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Title: Sustainable mechanization with a focus on climate-smart crop residue management of Bangladesh

Presented by

Md Rafiqul Islam
Deputy Secretary
Ministry of Agriculture
Government of Bangladesh

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Brief Features of Bangladesh Agriculture

- **Agriculture** -the Center of our economy;
- **Alluvial Plain Land**: 78%;
- **Arable land**: 8.81 million ha;
- **Cropping intensity**: 198%;
- **Farm Household**: 16.88 million;
- **GDP Share: Agriculture 11.71%;** Industry 34.87%; Service 53.42%.



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National Mechanization Overview

- **Tillage & Irrigation**: Reached 90% to 95% mechanization;
- **Post-Harvest Threshing**: Well advanced at 80% to 85% adoption;
- **Bottleneck**: Sowing and transplanting remain under-mechanized at **less than 2%.**



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Land Preparation & Tillage and Irrigation

(Over 90 -95% Mechanized)

For Land Preparation & Tillage – Used machinery such as,	For Irrigation – Used Machinery such as,
Power Tillers (Two-Wheel Tractors);	Shallow Tube Wells;
Four-Wheel Tractors.	Low Lift Pumps;
	Deep Tube Wells &
	Electric Water Pumps.

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Planting & Seeding
(Less than 2% Mechanized)

 # For Planting & Seeding, used machineries are-

- Rice Transplanters;
- Seeders & Earth Augers;
- Labor used widely.



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Harvesting & Threshing and Post-Harvest & Processing

For Harvesting & Threshing, machinery used such as,	Post-Harvest & Processing, machinery used such as,
Combine Harvesters;	Grain Dryers;
Power Threshers;	Feed Machines.
Rice & Wheat Reapers.	

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Challenges of Agricultural Mechanization

Highly Fragmented Landholdings (small plots)	**Domestic Manufacturing Gap (local workshops satisfy only 10% to 20% of demand)**
High Initial Capital Cost;	Lake of Skilled Manpower
Formal Credit Gap;	Rural Unemployment Risks
Inadequate Rural Infrastructure.	

Government Initiatives

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- Bangladesh undertook a farm mechanization project from 2009 to 2013 (Phase I) & Later Phase II of the project from 2013 to 2019;
- It provides **50% to 70% direct price subsidies** to farmers for purchasing different agricultural machines;
- Subsidies on reapers, combine harvesters, rice transplanters, power threshers and seeders were continued;
- Benefitted 4,735,455 farmers;
- Government of Bangladesh adopted **National Agricultural Mechanization Policy, 2020.**

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Machinery supplied to Farmers under Project

Machinery	No. of machines distributed
Power tiller	47,873
Power thresher	9,163
Reaper	4,532
Combine harvester	3,209
Rice transplanter	127
Seeder	1,972
Foot Pump	1,600
Total	68,106

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Use of Straw in Bangladesh Currently

Animal feed (fodder), cattle fodder;	Packaging Material;
Livestock Bedding & Mulch;	Cottage Industries & Building;
Organic Fertilizer for Soil Health;	Rural Cooking Fuel;
Mushroom Cultivation.	Eco-Friendly Drinking Straws Energy production.

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Key Challenges for Straw Management

- Small and fragmented plots disrupt mechanized collection and baling difficult;
- Wet harvest conditions and monsoon rainfall make drying, storage and transport challenging;
- Farmers need straw for cattle feed, bedding, fuel and other household uses;
- Flood, cyclone, salinity, drought and heat stress increase the need for locally adapted practices.

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Need Initiatives to Climate Resilience, Crop residue Management

- Awareness building about environmental impact of straw burning;
- Introduce alternate and improved uses of straw;
- Increase machinery for crop straw collection;
- Seek assistance from regional/ donor agencies;
- Follow-up actions at the national level;
- Skilled manpower require for operation of machinery for managing straw.
- Adopt straw management policy;

Opportunities for Regional Cooperation

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- Share good agricultural practices at farmer's level;
- Knowledge transfer among countries;
- Regional and national level taskforce committee to follow-up straw management policy and the proper execution of the work plan;
- Require need-based innovation of machineries;
- Organize training on value-added straw production, retention, incorporation into soil, and operation of machinery;
- Access to Credit facilities to farmers to establish farm machinery manufacturing workshops.

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Thank You

Contact:

Tel: +8801796582980
Email: rafiq15506@gmail.com
Website: www.moa.gov.bd

