Event Report

Uganda National Forum for Scaling investment in Solar-Powered Irrigation Systems

6 May 2026

Golden Tulip, Kampala

UNEP CCC

Contents

Event Agenda

Uganda National Forum
for
Scaling investment in Solar-Powered Irrigation Systems

Date: 6 May 2026
Time: 08:30–15:00
Venue: Golden Tulip Hotel, Kampala

Organised by UNEP-CCC; co-hosted by FAO, the Royal Danish Embassy in Uganda, Mercy Corps, GGGI and UNCDF

Background and context

Uganda's agricultural sector is increasingly threatened by climate variability, prolonged dry spells, and the declining reliability of rainfall. Solar-Powered Irrigation Systems (SPIS) are emerging as one of the most promising climate-smart technologies to strengthen resilience and increase productivity for the country's smallholder farmers.

Under the Danida-funded Accelerating Climate Technology Transition (ACTT) project, UNEP-CCC - working in partnership with Mercy Corps Uganda, GGGI, FAO and UNCDF - has undertaken a comprehensive assessment of Uganda's SPIS market, the enabling environment, and the business and financing models needed for scale. Insights from this work, together with experience from the Mercy Corps Pump-Up project, have been consolidated into a new report that forms an evidence base for implementing Uganda's NDC 3.0 and other national adaptation and development priorities. This report will be critical to informing targeted policies and incentives critical to crowding in SPIS market investments from diverse stakeholders based on a realistic, up-to-date country context.

This one-day event will serve as both wrap-up meeting for ACTT and as a National Investment Forum, bringing together policymakers, SPIS suppliers, financial institutions, investors, farmer-facing organisations(Agri-SMEs and SACCOs), cooperate companies, NGOs, Enterprise Support Organisations, and development partners to reflect on the project's key findings and chart next steps for driving private-sector investment.

The event will highlight the high-level investment case for SPIS, showcase innovative aggregator-based and blended-finance models, and explore opportunities to integrate SPIS into national climate investment plans and adaptation finance pipelines. The meeting will also serve as a platform for strengthening partnerships with key ecosystem actors - including technology providers, agribusinesses, off-takers, insurers, and farmer organisations - to support market-driven roll-out of SPIS for climate-resilient agriculture across Uganda.

Agenda

08:30 – 09:00	**Registration & Networking Coffee**	**Suggested Speakers and moderators**
09:00 – 09:30	**Opening Session** • Welcome remarks from UNEP-CCC • Opening statements	**Speakers:** Mathilde Brix Pedersen, UNEP CCC • Bob Natifu, Commissioner, Climate Change Department, Ministry of Water and Environment • James Muhwezi, Climate Finance Unit, Ministry of Finance, Planning and Economic Development • Martin Ameu, Assistant FAO Representative • Adam Sparre Spliid, Head of Cooperation - Deputy Ambassador to Uganda
09:30– 09:50	**Setting the scene** Technical presentation informed by new multi-partner report on the SPIS market landscape in Uganda, barriers to scale-up and innovative financing models and pathways to achieve Gov. targets on technology roll-out.	Eddie Sembatya, UNEP-CCC
09:50 – 11:00	**Session 1: Innovative Business and Financing Models & Aggregator Partnerships (lessons from early-stage market building)** **Theme and key questions:** demand aggregation, scaling, replication through partnerships. What works. What are the key lessons from NGOs, donors, suppliers, SACCOs, financiers - perspectives related to scaling the market.	**Moderator: David Kisakye, GGGI Uganda** Panelists: 1. Lawrence Otim, Manager PUMP-UP Programme, MercyCorps 2. Attra Atukunda, Business Development Manager, Agro Consortium Ltd (AIC) 3. Pidson Abaho, COO, Sprinktech, 4. Douglas Baguma, CEO & Co-Founder, Innovex and Chairman at the Uganda Solar Energy Association (USEA) 5. Paul Atim, Production and Marketing Manager, West Acholi Cooperative Union Limited

11:00 - 11.30	**Coffee break**	SPIS Supplier Pitches
11:30 – 12.45	**Session 2: Investor Roundtable: Building a Pipeline for SPIS Financing.** Finance-provider perspectives on scaling, lessons from existing modalities. **Themes and key questions:** Finance providers perspectives on scaling SPIS finance, lessons from existing modalities, finance through suppliers vs finance through end user aggregator like SACCOs. Perspectives from local lenders, DFIs, impact investors, fund managers. Risk mitigation (blended solutions, guarantees, role of insurance, concessional windows etc.). Need for investment ready SPIS suppliers and aggregators.	**Moderator: Eddie Sembatya, UNEP-CCC** 1. Dorothy Kyomuhangi, CEO, Pearl Capital Partners 2. Samuel Ocanya, Project Manager - Electricity Access Scale-up Project (EASP), UECCC 3. William Matovu, CEO, Heifer International
12:45 – 13:30	**Policy Dialogue and wrap up** **- towards a national roadmap for scaling the SPIS market in Uganda** Purpose of this wrap session is to summarize and discuss key messages coming from the panel sessions, including actionable recommendations for expanding the market for SPIS in Uganda	**Bilateral Dialogue** James Muhwezi – Climate Finance Officer, Climate Finance Unit, Ministry of Finance Planning and Economic Development Muhammad Ssemambo Ass Commissioner, Climate Change Department, Ministry of Water and Environment Format: a face-to-face dialogue between MOFPED and the Ministry of Water and Environment.
13.30-15.00	**Networking Lunch**	

Executive Summary

The Uganda National Forum on Scaling Investment in Solar-Powered Irrigation Systems (SPIS), held on 6 May 2026 in Kampala, brought together policymakers, financiers, private sector actors, and development partners to identify pathways for accelerating investment and deployment of SPIS in Uganda. The forum was convened under the UNEP-CCC-led ACTT project to consolidate evidence on market barriers, financing models, and policy priorities for scaling climate-smart irrigation solutions as laid out in the report *Pumping Up Climate Technology in Uganda: Business and financing models for the roll-out of solar-powered irrigation systems for smallholder farmers*.

Discussions confirmed that SPIS represents a critical solution to address climate variability, improve agricultural productivity, and strengthen resilience among smallholder farmers. However, scaling remains constrained by high upfront costs, limited access to appropriate finance, technical capacity gaps, and infrastructure challenges, particularly water availability.

A central conclusion of the forum was that scaling SPIS requires a coordinated ecosystem approach. Strong alignment between technology providers, financial institutions, aggregators, and government actors is essential. Cooperative and SACCO-based aggregation models emerged as the most effective mechanism to reach smallholders, reduce transaction costs, and improve creditworthiness, with evidence showing repayment rates of up to 98–99% in well-structured systems.

Access to finance was identified as the primary bottleneck. Existing concessional schemes and subsidies have not fully translated into accessible financial products for farmers due to mismatches in loan terms, collateral requirements, and farmer cash flows. Participants emphasized the need for blended finance structures, risk-sharing instruments, and clearer role distribution across ecosystem actors to improve efficiency and scalability.

The forum also highlighted the importance of making SPIS "bankable" through digital innovation. Integration of IoT-enabled monitoring systems and data analytics can improve system performance, reduce risk, enable insurance solutions, and build investor confidence. Embedding insurance into financing models was further identified as a key enabler to mitigate both climate and credit risks.

From a policy perspective, government stakeholders reaffirmed strong commitment to integrating SPIS into Uganda's national climate strategy (NDC 3.0) and to mobilising climate finance. However, a critical gap remains in the availability of investment-ready, aggregated project pipelines. Strengthening project preparation, aggregation, and coordination mechanisms will be essential to unlock domestic and international financing.

Key opportunities identified include establishing a national coordination platform for climate technology investment, strengthening cooperatives through capacity building and digitisation, developing aggregated project pipelines, expanding blended finance facilities, and leveraging policy frameworks to anchor large-scale deployment.

Overall, the forum underscored strong market potential and stakeholder alignment, but highlighted that translating this into large-scale impact will depend on addressing financing constraints, improving coordination, and accelerating the development of investable SPIS investment pipelines.

Key opportunities identified during the forum

1. **Establish a Formal Climate Technology Market Coordination and Partnership Platform**

Based on discussions at the Investment Forum, a clear opportunity exists to institutionalize coordination across not only the SPIS ecosystem but across climate technologies at large to address fragmentation and unlock partnerships.

Establish a National Climate Technology Coordination Platform serving as a yearly National Investment Forum on Climate Technology (potentially hosted under Ministry of Finance, Climate Finance Unit). Among other functions, this platform could facilitate:

- Taking stock of progress made and provision of technical assistance and coordination support
- Pipeline sharing, matchmaking and deal structuring between suppliers, financiers, and aggregators, including for Article 6 carbon projects for conditional NDC implementation
- Standardisation of roles across actors

2. **Strengthen SACCOs and Cooperatives as Scalable Delivery Channels through Capacity Building and Digitization**

There is a significant opportunity to transform SACCOs and cooperatives into high-performing, scalable delivery channels for SPIS. Evidence from PCP's model demonstrates strong results—achieving **98–99% repayment rates** when well-structured cooperatives are supported.

Key opportunity areas include:

- Governance and financial management: Strengthening leadership structures, accountability systems, and financial controls to build trust and resilience.
- Credit administration and loan tracking: Enhancing systems to improve lending efficiency, risk management, and repayment monitoring.
- Digital farmer profiling and production data systems: Leveraging technology to improve member data, enable better decision-making, and support tailored financial products.

3. **Develop Aggregated SPIS Project Pipelines**

The forum identified **immediate, underutilized demand pipelines** that are not yet connected to appropriate financing. At the same time, the Ministry of Finance has explicitly signaled openness to supporting credible, investment-ready projects—creating a timely entry point for structured pipeline development.

Several actors in the room were representing large potential end user groups a portion of which representing ready or near-ready demand.

- West Acholi Cooperative Union has a **membership of 11,476 farmers**.

- Development Microfinance Ltd, Sebei Farmers SACCO, Pader-Abim Community Multi-purpose Electric Co-operative Society Ltd (PACMECS) and BCU COMMUNITY SACCO Ltd combined represent **67,000 agri members.**
- **BIRDC is organizing 5000 farmers in Bushenyi** and has detailed database of farmer details based on the insurance scheme that can be used for SPIS assessment.
- Heifer International is working with **over 140,000 youth farmers in Busoga.**
- East Africa Grain Council has, through their Danida funded project, **profiled 600 farmers with established cash flows**.

An ecosystem of actors ready to support pipeline development and financing. PCP has demonstrated a successful SACCO-based financing model with high repayment rates and can structure blended finance vehicles and deploy concessional capital. Ministry of Finance (Climate Finance Unit) can support the development of early-stage concepts into bankable, investment-ready proposals. UECCC can provide credit lines and guarantees to de-risk lending and crowd in private capital.

4. **Deploy Integrated Data and IoT Systems to Improve Inevitability and Risk Management**

A major opportunity exists to **convert SPIS into "bankable assets" through data**, reducing uncertainty for financiers.

- Scale deployment of **IoT-enabled monitoring systems** that integrate technical performance data (water output, usage, uptime) and financial data (payments, repayment behaviour)
- Create **shared data frameworks** accessible to financiers, insurers, and suppliers

5. **Embed Insurance within SPIS Financing Models to De-risk Investment**

Insurance was identified as a **critical enabler to address both climate and credit risks**, and to improve farmer and lender confidence. Agro Consortium Ltd (AIC) is insuring 1 million small-holder farmers.

- Integrate **bundled insurance products** into all SPIS financing packages, covering climate risks (drought, yield loss) and asset risks (pump failure, theft)
- Link insurance to SACCO-based lending and IoT data for verification

6. **Expand Blended Finance & Concessional Capital Structures**

Develop **structured blended finance vehicles** combining:

- Concessional capital (donors, UECCC, climate finance)
- Commercial lending (banks, investors)
- Grant-funded technical assistance

PCP is currently managing a 6 million euro fund (DHCL), with support from the Embassy of the Kingdom of Netherlands which they are seeking to capitalize further to invest in climate smart agicultural solutions like

SPIS. Mercy Corps has launched its Humergi Facility which is a blended finance facility, combining donor funding with capital deployment and is also looking to further capitalise the fund.

7. Leverage Policy Processes (NDC 3.0 and Climate Finance Frameworks) to Anchor SPIS Scale-Up

Government signalled strong commitment, creating an opportunity to anchor SPIS in national policy and unlock large-scale finance.

- Ministry of Water and Environment: Define SPIS targets, integrate into NDC 3.0, and ensure alignment with water resource management
- Ministry of Finance (Climate Finance Unit): Support pipeline development into fundable proposals, Mobilise international climate finance
- Identify and remove policy barriers (e.g. taxation, financing constraints)
- Private sector and NGOs: Submit project proposals and evidence on cost barriers
- Development partners: Support proposal preparation and co-financing
- Uganda Development Bank (under planned finance vehicle): Channel financing to SPIS investments.

Session Summaries

Panel 1

Innovative Business and Financing Models & Aggregator Partnerships - lessons from early-stage market building

Moderator: David Kisakye, GGGI Uganda

Panelists:

1. Lawrence Otim, Manager PUMP-UP Programme, MercyCorps
2. Attra Atukunda, Business Development Manager, Agro Consortium Ltd (AIC)
3. Pidson Abaho, COO, Sprinktech,
4. Douglas Baguma, CEO & Co-Founder, Innovex and Chairman at the Uganda Solar Energy Association (USEA)
5. Paul Atim, Production and Marketing Manager, West Acholi Cooperative Union Limited

Summary

David Kisakye framed the discussion by emphasizing that:

Addressing constraints require coordination across financing, technology, and service delivery. Data, business models, and service provision are all evolving and must align to reach smallholder farmers.

Sector Constraints

Pidson Abaho highlighted that the main barriers to scaling solar-powered irrigation systems (SPIS) include:

- High costs and financing limitations
- Low market maturity
- Severe shortage of technical expertise (engineers, designers, installers)

He emphasized that the lack of skilled technicians limits the ability to design, install, and maintain systems, making scale difficult.

Technology/Data Perspective

Douglas Baguma highlighted that solar irrigation systems must be transformed into:

- Visible, serviceable, payable, and bankable assets

He explained that:

- Systems should not be “installed and forgotten” but continuously monitored through IoT technology
- Different stakeholders require different types of data:
    - Funders: impact verification (usage, location, performance)
    - Financial institutions: creditworthiness, repayment patterns
    - Suppliers: system performance and utilization
    - Farmers: reliability and system health

He proposed:

- Integrated IoT systems that track pump performance, water output, location, and payments
- Linking technical data with financial data to reduce risk and improve investment confidence

He also highlighted additional innovations:

- Real-time tracking can reduce theft and enable recovery of stolen pumps
- Data can help monitor water use and sustainability, preventing over-extraction

Cooperative / Aggregation Model

Paul Atim highlighted that the **aggregator (cooperative) model** is the most viable approach for scaling SPIS.

He explained that cooperatives:

- Organize farmers and **aggregate demand**
- Provide **credit, inputs, training, and market access**
- Reduce transaction costs and build long-term **trust with farmers**

He proposed:

- Using **seasonal planning and demand aggregation** to manage credit risk
- Offsetting loans through **produce sales at harvest**, improving repayment rates

Strengthening:

- **Leadership and governance**
- **Financial management capacity**
- **Digitisation of cooperative operations** (farmer profiling, production tracking)

He emphasized that digitisation would improve efficiency and decision-making across the value chain.

Insurance Perspective

Attra highlighted that SPIS remains high-risk investments due to:

- Climate risks (e.g., drought affecting yields)
- Credit/default risks

She explained that insurance can:

- Protect farmer incomes during shocks
- Act as a form of collateral, making farmers more bankable
- Stabilize lender portfolios and improve repayment rates

She provided an example:

- An insurance program covering 200,000 farmers paid out significant claims, helping offset losses and stabilize the system
- She proposed embedding insurance into SPIS financing models to transform them into investable assets.

Government & Technology Response to Audience

In response to audience questions, Douglas further highlighted that:

- Government is actively investing in infrastructure, including:
- Boreholes, dams, and irrigation schemes
- Subsidies (e.g., up to 60%) for solar irrigation systems

He noted that:

- While infrastructure gaps remain, the government is addressing them through water projects and subsidies

He also reinforced that:

- IoT-enabled monitoring systems can track:
- Pump location (to address theft)
- Water volumes (to improve efficiency)
- System performance (for maintenance and optimization)

He proposed that:

- Smart technology combined with data analytics (and eventually AI) will be transformative for the sector

Key Messages

Coordination

- Scaling solar irrigation requires a whole-ecosystem approach, not just technology deployment
- SPIS scaling depends on strong coordination across technology, finance, and farmer support system

Aggregation and farmer centric approaches

- Aggregation through cooperatives is one of the most effective ways to reach smallholder farmers
- Farmer-centric models (training, aggregation, market access) improve adoption and sustainability

Financing models and risk mitigation

- Innovative financing models, including PAYGo and insurance, are essential to drive adoption
- Insurance and blended finance are key to addressing risk and improving access
- Risk management (climate, credit, asset security) must be built into solutions

Digital solutions

- Digital innovation (IoT, tracking, analytics) is a major opportunity to improve efficiency, security, and sustainability
- Data and digital tools (IoT) are critical to making systems investable and scalable and reliable data reduces uncertainty and unlocks investment
- Capacity building and digitisation are necessary to strengthen institutions and systems

Government support and infrastructure

- Government investment and subsidies play a crucial enabling role
- Infrastructure gaps—especially water access—remain a major constraint

Contribution by Joseph Bahati on PIBID/BIRDC & UNDP-AFCIA Project.

A presentation by Prof. Joseph Bahati (PIBID/BIRDC) highlighted ongoing efforts under the Picture-Based Insurance Scheme, aimed at strengthening climate resilience and productivity in Uganda's banana value chain in Bushenyi where UNEP supported the Government of Uganda to design and introduce a novel insurance product for smallholder banana farmers. His intervention emphasised the importance of bananas (matooke) as a key agricultural sector in Uganda, while noting that productivity and technology uptake remain constrained by climate risks such as drought, hailstorms, and temperature variability.

To address these challenges, the project supported by partners including Acre Africa and AIC introduced an integrated approach combining:

- Climate risk insurance, including a soil moisture-based index and picture-based insurance combined with digital technology products for smallholder farmers
- Farmer aggregation models, using cooperatives and "champion farmers" to scale outreach
- An AgriTech platform in collaboration with AcreAfrica
- Capacity building and digital tools, including farmer registration and data collection through mobile technology
- Circular production systems, where banana processing waste is converted into energy and organic fertiliser, improving sustainability and efficiency.
- The product was developed with government-backed premium subsidies in partnership with the Agro Consortium of private insurers (AIC).

Implementation has expanded from an initial two cooperatives (450 farmers) to a broader network targeting over 1,350 farmers across multiple districts. Reported impacts include significant increases in farm productivity, expansion of processing capacity, and progress towards export certification. Overall, the presentation underscored the critical role of integrated solutions—combining insurance, irrigation, farmer organisation, and value addition—in building resilient agricultural systems aligned with broader climate adaptation efforts. The BIRDC is organizing a total of 5000 farmers in 20 cooperatives to whom the scheme will be offered and the programme plans to scale up to 50,000 farmers in the coming years.

Panel 2

Investor Roundtable: Building a Pipeline for SPIS Financing.

Moderator: Eddie Sembatya

Panelists

1. William Matovu, CEO, Heifer International
2. Samuel Ocanya, Project Manager - Electricity Access Scale-up Project (EASP), UECCC
3. Dorothy Kyomuhangi, CEO, Pearl Capital Partners

Summary

William Matovu (Heifer International)

- **Highlighted** that their work focuses on supporting smallholder farmers through renewable energy (especially solar for productive use) such as irrigation, cold storage, and dairy systems.
- **Emphasized** that organising farmers into cooperatives/SACCOs and linking them to value chains and off-takers is critical to attract investment and de-risk financing.
- **Explained** that shifting from diesel to solar significantly reduces production costs (e.g., diesel could account for ~40% of operational costs).
- **Highlighted** that their programmes are already working with large organised farmer bases (e.g. 140,000 youth in block farming systems), but they struggle to find technology partners that can deliver solutions at scale.
- **Proposed** that financing should be supported by:
    - Blended finance models (grants + bank financing)
    - Capacity building and governance strengthening
    - Market linkages (offtake agreements)
- **Stressed** the importance of mindset change towards more professional management and long-term cooperative development to achieve sustainability.
- **Concluded** that partnerships across the ecosystem are essential to scale solutions
- **Called for** formalization of a platform to allow actors in the room to stay connected and form needed partnerships.

Samuel Ocanya (UECCC)

- **Explained** that UECCC provides:
    - Concessional credit lines to financial institutions
    - Subsidies (up to 75%) for solar and productive-use technologies

    - Risk mitigation instruments (credit guarantees, technology guarantees)

- **Highlighted** that financing mechanisms aim to:
    - Increase electricity access
    - Support enterprises and household income generation
- **Addressed challenges with the RBF (Results-Based Financing) model**, noting:
    - It can create working capital constraints for suppliers
    - UECCC responds through supply-side incentives and credit facilities

- **Raised concerns about PAYGo models**, noting:
    - They improve access but tie up company capital and increase risk
    - Companies may be diverting from core business into financing roles
    - That partnerships should ensure companies do not overextend into financing roles (e.g. via PAYGo), and instead collaborate with financial institutions so each actor focuses on its comparative advantage

- **Suggested** a more balanced system where:
    - Financial institutions handle financing
    - Companies focus on delivery
    - Risk is shared across actors

- **Clarified** that:
    - Financial institutions still operate under their own credit policies (e.g., collateral requirements)
    - Guarantees mainly support corporate borrowers, not individual farmers

- **Acknowledged implementation gaps**, including:
    - Limited reach vs. high demand (e.g., thousands applying vs. fewer served)
    - Some company underperformance due to weak capitalisation
- **Confirmed** that:
    - The current programme runs until June 2027
    - Efforts are ongoing to secure additional funding and continuation

- **Proposed** scaling through:
    - Mobilising concessional capital
    - Focusing on productive use of energy to increase incomes and jobs

- **Emphasised** that pre-developed pipelines (such as the 600 farmers profiled by partners) represent "ready opportunities" and should be prioritised by financial institutions, as substantial groundwork (profiling, demand creation, training) has already been completed.

Dorothy Kyomuhangi (Pearl Capital Partners)

- **Highlighted** PCP's role in providing non-traditional financing (debt, equity, mezzanine) to agribusinesses.

- **Explained** their concessional lending model to SACCOs (low interest, onward lending to members).
- **Identified key gaps** in cooperatives/SACCOs:
    - Weak governance structures
    - Limited financial management capacity
- **Highlighted the importance of technical assistance**, noting improvements where capacity-building partners are involved.
- **Emphasized** ecosystem inefficiencies, stating:
    - Actors (government, NGOs, investors) are overlapping roles, creating confusion
    - Some NGOs distort markets by acting as lenders instead of facilitators
- **Advocated** for clear role definition across actors, warning that overlapping roles (e.g. NGOs acting as lenders, companies acting as financiers) create inefficiencies and undermine sustainability.
    - Investors → finance
    - NGOs → support/technical assistance
    - SACCOs → aggregation and last-mile delivery
- **Demonstrated success of SACCO-based financing:**
    - 98–99% repayment rates in their fund
    - Strong performance when groups are organised and governed well. highlighted Sebei SACCO as well performing SACCO part of their portfolio
- **Proposed** that SACCOs should be central for SPIS implementation, given their ability to aggregate farmers, manage lending, and provide social collateral—making them ideal intermediaries between financiers, technology providers, and farmers.
- **Proposed scaling strategies**:
    - Increase access to catalytic (concessional) capital
    - Strengthen farmer organisation (SACCOs/cooperatives)

Audience Contributions

Waterworks Representative

- **Highlighted** that the UECCC programme has helped scale the market
- **Raised concern** about programme continuity and underperformance linked to PAYGo
- **Asked** whether a next phase is planned

Dennis Besigye (FAO)

- **Highlighted** that farmers historically struggle to access irrigation finance despite ability to repay
- **Questioned** how subsidies and financing can be better structured for smallholder access
- **Criticized banks** for making concessional products difficult to access
- **Suggested** using SACCOs instead of banks for last-mile delivery

Paul Ochuna (East Africa Grain Council)

- **Highlighted real-world challenges**:
    - High interest rates despite concessional schemes
    - Collateral requirements (e.g., land titles) excluding farmers
- **Observed mismatch** between:
    - Financing product design
    - Smallholder realities (cash flows, land tenure, climate risk)
- **Noted frustration** from farmers and wasted investment in awareness/training
- **Highlighted** that their consortium has already profiled over 600 smallholder farmers who meet financing criteria (including having viable cash flows, water access, and commercial orientation), yet these farmers still struggle to access suitable financing due to misaligned loan conditions and collateral requirements.

Purity (Mercy Corps)

- **Introduced** a new financing vehicle (Humanitarian Energy Company) with focus on supply-side financing and more flexible terms (e.g., no hard collateral, grace periods)
- **Highlighted** that new financing vehicles (e.g. concessional supply-side financing without hard collateral) and **proposed** it as complement to existing public and private schemes, creating opportunities for blended partnership structures across institutions.

Key Messages and takeaways

1. Finance remains the biggest bottleneck

- Access to affordable, appropriate finance is still limited
- Concessional schemes exist but do not always translate into accessible products for farmers

2. There is a mismatch between financial products and farmer realities

- Banks require collateral (e.g., land titles) that many farmers lack
- Loan terms often do not align with seasonal and climate-dependent incomes

3. SACCOs and cooperatives are critical delivery channels

- They:
    - Understand local contexts
    - Provide social collateral mechanisms
    - Enable aggregation and monitoring
- Strong evidence shows high repayment rates when systems are well organized.

4. Farmer organisation is essential for investment readiness

- Investors require:

    - Structured groups
    - Governance systems
    - Predictable market linkages
- Organisation reduces risk and unlocks financing

5. PAYGo is useful but problematic at scale

- Strength: improves access for low-income users
- Weaknesses:
    - Creates working capital pressure for companies
    - May lead firms into financing roles they are not equipped for

6. Ecosystem fragmentation reduces effectiveness

- Overlapping roles between NGOs, financiers, and government
- Need for **clearer role separation and collaboration**

7. Blended finance and de-risking instruments are key

- Grants, guarantees, and subsidies help unlock private capital
- Need to scale credit guarantees, risk-sharing, and catalytic capital

8. Supply-side constraints matter as much as demand

- Companies face:
    - Working capital shortages
    - Market entry barriers
- Must be addressed alongside farmer financing

9. Demand exists and is high

- Significant unmet demand for solar irrigation and productive-use energy
- Current programmes reach only a small fraction of potential users

10. Partnerships are essential for scale

- Scaling to millions of users requires:
    - Coordination across stakeholders
    - Platforms for collaboration
    - Integration of finance, technology, and market systems
- Across the discussion, speakers emphasised that effective partnerships should be built around organised farmer groups, pre-developed demand pipelines, and complementary roles between financiers, implementers and support organisations, with SACCOs emerging as a central coordination platform.

Policy Dialogue

Panellists:

1. Semambo Mohammad Ass. Commissioner, Climate Change Department, Ministry of Water and Environment
2. James Muhwezi, Climate Finance Officer, Climate Finance Unit, Ministry of Finance, Planning and Economic Development

Summary

Ministry of Water and Environment Perspective

Strategic positioning of SPIS within national climate policy (NDCs)

- The Ministry **emphasized** that solar-powered irrigation (SPIS) must be explicitly integrated into Uganda's NDC 3.0 to:
    - Elevate it to a national priority intervention
    - Enable target-setting and accountability
    - Improve access to international climate finance
- It was stressed that without clear targets and quantified ambition, Uganda will struggle to:
    - Mobilise sufficient finance
    - Attract technology and capacity support
    - Guide implementation across actors
- A key policy gap identified is the need to define:
    - How much irrigation expansion is expected
    - What share should be solar-based
    - Efficiency standards and priority value chains

Water resource management as a binding constraint

- The Ministry made clear that water availability—not technology—is the primary limiting factor:
    - Irrigation systems cannot function without reliable water sources
    - Current approaches often ignore hydrological sustainability
- Two priority policy directions were highlighted:
    - Catchment management to ensure long-term water resource sustainability
    - Water motorisation (distribution) to connect water-abundant areas to farms
- The Ministry also stressed the need to **enforce water permitting and regulation**, noting that:
    - Unsustainable borehole drilling is already a regulatory issue
    - Scientific assessment of water sources must guide investments

Need for integrated, system-wide agricultural support

- The Ministry emphasised that SPIS cannot be implemented as a standalone intervention, irrigation must be combined with:
    - Agricultural extension services
    - Farmer capacity building
    - Good agronomic practices
- Without this integration:
    - Productivity gains will not materialise
    - Farmers may fail to repay loans
    - Confidence in the technology will decline
- It was stressed that:
    - Extension services are a shared responsibility (not only government)
    - There is a need to connect technology developers, service providers, and farmers more closely

Call for stakeholder input into policy and implementation design

- The Ministry explicitly requested stakeholders to:
    - Identify policy and regulatory gaps that hinder financing and implementation
    - Provide input on what is missing to enable resource mobilisation

Ministry of Finance Perspective

Core constraint: lack of bankable, aggregated projects

- The Ministry identified the primary bottleneck to scaling SPIS:
    - The absence of credible, investment-ready projects at scale
    - Smallholder farmers operate individually and cannot generate projects of sufficient size to attract climate finance
- Policy and financing implication: There is a strong need for:
    - Aggregation models (farmer groups, cooperatives, portfolios)
    - Structuring investments at scale rather than individual level

Government role in climate finance mobilisation

- The Ministry clarified its mandate through the Climate Finance Unit:
    - Mobilise climate finance (domestic and international)
    - Support development of fundable proposals
    - Coordinate actors across sectors
- A critical policy message:
    - Finance is available globally, but Uganda lacks sufficiently developed proposals to access it

Development of national climate finance architecture

- The Ministry announced a key National Climate Finance Vehicle approved by government and under development will include:
    - Public financing window
    - Private sector financing window (managed by Uganda Development Bank)
- Objective:
    - Localise climate finance access, reducing reliance on international intermediaries

Structured engagement with financial sector

- Planned high-level engagement platforms:
    - CEO Forum (July) to align financial sector decision-makers
    - Technical roundtables (September) for sector-specific solutions
- Purpose:
    - Address financial product gaps
    - Align banks with climate finance opportunities and SPIS needs

Policy willingness to adjust incentives (including taxation)

- The Ministry signaled strong openness to:

    - Reviewing taxation barriers on technologies
    - Introducing targeted incentives (financial and non-financial)

- It stressed that:
    - Incentives should not be limited to subsidies, but include depreciation allowances, fiscal adjustments and other policy instruments.

- Stakeholders were invited to:
    - Submit evidence-based proposals outlining cost barriers and policy solutions

Carbon markets as a financing mechanism

- The Ministry confirmed that:
    - Carbon credits can serve as a revenue stream to subsidise SPIS

- However, this depends on:
    - Strong regulatory frameworks
    - Transparent revenue-sharing mechanisms

Addressing ecosystem inefficiencies

- The Ministry identified a systemic issue:
    - Actors taking on multiple roles outside their core function, leading to potential inefficiencies, increased costs, misallocation of resources

- Policy implication:
    - The ecosystem must be better structured, with clear functional roles, reduced duplication, more efficient value chains

Open-door policy for project development and active government facilitation of project pipelines

- The Ministry explicitly invited stakeholders to:
    - Engage directly with the Climate Finance Unit
    - Submit project ideas for support in design, structuring and accessing finance

Summary of key Commitments from Government

Ministry of Finance (Climate Finance Unit)

- Committed to:
    - **Mobilising climate finance** from multiple sources
    - **Supporting project developers** to create fundable proposals
    - **Engaging private sector actors** more actively
- Announced:
    - **CEO-level engagement platform (July)** to align financial sector decision-makers
    - **Technical roundtables (September)** for sector-specific solutions
    - **National climate finance vehicle** with:
        - Public and private financing windows
        - Local management (via Uganda Development Bank)

Ministry of Water and Environment

- Committed to:
    - **Providing technical validation of projects** (alignment with climate goals)
    - Supporting **integration into NDC 3.0**
    - Strengthening **water management frameworks**

Government overall

- Confirmed that:
    - **Policy frameworks and regulations are largely in place**
    - Focus now shifts to **implementation and project development**

Technical Presentation - Slides

Accelerating Climate Technology Transition (ACTT)

Uganda National Forum for Scaling Investment in Solar-Powered Irrigation Solutions

6 May 2026

Golden Tulip, Kampala

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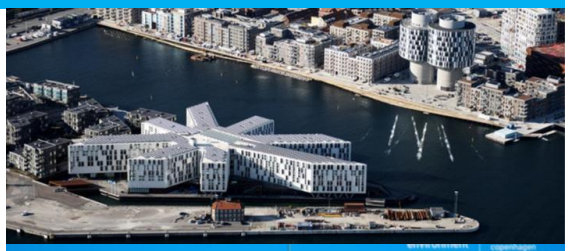
UNEP Copenhagen Climate Centre

- Technical advisory centre on energy, climate and sustainable development
- ~65 staff from 25+ different nationalities working around the world from UN City
- Steering Committee led by the Danish Ministry of Foreign Affairs and UNEP
- Central to implementing UNEP's work on Climate Change and Energy
- Currently supporting projects in 60+ countries



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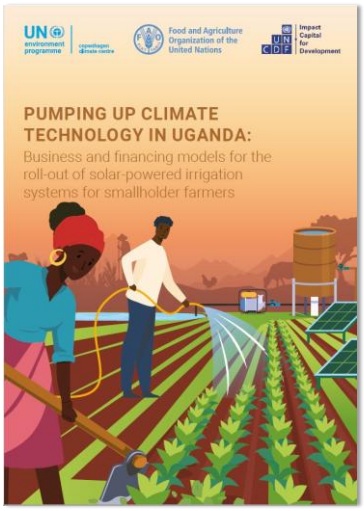
Solar Powered Irrigation Systems

ABOUT ACTT

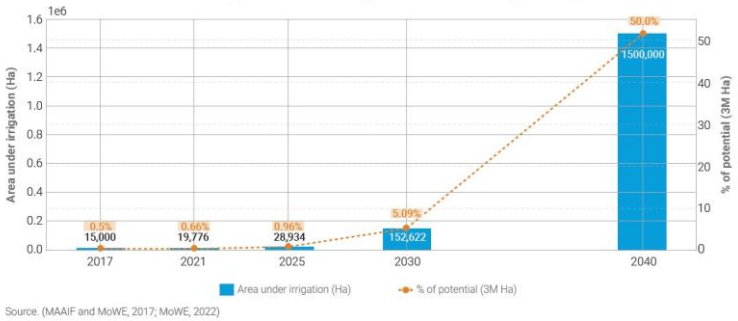
The Accelerating Climate Technology Transition (ACTT) project is funded by Danish Ministry of Foreign Affairs and implemented by UNEP CCC. The project aims to accelerate the adoption of market-ready climate technologies like solar irrigation through market assessments and identification of project pipelines, developing tailored financial models, connecting technology providers with end-users and investors by supporting policy and investment frameworks for scaling.



The Challenge and Opportunity

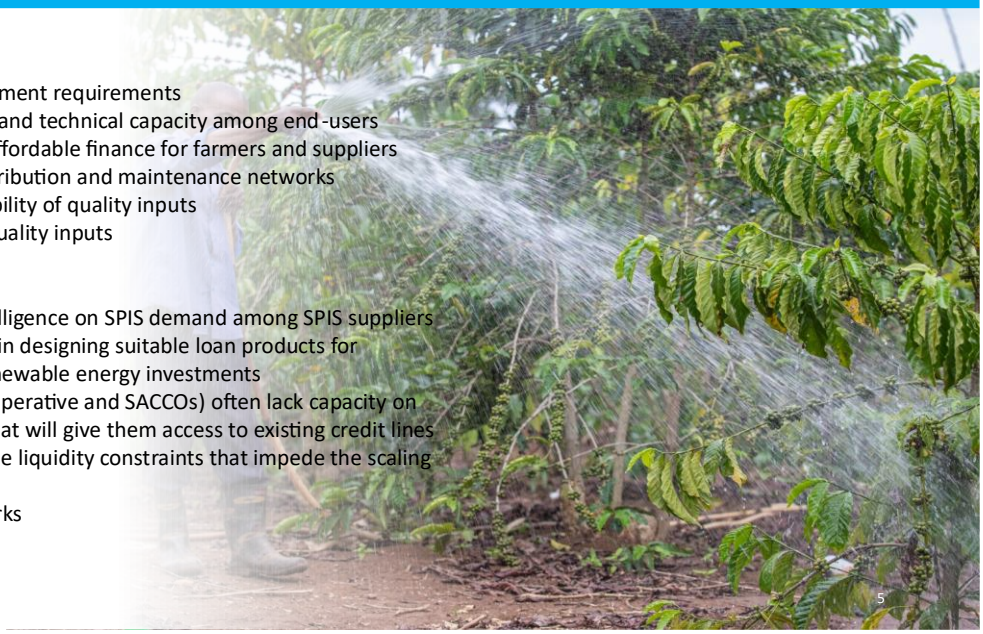
- Around 1% of land under irrigation. Av 29k hectares vs 1.5 Million targeted by 2040
- Heavy reliance on government subsidy schemes and donor interventions
- Demonstrated strong latent demand, with over 90,000 expressions of interest from farmers under UgIFT alone
- Commercial uptake and scale dependent on demand and supply side challenge addressed

Area under irrigation trend based on Uganda NDC Targets and the National Irrigation Policy



Source. (MAAIF and MoWE, 2017; MoWE, 2022)

The Challenge and Opportunity



Demand Side Barriers

- High upfront investment requirements
- Limited awareness and technical capacity among end-users
- Limited access to affordable finance for farmers and suppliers
- Weak last-mile distribution and maintenance networks
- Inconsistent availability of quality inputs
- Limited access to quality inputs

Supply Side Barriers

- Lack of market intelligence on SPIS demand among SPIS suppliers
- FIs face challenges in designing suitable loan products for agricultural and renewable energy investments
- Farmer groups (cooperative and SACCOs) often lack capacity on lending products that will give them access to existing credit lines
- Suppliers experience liquidity constraints that impede the scaling of operations
- Weak agent networks

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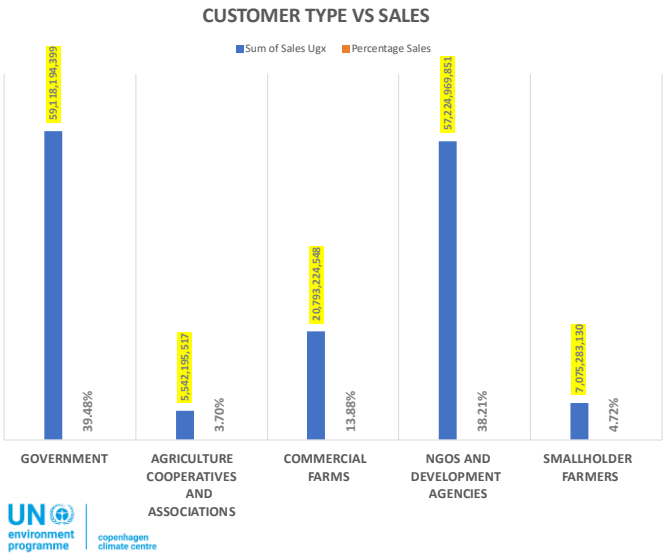
Key Takeaways



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- **SPIS Technology Distribution & Maintenance**
  - Mix of local distributors, international pump manufacturers, PAYGo-enabled enterprises, and local dealers
  - However last-mile distribution networks remain thin in Uganda
  - Need for strong O&M / after sales service safeguards for end users
- **SPIS Finance**
  - Finance facilities target agri-SMEs and remain insufficient to meet SPIS market potential to viable small holder farmers.
  - Need for inventory financing, supplier working capital, and affordable end-user credit.
  - The farmer market remains underdeveloped, requiring stronger private-sector business models

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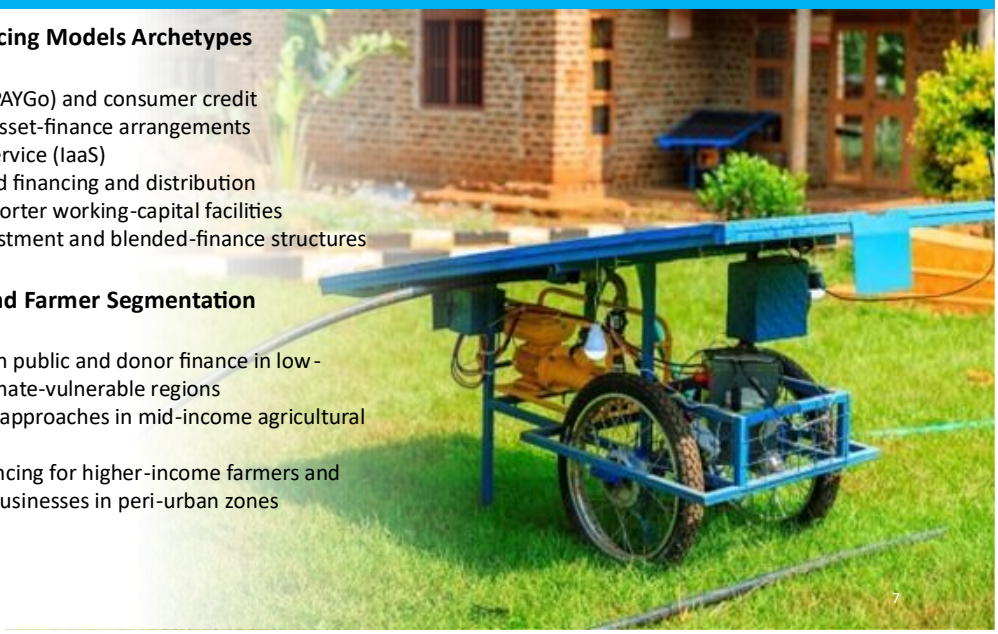
Key Takeaways

- **Business and Financing Models Archetypes**
  - Pay-As-You-Go (PAYGo) and consumer credit
  - Lease-to-own / asset-finance arrangements
  - Irrigation-as-a-Service (IaaS)
  - Aggregator-based financing and distribution
  - Supplier and importer working-capital facilities
  - Pilot impact investment and blended-finance structures
- **SPIS Distribution and Farmer Segmentation**
  - Heavy reliance on public and donor finance in low-income, high-climate-vulnerable regions
  - Blended-finance approaches in mid-income agricultural corridors
  - Commercial financing for higher-income farmers and established agribusinesses in peri-urban zones



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Key Takeaways

- **Yield Improvements and Return on Investment**
  - Highest economic returns recorded for high-value crops i.e. 150-250% return. e.g. tomatoes, cabbage, watermelon)
  - High farm-level internal rates of return for high-value horticultural crops; (30-40%)
- **Economic Impact**
  - Reduces seasonal fluctuations in food supply and farmer income
  - Provides consistent raw material flows needed for agro-industrialization
- **Environmental Impact and Safeguards**
  - Avoided Emission
  - Farmers can meet household needs and market demand without expanding into forests or wetlands
  - Sustainable water management and extraction is key

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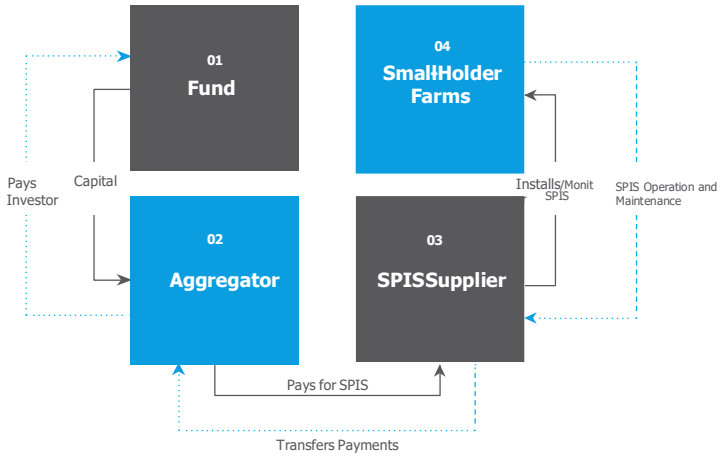
Pathways to Scale – The Aggregator Model

An Aggregator – is an Agri-SME, a cooperative or another entity that has an established relationship with farmers, can create demand for farmers produce and has the institutional capacity to manage relations with farmers, investors and SPIS suppliers



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Recommendations for Scaling of SPIS

Policy

- Integrate SPIS explicitly into NDC implementation plans, the NAP process, and NDP IV, supported by a clear investment pipeline and coordination framework across agriculture, energy, and water ministries.
- Strengthen water governance and abstraction monitoring
- Finalize SPIS product standards, streamline customs procedures for certified equipment, and harmonize VAT and duty exemptions to reduce system costs.

Development partners

- Build capacity of cooperatives, producer groups, and women's associations to act as effective aggregators for SPIS deployment and to facilitate financing, technical training, and market access.
- Support market intelligence systems and data platforms tracking impact, demand and implementation
- Deploy catalytic public capital and support implementation of Movable Assets based lending

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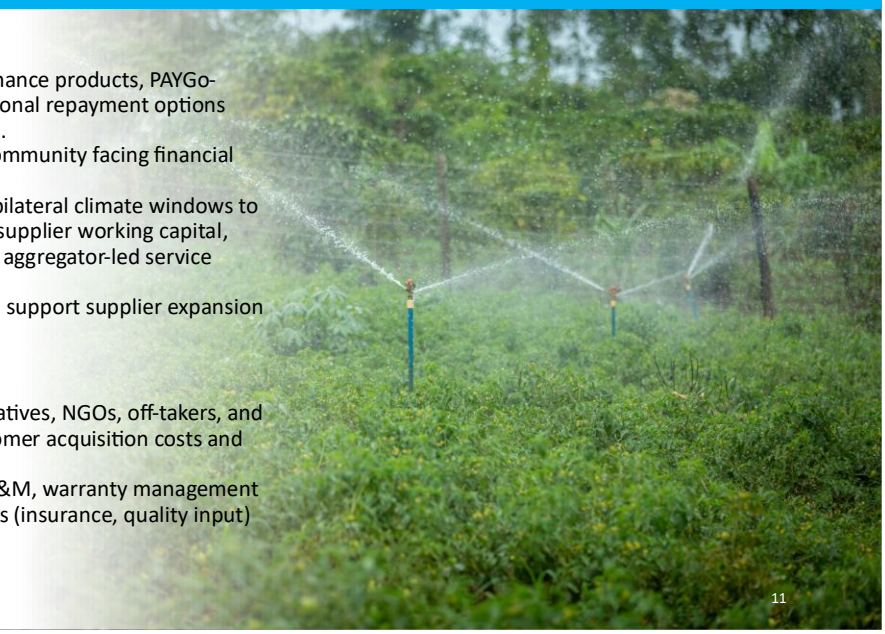
Recommendations



Financiers

- Introduce medium-term asset-finance products, PAYGo-compatible credit lines, and seasonal repayment options tailored to high value crop cycles.
- Expand guarantee schemes to community facing financial service providers
- Use GCF, Adaptation Fund, and bilateral climate windows to support concessional capital for supplier working capital, water-source infrastructure, and aggregator-led service models
- Expand demonstration sites, and support supplier expansion into underserved districts

SPIS Suppliers

- Expand engagement with cooperatives, NGOs, off-takers, and agro-service hubs to reduce customer acquisition costs and increase repayment reliability
- Strengthen technician training, O&M, warranty management
- Develop bundled service packages (insurance, quality input)

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Participant List

Registered participants

NO	COMPANY/ORGANISATION	CATEGORY	POSITION	NAME
1	Agribusiness Market Ecosystem Alliance (AMEA)	Advisory and ecosystem builders	Regional Coordinator	Harrison Kaziro
2	Climate Change Adaptation Innovation (CHAI)	Advisory and ecosystem builders	Director of Partnerships	Patrick Kibaya
3	Climate Change Adaptation Innovation (CHAI)	Advisory and ecosystem builders	CEO	John Kaddu
4	Finding XY	Advisory and ecosystem builders	Team Lead	Merab Twinomugisha
5	Finding XY	Advisory and ecosystem builders	M&E	Stephen Bayite
6	Hivcolab	Advisory and ecosystem builders	Startup & innovation ecosystem practitioner	Dona Sava
7	New Vision	Advisory and ecosystem builders	Sales	Phillip muhumuza
8	Open Capital Advisors	Advisory and ecosystem builders	Management Consultant	Leslie Lubowa
9	Side B	Advisory and ecosystem builders	N/A	Cecilia Alonyo
10	Side B	Advisory and ecosystem builders	N/A	Robert Okello
11	Action Against Hunger	Donors, Development Partners and NGOs	N/A	Edwin Nabimanya
12	Ayuda en accion	Donors, Development Partners and NGOs	Business Development Manager	Johannes Frauscher
13	Ayuda en accion	Donors, Development Partners and NGOs	Director Transaction Execution	Ella Tirwomwe Kobusingye
14	Danish Embassy	Donors, Development Partners and NGOs	PROGRAMME ADVISOR CLIMATE CHANGE AND ENVIRONMENT	Sarah Sunday Fortunate
15	FAO (FAO)	Donors, Development Partners and NGOs	Adapt Partnership lead	Emmanuel Ekakoro
16	FCDO	Donors, Development Partners and NGOs	Access to Climate Finance - Uganda Lead	Andy Baker
17	Finn Church Aid	Donors, Development Partners and NGOs	Investment Analyst	Juliet Aparo
18	Food and Agricultural Organisation (FAO)	Donors, Development Partners and NGOs	Consultant	Besigye, Dennis
19	GGGI	Donors, Development Partners and NGOs	Carbon Maket Specialist	David Baleese Kisakye
20	GGGI	Donors, Development Partners and NGOs	Agriculture Expert	Jennifer Josephine Barnard
21	GGGI	Donors, Development Partners and NGOs	Country representative	Paplo Martinez

22	GIZ Endev	Donors, Development Partners and NGOs	Technical Advisor- Solar Component	Hellen Kyomugisha
23	Heifer International	Donors, Development Partners and NGOs	Country Director	William.Matovu
24	Heifer International	Donors, Development Partners and NGOs	Signature Program Technical lead	Ronald Wabwire
25	Heifer International	Donors, Development Partners and NGOs	Renewable energy project Manager	Edna Nyamwaka
26	International Fertilizer Development Centre	Donors, Development Partners and NGOs	Project Manager for the Building Resilience and Inclusive Growth of Highland farming systems for rural Transformation (BRIGHT)	Kiganira Ibrahim.
27	Last Mile Climate	Donors, Development Partners and NGOs	NGO	Ayoo Irene Hellen
28	Mercy Corps	Donors, Development Partners and NGOs	Programme Manager Energy Access Project and Head of Office Gulu	Lawrence Otim (Panel 1)
29	Mercy Corps	Donors, Development Partners and NGOs	Energy Advisor	Purity Gituma
30	UNDP	Donors, Development Partners and NGOs	Programme Manager, Energy and Climate Change	Gloria Namande/Collins Tonny Biromumaiso ,
31	UNEP CCC	Donors, Development Partners and NGOs	Consultant - UNEP CCC	Eddie Sembatya
32	UNEP CCC	Donors, Development Partners and NGOs	Energy and Climate Advisor	Mathilde Brix Pedersen
33	UNEP CCC	Donors, Development Partners and NGOs	Senior Advisor Energy and Climate	James Haselip
34	UNEP CCC	Donors, Development Partners and NGOs	Consultant - UNEP CCC	Mwesigye L. Munanura
35	ZOA Uganda	Donors, Development Partners and NGOs	Manager – Programme Quality	Elisabeth Robertson
36	SEBEI Farmer's SACCO	End-User & Market Aggregators	CEO	Kwemboi Phelix Siya
37	Agrisol Africa Ltd	End-User & Market Aggregators	Chied Executive officer	Gloria Abango/ Walter
38	Agromax	End-User & Market Aggregators	N/A	Maurits Servaas
39	BCU Community SACCO Ltd (SACCO)	End-User & Market Aggregators	N/A	Namakhooola Andrew
40	BIRDC	End-User & Market Aggregators	Deputy ED	Prof Joseph Bahati
41	Bros Coffee (U) Ltd	End-User & Market Aggregators	founder, and CEO	Dison Kareng
42	Coffee World (U) Ltd	End-User & Market Aggregators	Partnerships	Betty Namwagala
43	Development Microfinance Ltd (SACCO)	End-User & Market Aggregators	Credit Analyst	Leah Asio
44	East Africa Grain Council	End-User & Market Aggregators	HEAD OF FINANCE	Paul Ochuna
45	Kenganzi Agencies Company Uganda Limited	End-User & Market Aggregators	Chied Executive officer	Kenganzi Angella

46	OMIA	End-User & Market Aggregators	MD	Iganachi Razaki Omia
47	Pader-Abim Community Multipurpose Electric Cooperative Society Limited (PACMECS) (SACCO)	End-User & Market Aggregators	General Manager	Tracy Aloyo
48	Pader-Abim Community Multipurpose Electric Cooperative Society Limited (PACMECS) (SACCO)	End-User & Market Aggregators	Chairman	Ojok Simon Odoch
49	Uganda Manufacturers Association	End-User & Market Aggregators	Partnerhsips Manager	Kyalimpa Joseph
50	Uganda Manufacturers Association	End-User & Market Aggregators	Executive Director	Kyalimpa Joseph
51	Uganda Solar Energy Association	End-User & Market Aggregators	Senior Programs Associate	Paddy Bakengana
52	West Acholi Cooperative Union Limited (SACCO)	End-User & Market Aggregators	Production and Marketing Manager	Atim Paul (Panel 1)
53	Yellow star	End-User & Market Aggregators	MD	Florence Okot
54	Absa Bank	Financiers & Capital Providers	RM Agriculture/ Business Manager	Mercy Mary
55	Centenary Bank	Financiers & Capital Providers	General Manager - Commercial Banking/ GM Agriculture, Microfinance & SME Division (MCP)	Michael Jjingo/Evans Nakhokho
56	EADB	Financiers & Capital Providers	N/A	Joseph Kitaka,
57	East Africa Development Bank	Financiers & Capital Providers	Francis Ogwang	Francis Ogwang
58	Equity Bank	Financiers & Capital Providers	Agribusiness Specialist	Virginia Ssemakula
59	FINCA Uganda	Financiers & Capital Providers	Savings Manager	Rachel Mwesigwa
60	Humenergi	Financiers & Capital Providers	Programme Manager	Megan Taeuber
61	Humenergi	Financiers & Capital Providers	Head of Facility	Michael Muwonge
62	Humenergi	Financiers & Capital Providers	Global Director - Enter Energy Programme	Tilen Ogola
63	Nordic Impact Funds	Financiers & Capital Providers	Portfolio Manager	Davis Luboyera
64	Pearl Capital Partner	Financiers & Capital Providers	Managing Partner	Edward Isingoma
65	Pearl Capital Partner	Financiers & Capital Providers	Senior Investment Analsyt	Dorothy Kyomuhangi
66	Stanbic Bank	Financiers & Capital Providers	Business Development Manager, Renewable Energy	James Kakeeto
67	UECCC	Financiers & Capital Providers	N/A	Samuel Ocanya
68	UECCC	Financiers & Capital Providers	N/A	Fred Tuhairwe
69	Uganda Biodiversity Fund	Financiers & Capital Providers	Executive Director	Ivan Amanigaruhanga/Owen Atuhaire

70	UNCDF	Financiers & Capital Providers	Regional coordinator for LoCAL+ at UNCDF	Justine Audrain
71	UNCDF - Local Climate Adaptive Living Facility (LoCAL)	Financiers & Capital Providers	Project Manager and Deputy Head of Office at UNCDF in Uganda	Joel Mundua
72	Vision Fund	Financiers & Capital Providers	credit analyst	Mr. Alex Mwebesa
73	Bank of Uganda	Government, regulators	Director Commercial Bank Supervision /Agricultural Credit Facility/ Director, Administered Funds Department	Hannington Waiswa / Hajara Kasule Mawanda/Edward Mugerwa
74	Ministry of Agriculture	Government, regulators	Sen. Engineer	Allan Olando
75	Ministry of Finance - Climate Finance Unit	Government, regulators	Senior Climate Finance Officer	James Muhwezi
76	MWE	Government, regulators	Commissioner Climate Change	Bob NATIFU
77	National ICT Hub Ministry of ICT	Government, regulators	Team Lead	Flavia Opio
78	National ICT Hub Ministry of ICT	Government, regulators	Partnerhsips Manager	carol kagezi
79	NREP	Government, regulators	Deputy National Cordinator	Dr Nicholas Mukisa
80	Uganda Investment Authority	Government, regulators	Business Development and Aftercare Executive	Peter Mulira
81	Makerere Universtity	University	Project Lead	Dr. Prossy Nakawuka
82	Adritex	Solution provider	CEO	Innocent Tugume
83	Agro Consortium	Solution provider	Business Development Lead	Attra Atukunda (Panel 1)
84	Airtel Momo	Solution provider	Director Sales and Distribution	David Birungi
85	Akvo International	Solution provider	Managing Director	Victor Kazimiri
86	Innovex	Solution provider	CEO	Douglas Baguma (Panel 1)
87	NSI. Water Ltd	Solution provider	Managing Director	Amen Bulwadda
88	Sprinktech	Solution provider	Operations Manager	Pidson Abaho (Panel 1)
89	Sunculture	Solution provider	Chief Growth Officer	Victor Oleja
90	Tulima Solar	Solution provider	CEO	Vincent Sseremba
91	W. Water Works	Solution provider	Managing Director	Walter Cuccu
92	Water and Pumps	Solution provider	Managing Director	Josephat Musinguzi

Document Links and Media

Report

UNEP-CCC, FAO and UNCDF (2026) PUMPING UP CLIMATE TECHNOLOGY IN UGANDA: Business and financing models for the roll-out of solar-powered irrigation systems for smallholder farmers. Summary Brief. UNEP-CCC Copenhagen

LinkedIn post

UNEP-CCC LinkedIn Post 07.05.26

News article

The Independent (2026) Solar irrigation push gains traction as Uganda races against climate shocks

Podcast episode

Solar Powered Irrigation - Unlocking a Sustainable Market in Uganda

Pictures


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