CGIAR SCALING FOR IMPACT

IWMI International Water Management Institute

**WORKSHOP REPORT**

# Co-designing Blended Finance Mechanisms for Farmer-Led Irrigation in Kenya

November 4, 2025 | International Livestock Research Institute (ILRI) Campus, Nairobi, Kenya

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# SUMMARY

This report presents the outcomes of a multi-stakeholder workshop held on 4 November 2025 at ILRI Campus, Nairobi, convened by the International Water Management Institute (IWMI), the State Department for Irrigation (SDI), and the World Bank to co-design a Blended Finance Facility for Farmer-Led Irrigation in Kenya. The workshop was convened by the Ministry of Water, Sanitation, and Irrigation (MoWSI) and brought together 60 participants drawn from government agencies, development partners, commercial banks, research organizations, and private irrigation service providers. Kenya faces an urgent irrigation gap: although 80–89% of agricultural land requires irrigation, only about 4% is currently irrigated, leaving smallholders highly vulnerable to climate shocks and rainfall variability. Despite renewed policy momentum through the National Irrigation Sector Investment Plan (NISIP), Farmer-Led Irrigation Development (FLID) initiatives, and national climate-smart agriculture strategies, irrigation financing remains fragmented, constrained by limited farmer affordability, high perceived lending risk, short-term bank funding structures, weak value-chain coordination, and persistent policy and data gaps.

During the workshop, the World Bank presented two proposed financing structures to operationalize NISIP: a Results-Based Financing Facility to reward verified installation and performance of irrigation systems, and a Risk-Sharing & Credit/Investment Facility to de-risk lending portfolios through guarantees, concessional capital, and technical assistance. Participants endorsed these as viable anchor mechanisms for mobilizing public, private, and concessional capital. Discussions highlighted the need to address affordability, market risk, operational quality, climate resilience, and cooperative/aggregator capacity as core pillars of a national irrigation finance ecosystem.

The workshop concluded with a broad consensus on the need to establish a coordinated blended finance platform under SDI, international financial institutions, and Local commercial Banks. The insights captured in this report provide a foundation for operationalizing a scalable, sustainable, and market-aligned blended finance mechanism capable of accelerating irrigation adoption and enhancing climate resilience for Kenya's smallholder farmers.

# 1. INTRODUCTION

Farmer-Led Irrigation Development (FLID) refers to irrigation systems that are initiated, financed, operated, and expanded by farmers themselves, typically outside large public schemes. In recent years, FLID has emerged as a transformative pathway in Sub-Saharan Africa, driven by farmer innovation, private-sector supply chains, and expanding access to solar technologies. New evidence from the International Water Management Institute (IWMI) shows that FLID is now one of the fastest-growing contributors to agricultural water use in East Africa, with farmers investing directly in pumps, solar-powered systems, on-farm water storage, and low-pressure distribution technologies (Minh & Schmitter, 2025).

FLID is increasingly recognized as a critical pathway to accelerate Kenya's agricultural transformation, enhance food security, build climate resilience, and support rural livelihoods. However, the irrigation financing landscape remains fragmented, risk-averse, and largely inaccessible to smallholder farmers. Currently, less than five percent of Kenya's cultivated land is under irrigation, despite growing evidence that innovations such as solar-powered pumps, efficient sprinklers, water harvesting, and on-farm distribution technologies can deliver transformative outcomes (FAO, 2020). This disparity constrains agricultural competitiveness and leaves millions of smallholders highly exposed to rainfall variability. The complexities of irrigation financing continue to drive low investment in appropriate irrigation technologies, despite the clear needs documented (SNV, 2019). Key barriers to irrigation include the lack of finance for both public and private and commercial investments. Public funding has been limited and constrained in targeting the most viable and investment-ready farmers. At the same time, commercial capital perceives smallholders as a high-risk and technically uncertain market segment (Izzi et al., 2021). There is also a lack of affordable, flexible, and risk-sharing financial instruments to derisk the smallholder farmers and create access to financing for irrigation (Denison & Maina, 2023). Additionally, donor financing typically relies on grant-based models that fail to crowd in private capital or support long-term scaling of innovation (GCA, 2020). The complexities of irrigation financing continue to drive low investment in appropriate irrigation technologies despite the clear needs documented. The expansion of FLID offers a practical and scalable solution to address climate adaptation and mitigation challenges in the agricultural sector (Burney et al., 2013; Xie et al., 2014)

Among all constraints, financing remains the most significant barrier to scaling farmer-led irrigation in Kenya. Irrigation investments are capital-intensive, with a standard one-acre solar or piped system costing between Ksh 260,000 and Ksh 420,000 (~US$ 1,860–3,000) depending on water source, pumping head, and system configuration (Denison & Maina, 2023). This cost places irrigation beyond the reach of most smallholders without risk-sharing or concessional mechanisms. Further evidence shows a more tiered financing gap. First, the National-level investment deficit with the National Irrigation Sector Investment Plan (NISIP 2025–2035) estimates that Kenya requires approximately Ksh 598 billion (~US$ 4.27 billion) to expand its irrigated area by an additional 1 million acres over 10 years, with 61% of this mobilized by the private sector (GoK, 2023). Yet, public spending on irrigation has averaged only Ksh 5 billion (~US$ 35.7 million) annually, significantly below the Ksh 23–24 billion (~US$ 164 – 172 million) required each year. This underinvestment creates a substantial national financing deficit. Second, Limited private-sector engagement, NISIP projects that 61% of irrigation financing must originate from private investors. However, commercial banks perceive irrigation to be high-risk due to irregular agricultural cashflows, climate variability, collateral constraints, and limited tools for technical performance verification (Izzi et al., 2021). As a result, only a small share of agricultural lending supports irrigation assets. Third, Program-level funding gaps in irrigation water programs are facing structural financing shortfalls. The 2024 design report for IFAD's Integrated Natural Resources Management Project (INReMP) highlights a US$47 million gap in financing required for planned irrigation and water management investments. Lastly, broader climate-finance constraints with Kenya's climate finance needs between 2022 and 2030 far exceeding current flows, with irrigation competing for limited adaptation resources. This further constrains the sector's ability to close the irrigation investment gap.

To address this financing gap, the CGIAR Scaling for Impact program is working with the State Department for Irrigation and the World Bank to co-develop a blended finance facility that unlocks investment in FLID while supporting implementation of the NISIP. The facility will combine public, private, and development finance through concessional capital, risk-sharing instruments, and technical assistance. While solar irrigation is an entry point, the facility also targets non-solar solutions such as water harvesting and distribution and considers solar within a broader value chain that includes cooling, storage, and transport, critical for unlocking returns on irrigation investments.

The objective of this paper is to document the deliberations and outcomes of a multi-stakeholder workshop convened on 4th November 2025 at the International Livestock Research Institute (ILRI) campus in Nairobi. The workshop served as the first step toward co-designing a Blended Finance Facility for Farmer-Led Irrigation in Kenya. The workshop was jointly organized by the International Water Management Institute (IWMI), the State Department of Irrigation, and other key stakeholders, including representatives from the State Department of Irrigation, Commercial banks, development partners, irrigation service providers, and the private sector. Participants were drawn from the International Development (*World Bank, International Finance Corporation (IFC), International Water Management Institute (IWMI), UN Food and Agriculture Organization(FAO), The Consultative Group on International Agricultural Research(CGIAR), and KfW Development Bank*), State agencies *(State Department of Irrigation(SDI) and the Irrigation Board of Kenya*)**,** Non-governmental organizations *(Kenya Innovative Finance Facility for Water(KIFFWA),* Kenya Agricultural Sector Network *(ASNET, CLASP Kenya, Jacobs Ladder Kenya etc*), and Commercial Banks *(NCBA, Kenya Commercial Bank (KCB), Family Bank, and Equity Bank)*.

The session aimed to identify financing barriers, explore innovative blended finance mechanisms, and outline actionable pathways to strengthen collaboration between public and private actors to accelerate irrigation investment under Kenya's NISIP and FLID agenda. The insights generated from the workshop are expected to inform the structure, governance, and operational framework of the proposed facility and to catalyze the scaling up of sustainable irrigation solutions for smallholder farmers.

# 2. THE IRRIGATION FINANCE LANDSCAPE IN KENYA

## 2.1. A Brief Overview

Despite agriculture being central to livelihoods and food systems in Africa, irrigation coverage remains strikingly low. Recent assessments indicate that only about 4–6% of cultivated land in sub-Saharan Africa is irrigated, compared with roughly 14% in Latin America and over 30% in Asia, underscoring a structural competitiveness and resilience gap for African producers (Africa Business, 2024). In Kenya, the National Irrigation Authority reports that while an estimated 80–89% of agricultural land requires irrigation, only about 4% is currently irrigated, leaving the vast majority of farmers dependent on increasingly unreliable rainfall (GoK, 2023). This underinvestment in irrigation directly reinforces food insecurity: during the 2021–2023 drought cycle, up to 5.4 million people in Kenya faced high levels of acute food insecurity, with recovery remaining fragile into 2024. The combination of high climate exposure, low irrigation coverage, and rising food demand creates a clear and urgent irrigation gap that must be addressed (IPC Kenya, 2023).

In response, Kenya has initiated ambitious reforms and investments to expand irrigation and crowd in private capital. NISIP, launched in 2025, sets out a 10-year framework to expand the equipped irrigation area by 1,000,000 acres, modernize existing schemes, promote farmer-led irrigation, and align public spending with climate-resilient growth (GoK, 2023). Complementary efforts under Kenya's Bottom-Up Economic Transformation Agenda, FLID-focused programs supported by IWMI and the World Bank (World Bank, 2024), and emerging public–private partnerships signal growing momentum toward scalable, market-oriented irrigation solutions. Irrigation is further integrated into the country's climate-

smart agriculture (CSA) policy architecture. Programs such as the Kenya Climate-Smart Agriculture Project (KCSAP, 2017–2024)(Maher et al., 2023) and the National Adaptation Plan (2018–2030) promotes irrigation as a resilience measure, linking water efficiency, soil health, and climate adaptation (GoK, 2015).

These frameworks highlight synergies among irrigation, sustainable water management, and greenhouse gas mitigation, reinforcing irrigation's dual benefits of productivity and adaptation. The alignment between NISIP, FLID, and CSA initiatives thus provides a coherent policy foundation for scaling irrigation finance.

However, progress is constrained by persistent barriers: smallholders' limited ability to finance upfront irrigation investments; perceived high risk and transaction costs for banks and MFIs; shallow long-term local currency funding; fragmented value chains; and policy and data gaps that make it difficult to structure commercially viable deals at scale (Izzi & Veldwisch, 2021). These constraints justify the design of a dedicated blended finance facility for farmer-led irrigation in Kenya; one that uses concessional and catalytic capital to de-risk investments, align incentives across public and private actors, and accelerate sustainable irrigation uptake among smallholders and Agri-SMEs.

Despite this policy progress, irrigation financing remains fragmented. Irrigation is a function of state departments and ministries (State Department of Irrigation, State Department of Agriculture and Livestock) and multiple agencies (Water resources Management Authority, Water Service Boards), respective counties, and partners operate overlapping programs with limited coordination of investment pipelines. Commercial lenders view irrigation as high-risk due to weather variability, weak collateral, and limited insurance coverage. Development finance institutions and donors provide concessional loans and grants, yet these are often project-bound and unsustainable beyond program cycles. Private suppliers and Agritech firms offer embedded or asset finance on a small scale, while farmer cooperatives rely heavily on group savings. The absence of a structured, blended financing platform that aligns public, private, and concessional capital has left a critical gap in the irrigation ecosystem. Addressing this coordination and financing gap is therefore central to unlocking the next phase of Kenya's irrigation growth.

## 2.2. Irrigation Innovations and Programs in Kenya

Kenya's irrigation sector has undergone steady diversification in recent years, marked by public investments, donor-supported initiatives, and private-sector innovations that collectively seek to expand water access for smallholders. These efforts demonstrate both progress and fragmentation, showing promising technologies and models but also highlighting financing, coordination, and sustainability gaps that justify a blended finance approach.

### *Successful projects*

Government-led irrigation programs remain the backbone of irrigation expansion. Under the National Irrigation Authority (NIA), flagship projects such as the Galana-Kulalu Food Security Project, Mwea Irrigation Expansion, and several county-level smallholder schemes have contributed thousands of new irrigated hectares(GoK, 2023). Yet these large, publicly funded schemes often face high implementation costs, delays in completion, and limited inclusion of smallholders beyond command areas. Evaluations by the World Bank (2023) and FAO (2023) emphasize that while such projects demonstrate the government's commitment, they are fiscally unsustainable without private participation and cost-recovery mechanisms.

Development partners have therefore shifted toward more integrated, climate-smart irrigation programs. The Kenya Climate-Smart Agriculture Project (KCSAP, 2017–2024) and the National Agricultural and Rural Inclusive Growth Project (NARIGP), co-financed by the World Bank, promoted irrigation through farmer groups and county-based investments. These programs have improved yields and resilience but

remain dependent on public and donor subsidies, underscoring the need for scalable financing mechanisms that outlive project cycles.

### *Farmer-led and private-sector innovations*

The most dynamic change in Kenya's irrigation landscape has emerged from farmer-led irrigation development (FLID) and private entrepreneurship. According to the International Water Management Institute (IWMI), tens of thousands of Kenyan farmers now self-invest in small pumps, drip kits, and solar-powered irrigation systems, often in partnership with local suppliers. Solar-irrigation enterprises such as SunCulture, Future pump, and Davis & Shirtliff have introduced pay-as-you-go (PAYG) and lease-to-own models that blend hardware sales with micro-credit and digital repayment tracking (GOGLA et al., 2022). These models have expanded irrigation access for off-grid farmers and reduced carbon emissions by replacing diesel pumps. However, uptake remains limited by affordability, credit access, and risk perception. Most smallholders cannot meet down-payment requirements or collateral conditions for loans, while lenders lack irrigation-specific risk-assessment tools. FLID's dispersed nature also makes aggregation difficult, discouraging conventional bank lending. The result is a promising innovation ecosystem constrained by a financing bottleneck, precisely the gap a structured blended finance facility could fill by providing risk-sharing and catalytic capital.

### *Emerging blended finance and partnership models*

There are documented cases of increasing momentum toward blended approaches for irrigation financing. Some of the tested projects include the World Bank's Kenya Water Security and Climate Resilience Program (2020–2024), which piloted co-financing models combining concessional loans with government grants to expand irrigation infrastructure (World Bank, 2023). Similarly, partnerships between Equity Bank, the Kenya Climate Innovation Center, and the State Department for Irrigation have explored guarantee and credit line schemes for smallholder solar irrigation loans (KCIC, 2022). Donor-funded programs such as Aceli Africa and AGRA's Value4Her have provided matching grants and first-loss capital to agribusiness lenders, demonstrating that de-risking can unlock private finance when structured around measurable outcomes (KCIC, 2025). Nonetheless, these initiatives remain at pilot scale and fragmented. There is no unified vehicle to coordinate concessional, public, and private capital specifically for irrigation. Lessons from these programs suggest that success hinges on three factors:

- Availability of blended or guaranteed instruments
- Aggregation of smallholder demand into bankable portfolios
- Strong partnerships between government, financers, and technology providers.

# 3. WORKSHOP FINDINGS

## 3.1. Opening Remarks and Context Setting

The workshop opened with introductory remarks from the Principal Secretary (PS) of the State Department for Irrigation (SDI), representatives of the World Bank, and the International Water Management Institute (IWMI) (See Figure 1). Their remarks established the overall policy and financing context for irrigation in Kenya and framed the purpose of the day's deliberations.

The Principal Secretary emphasized that the Government of Kenya's NISIP targets to bring an additional one million acres under irrigation over the next ten years, in line with the country's Bottom-Up Economic Transformation Agenda (BETA) and Vision 2030. He underscored that over 80% of Kenya's arable land could become productive with reliable water access, and that unlocking this potential requires innovative financing models to address both sustainability and climate adaptation. The PS noted that while public financing remains vital, the long-term sustainability of irrigation infrastructure depends

on mobilizing private investment through blended finance, which ensures accountability, project performance, and durability. He also highlighted the government's plan to develop an irrigation tariff framework to enhance cost recovery and financial viability.

The World Bank representative reaffirmed the Bank's commitment to support NISIP through an ecosystem approach that goes beyond infrastructure to build an Irrigation Finance Ecosystem. The Bank identified similarities between water and energy, as well as opportunities for benchmarking with the Africa RISE (Resilience Initiative for Sustainable Energy and Water) regional program, which promotes integrated value-chain financing and private-sector participation in water and energy systems. The IMWI Kenya Country Representative outlined their role in convening multi-stakeholder dialogues to co-design practical financing solutions for irrigation. The urgency to shift from fragmented, project-based interventions to a coordinated national effort aimed at designing a blended finance facility capable of pooling public and private resources for sustainable, farmer-led irrigation. IWMI is also committed to supporting the formation of a technical task team to refine the proposed financing models and develop a roadmap for pilot implementation in 2026.


**Figure 1**. Representative from SDI, World Bank and IWMI (*photo:* Frank Mwangi/ILRI)

## 3.2. An Overview of Stakeholder Participation

The workshop was attended by sixty participants drawn from the Government, development Partners, non-governmental organizations, commercial banks, and private irrigation service providers.

**Table 1.** Stakeholders and Stakeholder categories

| Type of stakeholders | Names of organizations and agencies |
|---|---|
| **State Agencies** | State Department of Irrigation and National Irrigation Authority |
| **International Financial Institutions** | World Bank and IFC |
| **United Nations Agencies** | Food and Agriculture Organization, IWMI and |
| **Bilateral Organizations** | KFW and KIFFWA |
| **Commercial banks** | Equity, KCB, Family NCBA and Cooperative Banks |

| | |
|---|---|
| **Private Sector** | Advance Consulting, Schneider Electric, Strathmore Energy Research Centre, and Sun Culture Kenya Limited |

The table below lists the stakeholders represented during the workshops, their roles in irrigation financing, and the identified blended finance use cases.

**Table 2.** Relevant Agencies and their roles in Irrigation financing

| Type | Organizations/ agencies | Use case and role on blended Finance for Irrigation | Issues/Gaps identified from stakeholders |
|---|---|---|---|
| **State Agencies** | State Department of Irrigation and National Irrigation Authority | Lead coordination of NISIP implementation; policy and tariff framework; co-design of blended finance facility; previous experience through Galana-Kulalu, Bura, Mt. Kenya, and smallholder programs (with KfW) (GoK, 2025) | Need for a consistent irrigation financing policy; fragmented coordination across ministries and counties; need to operationalize irrigation tariff and digital data systems. |
| **IFIs** | World Bank and IFC | WB developed two financing models (the RBF Facility and the Risk-Sharing Facility) for NISIP. IFC proposed complementary instruments—*first-loss guarantees, subordinated debt, and technical advisory* to banks under the Africa Agriculture Accelerator Programme (AAAP) (IFC, 2024) | Require a national framework to align multiple instruments; need for a credit guarantee fund and long-term local currency funding. |
| **UN Agencies** | FAO | FAO supports policy alignment and CSA integration | Limited funding for research-to-policy translation; need for data-driven monitoring and impact metrics |
| **Research organizations** | CGIAR/IWMI | IWMI is co-leading the NISIP co-design process, offering research, stakeholder convening, and scaling through CGIAR's *Scaling for Impact* program. | Project based constraints |
| **Bilateral** | KFW & KIFFWA | KfW co-finances irrigation schemes (e.g., Mt. Kenya Program) and partners with Equity Bank and SDI. KIFFWA provides *early-stage, patient capital* and *project preparation support* to water entrepreneurs, derisking projects through concessional + commercial capital layering; it emphasizes clear *impact measurement frameworks (productivity, income, jobs)*. | Need for scale-up capital and risk-sharing to crowd in commercial banks; limited early-stage project pipeline in irrigation. |
| **FIs** | Equity | Mt Kenya Smallholder Irrigation Programme alongside SDI and KfW. Also financing projects in climate adaptive technologies. | Lack of KYC flexibility for smallholders (CBK regulations); insufficient data for credit profiling; high cost of irrigation technologies; limited long-term funding.<br>All banks expressed readiness to participate in blended finance models if risk-sharing and policy barriers are addressed. |
| | KCB | Build partnerships for Buy-back guarantees for irrigation equipment | |
| | Co-op Bank | Through the co-operative movement, Coop Bank Water and Energy financing for solar-powered equipment, cold storage, and Subsidy of interest rates for farmers within the Dairy and rice value chains | |

| | | | |
|---|---|---|---|
| **Private Sector** | Schneider Electric, SunCulture | Provision of financing mechanisms for Integrated Solar systems for Irrigation and off-peak geoprocessing | Reduce import duties and taxes on irrigation equipment; financing after-sales service and local manufacturing; stronger aggregator partnerships for distribution. |

Some of the main organizations that were unrepresented during the workshops include the agricultural off-takers/aggregators, farmers' groups, and agricultural SMEs.

## 3.3. Barriers to Scaling Irrigation Credit by Financial Institutions

The main barriers faced by commercial financial institutions in structuring, rolling out, and scaling irrigation finance in Kenya are as below;

### *a) Demand-side barriers (farmer capacity, collateral gaps)*

- **Limited farmer capacity and technical knowledge***:* Many smallholders still use rudimentary, rain-fed practices and lack exposure to irrigation technologies. Participants emphasized the need for structured training and extension to improve farmer competence in operating, maintaining, and paying for irrigation systems. T*he PS noted that "capacity building and handholding take time, but they are critical for sustainability."*
- ***Affordability and upfront cost:*** High equipment costs remain a key deterrent. Even with concessional loans, the down-payment and maintenance costs exceed what most farmers can afford. This limits the adoption of solar, drip, and pump systems without subsidies or results-based incentives.
- **Collateral and credit history limitations:** Most smallholders lack titled land or other acceptable collateral. Financial institutions reported the absence of reliable, smallholder-oriented data systems that can serve as alternative collateral (e.g., payment or productivity records).
- **Information and Know-Your-Customer barriers:** Many smallholders are unregistered or lack documentation such as PINs and certificates required under the current Central Bank of Kenya (CBK) Know Your Customer (KYC) guidelines. This excludes them from formal credit systems and makes digital onboarding difficult. Participants suggested revisiting KYC regulations for agricultural lending to include simplified, risk-based onboarding procedures.
- **Average size of farms:** The Land of the farmers, since the majority of the farmers work on small pieces of land. Available products offer services such as drone and satellite coverage to increase productivity. Quote "*NCBA Bank is supporting rice farmers in Kisumu and the Lake Victoria region. The average size of a farm has been below 3 acres, and farmers have increasingly availed more land for irrigation financing."*

### *b) Supply-side barriers (perceived risks, limited products)*

- **High perceived risk and limited product innovation**: Banks view irrigation loans as high risk due to climate volatility, unfamiliar repayment cycles, and lack of long-term patient capital. Only 3.5% of Tier 1 bank lending currently goes to agriculture, and even less to irrigation-specific loans.
- **Short-term financing horizons:** Most financial institutions rely on short-term deposits, limiting their ability to offer long-tenor loans required for irrigation investments. IFC noted that concessional *subordinated debt* and *first-loss facilities* could help extend repayment periods and crowd in more private capital.

- **Limited aggregation and pipeline development:** Banks cited difficulties in identifying credible farmers or suppliers with adequate scale. The absence of aggregators who can manage farmer clusters or provide buy-back guarantees increases transaction costs.
- **Liquidity risk for intermediaries:** Aggregators and off takers face delayed payments from buyers, creating liquidity gaps that cascade to farmers and financiers. This makes repayment schedules unpredictable. Participants proposed using escrow systems or portfolio guarantees to stabilize cash flows.
- **Duty and taxes***:* The duties and levies charged on agricultural and irrigation machines like pumps and solar panels increase the cost of irrigation units beyond the reach of the majority of farmers. *Quote "Even if we seek the blended finance and derisk the farmer for irrigation financing, as long as the duties and levies are high, the irrigation machines will remain beyond the reach of the small holder farmer."*

### *c) Structural/policy barriers (data gaps, coordination)*

- **Imports and market coordination:** The challenge of imports of agricultural produce from neighboring countries during the harvest period for farmers dilutes the prices of the produce. Despite the investments made in irrigation, there is insufficient market for the products due to the influx of imported products. Few farmers are willing to invest in expensive and capital-intensive irrigation projects without guarantees in the market.
- **Access to data:** The Kenya National Farmers Registry is unavailable for financiers despite the government investing in developing the agricultural Digital Public Infrastructure. Financial Institutions lack the required data to target and approach farmers based on the size of their farm and agricultural behavior.

### *d) Technical & climate risk barriers*

- **Technology performance and reliability challenges:** Stakeholders noted that poor-quality installations, substandard pumps, and limited availability of spare parts frequently result in operational failures. In many cases, farmers are unable to verify the quality of irrigation equipment prior to purchase, leaving them vulnerable to breakdowns and costly repairs.
- **Limited technical capacity among farmers:** Poor understanding of irrigation system operation, maintenance, and water management leads to under-performance and productivity losses. Farmers often lack training on pump sizing, drip installation, maintenance routines, and efficient water application. Without adequate guidance, even high-quality systems may underperform
- **Water availability and climate variability risks:** Erratic rainfall, prolonged droughts, and declining surface water levels were identified as major constraints to reliable irrigation use, particularly in arid and semi-arid counties. Farmers are often unable to utilize irrigation equipment consistently because water sources are seasonal or deplete quickly due to climate extremes. This creates uncertainty for both farmers and lenders and reduces the attractiveness of irrigation finance.
- **Exposure to climate shocks and extreme weather events:** Floods, droughts, and heat stress can damage infrastructure, reduce yields, disrupt repayment cycles, and undermine loan performance. Financial institutions highlighted the need to integrate climate risk assessment tools, weather-index insurance, and remote monitoring into irrigation financing models to protect both farmers and lenders.
- **Lack of digital monitoring and verification systems:** Participants observed that most irrigation systems lack IoT meters, remote sensors, or digital trackers that can verify pump uptime, water use, and farm performance. The absence of digital monitoring increases uncertainty about system performance and complicates both risk assessment and RBF implementation.

## 3.4. Opportunities for Scaling

- **Untapped demand for smallholder irrigation finance:** Commercial banks are lending financing to agricultural activities and not necessarily to irrigation. There is therefore an immense opportunity to focus on irrigation, which is a capital investment compared to farming practices with shorter turnarounds, and the tickets are lower.
- **Digital tools, IOT & agri-data for risk reduction:** The National Farmers Registry offers an opportunity for a national agricultural Digital Public Infrastructure to build data and target farmers using a unique farmer identification with validated information on the size of the farms, location, and the ecosystem
- **Bundled services (credit + inputs + advisory):** Most banks are offering farmers bundled services including financing, inputs, machinery and information, advisory, and insurance against adverse effects of climate change.
- **Policy support under NISIP & national climate strategies:** Banks are willing and ready to increase their lending for irrigation in line with NISIP if all policy and regulatory hurdles are fine-tuned.

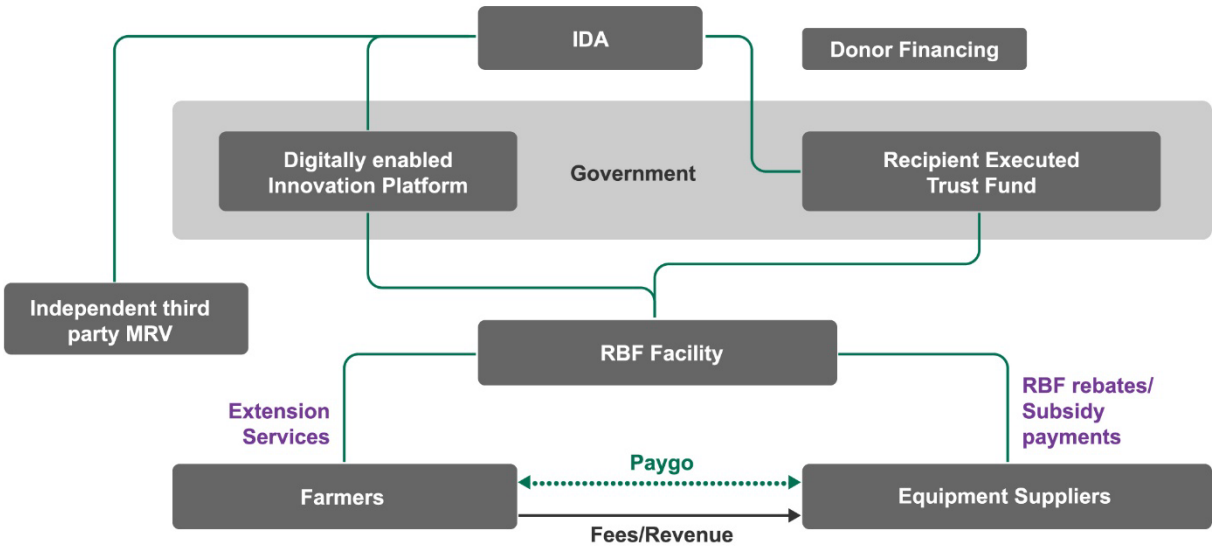
# 4. PROPOSED BLENDED FINANCE MECHANISMS AND MODELS

The World Bank presented two key models for implementing blended finance to support the NISIP in Kenya. The session was conducted as a plenary discussion, replacing the initially planned breakout group work. Participants reviewed, interrogated, and refined the models, namely the NISIP, the Results-Based Financing (RBF) Facility, and the Risk-Sharing and Credit Facility. The plenary emphasized the importance of aligning both models with Kenya's ongoing efforts to operationalize NISIP and promote FLID through risk-sharing, performance-based incentives, and policy coordination.

## 4.1. Model 1: Results-Based Financing Facility

**NISIP-Financing Architecture - Results Based Financing Facility**

The Risk sharing facility will help equipment suppliers manage their working capital constraints until the financing from the RBF facility is availed. It will also encourage FIs to lend to riskier farmers or to provide better repayment schedule or interest rates by offering FLG.




- IDA/donors provide financing (loans and grants) to the gvt and Recipient-Executed Trust Fund, which together channel funds to the RBF facility.
- The RBF facility disburses subsidies to farmers to lower upfront costs, and RBF rebates to equipment suppliers/service providers based on verified results.
- Farmers purchase and obtain irrigation equipment or services through PAYGO, installment, or IaaS models, paying suppliers over time.
- Suppliers/service providers earn revenue from farmers and performance-based rebates from the RBF facility.
- Independent third party MRV in place to verify that installations have been made and are functional; only then will payments be made.

**Figure 2.** Model 1 Results-Based Financing Facility (*Source*: Adapted from World Bank Presentation)

**How it will function:**

IDA and other donors will channel concessional funds (loans + grants) through the Government and a Recipient-Executed Trust Fund into an RBF Facility. Using a digitally enabled platform and independent MRV, the facility will only disburse funds when verifiable results are achieved as follows

- Part of the funds are used as upfront subsidies/rebates to reduce the cost of irrigation equipment and services for farmers.
- Equipment suppliers and service providers receive performance-based rebates once installations are confirmed working (e.g., PAYGO, lease-to-own, vendor finance models).
- Farmers repay over time under affordable terms while suppliers and financiers are "topped up" based on actual delivery and performance.

**Core benefits:**

- Lowers the upfront cost barrier for farmers.
- Rewards quality, uptime, and service, not just sales.
- Targets underserved and remote markets by using incentives instead of pure subsidies.
- Crowds in private suppliers and financers by reducing demand and performance risk.

**Core players**

- World Bank / IDA & Donors will provide concessional capital.
- Government of Kenya / MoWSI / Treasury will host the facility and align with NISIP.

- Recipient-Executed Trust Fund / RBF Facility Manager will administer funds, contracts, and payouts.
- Equipment suppliers & service providers will implement solutions, claim results-based payments.
- Farmers will be the end-users, co-investors, and source of repayments.
- Independent third-party MRV will verify installations & performance.
- Digital platform providers & extension services will support targeting, tracking, and farmer support.

## 4.2. Model 2: Risk-Sharing & Credit / Investment (Guarantees + Concessional Capital) Facility

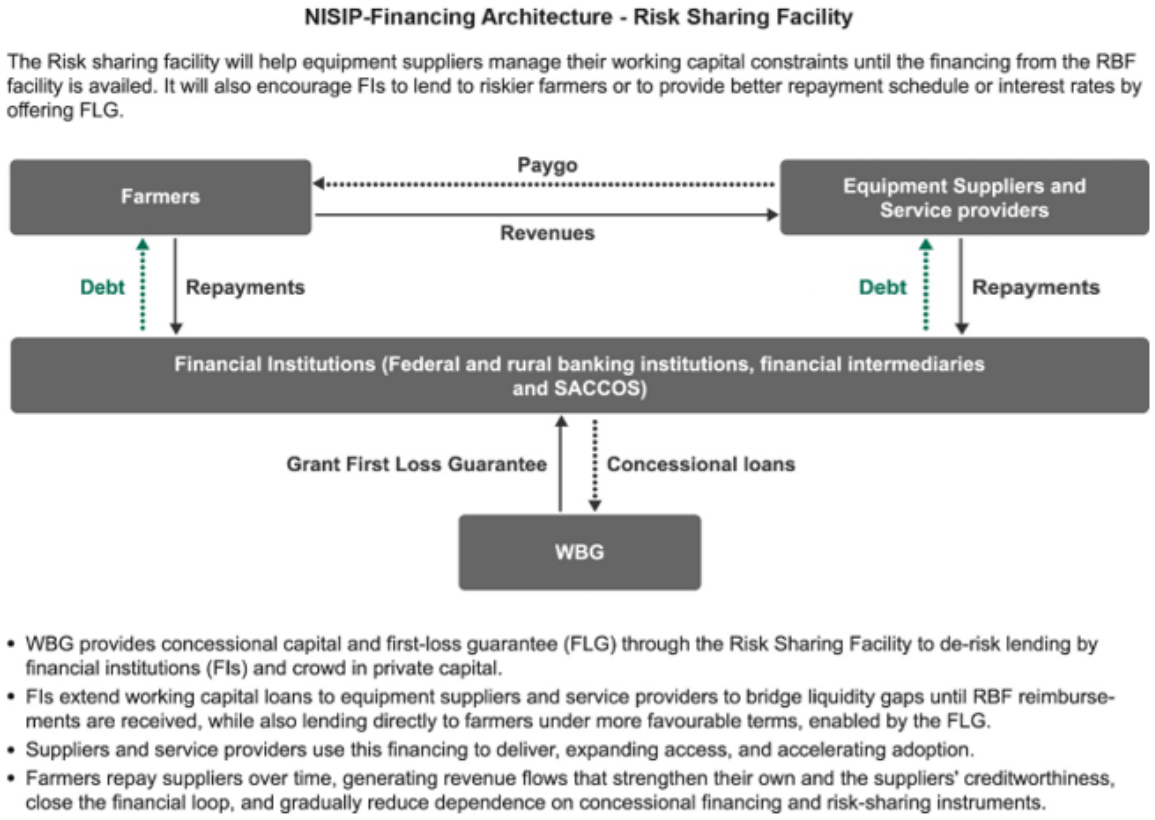



**Figure 3.** Risk Sharing & Credit investment facility (*Source*: Adapted from World Bank Presentation)

**How it will work:**

The 2nd structure will be paired with the RBF and use blended capital to de-risk lending for irrigation investments as follows

- IDA/donor funds will provide first-loss capital, guarantees, or concessional credit lines to local banks, MFIs, SACCOs, and possibly leasing companies.
- These institutions will then on-lend to farmers, cooperatives, and irrigation SMEs to purchase pumps, solar systems, on-farm infrastructure, and related services.
- Risk-sharing instruments cover part of default/performance risk, making smaller-ticket FLID lending commercially viable.

**Core benefits:**

- Leverages significant private capital-off a relatively small pool of concessional funds.
- Builds a sustainable local credit market for irrigation (beyond projects and grants).

- Encourages product innovation: PAYGO, asset finance, bundled credit + insurance + advisory.
- Aligns with NISIP by financing both on-farm and off-farm irrigation investments at scale.

**Core players:**

- World Bank / IDA & Donors – provide guarantees, first-loss, concessional lines.
- Government of Kenya – policy anchor; may co-fund or host guarantee windows.
- Local financial institutions (banks, MFIs, SACCOs, leasing firms) – originate and manage loans.
- Irrigation equipment suppliers / Agritech & service providers – create bankable products and bundled offers.
- Farmers, cooperatives, SMEs – borrowers and implementers.
- Technical assistance providers – strengthen pipeline development, due diligence, and risk tools.

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# Annex A. Workshop Agenda.

ORLD BANK GROUP

IWMI International Water Management Institute

**Agenda: Blended Finance Facility for Farmer-Led Irrigation in Kenya**

| Time | Session | Speaker |
|---|---|---|
| 08:30 – 09:00 | Arrival & Registration | Workshop Secretariat |
| **Morning: Building the Investment Case: What Banks, Suppliers, and Funders Need** | | |
| 09:00 – 09:20 | Welcome and Opening Remarks<br>NISIP and proposed RBF design for Pillar 1 | Principal Secretary, State Department of Irrigation |
| 09:20 – 09:30 | World Bank support to NISIP | World Bank |
| 09:30 – 09:40 | CGIAR/IWMI: Scaling for Impact Vision in Irrigation Sector for Kenya | S4I Lead – IWMI |
| 09:40 – 10:00 | Workshop Objectives & An Overview of Barriers, Gaps, and Opportunities in Irrigation Finance Landscape in Kenya | IWMI |
| 10:00 – 11:00 | Hybrid Panel–Plenary: Panel on the Critical Barriers and Needs in Irrigation Finance from the Perspective of Financial Institutions • Plenary inputs from individual institutions on interests and SME risks (3-4 minutes each). | Moderated by SDI, Eng. Kabuti |
| 11:00 – 11:15 | Tea Break | |
| 11:15 – 11:45 | Plenary Q&A<br>Exploring Financing Opportunities and Potential Financing Mechanisms for Engaging National Financial Institutions (based on the panel) | Moderated Discussion + facilitator |
| 11:45 – 12:00 | Key Takeaways to Feed into Afternoon Design Work | World Bank |
| 12:00 – 13:00 | Lunch Break | |
| **Afternoon: Co-Designing the Facility: Priorities, Instruments, and Models** | | |
| 13:00 – 13:30 | Group Work Session 1: Prioritizing Financial Instruments and Enablers • Ranking the most critical elements to scale FLID investment based on constraints and insights from the morning | Breakout Groups (Facilitator) |
| 13:30 – 13:40 | Group Feedback and Q&A | Rapporteurs |
| 13:40 – 14:10 | Group Work Session 2: Designing Viable Blended Finance Models for Piloting in Kenya (Define potential models, risk structures, stakeholder roles, and delivery options) | Breakout Groups (Facilitator) |
| 14:10 – 14:30 | Group Feedback and Q&A | Rapporteurs |
| 14:30 – 15:00 | Insights from Practice: Designing Bankable Irrigation Finance Models – What Works and Why (Case reflections from Kenya and other regions) | DFIs, IFIs, blended finance providers |
| 15:00 – 15:15 | Roadmap to a Pilot Facility in 2026: Aligning on Next Steps | IWMI/World Bank |
| 15:15 – 15:30 | Closing Remarks | SDI |
| 15:30 | Tea & Networking | All Participants |

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