

Policy Brief



UNLOCKING DIGITAL INNOVATION IN AGRICULTURE FOR INCLUSIVE GROWTH IN BANGLADESH

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Executive Summary

Bangladesh's agricultural sector stands at an important inflection point. While digital technologies are increasingly transforming agricultural production, lack of advisory services, limited access to finance, and low market connectivity continue to constrain productivity and resilience among smallholder farmers. Recognizing these challenges and opportunities, the Government of Bangladesh is advancing reforms to strengthen the country's agricultural innovation ecosystem, including the development of a **National Agricultural Startup Policy Framework** led by the Ministry of Agriculture. The framework seeks to create an enabling environment for agri-tech startups by fostering public-private collaboration, strengthening innovation financing, improving regulatory support, and accelerating the adoption of digital solutions that contribute to agricultural transformation and food security.

Against this backdrop, Globesight convened the roundtable, **"Unlocking Digital Innovation in Agriculture for Inclusive Growth in Bangladesh,"** bringing together senior officials from the Ministry of Agriculture, agri-tech entrepreneurs, development partners, investors, researchers, and industry representatives. With active participation from **Mr. Kamrul Hassan, Joint Secretary (Policy Planning and Coordination Wing), Ministry of Agriculture,** the discussion provided a timely platform for



public-private dialogue to inform the forthcoming National Agricultural Startup Policy Framework and broader agricultural modernization efforts. Participants emphasized that Bangladesh's transition from fragmented agri-tech innovation to a coordinated, farmer-centered ecosystem will require more than digital solutions alone. It will depend on enabling policies that expand access to finance, strengthen public-private partnerships, improve digital and data infrastructure, enhance extension and advisory services, ensure quality assurance across agricultural inputs, and develop post-harvest and market-linkage systems. This policy paper synthesizes these discussions into actionable recommendations to support the development of an inclusive, resilient, and innovation-driven agricultural ecosystem in Bangladesh.



Section 1. Key Constraints and Context

1.1 Agri-Tech Awareness Barrier

The roundtable exposed a clear consensus on the need to dispel popular misunderstandings around “agri-tech”. Public discourse associates agri-tech with futuristic devices disconnected from agricultural realities. Such misunderstanding creates both adoption barriers among end users and inspires funding skepticism in policymakers and donors. Technology can help address unresolved structural gaps across agricultural supply and value chains when it is designed around practical farmer needs, institutional coordination, and clear pathways to adoption.

1.2 Trust Deficit at the Last Mile

Trust-building is vital before introducing digital innovation at the last mile. Farmers are not resistant to innovation, but they are selective and adopt services when the benefits are immediate, visible, and trustworthy. This trust challenge also highlights the importance of intermediaries. Many farmers are unlikely to adopt advanced digital tools, data systems, or app-based services directly without mediation. Extension officers, trained rural entrepreneurs, local service providers, cooperatives, field agents, and community-based organizations can play a critical role in translating digital information into practical farming decisions. For this reason, last-mile agri-tech adoption should be designed as a hybrid model that combines digital tools with trusted human support.

1.4 Financial and Transaction Frictions

Private banks currently route the BDT 39,000 crore (~USD 3.17 billion) national agricultural credit fund through local agents primarily to collect deposits rather than disburse loans. As a result, farmers rely heavily on microfinance institutions, which often charge high interest rates due to layered fees. At the same time, slow, paper-based banking processes require physical documentation and manual branch-level verification, even when startups provide complete digital farmer data. These bureaucratic delays often cause farmers to miss critical seasonal planting windows for accessing agri-finance. Standard mobile financial service withdrawal fees also impose a significant relative cost burden on smallholders. For instance, transaction fees on a BDT 5,000–7,000 (~USD 41–57) loan typically range from BDT 62–129 (~USD 0.50–1.05), reflecting a 12%–18% of the transaction cost.

1.5 Structural Disconnects in the Seed and Extension Systems

In February, the government, in collaboration with BRRI and the Krishi Foundation, released 118 new rice varieties suitable for March harvests. However, the replacement rate of older varieties remains critically low, particularly in vulnerable ecosystems such as the Haor region, and single-plot demonstrations have proven insufficient to drive adoption at scale. The government has also identified agricultural extension from research to implementation as a major challenge. While the Department of Agricultural Extension (DAE) leads public extension services, NGOs and private seed companies also provide advisory services. The absence of a clear, officially endorsed guideline or national policy framework for extension services has resulted in fragmented service delivery driven by vested interests among providers. In addition, the seed market remains largely unorganized and informal. While BADC accounts for around 30% of seed distribution and the formal private sector

covers another 30%, nearly 40% of the market operates through informal channels, with farmers often purchasing seeds from local retailers without clear labeling, origin traceability, or quality assurance.

1.6 The Limits of Government Subsidies and Mechanization

The session reviewed lessons learned from large-scale state mechanization projects, such as the distribution of subsidized combine harvesters. The operational lifecycle of these combine harvesters is short, creating concerns around sustainability. Furthermore, field mechanization initiatives face an under-developed supporting ecosystem, characterized by weak local after-sales service, weak maintenance structures, and local tensions regarding machine management among users.

1.7 Post-Harvest, Logistics, and Market Linkage Gaps

The roundtable also highlighted post-harvest systems as one of the most important but underdeveloped areas for agricultural innovation. While much of the public conversation on agriculture focuses on production, significant economic leakage occurs after harvest through weak storage, limited aggregation, transport bottlenecks, poor processing capacity, and uncertain buyer access. Participants noted that farmers often need more than production advice. They need dependable ways to store produce, access buyers, secure fair prices, reduce losses, and connect financing to actual market opportunities. Post-harvest innovation is therefore not a secondary commercial issue, but a core agricultural development priority. Warehousing, buy-back models, logistics systems, agri-processing, and market-linkage platforms could create visible gains for farmers while opening commercially viable opportunities for startups, rural entrepreneurs, processors, and logistics providers.

1.8 Inclusion Risks in Agri-Tech Adoption

The discussion also underscored the need to ensure that digital innovation does not widen existing inequalities. Women farmers, youth entrepreneurs, smallholders, and indigenous communities may face different constraints in accessing finance, training, technology, land, mobility, and markets. If these groups are not deliberately included in agri-tech design and delivery, new systems may primarily benefit better-connected farmers and larger market actors. Inclusive agri-tech should therefore be built into implementation from the beginning. This includes women-sensitive training models, youth agri-entrepreneurship pathways, locally adapted advisory services, and greater recognition of indigenous and community knowledge. Inclusion should not be treated only as a social objective but as a practical condition for effective last-mile adoption.

Section 2. Policy Initiatives Under Consideration

The Ministry of Agriculture, alongside relevant bodies, is actively considering and advancing the following structural initiatives in response to the abovementioned constraints.

Initiative	Description	Objective / Rationale	Key Features / Components	Timeline / Status
National Agricultural Startup Policy Framework	A dedicated startup policy framework for the agriculture sector under development by the Ministry of Agriculture.	To formally integrate agriculture-inclusive and agriculture-adjacent startups into national innovation and economic systems.	Explicit inclusion of agri-startups in national innovation structures; Dedicated sector-specific policy architecture	To be introduced within 180 days of the current government's term; tentative formulation by August 2026
Farmer App Platform (Consolidated Digital Platform)	An integrated Farmer App being developed to consolidate fragmented agri-digital services into one platform.	To address fragmentation of agri-tech solutions and improve coordination, access, and service delivery for farmers.	One-stop digital platform; Integration of subsidies, advisory services, input tracking; Plug-in system for startups	Conceptual / under development
Smart Farmer Card (Financial Integration System)	Visa-operated Farmers' Card functioning as a conditional transfer and agricultural input financing tool.	To improve financial inclusion while ensuring subsidies are used productively for agricultural inputs.	Debit card-based system; Restricted use for approved agricultural inputs; Conditional cash transfer mechanism	Already introduced / being implemented
Agri-Connect Framework (Concept Note Stage)	A comprehensive agri-sector intervention framework under development.	To provide an integrated policy structure across agriculture value chain interventions.	Three pillars: Access to Public Goods; Access to Finance; Access to Markets	Concept note under preparation

Section 3. Policy Recommendations

The following recommendations represent the proposals raised by attendees during the dialogue.

Proposals Raised by Attendees During the Agri-Tech Roundtable Dialogue

Agri-Inclusive Blended Financing Structure • 4% interest charged directly to the farmer. • Up to 6% covered through a government subsidy. • Remaining 3% offset through private-sector Corporate Social Responsibility (CSR) funds	Public Data Access for New Entrepreneurs • Open access to weather, soil, and crop-yield data • Enable startups to build context-sensitive digital solutions • Reduce reliance on continuous government grants	Commercial Guarantee Fund for Agro-Insurance • Allocate part of the subsidy budget to an agro-insurance guarantee fund • Provide a state-backed safety net for private insurers • De-risk climate-smart agro-insurance innovations
Formalizing Small-Scale PPP Guidelines • Develop tailored guidelines for small-scale PPPs • Enable startup participation in government projects • Improve access to state infrastructure	Policy Relief on MFS Farmer Fees • Reduce or cap MFS cash-out fees for verified farmers • Use the national ID system to verify eligibility • Lower transaction costs for agricultural payments	Potential Tax and Customs Reform • Submit targeted recommendations on import duties and tax rates for agri-hardware. • Advocate for duty rebates and AIT (Advance Income Tax) relief with NBR (National Board of Revenue) • Reduce import cost burden on drip irrigation and farm tools.
Prioritizing Post-Harvest & Market-Linkage Innovation • Prioritize post-harvest and market-linkage under Agri-Connect. • Support startup-led pilots with farmers, processors, and logistics partners. • Reduce losses and improve farmer price realization.	Building a Trusted Last-Mile Service Provider Network • Introduce certified rural service providers under Agri-Connect/Farmer App. • Train local entrepreneurs and extension agents for last-mile support. • Bridge digital tools with farmers to improve adoption and access. • Create rural employment through service delivery roles.	Embedding Inclusion in Agri-Tech Policy Design • Ensure inclusion of women, youth, smallholders, and indigenous groups in agri-tech policy. • Set inclusion criteria for pilots, grants, and partnerships. • Support women-led and youth-led agri-entrepreneurship models. • Promote locally adapted, community-based advisory systems.

Section 4. The Roadmap Ahead

As the Ministry of Agriculture advances the National Agricultural Startup Policy Framework, the Farmer App, the Smart Farmer Card, and Agri-Connect, there is an opportunity to move from fragmented experimentation toward a more coherent farmer-centered innovation ecosystem. The next phase should focus on a limited number of priority use cases that can be tested, measured, and scaled. These could include farmer-facing finance models, reduced transaction costs, open agricultural data, agri-insurance, post-harvest logistics, startup-accessible PPPs, and trusted rural service provider networks.



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