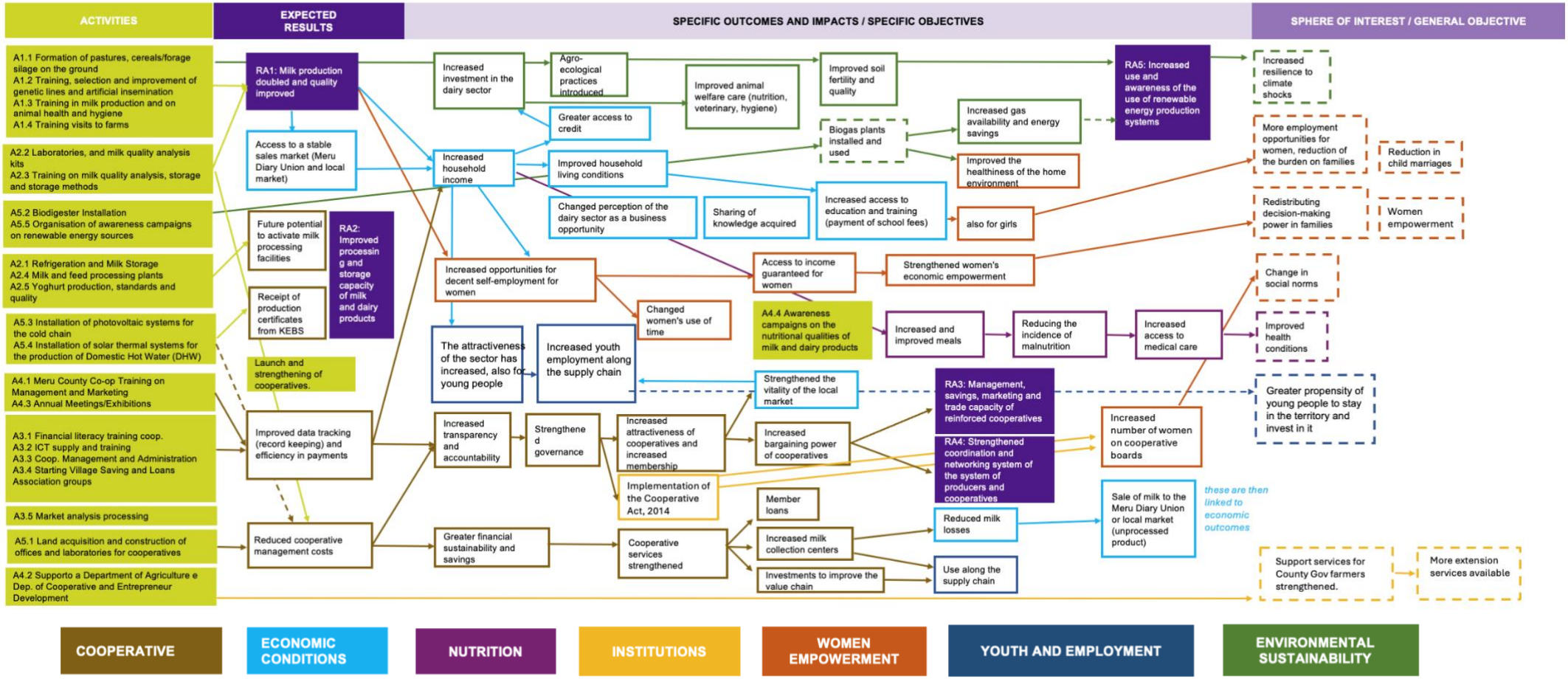
ENVIRONMENTAL IMPACT OF DAIRY PRODUCTION

Livestock production is traditionally associated with high levels of greenhouse gas emissions, particularly methane, as well as soil and water pollution linked to poor manure management. Conversely, an opportunity lies in using cattle manure for **biogas production**, which provides an effective solution to reduce climate-altering emissions, improve livestock waste management, and generate renewable energy to support farms.

A critical aspect concerns **dairy processing**: whey, if improperly disposed of, represents a source of organic pollution. It is therefore strategic to promote policies and investments in circular recovery solutions, such as the production of animal feed, biogas, biofertilisers, or ingredients for the food industry.

These actions, if supported by an appropriate regulatory framework and targeted incentives, can reduce environmental risks, create added value along the dairy value chain, and strengthen the competitiveness of the sector. Addressing these challenges is particularly important given Kenya's climate commitments and the increasing vulnerability of the agricultural sector to climate change.

Figure 2: Reconstruction of the Theory of Change of the Maziwa Project



5 CONCLUSIONS

This impact evaluation study, conducted approximately four years after the conclusion of the Maziwa project (AID 11510), highlighted that the Meru dairy value chain can serve as a driver of economic development, social inclusion, and environmental sustainability.

In terms of **relevance**, the initiative addressed real needs in the dairy sector—access to quality inputs, reduction of post-harvest losses, and strengthening of cooperatives—through training, provision of refrigeration systems, and renewable energy. The project also supplied milk processing machinery to the cooperatives; however, the same is currently unused, often due to instability in the national electricity grid, undersized solar installations relative to energy needs, and a lack of commissioning. Beneficiary selection, guided by the Meru County Government, included women (although without structured gender mainstreaming strategies) and targeted five vulnerable cooperatives, strengthening two existing ones and formalising three new ones. The main challenges relate to the non-use of machinery and a project duration insufficient for the durable consolidation of the promoted changes.

The project demonstrated strong **alignment** with Kenyan policies (Vision 2030, Cooperative Act), European priorities, and Italian development cooperation, as well as complementarity with other initiatives in Meru, despite some overlaps. Maziwa also addressed needs not covered by local institutions.

In terms of **effectiveness**, all activities were implemented and indicators achieved, but medium-term effects varied across Expected Results. In particular, for Expected Result 2, related to milk processing and storage facilities, outcomes were limited because the structures were not operational at the time of this evaluation.

The Maziwa **partnership**, composed of six actors with complementary technical expertise, initially faced coordination challenges due to differing visions and limited interaction between partner-assigned activities. The importance of improved coordination emerged, which was addressed in a subsequent AVSI project through the establishment of a steering committee including major institutional and non-institutional actors. Human resources were qualified and gender-balanced, though an increase in staff would have further strengthened support for the cooperatives. The continued presence of managerial figures within some partners and stakeholders, who maintained connections with cooperatives even post-project, was a success factor.

Project timelines proved tight, given the agricultural and sequential nature of activities. Delays in land acquisition and the COVID-19 pandemic caused cascading delays, preventing the initiation and consolidation of production within the project period and limiting the achievement of certain expected results.

Maziwa aimed at **sustainability** through actions incorporating elements economically, technically, institutionally, socio-culturally, and environmentally sustainable. However, the impact evaluation highlighted the need to strengthen follow-up and continuity of training and awareness-raising. Four years after closure, farmers continue to apply learned techniques, showing high durability. Challenges persist regarding unused milk processing machinery, which remains non-operational in all five project cooperatives, often due to electrical issues, lack of commissioning, or delayed delivery during project closure. Cooperatives use ICT tools and have improved access to credit for farmers, with some sustaining themselves through milk sales. Photovoltaic systems for energy production supporting the cold chain are operational but undersized relative to machinery energy needs, while biogas plants are used and repaired independently when breakdowns occur. During the evaluation, additional farmers expressed interest in purchasing a biogas system or already possess one through other interventions. Cooperative structures remain functional, with an increase in active members. Overall, there is a need for longer-term and more intensive support to cooperatives and for strengthening mechanisms for delivering technical services to farmers beyond project timelines.

Currently, the **cooperatives** have a total of 3,394 members, of whom 1,345 are active. Each active member supplies an average of 7.6 litres of milk per day, corresponding to approximately 380 KSh daily income and an average of 11,400 KSh monthly. Finally, the average number of cattle per household increased from 1.8 to 2.3.

Among the most significant **impacts**, the first is the improvement of infrastructure available to cooperatives, which moved from temporary rented offices, subject to frequent relocations, to stable offices that allow better organisation of daily activities.

The project also strengthened the cooperatives by reducing their expenses, improving data management, and increasing payment transparency to farmers, in line with the Cooperative Act 2014. This led to a

stronger role for the cooperatives, greater capacity to attract new members, and the ability to increase the volume of milk collected. Improvements in milk quality and quantity have increased household incomes, improving living conditions, access to education, and nutrition.

The project promoted women's economic empowerment by providing direct access to income and credit and strengthening their decision-making role in households. However, empowerment is a long, multidimensional process that is inherently potentially conflictual, as it involves the individual in their relationships with others, society, and prevailing culture, and therefore requires time to take root. Maziwa also contributed to making the dairy sector more attractive to youth, generating employment opportunities and encouraging them to invest locally.

On the environmental front, the project encouraged sustainable practices, improved animal welfare, and introduced biogas plants that provide clean energy and fertiliser, contributing to soil fertility. Although institutions partially strengthened support services, challenges remain, such as the lack of systemic technical and veterinary coverage, as well as the need to further integrate climate-smart and circular practices.

Thus, four years after its conclusion, the Maziwa project has generated significant economic, social, and environmental impacts.

However, **structural needs** persist, such as longer-term support for cooperatives and the establishment of a system to ensure continuous training for both cooperative members and institutional staff. The issue of using machinery for the production of processed and value-added products remains unresolved: currently, the sales market is guaranteed by the Meru Dairy Union, a union of leading dairy-processing cooperatives in Meru County, and, to a lesser extent, by raw milk sales on the local market by some cooperatives.

6 LESSONS LEARNED AND RECOMMENDATIONS

The implementation of Maziwa has provided valuable insights for the design and implementation of future rural development initiatives and for strengthening dairy value chains in Kenya and similar contexts.

Importance of strengthening cooperatives to consolidate the bargaining power of small producers through stronger governance, greater transparency, and inclusive participation, while requiring continuous training.

Importance of thorough context analysis, stakeholder mapping, and accurate market and value chain analysis to design projects rooted in local needs and capable of achieving real impact. An accurate needs assessment, accompanied by a systematic mapping of public and private actors and their interests, is essential to ensure the success of projects operating in already structured and competitive markets.

Importance of considering the cyclical and seasonal nature of the agricultural and livestock sector when planning project timelines and durations, allowing for sufficiently extended periods, progressive consolidation phases, follow-up, and necessary flexibility.

Importance of local presence and involvement of institutions: Prior knowledge of the territory, building trust with institutions, and continuity of field presence are key factors for sustainability and impact of the interventions.

Importance of establishing coordination forums that facilitate shared decision-making and coherence among diverse actors. These spaces serve as forums for constructive dialogue and strengthen the continuity of interventions.

Importance of considering the timing of infrastructure investments, which often require longer periods than initially planned. Providing adequate buffers reduces delays and operational frustrations.

Importance of a structured infrastructure (handover and local ownership) to ensure a sense of ownership and functionality over time.

Importance of clear and transparent criteria for beneficiary selection to prevent conflicts and legitimise choices. Clear criteria are fundamental for building trust within communities.

Importance of promoting inclusivity through targeted and cross-cutting actions (gender, youth, environment, and climate) to make results more equitable, inclusive, and sustainable.

Based on the experiences and evidence from the Maziwa project, the following recommendations are proposed to consolidate and strengthen already initiated approaches, improving the effectiveness, sustainability, and impact of future initiatives in the agricultural and livestock sector.

1. Development cooperation projects need to ensure the structuring of sustainable and market-oriented value chains, following appropriate and in-depth analyses of needs, context, and the specific value chain. Productivity strengthening must be accompanied by solid value chain development and ongoing dialogue with the private sector to avoid resource waste and maximise impact. Development projects should include needs assessment, stakeholders' mapping, preliminary engineering analyses, market and value chain analyses, assessment of the environmental impact of the value chain and of the impact on animal welfare, as well as circular economy actions, and promote the use of digital solutions to optimise processes and ensure traceability along production value chains.

2. Define innovative mechanisms to strengthen the role of local institutions so to ensure the sustainability of the activities. The Maziwa project demonstrated that involving local institutions ab initio increases transparency, relevance, coherence, and supports the sustainability of actions. However, limited financial and human resources in institutions can reduce their capacity to provide continuous services to farmers, particularly regarding technical and veterinary assistance. To address these structural limitations, institutional services should be integrated and strengthened through complementary mechanisms that leverage cooperatives as proximity actors.

3. Define exit strategies and ensure adequate timelines for agricultural projects. The standard three-year duration of cooperation projects is not sufficient to support cooperatives from the construction and establishment phase to consolidation and market access, especially when infrastructure investments and agricultural seasonality are involved. Project design that includes exit strategies from the outset and a longer timeframe can strengthen the sustainability of interventions and the real managerial capacity of beneficiaries.

4. Consolidate the role of local experts and ensure continuous training. The involvement of community-based experts (veterinarians, paravets) is crucial for follow-up and the sustainability of such initiatives, ensuring continuity of services beyond the project duration. Moreover, although the cooperatives have shown significant progress in governance and management, they require continuous training due to the annual turnover of members and leadership. To ensure the durability of results and improve service quality, local experts should be integrated into projects and structured mechanisms established for continuous capacity building.

5. Strengthen the coherence of initiatives in the same sector and coordination through a Steering Committee. Avoiding overlaps and duplication is essential to optimise resources and increase the effectiveness of interventions. Inclusive coordination mechanisms enable different efforts to be aligned towards shared objectives. Coordination among local actors, including institutions, cooperative unions, and NGOs, is crucial to guide future decisions and consolidate acquired skills.

6. Promote climate-smart practices and circular economy approaches in agricultural value chains. Integrating agro-ecological practices, natural resource management, and drought-resistant varieties is essential to increase communities' capacity to cope with climate shocks, diseases, and market fluctuations, while strengthening the circular economy and food security.

7. Improve internal governance and communication among partners and stakeholders. A clear governance structure and transparent decision-making processes within partnerships are essential to ensure coordination and effective implementation of actions, especially when partner activities are interrelated. The Maziwa experience shows that including private sector representatives in the steering committee and clearly defining roles and responsibilities can improve the quality of project decisions and reduce the risk of duplication or inefficiency.

8. Strengthen the M&E system with a focus on results and outcomes. A monitoring and evaluation system more focused on outcomes enables a full understanding of the changes generated and the timely introduction of any corrective measures. Integrating quantitative and qualitative indicators facilitates a more comprehensive analysis and a more dynamic project management.

ACTION RESEARCH FOR
CO-DEVELOPMENT

www.arcolab.org