



Country Paper

BANGLADESH

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**Training Workshop on Sustainable Mechanization for Smallholder Farmers in Asia and Africa
in Support of the Sustainable Development Goals**

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CSAM



Location of Bangladesh



Bangladesh is a South Asian country that lies between 23°34' and 26°38' N latitude and between 88°41' and 92°41' E longitude. The country is bounded by India on the west, north, and northeast; Myanmar on the southeast; and the Bay of Bengal on the south.



Country Profile: Bangladesh

Area of Bangladesh	1,47,570 sq.km
Total population	164.7 million (2.18%)
Population density	1291 persons/ km ²
GDP	US \$ 118.42 billion
GDP Growth rate	7.05%
Per capita Income	US \$ 1950
Manufacturing Sector contribution to GDP	18%
Manufacturing Sector Growth rate	5.73%
Small and Cottage Industries	6.3%
Medium and Large Industries	5.5%



Agriculture in Bangladesh

Agriculture contribute to GDP	14.10%
Agricultural growth rate	2.60%
Total cultivable land	8.577 million ha
Cultivated fallow land area	0.223 million ha
Net cultivated area	7.95 million ha
Total crop area	15.44 million ha
Cropping Intensity	194%
Irrigated area	5.53 mha (69.56%)
Labour engaged in agriculture	40.6%



Crop Production in Bangladesh

Name of crops	Production (Million ton)	Remarks
Rice	33.80	Self sufficiency (8 th position in the world)
Wheat	1.15	75% shortage
Maize	3.89	50% shortage
Oilseeds	0.97	70% shortage
Pulses	1.03	70% shortage
Potato	10.32	32% Excess production
Vegetables	1.59	Self sufficiency (3 rd position in the world)
Fruits	5.07	10 th position



Agricultural Mechanization Country Profile

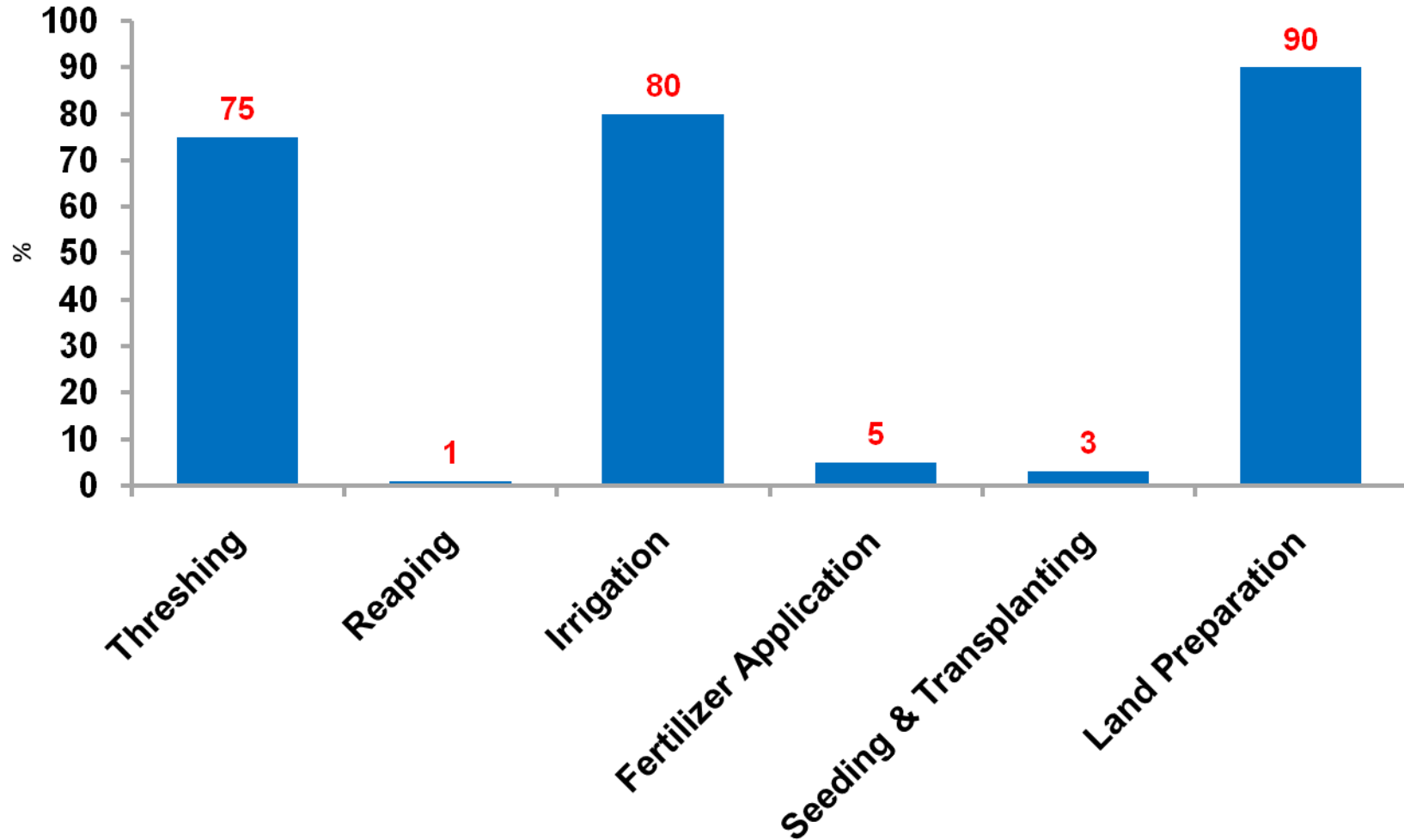
- Among many agricultural inputs, agricultural machinery plays an important role
- In recent past, significant improvements have been made in the production and marketing of locally made agricultural machinery
- this sub-sector is still recognized as non-formal sector and limited effort has been made (market demand and supply, domestic demand and potential for export)
- The machinery needs for production and post-harvest processing of crops has increased significantly in recent time
- This sub-sector remains unexplored and there is a huge potential for growth and employment generation.

Farm Machinery status in Bangladesh 2018



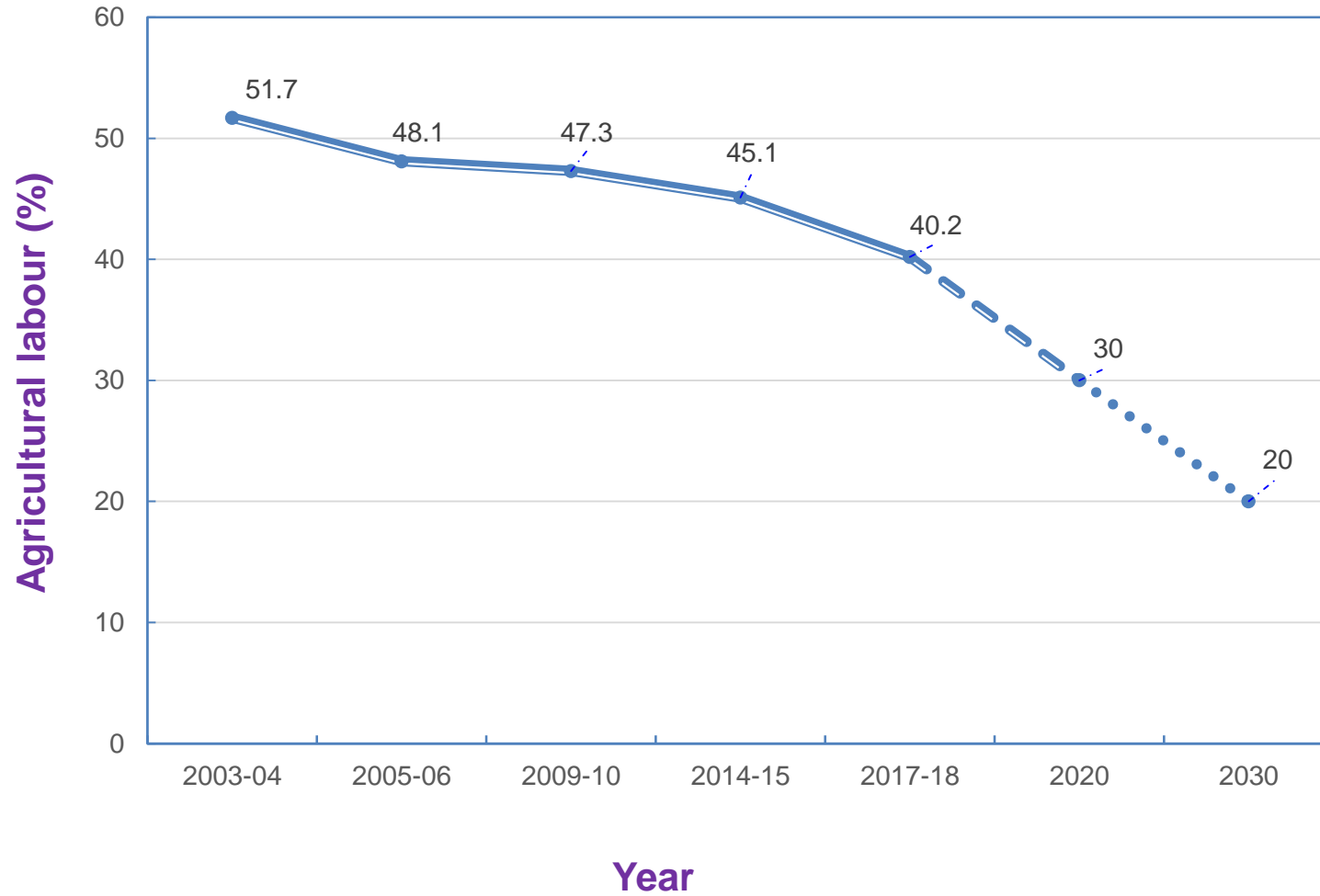
Sl. No.	Farm Machinery	Number of unit
1	Power tiller	7,00,000
2	Tractor	56,000
3	Seeder	5,000
4	Weeder	2,50,000
5	Irrigation pump	17,53,453 (DTW, STW & LLP)
6	Solar pump	1200
7	Sprayer	13,00,000
8	Rice transplanter	400
9	Combine harvester	1200
10	Reaper	3000
11	Open drum thresher	1,50,000
12	Closed drum thresher	2,20,000
13	Winnower	2,000
14	USG Applicator	18,000
15	Maize sheller	40,000
16	Sugarcane crusher	50,000

Present Status of Machinery Uses





Status of Agricultural Labour in Bangladesh



National Agricultural Machinery Strategy/Long- term Plan



- ❖ The Government has already attributed due importance to agricultural mechanization and machinery research.
- ❖ Government invested **30-70%** in the price of Agricultural machineries in terms of **Development Assistance as incentive** and distributed **65,329** different types of agricultural machinery among the farmers.
- ❖ Programs like modern machinery distribution, capacity building of village mechanics & operators, quality control measures and policy support activities for the agricultural machinery manufacturers & assemblers are working successfully.
- ❖ The Agricultural Mechanization Road map 2021, 2031 & 2041 is a great milestone for agricultural mechanization in Bangladesh that was approved in 2016 by the Government (MoA)



National Agricultural Machinery Strategy/Long- Term Plan

- ❖ This roadmap includes challenges, activities, implementation strategies, sources of fund and approximate fund for implementation etc.
- ❖ In order to achieve the vision 2021 & 2041 within the preview of national development plan, the said Roadmap will render effective and long term contribution in materializing modern, economic and profitable agricultural.
- ❖ National Agricultural Policy (NAP)–2018, Published by Ministry of Agriculture, Government of the People's Republic of Bangladesh and emphasized agricultural mechanization
- ❖ A draft Agricultural Mechanization Policy has been drafted and will be finalized very soon.



Agricultural Mechanization Road Map Targets

SI No.	Agricultural Operation	Present coverage (%)	Short term 2021 (%)	Medium term 2031 (%)	Long term 2041 (%)
1	Crop Planting	<1	20	40	80
2	Seed Sowing	3	25	50	80
3	Crop Harvesting	2	30	60	80
4	Irrigation efficiency	33	40	50	70
5	Fertilizer applicator	1	10	30	80
6	Weeding	2	5	15	30
7	Potato planting	0.1	10	30	80
8	Power Spraying	0	5	10	30
9	Maize Harvesting	0	5	10	60
10	Jute harvesting / Processing	0	10	30	80



Agricultural Mechanization Road Map Targets

SI No.	Agricultural Operation	Present coverage (%)	Short term 2021 (%)	Medium term 2031 (%)	Long Term 2041 (%)
11	Sugarcrop Planter and Harvester	0	10	30	60
12	Post harvesting processing of crop	0	10	30	80
13	Storage of crop	10	20	40	80
14	Renewable energy	1	10	30	50
15	Precession agricultural technology	0	5	20	50
16	Fruit harvesting	0	10	30	80
17	Conservation agricultural	0.1	5	20	40

Constraints and Challenges of mechanization



- Small and fragmented land (plot)
- Low purchasing power of most small scale farmers
- Lack of road access to fields
- Lack of modern manufacturing machinery in the workshop
- Inadequate technical know how of manufacturers to fabricate machinery/ high price imported raw materials
- Inadequate linkage among researchers, manufacturers, extension personnel, and progressive farmers
- Lack of awareness among the farmers to use machinery



Constraints and challenges of mechanization

- Lack of trained operator and mechanic
- Lack of appropriate extension personnel in the field level
- Very limited fund available for machinery research
- **Poor sale service system**
- Lack of adequate credit support
- Lack of sufficient policy support



Lessons Learned and Good Practices

- Research and development on agricultural machinery and equipment in Bangladesh is progressing
- Farmers want affordable and appropriate machines and implements to enhance production and productivity.
- Both ownership and custom hiring of farm machines are increasing in Bangladesh.
- Small size of farm holdings, high intensity of cultivation and need of soil conservation, reduction of harvesting and post harvest losses and value addition to the produces demand accelerated R&D activities.
- The above mentioned suggestions are expected to invigorate needed R&D activities to meet the expectation of the agricultural sector development of Bangladesh.



Recommendations

- ❑ Establishment of a 'Central Institute of Agricultural Engineering (CIAE)' for continuation of innovation through R&D with government organizations, non-government organizations & development partners initiatives
- ❑ Modernization of local foundries and workshops through collaboration and experience sharing activities among the Asia-pacific region and industrialized countries;
- ❑ Provide on-job training for the mechanics and technicians to develop their skill, efficiency as well as production of quality machinery and



Conclusions

- ❑ Strengthening capacity of agri-machinery entrepreneurs through transfer of proto-type machines and technologies and
- ❑ visiting and training of proper personnel in countries which have achieved success in developing and producing farm machinery.
- ❑ CSAM may continue organizing regional meeting and seminar for coordination and cooperation among the member countries.
- ❑ Collaborative R&D may be strengthened amongst member countries



Thank You



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