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WorldFish

Field Report

Community Readiness and Technology Adoption Assessment for Post-Harvest Fisheries Interventions in Homa Bay County, Kenya

October, 2025

Photo Credit: Dr Everlyne Okoth

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We also recognize the continued support and collaboration of national and regional partners, whose engagement ensures that the solutions developed are responsive to local needs, strengthen innovation systems, and contribute to building more resilient agrifood systems.

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PHOTOS

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Executive Summary

This report presents the findings of a comprehensive community readiness and technology adoption assessment carried out between 13 and 15 October 2025 across Kakione, Sindo, and Nyachebe Beaches in Homa Bay County, Kenya. The exercise was conducted under the WorldFish, supported Project, a flagship initiative designed to reduce post-harvest losses, improve value addition, and strengthen the resilience of fishing communities along Lake Victoria. The mission's overarching objective was to determine how prepared local community groups are to manage and utilize modern fish-processing technologies—specifically solar tent dryers and improved smoking kilns, and to identify social, institutional, and technical enablers that can support sustainable operation of these facilities.

Scope and Participants

The assessment combined multiple, interlinked activities:

1. Institutional engagement with the County Department of Fisheries, including a courtesy visit to the Director to ensure alignment with county development priorities.
2. Community dialogue forums at Kakione and Sindo Beaches to discuss the operationalization of installed solar dryers and other post-harvest equipment; and
3. Key Informant Interviews (KIIs) with four representative community organizations:
    - Kakione Beach Management Unit (BMU) – providing regulatory legitimacy and coordination;
    - Upendo Women Group – demonstrating strong governance and organizational capacity;
    - Kakione Young Ladies Women Group – showcasing entrepreneurial drive among youth and women; and
    - Good Start Self Help Group (Nyachebe Beach) – bringing practical experience in fish smoking and welfare-based collective action.

Together, these engagements reached over 60 community participants, including women traders, youth fishers, local administrators, BMU leaders, and fisheries officers.

Key Findings

High Organizational Readiness:
All participating groups have formal registration, elected leadership, and functioning savings or table-banking systems. This institutional maturity provides a strong foundation for collective management of shared technologies.

Persistent Post-Harvest Losses:
Despite community enthusiasm, fish spoilage remains significant, particularly during rainy seasons, because traditional methods such as open-ground drying and rudimentary smoking are still dominant.

Infrastructure Gaps:
Installed solar dryers and kilns have not been formally commissioned or operationalized. Technical faults, unclear management structures, and a lack of training have limited their use.

Gender and Youth Inclusion:
Women constitute over 70 percent of active fish processors and traders, while youth account for roughly 30 percent of membership in organized groups. Both demographics expressed a strong willingness to participate in training and technology adoption.

Market and Economic Potential:
Demand for hygienically processed omena and smoked fish remains strong locally and regionally. Communities recognize the potential for expansion into supermarket and export markets once standards, packaging, and branding improve.

Strategic Insights

The findings reveal that community-level social capital is already in place—anchored in trust, collective responsibility, and established welfare systems. However, technical competence, equipment functionality, and market integration are weak points requiring targeted support.
Stakeholders also emphasized the importance of aligning community projects with County Government strategies and maintaining regular coordination between BMUs, WorldFish, and local administration to ensure accountability and sustainability.

Overall Conclusion

The assessment concludes that Homa Bay's lakeside communities possess the organizational strength, gender balance, and enthusiasm necessary to successfully adopt modern post-harvest fish-processing technologies.
To unlock this potential, interventions must focus on:

- Commissioning and operational support for existing facilities;
- Capacity building in fish hygiene, equipment operation, and business management;
- Financial and market linkages; and
- Continuous multi-stakeholder collaboration for long-term sustainability.

If implemented holistically, these actions will position the Kakione–Sindo–Nyachebe corridor as a model of inclusive, climate-resilient, and community-driven fisheries transformation on the shores of Lake Victoria.

1. Introduction and Assessment Context

1.1 Background

Fishing is one of the most critical economic and social activities for the riparian communities surrounding Lake Victoria, with Homa Bay County serving as one of Kenya's most active fish landing and trading hubs. Over 70 percent of households in the county depend directly or indirectly on fisheries for their livelihoods—through fishing, fish processing, transportation, trade, and related service industries. However, despite the sector's importance, post-harvest losses continue to undermine both economic and nutritional outcomes.

Traditional fish-processing methods, such as open-ground sun drying, rudimentary smoking, and unstandardized frying, expose fish to contamination, weather risks, and inefficiencies.
These challenges are compounded by climate variability, fluctuating fish stocks, and rising energy costs.

To address these persistent challenges, WorldFish has been piloting a range of climate-resilient technologies designed to improve quality, enhance value addition, and empower local communities, especially women and youth.
These include:

- Solar tent dryers for hygienic and weather-resilient drying of omena (Rastrineobola argentea) and other small pelagic fish;
- Improved smoking kilns with reduced fuel consumption and improved air circulation; and
- Solar-powered cold storage facilities for preservation and marketing of high-value fish products.

The technologies are intended to enhance food safety, improve income stability, and foster sustainable fisheries management within the context of climate adaptation and inclusive community development.

1.2 Purpose of the October 2025 Assessment

The October 2025 field mission was designed to consolidate lessons from earlier project installations and to determine the readiness of targeted community groups to operate and sustain post-harvest technologies. The assessment aimed to answer several key questions:

1. Are community groups organized, equipped, and willing to manage the facilities sustainably?
2. What institutional and governance structures exist to support inclusive management?
3. What technical and financial gaps need to be addressed before full operationalization?
4. How can gender and youth inclusion be mainstreamed into technology adoption?
5. What lessons can be drawn to guide future scale-up in Homa Bay and other counties?

The exercise also provided an opportunity to strengthen stakeholder dialogue between the project implementers, the County Department of Fisheries, BMUs, and local administrators, ensuring mutual understanding of roles and expectations.

1.3 Assessment Locations

The assessment was conducted at three main beach sites representing the diversity of Homa Bay's fisheries ecosystem:

1. Kakione Beach (Sindo Sub-County) – a hub for omena trade and site of a newly installed solar tent dryer;
2. Sindo Beach (Getway BMU) – an active fish landing and processing site with a high concentration of women and youth traders;
3. Nyachebe Beach (Rusinga Sub-County) – home to the Good Start Self Help Group, which manages a smoking kiln and demonstrates long-term experience in small-scale fish processing.

Each of these sites provided unique insights into the social organization, infrastructure availability, and local governance structures that influence technology uptake and sustainability.

1.4 Assessment Design and Approach

The mission adopted a participatory, multi-stakeholder approach, emphasizing community ownership and inclusivity.
It involved:

- Courtesy visits to government offices for alignment and institutional buy-in;
- Community dialogues at beach sites to capture collective perspectives and resolve ownership concerns; and
- Key Informant Interviews (KIIs) with structured questionnaires to evaluate group governance, technical capacity, financial systems, and gender inclusion.

This design ensured that data collection was context-specific, evidence-based, and grounded in community realities. Discussions were held in local settings and languages, allowing open participation by women, youth, and community elders. The assessment process was therefore both diagnostic and empowering, providing an avenue for local stakeholders to voice challenges and co-create solutions.

1.5 Significance of the Assessment

The findings from this mission serve multiple purposes:

- They provide empirical insights into the operational realities of community-managed fisheries technologies.
- They inform World Fish's project implementation strategy and guide future interventions across the Lake Victoria Basin.
- They generate baseline information for monitoring and evaluation of post-harvest technologies; and
- They strengthen coordination between research institutions, government agencies, and community-based organizations in the pursuit of sustainable and climate-smart fisheries.

Ultimately, this assessment represents a crucial step toward transforming artisanal fisheries into viable, inclusive, and environmentally sustainable enterprises that can enhance livelihoods, promote food safety, and empower marginalized groups, especially women and youth.

2. Methodology

A participatory qualitative approach guided the assessment. Fieldwork combined interviews, observation, and focus group discussions with structured checklists targeting governance, infrastructure readiness, gender participation, and business potential.

Key components included:

1. A courtesy visit to the Department of Fisheries.
2. Community dialogue meetings involving BMUs, local administration, and fish traders.
3. Key Informant Interviews (KIIs) with four main community groups:
    - Kakione BMU
    - Upendo Women Group
    - Kakione Young Ladies Women Group
    - Good Start Self-Help Group (Nyachebe Beach)

Stakeholder engagement ensured inclusivity and validation of results.
The assessment triangulated insights from government, local leadership, and fish processors, capturing both institutional and grassroots perspectives.

3. Institutional Engagement: Department of Fisheries

A courtesy visit was paid to Mr. Michael Omondi, the incoming Director of Fisheries, to brief him on project progress and alignment with county priorities. The Director emphasized that sustainable fisheries interventions must integrate with county systems and policies to ensure continuity beyond donor support. He identified major challenges facing the sector — overfishing, post-harvest losses, weak infrastructure, and climate impacts, and stressed that these require a multisectoral approach. He pledged institutional support for operationalizing the installed facilities and requested a joint planning framework involving WorldFish, County Government, and BMUs. This engagement reaffirmed the government's commitment to fish value addition and to strengthening community-led enterprises.

4. Community Dialogue Meetings

Community dialogue meetings held at Kakione and Sindo Beaches brought together over 50 participants, including BMU officials, women's and youth groups, fisheries officers, and assistant chiefs. Discussions revealed:

- The solar tent dryer at Kakione had been installed but never commissioned.
- Members were unclear on its ownership and operation.
- Women traders were eager to use the facility but required technical guidance

Stakeholders agreed to reconvene on 17th October 2025 to vet and select a group to manage the dryer. It was resolved that any facility management must be under BMU supervision, with transparent operating rules and equal access for women and youth.

The dialogue also highlighted that technology adoption must be accompanied by capacity building, hygiene training, and clear governance mechanisms.

5. Key Informant Interviews

6.1 Kakione Beach Management Unit (BMU)

The Kakione BMU, established in 1970, is one of the oldest community organizations along Lake Victoria. It has 300 registered members — 150 youth, 100 women, and 50 men.
The BMU operates under Kenya's gazetted BMU regulations and holds elections regularly.

Key strengths include:

- Active table banking scheme for members.
- Strong governance through committees for finance and operations.
- Land availability for solar installations.

Challenges include reliance on traditional fish processing and poor hygiene during rainy seasons. Despite having ice-making machines, these are used only for cooling fish. The BMU expressed readiness to collaborate with WorldFish and the County Government to operationalize modern processing facilities.

6.2 Upendo Women Group

Formed in 2015, Upendo Women Group has 40 active members (10 youths). It operates under a registered constitution and manages a transparent bank account with three signatories.

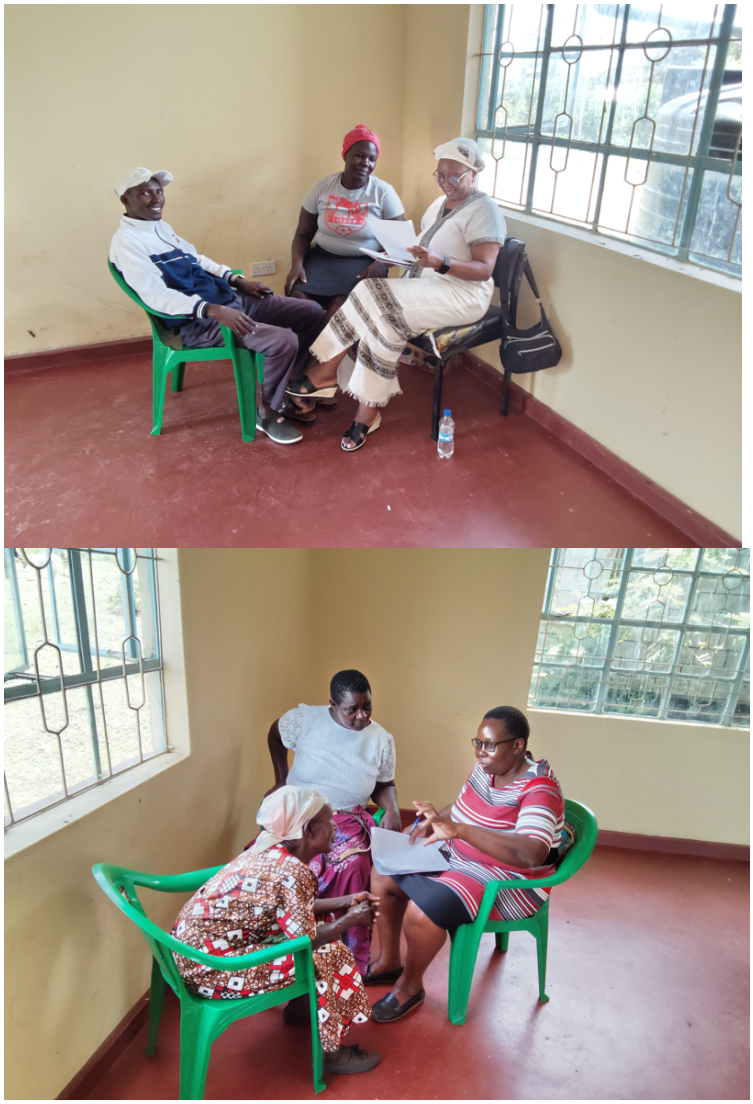
The group's activities include:

- Savings and credit through weekly contributions.
- Individual engagement in omena trade and fish processing.
- A collective enterprise (chairs-for-hire) that supports group income.

Challenges identified:

- Fish spoilage occurs during rainy seasons due to poor drying methods.
- Lack of access to collective processing equipment.

The group demonstrated strong managerial capacity and readiness to adopt solar drying technology, offering land for installation.
Members are motivated to produce hygienic, market-grade dried fish and requested training in hygiene, equipment handling, and marketing.



Women from Upendo women's group from Lake Victoria Zone Region, responding to questionnaires posed by the researcher. Photo Credit: Everlyne Okoth, JKUAT

6.3 Kakione Young Ladies Women Group

The Kakione Young Ladies Women Group, established in 2015, comprises 31 members (6 youths). Its primary goal is to empower women through business, savings, and mentorship.

Members primarily trade in dagaa and have managed community assets like tents and chairs for hire. They have well-defined governance, with written bylaws and annual elections. Transparency is upheld through open financial reporting and documented minutes.

Challenges:

- High firewood costs and low-quality smoked fish during cold weather.
- Limited access to modern technologies and technical training.

Despite this, the group is eager to learn and adopt energy-efficient kilns and solar dryers.
They envision technology as a tool for women's economic empowerment, improved product quality, and market expansion.

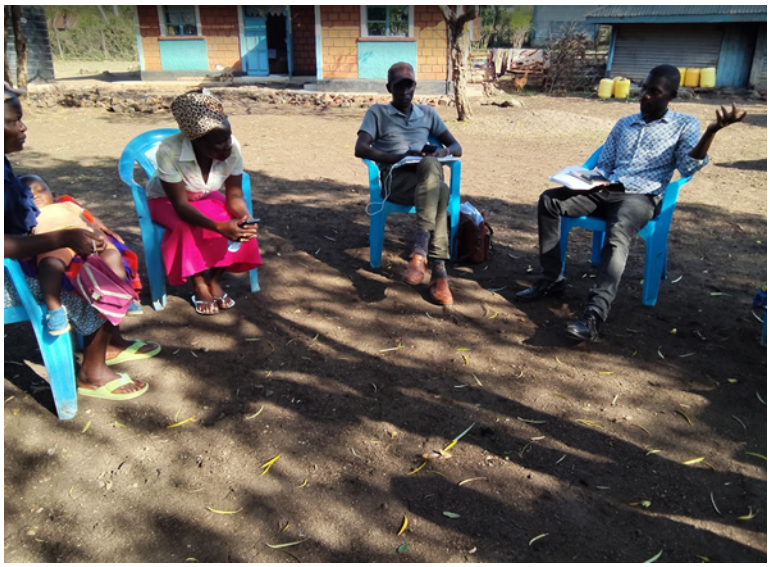
6.4 Good Start Self-Help Group (Nyachebe Beach)

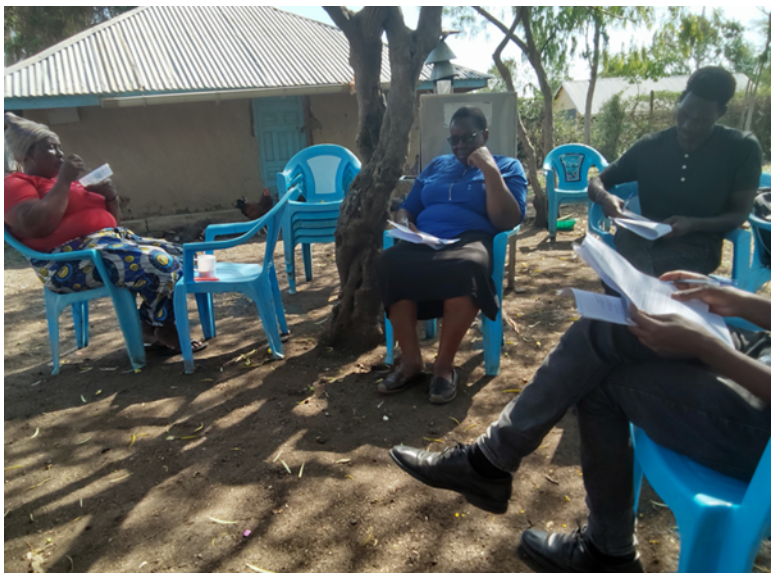
The Good Start Self Help Group, located at Nyachebe Beach, was formed in 2006 and comprises 30 members (2 men, 28 women, including 5 youth). Its objectives include savings and loaning, welfare fund management, and omena trade. Members noted that the smoking kiln technology they use is fuel-intensive, raising production costs and reducing profit margins.
The kiln also reaches excessively high temperatures, making fish handling tedious.

Key observations:

- Decline in fish availability forces members to source from distant beaches like Mfangano and Takawiri.
- Members expressed preference for solar tent dryers for omena and fryers for fresh sardines.
- The group affirmed that smoked fish remains highly popular and could be better processed with improved methods.

The group is willing to mobilize members for training and contribute labor toward technology installation.
They see solar and frying technology as cost-effective, clean, and aligned with market demand.





Women and men from Nyachebe beach responding to questionnaires posed by the researchers. Photo

Credit: Everlyne Okoth, JKUAT

6.5 Comparative Analysis of Group Readiness

Criteria	Kakione BMU	Upendo Women Group	Young Ladies Group	Good Start SHG
Registration	National BMU regulations	Dept. of Social Services	Dept. of Social Services	Dept. of Social Services
Membership	300 (150 youth, 100 women)	40 (10 youth)	31 (6 youth)	30 (5 youth)
Leadership	Structured committees	Transparent, women-led	Accountable	Democratic
Experience	Traditional processing	Ready for solar	Traditional smoking	Active smoker users
Infrastructure	Ice makers, land	Land near the beach	Beach access	Kiln available
Motivation	High	Very High	High	Very High

All four groups exhibit complementary strengths:

- BMU provides legitimacy and coordination.
- Upendo Women Group offers management and transparency.
- Kakione Young Ladies bring enterprise orientation.
- Good Start SHG adds hands-on experience in smoking and market insight.

7. Stakeholder Perspectives

7.1 Local Administration

The Assistant Chief of Nyamarandi Sub-location emphasized inclusive participation of women and youth in all technology projects. He recommended a rotational management approach among active groups, backed by BMU and administrative oversight.

7.2 BMU Leaders

The Sindo Getway BMU Secretary noted strong interest but limited knowledge of the solar tent dryer. He urged technical training and transparent management before handing over operations.

7.3 Chief, Nyachebe Beach

Highlighted the potential to integrate smoking kilns and solar dryers for year-round utilization — smoking during rainy periods and drying during sunny seasons. He committed to mobilizing the community and supporting facility improvements.

8. Cross-Cutting Themes and Insights

Several consistent themes emerged:

1. Strong Gender Inclusion: Women dominate post-harvest activities and show leadership readiness.
2. Youth Engagement: Youths are willing to participate and can serve as Trainers of Trainers.
3. Technical Gaps: Few have received formal training on hygiene, safety, or technology operation.
4. Market Potential: Demand for hygienic, value-added fish products remains high locally and regionally.
5. Governance Strengths: All groups have written constitutions, election cycles, and transparency mechanisms.

6. Financial Systems: Table banking and welfare funds provide small-scale financial resilience.

However, major constraints include:

- High energy costs.
- Dormant infrastructure.
- Lack of market access and packaging capacity.

9. Community Aspirations and Future Outlook

Across all engagements, community groups expressed optimism about modern technologies. They envision these tools as transformative for income diversification, women's empowerment, and food security.

Expected outcomes include:

- Income growth from value-added fish products.
- Reduced post-harvest losses through cleaner processing.
- Youth employment in drying, packaging, and distribution.
- Improved hygiene and branding for market competitiveness.

Members aspire to link with private sector players, county government, and research partners for co-financing, market linkage, and training opportunities.

10. Conclusions

The Homa Bay fisheries community demonstrates a solid foundation for sustainable post-harvest interventions. Strong leadership, gender inclusion, and local organization form the backbone of potential success.

Key conclusions:

1. Fishing remains the dominant livelihood; community readiness is high.
2. BMUs are credible entry points for coordination and oversight.
3. Women's groups are organized and eager for technology adoption.
4. Installed infrastructure (solar dryers, kilns) remains underutilized.
5. There is a shared vision for sustainable and inclusive fisheries development.

With structured support, these community entities can become regional models for climate-resilient fish value chains.

11. Recommendations

1. Commission All Installed Infrastructure
   Ensure functional handover and user training for solar dryers and kilns.
2. Capacity Building and Continuous Training
   Focus on fish hygiene, technology operation, record keeping, and entrepreneurship.
3. Governance and Accountability Systems
   Strengthen BMU oversight and establish group management charters.
4. Financial Access and Market Linkages
   Connect groups with revolving funds, packaging support, and marketing platforms.

5. Sustainability Mechanisms
   Introduce cost-sharing for maintenance and monitoring systems.

6. Inclusivity and Equity
   Maintain gender and youth balance in leadership and training programs.

7. Partnerships and Policy Integration
   Align project implementation with county development strategies and partner initiatives.

In conclusion, the collective strength, resilience, and commitment of these community groups — Kakione BMU, Upendo Women, Kakione Young Ladies, and Good Start SHG — position Homa Bay County as a pioneer in community-driven post-harvest fisheries transformation on Lake Victoria.

Photo Credit: Dr Everlyne Okoth

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