COUNTRY AGRICULTURAL EXTENSION PROFILE

BANGLADESH

COUNRY AGRIL. EXTENSION PROFILE (C-AEP)

(MANAGE)

NAME OF THE COUNTRY - **BANGLADESH**

Name of the Country Contact Representative/Contact Details
Mobile +8801711803695 **E-mail** Hamidur2152@gmail.com

Sr. No.	PROFILE/PARAMETER
I.	**I- BASIC DETAILS OF FARMERS**
1.1	Cultivable Area (million Ha) - • **Cultivable Area**: Approximately **9940 hectares** (or 87,700 square kilometers) as of the latest estimates
1.2	Farming Population (million) – • **Farming Population**: The farming population is around **16.88 million** people, which represents about 24% of the total economically active population
II.	**AGRICULTURAL EXTENSION INVENTORY – SCHEMES & PROGRAMMES** Brief details of Extension Schemes and Programmes
2.1	- **Federal Schemes & Provincial Schemes** Central Level Agricultural Extension Programs in Bangladesh 1. **Agricultural Extension Policy 2020**: This policy aims to improve agricultural productivity and farm incomes through a decentralized and pluralistic extension system, targeting marginalized smallholders and integrating various stakeholders, including NGOs and private sector actors. 2. **Sustainable Agricultural Extension in Jashore Region Project**: This initiative focuses on sustainable practices in agriculture, aiming to enhance the capacity of farmers in the Jashore region through training and resource provision. 3. **Katalyst Program**: This program enhances public agricultural extension services by collaborating with agricultural traders associations to improve outreach and responsiveness to farmers' needs. It emphasizes market systems approaches to extend support to farmers effectively. State Level (Administrative Division) Agricultural Extension Programs Bangladesh is divided into 8 administrative divisions: 1. Barisal 2. Chittagong 3. Dhaka

4. Khulna
5. Mymensingh
6. Rajshahi
7. Rangpur
8. Sylhet

Agro-Ecological Zone: 30
Region: 14
District: 64
Sub District: 495
Union: 4577
Block: 13731

Note: Government Extension agents are working up to the Block level.

The agricultural extension programs and initiatives in Bangladesh are primarily implemented at the district and sub-district levels by the Department of Agricultural Extension (DAE) under the Ministry of Agriculture. Some key state-level programs include:

1. **Community-Based Agricultural Extension Services**: Localized extension services providing training, demonstrations and direct farmer support tailored to specific regional needs in each district.
2. **High-Value Crop Promotion**: District-level initiatives encouraging cultivation of high-value crops like fruits, vegetables, spices etc. by providing targeted training and resources to farmers.
3. **Integrated Farm Management**: Promoting sustainable farming practices through Farmers Field Schools in each sub-district.
4. **Climate Resilience Programs**: Equipping farmers in vulnerable districts with knowledge and practices to adapt to climate change impacts like floods, droughts etc.
5. **Agricultural Technology Transfer**: Facilitating transfer of new technologies and best practices to farmers in each district through demonstrations and training

- **Other Extension Schemes:**
  - Special Financial scheme offered by the scheduled Bank and other MIFs (micro finance institutions) for the agricultural sectors development.
  - Extension guideline developed for the LSPs (Local Service Providers)
  - Extension guideline for the specific challenge areas like as Hill tracts. Char areas and Coastal areas

2.2

OTHER SECTOR SPECIFIC EXTENSION PROGRAMMES/SCHEMES

- **Crops Sector**

Crop Development Programs

- **HarvestPlus** has been instrumental in biofortifying staple crops like rice and wheat to combat hidden hunger. It collaborates with local research institutes to develop and distribute biofortified seeds, such as zinc rice varieties, and promotes awareness of their nutritional benefits.

Agricultural Research and Development

- Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Bangladesh Institute of Nuclear Agriculture, Bangladesh Jute Research institute, Bangladesh Sugar crop Research Institute, Bangladesh Maize and wheat Research Institute, Bangladesh Livestock Research Institute, Bangladesh Fisheries Research, Bangladesh Forest Research Institute, and other Research Institutions focus on developing and disseminating high-yielding and climate-resilient crop varieties.
- Ongoing research includes improving crops like Mungbam and managing diseases such as wheat blast through international collaboration.
- Bangladesh Agricultural University Extension Center and Outreach Program of Sher-e-Bangla Agricultural University are dissemination improved technologies to the farmers' community.

Climate Resilience Initiatives

- The **Bangladesh Delta Plan 2100** aims to address long-term climate change impacts on agriculture by promoting sustainable land and water management practices.
- The **Bangladesh Climate Change Strategy and Action Plan** provides a framework for adapting agricultural practices to climate variability, focusing on improving resilience among smallholder farmers.

Financial Support and Subsidies

- The government provides subsidies for fertilizers and seeds, particularly for rice production, while also encouraging diversification into high-value crops like fruits and vegetables.
- Financial support is also available for adopting modern agricultural technologies and practices.

International Collaboration

- Various international organizations, including the **Asian Development Bank (ADB)** and **USAID**, support agricultural development through funding and expertise, focusing on enhancing productivity and sustainability in the crops sector.

Crop Diversification and High-Value Crops

- There is a growing emphasis on diversifying crop production to include high-value commodities, responding to the increasing demand from a rising middle class in urban areas.

Besides that, there are many projects being implemented based on crop technology and locations.

Horticulture Sector

Horticulture Development Board (HDB)

Established in 1973-74, the HDB operates under the Directorate of Agricultural Extension (DAE).

Its main objectives include:

- Importing quality seeds of vegetables and fruits suitable for local conditions.
- Promoting the cultivation of vegetables, fruits, and spices to improve nutrition and increase farmers' income.
- Providing horticultural extension services and training to farmers, particularly urban women, on production technology and nutritional awareness. The HDB manages 74 horticulture centers across Bangladesh, offering technical guidance and distributing propagating materials to farmers.

Bangladesh Agricultural Research Institute (BARI)

BARI is responsible for conducting research on horticultural crops, focusing on breeding, production techniques, pest management, and soil and water management. It operates several research centers dedicated to various horticultural practices, contributing to the advancement of agricultural technologies and practices in the sector.

Value Chain Development Programs

Several programs emphasize value chain development to boost productivity and income for smallholder farmers. These initiatives often involve public-private partnerships and focus on integrating sustainable practices, such as climate-resilient farming techniques and efficient water management systems. The aim is to enhance the overall efficiency and profitability of the horticultural sector.

Protected Horticulture Initiatives

The concept of protected horticulture, including greenhouse farming, is gaining traction in Bangladesh. This approach aims to improve production efficiency and quality while mitigating the impacts of adverse weather conditions. Various studies have been conducted to assess the feasibility and market demand for greenhouse produce, identifying potential investments and operational strategies to support this segment.

International Collaboration

Bangladesh collaborates with international partners, particularly from the Netherlands, to enhance its horticultural practices. This includes sharing knowledge and technology, developing local standards for Good Agricultural Practices (GAP), and improving phytosanitary systems to meet international export standards.

Animal Husbandry and Dairying

Livestock Sector Programs and Policies

1. **National Livestock Development Policy (2007)**:
    - This policy outlines the government's strategy to enhance livestock production, focusing on dairy and meat production, poultry development, veterinary services, and feed management. It aims to support smallholder farmers and improve livestock health and productivity through better veterinary services and access to credit.
2. **Community-Based Livestock Breeding Programs**:
    - These programs have been established to improve herd performance and farmers' livelihoods. They emphasize the genetic improvement of local breeds and the distribution of high-quality breeding stock to enhance productivity.
3. **Poultry Development Initiatives**:
    - The government has promoted backyard poultry farming, particularly among women, to increase income and nutrition. Various programs have been supported by international organizations, leading to the establishment of numerous poultry farms across the country.
4. **Veterinary Services and Health Programs**:
    - The government has prioritized veterinary health services, including vaccination and disease management, to ensure the health of livestock. This is critical for maintaining productivity and preventing losses due to disease outbreaks.
5. **Financial Support and Subsidies**:
    - The government provides financial assistance and subsidies for farmers engaged in livestock rearing, particularly for crossbred milch cows and vaccination programs. This support is aimed at enhancing the capacity of smallholder farmers to invest in livestock.

	6.

6. Research and Development:

Institutions like the Bangladesh Livestock Research Institute conduct research to improve livestock breeds and farming practices. This research is essential for developing effective strategies that address local challenges in livestock management.

Training In the livestock sector, different categories of training are imparted which are contiguous to the nature of activities of field veterinarians, auxiliary staff and farmers. DLS, NGOs and other organizations conduct these trainings.

The Directorate of Livestock Services administers several training institutes. These include Officers Training Institute (OTI), Veterinary Training Institutes (VTI) and Livestock Training Institutes (LTI). These institutions offer the following types of training:

Basic training for officers This short training is conducted in the OTI for entry level livestock officers. Training elements consist of introduction of policies of GOB, internal resource development, local government and decentralisation of power, public administration, government rules, personnel management, office management, policy making, project formulation and management, etc.

In the two VTIs the following training courses are offered to auxiliary staff:

Comprehensive livestock training This is offered by VTIs as in-service training to DLS's staff such as compounders, livestock assistants, field assistants and fodder/artificial inseminators for about 12 months. This training scheme aims at developing a cadre of support staff for carrying out specialised activities like laboratory techniques, vaccination, compounding, fodder extension, and artificial insemination.

Refreshers course for auxiliary staff This is a short, 2-3 week in-service training course designed to update the knowledge of auxiliary staff on the use of crop by-products, urea treated straw, extension of exotic varieties of fodder, etc.

Contact farmers training This is organised mostly by two LTIs for training of farmers (2-3 weeks) selected to act as contact farmers. The trained farmers work as linkmen between extension agents and ordinary farmers.

Poultry farmers training (12 weeks duration) Conducted through DLS managed poultry farms which aim at updating the knowledge and skills of farmers already practicing fowl/duck production, or farmers possessing basic skills and capabilities to establish mini farms; special preference is given to women.

Training by NGOs Most NGOs engaged in livestock activities also conduct week long courses for interested or registered farmers on poultry vaccination, cattle

rearing, artificial insemination, etc. Some NGOs also produce para-vets through 3-months long training courses.

Training by youth training centres Around nine Youth Training Centres of the country also conduct 3 months training courses for unemployed youths on livestock production practices. These are designed to create self-employment and offer courses on poultry/dairy rearing, fattening of beef cattle, rearing of goats, primary treatment of livestock diseases, and production practices including vaccination. Similar types of trainings are also offered by the Rural Development Academy, Bogra, and Milk Vita. [Md Hafezur Rahman]

Fisheries sector:

Sustainable Coastal and Marine Fisheries Project (SCMFP)

- A 10-12 year fisheries program supported by the World Bank, implemented by the Department of Fisheries (DoF) under the Ministry of Fisheries and Livestock (MoFL).
- Aims to improve management of coastal and marine fisheries, build fishing community institutions, facilitate business development, and promote alternative livelihoods for fishers.
- The first phase of the project received an IDA credit of US$240 million for a 5-year period.

Rice-Fish Farming Program

- Carried out by the Bangladesh Environmentally Sustainable Development Organization (BEDO) in Gopalganj and Naogaon districts during 1995-96.
- Promotes the integration of rice and fish farming to enhance productivity and income for farmers.

Fisheries Education and Research

- The Faculty of Fisheries at Bangladesh Agricultural University (BAU) offers degrees in Fisheries at the undergraduate, master's, and doctoral levels.
- The Department of Fisheries at the University of Dhaka also provides bachelor's and master's programs in various fisheries disciplines.
- These institutions conduct research to support the development of the fisheries sector in Bangladesh.

Hilsa Fishery Management

- The government has implemented measures to manage the iconic Hilsa fishery, which contributes significantly to Bangladesh's marine catch.
- These efforts have led to positive results in improving the management of this important resource.

Other Farm Enterprises (Mushroom, Beekeeping, Sericulture, etc.)

- PKSF launched Promoting Agricultural Commercialization and Enterprises (PACE) project in January 2015. The project is jointly financed by PKSF and International Fund for Agricultural Development (IFAD). The Financing

Agreement of the project was signed between the Government of the People's Republic of Bangladesh and IFAD on 11 December 2014. Subsequently, PKSF signed Subsidiary Loan and Grant Agreement (SLGA) with the Ministry of Finance, Government of Bangladesh on 18 January 2015 to implement the project.

Mushroom beekeeping and sericulture are practicing in limited areas. Mushroom cultivation and beekeeping entrepreneurship have been strengthening through government project support. Presently, sericulture activities are declining.

- Farm Credit

Annual Agricultural and Rural Credit Policy and Program

- Formulated by Bangladesh Bank (BB) every year to set targets for agricultural credit disbursement by banks.
- For FY2022-23, the target was set at Tk30,911 crore, an 8.88% increase over the previous year.
- Targets are set for state-owned banks (Tk11,758 crore) and private/foreign banks (Tk19,153 crore).
- Measures have been added to facilitate access to credit and address challenges of food security and sustainable agriculture.

Sharecroppers Refinance Scheme

- A special fund initiated by BB in 2009 to provide credit to sharecroppers through BRAC's group-based lending framework.
- Aimed at reducing sharecroppers' reliance on informal high-interest credit sources.
- Impact assessment found it enabled sharecroppers to improve socio-economic conditions, accumulate assets, and adopt modern farming practices.

(REF: Bank, B. (2017). Impact Assessment of Agricultural Credit Program for the Sharecroppers in FY16 Implemented by BRAC under Refinancing Scheme of Bangladesh Bank.)

Crop Loan Disbursement

- Banks are required to disburse crop loans within 10 working days of receiving applications.
- Loan application forms are simplified and made readily available to farmers.
- Reasons for rejecting loan applications must be communicated to farmers in writing

- Agricultural Marketing

Agricultural marketing activities have been enhancing through departmental agricultural marketing.

1. **E-commerce Platforms**:

	• Online platforms like Krishi Market have been developed to facilitate the buying and selling of agricultural products. These platforms help farmers reach a wider market and receive better prices for their products. 2. **Value Chain Development**:

- Programs aimed at value chain development focus on improving the efficiency of agricultural supply chains. This includes working with private sector actors to enhance production, processing, and marketing of agricultural products, ensuring better income for farmers.

3. **Support for Agro-Processors**:
   - The Bangladesh Agro-Processors' Association (BAPA) supports agro-processing industries, addressing challenges related to marketing, packaging, and export of processed agricultural goods. This initiative aims to add value to agricultural products and improve market competitiveness.

4. **"Banglalink Krishibazaar"**
   - This eventually empowers the farmers with important market information and eliminates the middle men. To know the latest market prices of essential agro produces in 18 major markets across the 7 divisions of Bangladesh to find other agro buyers and sellers. Agro buyers and sellers can post or browse their desired agro product info in the service for selling or buying. The seller or buyer can also call up his/her desired seller or buyer instantly by pressing "8" and finalize the deal. The information of the products is available by categories, prices, locations, etc.

- Agricultural Infrastructure (Post-harvest processing and management)

Moderately adequate infrastructures are prevailing but need to be strengthened infrastructure for storage supply chain and value chain management.

Feed the Future Bangladesh Agricultural Infrastructure Development Activity:

- **Objective**: This initiative focuses on improving rural infrastructure, including market centers, cold storage facilities, and drainage systems, to enhance post-harvest handling and storage of agricultural produce.
- **Key Activities**:
  - Development of rural roads and market access to facilitate the movement of agricultural products.
  - Construction of post-harvest handling and storage facilities to improve sanitation and reduce losses.
  - Capacity building for communities to manage and maintain infrastructure sustainably.

Cold Storage and Agro-Processing Facilities

- **Government Initiatives**: The government has prioritized investments in cold storage and agro-processing facilities to reduce post-harvest losses, which can be as high as 30-40% for certain crops.
- **Specific Interventions**:

- Plans to establish cold storage units for potatoes, mangoes, onions, and tomatoes, with significant investments aimed at increasing capacity and improving processing capabilities.
- For instance, a cold storage unit with a capacity of 6,000 metric tons for potatoes is planned, alongside processing facilities to enhance value addition.

Post-Harvest Technology and Employment Generation

- **NGO Involvement**: Various NGOs are active in promoting post-harvest technologies and food processing programs, particularly aimed at empowering rural women.
- **Focus Areas**: These programs emphasize the development of low-cost processing technologies and training to enhance the skills of rural populations, thereby generating employment and improving livelihoods.
  Agricultural and Rural Transformation Program
- **Objective**: This program aims to transform agricultural practices and enhance food and nutrition security through improved post-harvest management.
- **Strategies**: The program focuses on building infrastructure that supports safe and profitable agricultural practices, including better storage and processing facilities.

Agricultural Mechanization

Mechanization are in place but facing difficulties due to fragmentation of land.

Mechanization of Rice Farming

- The government has provided subsidies on the sale price of machines like combine harvesters and rice transplanters to promote their adoption.
- However, adoption of these machines has been slower than expected, and many rice production activities still rely on manual labor.

Expansion of Power Tillers and Irrigation Engines

- After the 1988 floods, the government withdrew restrictions on importing agricultural machinery and allowed duty-free imports of irrigation engines and power tillers.
- This led to the rapid expansion of mechanization for primary tillage, irrigation, and threshing, replacing draught animals.

National Agricultural Mechanization Policy 2020

- This policy aims to promote agricultural mechanization through measures like providing loans for machinery purchases, ensuring technical support, and expanding the agricultural machinery manufacturing industry.
- It also focuses on precision agriculture, use of renewable energy, conservation agriculture, and region-specific mechanization strategies.

Government Subsidies and Incentives

- The government has provided subsidies and incentives to farmers for purchasing

	agricultural machinery.

	• It has also exempted import taxes on some machinery items and provided funds for research, extension, and capacity building in agricultural mechanization. **Private Sector Involvement** • The private sector has responded to the demand for mechanized services by aggressively promoting and selling machines like rice transplanters and mini combine harvesters. • Private importers started importing small engines and power tillers extensively in the 1980s, making the process of agricultural mechanization more dynamic
2.3	**<u>EXTENSION NETWORK – IN PUBLIC SECTOR</u>** - Brief Extension Networks in the sectors indicated **Federal Level** • **Ministry of Agriculture (MOA)**: Responsible for policy formulation, planning, monitoring, and administration of agricultural extension services. • **Department of Agricultural Extension (DAE)**: The largest public sector extension service provider in Bangladesh, with a mission to provide needs-based extension services to farmers. **Regional Level** • **Regional Extension Offices of DAE**: Oversee extension activities at the regional level, supporting district and sub-district offices. **District Level** • **District Extension Offices of DAE**: Implement extension programs and coordinate with sub-district offices and field-level extension workers. **Sub-District (Upazila) Level** • **Upazila Agriculture Offices of DAE**: Responsible for delivering extension services at the sub-district level, working closely with field-level extension workers. **Field Level** • **Block Supervisors (BSs) and Sub-Assistant Agriculture Officers (SAAOs)**: Field-level extension workers who directly interact with farmers, providing technical advice and facilitating access to agricultural inputs and services. - Inventory of Pubic Extension Services Providers at the Provincial and District/Block levels **Observations from National Dialogue on Innovations in Agricultural Extension: A Way Forward 8-9 April, 2022 Proceedings and Recommendations – Key Agricultural Initiatives** **Bangladesh major extension innovations includes:** i) Location specific effective agricultural services at farmers' finger tips

	ii) Digital farmer database and agriculture profile for quick grip on dynamic and diversified agriculture of Bangladesh under Agriculture Portal (Krishi Batayon) iii) Direct communication with the localized extension workers under Krishak Bandhu Phone Sewa iv) Under farmers' window- problem identification by matching image library v) Disseminating agricultural modern technologies by YouTube video channel under the scheme Krishi Bioscope vi) All agricultural information site links in a single platform (Farmers' Digital Address) and e-pesticide prescriber-instant pesticide related all information digitally vii) On field and mobile agriculture extension services (Digital Crop Clinic) viii) Urban agriculture- one stop rooftop and urban agriculture information and services ix) Farmers' Information and Advisory Centre (FIAC)- Agriculture Information and Communication Centre (AICC). **South Collaboration** • Agriculture portal (Krishi Batayon), digital farmer database and agriculture profile, farmer-friendly call service-3331, direct communication with the local extension workers, farmers' window-problem identification by matching image library, KrishiBioscope- use of YouTube video channel, e-pesticide prescriber, digital crop clinic, and urban agriculture.
2.4	**<u>EXTENSION NETWORK– IN PRIVATE SECTOR</u>** Brief Extension Networks in the sectors indicated **Bangladesh Agricultural extension Network (BAEN)** – working for Collecting, Improving and disseminating good agricultural extension approaches all over Bangladesh for **Bangladesh Agricultural Extension Society (BAES)** - Working for strengthening agricultural Extension network involving Agricultural academic, research and extension organizations of Public and private sectors. - **Digital Green** Digital Green is a global development organization that partners with governments, communities, and organizations to leverage technology to improve the lives of smallholder farmers. In Bangladesh, Digital Green collaborates with the Department of Agricultural Extension (DAE) and other partners to improve agricultural extension services through the use of technology and community engagement.

	- **Agricultural Advisory Society (AAS)** The Agricultural Advisory Society (AAS) is a private organization that provides training and resources to farmers in Bangladesh, focusing on modern agricultural practices. AAS has been involved in large-scale rollouts of extension training programs, particularly in collaboration with the International Maize and Wheat Improvement Center (CIMMYT).
	- **Agribusiness Companies** Many agribusiness companies in Bangladesh engage in extension services by providing training and advisory services related to their products, such as seeds and fertilizers. These companies often have representatives at the district and block levels who work directly with farmers to promote best practices and product usage - Inventory of Private Extension Services Providers at the Federal/ Provincial and District/Block levels
2.5	**EXTENSION NETWORK OF CGIAR AND OTHER INTERNATIONAL INSTITUTIONS** CGIAR organizations such as IRRI, CIMMIT, IFPRI, WFC, Their extension services in particular in various domains of agricultural research and extension.
2.6	**<u>EXTENSION MANPOWER</u>** - Extension manpower at various levels – Public Sector Approx. 28068 - Extension manpower at various levels – Private Sector Around 30000 - Others (local and International NGOs): 20000

2.7	**EXTENSION INSTITUTIONS – PUBLIC SECTOR** - Extension Institutions / Organizations at the Federal/Regional/Provincial/District /Block evels and their Extension Programmes/operations **Federal Level** • **Ministry of Agriculture (MOA)**: Responsible for policy formulation, planning, monitoring, and administration of agricultural extension services. • **Department of Agricultural Extension (DAE)**: The largest public sector extension service provider in Bangladesh, with a mission to provide needs-based extension services to farmers. **Regional Level** • **Regional Extension Offices of DAE**: Oversee extension activities at the regional level, supporting district and sub-district offices. **District Level** • **District Extension Offices of DAE**: Implement extension programs and coordinate with sub-district offices and field-level extension workers. **Sub-District (Upazila) Level** • **Upazila Agriculture Offices of DAE**: Responsible for delivering extension services at the sub-district level, working closely with field-level extension workers. **Field Level**
	• **Block Supervisors (BSs) and Sub-Assistant Agriculture Officers (SAAOs)**: Field-level extension workers who directly interact with farmers, providing technical advice and facilitating access to agricultural inputs and services. **Public extension institutions include the following:** • Department of Agricultural Extension (DAE), www.dae.gov.bd • Department of Fisheries (DOF), www.fisheries.gov.bd • Department of Livestock Services (DLS), www.dls.gov.bd • Agricultural Information Service (AIS), www.ais.gov.bd • Department of Agricultural Marketing (DAM), www.dam.gov.bd • Bangladesh Agricultural Development Corporation (BADC), www.badc.gov.bd

2.8	**EXTENSION INSTITUTIONS – PRIVATE SECTOR** - Extension Institutions / Organizations at the Federal /Provincial /District/ Block level/ field level • **Bangladesh Agricultural extension Network (BAEN)** – working for Collecting, Improving and disseminating good agricultural extension approaches all over Bangladesh. • **Bangladesh Agricultural Extension Society (BAES)** - Working for strengthening agricultural Extension network involving Agricultural academic, research and extension organizations of Public and private sectors. • **Bangladesh Agricultural Entrepreneur Welfare Foundation (BAEF)** – Network for commercial youth farmers • **Digital Green** Digital Green is a global development organization that partners with governments, communities, and organizations to leverage technology to improve the lives of smallholder farmers. In Bangladesh, Digital Green collaborates with the Department of Agricultural Extension (DAE) and other partners to improve agricultural extension services through the use of technology and community engagement. • **Agricultural Advisory Society (AAS)** The Agricultural Advisory Society (AAS) is a private organization that provides training and resources to farmers in Bangladesh, focusing on modern agricultural practices. AAS has been involved in large-scale rollouts of extension training programs, particularly in collaboration with the International Maize and Wheat Improvement Center (CIMMYT). • **Agribusiness Companies** Many agribusiness companies in Bangladesh engage in extension services by providing training and advisory services related to their products, such as seeds and fertilizers. These companies often have representatives at the district and block levels who work directly with farmers to promote best practices and product usage
2.9	**NGOs IN AGRIL EXTENSION** - Brief details of NGO efforts in extension at the Federal / Provincial levels - Brief details of NGO efforts in extension at the District/block/field levels • **Key efforts of NGOs in extension include:**

	- **Agricultural Extension:** NGOs like **BRAC and Proshika** implement programs that enhance agricultural productivity through training in sustainable practices. They also assist in government initiatives, such as immunization programs, significantly increasing coverage in areas where they operate. - **Microcredit and Financial Services:** Many NGOs provide microcredit to empower rural entrepreneurs, particularly women, thus enhancing economic resilience and community development. - **Capacity Building:** NGOs focus on training local communities in various skills, including agricultural techniques, health education, and financial literacy, to foster self-sufficiency and sustainable practices. - **Collaboration with Government:** Despite some governmental resistance, many NGOs have successfully collaborated with local and national authorities to implement programs that address rural development challenges. For instance, Proshika's partnership with the Forestry Department has led to successful social forestry initiatives. **Examples:** • NGOs like PROSHIKA, Friends in Village Development Bangladesh (FIVDB), CARE International and Rangpur Dinajpur Rural Service (RDRS) promote sustainable agriculture concepts among farmers, focusing on eco-friendly agricultural systems that optimize use of traditional, indigenous and modern scientific resources. • Many national NGOs that work with rural people in Bangladesh focus almost exclusively on forming groups in order to disburse microfinance. The largest of these NGOs are ASA, BRAC, Grameen Bank and Thengamara Mahila Sabuj Sangha (TMSS). • CARE International has implemented several projects focused on agricultural extension and rural development in Bangladesh: - The SHOUHARDO project, which aimed to assist approximately 60,000 jute farmers and 4 million people in the jute subsector. - The Enhancing Food Security and Nutrition (EFSN) project, which is currently in its fourth phase and is supported by the World Food Programme. The project focuses on improving food security and nutrition. - Krishi Utsho, an initiative that established a network of rural agro-input retailers to provide quality agricultural inputs and services to smallholder farmers. This project has developed into a social enterprise. • SFSA Bangladesh is the country office of Syngenta Foundation for Sustainable Agriculture (SFSA) in Bangladesh, operates as an “International NGO” under the registration from NGO Affairs Bureau of Bangladesh. Work of Syngenta Foundation for Sustainable Agriculture Bangladesh

	The role of SFSA Bangladesh is to create value for resource-poor small farmers through innovation in sustainable agriculture and the activation of value chains. It does this currently in five main ways: **Livelihood** option creation and equip smallholders with tools, technologies, and climate-smart agriculture practices for better yield and income **Market development** through the inclusive business model and value chain integration **Capacity development** of smallholders, enterprises, and private and public institutes for safe and quality food production, market linkages, and policy implication **Promote ag digitalization** for enhancing efficiency, transparency, and connectivity **Leveraging different donors** and private funds in solving underserved problems in agriculture in a systematic sustainable approach.
2.10	**FARMER ORGANIZATIONS IN EXTENSION** • Brief details of Farmer Organization • Efforts in delivery of extension services at the Federal / Provincial/ District/Field levels. • Successful models of Farmer empowerment through commodity/other aggregated groups **1. Sara Bangla Krishak Society (SBKS)** • **Overview**: SBKS is a national network of producers' organizations that focuses on empowering smallholder farmers through access to finance, markets, and technology. • **Impact**: The organization has been involved in the Missing Middle Initiative, which has supported around 10,000 smallholder farmers by enhancing their business capabilities and improving their livelihoods through collective action and resource sharing **2. Kendrio Krishok Moitree** • **Overview**: This organization aims to strengthen the voices of farmers in policy-making processes and improve their livelihoods through collective action. • **Activities**: Kendrio Krishok Moitree engages in advocacy, capacity building, and providing resources to farmers, helping them navigate challenges in agriculture and enhance their productivity. 3. **Bangladesh Agricultural Entrepreneur Welfare Foundation (BAEF)** – Network for commercial youth farmers **4. Hokodanga Khamar para Krishok Dal** 4. **Overview**: Based in Kurigram, this grassroots organization focuses on local agricultural practices and community support. 5. **Functionality**: Hokodanga Khamar para Krishok Dal provides training and

	resources, fostering collaboration among farmers to improve agricultural productivity and sustainability.

	4. Bangladesh Agro-Processors' Association • **Overview**: This association supports the agro-processing sector and connects farmers with market opportunities. • **Significance**: By facilitating partnerships between farmers and processors, the association helps improve market access and ensures better prices for agricultural products, enhancing farmers' incomes. **5. RDRS Bangladesh** • **Overview**: RDRS focuses on rural development and rehabilitation, empowering farmers through various programs. • **Impact**: The organization provides training, microfinance access, and promotes sustainable agricultural practices, helping farmers improve their livelihoods and resilience against economic shocks. These organizations exemplify the diverse approaches taken in Bangladesh to empower farmers, enhance agricultural productivity, and advocate for their rights and needs.
2.11	**<u>FARM COOPERATIVES</u>** - **Brief details of Farm Cooperatives at Federal / Provincial/ District/Village level.** • **Federal Level** At the federal level, the **Department of Cooperatives (DoC)** oversees the registration and regulation of cooperatives throughout the country. This department is responsible for policy formulation and implementation related to cooperatives, ensuring that they comply with legal requirements. The DoC supports the establishment of cooperatives and provides training and resources to enhance their operational efficiency. For instance, it has facilitated the formation of over **83,000 cooperatives** across various sectors, including agriculture, fisheries, and dairy. • **District Level** At the district level, **Cooperative Offices** are responsible for the registration and monitoring of cooperatives. They provide direct support to cooperatives, including financial assistance and guidance on best practices. For example, in districts like **Shirajganj**, dairy cooperatives have been established to help small farmers collectively market their milk, thereby improving their income and reducing dependency on middlemen. The **Bangladesh Milk Producers Cooperative Union Ltd. (BMPCUL)** supports these village-level cooperatives by providing training and facilitating market access. • **Field Level** At the field level, cooperatives engage directly with farmers to deliver extension services. They organize training sessions on modern agricultural techniques, pest

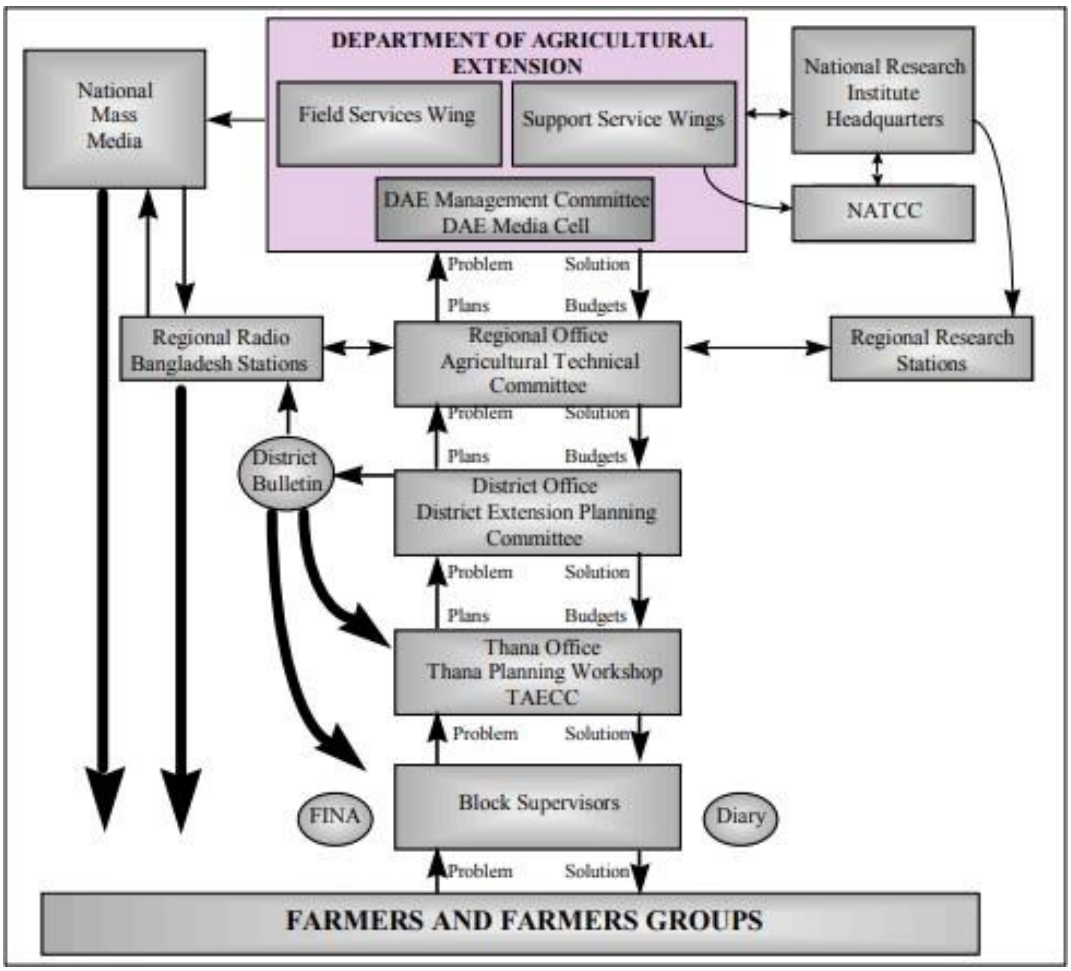
	management, and sustainable practices. For instance, the **Al Madina Livestock Cooperative** in Dhaka focuses on cattle fattening and provides members with marketing support and production advice, significantly enhancing their profitability during peak seasons like Eid-ul-Azha - **Efforts in delivery of extension services at the Federal / Provincial/ District/Field levels** 1. **Al Madina Livestock Cooperative**: Located in Mohammadpur Beribadh, Dhaka, Al Madina focuses on cattle fattening, particularly around the Eid-ul-Azha festival. The cooperative purchases cattle from small farmers and sells them at profitable prices. It offers various services, including cooperative marketing, procurement of forage, and production advice, demonstrating the potential of livestock cooperatives in agribusiness and income generation for members. 2. **Dighan Samavaya Samiti**: This agricultural cooperative in Dinajpur was established with support from the COAST Foundation, which provided initial financial assistance and training. The cooperative helps its members by offering interest-free loans for rice cultivation and purchasing rice at competitive prices. Profits are shared among members, and the cooperative aims to expand its sales through online platforms, enhancing market access for its members. 3. **Kurigram Sadar Rice Cooperatives**: In the Kurigram district, rice farming cooperatives have emerged as a potential solution to the challenges faced by smallholder farmers. These cooperatives focus on collective marketing and provide members with access to better prices for their produce. The model promotes collaboration among farmers, allowing them to share resources and knowledge, thereby improving overall productivity and profitability.
III	**<u>FARM RESEARCH SET UP & THEIR BACK UP TO EXTENSION</u>**
3.1	- Details of Federal Research Institutes and their extension operations
3.2	- Regional(e.g. ATARI-India) /District (e.g. KVK – India) level set up and their programmes
3.3	- Provincial Agricultural Universities/Institutes and the details of their extension operations
3.4	- Linkages of Provincial Agricultural Universities to the extension programmes
3.5	- HRD interventions operated by the Provincial Agricultural Universities
IV.	**<u>EXTENSION MODELS IN OPERATION</u>** **<u>PUBLIC SECTOR</u>**

4.1

- **Details of Farm Extension Models, performance, constraints, etc**.
- Introduction of T&V System
- Integrated Commodity Production Programs

General flow of technical information within the Department of Agricultural Extension.

FLOW OF TECHNICAL INFORMATION



4.2

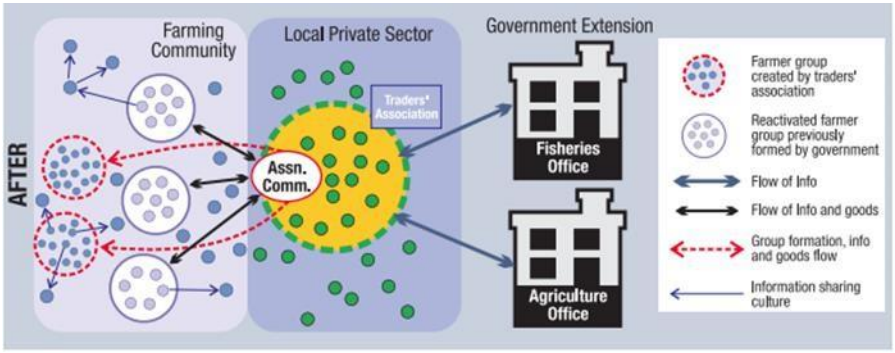
PRIVATE SECTOR

- **Details of Farm Extension Models, performance, constraints, etc.**
- **Market-led Extension**

  Private companies are increasingly engaging in market-led extension approaches. This involves working with agricultural trader associations to improve the outreach and responsiveness of extension services to farmers' needs. For example, agro-input retailers are providing advice to farmers on product usage and best practices.

- **Contract Farming**
  Contract farming arrangements between companies and farmers are another important private extension model. Companies provide extension services, inputs, and market linkages to farmers in exchange for guaranteed supply of agricultural commodities. This helps ensure quality and traceability while supporting smallholder farmers.
- **ICT-based Extension**
  Private companies are leveraging digital tools and platforms to supplement traditional extension methods. This includes providing information and advisory services to farmers via mobile apps, SMS, and interactive voice response systems. For example, some companies are using drones for precision farming and monitoring crop health.

  https://dae.portal.gov.bd/Extension_Mannual_Chapt3.pdf



MODEL INCLUDING THE PRIVATE SECTOR

Performance of Private Extension Services

1. **Effectiveness Compared to Public Services**: Research indicates that a majority of farmers perceive private extension programs as less effective in enhancing their farming skills compared to public services. Specifically, 81.46% of farmers surveyed believed private sector programs were inadequate in boosting their abilities, while 59.55% felt similarly about public sector services. This suggests that while private services are present, their effectiveness is often questioned by the farmers they aim to assist.
2. **Impact on Technical Efficiency**: Private extension services have shown some positive impacts on farmers' technical efficiency, particularly in specific regions like southwest coastal Bangladesh. However, the overall effectiveness in improving agricultural practices remains mixed, highlighting the need for better strategies and implementation in private service delivery.

Constraints Faced by Private Extension Services

1. **Communication and Resource Issues**: A significant constraint reported by farmers includes poor communication skills among extension workers and insufficient resources. These factors hinder effective delivery and engagement, which are crucial for successful extension services. The lack of proper training

	and resources for extension workers further exacerbates these issues, leading to a disconnect between service providers and farmers. 2. **Farmer Engagement and Participation**: Many farmers express challenges in accessing the services due to a lack of engagement and follow-up from private extension providers. The study indicates that educational background, perceived economic returns, and previous participation in extension activities significantly influence farmers' experiences with these services. 3. **Need for Policy Improvement**: The findings suggest that both public and private extension services need to reassess their strategies to improve effectiveness. Policymakers are encouraged to enhance coordination between different service providers and ensure that extension services are tailored to meet the specific needs of farmers. This includes providing targeted training and resources to extension workers to improve their outreach and communication skills
V **5.1** **5.2** **5.3**	**<u>EXTENSION FOR FARM WOMEN AND FARM YOUTH</u>** - **Brief details for agri extension programmes for farm women and farm youth funded by the Centre** • The government is rolling out the 'ANGeL' program nationwide to train women farmers in order to develop dietary diversity, nutrition and financial gains, and cut medical costs. • A government commissioned 17-month pilot – Agriculture, Nutrition, and Gender Linkages (ANGeL) –gives it a proof of evidence that both the agricultural and dietary diversity enhances and more financial gains are ensured if women along with their male counterparts are provided with a combo training of farm production, nutrition and gender sensitization. • The ANGeL study run by the Ministry of Agriculture (MoA) in cooperation with Washington-based food policy think-tank International Food Policy Research Institute (IFPRI) among 4,000 farm households in 16 upazilas in equal number of districts, found out that a combination of agriculture, nutrition, and gender sensitization trainings produced great improvements in empowerment of women in agriculture. • **A recent study** found that female participation in agricultural extension services resulted in a 16.36% increase in the Women's Empowerment in Agriculture Index over three years. - **Brief details for agri extension programmes for farm women and farm youth funded by the Provincial agencies** - **Brief details for agri extension programmes for farm women and farm youth funded by Other sources** • **Initiatives for Farm Women**

	1. **Bangladesh Agricultural Extension Society (BAES)**: • BAES promotes the development of agricultural extension practices, focusing on enhancing the skills and knowledge of women farmers. This includes training programs tailored to women's specific needs in agriculture. 2. **BRAC's Integrated Development Program**: • BRAC, one of the largest NGOs in Bangladesh, has a dedicated program for rural and farm women. It includes microfinance, training in agricultural practices, and income-generating activities, helping women enhance their agricultural productivity and economic independence. 3. **Women's Empowerment in Agriculture Index (WEAI)**: • Programs aimed at increasing women's participation in agricultural extension services have shown positive impacts on the WEAI, indicating improvements in women's empowerment and income levels. **Initiatives for Farm Youth** 1. **Youth in Agriculture Program**: • This initiative encourages young people to engage in agricultural activities by providing training in modern agricultural techniques, entrepreneurship, and the use of technology. It aims to attract youth to the agricultural sector, ensuring sustainability and innovation. 2. **Central Extension Resources Development Institute (CERDI)**: • CERDI provides training to extension officials, including programs focused on youth engagement in agriculture. It aims to equip young farmers with the necessary skills and knowledge to thrive in the agricultural sector.
VI.	**<u>PRIVATE SECTOR EXTENSION INTERVENTIONS</u>** - Brief details for agri extension programmes focused on farm entrepreneurs, start-up, partnerships and promoted by the private sector at various levels **Agri-Tech Start-Ups** 1. **iFarmer Technologies** • Founded in 2018, iFarmer focuses on helping small-scale farmers maximize profits through data and technology. It provides a comprehensive package that includes financing, farm inputs, advisory services, and market access, effectively linking farmers with institutional buyers and minimizing reliance on middlemen. 2. **Farming Future Bangladesh (FFB)** • This organization aims to improve access to modern agricultural innovations and promote sustainable food security. FFB engages in community empowerment and communication to enhance the

	agricultural landscape in Bangladesh, particularly through science-based solutions. 3. **Agriventure Limited** • Established in 2023, Agriventure seeks to revolutionize agriculture by providing marginalized farmers with access to finance, training, and high-quality inputs. Their holistic approach aims to uplift farmers' productivity and livelihoods while ensuring food security. 4. **Deshifarmer Limited** • This platform promotes climate-smart agricultural practices and aims to create a direct link between farmers and consumers, enhancing the supply chain efficiency. 5. **Khamar-e Limited** • Founded in 2019, Khamar-e addresses the challenges of access to quality inputs and fair pricing for farmers. It provides veterinary support, training, and a digital profile for farmers to facilitate better market access. 6. **Fashol** • Connects farmers with retailers and B2B customers. Fashol sources agriculture directly from farmers and supplies to retailers and customers. 7. **AgroShift** • Sources agriculture produces directly from farmers and sells to micro-retailers and customers. Micro retailers can order digitally and Agroshift collects produce from farmers through an established process. 8. **iPage** • Provides easy access to all required agricultural information on time for a better productivity and enhanced profitability. 9. **WeGro** • Connects individual and institutional financiers with farmers and their agricultural projects. 10. **Bhalo** • Input marketplace. Helps farmers to access high-quality inputs and agriculture advisory
VII.	**<u>MEDIA SUPPORT TO EXTENSION</u>** Huge Media support for extension services providing by print and Electronic and social (facebook, youtube, agricultural apps, whatapps, etc.) media. **Extent of use of print media, fairs and exhibitions, radio and television (public and private), community radio** **Print Media** • Krishi Katha (Agriculture Story) - A monthly magazine published by the Department of Agricultural Extension (DAE) in Bangladesh • Krishibid - A monthly magazine published by the Bangladesh Agricultural University Alumni Association

Radio Programs

- Krishi Khamar (Agriculture Farm) - A weekly radio program broadcast by Bangladesh Betar (national radio) covering various agricultural topics
- Mati O Manush (Soil and People) - Another popular agricultural radio program aired by Bangladesh Betar

TV Programs

- Mati O Mati (Soil and Earth) - A weekly TV show aired by Bangladesh Television (BTV) focusing on agriculture and rural development
- Krishi Jijñasa (Agricultural Curiosity) - A TV program broadcast by Channel i, a private TV channel in Bangladesh, that discusses agricultural innovations and best practices

Some other notable agricultural media outlets in Bangladesh include:

- Krishibid Journal - A quarterly journal published by the Bangladesh Agricultural University
- Krishi Projukti Handbook - A handbook on agricultural technologies published annually by the Bangladesh Agricultural Research Institute
- Krishikatha - A fortnightly newspaper published by the Department of Agricultural Extension

Print Media

- Various print publications in Bangladesh regularly feature articles and reports on food technology, food security, crops and other agricultural topics to disseminate information to farmers.
- However, a study found that agricultural news only makes up about 1.36% of content in mainstream Bangladeshi newspapers.

Radio

- Bangladesh has 42 radio stations, including 23 commercial FMs and 18 community radios that cover agricultural topics.
- Some agricultural community radios are gaining popularity locally.

Television

- Bangladesh has 34 electronic media channels, including 4 state-owned TV channels that cover agriculture.
- It was suggested that Bangladesh could benefit from having a dedicated agricultural TV channel at the national level

Grain Tech Bangladesh

- Held biennially in November, the next edition is scheduled for November 20-22, 2025.
- It is a major exhibition showcasing the latest technologies and innovations in the grain industry.

Agro Machinery Fertilizer & Seeds Expo

- Held biennially in November, the next edition is scheduled for November 2024.
- This expo focuses on agricultural machinery, fertilizers and seeds.

	Feed Tech Bangladesh • Held biennially in November, the next edition is scheduled for November 2024. • It is an exhibition dedicated to the animal feed industry. - **Efforts made in developing and delivering contents, treatment and impact assessment.** Efforts made in developing and delivering contents through print media for improving agricultural productivity in Bangladesh: 1. Print media regularly features articles on food technology, security, and crop management, which help inform farmers about best practices and innovations in agriculture. Studies indicate that printed materials are particularly effective in reaching farmers, especially in rural areas where access to other forms of media may be limited. 2. Approximately 71% of farmers surveyed acknowledged the effectiveness of print media in providing agricultural information, suggesting it is a valued component of their information ecosystem. Print media significantly influences farmers' practices and decision-making, helping bridge the knowledge gap and enabling the adoption of improved agricultural practices. 3. The Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh Agricultural Development Corporation, and Bangladesh Water Development Board used print media to popularize modern fertilizers and technologies during the early stages of the Green Revolution. Multiple NGOs and government institutions came forward to revolutionize Bangladeshi agriculture through print media and make the Green Revolution successful.
VIII. 8.1	**<u>ICT APPLICATION INNOPVATIONS IN EXTENSION THROUGH PUBLIC AND PRIVATE SECTOR</u>** - **Major ICT Application initiatives in agriculture & allied sector like Websites and Portals, Emails, Video Texts, You tube channels, Phone in Programme, Community Call Centres,Video Conferencing/ Webcasting, Mobile apps, etc.** The major ICTs includes Gono kendras of BRAC, D.NET-Pallitathaya Kendra, GP-Communication Information Center, RDA (Bogra), Dam (Gonokendra), Ghat-Rural ICT Center, YCMC (Youth Community Multimedia Center), RTC of Practical Action, Amader Gram of BEFS , BNNRC, Bangladesh Computer Council, AIS of the Ministry of Agriculture, Hridoye Mati o Manush by Channel–I and Coast Bangladesh etc.

8.2	In Bangladesh, tele centre development has been spearheaded by Grameen phone, Amader Gram and the Society for Economic and Basic Advancement (SEBA). BRAC (the Bangladesh Rural Advancement Committee) set up community learning centers (Gono Kendra) throughout Bangladesh, and Grameenphone has set up a Community Information Centre (GPCIC) in each Upazilla (Thana). A D.Net project has stressed the importance of livelihoods content in local dialects and has developed a content compendium and tested the impact of this among villagers through Pallitathya Kendra (Rural Information Centers) in four districts in 2005. Agricultural Information Service has piloted 10 farmers community based Call Centers in rural areas. The Department of Agricultural Marketing (DAM) with support from the Food and Agriculture Organization (FAO) Grameen's Village Phone Project has helped expand the rural mobile base. Another mobile operating company **Banglalink** launched a new e-service for the farmers 'Banglalink Jigyasa 7676' which will provide suggestions and answers to any queries related to agriculture, vegetables and fruit farming, poultry, livestock, fisheries etc. The service will give people with easy access to advice and solutions to agriculture-related problems. **Prime Minister's Access to Information (A2I) Initiative:** The A2I initiative aims to establish Union Information Service Centers in all 4,554 unions (the smallest rural administrative units) by 2020 to provide citizens, including farmers, with access to information and services through ICT.
8.3	- **Use of social media in extension (facebook, whatsApp, Instagram, Twitter, Pinterest, LinkedIn, etc.)** 1. **Facebook** and **YouTube**: • Extension agents predominantly use Facebook to share agricultural information, engage with farmers, and provide updates on best practices. A study by ***Ghosh, M. K et al.,*** indicated that 46.7% of extension staff utilized both Facebook and YouTube to communicate with farmers, with 33.3% favoring Facebook for its wide reach and user-friendly interface. • Facebook groups serve as community forums where farmers can ask questions, share experiences, and receive advice from extension agents. - **List of important weblinks of Extension Service Providers at different levels National Level** • Department of Agricultural Extension (DAE): https://dae.portal.gov.bd/

	• The official website of the DAE, which oversees agricultural extension services in Bangladesh. • Bangladesh Agricultural Research Council (BARC): https://www.barc.gov.bd/ • BARC coordinates agricultural research in Bangladesh, including the development of ICT-based extension tools. • Access to Information (a2i) Programme: https://a2i.gov.bd/ • A national program focused on digital transformation, including initiatives for digital agriculture and extension. **District and Upazila Level** • Upazila Agricultural Extension Offices: • Each upazila (sub-district) has an agricultural extension office that coordinates ICT-based extension activities at the local level. • Union Digital Centres: https://udc.gov.bd/ • These centers provide access to digital services, including agricultural information, at the union parishad (local government) level. **NGO and Private Sector Initiatives** • Katalyst: https://katalyst.com.bd/ • A market development project that has facilitated various ICT initiatives for agricultural extension, such as e-Krishok. • D.Net: https://www.dnet.org.bd/ • An NGO that has pioneered the "Info-Lady" model, using women entrepreneurs to provide agricultural and other information services to rural communities. • BIID: https://biid.org.bd/ • Bangladesh Institute of ICT in Development, which has implemented the e-Krishok initiative for digital agricultural extension. • mPower Social Enterprises: https://mpower-social.com/ • Develops digital solutions for agriculture, including mobile apps and platforms for extension services
IX. **9.1**	**LISTING OF INNOVATIONS AND SCOPE FOR CROSS LEARNING** - **Listing of extension innovations across sectors and various levels with perceptible impact.** Innovations in rural extension in Bangladesh that have had a significant impact: **Pluralistic, Decentralized Extension Approach** Bangladesh has adopted a pluralistic, decentralized extension system involving public agencies, NGOs, private providers and farmer groups. This allows for more localized, targeted strategies to reach marginalized smallholders. **Integrated, Value Chain Approaches** Extension efforts are increasingly taking an integrated, value chain approach to sustainably increase production, incomes, and address poverty, nutrition and climate challenges. Examples include: • Seed production and distribution systems • Crop and soil fertility management

	• Postharvest technologies • Integrated rice-duck farming **Innovative Extension Methods** The PETRRA project explored new extension methods like: • Women-led group extension • Farmers' Business school • Whole family approach • Participatory video • "Going Public" events • Krishi Bioscope • iPicture songs These participatory approaches have shown potential for replicability and scaling-up. **Partnerships Across Sectors** Effective extension relies on partnerships linking government, non-government and private sectors as appropriate. For example, the PETRRA project brought together diverse stakeholders to develop and disseminate innovations.
9.2	
9.3	- **Scope for cross learning on Extension innovations with other Provincial agencies** - **Scope for cross learning on Extension innovations with other Partner Countries** **Delegation Visits and Workshops:** Bangladesh has participated in delegations, such as the one organized by the Modernizing Extension and Advisory Services (MEAS) initiative, which included officials from Bangladesh, India, and Nepal. These visits facilitate the exchange of ideas and experiences related to agricultural extension systems and practices. For instance, discussions during a workshop in Washington, DC, focused on improving extension systems, empowering smallholder farmers, and evaluating the effectiveness of subsidies, which are critical for adapting extension services in Bangladesh. **Innovative Extension Mechanisms:** Bangladesh has been highlighted for its innovative approaches to rural extension, which include partnerships among government, non-governmental organizations, and private entities. These mechanisms can serve as models for other countries facing similar challenges. The learning-by-doing process in Bangladesh's extension services can be adapted and shared with partner countries to enhance their own systems. **Multi-Stakeholder Platforms:** The establishment of multi-stakeholder innovation platforms can enhance collaboration among various actors in the agricultural sector. These platforms can facilitate knowledge sharing and the co-creation of solutions tailored to local contexts. Bangladesh can learn from successful implementations in other countries and adapt these models to

	strengthen its extension services.

	Digital Technologies: The integration of digital tools into extension services is a growing trend. Bangladesh can benefit from learning how other countries have successfully leveraged digital technologies to improve access to information and services for farmers. This includes the use of mobile applications, online training, and data analytics to enhance the effectiveness of extension programs. **Adaptation of Proven Models:** Bangladesh can explore the adaptation of proven extension models from other regions. For example, the Developing Local Extension Capacity (DLEC) project emphasizes the importance of locally relevant and cost-effective extension systems. By collaborating with international partners, Bangladesh can identify best practices and tailor them to its specific agricultural context. **Capacity Building and Training:** Strengthening the capacity of extension professionals through training and participatory approaches is essential. Cross-learning initiatives can help Bangladesh develop more effective training programs that incorporate successful strategies from other countries, thereby improving the overall quality of extension services.
X.	**LESSONS FOR FUTURE EXTENSION INTERVENTIONS AND COLLABORATIONS** - Specific Areas identified for strengthening farm extension services - Policy interventions - Programmes - Flexi Funding - Convergence of Extn Efforts - New HRD Interventions - PPPs in Extension - Extension in allied areas - Extension through private sector - Partnerships with CGIAR and other International Institutions institutes - Partnership with other countries - Strengthening ICT applications in Extension services across the sectors and at various levels - Application of Social Media in Extension Services - Interventions through credible NGOs, Farmer Empowered Groups, Farm Cooperatives, etc. - Funding possibilities

SOME RECOMMENDATIONS FROM INTERNATIONAL CONFERENCE IN RELATION TO AGRICULTURAL EXTENSION, Organized by BAEN and PRDIS at BCDM-BRAC, Savar, Bangladesh, dated on 02-03 February'2023

1.1 Farm sector is the chief economic determinant in South Asia. There is a need to double the agricultural production by 2030. Individuals, institutions and authorities in farm sector, should join together in providing integrated extension services through appropriate platforms and mechanisms for achieving Sustainable Development Goals (SDGs).

1.2 Commodity Interest Group (CIG) approach promoted by Bangladesh Agriculture Department and practiced widely in India, may be popularized to ensure sustainable agriculture in SAARC countries.

1.3 Strong and innovative networks are an imperative for sustainable agriculture development. Necessary steps may be taken to formulate policy interventions in order to create an enabling environment to effectively address the regional challenges through such Networks.

1.4 Policy reforms should focus on improving agricultural productivity, enhancing delivery systems, reducing food losses and wastage, promoting sustainable food systems and ensuring access to food and nutrition for all.

2.1 Strengthen circular economy in agri-food systems through better production, nutrition, environment and life styles to end hunger by 2030.

2.2 Sensitize/reorient the extension services on gender and nutrition issues by promoting Nutri-gardens along with establishment of Nutri-smart villages- at least one at the cluster level, integrating evidence-based food and nutrition programs to evolve innovative extension delivery systems to respond to the local and regional challenges.

1.5 Agricultural extension needs to address changing demands of an emerging dynamic agricultural system. Appropriate extension tools and techniques may be updated for transformative reforms in farm sector. Global networking and partnerships are also important in this context.

1.6 A strategy of institutional innovations in extension should be evolved which leverages the strengths of the Public and Private Sectors to serve the needs of the farming community.

1.7 There is need to promote Private Paid Extension (PPE) services in commercial/ horticultural crops, secondary and specialty agriculture requiring specialized technical backstopping.

1.8 The Corporate Sector may be encouraged to play a more significant role by investing part of their Corporate Social Responsibility (CSR) funds to create a private and more efficient extension system/model to complement the on-going public extension activities.

1.9 Enhance investment in education, research, agripreneurship and extension services to achieve much needed productivity gains.

1.10 Promote Integrated Farming Systems approach with location specific, demand driven technologies.

1.11 Nutritional education programs may be rendered more gender sensitive and incorporated into the school curriculum.

1.12 Focus on traditional linear knowledge transfer needs to be gradually replaced with a more flexible Agricultural Knowledge and Innovation system (AKIS) system.

1.13 Action research in extension may be promoted by involving farmers, scientists, rural advisors and non-governmental organizations (NGOs) as well as farmer-researcher networks.

1.14 Market Led Extension strategies should be focused on promoting farmer empowerment and value chain-based linkages with various marketing channels.

1.15 Agriculture development stands on five pillars- Research/ Technology, Land, Credit/Capital, Entrepreneurship and Extension. The fifth pillar of extension should be strengthened to support the transformation process by reinforcing the other four.

1.16 Capacities of Extension functionaries and farmers should be strengthened through appropriate institutional approaches to accelerate adaptation to Climate Smart Agriculture.

1.17 Strengthen research-extension partnerships and coordination mechanisms for scaling new technologies, promoting Natural Resource Management

(NRM), efficient conservation technologies, Climate Resilient Agriculture (CRA) and precision farming.

1.18 The Farmer Field Schools (FFSs) initiated and promoted by the FAO may be popularized in livestock, horticulture and fisheries. Farmer Field Schools may be strengthened to encourage market orientation and agripreneurship among farmers, so that the Field Schools also double as Farmers Business Schools.

1.19 Promote small-scale low-cost aquaculture technologies and practices for improving the rural livelihoods. Production and extension support systems may be updated and aligned with the fisheries sub-sector.

1.20 Media research in agriculture may be strengthened and utilized to improve content, treatment, delivery and feedback in Agricultural Extension System.

1.21 Social media (WhatsApp, Facebook, Twitter, Instagram, E-mails, Blogs, Vlogs, App-based services, etc.) need to be used effectively by networking farmers and offering them context-specific information eco-region wise. Farm-portals like Kisan Sarathi (India), TV, Radio broadcasts and Community Radio Stations (CRS) providing information on production/protection technologies, e-advisories, inputs/prices, e-marketing services and mobile applications need to be promoted.

1.22 Integrated Agricultural extension services promoted through Farmers' Information and Advisory Centre (FIAC) at block level under National Agriculture Technology Project (NATP) in India and Bangladesh may be strengthened and replicated with suitable modifications.

1.23 Extension in allied sectors like, Horticulture, Animal Husbandry, Dairy, Poultry, Fisheries, Agro-Forestry, Nutri-Cereals, Credit, Processing, Agribusiness, etc. needs strengthening and must be re-organized with location specific requirements.

1.24 Integrated Extension services may be delivered through convergence and Private-Public- Partnership mode with suitable institutional mechanisms in place.

1.25 Action plan may be drawn up to promote entrepreneurship among students in Agricultural Universities and entrepreneurship development institutions.

References on Bangladesh

1. Alauddin, M., & Biswas, J. (2014). Agricultural credit in Bangladesh: Present trend, problems and recommendations. Journal of Economics and Sustainable Development, 5(27), 11-22.

2. Azad, M. M., & Liton, A. I. (2017). The ICT in agricultural development of Bangladesh. International Journal of Engineering and Applied Sciences, 4(7), 257414.

3. Bangladesh: Desk Study of Extension and Advisory Services Developing Local Extension Capacity (DLEC) Project. (2017, March). https://baenbd.org/extension-and-innovation/

4. Bangladesh. HandInHand. https://www.fao.org/hand-in-hand/investment-forum-2022/bangladesh/en

5. Bangladesh Horticulture Development Board. https://en.banglapedia.org/index.php/Horticulture_Development_Board

6. Bangladesh Program on Agricultural and Rural Transformation for Nutrition, Entrepreneurship, and Resilience Design Report. (2023). https://webapps.ifad.org/members/eb/138/docs/EB-2023-138-R-14-Project-Design-Report.pdf

7. Bangladesh: Quarterly Report January- March 2022. Feed The Future Bangladesh Agricultural Infrastructure Development Activity. Usaid.gov. https://pdf.usaid.gov/pdf_docs/PA00ZDMX.pdf

8. Bhuiyan, M. S. A., Bhuiyan, A. F. H., Lee, J. H., & Lee, S. H. (2017). Community-based livestock breeding programs in Bangladesh: Present status and challenges. Journal of Animal Breeding and Genomics, 1(2).

9. Cereal Systems Initiative for South Asia (CSISA). (2015, July 8). Cross-learning to strengthen agricultural extension in south Asia. https://csisa.org/cross-learning-to-strengthen-agricultural-extension-in-south-asia/

10. Country profile – Bangladesh. FAO AQUASTAT REPORT. https://openknowledge.fao.org/server/api/core/bitstreams/bc4eb85f-74be-44aa-83aa-7bb8155b80b0/content

11. Department of Agricultural Extension. (2020). National Agricultural Mechanization Policy. Ministry of Agriculture, Government of the People's Republic of Bangladesh. https://dae.portal.gov.bd/sites/default/files/files/dae.portal.gov.bd/policies

12. Edu.Bd. https://fs.bau.edu.bd/

13. Farmers' Organizations in Bangladesh: A Mapping and Capacity Assessment. Bangladesh Integrated Agricultural Productivity Project. Technical Assistance Component. FAO. https://sustainabledevelopment.un.org/

14. Ghosh, M. K., Hasan, S. S., Maria, U., Akon, S., Ali, H., Moheuddin, M., & Al Noman, A. (2021). Social media in agricultural extension services: Farmers and extension agents' perspective. European Journal of Humanities and Social Sciences, 1(5), 36-43.

15. Kabir, M. H., & Islam, M. S. (2023). Effectiveness of public and private extension services in building the capacity of farmers: A case of Bangladesh.

16. Kiron, A. (2024). Cooperative farming in Bangladesh. SSRN. https://ssrn.com/abstract=4717327

17. Lightcastle Partners. (2021). Agricultural productivity in Bangladesh and green revolution: Where are we heading? https://www.lightcastlebd.com/insights/2021/08/agricultural-productivity-in-bangladesh-and-green-revolution-where-are-we-heading-3/

18. Mamun-Ur-Rashid, M., Kamruzzaman, M., & Mustafa, E. (2021). Women participation in agricultural extension services in Bangladesh: Current status, prospects and challenges. Bangladesh Journal of Extension Education, 1011, 3916.

19. Milovanovic, V., Smutka, L., & Jusufi, G. (2016). Cooperative farming potential for establishing food security within rural Bangladesh. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 64(6).

20. Mollik, B. A. (2022). Cooperative farming in Bangladesh and its future. SSRN. https://ssrn.com/abstract=4044971

21. National Agricultural Mechanization Policy 2020. Ministry of Agriculture, Government of the People's Republic of Bangladesh. https://dae.portal.gov.bd/sites/default/files/files/dae.portal.gov.bd/policies

22. Rahman, S., Hoque, M. J., & Uddin, M. N. (2021). Problems faced by crop farmers related to extension services provided by the Department of Agricultural Extension in Bangladesh. International Journal of Agricultural Extension, 9(3), 373-388.

23. Rehman, F., Muhammad, S. H., Ashraf, I., & Hassan, S. (2011). Factors affecting the effectiveness of print media in the dissemination of agricultural information. Sarhad J. Agric., 27(1), 119-124.

24. Syngenta Foundation. Agricultural services in Bangladesh. https://www.syngentafoundation.org/agriservices/wherewework/bangladesh

25. The State of Agri-tech Startups in Dhaka. Lightcastle Insights. https://www.lightcastlebd.com

26. Uddin, M. N. (2008). Agricultural extension services in Bangladesh: A review study. Department of Agricultural Extension Education, Bangladesh Agricultural University.

27. Van Mele, P., Salahuddin, A., & Magor, N. (Eds.). (2005). Innovations in rural extension: Case studies from Bangladesh. CABI.

Additional Weblinks:

28. https://www.harvestplus.org/countries/bangladesh/

29. https://ccafs.cgiar.org/regions/south-asia/bangladesh

30. https://www.aciar.gov.au/publication/aciar-annual-operational-plan/south-asia-region-program/bangladesh

31. https://www.rvo.nl/files/file/2022-05/Bangladesh%20horticulture%20sector.pdf

32. https://www.bedo.org.bd/fisheries-development-program/

33. https://pksf.org.bd/projects/pace/

34. https://www.aesanetwork.org/bangladesh/

35. https://bangladesh.ifpri.info/2019/04/empowering-women-in-agriculture/

36. https://www.jetro.go.jp/en/database/j-messe/country/asia/bd/

37. https://www.devex.com/news/how-media-can-boost-agricultural-development-in-bangladesh-82583

38. https://www.lightcastlebd.com/insights/2021/08/agricultural-productivity-in-bangladesh-and-green-revolution-where-are-we-heading-3/

39. https://prolinnova.net/innovations/bangladesh/