Association of Irrigation Acceleration Platform (AIAP)

WATER PRODUCTIVITY IN PRACTICE KNOWLEDGE & ACTION (WATERPIP-KAN)

REPORT NO. 7

Knowledge Exchange Visits Between Farmers from Isiolo and Laikipia in the Upper Ewaso Ng'iro Basin, Kenya

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ABOUT THIS REPORT

Synopsis

The Association of Irrigation Acceleration Platform (AIAP) based in Kenya, is working collaboratively under a contract with the Stichting IHE Delft Institute for Water Education (IHE-Delft), as part of the DUPC3 Programme. This implements the Water Productivity in Practice Knowledge & Action Network (WaterPIP-KAN) project. The project duration is 4 years, from 27th November 2023 to 31st December 2027. The WaterPIP-KAN project decisively targets and is inclusive of remote and marginalized communities who constitute the grassroots beneficiaries and implementation partners of the project in Kenya. AIAP's role is to facilitate project out-scaling and knowledge transfer in Kenya. AIAP's team of expertise has highly qualified staff at PhD levels enabling excellent use of Remote Sensing and GIS skills, including conducting hydrological, water balance and crop modelling in a GIS interface.

This is the 7th Progress Report submitted by AIAP[1] to IHE-Delft, for the period January – June 2026. This report is entitled: "*Knowledge Exchange Visits for Farmers in Upper Ewaso Ng'iro Basin, Kenya"*. It is preceded by six earlier reports, namely: (i) Report 1: *Methodology for Identifying Marginalized Groups for WATERPIP-KAN Project Engagement;* Report 2*: "Identifying sites for community engagement for implementation of WaterPIP-KAN project in Kenya.* Report 3: *"Needs Assessment of the Readiness by Small-Scale Farmers for Satellite Data to Study and Improve Water Productivity in Upper Ewaso Ng'iro Basin*"; Report 4: *Training Workshop on Innovative Drip Irrigation in Upper Ewaso Ng'iro Basin, Kenya;* Report 5: *Mapping Major Irrigated Crops using Sentinell-II and Drones mounted with IR Camera in Upper Ewaso Ng'iro Basin, Kenya*; and Report 6: *Irrigation Water Use Efficiency Assessment in Upper Ewaso Ng'iro Basin, Kenya***.**

Report 7 responds to the project Terms of Reference (ToR) specifically, *WP1: "Taking data to the margins*". The vibrant exchange visit provided a good forum for the farmers from the two counties to freely interact and share knowledge on farming techniques to improve their productivity. The farms visited were in Elsa Water Project in Burat, Isiolo and at Kiahuko in Laikipia. The two locations have vulnerable and marginalized communities who want to improve agricultural production. The discussions of the field visits experience are as outlined in this report.

ACKNOWLEDGEMENTS

This report was developed as part of the Water Productivity Improvement in Practice Knowledge & Action Network (WaterPIP-KAN) project, which is supported by the Directorate-General for International Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands under the IHE Delft Partnership Programme for Water and Development (DUPC3). AIAP team thanks the Stichting Delft Institute for Water Education (IHE-Delft) of The Netherlands, for financial support for this project.

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[1] *This report was developed as part of the Water Productivity in Practice Knowledge & Action Network (WaterPIP-KAN) project, which is supported by the Directorate-General for International Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands under the IHE Delft Partnership Programme for Water and Development (DUPC3)*

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1. INTRODUCTION

1.1 Background

The Association of Irrigation Acceleration Platform (AIAP) is a partner in the implementation of the international project entitled: "Water Productivity Improvement in Practice, Knowledge & Action Network (WaterPIP-KAN)". The project is funded under the *Water Development Partnership Programme (WDPP) of IHE-Delft of The Netherlands and* runs for 4 years, from November 2023 to December 2027. The other partners are from The Netherlands, Kenya, Ethiopia, Egypt, Benin, Burkina Faso and India. The WaterPIP-KAN project aims to decisively target and be inclusive of remote and marginalized communities engaged in agriculture, where improving water productivity especially under irrigation, and who constitute the grassroots beneficiaries and implementation partners of the WaterPIP-KAN project.

1.2 Rationale of the Farmer Exchange Visits

In Laikipia and Isiolo Counties, agriculture remains the backbone of its economy as an arid and semi-arid lands (ASALs) region contributing significantly to the national GDP. These farming communities face unique challenges including erratic rainfall patterns, prolonged droughts, limited market access, and water resource constraints. Despite these struggles, the farmers have demonstrated remarkable resilience and innovation, developing diversified farming systems that integrate crop production with livestock rearing to enhance food security and household incomes.

This report documents observations from field visits to several farms across Isiolo and Laikipia counties, where farmers are engaged in mixed farming enterprises encompassing crop production (onions, tomatoes, and cabbages) and livestock keeping (dairy cows, goats, poultry, and fish farming). The visits aimed to assess current agricultural practices and emerging agribusiness models, evaluate the extent of climate-smart agriculture (CSA) adoption, facilitate farmer-to-farmer knowledge exchange on techniques that improve livelihoods and identify systemic barriers and opportunities for scaling successful innovations.

AIAP team used a participatory peer-learning approach, where farmers from both counties engaged in live demonstrations, challenged assumptions, and committed to testing new techniques. Plenary discussions reciprocated the learning experience where both groups agreed to friendly evaluation of techniques implemented should they meet in future. The interactions with farmers, cooperative representatives, and local agricultural extension officers provided rich insights into production systems, market dynamics, water management strategies, and the institutional frameworks supporting agricultural development. The key themes that emerged included:

(i) Strategic shift toward mixed farming systems that optimize land and water use while spreading production risks; (
(ii) Water management and irrigation efficiency;
(iii) Soil health as the foundation of climate resilience;
(iv) Critical role of farmer cooperatives and producer groups in overcoming market access challenges and achieving economies of scale;
(v) Gender and youth inclusion in farming explicitly empowers members of the community and allows intergenerational knowledge transfers; and
(vi) Adoption of climate-smart practices such as water harvesting, drought-resistant varieties, and integrated crop-livestock systems as an adaptive responses to climate variability.

2. LESSONS LEARNT FROM FARM VISITS IN ISIOLO AND LAIKIPIA

The purpose of the Exchange visits were to link farmers from Laikipia and Isiolo are and to enable cross-learning for sustainable and profitable farming enterprises. The farm visits at the Isiolo and Laikipia farms offered these observations and insights.

2.1 Water Management and Irrigation Efficiency

2.1.1 Isiolo: River-Dependent Furrow Irrigation

The ELSA Water Project in Burat Ward, Isiolo County represent a critical adaptation strategy in an arid environment where rain-fed agriculture is unreliable. Farmers cultivate between 0.5 to 3 acres of land irrigated primarily by the Isiolo River, which serves multiple stakeholders including Kenya Wildlife Service (KWS) and Kenya Defense Forces (KDF) camps, schools, and the local community. The county government prioritizes its domestic water use, forcing farmers to negotiate for crop irrigation water during low flow seasons.

The dominant furrow irrigation system although low cost, exhibits substantial inefficiencies. Irrigation become time consuming while water losses occur through conveyance channels as well rapid evaporation. Most farmers lack water harvesting and storage infrastructure. This leads to entire dependency on river flow and vulnerability to seasonal fluctuations, making water management a critical constraint in ASAL farming. The bund basin technique demonstrates farmer innovation in precision targeting where basins are sized to hold a predetermined number of seedlings, projected towards expected selling prices. Technical expertise in basin levelling ensures uniform water distribution. Capsicum and onions are grown in bund basins, while tomatoes are planted in furrow rows. This reflects a spatial differentiation on crop-specific water requirements and growth habits.

Capsicum growing in bund basins at ELSA Farm in Isiolo County

2.1.2 Laikipia: Precision Water Conservation

In contrast, the NaWRUA farmers in Tigithi Ward, Laikipia County rely on water from Naromoru River and have invested in distributed water storage systems that significantly improve efficiency. In one of the farm visited, Kahenya prefers multiple small water pans over one large where surface-area-to-volume ratios reduce evapotranspiration losses. His total capacity of 2,300m³ represents a distributed storage system that minimizes risk, if one water pan fails or is contaminated, others remain functional. Laikipia farmers also largely uses Zai pits, two-foot-deep planting pits with stratified soil replacement (topsoil returned first, then subsoil on top to exploit its weed and disease free nature). Each zai pit requires 40 litres of water weekly, delivered via piped furrow irrigation, a precision approach that reduces the percolation and evaporation losses observed in Isiolo's bund basins. Zai pits are mostly for capsicum while smaller bund basins are used for onion, cabbage, spinach and tomato production in Laikipia.

Zai pits with Capsicum plantation in Laikipia County

2.2 Crop Production and Yield Optimization

2.2.1 Onions

Isiolo farmers are mainly known for onion production and their yields range from 8–10 tons per acre under furrow irrigation, with farm gate prices averaging Ksh.50/kg and in high demand season can attain a Ksh.100/kg. However, Nanyuki farmers recorded a low price at Ksh.35/kg to its highest being Ksh.50/kg farm gate price. This reflects local supply-demand imbalances that requires intervention to improve market prices from the production zones. Isiolo farmers with their high vulnerability to water challenges at times prefers local seedlings to minimize risk of total losses.

The high yielding onion hybrid seeds variety are very costly, this is preferred by farmers during stable production season. This contrasts with Laikipia farmers who uses hybrid variety seedlings all the time because of their assured risk against water scarcity provided they have enough storage. Those that practice drip irrigation on onions in Laikipia, can harvest up to 30 tons per acre, illustrating the productivity gap is attributable to irrigation technology and seedling variety. Isiolo farmers were advised not to deeply bury the onions roots to ensure surface formation of the bulb allowing them to attain their full potential size and maturity naturally.

Onions growing in bund basins at ELSA Farm in Isiolo County

2.2.2 Tomatoes

Tomatoes mature in 72–90 days with estimated yields of 16 tons per acre. The harvest window extends over nine weeks with twice-weekly picking, creating sustained labor demands but also spreading market exposure. Price volatility is extreme with farm gate prices ranging from Ksh.10/kg during oversupply periods to Ksh.150/kg in the April–May 2026 period when supply was constrained. This price variation underscores the absence of market stabilization mechanisms, drought and the farmers' vulnerability to middlemen.

Isiolo farmers primarily depend on onions and tomatoes as commercial crops while Laikipia farmers have diversified into longer cycle, drought resistant crops such as fruit trees (Avocado, oranges and pomegranate) and apiculture.

Tomato farming using Furrow Rows at ELSA, Isiolo County

2.2.3 Capsicum, cabbages and spinach

These vegetables are produced in both counties but Isiolo farmers prioritizes capsicum while Laikipia farmers produces all the three in large quantities. Capsicum can fetch up to Ksh.3,500 to 6,000 per 50 kg bag. Maize farming was not largely practiced among farmers but Laikipia farmers had more maize fields compared to Isiolo farmers. Maize production is mainly for subsistence use and as fodder for animal feeds. Maize intercropping acts as windbreakers especially during flowering stages of tomatoes, capsicum and other crops such as potatoes, rosemary and carrots are also produced by select farmers especially in Laikipia.

Spinach growing in irrigated Zai pits at Kiahuko, Laikipia County

2.2.4 Avocados and Oranges

This is largely practiced by Laikipia farmers, the Avocados are targeted for both export (Hass variety) and local market (Hass and Fuerte varieties) while oranges are consumed locally. These high yielding crops are harvested in a 6 month cycle providing predictable semi-annual income that contrasts with weekly volatility of vegetable market prices. Fruit production in Isiolo is minimal with few orange trees noticed within the farms. Avocados can fetch up to an average of Ksh.19 per fruit while orange prices differ with sizes. Intercropping practices especially with Rhodes grass between fruits trees provides supplementary fodder. Joseph's farm in Laikipia had large parcels of these fruit trees and highly targets the organized Karatina and Nairobi markets.

Agnes, a farmer in Laikipia also practices apiculture and fruit farming with trees such pomegranate, avocados, oranges, guavas and pawpaw. These investments provide long-term asset building and drought resilience. The farm's water security (rain-water harvesting and borehole) provides a buffer against the erratic rainfall that characterizes the region.

Orange trees intercropped with Rhode Grass in Laikipia County

2.3 Livestock Integration

Farmers from both counties practiced livestock keeping, some for commercial ventures while others primarily for subsistence. Mainly dairy cows, goats, sheep and poultry were kept alongside their crop enterprises. This mixed farming integration optimizes limited land, diversifies income streams and food security while minimizing farm input requirements for both crops and livestock.

2.4 Apiculture

Bee keeping has been embraced mainly by Laikipia farmers and they consider it the 'Lazy profit' enterprise simply because it requires minimal attention once established. The bees also provide free pollination boosting yields without additional cost. Hives are positioned and left undisturbed to exploit natural cooling from surrounding, a zero-input climate regulation strategy. Farmers reported that each hive can produce an average of 10kg retailing at Ksh.800/kg harvested twice annually targeting local market.

2.5 Aquaculture

Fish farming was actively practiced by one farmer among the three farmers visited in Laikipia. Agnes found passion in fish farming when she had enough from rainwater harvesting that could supply fresh water for her Tilapia fish also supported with her borehole water supply. Her fingerlings are introduced at once to the pond and all are harvested after six months. Prices differ depending on the season. She also keeps catfish in a smaller pond away from the location of tilapia fish. The catfish can survive on dirty water, they can also feed on left over foods unlike the Tilapia fish. Agnes noted that her fish farming requires minimal attention provided she replenishes the water on schedule and ensures maintained water levels. Isiolo farmers were impressed and committed to trying this venture even on smaller ponds, starting with catfish that appeared easier to maintain.

Catfish at Agnes Farm in Laikipia County

2.6 Biogas System

Agnes's four acre farm in Laikipia reflected a circular economy model where waste streams become productive inputs, this fully represented the bio-enterprise system

with a biogas system installed and operational for the last four years. The conversion of animal manure into cooking fuel reduces dependency on firewood or LPG gas energy. She only runs out of biogas fuel while cooking in very few occasions and if there is a system malfunction demonstrating that climate smart investments require patience and yield self-sustaining results in the long run. The biogas-crop-livestock nexus is a model for resource recycling.

Biogas System at Agnes Farm in Laikipia County

2.7 Soil Health and Conservation Agriculture

Kahenya's farm at Kiahuko, in Laikipia demonstrated that soil health was the foundation of high yields and not just water and seeds. He showed farmers how his cutting edge biological soil management practices naturally suppresses pests and improved disease control. The lactobacilli bacteria is locally made from milk fermentation and adding sugar for a duration of even more than six months, then spread around the crops. These provides natural competition where the intended introduced bacteria counters the bad bacteria leaving a pest and disease free soil. Minimized herbicide use towards harvest eliminates chemical residues in edible crops. The seed are also soaked overnight before planting to enhance nutrient absorption and fastens germination.

Other practices by both teams included crop rotation that breaks pest cycles and maintain soil fertility. Minimum tillage with very limited tractor use preserves soil structure and reduces soil erosion. Mulching using multiple layers of plant residues conserves moisture, enables root development and regulates crop temperature.

2.8 Pest and Disease Management

Pest and diseases invasion remained one of the main challenge faced by farmers from both counties. In Isiolo, farmers practice a chemical intensive approach where for each pest and disease, they use an independent herbicide, fungicide and pesticide formulation. These cocktail of chemicals in pest and disease management can be potentially environmentally risky, thus an integrated pest management extension support should keenly assist and monitor their correct use. Main pests identified included local pest (*Kamuchai*), Tuta absoluta, thrips, fall armyworm, and leaf miners, alongside rust (early blight) disease. This highlighted a gap in the CSA adoption narrative where farmers demonstrates adaptive capacity, but their practices may not align with sustainable intensification principles.

In Laikipia, farmers emphasized on reduced use pest and disease control chemicals. Kahenya for instance practiced individual plant scouting where he could identify affected crops, then uproot or spot-treated without disturbing healthy crops. This approach reduces chemical costs, preserves beneficial insects, and prevents resistance buildup. They also are challenged with pests like Persea Mite (*Oligonychus perseae*) in avocados that causes falling off of the leaves. They practice timely fertilizer application precisely twice during planting and near flowering stage to optimize uptake and minimize waste. Their irrigation method also ensures uniformity in fertilizer uptake by crops compared to Isiolo's methods that can lead to fertilizer being washed away or non-developed roots failing to ensure maximum uptake.

2.9 Market Access, Infrastructure and Cooperative Structures

In Isiolo, there is no direct market access all sales flow through middlemen who capture significant value margins. Price fluctuations are driven by supply availability rather than quality or contractual arrangements. Upgrading of murram roads has improved transportation and reduced post-harvest losses, but farmers remain price-takers in an imperfect market. Previously, poor roads caused delays that led to spoilage and forced distress sales at below-market prices. Isiolo farmers wanted to competitively access markets and fair prices by zoning themselves into distinguished onion and tomatoes farmers. Their fellow Laikipia farmers' uses cooperatives as market aggregators enabling collective bargaining for better prices and market intelligence on price trends. Isiolo farmers also have registered cooperatives and Saccos which helps them to access subsidized farm through government programs, quick dissemination of agricultural information and act as sales and marketing agents.

2.10 Social and Gender Dimensions

A distinctive feature of the Laikipia exchange was its explicit commitment to women's empowerment. In Laikipia North, women have historically been excluded from agricultural decision-making. Kahenya proactively involves women in farming operations, recognizing them as "good agents of information and knowledge transfer" through their networks in churches and self-help group (*chama*) meetings. This gender-responsive approach multiplies the impact of technical training, when women learn, entire communities benefit. In Isiolo, both men and women are actively involved in farming with a greater percentage being youthful. This is very beneficial to community because the intergenerational knowledge transfer is passed down smoothly among the farming communities.

2.11 Climate-Smart Agriculture Adoption

In Isiolo, the CSA practices observed included: drought-tolerant seed varieties suited to arid and semi-arid conditions; time-saving production techniques that maximize output per unit of labour; and government-supported seedling programs with subsidized pricing and market linkages. However, CSA adoption is partial and input-dependent. The reliance on government subsidies suggests sustainability risks if support is withdrawn, and the absence of water harvesting infrastructure contradicts core CSA principles of resource-use efficiency. In contrast, the Laikipia farmers have actively adopted CSA practices with strategic shift from water-intensive crops to drought-resistant fruit farming; apiculture and water harvesting and storage facilities. The agroforestry approach maximizes photosynthetic capture, reduces evaporation, and generates multiple revenue streams from the same land unit.

2.12 Farmer Driven and Collective Vision

The plenary discussions in Isiolo revealed an insightful farmer-driven development philosophy organized around the following core principles:

i. Knowledge sharing among farmers through cooperative actions and social capital
ii. Practical fieldwork and hands-on experience
iii. Continuous learning and technology adoption
iv. Youth engagement and future planning to improve intergenerational sustainability
v. Passion for water management and farming to nurture water resource stewardship.
vi. Productivity for family economy for enhanced livelihoods and food security
vii. Climate change adaptation and mitigation through CSA adoption
viii. Mutual improvement over competition
ix. Maximizing small landholdings as compared to vast lands that maybe difficult to potentially cultivate

Additionally, the following challenges stood out to hinder accelerated development

i. Human capital constraints through laziness and ignorance
ii. Knowledge-behavior gap by failing to practice learned skills
iii. Reduced technical know-how leading to water wastage, inefficiency and insufficient supply.
iv. Lack of water harvesting and storage infrastructures.
v. Unforeseen drought which reduces yield and increased water conflicts.

3. CHALLENGES AND EMERGING ISSUES

3.1 Water Conflicts, the Looming Crisis

The escalating water competition in Isiolo, where the county government has erected its water intake at the Isiolo River source, forces farmers to plead for irrigation water. Farmers further anticipated livestock-crop farmer conflicts if drought conditions persists into August 2026. This represents an escalation of existing tensions and a potential threat to the social cohesion that underpins cooperative functioning. Laikipia farmers likewise acknowledged existence of such conflicts brought about by upstream farmers using water as their entitlement and forgetting that water belongs to everyone and should continue to flow downstream. This is therefore a cross-cutting constraint in ASAL farming, with reference to riverine irrigation dependencies.

Furrow irrigation is commonly practised even though the water is not enough

3.2 Human-Wildlife Conflict

In Isiolo, it was evident that Elephants and monkeys from the adjacent KWS conservancy periodically invade and destroy crops, representing a significant non-market risk. The Wildlife Conservation and Management Act compensation framework for crops has improved from protracted delays to a 2–3 year turnaround, but this remains inadequate for livelihood protection. Farmers bear the full risk of crop loss during the interim period, and the slow compensation process discourages investment in high-value crops vulnerable to wildlife damage. This non-climatic risk factor adversely affects agricultural investment decisions. Laikipia farmers did not report any of these human-wildlife conflicts.

3.3 Socio-Economic Contexts of Agriculture

During the plenary discussions, it was unanimously recognized that political dynamics determine resource allocation and infrastructure development. Farmers should therefore strategize to leverage the political goodwill during favorable periods to secure investments that improve long-term productivity and livelihoods.

3.4 Market Structures Failures

Lack of direct market access poses significant value margins losses through middlemen. Additionally, price fluctuations driven by supply availability rather than quality or contractual arrangements, leave farmers as price-takers in an imperfect market. This market failure mechanism is more evident in Isiolo and the cooperative aggregation in Nanyuki addresses this through connection to direct market links.

3.5 Indigenous Knowledge Sharing

Laikipia team demonstrated use of cactus as a medicinal herb for knee joint pain, reminding participants that farming knowledge is not purely technical but also cultural and holistic. This reflects that farmers are not passive recipients but active strategists, who reframes the knowledge-sharing dynamic as peer-to-peer rather than top-down extension approach. This vibrant farmer knowledge exchange catalyzes agricultural transformation.

3.6 Cross-Cutting Innovations and Shared Learning

The exchange visit highlighted several transferable innovations that bridge the Isiolo-Laikipia farming contexts as summarized in Table 1. The historical background of Isiolo farmers mainly being a pastoralist's community makes them more of beneficiaries to the technologies learnt from their fellow farmers in Laikipia County.

Table 1: Cross-cutting transferable agricultural practices and innovations

Innovation	**Laikipia Practice**	**Isiolo Adaptation Potential**	**Barrier**
Zai pits	2ft deep, stratified soil, 40L/week	Replace bund basins; reduce water loss	Labour intensity; technical learning
Drip irrigation	Implied in high onion yields (18 t/acre)	Upgrade from furrow; high yields	Capital cost; infrastructure
Multiple small water pans	3 pans (2,300m³ total) vs. 1 large	Reduce evaporation; build redundancy	Land availability; excavation cost
Biogas integration	4-year operational system	Convert livestock manure to energy, alternative cooking fuel	Initial capital; technical know-how
Beekeeping	Yields 10kg honey per hive	Diversify income; low labour	Hive cost; colony management
Avocado export	Fuerte + Hass dual varieties	Shift from water intensive vegetables	Longer time to maturity; market access
Fish farming	6-month tilapia/ catfish cycles	Protein + income; water use	Pond construction; fingerling supply
Mulching + minimum tillage	7+ years no tractor	Improve soil moisture; reduce erosion	Biomass availability; labour
Natural bacteria formulation	Soil health, natural pest control	Reduce chemical dependency	Input access; knowledge

4. CONCLUSION AND RECOMMENDATIONS

4.1 Synthesis of Key Findings

The reciprocal field visits between Isiolo and Laikipia counties demonstrated that farmer-to-farmer knowledge exchange is a powerful, cost-effective mechanism for accelerating agricultural innovation in resource-constrained environments. The visit involved observational, interactive and engaging in live demonstrations moments.
The following four overarching conclusions emerged from the vibrant visit.

i. The productivity gap was mainly a water management gap, not a knowledge gap. Isiolo farmers possess substantial technical knowledge but are constrained by infrastructure deficits, such as lack of water storage, inefficient furrow irrigation, and absence of precision techniques like zai pits. The 100%+ yield differential in onions (8–10 tons vs. 18 tons per acre) is attributable to water delivery efficiency and soil health, not farmer skill.
ii. Diversification was the most robust climate adaptation strategy. Farms that integrated crops, livestock, fish, bees, and fruit trees demonstrated greater resilience to price volatility and climate shocks than those dependent on single enterprises.
iii. The social capital is as critical as physical capital. The cooperatives in both counties function not merely as marketing tools but as information hubs, input channels, and solidarity networks. However, sustaining cooperative cohesion requires deliberate investment in conflict resolution and inclusive governance.
iv. Gender-responsive and youth-inclusive approaches multiply impact. The explicit empowerment of women as knowledge brokers in Laikipia, and the plenary's emphasis on youth engagement in Isiolo, recognize that agricultural transformation is fundamentally a social process, not just a technical one.

4.2 Policy and Practice Recommendations

To strengthen and catalyse agricultural innovations and developments, the following key actions by responsible actors will uplift the wilful efforts of the farmers.

i. The county governments and water resources authority (WRA) to mediate river water allocation agreements.
ii. Isiolo farmers to adopt Zai pit technology, drip irrigation and construct water storage facilities.
iii. Ministry of Cooperatives and farmer organizations to strengthen farmers' cooperatives to enhance capacity for market intelligence, storage, collective bargaining and conflict resolution.
iv. County agricultural departments to continue the extension reforms service with increased monitoring of farmer activities particularly on pest and disease management.
v. The national government, county governments and development partners to offer subsidized inputs and targeted support for high quality seeds, irrigation equipment and water storage.
vi. County governments and KWS to fast track wildlife conflict mitigation and more vigilance to avoid wildlife escape from their conservancies.
vii. Ministry of agriculture and county youth departments to foster mentorship and financing programs to the youths, this strengthens inclusion and capacity building.
viii. The county gender departments to empower women and formalize their roles in cooperatives and support their self-help group's (*chama*) based extension networks.

4.3 Final Reflection

The farmers' plenary closing statement captured the essence of the visit: "Everyone agreed to improving each other's livelihoods and not competing with each other, chasing poverty and protecting our environment." This solidarity-based approach to agricultural development, where knowledge is shared freely, successes are celebrated collectively, and challenges are addressed through mutual support, improves the individual technologies demonstrated. In an era of climate uncertainty and market volatility, the social infrastructure of farming communities prove to be more resilient than any single crop variety or irrigation technique.

Farmers visit a farm growing irrigated onions in micro-basins at Kiahuko, Laikipia

APPENDICES

Appendix 1: Program for Knowledge Exchange Field Visits in Upper Ewaso Ng'iro Basin, Kenya

Date	Time	Activity	Responsible
Thursday, 18/06/2026 **DAY 1**	07.00 – 09.00	Travel from Nairobi to Nanyuki	AIAP Team
	09.00 – 10.30	Travel from Nanyuki to Kisima near Isiolo	AIAP & Nanyuki Teams
	10.30 – 11.00	Travel to the ELSA Water Project meeting venue to join the Isiolo Team.	All
	11.00 – 11.40	Opening remarks and introduction of teams	AIAP
	11.40 – 12.00	*Refreshment & health break*	
	12.00 – 14.20	Visits to the ELSA Water Project farms	All
	14.20 – 15.00	Plenary: Reflections, key learnings and future actions	AIAP Team Moderating
	15.00 – 15.30	Formal closure & departure	All
Friday, 19/06/2026 **DAY 2**	07.30 - 9.00	Travel from Isiolo to Nanyuki	ELSA Team
	9.00 – 9.30	AIAP Team meets ELSA Team in Nanyuki Town	AIAP & ELSA Teams
	09.30 – 10.00	Travel from Nanyuki town to Naro Moru, Kiahuko Youth Training Centre	AIAP & ELSA Teams
	10.00 – 10.50	Arrival and facility orientation	Mr. Kahenya
	10.50 – 11.20	*Tea & health break*	
	11.20 – 13.20	Farm visits: the youth training centre and two nearby farms	All
	13.20 – 14.20	*Lunch break*	
	14.20 – 15.20	Plenary: Reflections, key learnings and future actions	AIAP Team Moderating
	15.20 – 15.30	Formal closure & departure	All