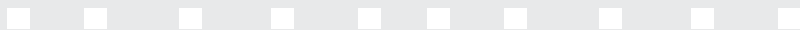




# Community-Led Market and Investments Mapping for the Transformation of Pastoral Systems (CLeMI)



*A Three-Pillar Strategy for Community Resilience:  
Sustaining Food Systems, Formalizing Markets, and  
Guiding Investment in the Tanzania Pastoral  
Communities.*





MANDELA  
WASHINGTON  
FELLOWSHIP  
FOR YOUNG AFRICAN LEADERS

**UCDAVIS**  
UNIVERSITY OF CALIFORNIA



TANZANIA



Dates

September 16–18, 2025

Organizers

Sustainable CommunityTech Alliance  
(ComTech Alliance), WWF Tanzania, and  
UC Davis

Location

Pastoral Communities, Northern Tanzania

Divisions

Longido, Engarnaibor, Ketumbeine

Villages

Longido, Mairoa, Kimokoua, Olorienait



## Foreword



The CLeMI workshops mark an important milestone in the journey of the Sustainable CommunityTech Alliance (ComTech Alliance) toward strengthening community resilience through inclusive, knowledge-driven approaches. As a local organization working at the intersection of technology, livelihoods, and sustainability, we have witnessed firsthand the power of participatory learning spaces that bring communities together to reflect, question assumptions, and co-create practical solutions to the challenges they face. The insights emerging from these engagements reaffirm that sustainable change is not only technical, but also deeply social and adaptive.

Our experience through this initiative has strengthened our commitment to expanding this model to other pastoral and agro-pastoral communities facing similar climate-related pressures. We envision a future where women and youth are not only beneficiaries of development programs but active innovators and decision makers in shaping resilient livelihoods. By linking local knowledge, inclusive dialogue, and appropriate technologies, we aim to support opportunities that enhance food security, resource management, and adaptive capacity in the face of climate change.

This report represents both a reflection on lessons learned and a foundation for scaling impact. ComTech Alliance remains dedicated to building partnerships that enable communities to lead their own pathways toward resilience, dignity, and sustainable development.

Dr. Devotha G. Nyambo  
Executive Director  
Sustainable CommunityTech Alliance.

In September of 2025, I was honored to be invited to Tanzania as part of the Mandela Washington Fellowship's Reciprocal Exchange Program. A year earlier, I met ComTech Alliance Executive Director (ED), Dr. Devotha Nyambo, while facilitating a session on adaptive leadership for the Mandela Fellows at the University of California, Davis. Together we recognized the power and potential of bringing adaptive leadership ideas to help accelerate progress on development and environmental challenges in Tanzania and worldwide.



It's hard to imagine how the adaptive leadership framework, which was first developed at the Harvard Kennedy School, would have any resonance among Maasai pastoral communities in rural Northern Tanzania. What we discovered, however, is that there has been a missing piece in "international development" work, one that has too often led to failure in well-meaning development and conservation projects. The answer is NOT to cease this kind of work due to these past setbacks, but to acknowledge what has worked, and to make adaptations that will increase partnership with communities and increase the likelihood of proposed changes sustainably taking root.

Changing the way we "do" development alongside communities does not necessarily require greater technical skill or expertise. It is more complex only in the sense that it involves modifying deeply and historically ingrained ways of working that can be hard to break. It involves improving our diagnostic capacities before taking action. It requires engaging more thoughtfully with community members. It involves understanding the difference between technical challenges and adaptive ones.

It turns out that adaptive leadership provides great scaffolding for community-centered development work, and it doesn't really matter where the framework originated, as it reflects a set of universal human ideas that can transcend cultures. What I believe you'll discover from reading this report, the ideas we drew upon and the facilitation strategies we used, is that adaptive leadership processes, when implemented with cultural sensitivity and deference to local communities, have tremendous potential to accelerate progress on the big global challenges that we face today.

Let's face the reality that top-down and predominantly technically-driven approaches to development have too often let us down. New strategies are needed. Adaptive leadership is one approach that can help shift problematic power dynamics and fundamentally change the conversation in ways that will have staying power.

Prof. Marc Ross Manashil  
Consultant and Educator,  
University of California, Davis

Pastoral systems are critical to Tanzania's socio-economic and food security landscape, accounting for approximately 70 percent of the national livestock population and contributing nearly 80 percent of the country's meat supply. In Northern Tanzania, pastoral livelihoods support millions of people and play a critical role in local economies, cross-border trade, and ecosystem stewardship. However, these systems are experiencing rapid environmental



degradation from unsustainable food production, overgrazing, climate change, recurrent droughts, and limited integration into formal markets and investment frameworks. The impacts of these challenges are most acutely felt by women and youth, whose livelihoods and food security are disproportionately affected.

Despite their resilience and rich indigenous knowledge, pastoral communities continue to face structural barriers, including weak market access, fragmented support interventions, and limited participation in decision making. Many externally driven development initiatives have struggled to achieve sustainable outcomes due to insufficient community ownership and poor alignment with local priorities and pastoral mobility patterns.

In response, the Community-Led Market and Investments Mapping for the Transformation of Pastoral Systems (CLeMI) initiative was implemented in Longido District, Northern Tanzania, through a collaboration between WWF Tanzania, Sustainable CommunityTech Alliance (ComTech Alliance), and the University of California, Davis. The CLeMI workshops, conducted in the divisions of Longido, Engarnaibor, and Ketumbeine, applied a community-led and adaptive leadership approach to enable pastoralists to collectively analyze food systems, markets, and investment opportunities.

By centering women and youth and linking local knowledge with broader market and investment ecosystems, the workshops demonstrated the potential of inclusive, data-informed, and locally grounded approaches to strengthen pastoral livelihoods and resilience. WWF Tanzania's participation was supported in part through funding from the REDAA programme, funded by UK International Development and managed by the International Institute for Environment and Development (IIED). This report documents the CLeMI process and outcomes, offering insights for advancing community-led, climate-resilient pastoral development in Tanzania and open pathways for investments in the pastoral corridors of Northern Tanzania to strengthen local resilience.

Gasto Mushi- REDAA project Manager

WWF Tanzania

## Acknowledgements

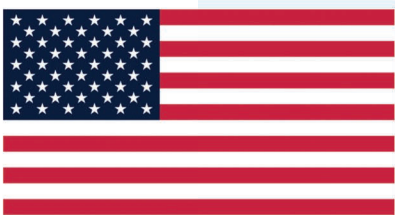
We sincerely thank all the involved staff from the Sustainable CommunityTech Alliance (ComTech Alliance) WWF Tanzania, UC Davis, LOKEEN Social Organization, Longido District Leadership and all pastoral community members for their collaboration and active participation. Special recognition goes to Prof. Marc Manashil from UC Davis for volunteering his resources to attend and facilitate in the three workshops. The women and youth who actively participated are appreciated for their courage and willingness to break the ceiling of inclusion, which shaped the dialogue on community transformation.

The women and youth who participated actively are appreciated for their courage and leadership in shaping inclusive community dialogue and action.



This report was partly funded by the REDAA programme.

Reversing Environmental Degradation in Africa and Asia (REDAA) is a programme that supports locally led research and action for nature restoration and climate resilience in Africa and Asia. It is funded by UK International Development from the Foreign, Commonwealth and Development Office and managed by IIED. For more information, visit [www.redaa.org](http://www.redaa.org).



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## Executive Summary

The socio-economic vitality of Northern Tanzania is inextricably linked to the resilience of its pastoral systems, which currently sustain approximately 70% of the national livestock population and contribute nearly 80% of the country's meat supply. Despite the sector's substantial 7.1% contribution to the national Gross Domestic Product (GDP), pastoral communities in the Arusha Region face an escalating crisis driven by climate variability, land tenure insecurity, and market exclusion. The Community-Led Market and Investments Mapping for the Transformation of Pastoral Systems (CLeMI) initiative, implemented through a partnership between the Sustainable CommunityTech Alliance (ComTech Alliance), WWF Tanzania, and the University of California, Davis, represents a paradigm shift in development intervention. By moving beyond traditional "technical fixes" toward an "adaptive leadership" approach, the CLeMI workshops held in September 2025 aimed to empower Maasai communities in Longido to co-create sustainable development pathways. This report captures the outcomes of the initial CLeMI workshops, highlights key lessons learned, and presents a roadmap for future community-led action and investment.



# Overview of Longido District

Longido District is in the Arusha Region of northern Tanzania, a semi-arid area characterized by vast savannahs, isolated mountains, such as Mount Longido, Gelai, Ketumbeine, and Oldonyo Lengai, and its strategic position along the Kenya–Tanzania border. The district spans approximately 7,800 square kilometers and is sparsely populated, with a population of 175,915 comprising 82,887 males and 93,028 females, with 90.74% living in rural areas. In terms of age distribution, 59.17% are children and youth under 19 years, 37.94% are adults aged 15–64, and 2.89% are elderly, with the Maasai being the predominant ethnic group known for pastoralism.

The population of Longido is predominantly Maasai, one of Tanzania's most famous and culturally resilient ethnic groups. The population is largely rural and semi-nomadic; pastoralism/livestock keeping is the main social and economic activity. Livestock keeping mainly supports the food systems of the Maasai communities. Other activities include subsistence agriculture, cross-border trade, tourism, handicrafts, and mining.

The Maasai culture is the defining cultural fabric of Longido, known for its deep traditions, distinctive dress, and social structure. The society is organized into age-sets, like Morans/warriors responsible for protecting the community and livestock. They then graduate to become elders. The Maasai shuka (bright, often red, checked blankets) is the traditional wear for men and women. Elaborate beadwork is worn by women and warriors, with colors and patterns signifying social status, age,

and marital status.

Lake Natron Ramsar site is one of the most significant natural features partly lying within the district, a highly alkaline soda lake and one of the world's most important breeding grounds for lesser flamingos. Its surreal red waters, proximity to Ol Doinyo Lengai volcano, and dramatic Rift Valley landscapes make it a major ecological and tourist attraction.

Tourism in Longido includes flamingo watching, volcano trekking, cultural experiences with the Maasai, nature walks to Engare Sero waterfalls, and exploration of remote wilderness areas. Although tourism potential is high, visitor numbers remain relatively low due to marketing gaps and infrastructure challenges.

Investment opportunities in the district include developing eco-lodges, adventure guiding services, community-based tourism enterprises, visitor infrastructure, value addition to livestock products, and conservation-linked projects. Sustainable tourism around Lake Natron presents prospects for both economic growth and ecological preservation, supporting local livelihoods while protecting critical habitats.

Despite its natural and cultural assets, Longido faces development challenges, including water scarcity, limited arable land for agriculture, infrastructure needs, and economic vulnerability during prolonged dry seasons. Efforts by local authorities and NGOs are ongoing to improve water access, support climate resilience, and expand livelihood options beyond traditional pastoralism.

## Contextual Background and the Need for Capacity Building

Pastoral systems play a central role in Tanzania's socio-economic landscape, accounting for approximately 70% of the national livestock population and contributing nearly 80% of the country's meat supply. These systems support millions of livelihoods and contribute about 7.1% to national GDP, while also sustaining cross-border trade and food security in arid and semi-arid regions. However, pastoral communities, particularly in Northern Tanzania, are increasingly vulnerable to climate variability, recurrent droughts, environmental degradation, and weak integration into formal markets and investment systems. Recurrent drought events have resulted in the loss of millions of livestock per episode, exacerbating poverty, food insecurity, malnutrition, and social vulnerability among women and youth.

Despite their resilience and deep indigenous knowledge, the pastoral communities continue to face structural challenges, including limited access to markets, exclusion from investment decision making, weak adaptive capacity, and fragmented support interventions that prioritize short-term technical fixes over long-term systemic change. In many cases, as seen in local communities, externally driven solutions have failed to deliver sustainable outcomes due to insufficient community ownership, limited consideration of cultural and behavioral dimensions, and poor alignment with local priorities along pastoral migratory corridors.

In response to these challenges, the Community-Led Market and Investments Mapping for the Transformation of Pastoral Systems (CLeMI) initiative was implemented in Longido District, Northern Tanzania, through a collaboration between the Sustainable CommunityTech Alliance (ComTech Alliance), WWF Tanzania, and the University of California, Davis. Conducted across the divisions of Longido, Engarnaibor, and Ketumbeine, the CLeMI workshops engaged pastoral communities in participatory processes to analyze food systems, markets, and investment opportunities through the lens of adaptive leadership. The approach emphasized community-driven problem framing, inclusive dialogue, and co-creation of solutions that integrate technical interventions with adaptive social, cultural, and governance strategies.

By centering women and youth and linking local knowledge with broader market and investment ecosystems, the CLeMI initiative demonstrated the potential of community-led, data-informed, and adaptive approaches to strengthen pastoral livelihoods, enhance resilience, and foster more inclusive and sustainable development pathways. This contextual foundation underscores the need for scalable, locally grounded models that connect communities to evidence-based decision making, markets, and investments while reinforcing long-term resilience in pastoral systems.



*Figure 1: CLeMI Workshops Organizing Team from ComTech Alliance, WWF Tanzania, and UC Davis at Longido*

## Objectives

The overall objective of the CLeMI workshops was to strengthen the capacity of pastoral communities in Northern Tanzania, particularly women and youth, to collectively analyze, articulate, and address complex challenges affecting food systems, markets, and investment opportunities through a community-led and adaptive leadership approach. By enabling participants to generate and use locally grounded knowledge, the workshops sought to support more inclusive decision making, strengthen community ownership of development pathways, and foster resilient pastoral livelihoods that are better aligned with sustainable markets, climate adaptation, and equitable investment practices. The workshops addressed the following specific objectives:

- i) To introduce adaptive leadership concepts and techniques to community members and local leaders, reaching at least 200 participants across the three divisions during the September 16–18, 2025 workshops (target:  $\geq 40\%$  women;  $\geq 30\%$  youth).
- ii) To strengthen the capacity of women and youth to participate in and influence community decision making and problem solving, measured by the formation of at least six local action groups and documented leadership opportunities for women/youth within three months after the workshops.
- iii) To co-create locally relevant strategies and solutions for key challenges (food insecurity, market access, climate-sensitive investments), producing at least three community action plans and a set of knowledge products (leaflets/worksheets) for local dissemination.
- iv) To promote community ownership of development pathways by facilitating inclusive negotiation and investment dialogues that result in clear, participatory commitments from senior village representatives (e.g., memorandum of understanding or meeting minutes recording agreed next steps).

## Methodology

This section describes the methodology adopted during the CLeMI workshop.

- i) **Participatory Training Approach:** Facilitated interactive workshops combining short lectures and group discussions.
- ii) **Locally Translated Materials:** Kiswahili worksheets (Kitendeakazi) and the Maasai language were used to ensure inclusivity and understanding among participants.
- iii) **Adaptive Leadership Themes:** Concepts such as Authority vs. Leadership, the Imperative of Adaptation, and Technical vs. Adaptive Challenges were introduced to the participants (see below).
- iv) **Community-Led Problem Framing:** Participants analyzed real community challenges, proposed technical fixes, and identified adaptive strategies requiring cultural or behavioral shifts.
- v) **Focus Group Discussions:** Led by a qualitative data expert, the FGDs involved at least 6 to 8 participants in each workshop, with an equal mix of four males and four females, ensuring inclusion and gender diversity. Discussions were tailored on three main themes: food systems, markets, and investment opportunities, and how these aspects are affecting various gender groups.

### Adaptive Leadership Themes

The workshops were organized around the adaptive leadership framework, a set of ideas first developed 40 years ago by Dr. Ronald Heifetz and Marty Linsky at the Harvard Kennedy School that are now being advanced by a growing community of practitioners and educators around the world. During the workshops, we presented several key ideas of the adaptive leadership framework, including:

**Distinguishing Authority and Leadership:** We began with the foundational principle of leadership as an activity open to anyone, irrespective of position or level of formal authority. In contrast to predominant notions of leadership that enmesh the ideas of authority and leadership, often in counterproductive ways, we sought to decouple the functions of authority (providing people protection, direction, and order) from the work of leadership, which in our view, is about mobilizing others to face complex adaptive challenges.

**Adaptation:** To provide a space for the community to explore how best to adapt to difficult new challenges, participants were invited into small groups to discuss one of three areas that are critical to their lives and livelihoods—food systems, investment and markets, looking at current practices in these areas through the lens of the three key questions of adaptation: what should be preserved; what must be discarded; and what new learning and innovation can be pursued?

**Technical and Adaptive Challenges:** The discussions on adaptation segued into another key distinction between technical challenges, where solutions can be found by applying existing expertise and know-how, and adaptive challenges, which require people to change attitudes and behaviors, face losses and address root causes. We highlighted this distinction by sharing a sequence of two images, the first depicting a traditional Maasai dish called nyama choma (barbecued meat) and a request that community members teach us the steps of preparing it. This image depicting a largely technical challenge was then contrasted with a second image of a child retrieving water from a dangerous source, representing a challenge with significant adaptive elements.

As we began to discuss the common trap of treating adaptive challenges like technical ones, participants became increasingly animated. Whether it be water wells that had been abandoned or latrines never used, the message was the same. The communities were able to discuss moments when people in positions of authority leaned too far into technical solutions without sufficiently understanding or engaging with them.

Building on the prior adaptation discussion, community members identified their most resonant and pressing needs, examining both the technical and the adaptive elements that would need to be addressed to ensure progress. We concluded by discussing the initial interventions they could make to both learn more about and begin addressing these challenges.



*Figure 2: Group Photo at the Mairoa Village during the workshops*



*Figure 3: Group discussions at the Kimokouwa Village workshop*

## Key Activities and Highlights

This section presents the key activities and highlights carried out during the CLeMI workshop.

i) **Workshops:** Over 200 community members, including women and youth, engaged in sessions on adaptive leadership with reference to resilience in food systems, markets, and investment opportunities.

ii) **Problem Analysis Exercises:** Participants examined issues such as water scarcity, youth unemployment, and gender exclusion in decision making at household levels and how this affects the sustainability of implemented technical solutions.

iii) **Interactive Learning:** Small groups worked on identifying technical solutions (e.g., water infrastructure, access to markets) and adaptive approaches (e.g., engaging elders and community members in cultural dialogue, building inclusive governance).

iv) **Leadership Dialogue:** Focus group sessions emphasized the role of collective action, trust building, and inclusivity in addressing long-term adaptive challenges.



*Figure 4: Group discussions at the Longido session with local leaders*

## *Our Adaptive Leadership Process*

Drawing on the above-mentioned adaptive leadership ideas, we introduced a sequence of conversations to help community members identify and begin to address their biggest challenges. One concept built on the next, providing participants the opportunity to honestly face what would need to be changed from the past while envisioning real possibilities for the future.

After explaining the first concept of adaptation (what to preserve, discard and learn/innovate), participants were invited into small groups of their choosing so that attendees could contribute to the discussion of their greatest interest. Participants selected from one of three topics: Food Systems, Markets, and Investment Opportunities. Using the worksheet provided

formed around each of these areas to discuss what community practices should be preserved (column 1), discarded (column 2), and what new ideas or innovations could be pursued (column 3).

A literate member of each group was appointed as “Designated Authority” to facilitate the small group conversation and to record the ideas of their fellow members on the worksheet. This approach led to a comprehensive set of ideas that represented the diverse perspectives of all members. We then typically debriefed the small group discussions in the large group so that all participants could hear, affirm and offer additional contributions to any one of the topics discussed.

Following the first small group breakout discussion, we introduced the distinction between technical and adaptive challenges. Participants remained in their same designated small groups and were asked to identify the most resonant challenge they had identified during the first exercise and to utilize a second worksheet (see [Annex 2](#))

technical and adaptive elements of addressing the problem. Most traditional “strategic planning” processes tend to focus on the technical elements of problem solving and too often neglect the adaptive aspects.

In contrast, we asked participants to honestly examine the changes in behaviors and the losses people would need to endure as well as the resistance they might encounter in order to manage the potential change in a thoughtful and inclusive way. As with the previous exercise, small group facilitators captured the group’s ideas followed by large group sharing and soliciting additional member inputs.

Finally, in an attempt to maximize the chance that community members advance progress on the ideas they surfaced during the workshops, we concluded community meetings with a large group discussion of next steps, drawing upon an intervention plan exercise (see [Annex 3](#)). We asked participants to identify the most important idea or change project that had emerged from their prior discussions, one that seemed the most important place to start. Drawing on a PDSA (Plan-Do-Study-Act) model, we asked what specific next step they planned to undertake, examining their assumptions about how other community members might react. Though these interventions would need to be carried out after the workshop, participants were encouraged to consider the results of their actions afterwards: Did the intervention go as they had planned or differently, and why? What did they learn, and what are the implications for their next steps?

At the conclusion of the sessions, we felt hopeful that with the support of our WWF Tanzania and LOKEEN NGO partners, community members would continue the process of working together to make progress on these difficult community challenges.



Based on the community workshops and small group discussions, participants identified practices and strategies across three key themes: Food Systems, Markets, and Investment Opportunities. For each area, they explored what should be preserved, what should be abandoned, and what innovative practices should be introduced. Their insights are summarized below.

## **(I) Food Systems**

### ***Sustainable Practices to Maintain for Food Systems (Dumisha)***

- i) Diverse Agriculture: Cultivation of vegetables, cereals (grains), and specific crops like maize, beans, and sesame.
- ii) Livestock Management: Rearing of cattle (for milk), chickens, bees (for honey), goats, and sheep, with an emphasis on productive and high-yield breeds.
- iii) Resource Management: Ensuring access to clean, safe water and maintaining beekeeping for honey production.
- iv) Market and Timing: Access to reliable markets for selling produce and practicing timely farming using quality seeds.

### ***Unsustainable Practices to Discard (Achana Nayo)***

- i) Poor Inputs and Methods: Using poor-quality seeds and relying solely on hand-hoe farming.
- ii) Inefficient Rearing: Unproductive, extensive livestock rearing (e.g., keeping a thousand cattle without regard for quality or pasture management).
- iii) Detrimental Dietary Habits: Harmful cultural practices like avoiding certain nutritious foods (fish, chicken, vegetables, eggs, small fish/sardine), eating only one meal a day, consuming dry grains without vegetables, and drinking porridge without milk.
- iv) Unhygienic and Unhealthy Practices: Selling food haphazardly, storing porridge in gourds, cooking ugali with meat, and frying blood.

### ***Innovative Practices to Introduce (Ubunifu)***

- i) Crop Diversification: Introducing or expanding the cultivation of sweet potatoes, cassava, tomatoes, carrots, bell peppers, bananas, wheat, ginger, and fruits.
- ii) Advanced Techniques: Using improved seeds, applying fertilizer, digging deep wells, and controlling invasive weeds.
- iii) Pasture Management: Forming grazing committees, planting pasture grass, and excavating livestock ponds (mabwawa) to improve pastureland management and protection.
- iv) Economic & Educational Development: Selling livestock to fund other household projects, improving housing as a form of savings security, purchasing sufficient cereal food, and providing community education on food preservation and diverse diets (encouraging consumption of chicken, fish, and eggs).
- v) Market Assurance: Establishing reliable collection markets for agricultural produce.

## **(II) Markets**

### ***Existing Markets and Practices to Preserve for Markets (Dumisha)***

- i) Core Commodity Markets: Continue supporting markets for livestock, agricultural produce (maize, beans), honey, milk, sugar, and traditional crafts (beadwork, tailoring, shoemaking).
- ii) Key Sectors: Maintain and promote the tourism and mining sectors by improving wildlife areas and issuing small-scale mining licenses.
- iii) Infrastructure and Trade: Improve road infrastructure to facilitate market access, maintain fixed market locations, and uphold fair pricing mechanisms that benefit both buyers and sellers.
- iv) Business Continuity: Ensure the ongoing operation of businesses in livestock, grains, traditional clothing, and foodstuffs.
- v) Governance: Strengthen tax compliance to fund development projects in the villages.

### ***Inefficient Practices and Barriers to Discard (Achana Nayo)***

- i) Market Inefficiencies: Remove exploitative middlemen (madalali) from livestock markets and abandon volatile, long-supply-chain businesses like sugar and rice in favor of local products.
- ii) Unproductive Practices: Discontinue keeping large numbers of unproductive local-breed livestock that cannot be properly managed.
- iii) Harmful Activities: Stop harmful tourism that negatively impacts local culture, the sale of spoiled food, and unsustainable harvesting of resources.
- iv) Outdated Methods: Phase out the use of firewood-intensive stoves to prevent deforestation and shift from selling meat in bulk to selling by weight (kilos).
- v) Lack of Market Linkages: Address the critical gap between training/production and actual market access, cited for products like honey, shoes, eggs, and beads.
- vi) Policy and Compliance: Eliminate tax evasion and amend laws and policies that disrupt proper market management.

### ***Innovative Practices and Systems to Introduce (Ubunifu)***

- i) Infrastructure Development: Build permanent market infrastructure, warehouses for crop storage, and processing plants for milk and honey.
- ii) Sectoral Development: Establish a reliable and formalized market system for livestock and food, a leather tanning industry, and promote modern livestock breeds for meat and milk.
- iii) Tourism and Promotion: Intensify promotional activities for tourist sites and create designated market areas (e.g., in Kanjiro) where tourists can purchase local crafts like beads centrally.
- iv) Education and Capacity Building: Provide education to community groups on market promotion, beekeeping, and leadership training for group management. Foster connections with organizations for marketing training, especially to empower women and youth.

- v) Technology and Inputs: Introduce technologies such as chick incubators, grain storage facilities, pesticides for crop protection, and personal gas stoves to reduce reliance on wood.
- vi) Diversification: Encourage new ventures like small-scale irrigation for vegetables, production of oils and soap, and tree planting.

### **(III) Investment Opportunities**

#### ***Existing Investment Sectors to Preserve (Dumisha)***

- i) Livestock and Dairy: Investing in the production of meat, milk, ghee, butter, and eggs.
- ii) Local Enterprise: Supporting existing businesses in beadwork, soap making, retail shops (duka), mobile money services (wakala), currency exchange, and the trade of staple foods (sugar, rice, oil, maize).
- iii) Processing Industries: Maintaining and supporting meat processing plants (kiwanda cha nyama) and flour mills.
- iv) Natural Products: Sustaining investments in beekeeping (honey), timber blocks, and mining.
- v) Tourism Diversification: Promoting various forms of tourism, including cultural tourism, photographic safaris, sustainable hunting tourism, and medical tourism especially for herbal medicine.

#### ***Harmful Practices and Models to Discard (Achana Nayo)***

- i) Exclusionary Practices: Ceasing top-down investment decisions, particularly in tourism (e.g., lodge construction and land allocation) that lead to land conflicts and exclude communities from revenue sharing.
- ii) Environmental Degradation: Stop trophy hunting, environmental pollution, destruction of water sources and forests, and unsustainable honey harvesting methods by communities.
- iii) Inefficient Agriculture & Livestock: Abandoning unproductive, extensive livestock rearing, keeping livestock on farmland, rain-dependent agriculture, and unsustainable farming that causes soil degradation and erosion.
- iv) Lack of Transparency: Ending non-transparent and non-participatory practices, such as the non-involvement of communities in mining and business deals by authorities, and the exclusion of herders during the weighing of meat for sale at the markets and industry.

### *Innovative Investments and Reforms to Introduce (Ubunifu)*

- i) Agricultural & Pastoral Modernization: Investing in improved livestock breeds, zero-grazing systems, irrigation agriculture, conservation farming (agroforestry, mulching, crop rotation), and clearing invasive weeds to improve rangelands.
- ii) Value Addition & Enterprise: Upgrading soap production, establishing a large shop for Maasai clothing, adding value to bee products, and opening water recycling and mineral purification plants.
- iii) Tourism & Training: Investing more in photographic safaris and eco-lodges, establishing a tourism college (possibly under NACTVET), and providing beekeepers with training on modern technologies.
- iv) Governance & Community Inclusion; Participants strongly advocated for:
  - a) Community Engagement: Ensuring village leaders and landowners are engaged in negotiating and deciding investment locations to avoid conflict.
  - b) Equitable Agreements: Creating clear contracts with private investors that guarantee income returns to the community.
  - c) Participatory Management: Involving herders in the meat-weighting process and compensating them fairly.
  - d) Environmental Restoration: Implementing programs to restore rangelands, wetlands, and water sources.



*Fig 5: Group discussion at Longido Village*

## Uncovering Adaptive Elements From Technical Framing

A key insight emerging from the CLeMI workshops was that many persistent community challenges are commonly framed and addressed as technical problems, yet they fundamentally contain adaptive elements that, if unaddressed, lead to repeated project failure. Technical solutions such as infrastructure, equipment, or external funding are often introduced without sufficient attention to underlying social norms, power relations, incentives, ownership, and behavioral dynamics within communities. Through facilitated adaptive leadership discussions, participants were supported to interrogate these deeper dimensions, revealing why well-intended projects frequently fail to deliver sustainable outcomes at the community level.

One illustrative case discussed during the workshops concerned water scarcity and rainwater harvesting. Initially, the challenge was framed as a lack of water tanks and financial resources, with women emphasizing their inability to afford such infrastructure and the perceived need for donor or NGO support. However, deeper dialogue revealed an adaptive dimension: men who control household finances, livestock, and major assets did not perceive water scarcity as their problem, as water collection is culturally assigned to women. This lack of shared problem ownership resulted in limited household investment in water harvesting solutions.

The discussion highlighted that without deliberate efforts to raise awareness and shift perceptions among men, purely technical interventions such as installing water tanks would remain unsustainable. Addressing this challenge, therefore, requires adaptive strategies focused on changing mindsets, strengthening shared responsibility, and fostering intra-household dialogue alongside any technical investment.

A second case involved a proposed crop storage facility intended to reduce post-harvest losses and improve food security. Although our adaptive leadership exercises saw this need emerge as a top priority for the community, discussions revealed the failure of an existing facility in a neighboring village. The earlier storehouse had been built in a community primarily engaged in livestock production rather than crop farming due to political decision making. Farmers from surrounding villages were expected to transport their harvests over long distances at their own cost, creating a financial disincentive. As a result, most farmers opted to sell produce immediately after harvest to large-scale buyers instead of storing it, rendering the facility non-functional and surrounding communities food insecure.

This case underscored that the prior failure was not due to technical challenges like poor construction or design, but rather a lack of community ownership, misalignment with livelihood systems, and insufficient consideration of user incentives.

With that past failure in mind, our work with the community reinforced the importance of adaptive problem framing, ensuring that solutions are co-owned, context specific, and aligned with community practices before committing to technical investments. Participants carefully considered issues such as optimal placement of the storage facility, how different perspectives could emerge around its location or potential resistance from community members who may be benefitting from the status quo. Participants generated significant momentum for further discussion and action around building a facility that truly works for all community members.

Collectively, these case examples from the workshops demonstrate that empowering communities to uncover adaptive elements within seemingly technical problems is critical for designing solutions that are locally relevant, socially accepted, and sustainable over time.

## *Outcomes*

- a) **Enhanced Capacity:** Women and youth acquired new skills in leadership, problem framing, and negotiation as an important component in dealing with adaptive challenges.
- b) **Community Ownership:** The workshops encouraged community members to view themselves as active problem solvers rather than passive beneficiaries.
- c) **Commitment to Action:** Participants pledged to initiate local action groups focused on youth empowerment, women's leadership, and climate-resilient livelihoods. This was achieved through use of worksheet #4 ([Annex 4](#)).
- d) **Knowledge Products:** Educational materials (leaflets, booklets, printed PPTs, and photos) were distributed to strengthen knowledge retention and sharing beyond the workshop sessions.



*Figure 6: Focus Group Discussion Session at the Olorienaito Village*

## A Deep Dive

A deep dive section was designed through Focus Group Discussions (FGD) to expand knowledge on the local adaptive challenges and the community perceptions towards their technical solutions. The discussions revealed a meaningful shift in how participants understand and approach community challenges, moving from an initial reliance on technical solutions toward an appreciation of adaptive, social, and behavioral elements. At the outset, many challenges, such as water scarcity, food storage, and market access, were framed primarily as infrastructure or resource gaps requiring external support from government or development partners. However, as discussions progressed, participants began reflecting on why similar technically sound interventions had failed in the past. For example, in discussions on rainwater harvesting, women initially emphasized the lack of financial resources to install water tanks, but the dialogue uncovered that men who control household finances and livestock assets did not perceive water scarcity as their responsibility because they do not fetch water.

This realization reframed the issue from one of infrastructure provision to one of awareness, gender roles, and decision-making dynamics within the communities. Similarly, the case of a non-functional crop storehouse highlighted that failure was not due to poor construction, but rather to lack of community ownership, inappropriate siting in a livestock-dominated village, and the economic burden of transport costs on farming communities. These reflections marked a shift from asking “*what technical solution is missing?*” to “*why did existing solutions fail within our social and economic context?*” The evolving language and reasoning across the sessions demonstrate growing recognition that sustainable solutions must address incentives, ownership, power relations, and collective behavior alongside technical design of solutions.

## Participant Quotes

### A. Food Security

i. “Upatikanaji wa chakula wakati mwingine unakuwa changamoto kwa sababu tunategemea sana mifugo. Mifugo ikikosa malisho au maji, hata chakula kinakuwa shida.” *“Access to food sometimes becomes a challenge because we depend heavily on livestock. When livestock lack pasture or water, food itself also becomes a problem.”*

- Participant 5, Kimokouwa FGD (Community Members).

ii. “Mvua zinapokosekana, hata maziwa yanapungua. Hii inafanya chakula kuwa haba hasa kwa watoto na wanawake.” *“When rains fail, milk production also declines. This makes food scarce, especially for children and women.”*

- Participant 6, Kimokouwa FGD (Community Members)

iii. **“Kwa upande wa ufugaji wa ng’ombe, tunapata changamoto ya malisho hasa wakati wa kiangazi... hali hii inasababisha mifugo kudhoofika.”** *“In cattle keeping, we face challenges with pasture, especially during the dry season... this situation causes livestock to weaken.”*

- Participant 7, Mairowa FGD (Women group).

### ***B. Market Access***

i. **“Chakula kingi ni cha kununua. Mifugo inaingia kwenye biashara, mtu anauza mifugo halafu ananunua chakula.”** *“Most of the food must be bought from markets, so people sell livestock and then buy food.”*

- Participant 5, Longido FGD (Village Leaders FGD)

ii. **“Ghala lilijengwa kwenye kijiji ambacho watu wengi wanafuga kuliko kulima... gharama za kusafirisha mazao zilikuwa kubwa sana.”** *“The storehouse was built in a village where many people keep livestock rather than farm... the costs of transporting crops were very high.”*

- Participant 11, Kimokouwa FGD (Community Members)

iii. **“Tunatamani kupata masoko bora ya mazao na mifugo... ili bidhaa zetu zipate soko la uhakika na bei nzuri.”** *“We desire to get better markets for crops and livestock... so that our products can have a reliable market and good prices.”*

- Participant 12, Mairowa FGD (Women group)

### ***C. Investment and Economic Resilience***

i. **“Uwekezaji mkubwa ni kupitia vikundi vya akiba (vikoba)... kupata fedha za ada za watoto na kuanzisha biashara ndogo.”** *“Major investment is through savings groups (VICOBA)... to obtain school fees for children and to start small businesses.”*

- Participant 13, Mairowa FGD (Women group)

ii. **“Tusizembe kuuza mifugo kwa ajili ya kununua chakula bila mpango. Tunapaswa kuboresha ufugaji kwanza.”** *“We should not rush to sell livestock just to buy food without a plan. We should improve livestock keeping first.”*

- Participant 7, Longido (Village Leaders FGD)

iii. **“Tunapaswa kujiandaa mapema... kupanga chakula cha mifugo kabla ya ukame kufika.”** *“We should prepare early... to plan for livestock feed before the drought arrives.”*

- Participant 8, Mairowa FGD (Women)

## Emerging Themes and Interpretation

<b>Emerging Theme</b>	<b>Evidence from the Discussion</b>	<b>Interpretation / Implications</b>
<b>Climate-driven food insecurity</b>	Repeated references to unreliable rainfall, drought, and declining pasture and milk production	Food security in Longido is highly climate sensitive, requiring anticipatory planning and climate-smart interventions
<b>Heavy reliance on livestock</b>	Statements emphasizing milk, meat, and livestock sales as primary food and income sources	Livestock remains the backbone of livelihoods; interventions must strengthen rather than replace pastoral systems
<b>Environmental degradation</b>	Mentions of invasive plant species reducing grazing land	Rangeland management and invasive species control are critical for sustaining livestock productivity
<b>Gendered burden of resource access</b>	Women highlighting long distances for water and responsibility for food provision	Programs must explicitly address gender roles and reduce women's time and labor burdens
<b>Weak market infrastructure</b>	Failure of community storage facilities and high transport costs	Market access challenges are structural, not behavioral, and require location-appropriate infrastructure
<b>Coping through asset sales</b>	Selling livestock to buy food during shortages	This strategy undermines long-term resilience and accelerates vulnerability
<b>Informal community investment systems</b>	Use of savings groups (VICOBA) and food reserves	Local financial mechanisms are trusted entry points for scaling investment and resilience programs
<b>Knowledge gaps and harmful norms</b>	Food taboos (e.g., eggs, fish for pregnant women)	Nutrition education remains essential alongside production-focused interventions
<b>Low community ownership of projects</b>	Failed projects due to poor siting and limited consultation	Sustainability depends on early and meaningful community participation
<b>Demand for practical, local solutions</b>	Calls for water harvesting, pasture improvement, and education	Communities favor actionable, context-specific investments over generic solutions

## Theory of Change Insight

If communities are supported through structured dialogue to examine past interventions and uncover the adaptive elements embedded within technical challenges, then they can develop greater ownership, informed decision making, and contextually appropriate solutions, leading to more sustainable outcomes. Technical interventions such as infrastructure, tools, or facilities are most effective when combined with processes that address social norms, gender dynamics, livelihood systems, and collective incentives. The discussions indicate that mindset shifts catalyzed through participatory learning are a necessary precondition for durable community-level change.



*Fig 7: Group Discussion at Kimokoua Village*

## Case Studies

### Clean Water

One of the most powerful illustrations of adaptation that we encountered happened while meeting with a Maasai women's group in one of the more remote villages we had visited, Kimokoa village. When going through adaptation exercise, group members identified the need for clean water as their most pressing issue, recognizing the need to improve the health of their children who were suffering and even dying from preventable waterborne diseases, to provide a more stable source of irrigation for their crops, but also to provide for the health of cattle that were perishing at an alarming rate.

Initially, several group members voiced the need for the government to install water catchment systems for them, but in the absence of any emergent funding or NGO support, the facilitators asked the group how they could raise resources as a community to support such a high priority need, suggesting that this might need to happen by selling a few of their cattle. The room felt initially silent and we could sense there was something important underneath the surface. One of the group members finally brought forth the “elephant in the room,” raising the point that the men were the ones who controlled the cattle and were unlikely to support any effort to sell them.



Fig 8: A child drawing water from an open dam  
(photo credits: My Chosen Vessels.)

In that moment, we better understood the perceived losses at stake and the differences in priorities and perspectives that were likely to ensue beyond the technical need to install a new water system. One of the group members remarked that they needed to begin bringing some men into the room so that they could be part of the conversation.

This particular moment highlighted two incredibly powerful aspects of adaptive work that often need to be attended to. The first is the inherent risk that underlies the work of leadership and changing an unsustainable status quo. As Heifetz and Linsky often remark, “leadership is a dangerous activity.” It requires taking risks (ideally calculated rather than outsized ones) while mobilizing others in order to distribute that risk. By sending the message that leadership is an activity open to all, it increases the likelihood that change can happen, as opposed to remaining silent and deferring to authority.

Adaptive work also requires “ripening” issues. This is one of our favorite metaphors within adaptive leadership, as it beautifully illustrates how fruit not ready to be eaten is likely to be seen as distasteful and quickly discarded. In this case, the work of ripening means slowly surfacing the importance of the desired change so that certain men in the community can begin orienting themselves to its importance and hopefully come to the realization that their cattle will grow and thrive over the long haul. Ripening also often requires appealing to values of others and holding up what is most important to them, so as to increase the likelihood of coming around to a proposed change, over time, and on their own terms.

## *Food Storage*

In another remote village in the highlands of Northern Tanzania, Engarnaibor, our adaptation exercise yielded the urgent need for food storage. The government had funded a food storage unit in a neighboring village, even though that community had been much more rooted in raising cattle than agriculture. Consequently, members of the village we visited would have to sell their crops to neighboring communities that had storage capacity available, and then later buy back those very same crops at a much higher price.

Community members in the village knew they would need to build a food storage unit of their own, but the task wasn't so simple. Where would such a system be built? Some residents might have easier access than others who had to walk a farther distance.

Significant support and momentum was being generated for the idea, yet minor differences still began to emerge in the room. Some participants asserted that community members would be universally supportive of the plan whereas others wondered if there could be some potential resistance. For example, were there any village members who actually benefited from the status quo of selling and buying back crops from other communities?

What was inspiring to see was the live diagnostic work that community members were doing before us, not just acknowledging a potentially good idea, but creating the space, or as we say in adaptive leadership the “holding environment” to surface different perspectives, identify potential resistance and to think through together implications and next action steps.

Community members left feeling inspired and motivated to take next steps.



*Fig 9: Maize as a growing staple food in the Pastoral Communities*

## Conclusion

The CLeMI initiative demonstrates that genuine transformation in pastoral systems emerges when communities are empowered to diagnose their own challenges and co-design solutions. Across the divisions of Longido, Engarnaibor and Ketumbeine, participants identified practices to preserve, habits to abandon and innovations to pursue in food systems, markets and investment opportunities. They recognised that many persistent problems framed as technical, such as water scarcity or market failure, are underpinned by adaptive elements relating to gender roles, household decision making and community engagement.

The workshops enhanced the leadership capacity of women and youth, strengthened community ownership and fostered commitments to action groups. By distinguishing between technical and adaptive challenges and using tools such as Plan-Do-Study-Act cycles, participants began to craft locally relevant interventions. Key lessons include the importance of inclusive dialogue, the need to address power dynamics in investment decisions and the value of integrating traditional knowledge with new technologies.

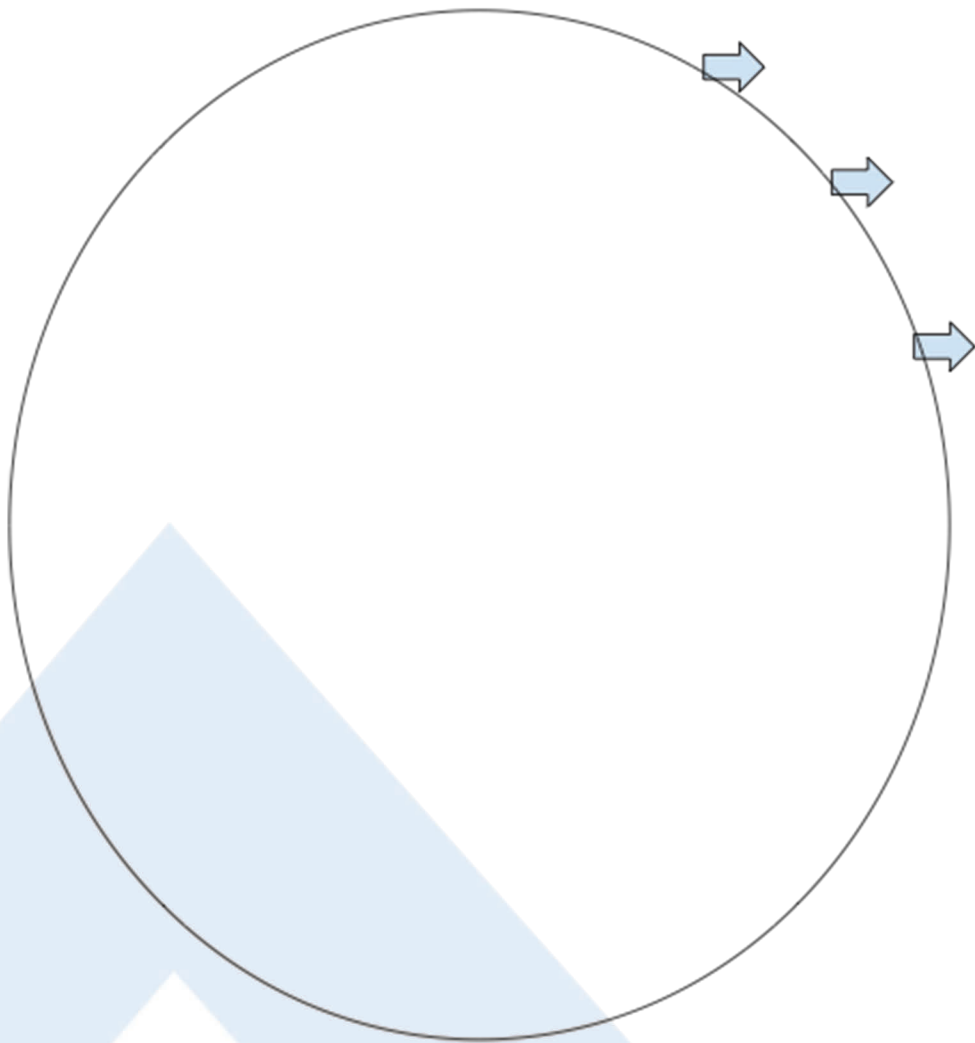
Looking ahead, sustaining the momentum generated by CLeMI will require continued support from partners and policy makers. Communities should be supported to implement their action plans, access markets and investment opportunities, and monitor the outcomes of their initiatives. At the national level, policies that secure pastoral land rights, promote fair market structures and recognise the role of women and youth will be critical. We invite all stakeholders, government agencies, NGOs, researchers and donors, to build on the insights of this report and work collaboratively towards resilient, adaptive pastoral systems.

# Annexes

## *Annex 1:*

### **Kitendea kazi #1: Mazingira ya Kiutawala**

Fursa za Uongozi:



## Annex 2:

Tafadhali jadiliana na wanakikundi namna gani jamii yenu itaweza kutatua changamoto mliyoinisha. Ainisheni mambo mtakayopenda kudumisha, kuachana nayo, na kubuni mapya na muandike katika jedwali.

### DUMISHA

Nini mngependa kudumisha juu ya namna jamii imekua ikishughulika na changamoto hii?

### ACHANA NAYO

Nini mngependa kuachanacho juu ya namna jamii imekua ikishughulika na changamoto hii?

### UBUNIFU

Mambo gani mapya mmeyawaza kuiwezesha jamii kuikabili changamoto hii kiufanisi zaidi?

## Annex 3:

### Kitendea Kazi #2 KUTAMBUA NA KUANDIKA CHANGAMOTO ZINAZOENDANA NA HALI

#### Sehemu ya 1: Kutambua Changamoto Zinazoendana na Hali

Fikiria changamoto moja unayoipata kwenye jamii yako na uandike sentensi 2 – 5 kuelezea changamoto hiyo kwenye jedwali upande wa kushoto. Baada ya hapo jibu maswahi yafuatayo:

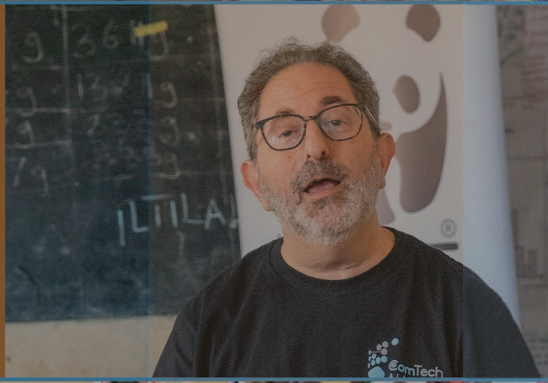
- Njia gani za kiufundi zinaweza kutumika kutatua changamoto hii? Ziainishe kama point kwenye jedwali upande wa katikati.
- Ni mambo gani muhimu yatakayohitaji mabadiliko kwenye tabia, mwenendo na vipaumbele?

Changamoto Kubwa	Njia za Kiufundi	Mambo muhimu yakuzingatia (Itahitaji mabadiliko kwenye dhana, vipaumbele na mwenendo)
<p><b>Mfano:</b> Jamii yetu inakabiliwa na changamoto ya kupata chanzo cha uhakika na salama cha maji safi ya kunywa. Hali hii imesababisha watoto na watu wazima wengi katika jamii yetu kuugua au hata kufariki kutokana na magonjwa yatokanayo na maji machafu.</p>	<ul style="list-style-type: none"> <li>• <b>Miundombinu ya Maji:</b> Kujenga visima, visima virefu, mifumo ya kuvuna maji ya mvua au mabomba ya maji.</li> <li>• <b>Usafishaji wa Maji:</b> Kuunganisha njia za kuchuja, kutumia klorini, au mbinu za kusafisha kwa mwanga wa UV.</li> <li>• <b>Kutunza Mifumo:</b> Kuweka utaratibu wa matengenezo na ukarabati wa mara kwa mara wa miundombinu ya maji.</li> <li>• <b>Kufuatilia Uboru na Upatikanaji wa Maji:</b> Kutumia sensa na teknolojia ya simu ili kuhakikisha maji ni safi na yanapatikana.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Kuchunguza Mfumo:</b> Tumia muda kuelewa jamii na wadau wote wanaohusiana na tatizo.</li> <li>• <b>Kushirikisha Jamii:</b> Jenga uaminifu na wahusishe wanajamii katika maamuzi na utekelezaji wa mfumo mpya.</li> <li>• <b>Kuelewa na Kuheshimu Mila na Desturi:</b> Tambua na kushughulikia changamoto zinazotokana na kupotea kwa njia za jadi za kuchota maji.</li> <li>• <b>Uendelevu wa Kiuchumi:</b> Elewa uwezo na uwezo wa jamii kugharamia huduma za maji kwa muda mrefu.</li> </ul>



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