



1st Member Meeting of the Regional Council of Agricultural Machinery Associations in Asia and the Pacific (ReCAMA)

26-28 October 2015, Qingdao, China

At a Glance: Bangladesh

Area: 147,570 km² (94th in world) or 56,977 sq mile

Population: 156,594,962 (8th in the World) (According to 2013 estimate)

Capital City: Dhaka, 15 million population (approx)

GDP (Nominal): Total-US\$ 185.415 Billion

GDP per Capita: US\$ 1,314

GDP Growth Rate: 6.51%

Foreign Exchange Reserves: \$ 22.327 Billion

Bangladesh Agriculture at a Glance

| | |
|---|----------------------------------|
| Total area | 14.85 million hectare |
| Cultivable land | 8.44 million hectare |
| Single cropped area | 2.851 million hectare |
| Double cropped area | 3.984 million hectare |
| Triple cropped area | 0.974 million hectare |
| Net cropped area | 7.809 million hectare |
| Total cropped area | 13.742 million hectare |
| Contribution of agriculture sector to GDP | 23.50% |
| Contribution of crop sector to GDP | 13.44% |
| Manpower in agriculture | 62% |
| Total food crop demand | 23.029 million metric ton |
| Total food crop production | 27.787 million metric ton |
| Net production | 24.569 million metric ton |
| Land Usage in Rice & Wheat Production | 75% |
| Manpower required | 59 % |
| Available manpower (peak season) | 30% to 35% |

Mechanization Perspective of Bangladesh

Bangladesh have 1/50th of World Population & 1/3000th of World's Land

- But the labor is shifted to industrial sector due to drudgery of agricultural works and & Next Generation is not willing to involve in agricultural field job

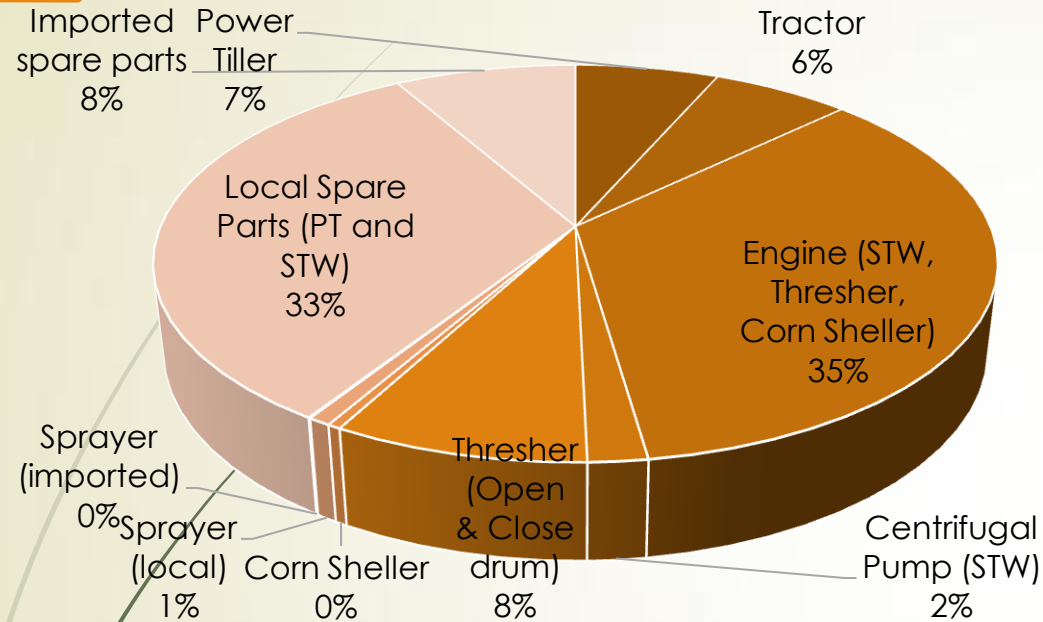
Because of this labor shifting during peak season time of cultivation & harvesting there is labor shortage by 40% level

- Daily Agricultural Wages & Per capita Income are getting higher, but farmer-end output price has not escalated much

Major Challenges in Farm Mechanization

- Fragmented Land Size, Improper Drainage System & Absence of Connecting Roads

Current Market Size of Agri-machineries



| Agri-Machineries | Current Population |
|------------------------------|--------------------|
| Power Tiller | About 6,50,000 |
| Tractor | 45,000 |
| Low Lift Pump | 260,000 |
| Centrifugal Pump (STW) | 1,625,000 |
| Thresher (Open & Close drum) | 600,000 |

| Agri-Machineries | Market Size/Year (USD, Millions) |
|--------------------------------------|----------------------------------|
| Power Tiller | 53 |
| Tractor | 51 |
| Engine (STW, Thresher, Corn Sheller) | 281 |
| Centrifugal Pump (STW) | 15.5 |
| Thresher (Open & Close drum) | 66.5 |
| Corn Sheller | 3.5 |
| Sprayer (local) | 6 |
| Sprayer (imported) | 0.5 |
| Local Spare Parts (PT and STW) | 263 |
| Imported spare parts | 67 |
| Sub-total | 807 |
| Repair & Maintenance | 191 |
| Total market size | 998 |

Source: Study by BAU & RDA

Currently used Agri-Machineries in Bangladesh



Tractors (30 to 90 HP) & Implements



Power Tiller
(12 to 16 HP)



Single Cylinder Diesel
Engines
(4 to 30 HP)



Rice & Wheat Reapers



Power Threshers



Hand Power Tillers



Centrifugal Pumps



Tractor Trolleys

Crop-based Technology to be adapted

Cultivation

- Already 95% has been mechanized

Paddy

- Transplanter, Reaper, Harvester, Thresher

Maize

- Maize Harvester, Seeder

Wheat

- Reaper, Wheat Harvester, Seeder

Potato

- Potato Planter, Potato Harvester



Seeder (Power Tiller Operated)

- Capacity: **0.9 acre/hr**
- Save irrigation water 11.6% in wheat and 66% in rice cultivation. Wheat yield is 25% higher over conventional seeding method.
- Cost saving: 67% than conventional



Potato Harvester

- Capacity: **0.27 ha/hr**
- Cost will be saved up to 75% level
- Labor & time will be saved up to 80% level
- Harvesting loss almost zero



Maize Harvester

- Capacity: **0.82 ha/hr**
- Cost saving: 78%, Time saving: 83% and labor saving: 87%
- Per kg production cost minimized by Tk. 1



Rice Transplanter

- Capacity: **0.33 acre/hr**
- Cost saving: 87%, Time saving: 81% and labor saving: 88%
- Per kg production cost minimized by Tk. 1.5



USG Applicator

- Efficiency of Fertilizer can be improved at 40-70% level
- Capacity: **0.33 Acre/hr**
- 7 working days/season, 107 kg in Boro, 50 kg in Aman and 54 kg Urea in Aush Season can be saved per hectare



Combine Harvester

- Capacity: **1 acre/hr**
- Cost saving: 74%, Time saving: 87% and labor saving: 87%
- Per kg production cost minimized by Tk. 1.8

**** This technology adaptation is on broad-based calculation, ±5% variability may occur dependent on usage**

Future Prospects- An Example

Total
cultivable
land in
Bangladesh

8.44

Mio. Ha.

Land
Usage in
Rice &
Wheat
Production

75%

Manpower
required
for
Production

59 %

Available
manpower
(peak
season)

**30% to
35%**

Harvester
required to
cover 10 %
of total
cultivated
land

**2605
units**

- ❖ Considering 100 days harvesting time for 3 seasons
- ❖ Minimum 8 hrs. operation of a harvester

Manpower Availability



Average Daily Wages

- Skilled: USD 6
- Semi-skilled: USD 4
- Un-skilled: USD 2.5

Availability of Skilled Manpower

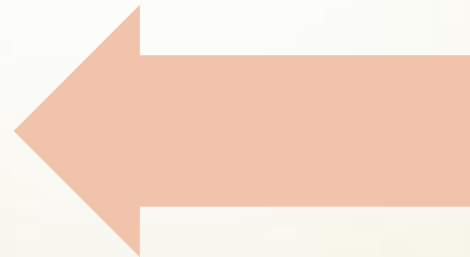
- Bogra, Rangpur
- Old Dhaka
- Other regions like Jessore, Comilla, Sylhet etc.



Areas of Collaboration

Introduction of
Modern Farm
Mechanization
Products in
Bangladesh
through export-
import

Set-up Production
or Assembling
Facility in
Bangladesh for
utilizing lower
wage manpower





Thank You!