

Innovative Financing Solutions for Water-Agriculture Innovations in Nepal

Report of Roundtable held on November 13, 2025 at IWMI, Lalitpur, Nepal

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January 2026



Acknowledgments

This work was undertaken as part of the **CGIAR Scaling for Impact (S4I) program**. We gratefully acknowledge the support and funding provided by the **CGIAR Trust Fund** (www.cgiar.org/funders).

We extend our sincere appreciation to our roundtable participants, partners, stakeholders, and collaborators, whose expertise, insights, and commitment have significantly shaped this research and action agenda. Their contributions have been instrumental in advancing CGIAR's ambition to scale proven innovations across food, land, and water systems, fostering impact that is inclusive, sustainable, and transformative.

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

To learn more about CGIAR Scaling for Impact (S4I) Program, please contact: scaling@cgiar.org

About the CGIAR Scaling for Impact (S4I) program

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SUGGESTED CITATION

Fanaian, Safa, Shisher Shrestha, Aashika Adhikari, et al. 2026. *Innovative Financing Solutions for Water-Agriculture Innovations in Nepal*. International Water Management Institute (IWMI).

Front cover photo: Image of participants in discussion at the roundtable session at IWMI office in Nepal.
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Back cover photo: An AI-generated image of a sprinkler.
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Roundtable Report

Introduction

This report presents a comprehensive account of the half-day roundtable discussion entitled “Innovative Financing Solutions for Water-Agriculture Innovations in Nepal,” co-hosted by the International Water Management Institute (IWMI) and the Nepal Investment Mega Bank Limited (NIMB) on November 13, 2025. The discussion brought together more than 20 diverse stakeholders (Annex 2: Roundtable Participating Institutions), including financial institutions, cooperatives, private-sector actors, and development partners, to explore practical solutions to bridge policy gaps, unlock finance, de-risk investments, and scale innovations, while clarifying priority actions and institutional roles required to mobilize sustainable investment in the sector.

The roundtable and related research are supported by and contribute to the Scaling for Impact (S4I) program (2025–2030), an initiative to test, refine, and scale out proven innovations for food, land, and water systems by strengthening enabling conditions, partnerships, and investment pathways. The program focuses on moving beyond pilots to achieve systemic impact at scale, particularly in climate-vulnerable and resource-constrained contexts. CGIAR is a global research partnership that delivers science and innovation to transform food, land, and water systems in the face of climate change, thereby reducing poverty, improving food and nutrition security, and enhancing environmental sustainability.

Challenges Affecting Finances for Irrigation and Agriculture in Nepal

Nepal’s irrigation and agricultural sectors face persistent challenges that undermine productivity, resilience, and long-term viability. Water scarcity, increasing climate variability, fragmented landholdings, and high labor migration have held back agriculture, while limited market access and declining interest in farming, particularly among younger generations, further constrain sectoral growth. These pressures are compounded by uneven access to quality inputs on time, along with limited technical or financial support, undermining agricultural productivity and farmers’ capacity to respond to changing climatic and economic conditions.

Although a range of water agriculture innovations, such as solar-powered irrigation, drip irrigation, precision farming, and digital weather advisory tools, offer significant potential to reduce production risks and improve resource efficiency, their adoption is low. This is due in large part to financial barriers such as high upfront investment costs, limited access to affordable credit, high transaction costs, and few effective risk management instruments. Many innovations thus remain confined to pilot projects or subsidy-dependent programs, with limited pathways for sustainable scaling.

Nepal’s agricultural finance policy landscape has recently improved, amid growing recognition of irrigation and agriculture as critical drivers of national economic development and food security. But structural barriers still impede access to formal finance for agricultural households and enterprises. Banks and financial institutions (BFIs) typically require high collateral, impose low loan ceilings, and apply complex lending procedures that exclude many smallholders and emerging agri enterprises. Limited branch networks in rural areas further restrict outreach, leaving farmers dependent on informal lenders and cooperatives, often at higher interest rates. Moreover, irrigation and agriculture are still widely perceived by BFIs as high-risk, low-return sectors due to production volatility, fragmented landholdings, and weak repayment histories.

These challenges have reduced formal credit uptake. Agricultural census data for 2021/22 indicated that only 12% of farmers were accessing loans, down from 22% in the previous census. Credit use remains low in 2026. High production risks, climate uncertainty, and volatile returns have eroded farmers' confidence in their ability to repay loans, reinforcing a cycle of low investment and limited innovation uptake. At the same time, limited private sector participation and gaps in regulatory monitoring, policy inconsistency, and inadequate adjustment periods to policy changes, constrain the development of diversified financial products suited to agricultural needs.

To respond to these challenges, the government of Nepal introduced policy, regulatory, and institutional initiatives to strengthen access to finance and promote sectoral development. The Agriculture Development Strategy (ADS) 2015–2035 provides a vision for a self-reliant, sustainable, and inclusive agricultural sector, recognizing finance as a critical enabler for modernization and the scaling of water–agriculture innovations. Regarding financial access, the Nepal Rastra Bank (NRB) adopted “priority-sector” lending policies that require commercial banks to increase agricultural lending to 15% of total their credit by 2027. Complementing these measures are concessional loan schemes, interest subsidies, and credit guarantees intended to reduce lending risks and improve affordability for smallholder farmers and agri enterprises.

Nepal has also begun aligning agricultural finance with climate and sustainability objectives through the Nepal Green Finance Taxonomy and the Climate Change Policy (2019), which promotes investment in climate-resilient irrigation, resource-efficient farming, and low-emission development pathways consistent with the NAP and NDCs. In parallel, emerging policy instruments, such as the updated Irrigation Master Plan (2024) and the proposed Agribusiness Promotion Act, signal a growing emphasis on private-public-community partnerships and private capital mobilization. Collectively, these initiatives demonstrate an intent to address agricultural credit constraints and associated challenges.

However, the initiatives are nascent and unevenly implemented, underscoring the need for stronger coordination, along with unpacking policies, reducing risks, improving implementation and innovation, and applying more specialized financing models.

Roundtable Discussions and Outcomes

The roundtable sought to explore near-term policy and regulatory opportunities, innovative financing models, avenues to strengthen subsidy and insurance-based de-risking mechanisms, and partnerships to create an enabling environment for sustainable and inclusive agriculture. The roundtable was also an opportunity to share initial findings from scoping research to map the financial landscape for scaling water-agriculture innovations in Nepal, identify local priorities, and co-develop actionable ideas to improve inclusive financing for water-agriculture innovations (Annex 1: Roundtable Agenda). The roundtable began with an overview of systemic challenges in Nepal's water-agricultural financing and opportunities for action. This was followed by open discussions to 1) define enabling conditions, policies, and regulations; 2) unlock access/de-risking opportunities; and 3) empower action.

1) Define Enabling Conditions, Policies, and Regulations

Participants highlighted policy and practice gaps, noting that while policies and frameworks exist, implementation remains fragmented across local, regional, and national governments. Frequent policy changes, unclear subsidy procedures, limited connection to the value chain, an absence of credible assurance systems, limited guarantees, and lack of tracking and monitoring mechanisms were identified as major deterrents to private investment. While investments in the agriculture and water sectors are a priority, there are multiple challenges to such investments.

Participants noted a decline in farming, as farmers face high collateral requirements, complex documentation, and a lack of structured buy-back guarantees for produce. Additionally, there are insufficiently customized loan products for diverse needs, such as long-term financing for perennial crops or short-term credit for seasonal inputs. Insurance emerged as a critical theme, with a consensus that, despite government subsidies, penetration remains below 1%. Traditional insurance models are burdened by bureaucracy and high verification costs, discouraging uptake among smallholder farmers. Innovative alternatives such as parametric insurance, which automates payouts based on weather data, were discussed. Pilot projects using satellite data and biometric sensors for livestock were cited as examples of technology-driven risk mitigation. It was noted that similar digitally monitored loans could reduce farmers and banks' transaction costs, but that scaling them would require supportive policies, streamlining them via private entities, and integrating them into national government frameworks.

2) Unlock Access/De-Risking Opportunities

Private sector engagement was another focal point. Banks and financial institutions expressed concerns regarding high rates of non-performing loans, the reduced commercial scale of smallholder farming, and a lack of structured buy-back guarantees for farm produce. Suggestions for addressing these included having local public institutions act as guarantors, blended finance instruments such as first-loss capital and guarantees, and revised, more practical green bond frameworks. Linking credit to market access and value chain development was seen as essential for spreading risk and improving repayment.

Technology adoption and climate resilience featured prominently in discussions. Participants stressed the need for innovation bundles that combine seed, fertilizer, insurance, and advisory services to reduce risks. Solar-powered irrigation was highlighted as a game-changer for water access, yet its use remains low due to its high cost, reliance on grants, and the inability to bundle solar technology with other services, including value chain development, capacity sharing, gender and social equity, or water governance. A crucial gap identified was the lack of incentives for farmers to adopt climate-resilient or carbon-reducing practices. Participants also called for specialized loans for irrigation and structured mechanisms to increase the use of existing technologies, such as solar pumps and other irrigation components. Digital finance and ICT-based extension services, which can mitigate water-related risks, were identified as tools to enhance farmer awareness and reduce lenders' operational costs. Including discounts in loans to reward farmers for using such digital tools was discussed.

3) Empower Action

The role of farmer cooperatives was emphasized repeatedly. Cooperatives serve as aggregators, reducing transaction costs and enabling group lending, thereby making financing more accessible for smallholders. Participants noted that well-governed cooperatives can act as policyholders for insurance schemes, facilitate bulk procurement of inputs, and strengthen market linkages. Nonetheless, capacity gaps and the governance of co-ops need urgent attention. For effective partnerships among cooperatives, public institutions, and banks, clear and comprehensive contracts are required.

More than 50% of farmers in Nepal are smallholder farmers, cultivating on average around 0.5 hectares, which limits economies of scale, bargaining power, and the ability to absorb production and market risks. As a result, smallholders face persistent challenges in accessing reliable markets, technologies, financing, and price guarantees, constraining the commercialization and expansion of irrigated agriculture. Participants mentioned that guaranteed buy-back arrangements, assured de-risking mechanisms, and smart subsidies could encourage farmers to invest in high-yielding, climate-resilient crops. The need for integrated data systems to track subsidies, loans, and insurance claims was emphasized, to prevent duplication and improve transparency.

Based on the exchange of ideas, the following recommendations emerged to empower action:

- Explore tailored financing products, including crop-based loans and contextual repayment schedules.
- Expand digital and parametric insurance coverage and promote digitally monitored loan products to simplify processes and reduce costs.
- Strengthen cooperatives through capacity-building and governance reforms.
- Promote blended finance instruments and guarantee mechanisms to de-risk private investment.
- Enhance farmer awareness and technical capacity via targeted training and ICT-enabled advisory services.
- Focus on inclusion and de-risking specifically for women and vulnerable groups.
- Streamline policies, clarify frameworks for public-private partnerships and private-public-community partnerships, and improve monitoring to foster an enabling environment for innovation.
- Link credit provision to market access and value chain development to ensure sustainability.

Priorities for Future Attention

Policy and Regulations

Map existing information on subsidies, insurance, policies and financial products and identify gaps for new mechanisms or improved loan structures.

De-risking

Examine the potential for blended finance and buyback guarantees, and bundled solutions (digital loans, parametric digital insurance, extension and knowledge exchange platforms).

Explore ways to link and expand existing digital access for insurance, irrigation, and climate information systems.

Assess avenues to strengthen socio-technical support and value chain partnerships that enhance the productivity of farmers, including women and vulnerable groups.

Enabling Partnerships for Action

Prioritize key issues such as finance, irrigation, technology access, and market linkages, grouping them into actionable categories.

Explore blended finance and public-private-community partnership models and guarantee mechanisms to reduce risk and attract private sector participation and build inclusive finance models that support farmers.

Leverage with partners and banking institutions awareness sessions for farmers on available technologies, financing options, and climate-smart practices.

Roundtable Follow-up Actions

The roundtable concluded with agreement on several actions for next year:

- Organize quarterly dialogues, which expand engagement to include agri-businesses, small- and medium-scale enterprises managed or led by women and youth, traders, agricultural aggregators, cooperative leaders, and farmer groups to capture diverse perspectives.

Research and preparation for each roundtable dialogue will be supported by a core group of partners. The follow-up roundtable themes include:

- Map relevant policy and regulation gaps and ambiguities.
 - Identify and bring together existing and potential de-risking opportunities for farmers and banks.
 - Plan avenues through existing networks for sustained awareness sessions for farmers on available technologies, financing options, and de-risking options such as climate-smart practices and parametric insurance.
- Develop short research notes on each theme with core groups prior to supporting quarterly dialogues that examine research, review progress, and discuss improvement potential that can be collectively achieved.
 - Create a WhatsApp group for follow-up communication and information sharing.

Annex 1- Roundtable Agenda

Time	Session	Objective
2:00–2:05 PM	Welcome remarks	Set the context and purpose
2:05–2:15 PM	Presentation of study initial findings	Present evidence on financing gaps and opportunities
2:15-2:45 PM	Introductions and share your connection to water-agricultural innovation and finance	Building cross-connections
2:45–4:15 PM (consultation session)	Discussion: Perspectives regarding finance, policy, and practice barriers, consensus building for next steps	Gather insights and reactions; Co-develop solutions and priority actions; agree on actionable recommendations and follow-up
4:15–4:30 PM	Closing remarks	Summarize commitments and next steps
4:30–5:00 PM	Tea/Coffee: Networking	

Annex 2- Roundtable Participating Institutions

Institution	Men	Women
Agriculture Development Bank	0	1
Alternative Energy Promotion Centre (AEPCC)	0	1
International Centre for Integrated Mountain Development (ICIMOD)	1	0
International Maize and Wheat Improvement Center (CIMMYT)	1	0
Mukthinath Krishi Company (MKCL)	2	0
Nepal Agriculture Cooperative Central Federation Ltd (NACCFL)	1	0
NEPWASTE PVT LTD	1	0
Nepal Infrastructure Bank Limited (NIFRA)	0	1
Nepal Investment Mega Bank Limited (NIMB)	0	3
PlantSat	1	0
Renewable Energy Confederation of Nepal (RECON)	1	0
Sana Kisan Bikas Laghubitta Bittiyasanstha Ltd. (SKBBL)	1	0
TEAMS Ventures	1	0
International Water Management Institute (IWMI)	3	3
Research Consultant	1	0
Total	14	9



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