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## Workshop on Applied Policy Research for Scaling Innovations in Uzbekistan's Agri-Food Sector

### REPORT



Organized by:

Ministry of Agriculture of the Republic of Uzbekistan, ISCAD, IFPRI, ICARDA, and IWMI

Venue

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## Contents

Executive Summary .....	2
Goal and Objectives .....	3
Expected Outcomes .....	3
Outline of the Workshop Sessions .....	3
Participants .....	4
Proceedings.....	5
Opening Session.....	5
Session 1: Policy and Institutional Mechanisms for Innovation Scaling.....	8
Session 2: Enabling Environment and Dynamic Evaluation and Adaptive MELIA for Innovation Scaling .....	10
Session 3: Evidence on Adoption and Scaling Readiness of Water Saving Technologies.....	<a href="#">12</a>
Session 4: Looking ahead to 2026 and beyond.....	16
Closing Remarks.....	30
Conclusions and Recommendations .....	31
Annex. Workshop Program .....	33

## Executive Summary

Uzbekistan's agri-food sector is undergoing rapid transformation driven by structural reforms, growing water scarcity, and the need to build climate resilience across farms of all sizes. Some progress has been made in introducing water-saving irrigation technologies, digital agriculture tools, improved seed systems, mechanization solutions, and cluster-based value chains. These initiatives demonstrate strong potential, yet their scale and impact remain uneven. Fragmented policy implementation, overlapping institutional mandates, and weak coordination between ministries and agencies continue to limit the nationwide adoption of innovative technologies.

Scaling effective solutions requires more than the introduction of new practices or tools. It depends on a clear understanding of which innovations work, in which agro-ecological and socio-economic contexts, and what policy or market conditions enable their uptake. Applied policy research is therefore essential for identifying scaling pathways, diagnosing bottlenecks, and quantifying the expected and actual effects of reforms and programs. Without this evidence, policy decisions risk being disconnected from on-the-ground realities and may fail to generate the intended outcomes.

This workshop brought together policymakers, researchers, and development partners to strengthen the role of applied policy research in scaling agri-food innovations in Uzbekistan. Discussions emphasized the importance of embedding dynamic Monitoring, Evaluation, Learning, and Impact Assessment (MELIA) systems into policy and program cycles to enable adaptive decision-making, accountability, and timely course correction. Embedding dynamic evaluation and adaptive MELIA into policymaking processes strengthens the evidence base. A system that continuously generates, verifies, and updates information allows government institutions to adjust policies and correct implementation gaps. Such an adaptive MELIA approach is critical for maintaining the relevance of scaling strategies in the face of climate variability, resource constraints, and rapidly evolving market conditions.

Key messages emerging from the workshop include: (i) the need for harmonized and accessible data systems across value chains; (ii) systematic use of feasibility and socio-economic analysis before scaling innovations; (iii) stronger coordination of institutional roles and mandates; and (iv) targeted capacity development for both institutions and farmers. Participants also highlighted the importance of equity and inclusion, ensuring that women, youth, small farms, and vulnerable groups benefit from innovation scaling.

The workshop concluded with agreement on priority areas for joint applied policy research and a forward agenda for 2026 and beyond. These priorities include strengthening data quality and harmonization, evaluating subsidy effectiveness, developing region-specific water-use methodologies, and institutionalizing MELIA as a core element of agricultural governance. Collectively, these actions aim to support evidence-informed policymaking and accelerate the scaling of inclusive, resilient, and sustainable innovations across Uzbekistan's agri-food sector.

By combining applied policy research, adaptive MELIA, and stronger coordination across institutions, Uzbekistan can accelerate the scaling of agricultural innovations and deliver more inclusive, resilient, and sustainable outcomes for its agri-food sector.

## Goal and Objectives

### Goal

The workshop aimed to strengthen the applied policy research agenda for scaling agri-food innovations in Uzbekistan by fostering collaboration between research institutions, government agencies, and development partners. Its purpose was to promote evidence-informed policymaking through deeper integration of applied policy research, innovation diffusion studies, and adaptive MELIA systems into national agricultural policy processes.

### Objectives

To achieve this goal, the workshop pursued the following specific objectives:

1. **Identify policy research and data priorities** required to support the scaling of agricultural innovations across different farming systems, regions, and institutional contexts. This included pinpointing analytical gaps, policy bottlenecks, and areas where additional evidence is needed to guide reform and investment decisions.
2. **Synthesize empirical evidence** on drivers of technology adoption, key institutional and policy enablers, and financing mechanisms that facilitate or constrain innovation diffusion. The objective was to consolidate existing knowledge and highlight where coordinated cross-institutional studies could generate actionable insights.
3. **Showcase dynamic evaluation and adaptive MELIA approaches** that enable real-time policy learning, strengthen accountability, and support timely decision-making. This included demonstrating how adaptive MELIA can be embedded into program and policy cycles to ensure that innovation scaling strategies remain responsive, inclusive, and evidence-driven.

## Expected Outcomes

The workshop was expected to generate the following outcomes:

1. **Identification of key research priorities and analytical gaps** essential for scaling agricultural innovations in Uzbekistan. This included defining priority themes, evidence needs, and areas where targeted applied policy research can directly support innovation diffusion, policy reforms, and program design.
2. **Agreement on policy-relevant methodologies and adaptive MELIA approaches** to guide future joint studies, evaluations, and decision-support activities. Participants were expected to converge on common analytical frameworks, methodological standards, and principles for integrating adaptive MELIA into policy cycles and scaling strategies.
3. **Strengthened linkages among researchers, policymakers, and practitioners** through enhanced dialogue, shared understanding of research needs, and commitment to collaboration. The workshop sought to reinforce cross-institutional partnerships that enable continuous knowledge exchange, co-production of evidence, and coordinated actions in support of innovation scaling.

## Outline of the Workshop Sessions

The workshop followed a full-day structure designed to move participants through a logical sequence of policy framing, institutional analysis, empirical research, and forward-looking coordination. Each session built on the previous one, creating continuity between strategic reflections, methodological discussions, and applied evidence.

**Opening Session and Session 1: Policy and Institutional Mechanisms for Innovation Scaling** established the strategic direction of the workshop. Senior representatives of the Ministry of Agriculture, ISCAD, and

CGIAR outlined the national reform context and emphasized the importance of strengthening the link between applied policy research and ongoing agricultural transformations. Remarks delivered by Mr. Nuriddin Qoshnazarov, Mr. Shohrukh Akramov, and Dr. Kamiljon Akramov highlighted institutional priorities and the need for coordinated mechanisms to support the diffusion of innovative technologies. The thematic presentation by Dr. Iskandar Abdullaev examined how digitalization, improved water management, and institutional reforms can accelerate innovation uptake. The discussion that followed emphasized policy coherence, institutional alignment, and effective implementation structures as prerequisites for scaling.

**Session 2: Enabling Environment and Dynamic Evaluation and Adaptive MELIA for Innovation Scaling** focused on the broader conditions that shape innovation diffusion. Presentations addressed regulatory and institutional frameworks, the role of development partners, and the importance of adaptive MELIA approaches in supporting evidence-informed policymaking. Contributions from Ms. Sharanya Rajiv and Mr. Ramin Gasanov illustrated how real-time learning, accountability mechanisms, and stronger coordination can improve policy performance and program outcomes. The session underscored the necessity of embedding MELIA systems within national reform processes to support continuous learning and responsive policy adjustments.

**Session 3: Evidence on Adoption and Scaling Readiness of Water-Saving Technologies** consolidated empirical findings from multiple research institutions and presented a comprehensive picture of technology uptake, farmer behavior, and scaling readiness across Uzbekistan. Dr. Kamiljon Akramov presented an analysis of scaling pathways for water-saving technologies in selected provinces, illustrating how adoption patterns vary across agro-ecological zones and institutional contexts. Dr. Dilfuza Egamberdieva shared qualitative findings from key informant interviews conducted in four provinces, highlighting behavioral drivers, local constraints, and context-specific adoption dynamics. This was followed by a joint presentation from Dr. Maha Al-Zubi and Dr. Muhammad Khalifa, who examined the barriers and opportunities for the adoption and scaling of next-generation water monitoring systems in arid zones, linking technological readiness with institutional and financial considerations. Finally, Dr. Abdusame Tadjiev presented empirical evidence on the determinants and outcomes of adopting sustainable agricultural practices, showing how different policy and market factors shape farm-level decisions. Together, these contributions provided an integrated evidence base and identified areas where targeted applied policy research could support more effective scaling strategies.

**Session 4: Looking Ahead to 2026 and beyond** provided a forward-looking platform for aligning institutional priorities and strengthening cross-organizational collaboration. Moderated by Dr. Botir Dosov, the session invited ISCAD, IFPRI, IWMI, and ICARDA to outline their forthcoming workplans and reflect on how the workshop's discussions fit within their strategic directions. Participants discussed emerging challenges, opportunities for joint applied policy research, and practical mechanisms for continued coordination. The session facilitated agreement on shared priorities and reinforced the need for sustained collaboration, integrated evidence systems, and coherent approaches to scaling.

The detailed agenda of the workshop is provided in **Annex 1**.

## Participants

The workshop brought together policymakers, development partners, applied researchers, university faculty, and agribusiness representatives engaged in Uzbekistan's agri-food sector. Participants represented key national ministries, research institutions, international organizations, and innovation-focused agencies working on technology diffusion, policy analysis, and agricultural transformation. The event convened approximately **50 participants**, ensuring a diverse and balanced mix of perspectives from government, academia, development partners, and the private sector.

## Proceedings

### Opening Session

#### *Remarks by Mr. Nuriddin Qoshnazarov, Advisor to the Minister of Agriculture*

Mr. Nuriddin Qoshnazarov opened the workshop by framing the discussion within the national strategic directions defined by the **Decree of the President of the Republic of Uzbekistan No. PD-5853 (23 October 2019)**, which approved the *Strategy for the Development of the Agri-Food Sector of the Republic of Uzbekistan for 2020–2030*. He emphasized that the Strategy provides the overarching policy foundation for ongoing reforms and directly aligns with the workshop’s focus on innovation scaling, applied policy research, and adaptive MELIA systems.

From the Decree and Strategy, he highlighted several provisions particularly relevant to the workshop agenda, including:

- **Accelerating the adoption of modern, resource-efficient technologies**, especially in irrigation and primary production, to address increasing water scarcity and climate pressures.
- **Strengthening research, knowledge generation, and innovation ecosystems** to support evidence-based policymaking and the large-scale introduction of new technologies.
- **Improving institutional coordination and governance mechanisms** to ensure effective implementation of reforms and coherent sectoral transformation.
- **Enhancing monitoring, evaluation, and analytical capabilities** of sector institutions to increase accountability, track progress, and support policy adjustment.
- **Mobilizing public and private investments** into the agri-food sector and ensuring that these investments are guided by research-backed recommendations and technological solutions.
- **Expanding advisory, information, and extension services** to support technology adoption at the farm level and ensure that innovations translate into measurable productivity and sustainability gains.

Building on these strategic priorities, Mr. Qoshnazarov addressed the **urgent challenges posed by water scarcity** and the rapidly growing need for **water-saving technologies** across all farming systems. He noted that many of the solutions already exist — including drip irrigation, laser leveling, digital monitoring tools, and advanced agronomic practices — but their adoption remains uneven due to practical constraints, knowledge gaps, and insufficient analytical grounding.

He stressed the **critical role of research-based innovation**, underscoring that technological solutions must be supported by rigorous empirical evidence before they are promoted at scale. In his view, Uzbekistan still faces significant limitations in the availability of **evidence-based solutions**, particularly regarding:

- validated technological packages suitable for different regions,
- economic and financial models demonstrating profitability, payback, and risk patterns,
- localized assessments of water-saving impacts,
- institutional and behavioral drivers of adoption.

Mr. Qoshnazarov further noted that **Uzbekistan is attracting increasing volumes of investment**, including public, private, and international financing, but the **efficiency and impact of these investments depend on strong research foundations**. He emphasized that investment should not precede understanding — rather, the research system must provide clear evidence on what works, under which conditions, and why, to ensure that investments lead to sustainable and scalable outcomes.

In this context, he highlighted the importance of integrating **MELIA (Monitoring, Evaluation, Learning, and Impact Assessment)** into national reform processes. He pointed out that MELIA systems are essential not only for accountability, but also for **real-time learning**, adaptive policymaking, and reducing the risks associated with technology scaling and reform implementation.

In conclusion, Mr. Qoshnazarov underscored that **Uzbekistan needs a strategy capable of achieving its stated goals**, and this requires:

- stronger alignment between research, policy, and investment;
- a clear evidence base for guiding technology adoption;
- robust MELIA frameworks to support continuous learning;
- and sustained coordination among institutions involved in innovation scaling.

He affirmed that the workshop's objective — strengthening applied policy research and MELIA for innovation scaling — is fully aligned with national priorities and represents a necessary step toward fulfilling the ambitions of the 2020–2030 Agri-Food Sector Strategy.

### *Remarks by Mr. Shohrukh Akramov, Director of ISCAD, Ministry of Agriculture*

Mr. Shohrukh Akramov emphasized the significant reforms and modernization efforts underway in Uzbekistan's agri-food sector, noting that in recent years the country has prioritized strengthening food security, expanding modern and climate-resilient agricultural production, and aligning national practices with global standards. Drawing on the government's reform agenda, he stressed that Uzbekistan is committed to integrating advanced technologies, strengthening scientific capacity, and deepening international cooperation to accelerate sectoral transformation.

In his remarks, Mr. Akramov placed strong emphasis on the critical role of **science, research, and innovation** in enabling the sector to adapt to new climatic, technological, and market realities. He highlighted that Uzbekistan is no longer approaching agricultural development solely through financing and infrastructure, but increasingly through **knowledge-based growth**, where evidence, innovation, and scientific rigor shape policy and investment priorities.

He presented an overview of ISCAD's scientific and research capabilities, noting that the Center currently employs **22 research staff**, including **two Doctors of Science (DSc), three Professors, three Candidates of Science, and three PhDs**, with an additional cohort of **14 doctoral scholars** actively conducting research on priority themes. This growing scientific workforce is contributing to the development of evidence-based recommendations and analytical insights that inform policy decisions and sector strategies.

Mr. Akramov underscored the importance of **international collaboration**, noting that the workshop is an example of effective partnership between ISCAD, the Ministry of Agriculture, IFPRI, ICARDA, IWMI, and other international organizations. He highlighted that exposure to global knowledge, comparative analysis, and international best practices is essential for ensuring that Uzbekistan's agricultural system transitions toward more modern, efficient, and climate-resilient models.

He reiterated that the workshop's focus—applied policy research, innovation scaling, and MELIA—directly supports the country's priorities. He noted that innovation cannot be introduced successfully without thorough research, proper understanding of local conditions, and clear evidence on feasibility, cost-effectiveness, and long-term benefits. For this reason, ISCAD is committed to strengthening its analytical functions, advancing methodological rigor, and supporting the integration of dynamic evaluation and MELIA systems into agricultural policy processes.

Mr. Akramov expressed confidence that the workshop would contribute meaningful outcomes to ongoing reforms. By bringing together researchers, policymakers, and international experts, the event provides an opportunity to identify practical solutions, align scientific efforts with policy needs, and strengthen the enabling environment for innovation diffusion. He concluded by wishing success to all participants and reaffirming ISCAD's commitment to supporting collaborative, evidence-driven agricultural development.

### *Remarks by Dr. Kamiljon Akramov, Senior Research Fellow, IFPRI, Washington, D.C., USA*

Dr. Kamiljon Akramov began by emphasizing the profound and ongoing transformation of Uzbekistan's agri-food system. He noted that the past decade has seen **tremendous structural reforms**, expanding

opportunities for modernization, technological upgrading, and improved agricultural productivity. In this context, he highlighted that **innovation**—technological, institutional, and policy innovation—is becoming increasingly central to Uzbekistan’s agricultural development trajectory.

He referenced the **Strategy for the Development of the Agri-Food Sector of the Republic of Uzbekistan for 2020–2030**, noting that it sets ambitious national objectives to enhance productivity, strengthen competitiveness, and build resilience across the sector. Dr. Akramov underscored several strategic priorities particularly relevant to the workshop:

- the large-scale introduction of **water-saving and climate-resilient technologies**;
- modernization of farm management and input delivery systems;
- stronger integration of digital tools and data-driven decision-making;
- improved coordination mechanisms across agricultural institutions;
- and expanded support for research, innovation, and knowledge dissemination.

He emphasized that while the Strategy provides a clear vision, **the main challenge lies in its implementation**. Policies and strategic documents are well developed, but their translation into **practical, field-level actions** remains uneven. Dr. Akramov raised a critical question: *Why do national strategies often fail to deliver anticipated results at the farm level?* He pointed to several reasons: lack of operational detail, insufficient coordination across implementing agencies, limited availability of actionable evidence, and constraints in institutional and human capacity at subnational levels. He stressed that strategies must be accompanied by **concrete, evidence-based implementation plans**, supported by robust monitoring and evaluation mechanisms.

Dr. Akramov argued that increasing agricultural productivity requires **more than access to technology**. It requires:

- clear understanding of the incentives and constraints faced by farmers;
- reliable data on technology performance across regions and farm types;
- evaluation of economic and financial viability;
- and a strong evidence base to guide reforms and support investment decisions.

He emphasized that this is where **MELIA (Monitoring, Evaluation, Learning, and Impact Assessment)** becomes indispensable. MELIA systems ensure that policies are grounded in reality, allow early identification of implementation challenges, and enable timely adjustments to achieve intended results. He noted that MELIA should not be seen as an administrative requirement, but as a strategic tool that enhances policy effectiveness and strengthens accountability.

A central theme of Dr. Akramov’s remarks was the importance of **data and information accessibility**. He stated that Uzbekistan has made progress, but significant gaps remain. Data are often fragmented, inaccessible, or not systematically analyzed for decision-making. He stressed that **improving the availability, quality, and usability of data** is essential for effective policy implementation, technology scaling, and long-term planning.

Finally, Dr. Akramov highlighted the necessity of **strengthening human capital** across the agricultural system. He emphasized the urgency of capacity development at all levels, from central to farm-level actors. Without improving skills in data analysis, evaluation, digital tools, and evidence-based policy design, even the best strategies will not achieve the desired outcomes.

In conclusion, Dr. Akramov reiterated that the success of Uzbekistan’s agri-food transformation depends on how effectively strategies are implemented on the ground. This requires aligning policy priorities with empirical evidence, embedding MELIA into decision-making processes, improving data systems, and investing in skills that enable modern, results-oriented agricultural governance. The workshop, in his view, provides an essential platform for addressing these needs and strengthening the enabling environment for innovation scaling.

## Session 1: Policy and Institutional Mechanisms for Innovation Scaling

*Inputs by Dr. Iskandar Abdullaev, IWMI*

### **Improving Water Use Efficiency in Agriculture by Digitalization and Institutional Reforms**

Dr. Iskandar Abdullaev delivered a detailed and data-driven presentation on the urgent challenges and strategic opportunities for improving water use efficiency in Uzbekistan and the broader Central Asian region. Drawing on evidence from hydrological monitoring systems, institutional assessments, and IWMI's analytical tools, he emphasized that **water efficiency remains the cornerstone of sustainable agricultural development** in irrigated production systems. He noted that Uzbekistan's dependence on irrigation makes water management central to food security, rural livelihoods, and national economic growth.

He began by overviewing the **state of water in Central Asia**, explaining that decades-old infrastructure, increasing climate pressures, and high levels of water losses pose serious threats to future productivity. According to regional assessments, **over 60 percent of canals in Uzbekistan remain unlined or deteriorated**, resulting in seepage losses of **25–40 percent**. In many regions—including Khorezm, Bukhara, and Karakalpakstan—**secondary salinization affects up to 50 percent of irrigated land**, a direct consequence of inadequate drainage and inefficient water application practices. Dr. Abdullaev stressed that without urgent modernization, these efficiency losses will continue to undermine agricultural competitiveness.

He identified several **key categories of water efficiency problems** across the system:

- **Aging and leaky infrastructure**, insufficient rehabilitation budgets, and slow uptake of modern pumping and canal-lining technologies.
- **Weak on-farm water management**, including low field application efficiency (around 45 percent) due to traditional furrow irrigation, over-watering, lack of precision leveling, and limited use of moisture sensors or scientifically grounded irrigation scheduling.
- **Institutional and governance gaps**, such as overlapping mandates between Basin Irrigation System Authorities and Water User Associations, low-cost recovery, and flat-rate water pricing systems that offer no incentive for conservation.
- **Insufficient digitalization**, with less than 30 percent of water flows metered and limited telemetry or automated measurement systems, making accurate water accounting difficult.
- **Low economic water productivity**, driven by dominance of low-value crops and slow diversification.
- **Environmental externalities**, including salinization, waterlogging, groundwater depletion, and degraded return flows.

Dr. Abdullaev emphasized that these problems are deeply **institutional**, not only technological. Modern irrigation technologies can only be effective when supported by transparent governance frameworks, empowered basin authorities, and financially sustainable Water User Associations.

A central part of his presentation focused on **institutional reforms required for water efficiency**. He highlighted the role of new water codes being introduced across Central Asia, which are beginning to incorporate explicit provisions for efficiency, accountability, and integrated water-resource management. These reforms, however, need to be operationalized through clearer mandates, better coordination, and stronger regulatory tools.

Dr. Abdullaev then demonstrated how **digitalization** can serve as a practical pathway to improved water governance and service delivery. He presented IWMI's suite of digital and analytical tools, including:

- basin-level water accounting platforms integrating abstraction, delivery, return flows, and water quality data;
- smart metering, SCADA systems, and IoT-based monitoring networks;
- GIS/remote sensing tools for evapotranspiration monitoring and demand forecasting;

- automated anomaly detection and leak monitoring systems;
- decision-support applications for allocation planning, gate settings, rotational schedules, and reuse optimization;
- public dashboards enabling transparency through basin-level “water balance sheets.”

These systems, he argued, are not technological luxuries but critical components of a modern irrigation system capable of ensuring **accountability, real-time decision-making, and equitable distribution** of scarce resources.

He also emphasized that **economic and environmental sustainability are inseparable**. Improving water efficiency not only increases agricultural returns but also mitigates soil salinization, waterlogging, aquifer depletion, and ecosystem degradation. He noted that IWMI’s institutional tools—particularly performance benchmarking and basin accounting—help governments integrate digital solutions with institutional reforms under national and transboundary water-management strategies.

In conclusion, Dr. Abdullaev underscored that transforming Uzbekistan’s water sector requires **coordinated investment, institutional strengthening, and capacity building**. Partnerships between government agencies, basin authorities, research institutions, development partners, and farmers are essential for turning digital potential into tangible water savings and improved productivity. He stressed that water efficiency is not merely a technological challenge but a **policy, institutional, and governance challenge**, and that progress in these areas will determine the pace and effectiveness of innovation scaling across Uzbekistan’s agri-food sector.

### *Session 1 Q&A Discussion*

The exchange following the presentation focused on **technical questions related to ongoing and planned research activities**. Participants sought clarification on how current studies are structured, what types of data are being collected, and which analytical approaches are being used to evaluate water use and irrigation performance. Questions were raised about the methodological basis of several referenced studies, the criteria for selecting research sites, and the factors considered when comparing different water-saving practices across regions.

Some inquiries addressed the challenges of interpreting field results, the variability of conditions across districts, and the need to strengthen collaboration between research institutions to ensure consistency in methods. Participants also discussed constraints faced during data collection, gaps in existing research, and areas where additional studies are required to support policy decisions. The discussion remained focused on **research design, evidence needs, and technical aspects of ongoing analytical work**, rather than operational or institutional issues.

In responding to these questions, **Dr. Abdullaev** emphasized that much of the difficulty in producing strong evidence stems from **fragmented research efforts and inconsistent field methodologies** across regions. He noted that field studies vary widely in terms of sampling intensity, measurement techniques, and observation frequency, which creates challenges when comparing results or drawing national-level conclusions.

He explained that many ongoing studies prioritize regions where both **infrastructure characteristics and farmer practices are sufficiently diverse** to generate representative insights. He clarified that study sites are chosen to reflect different irrigation systems, water-delivery conditions, and levels of technology adoption, enabling comparisons across agro-ecological contexts.

Addressing questions about technical design, he underscored the need for **multi-year research**, as single-season observations rarely capture deeper structural patterns in water use or crop responses. He added that variability across districts often reflects differences in maintenance, operation practices, and local management capacity, which must be integrated into research design to avoid misleading interpretations.

On data constraints, he noted that **long-term datasets remain limited**, and many measurements collected by local institutions are not standardized, making it difficult to integrate them into broader analytical

frameworks. He stressed that building stronger research coordination, harmonizing methods, and investing in analytical capacity are necessary steps to produce reliable evidence suitable for policymaking.

He concluded that improving the quality, continuity, and comparability of research is essential for guiding future technological choices, evaluating the performance of water-saving approaches, and supporting policy reforms aimed at scaling innovations effectively.

## Session 2: Enabling Environment and Dynamic Evaluation and Adaptive MELIA for Innovation Scaling

*Inputs by Ms. Sharanya Rajiv, IFPRI, Washington, D.C.*

### **Enabling Environment for Innovation Scaling**

Joining the workshop online, **Ms. Sharanya Rajiv** presented findings from recent empirical work examining the enabling environment for scaling innovative agricultural technologies among private farmers in Uzbekistan. She emphasized that **private farms are at the center of Uzbekistan's agricultural transformation**, managing approximately **2.5 million hectares**, which accounts for over **70 percent** of the country's arable land and a substantial share of national agricultural output. Given that private farms manage most irrigated land, they are key actors in scaling water-saving innovations, including laser leveling, drip irrigation, and sprinkler systems.

Drawing on analysis conducted through a **farm enterprise survey** covering **914 private farmers across four provinces** between November 2024 and April 2025, she outlined the main institutional, market, and social factors shaping adoption decisions. The survey collected detailed information on production, crop economics, access to credit and machinery, adoption of water-saving technologies, and exposure to information and advisory channels.

Ms. Rajiv highlighted that while farmers report **high levels of autonomy** in many areas of management, important constraints remain—especially with regard to land-use flexibility and cotton sales. Irrigation service provision was generally evaluated as **moderate**, with considerable variation by region and institutional arrangements. She noted that the use of water-saving technologies is still limited: **only about one-quarter of surveyed farmers** have adopted drip irrigation, sprinkler systems, or laser leveling.

A significant portion of her presentation focused on **barriers to adoption**, particularly those related to **information, procedures, and financing**. She showed that existing support schemes—such as subsidies for drip irrigation and laser leveling—are not accessed uniformly. Drip irrigation adopters are more likely to benefit from subsidies, while farmers using other technologies often face lower access. Nearly one-third of farmers who did not apply for subsidies indicated plans to apply, but many cited **procedural complexity** and insufficient information as deterrents.

On market constraints, she presented evidence that farmers typically know **very few suppliers**, limiting their ability to compare technologies, negotiate prices, or access after-sales service. Financing remains a major challenge: loans are often **expensive**, short-term, and limited in scale, making high upfront investments in irrigation technologies difficult. Median loan durations for technology adoption were notably short, and interest rates relatively high, reducing the attractiveness of long-term investments in water-saving technologies.

Ms. Rajiv noted that access to information significantly influences adoption decisions. **Internet-based channels are the most widely used**, followed by traditional media and local government sources. Interestingly, farmers who rely on these channels for irrigation-related information also tend to use the same sources for broader innovation advice. Social and peer effects are strong: farmers' perceptions of productivity gains among their peers—especially in drip irrigation—substantially shape their own adoption intentions.

She summarized the key policy implications emerging from the research:

- strengthening **local autonomy** in decision-making and improving the performance and accountability of irrigation service providers;
- simplifying and standardizing **subsidy procedures**, expanding outreach, and clarifying eligibility criteria;
- improving **market linkages**, including access to suppliers and affordable, longer-term financing options;
- leveraging **digital platforms**, trusted media sources, and peer networks to accelerate the diffusion of innovation.

In closing, Ms. Rajiv emphasized that scaling water-saving technologies requires an environment where farmers have **clear information, accessible financing, reliable service delivery, and supportive institutional frameworks**. The evidence points to the need for a more integrated approach that aligns service provision, advisory systems, and financial incentives with farmers' practical realities.

### *Inputs of Mr. Ramin Gasanov, ISCAD/World Bank*

#### ***Role of Development Partners in Promoting Innovative Technologies in the Agri-Food Sector of Uzbekistan***

In his presentation, Mr. Ramin Gasanov highlighted the central role development partners play in driving Uzbekistan's agricultural modernization, emphasizing that their contribution goes beyond financing and directly shapes scientific capacity, institutional reform, and technology adoption. Rather than presenting isolated interventions, he framed support as part of a coordinated transformation that links research, digital systems, extension, and private-sector uptake.

A key point of the presentation was the impact of investments in strengthening the national research system. Mr. Gasanov noted that the modernization of selected research institutes has enabled Uzbekistan to conduct advanced diagnostics, genetic research, and food safety analysis for the first time. These upgrades were positioned not as equipment delivery but as foundational changes that allow the country to generate its own innovations and respond to emerging challenges with scientific capability instead of dependency.

He also underscored the contribution of development partners to improving knowledge transfer and farmer support. The establishment of regional AKIS Centers has created a functional bridge between research and practice, enabling training, demonstrations, and field-level advisory services. According to Mr. Gasanov, these platforms have become essential for testing and adapting technologies, ensuring that innovations move beyond laboratories into real-world application.

Another central theme of the presentation was the role of development partners in accelerating technology adoption. Mr. Gasanov explained that increased access to modern machinery and agribusiness infrastructure has helped farmers transition toward more efficient and commercially oriented production systems. He emphasized that financial instruments introduced with development partner support made modernization attainable for a broader range of producers, particularly through tailored credit products and leasing arrangements.

Digital transformation emerged as a critical area of long-term impact. Mr. Gasanov described how integrated information systems for land, water, subsidies, and seed certification are strengthening transparency and decision-making. The introduction of digital tools for data collection and field monitoring has reduced information gaps and positioned the agricultural sector to operate on the basis of evidence rather than estimation.

In closing, Mr. Gasanov stressed that development partner support is most effective when aligned with national reform priorities and supported by strong institutional coordination. He emphasized that sustaining recent progress will require clear mandates, prevention of duplicated efforts, and long-term commitment to operationalizing new systems and facilities. The overarching message was that

development partners remain essential in ensuring that Uzbekistan’s modernization is coherent, scalable, and capable of delivering lasting transformation.

### *Session 2 Q&A Discussion*

The discussion following the presentations in Session 2 focused on strengthening understanding of the methodological foundations of the farm enterprise survey presented by Ms. Sharanya Rajiv. Participants sought greater clarity on how the survey design ensured representativeness across diverse production systems and why the selected provinces were considered sufficient to capture regional variation. The exchange indicated that more explicit explanation of the sampling logic would help readers interpret the findings with appropriate scope and confidence.

The conversation also highlighted the importance of communicating how different farm types and technology adoption levels were reflected in the sample. Rather than questioning the sample size, participants emphasized the need to articulate how the results apply across varying contexts. This interaction suggested that a brief clarification in the report would prevent misinterpretation and strengthen analytical transparency.

Questions related to data reliability led to a constructive reflection on field implementation. The clarification of enumerator training, piloting, and quality-control procedures demonstrated that credibility rests not only on survey design but also on execution. The discussion showed agreement that including a concise reference to these safeguards would enhance reader trust without adding unnecessary technical detail.

Finally, the exchange revealed areas where further precision may be helpful, particularly regarding how key concepts—such as technology adoption, access to information, and institutional autonomy—were defined and measured. Participants did not challenge the approach but noted that clearer communication of these definitions would support more accurate interpretation of results.

Overall, the discussion added value by identifying specific methodological elements that would benefit from brief clarification, reinforcing the rigor of the survey rather than raising concerns about its findings.

## **Session 3: Evidence on Adoption and Scaling Readiness of Water-Saving Technologies**

### *Inputs from by Dr. Kamiljon Akramov, IFPRI*

#### ***Analysis of Scaling Pathways of the Adoption of Water-Saving Technologies in Selected Provinces of Uzbekistan***

Dr. Kamiljon Akramov presented an evidence-based assessment of the factors shaping the adoption and scaling readiness of water-saving technologies (WSTs) in Uzbekistan. He emphasized that despite strong national policy commitments to expand modern irrigation systems, uptake remains low, underscoring the need to understand how farmer behavior, institutional incentives, and environmental conditions influence adoption across different regions.

He highlighted that scaling potential depends heavily on the structure of the farming sector, with private farms managing most irrigated land and therefore playing a critical role in any national strategy. Empirical findings from recent household and farm surveys showed highly uneven adoption of laser land leveling, drip irrigation, and sprinkler systems, varying widely across provinces and farm types. These differences reflect not only agro-ecological diversity but also disparities in water access, soil conditions, and perceived economic returns.

Dr. Akramov outlined the main determinants of adoption, noting that decisions are shaped by socioeconomic, institutional, environmental, and behavioral factors. Profitability remains the strongest driver, but farmers also value reduced production risks, water conservation, and soil quality

improvements. Information access emerged as an important dimension, with households and private farms relying on different sources and receiving varying levels of exposure to innovation-related messages.

He stressed that the absence of water metering limits the perceived benefits of WSTs and reduces incentives for adoption. The presentation also underscored the importance of shifting from administrative directives to evidence-based policy design, supported by representative data and iterative learning.

In closing, Dr. Akramov emphasized that scaling water-saving technologies is not a single intervention but a systemic process requiring aligned policies, improved information provision, stronger behavioral incentives, and continuous empirical feedback to guide adaptive implementation.

### ***Inputs from Dr. Dilfuza Egamberdieva, ISCAD***

#### ***Understanding Farmers' Adoption of Water-Saving Technologies in Four Provinces of Uzbekistan***

Dr. Dilfuza Egamberdieva presented qualitative insights into the experiences of farmers using water-saving technologies (WSTs) across four provinces. She explained that while national policy frameworks strongly promote the expansion of WSTs, adoption on the ground is shaped by practical constraints that require attention beyond financial incentives and equipment availability.

The study captured the perspectives of farmers who had already implemented drip irrigation, sprinkler systems, or laser land leveling. Across provinces, participants consistently highlighted challenges linked to supplier and service quality, including inadequate installation, limited technical support, and the absence of post-service accountability. These issues created financial losses and reduced confidence in further investment, particularly in areas where maintenance systems were weak.

Access and affordability emerged as another major barrier. High equipment costs, limited financing options, and low awareness of existing subsidy and credit platforms restricted uptake, especially among farmers unfamiliar with digital procedures. The findings indicated that expanding adoption will require not only financial instruments but also clearer guidance and more user-friendly support systems.

Knowledge gaps were also widely reported. Farmers often lacked technical training on operating automated systems, applying fertigation, or aligning technologies with specific crop and field conditions. Misapplication resulted in lower-than-expected benefits and reinforced risk-averse behavior. The study suggested that both farmers and service providers would benefit from targeted capacity-building and more consistent advisory support.

Infrastructure and site-specific conditions further influenced outcomes. Unreliable water supply, field layouts incompatible with certain systems, and electricity interruptions limited the effectiveness of WSTs in some locations. These constraints underscored the need for context-appropriate planning rather than uniform promotion of technologies.

Despite these challenges, farmers acknowledged clear benefits, including reduced labor time, more efficient water use, and improvements in yield stability. Participants offered practical suggestions such as strengthening oversight of suppliers, simplifying financing procedures, and improving access to technical guidance.

In closing, Dr. Egamberdieva emphasized that scaling WSTs requires coordinated improvements in regulation, service quality, farmer training, and support systems. Her findings reinforced that successful adoption depends on addressing behavioral and institutional factors alongside technological and financial considerations.

## *Inputs from Dr. Maha Al-Zubi and Dr. Muhammad Khalifa, IWMI*

### **Next-Generation Water Monitoring Systems for Arid Zones**

Dr. Maha Al-Zubi and Dr. Muhammad Khalifa presented an overview of NEXAR, a next-generation water monitoring system designed for arid and semi-arid regions. They emphasized that dryland areas face growing climate and water pressures while lacking reliable and continuous data, making traditional monitoring approaches insufficient for effective planning and risk management.

The presentation highlighted that conventional systems in drylands rely on isolated measurements, fragmented datasets, and delayed reporting, limiting their usefulness for decision-makers. In contrast, NEXAR integrates remote sensing, automated sensors, and cloud-based processing to provide near real-time, spatially extensive, and accessible hydrological information. This shift enables predictive and proactive water management rather than reactive responses based on partial data.

A central feature of NEXAR's development is its co-design process. The presenters explained that stakeholders in the Kashkadarya region were involved from early stages through needs assessments, pilot activities, and iterative refinement. This approach ensured that the system reflects operational realities, institutional capacity, and user requirements, strengthening local ownership and adoption potential.

They noted that the system architecture supports integration with existing national platforms and can scale through modular expansion of data sources and functionalities. Demonstrations of the dashboard illustrated how users can access layered spatial information, monitor key hydrological variables, and analyze trends to inform basin-level decisions.

In closing, the presenters stressed that next-generation monitoring represents not only a technical upgrade but an institutional innovation that supports evidence-driven water governance in Uzbekistan. They emphasized that wider adoption will depend on continued capacity building, data expansion, and alignment with ongoing water-sector reforms.

## *Inputs from Dr. Abdusame Tadjiev, IAMO Germany / ICARDA*

### **Determinants and Outcomes of Adoption of Sustainable Agricultural Practices in Uzbekistan**

Dr. Abdusame Tadjiev presented findings from a large-scale empirical study on the adoption of Sustainable Agricultural Practices (SAPs) across four provinces of Uzbekistan. Drawing on survey data from 1,225 farms, the study examined the factors shaping adoption decisions and the economic, ecological, and social outcomes associated with these practices.

He noted that despite national efforts to promote SAPs, uptake remains limited and uneven, suggesting that constraints extend beyond financial or informational barriers. The analysis showed that institutional conditions play a critical role, with land tenure uncertainty, limited credit access, and input supply challenges discouraging investment in practices such as drip irrigation and laser land leveling. Participation in training emerged as a positive driver of adoption, underscoring the importance of advisory support.

Perceptions and information access were also found to influence adoption patterns. Farmers who viewed SAPs as beneficial were more likely to implement them, while those perceiving higher risks tended to avoid more advanced technologies. Differences in information sources shaped outcomes as well, with reliance on informal networks sometimes reinforcing conservative decision-making rather than experimentation.

Farm and environmental characteristics further shaped adoption decisions. Larger farms and those using more modern equipment showed higher likelihood of adopting water-saving technologies, while exposure

to heat stress increased interest in certain practices. Significant variation across provinces highlighted that adoption pathways are highly context-specific rather than uniform.

The study also examined outcomes of SAP adoption. Results indicated that economic benefits were strongest when practices were combined rather than applied individually, suggesting complementarities between technologies. Ecological and social impacts also varied, with some combinations improving sustainability and reducing disparities, while others had mixed effects depending on local conditions.

In closing, Dr. Tadjiev emphasized that policies aimed at scaling SAPs should account for institutional constraints, behavioral dynamics, and regional differences. He highlighted that promoting SAP bundles, strengthening advisory systems, and improving the enabling environment are essential for accelerating sustainable adoption across Uzbekistan.

### *Session 3: Q&A and Discussion*

The question-and-answer segment after the presentations in Session 3 was brief but addressed several technical issues that participants considered important for interpreting the research results. The questions focused primarily on the **methods used to collect and analyze data**, reflecting interest in the robustness and credibility of the evidence presented.

Participants asked for additional details on how the research teams designed their surveys, how farmers were selected for interviews, and how the sample ensured adequate representation of different farm types, geographic areas, and water-access conditions. This included questions on the steps taken to ensure that the sampling approach captured differences across regions and minimized the risk of overlooking relevant groups of farmers.

Several questions concerned the **accuracy and reliability of the data**, including how researchers validated farmer responses, cross-checked information provided during interviews, and ensured consistency across different enumerators and field teams. Participants inquired about the procedures used to handle potential inaccuracies in self-reported practices, the mechanisms for verifying reported adoption of technologies, and how researchers addressed inconsistencies or gaps in the information provided by respondents.

There was also interest in how the research accounted for variations in **local context**, such as differences in water availability, extension support, institutional arrangements, and farm-level constraints. Participants asked whether these contextual differences were incorporated into the analysis, whether they influenced adoption patterns, and how they shaped the interpretation of comparative results across provinces.

Additional questions focused on the **data cleaning and analytical processes**. Participants sought clarification on how missing or incomplete responses were handled, how qualitative insights were integrated with quantitative findings, and which indicators were used to measure outcomes related to technology adoption and sustainable practices. They also asked about the rationale behind specific variables used in the empirical models and how the analysis distinguished between correlation and causal mechanisms.

In their responses, the presenters explained the procedures used to maintain data integrity, including training of field enumerators, use of standardized questionnaires, triangulation with external sources, and review of data for internal consistency. They also described how qualitative interviews complemented statistical analysis by providing context and helping interpret behavioral patterns that may not be fully visible in quantitative datasets.

The exchange helped clarify methodological approaches, provided reassurance about data robustness, and highlighted the efforts taken by research teams to ensure that their findings offer a reliable and accurate basis for understanding adoption dynamics.

## Session 4: Looking ahead to 2026 and beyond

### *Role of Session 4 in the Overall Workshop*

Session 4 served as the decisive bridge between the analytical discussions of the day and the collective orientation toward future action. The earlier sessions examined the policy landscape, institutional mechanisms, enabling conditions, and empirical evidence on technology adoption; together, they clarified where progress has been made and where gaps persist. By the time participants reached Session 4, the workshop had already surfaced multiple insights about policy coherence, research needs, data quality, institutional capacity, and implementation challenges. What remained was to determine how these findings should guide the direction of applied policy research and innovation scaling efforts going forward.

The role of Session 4 was therefore to translate the accumulated insights into a forward-looking agenda. It provided a structured space for partners to reflect on how the evidence presented throughout the day aligns with their institutional priorities, to identify areas where coordinated action is necessary, and to begin articulating a shared orientation for 2026 and beyond. This session did not revisit the technical content of earlier presentations; instead, it drew on them to clarify what must happen next, who needs to be engaged, and how collective efforts can be better organized.

In this way, Session 4 completed the workshop's logical progression: it connected the strategic framing from Session 1, the enabling environment analysis of Session 2, and the empirical findings in Session 3 to a coherent discussion about future direction. Its core function was to position the workshop not as an isolated event, but as part of a continuing process of alignment, coordination, and evidence-driven planning.

The session was structured around four sequential steps:

1. **Reflections from ISCAD, IFPRI, IWMI, and ICARDA**, capturing institutional perspectives, current priorities, and emerging opportunities for collaboration.
2. **Strategic Foundations**, establishing the shared vision, long-term principles, and systemic directions guiding applied policy research and innovation scaling.
3. **Operational Pathways and Coordination**, defining the mechanisms, modalities, and institutional arrangements required for joint work, data quality, communication, and capacity development.
4. **Forward Agenda**, outlining immediate actions for 2026 and the medium-term orientation needed to sustain applied policy research, evidence-based policymaking, and innovation scaling.

### *1. Reflections from ISCAD, IFPRI, IWMI, and ICARDA*

At the beginning of Session 4, representatives of ISCAD, IFPRI, IWMI, and ICARDA offered short framing remarks outlining how their institutional priorities for 2026 and beyond align with the themes discussed throughout the workshop. These inputs served to anchor the forward-looking session in concrete institutional perspectives and ensured that the emerging agenda was grounded in the mandates and ongoing workstreams of the participating organizations.

ISCAD underscored its continuing focus on strengthening national systems for policy analysis, research coordination, and evidence generation. Its remarks emphasized the importance of linking applied research with implementation structures and ensuring that findings inform program design and field-level practices.

IFPRI highlighted its commitment to advancing rigorous applied policy research that supports innovation scaling and enhances the effectiveness of agricultural reforms. The institution emphasized the relevance of the workshop's discussions for refining research priorities, improving methodological alignment, and deepening collaboration with national partners.

IWMI reflected on its role in supporting water management, climate resilience, and technology deployment, noting that the insights shared during the workshop resonate with its work on water-saving innovation pathways and data-driven approaches. Its remarks pointed to the need for integrating scientific analysis with practical strategies that can be adopted on a scale.

ICARDA focused on the importance of linking agronomic research with socio-economic analysis, particularly in the context of sustainable land and water management. Its input emphasizes the value of cross-institutional collaboration and the opportunities created by shared research agendas and coordinated field activities.

Together, these brief reflections positioned the session within a broader institutional landscape and clarified how each organization sees its contribution to the shared agenda moving forward.

## 2. Strategic Foundations: vision, challenges and research themes

During the discussions, participants of the workshop differentiated vision, challenges, and research priorities (Table 1).

**Table 1. Vision, challenges and research themes**

VISION	CHALLENGES	RESEARCH THEMES
<p>A future system of applied policy research and innovation scaling is built on:</p> <p><b>2.1 Vertical communication:</b> A clear two-way flow of decisions, evidence, and feedback between national, regional, and field levels.</p> <p><b>2.2 Capacity development (institutions):</b> Stronger analytical and operational skills within ministries, agencies, and research bodies.</p> <p><b>2.3 Capacity development (farmers):</b> Support that enables farmers to adopt innovations, use evidence, and contribute practical insights.</p> <p><b>2.4 Awareness and advocacy:</b> Broad understanding of innovations, research findings, and policy directions across society.</p> <p><b>2.5 Working with farmers &amp; producers:</b> More participatory, regular, and practical engagement with producers when designing and testing solutions.</p>	<p>Key system-level challenges and opportunities include:</p> <p><b>3.1 Data across value chains:</b> Information is fragmented and uneven along the chain from production to markets.</p> <p><b>3.2 Accuracy:</b> Data often contains measurement or reporting errors.</p> <p><b>3.3 Transparency:</b> Data sources and methods are not always clear or disclosed.</p> <p><b>3.4 Data integrity:</b> Concerns about reliability, consistency, and trustworthiness of data.</p> <p><b>3.5 Data precision:</b> Indicators are often too coarse or aggregated.</p> <p><b>3.6 Multiple statistical sources:</b> Different institutions report different figures for the same indicators.</p> <p><b>3.7 Data accessibility:</b> Many users cannot easily obtain the data they need.</p> <p><b>3.8 Data availability:</b> Some important data simply does not exist or is incomplete.</p> <p><b>3.9 Data collection difficulties:</b> Field data collection is expensive, slow, or logistically difficult.</p>	<p>Priority areas for joint applied policy research:</p> <p><b>4.1 Feasibility &amp; socio-economic analysis:</b> Assessing economic, social, and distributional impacts before and after interventions.</p> <p><b>4.2 Value-chain data mapping:</b> Identifying gaps, flows, and bottlenecks in data across the agrifood chain.</p> <p><b>4.3 Organic agriculture pathways:</b> Understanding adoption, standards, markets, and support needs for organic production.</p> <p><b>4.4 Tailored regional water-use methodology:</b> Developing region-specific water-use guidelines based on local conditions.</p> <p><b>4.5 Subsidy effectiveness research:</b> Evaluating who benefits from subsidies and how they influence farmer decisions.</p> <p><b>4.6 Data collection &amp; sampling:</b> Improving methods for surveys, sampling frames, and mixed-source data use.</p> <p><b>4.7 Data accuracy/precision/integrity research:</b> Strengthening methods for validating and reconciling agricultural statistics.</p>

Continued page 18

Continued from page 17

VISION	CHALLENGES	RESEARCH THEME
<p><b>2.6 Organic agriculture:</b> A commitment to include sustainable and organic production practices in future strategies.</p> <p><b>2.7 Institutionalized MELIA:</b> A permanent system for monitoring, evaluation, learning, and impact assessment to guide decisions.</p> <p><b>2.8 Inclusion &amp; equity:</b> Ensuring that gender, youth, smaller farms, and vulnerable groups are considered in all research and scaling efforts</p>	<p><b>3.10 Sampling:</b> Sampling is underused even though it can help when full surveys are impossible.</p> <p><b>3.11 Subsidies &amp; benefits and incentives:</b> Unclear impacts of existing benefits and incentives for farmers.</p> <p><b>3.12 Fragmented institutional roles:</b> Mandates overlap; responsibilities are unclear.</p> <p><b>3.13 Financing/resource gaps:</b> Insufficient resources for surveys, capacity building, or innovation scaling.</p> <p><b>3.14 Meetings not systemic:</b> Coordination events happen irregularly and do not build long-term continuity.</p> <p><b>3.15 Institutional fragmentation:</b> Weak integration across agencies, research institutes, and development partners.</p>	<p><b>4.8 Institutional roles &amp; mandates research:</b> Analyzing mandates, overlaps, coordination mechanisms, and governance structures.</p> <p><b>4.9 Inclusion &amp; equity research:</b> Studying how gender, youth, small farms, and vulnerable groups adopt and benefit from innovations.</p>

### Shared Vision for Applied Policy Research and Innovation Scaling (2026 and beyond)

A long-term vision for applied policy research and innovation scaling in Uzbekistan’s agrifood sector rests on several interconnected foundations (Table 2):

- A system of **vertical communication** in which strategic directions, research findings, and operational guidance flow effectively from the apex decision-making level down to regional and district structures, while insights, constraints, and learning from the field move upward with equal clarity.
- **Capacity development across the entire governance chain**, strengthening analytical and operational capabilities at national, regional, and district levels so that institutions can generate, interpret, and apply evidence for decision-making and scaling.
- **Capacity development of farmers**, positioning them as active users and contributors of knowledge, ensuring that scaling efforts reflect real production constraints, behavioral patterns, and the lived experience of producers.
- **Raising awareness and advocacy**, ensuring that innovations, research results, and policy directions are widely understood, communicated in accessible ways, and supported by public dialogue and outreach.
- A shared understanding of **how institutions and development partners should work with farmers and food producers**, grounded in participatory approaches, regular interaction, and the co-design of solutions suited to diverse farm types and regional contexts.
- Recognition that **organic agriculture** and other sustainability-oriented practices form part of the future trajectory of the sector and should be integrated into long-term research, scaling strategies, and policy frameworks.

- An aspiration for **institutionalized MELIA** so that monitoring, evaluation, learning, and impact assessment become permanent features of how evidence informs decisions, adjusts interventions, and guides scaling pathways.
- A commitment to **inclusion and equity**, ensuring that gender, youth, small farms, and vulnerable groups are fully considered in research design, data systems, capacity development, and scaling strategies.

**Table 2: Strategic Foundations**

Section	Element	Key Idea (Short)	Implication for Policy/Research
<b>2. Vision</b>	Vertical communication	Two-way flow top ↔ field	Align decisions with realities; improve feedback loops
	Capacity development (institutions)	Strengthen skills at all levels	Better analysis, implementation, and learning
	Capacity development (farmers)	Farmers as knowledge actors	Higher adoption, better-designed interventions
	Awareness & advocacy	Clear communication of innovations	Wider uptake; reduced misinformation
	Working with farmers	Participatory, context-based engagement	More relevant research & scaling pathways
	Organic agriculture	Sustainability integrated in future vision	Research agenda includes organic systems
	Institutionalized MELIA	MELIA as continuous mechanism	Evidence systematically informs adjustments
	Inclusion & equity	Gender, youth, small farms considered	More balanced and inclusive scaling outcomes
<b>3. Challenges &amp; Opportunities</b>	Value-chain data gaps	Fragmented & inconsistent data	Need integrated value-chain information
	Data quality issues	Accuracy, transparency, precision	Develop validated and harmonized datasets
	Conflicting statistics	Multiple sources, contradictory numbers	Standardization & reconciliation mechanisms
	Data access	Limited availability & openness	Create accessible platforms and data-sharing rules
	Data collection constraints	Difficult primary data; sampling needed	Expand smart sampling, mixed methods
	Subsidies & benefits	Limited evidence on effectiveness	Research impact, targeting, and redesign
	Lack of systematic coordination	Meetings irregular, ad hoc	Establish structured coordination cycles
	Institutional fragmentation	Overlaps, unclear mandates	Clarify roles to reduce duplication
	Financing gaps	Insufficient resources	Develop joint financing and investment plans

Continued page 20

Continued from page 19

Section	Element	Key Idea (Short)	Implication for Policy/Research
4. Priority Research Themes	Feasibility & socio-economics	Integrated assessment	Evidence base for scaling decisions
	Value-chain data systems	Mapping flows, gaps	Improve evidence for interventions
	Organic agriculture	Adoption, standards, markets	Support national sustainability goals
	Regional water-use manuals	Tailored for each region	Region-specific policy guidance
	Subsidy analysis	Effectiveness, equity	Evidence-based redesign
	Data collection methods	Sampling, hybrid approaches	More efficient and reliable data generation
	Data validation	Accuracy, integrity audits	Stronger statistical foundations
	Institutional roles	Mandates, coordination mapping	Clearer governance arrangement
	Inclusion research	Gender, youth, small farms	Targeted and fair policy design

The workshop participants highlighted key challenges and opportunities in the Uzbekistan agrifood sector and discussed the need to align with priority research themes. The summary of this discussion is provided in Table 3.

**Table 3: Aligning Challenges & Opportunities with Priority Research Themes**

Topic Cluster	Vision (WHY)	Challenges & Opportunities (WHAT we face)	Priority Research Themes (WHAT we must study)
<b>1. Evidence, MELIA, and Data Systems</b>	The vision includes <b>(2.4)</b> raising awareness and advocacy so that data and evidence become widely understood; <b>(2.7)</b> institutionalized MELIA ensuring continuous learning and adaptive decision-making; and <b>(2.8)</b> an inclusive evidence system that serves gender, youth, small farms, and vulnerable groups.	Key challenges include <b>(3.1)</b> fragmented data across value chains, <b>(3.2–3.5)</b> issues of accuracy, transparency, integrity, and precision, <b>(3.6)</b> conflicting statistical sources, <b>(3.7–3.8)</b> unequal accessibility and availability of information, and <b>(3.13)</b> financing gaps that constrain data collection and quality assurance.	Research themes cover <b>(4.2)</b> mapping data flows and gaps along value chains, <b>(4.6)</b> strengthening data-collection and sampling methodologies, <b>(4.7)</b> improving validation and reconciliation of agricultural statistics, and <b>(4.9)</b> studying how evidence systems can better represent gender, youth, and smaller farms.

Continued page 21

Continued from page 20

Topic Cluster	Vision (WHY)	Challenges & Opportunities (WHAT we face)	Priority Research Themes (WHAT we must study)
<b>2. Governance, Communication, and Institutional Roles</b>	The vision requires <b>(2.1)</b> strong vertical communication from apex bodies to the field and <b>(2.2)</b> capacity development of institutions, creating a system where evidence, guidance, and learning move reliably in both directions.	Challenges include <b>(3.12)</b> unclear institutional mandates and overlapping responsibilities, <b>(3.15)</b> fragmented coordination structures, and <b>(3.14)</b> the absence of systemic, recurring coordination meetings.	Research priorities include <b>(4.8)</b> analyzing institutional roles, coordination mechanisms, and division of labor, and <b>(4.1)</b> integrating feasibility and socio-economic analysis to support more coherent and evidence-based policy formation.
<b>3. Farmers, Adoption, and Equity</b>	The vision emphasizes <b>(2.3)</b> capacity development of farmers, <b>(2.5)</b> new ways of working with farmers and food producers through co-design and participation, and <b>(2.8)</b> ensuring that equity considerations shape research, scaling, and advisory services.	Challenges include <b>(3.7–3.8)</b> uneven access to information at farmer level, and <b>(3.11)</b> distortions and inconsistencies in subsidies and incentive schemes that shape farmer behavior.	Research themes include <b>(4.9)</b> adoption patterns and equity across farm types, <b>(4.6)</b> sampling to capture diverse farmer realities, and <b>(4.5)</b> evaluating the effectiveness and distributional impact of subsidies.
<b>4. Incentives, Subsidies, and Economic Behavior</b>	The vision incorporates <b>(2.5)</b> farmer-centered engagement and <b>(2.8)</b> equitable benefit distribution, ensuring incentive program support productive, sustainable, and fair outcomes.	Challenges include <b>(3.11)</b> understanding how subsidies and benefits function in practice, <b>(3.2)</b> assessing their accuracy and impact, and <b>(3.13)</b> resource constraints that influence program design and monitoring.	Research focuses on <b>(4.5)</b> analyzing effectiveness, equity, and behavioral impacts of subsidy instruments, along with <b>(4.1)</b> feasibility and socio-economic analysis to inform redesign of support schemes.
<b>5. Water, Regional Specificity, and Technical Adaptation</b>	The vision emphasizes <b>(2.5)</b> context-specific engagement with producers and <b>(2.6)</b> long-term sustainability, including responsible water use aligned with ecological constraints.	Challenges include <b>(3.1)</b> incomplete or inconsistent water-related data, <b>(3.7–3.9)</b> difficulties in accessing information and collecting primary data in some regions.	Research priorities include <b>(4.4)</b> developing region-specific water-use methodologies, <b>(4.1)</b> feasibility analysis for water-saving technologies, and <b>(4.6)</b> efficient sampling approaches for missing water data.

Continued page 22

Continued from page 21

Topic Cluster	Vision (WHY)	Challenges & Opportunities (WHAT we face)	Priority Research Themes (WHAT we must study)
<b>6. Organic Agriculture and Sustainability Pathways</b>	The vision explicitly includes <b>(2.6)</b> integrating organic agriculture as part of long-term sustainability goals.	Challenges relate to <b>(3.1)</b> data gaps in environmentally oriented production systems and <b>(3.7–3.8)</b> limited access to reliable information on organic practices and markets.	Research focuses on <b>(4.3)</b> adoption pathways, standards, market development, and enabling conditions for organic agriculture.
<b>7. Coordination, Systemic Learning, and Multi-Institutional Collaboration</b>	The vision depends on <b>(2.1)</b> coherent communication, <b>(2.4)</b> strong awareness-building efforts, and <b>(2.7)</b> MELIA-driven learning cycles embedded in institutions.	Challenges include <b>(3.14)</b> the need to move from ad hoc meetings to systemic coordination, <b>(3.12–3.15)</b> fragmented roles, and <b>(3.13)</b> financing constraints limiting systematic collaboration.	Research includes <b>(4.8)</b> institutional coordination mechanisms, <b>(4.1)</b> feasibility analysis guiding multi-institutional scaling, and <b>(4.2)</b> system-wide mapping of data flows to support coordinated governance.

### Emerging Challenges and Strategic Opportunities

A forward-looking agenda for applied policy research and innovation scaling must respond to a set of interrelated challenges that shape the effectiveness of decisions, research, and implementation across Uzbekistan’s agrifood sector. These challenges also create opportunities for strategic improvements, institution-wide alignment, and more coherent scaling pathways.

- The **fragmentation of data and information across the value chains**, where different institutions collect, store, and report information in uncoordinated ways, limits the ability to generate integrated analysis and inform decision-making. This challenge also presents an opportunity to build unified data systems that reflect full value-chain dynamics.
- **Issues of accuracy and transparency of data** undermine research quality, policy credibility, and the reliability of evidence used for scaling decisions. Strengthening verification mechanisms, documentation practices, and sharing protocols can turn these weaknesses into a foundation for trusted evidence.
- Concerns regarding **data integrity and data precision**, including inconsistencies in methodologies, definitions, and measurement procedures, highlight the need for harmonized technical standards and agreed methodological frameworks across institutions.
- The **existence of multiple statistical data sources presenting different figures** for the same indicators creates confusion for analysts and policymakers. This challenge reveals the opportunity to establish coordinated statistical systems with clear mandates and consensus around “official” reference series.
- **Accessibility and availability of data and information** remain uneven across institutions, regions, and stakeholders. Addressing this gap would enable wider participation in evidence-based policy analysis and support more efficient research-to-implementation cycles.
- **Constraints related to data collection**, particularly when primary data gathering is costly or logistically difficult—underscore the potential role of sampling strategies and mixed-method approaches that can deliver reliable evidence at lower cost.

- The design, implementation, and monitoring of **subsidies and benefits for farmers and beneficiaries** require clearer understanding of their effectiveness, efficiency, and equity. This challenge opens the opportunity for rigorous analysis of incentive mechanisms and their alignment with scaling goals.
- The observation that meetings of this type are not yet organized in a systemic way points to the need for structured, regularized formats that support continuous joint learning, coordination, and strategic alignment among institutions and partners.
- **Fragmented institutional roles and unclear division** of labor across research, data collection, and scaling responsibilities highlight a structural challenge that limits coordination. Clarifying mandates and responsibilities offers a strategic opportunity to build an integrated system for applied policy research and innovation scaling.
- **Financing and resource gaps** affecting surveys, data systems, feasibility studies, and capacity development present a practical constraint. At the same time, these gaps point to the opportunity for coordinated financing strategies involving national budgets and development partners to support a long-term evidence and scaling agenda.

### Priority Themes for Joint Applied Policy Research

A forward-looking applied policy research agenda should concentrate on thematic areas where evidence gaps limit effective policy design, technology adoption, and scaling outcomes. The following themes constitute the core priorities requiring sustained analytical effort and coordinated institutional engagement.

- The systematic application of **feasibility studies** and **socio-economic analysis** within research agendas, ensuring that innovations and policy measures are assessed through economic viability, social implications, and expected outcomes before and after implementation.
- The comprehensive examination of **data and information across the value chains**, identifying gaps, inconsistencies, and information flows that affect production decisions, market behavior, water management, and the overall performance of agrifood systems.
- The development of **tailored methodologies or operational manuals for water use** for each region of Uzbekistan, aligning scientific analysis with region-specific agro-ecological conditions, farm typologies, infrastructure constraints, and water governance frameworks.
- The rigorous assessment of **subsidies and benefits (имтиёзлар)** available to farmers and other beneficiaries, focusing on their effectiveness, distributional impacts, behavioral effects, and alignment with broader innovation and sustainability objectives.
- The improvement of **data collection** approaches, including the use of **sampling strategies** where full primary data gathering is constrained, enabling more cost-efficient and reliable evidence generation across different regions and value chains.
- The enhancement of **accuracy, transparency, integrity, and precision** of data used for research, policy formulation, and monitoring activities, supported by methodological work on validation, reconciliation, and the harmonization of institutional data sources.
- The clarification of **institutional roles and division of labor** as a research theme, examining mandates, overlaps, coordination mechanisms, and the pathways through which institutions jointly produce and use evidence for scaling and decision-making.
- The incorporation of **equity and inclusion** as a research theme, analyzing differential adoption patterns and access to innovations among **women, youth, small farms, and more vulnerable producers**, ensuring that scaling pathways reflect diverse needs and capacities.

### 3. Operational Pathways & Coordination

Further, the workshop participants discussed potential pathways for scaling & policy integration, as well as modalities for collaboration, coordination, and learning. The summary of this discussion is provided in Tables 4 and 5.

**Table 4. Pathways for Scaling and Policy Integration, Modalities for Collaboration, Coordination, and Learning**

PATHWAYS FOR SCALING & POLICY INTEGRATION	MODALITIES FOR COLLABORATION, COORDINATION, AND LEARNING
<p>5.1. <b>Vertical evidence flows</b> linking apex institutions with regional and district structures, ensuring upward and downward movement of guidance, field realities, and <b>MELIA insights</b>.</p> <p>5.2. <b>Integration of feasibility studies and socio-economic analysis</b> into policy cycles as a prerequisite for <b>scaling decisions</b>.</p> <p>5.3. <b>Translation of research</b> findings into <b>region-specific water-use manuals</b> and operational technical guidance.</p> <p>5.4. <b>Systematic engagement with farmers</b> and food producers through <b>co-design, participatory feedback, and iterative pilot adjustment</b>.</p> <p>5.5. <b>Redesign and adjustment of subsidies</b> and benefit schemes based on <b>empirical evidence</b> and <b>MELIA findings</b>.</p> <p>5.6. Use of <b>smart sampling</b> and <b>mixed-method strategies</b> to maintain <b>policy-relevant data flows</b> where full surveys are not feasible.</p>	<p>6.1. Creation and use of a <b>national shared data and information platform</b>.</p> <p>6.2. <b>Joint protocols and shared standards</b> for <b>data accuracy, transparency, integrity, and precision</b>.</p> <p>6.3. Mechanisms to <b>reconcile conflicting statistical series</b> and <b>harmonize definitions</b> across institutions.</p> <p>6.4. <b>Inter-agency working groups</b> to coordinate <b>subsidy-related evidence, assessment, and program adjustments</b>.</p> <p>6.5. <b>Joint communication and advocacy processes</b> to ensure consistent <b>outreach and farmer engagement</b>.</p> <p>6.6. <b>Coordinated training programs, shared curricula, and system-wide capacity development</b> initiatives.</p> <p>6.7. <b>Institutionalized regular coordination events</b>, including <b>annual research forums</b> and <b>semiannual technical working groups</b>.</p>

**Table 5: Operational Pathways & Coordination**

Operational Cluster	Pathways for Scaling & Policy Integration (HOW evidence is used)	Modalities for Collaboration, Coordination & Learning (HOW institutions work together)
<p><b>1. Evidence Use, MELIA, and Decision Feedback Loops</b></p>	<p>Scaling requires <b>(5.1)</b> vertical evidence flows in which research, monitoring results, and MELIA insights move from apex institutions to regional and district implementers, while field-level realities and farmer feedback travel upward and influence strategic decisions. It also relies on <b>(5.2)</b> embedding feasibility and socio-economic analysis into policy cycles so that scaling decisions are grounded in evidence rather than assumptions.</p>	<p>Coordination depends on <b>(6.2)</b> joint protocols for data accuracy, transparency, integrity, and precision, ensuring that all institutions operate with shared standards. It also requires <b>(6.3)</b> mechanisms to reconcile conflicting statistical series across ministries and agencies, establishing agreed definitions and validated indicators for decision-making.</p>

Continued page 25

Operational Cluster	Pathways for Scaling & Policy Integration (HOW evidence is used)	Modalities for Collaboration, Coordination & Learning (HOW institutions work together)
<b>2. Water Governance, Technical Guidance, and Regional Adaptation</b>	Effective scaling includes <b>(5.3)</b> translating research results into region-specific water-use manuals and technical guidance for farmers and irrigation authorities. These pathways ensure that national strategies become practical, actionable, and tailored to diverse agro-ecologies.	Collaboration requires <b>(6.1)</b> a shared data and information platform that houses water-related datasets, methodologies, and region-specific guidelines. This modality supports cross-institutional learning, facilitates regional comparisons, and allows implementers to access operational materials in real time.
<b>3. Farmer Engagement, Participatory Approaches, and Behavior Change</b>	Policy integration demands <b>(5.4)</b> systematic engagement with farmers and food producers, where scaling strategies are co-designed, pilot-tested, and iteratively adjusted through participatory feedback mechanisms. These pathways ensure that innovations reflect real constraints and behavioral realities.	Coordination must include <b>(6.5)</b> joint communication and advocacy processes enabling farmers, producer groups, and civil society to understand evidence, provide feedback, and influence the research–policy interface. Shared outreach efforts ensure consistent messages and reduce fragmentation across institutions.
<b>4. Incentives, Subsidies, and Policy Adjustments</b>	Scaling requires <b>(5.5)</b> the redesign and adjustment of subsidy mechanisms and farmer benefit schemes based on empirical evidence from MELIA, feasibility assessments, and behavioral analysis.	Collaboration depends on <b>(6.4)</b> inter-agency working groups capable of evaluating subsidy impacts, coordinating adjustments, and ensuring consistency in incentive programs across ministries and development partners.
<b>5. Data Collection, Sampling Strategies, and Information Flows</b>	Policy integration includes <b>(5.6)</b> smart sampling and mixed-method data strategies to ensure continuous evidence generation even where full-scale surveys are not feasible. These pathways maintain a minimum required data flow for decision-making.	Coordination modalities include <b>(6.1)</b> a national data platform and <b>(6.2)</b> shared data-quality standards, ensuring that all actors use compatible methods, access the same datasets, and contribute validated information.
<b>6. Capacity Development, System Strengthening, and Institutional Learning</b>	Scaling relies on <b>(5.1)</b> strengthening the ability of regional and district institutions to interpret evidence, translate guidance for farmers, and feed structured insights back to central authorities. Capacity is therefore an operational pathway, not an external support activity.	Collaboration requires <b>(6.6)</b> coordinated training programs, joint curricula, and shared capacity-building efforts across apex, regional, local institutions, and farmers. Systematic, scheduled learning interactions (annual and semiannual) reinforce institutional memory and alignment.
<b>7. Structured Coordination, Regular Forums, and Multi-Partner Alignment</b>	The pathways for scaling include <b>(5.2)</b> ensuring that feasibility and socio-economic results feed directly into policy drafts, program updates, and scaling decisions at inter-ministerial and partner levels.	Modalities include <b>(6.7)</b> institutionalizing regular coordination events—annual policy research forums, semiannual technical working groups, and continuous inter-agency exchanges.

## Pathways for Scaling and Integration into Policy Processes

Translating evidence into action requires clearly defined pathways that connect research outputs, institutional processes, and field-level implementation. The following pathways articulate how applied policy research and MELIA systems can be systematically integrated into decision-making and scaling practices.

- The establishment of **vertical communication channels from apex institutions to the field level**, ensuring that research findings, MELIA-generated insights, and strategic policy directions are consistently transferred into operational guidance for regional and district structures, while experience and challenges from the field inform revisions at the national level.
- The routine integration of **feasibility studies** and **socio-economic analysis** into the policy cycle, making economic viability, social implications, and risk assessments mandatory steps before scaling innovations, designing support schemes, or modifying regulatory frameworks.
- The translation of research into **region-specific water-use methodologies and manuals**, enabling farmers, local water managers, and advisory services to apply scientific guidance in ways that reflect regional agro-ecology, resource constraints, and farming system diversity.
- The adoption of systematic approaches to **working with farmers and food producers**, emphasizing participatory design, continuous feedback, adaptive piloting, and collaborative refinement of technologies and practices based on real-world constraints and farmer behavior.
- The evidence-informed redesign and adjustment of **subsidies and beneficiary support schemes**, using MELIA results and applied research findings to refine eligibility criteria, optimize targeting, and ensure that incentive mechanisms genuinely support innovation adoption and sustainability.
- The deployment of **sampling strategies and mixed-method data approaches** in contexts where full primary data collection is not feasible, ensuring that policy-relevant information continues to flow into decision-making processes even under budget, time, or logistical constraints.
- The embedding of **institutionalized MELIA** as an operational pathway for scaling, enabling continuous learning loops where evidence is generated, interpreted, and fed directly into the refinement of policies, regulations, and program designs.
- The incorporation of **equity and inclusion considerations** into policy integration pathways, ensuring that scaling mechanisms account for differences in capacities, constraints, and opportunities among women, youth, small farms, and vulnerable household producers.

## Modalities for Collaboration, Coordination, and Learning

Effective scaling of agricultural innovations requires institutional arrangements that support sustained collaboration, shared learning, and coordinated action across government agencies, research institutions, and development partners. The following modalities outline how cooperation and joint knowledge systems can be strengthened:

- The development of a **national data and information platform** (web-based) through which institutions can access shared datasets, survey results, analytical outputs, methodological tools, and MELIA findings. This platform functions as a foundation for collective learning, harmonized evidence generation, and transparent policymaking.
- The establishment of **joint standards and protocols for data accuracy, transparency, integrity, and precision**, enabling institutions to generate and validate evidence using consistent methods and ensuring comparability across studies, surveys, and monitoring activities.
- The creation of an **inter-agency mechanism for harmonizing statistical data**, resolving discrepancies among datasets that report different figures for the same indicators, agreeing on common definitions, and determining authoritative series for planning and evaluation.
- The institutionalization of **regular coordination mechanisms**, including annual or biannual applied policy research forums and periodic technical working groups that ensure continuous dialogue, structured follow-up, and alignment of research agendas and scaling initiatives across institutions.

- The implementation of **joint awareness and advocacy initiatives**, ensuring that research findings, innovation results, and policy recommendations are broadly communicated to stakeholders, including farmers, advisory services, and agribusinesses, and embedded into public discourse and sector-wide practices.
- The coordination of **capacity development programs** across institutions—from apex bodies to regional and district levels—supported by shared training curricula, joint learning events, and integrated programs that build analytical, operational, and field-level capabilities.
- The strengthening of **institutional roles and division of labor** within collaborative arrangements, clarifying mandates, identifying complementarities, and defining responsibilities in joint research, data management, MELIA operations, and scaling activities.
- The inclusion of **equity-sensitive collaboration modalities**, ensuring that joint initiatives actively integrate perspectives and needs of women, youth, small farms, and vulnerable groups into research design, capacity building, and scaling mechanisms.

#### 4. Forward Agenda

Subsequent discussions focused on actions in 2026 and beyond. The summary of this discussion is provided in Tables 6 and 7.

**Table 6. Immediate Actions for 2026 and Medium-Term Orientation**

IMMEDIATE ACTIONS FOR 2026	ORIENTATION FOR THE MEDIUM TERM
<p>7.1 Launch development of a <b>national data and information platform</b>, enabling shared access to indicators, survey outputs, and policy-relevant evidence.</p> <p>7.2 Initiate a <b>joint methodological initiative on data quality</b>, covering <b>harmonization, precision, transparency, and common definitions</b>.</p> <p>7.3 Commission <b>feasibility studies and socio-economic analyses</b> for priority innovations (water-saving technologies, organic production, subsidy instruments).</p> <p>7.4 Design a <b>systematic coordination format</b>, including an annual <b>Applied Policy Research Forum</b> and <b>interim technical meetings</b>.</p> <p>7.5 Begin structured <b>capacity development programs</b> for decision-makers, implementers, and farmers linked to <b>scaling innovation and MELIA outputs</b>.</p> <p>7.6 Introduce <b>pilot mechanisms</b> for improved subsidy monitoring and impact analysis.</p> <p>7.7 Initiate <b>mapping of institutional roles and division of labor</b> across research and scaling functions.</p>	<p>8.1 A sector guided by <b>reliable, transparent, and accessible</b> data systems that underpin informed policy, research, and investment decisions.</p> <p>8.2 Institutional arrangements that ensure <b>continuous communication, capacity development, and feedback loops</b> from apex to field.</p> <p>8.3 Policy and research processes where <b>feasibility, socio-economic analysis, and regional specificity</b> (especially for water use) become standard.</p> <p>8.4 A governance culture grounded in <b>systematic coordination, regular learning, and joint problem-solving</b>, rather than ad-hoc initiatives.</p> <p>8.5 An institutionalized <b>MELIA system</b> that continuously informs decisions, reallocates resources, guides scaling, and ensures adaptive management.</p> <p>8.6 Clear <b>roles and responsibilities</b> across ISCAD, IFPRI, IWMI, ICARDA, and other partners, ensuring coherent implementation of the forward agenda.</p> <p>8.7 A financing environment where <b>domestic budgets and development partners</b> jointly support research, scaling, data systems, and capacity building.</p> <p>8.8 A commitment to <b>equity and inclusion</b>, integrating gender, youth, small farms, and vulnerable groups into research design and scaling pathways.</p>

**Table 7. Detailed Description of Immediate Actions for 2026 and Medium-Term Activities**

<b>Actions</b>	<b>Immediate Actions for 2026 (Descriptive, with highlighted 7.x references)</b>	<b>Medium-Term Orientation (Descriptive, with highlighted 8.x references)</b>
<b>1. National data architecture</b>	In 2026, institutions should begin constructing an integrated national evidence backbone by taking forward <b>7.1 Launch development of a national data and information platform, enabling shared access to indicators, survey outputs, and policy-relevant evidence.</b> This requires technical scoping, agreement on data flows, and early-stage prototyping to demonstrate how shared datasets can support decision-making.	By the medium term, this work contributes directly to <b>8.1 A sector guided by reliable, transparent, and accessible data systems that underpin informed policy, research, and investment decisions,</b> establishing a stable, trusted evidence ecosystem.
<b>2. Data quality and harmonization framework</b>	Immediate action includes operationalizing <b>7.2 Initiate a joint methodological initiative on data quality, covering harmonization, precision, transparency, and common definitions.</b> The 2026 work should focus on forming a technical group, reviewing existing statistical discrepancies, and developing unified protocols.	Over time, this moves the system toward <b>8.1 A sector guided by reliable, transparent, and accessible data systems,</b> reducing fragmentation and creating consistent evidence for policy.
<b>3. Feasibility and socio-economic analytics</b>	The applied research system should begin applying rigorous assessment tools in 2026 through <b>7.3 Commission feasibility studies and socio-economic analyses for priority innovations (water-saving technologies, organic production, subsidy instruments).</b> These studies will form the analytical basis for scaling decisions.	This leads into <b>8.3 Policy and research processes where feasibility, socio-economic analysis, and regional specificity become standard,</b> embedding analytical discipline into routine decision cycles.
<b>4. Structured coordination mechanisms</b>	A coherent collaborative process can start immediately through <b>7.4 Design a systematic coordination format, including an annual Applied Policy Research Forum and interim technical meetings.</b> The 2026 focus is on defining schedules, responsibilities, and scope for these platforms.	Sustained use of these platforms results in <b>8.4 A governance culture grounded in systematic coordination, regular learning, and joint problem-solving,</b> ensuring institutional alignment over the medium term.
<b>5. Capacity development and learning pathways</b>	Strengthening institutional and farmer capacities begins in 2026 with <b>7.5 Begin structured capacity development programs for decision-makers, implementers, and farmers linked to scaling innovation and MELIA outputs.</b> Training modules, curricula, and delivery modalities should be drafted and piloted.	This approach evolves into <b>8.2 Institutional arrangements that ensure continuous communication, capacity development, and feedback loops from apex to field,</b> creating a learning-oriented system.

Continued page 29

Continued from page 28

Actions	Immediate Actions for 2026 (Descriptive, with highlighted 7.x references)	Medium-Term Orientation (Descriptive, with highlighted 8.x references)
6. Evidence-based subsidy refinement	Improving incentives starts with <b>7.6 Introduce pilot mechanisms for improved subsidy monitoring and impact analysis.</b> Early pilots in 2026 should test monitoring instruments, data capture, and rapid assessment tools.	In the medium term, this aligns with <b>8.7 A financing environment where domestic budgets and development partners jointly support research, scaling, data systems, and capacity building,</b> ensuring subsidy schemes are continuously adjusted using evidence.
7. Institutional role mapping	System clarity begins in 2026 through <b>7.7 Initiate mapping of institutional roles and division of labor across research and scaling functions.</b> This step helps identify gaps, overlaps, and areas for synergy.	This foundational work contributes to <b>8.6 Clear roles and responsibilities across ISCAD, IFPRI, IWMI, ICARDA, and other partners,</b> ensuring coherent implementation.
8. Inclusion foundations	The 2026 agenda must initiate basic inclusion-sensitive practices: gender-disaggregated data, youth participation indicators, small-farm representation, and sampling that captures vulnerable groups. These actions support the transition toward equitable evidence systems.	This prepares the ground for <b>8.8 A commitment to equity and inclusion, integrating gender, youth, small farms, and vulnerable groups into research design and scaling pathways,</b> making inclusion a structural feature of the system.
9. MELIA-linked decision routines	In 2026, initial MELIA routines should be piloted to demonstrate how monitoring, evaluation, learning, and impact assessment can guide iterative program adjustments. These routines complement the evidence actions above.	Over the medium term this develops into <b>8.5 An institutionalized MELIA system that continuously informs decisions, reallocates resources, guides scaling, and ensures adaptive management,</b> making MELIA a permanent governance tool.

### Immediate Follow-up Actions for 2026

The immediate agenda for 2026 focuses on establishing the operational foundations needed for applied policy research, data-driven decision-making, and innovation scaling. This includes launching development of a national data and information platform that provides shared access to indicators, survey outputs, and policy-relevant evidence. A joint methodological initiative on data quality will begin, covering harmonization of statistical definitions, improvements in precision, enhanced transparency, and agreed protocols for reconciling discrepancies between data sources.

Feasibility studies and socio-economic analyses will be commissioned for priority innovations, including water-saving technologies, organic agriculture practices, and subsidy instruments. A systematic coordination format will be created, consisting of an annual Applied Policy Research Forum supported by interim technical meetings to maintain structured collaboration and follow-up.

Capacity development programs for decision-makers, implementers, and farmers will be initiated, directly linked to innovation scaling, policy implementation, and MELIA outputs. Pilot mechanisms for better subsidy monitoring and impact assessment will be introduced to support evidence-based adjustments in program design. Work will also begin on mapping institutional roles and division of labor across research, data, and scaling functions to resolve overlaps, fill gaps, and clarify mandates. Early steps will be taken to integrate equity and inclusion considerations into data systems, research activities, and capacity development efforts, ensuring alignment with medium-term priorities.

## Concluding Orientation for the Medium Term

The medium-term orientation provides a coherent direction for how the applied policy research and innovation scaling agenda should evolve beyond 2026. The system is expected to operate on the basis of reliable, transparent, and accessible data, forming a unified evidence base for policy formulation, research planning, and investment decisions. Institutional arrangements should ensure continuous vertical communication, systematic capacity development, and functional feedback loops connecting apex structures and field-level actors.

Feasibility analysis, socio-economic evaluation, and regional specificity — especially in water use — should become standard requirements in policy and research processes. Governance should shift toward regular coordination, joint learning, and shared problem-solving rather than fragmented engagements.

An institutionalized MELIA system will provide continuous learning, guide adjustments in strategy, support adaptive management, and inform resource allocation. Clear roles and responsibilities across ISCAD, IFPRI, IWMI, ICARDA, and other partners will enable coherent implementation of the forward agenda. The financing environment should combine national budget support and contributions from development partners to sustain research, data systems, MELIA, and capacity building. A long-term commitment to equity and inclusion will ensure that gender, youth, small farms, and vulnerable groups are systematically integrated into research design, data systems, and innovation scaling pathways.

## Closing Remarks

**Dr. Akmal Akhramkhanov, ICARDA**, emphasized that the discussions throughout the workshop clearly demonstrated the need for stronger integration between research, policy, and implementation. He noted that effective scaling of innovations requires deeper understanding of regional agro-ecological realities, stronger water-use methodologies tailored to diverse conditions, and continuous learning loops between field-level practices and national decision-making. He stressed that ICARDA stands ready to support Uzbekistan in advancing evidence-based solutions that combine technical rigor with local relevance and highlighted the importance of sustained collaboration among partners to ensure that findings, data, and innovations translate into real improvements for farmers.

**Dr. Kamiljon Akramov, IFPRI**, underlined that the workshop reaffirmed the centrality of reliable data, sound socio-economic analysis, and transparent evidence systems for shaping effective agricultural policies. He emphasized that several key priorities emerged—harmonizing statistical systems, improving data integrity, strengthening feasibility analysis, and ensuring that incentives, subsidies, and support programs are grounded in measurable impact. He noted that IFPRI will continue to support the development of robust analytical tools, data platforms, and policy research capacities, working closely with national institutions to advance a more coherent, evidence-driven agricultural policy environment.

**Dr. Dilfuza Egamberdieva, ISCAD**, highlighted that Uzbekistan's transition toward a more innovative and resilient agrifood system depends on institutional coordination, continuous capacity development, and more inclusive engagement with farmers and local actors. She underlined the importance of strengthening the entire knowledge system—from apex-level decision-making to district-level implementation—and reaffirmed ISCAD's commitment to leading this national process. She emphasized that the workshop helped clarify shared priorities and immediate next steps, and that ISCAD will ensure these insights translate into a structured agenda for 2026 and beyond, supported by stronger communication, MELIA integration, and systematic collaboration with research and development partners.

## Conclusions and Policy-Relevant Recommendations

The workshop confirmed that Uzbekistan is no longer at the stage of piloting isolated innovations in its agrifood sector. The country has entered a phase where the key constraint is not the absence of technologies, but the absence of a system that can select, test, scale, and govern these technologies based on solid evidence. Across sessions, participants repeatedly returned to a small number of structural issues: fragmented and inconsistent data, weak links between research and policy, gaps between national strategies and field-level practice, and a still emerging culture of learning, feedback, and accountability.

The first *conclusion* is that **data and evidence are now a strategic asset, not a technical afterthought**. The discussions on water-saving technologies, next-generation monitoring systems, and sustainable agricultural practices showed that decisions are currently being made on the basis of multiple, sometimes conflicting statistical series and partial information. Without a national platform and agreed methodological standards, even the best research risks being underused or misinterpreted. The move toward a national data and information system, and a joint initiative on data quality, is therefore not a technical project; it is a precondition for credible policy.

The *second conclusion* is that **policy design and implementation must become analytically grounded and context-specific**. Presentations on adoption drivers and qualitative field findings confirmed that technologies perform differently across regions, farm types, and institutional settings. Scaling decisions that ignore feasibility, socio-economic constraints, and regional water-use realities are likely to disappoint. Systematic feasibility studies and socio-economic analyses are needed not as academic exercises, but as filters that determine which innovations should be scaled, under what conditions, and with what support instruments.

The *third conclusion* is that **the research–policy–practice interface in Uzbekistan is still too fragmented and ad hoc**. The workshop brought together ISCAD, IFPRI, IWMI, ICARDA and other partners, but it also exposed the absence of a stable coordination architecture. Interaction often depends on projects and personalities rather than on institutional arrangements. Participants agreed that without regular coordination formats, joint prioritization, and clear division of labor, the system will continue to produce overlapping studies, uncoordinated pilots, and limited policy impact.

The *fourth conclusion* is that **capacity and communication gaps run vertically through the system**. From apex decision-makers to district services and farmers, there are uneven capabilities to interpret data, use research outputs, apply MELIA findings, and translate national strategies into local practice. Farmers are still too often treated as passive recipients rather than partners in experimentation and learning. Capacity development, communication, and awareness raising must therefore be seen as core components of the scaling agenda, not as complementary activities.

The *fifth conclusion* is that **MELIA needs to move from concept to institutional practice**. Throughout the workshop, the importance of learning-oriented monitoring and evaluation was recognized. However, MELIA remains weakly embedded in mandates, budgeting, and decision routines. As a result, evidence is collected but not systematically used to adjust support schemes, refine targeting, or redesign programs. Without institutionalized MELIA, the system risks repeating the same mistakes with different technologies.

The *sixth conclusion* is that **questions of equity and inclusion are emerging, but not yet fully integrated**. Evidence presented on adoption and sustainable practices suggests differentiated impacts by farm size, location, and socio-economic group. Yet, gender, youth, and vulnerable groups are still insufficiently visible in data systems, survey designs, and policy discussions. If left unattended, innovation scaling may unintentionally reinforce existing inequalities.

On this basis, the workshop points toward a **set of concrete recommendations** that can guide government agencies, research institutions, and development partners:

- **Consolidate a joint 2026 action agenda around the national data platform and data quality initiative.** The development of a shared platform and harmonized methodology should be treated

as a strategic national undertaking with a clear governance arrangement, defined responsibilities, and an agreed timeline. ISCAD, in collaboration with statistical bodies and research partners, should lead this process, ensuring that sectoral data, survey outputs, and MELIA findings are progressively integrated.

- **Embed feasibility and socio-economic analysis into the policy and program cycle.** Before major reforms or scaling of water-saving technologies, organic production measures, or subsidy schemes, feasibility and distributional analysis should be required as part of the design process. This requires dedicated resources, standard terms of reference, and institutional expectations that such analysis is not optional.
- **Formalize coordination mechanisms between key institutions.** An annual applied policy research forum, supported by thematic technical working groups, should become a standing mechanism for agenda setting, review of emerging evidence, and alignment of research and policy priorities. The roles of ISCAD, IFPRI, IWMI, ICARDA and other partners in these structures should be clearly articulated to avoid duplication and to build on complementary strengths.
- **Link capacity development directly to the emerging evidence system and MELIA agenda.** Training for decision-makers, technical staff, and farmers should be designed around the actual tools and processes that will be used: the data platform, harmonized indicators, feasibility methods, and MELIA frameworks. This will help ensure that capacity building is not generic but directly supports the practical use of evidence in decisions and on farms.
- **Institutionalize MELIA as a core governance function.** Clear responsibilities, minimum standards, and resource allocations for MELIA should be defined within relevant ministries and agencies. Learning loops need to be formalized so that monitoring and evaluation results lead to concrete adjustments in program design, targeting, and resource allocation, rather than remaining as reports on shelves.
- **Clarify institutional roles and financing arrangements.** The mapping of mandates and division of labor should be completed and used to guide both domestic budget allocations and development partner support. Medium-term financing should prioritize functions that are system-building in nature: data systems, MELIA, applied research for scaling, and capacity development.
- **Integrate equity and inclusion into data systems, research, and scaling strategies.** Future surveys, MELIA frameworks, and feasibility studies should systematically incorporate gender-disaggregated indicators, youth engagement, smallholder representation, and vulnerability criteria. This will ensure that scaling pathways are assessed not only by aggregate efficiency, but also by who benefits, who is left behind, and what corrective measures may be needed.

Taken together, these conclusions and recommendations outline a shift from project-based, technology-centered interventions to a **system-oriented, evidence-based, and learning-driven approach** to agricultural innovation in Uzbekistan. The workshop has provided a shared analytical foundation and a preliminary roadmap. The next step is to translate these directions into institutional commitments, financed programs, and concrete actions that can be tracked, evaluated, and adjusted over time.

## Annex 1. Workshop Program

Time	Session / Activity (Full Program)
10:00 – 11:00	<p><b>Opening Session</b></p> <p>Welcome Remarks from representatives of the Ministry of Agriculture of the Republic of Uzbekistan, ISCAD and CGIAR:</p> <ul style="list-style-type: none"> <li>– Mr. Nuriddin Qoshnazarov, Advisor to the Minister of Agriculture</li> <li>– Mr. Shohrukh Akramov, Director of ISCAD, Ministry of Agriculture</li> <li>– Dr. Kamiljon Akramov, Senior Research Fellow, IFPRI, Washington DC, USA</li> </ul> <p><b>Session 1: Policy and Institutional Mechanisms for Innovation Scaling</b></p> <ul style="list-style-type: none"> <li>– Presentation: <i>Improving Water Use Efficiency in Agriculture by Digitalization and Institutional Reforms</i> – Dr. Iskandar Abdullaev, IWMI</li> </ul> <p>Q&amp;A, Discussion</p>
11:00 – 11:30	Coffee Break
11:30 – 13:00	<p><b>Session 2: Enabling Environment and Dynamic Evaluation and Adaptive MELIA for Innovation Scaling</b></p> <ul style="list-style-type: none"> <li>– Presentation: <i>Enabling Environment for Innovation Scaling</i> – Ms. Sharanya Rajiv, IFPRI, Washington, D.C.</li> <li>– Presentation: <i>Role of Development Partners in Promoting Innovative Technologies in the Agrifood Sector of Uzbekistan</i> – Mr. Ramin Gasanov, ISCAD/World Bank</li> </ul> <p>Q&amp;A, Discussion</p>
13:00 – 14:00	Lunch
14:00 – 15:30	<p><b>Session 3: Evidence on Adoption and Scaling Readiness of Water Saving Technologies</b></p> <ul style="list-style-type: none"> <li>– Presentation: <i>Analysis of scaling pathways of the adoption of water-saving technologies by farmers in selected provinces of Uzbekistan</i> – Dr. Kamiljon Akramov, IFPRI</li> <li>– Presentation: <i>Understanding Farmers' Adoption of Water Saving Technologies in four provinces of Uzbekistan: Qualitative Evidence from Key Informant Interviews</i> – Dr. Dilfuza Egamberdieva, ISCAD</li> <li>– Presentation: <i>Next-Generation Water Monitoring Systems for Arid Zones: Barriers and Opportunities for Adoption and Scaling Pathways</i> – Dr. Maha Al-Zubi and Dr. Muhammad Khalifa, IWMI</li> <li>– Presentation: <i>Determinants and Outcomes of Adoption of the Sustainable Agricultural Practices in Uzbekistan</i> – Dr. Abdusame Tadjiev, IAMO, Germany/ICARDA</li> </ul> <p>Q&amp;A, Discussion</p>

<b>15:30 – 16:00</b>	Coffee Break
<b>16:00 – 17:30</b>	<p><b>Session 4: Looking Ahead to 2026 and Beyond</b></p> <p>Moderator: Dr. Botir Dosov</p> <ul style="list-style-type: none"> <li>– Forward-looking session featuring brief framing remarks (3 minutes each) from ISCAD, IFPRI, IWMI, and ICARDA on institutional priorities for 2026 and beyond.</li> <li>– Open discussion on shared priorities, emerging challenges, collaboration opportunities, and mechanisms for joint applied policy research and scaling initiatives.</li> </ul>
<b>17:30 – 18:00</b>	<p>Closing Remarks:</p> <ul style="list-style-type: none"> <li>– Dr. Akmal Akhramkhanov, ICARDA, Tashkent</li> <li>– Dr. Kamiljon Akramov, IFPRI</li> <li>– Dr. Dilfuza Egamberdieva, ISCAD</li> </ul>