

AGRICULTURE MACHINERY & TECHNOLOGY CENTRE

- An Apex Farm Mechanization Body in Bhutan

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Outline of the PPT

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- 4. Challenges**
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Bhutan's Agricultural Context

- Bhutan remains predominantly an agrarian society, with 42.7% of its population employed in the agricultural sector.
- A substantial proportion of these workers (**62%**) reside in rural areas.
- Interestingly, the sector sees **higher female participation**, with women making up **53%** of the workforce compared to 35.8% for men (LFS, 2025).



- Practice of mostly subsistence farming on mountainous terrain, with majority as marginal farmers
- Major Labour shortage in agriculture sector
- Less Access to Productive Resources such as Farm Technology
- **Need for adaptive technologies to address mountain/hilly agriculture problems**

ADDRESSING THE FARM MECHANIZATION CHALLENGES

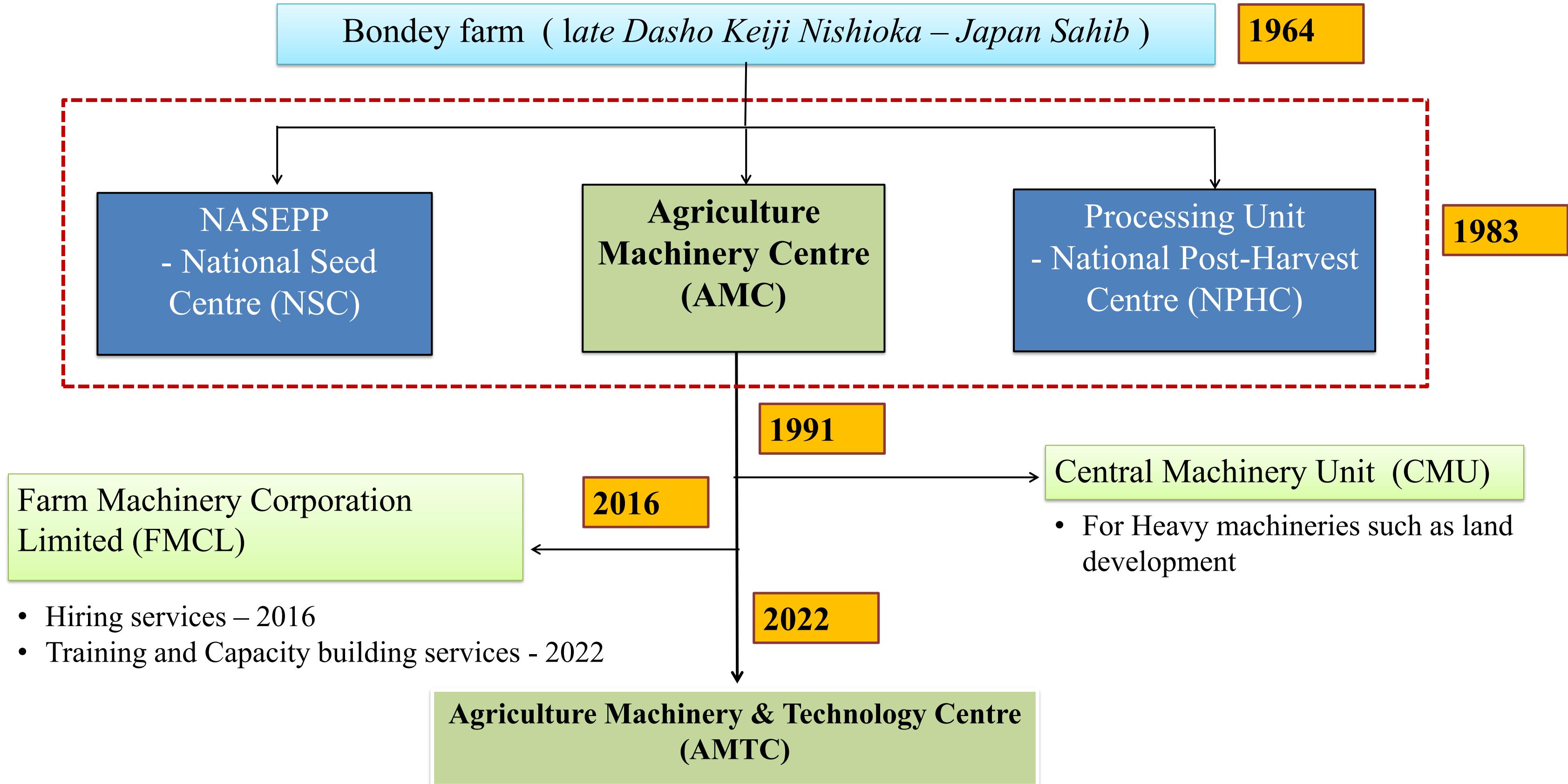
1. Government Policies and Strategies:

- i. Access to equal minimum wages.
- ii. Access to financial /credit services.

2. AMTC's Role as Apex Body for Farm Mechanization:

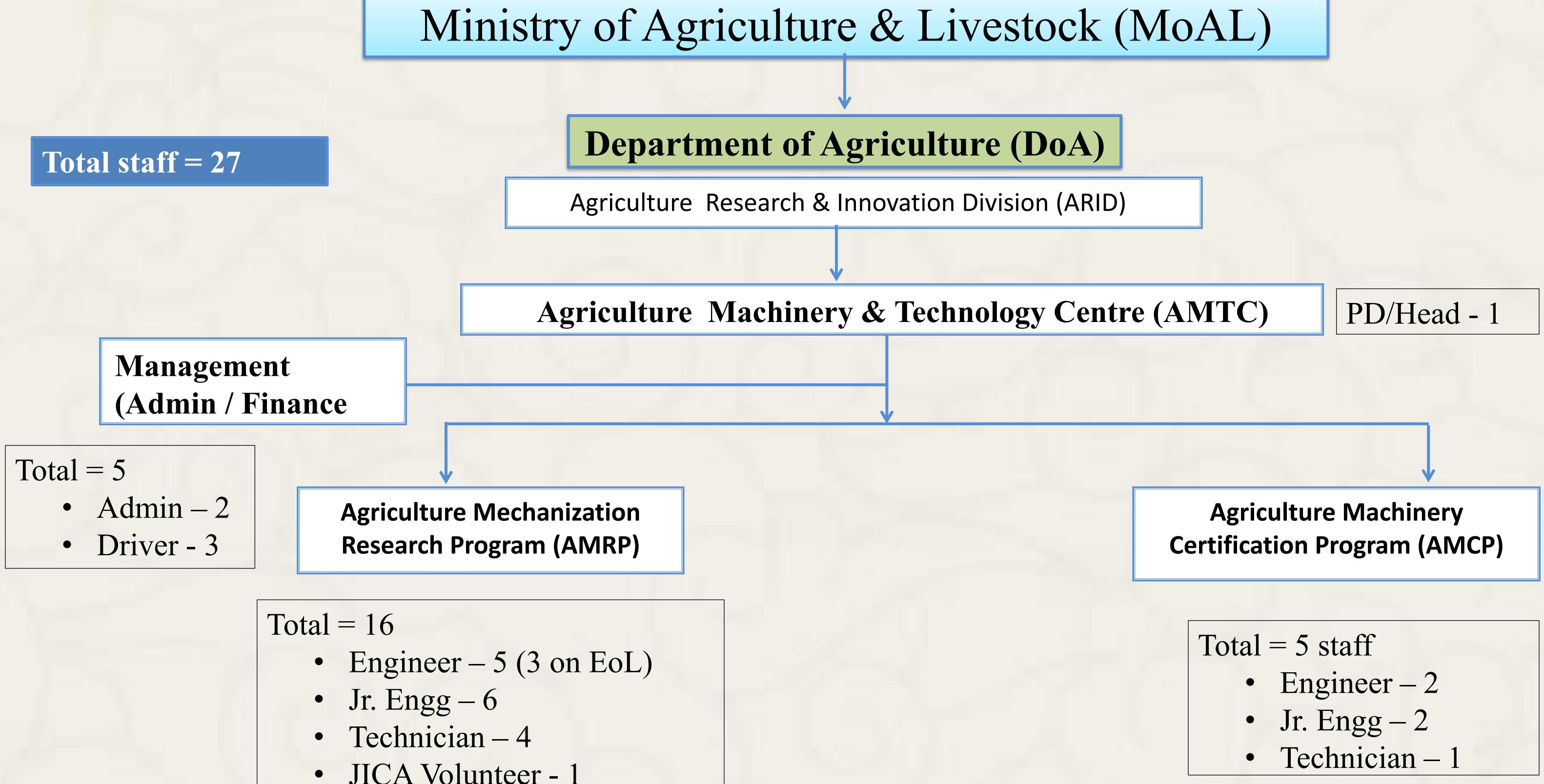
- i. Access to gender friendly technologies through R & D
- ii. Safe, Efficient and Quality Farm technology to all.

INTRODUCTION TO AMTC - HISTORY



VISION: *Centre for environmentally friendly, safe and quality farm mechanization technology source and usage*

ORGANIZATIONAL STRUCTURE



MANDATE

Ministry of Agriculture and Livestock/ Department of Agriculture

- Apex Farm Mechanization body in the country

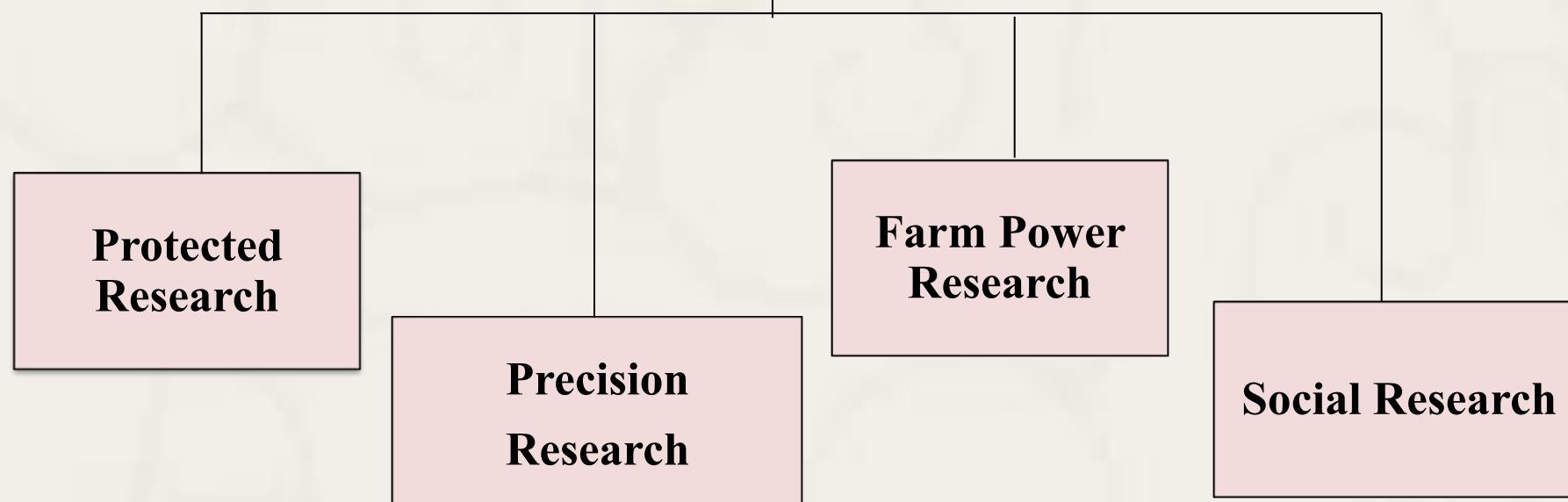
Agriculture Machinery and Technology Centre (AMTC)

MANDATE

- Promoting climate-smart mechanization
- Supporting national agricultural transformation

Agriculture Mechanization Research Program (AMRP)

Agriculture Machinery Certification Program (AMCP)



Formulation of STDs / Test Codes

Bhutan Standards Bureau (BSB)

Testing & Certification

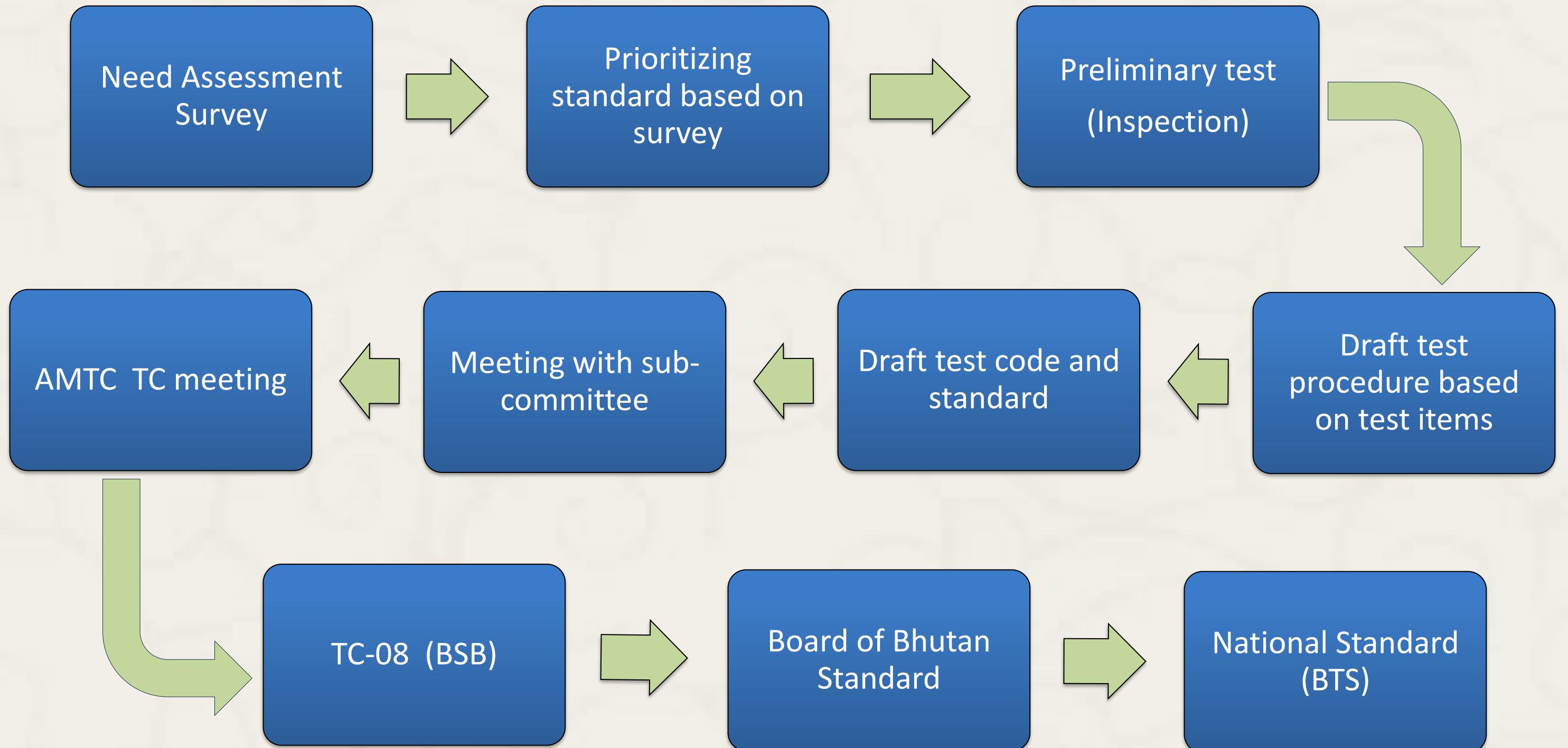
Machine Seller

- Ensure Safe, Efficient and Quality Farm Machines in the Country

Driving Standards and Certification for Safe, Efficient & Quality Agricultural Machinery

- Role of *Agriculture Machinery Certification Program in Bhutan*

1. FORMULATION OF STANDARD & TEST CODE PROCEDURE



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BHUTAN STANDARDS

Mini Power Tillers (Less than 10.5hp) – Basic Requirements (Part 1)



ICS 65.060.10

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BHUTAN STANDARDS BUREAU
The National Standards Body of Bhutan
THIMPHU 11001

December, 2019

Price group A

BTS 43: 2019

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BHUTAN STANDARDS

Mini Power Tillers (Less than 10.5hp) – Test Code (Part 2)



ICS 65.060.10

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STATUS OF FARM MACHINERY STANDARD & TEST CODE

A. 12 Bhutan Standards & Test Codes:

- 1) Tractor
- 2) Power tiller
- 3) Mini tiller
- 4) Power reaper
- 5) Knapsack sprayer
- 6) Portable brush cutter/power harvester
- 7) Grain mill/Flour mill
- 8) Rice mill
- 9) Oil Expeller
- 10) Corn Sheller
- 11) Cereal Flaking machine
- 12) Polyethelene (Greenhouse Plastic)

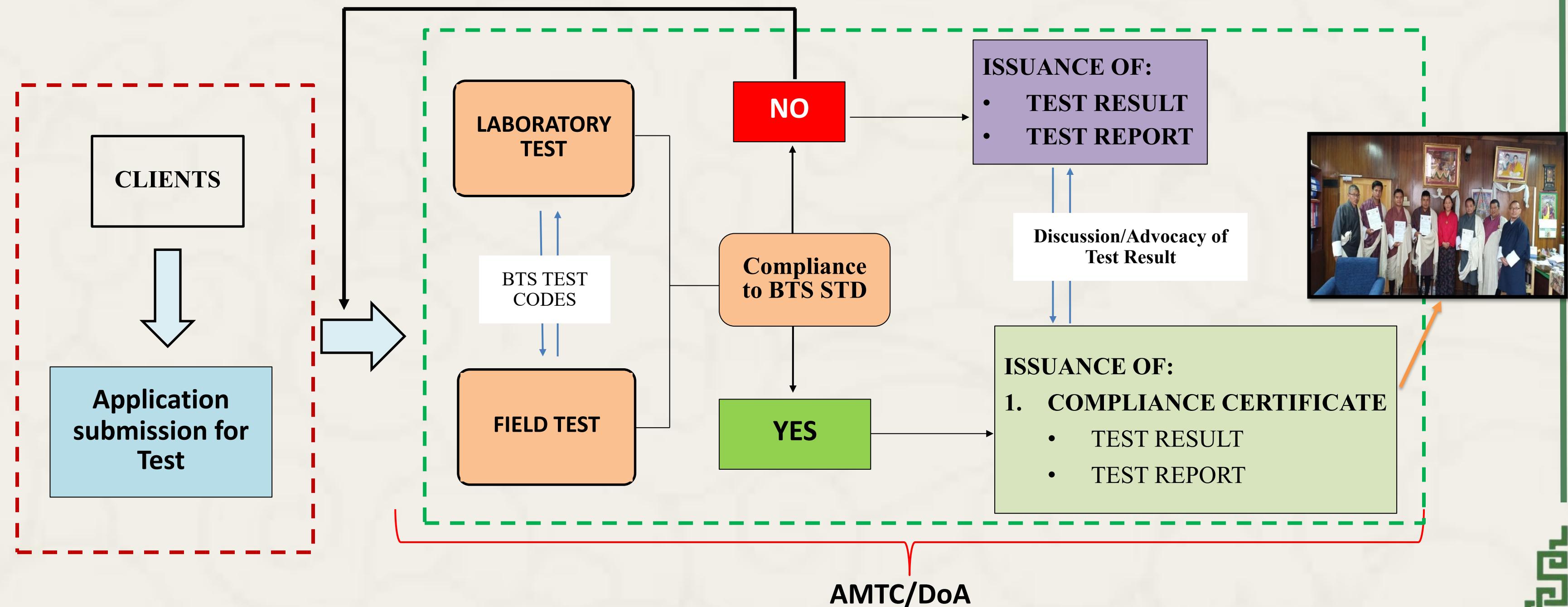
Other available standards at AMTC Level:

1. Plough share
2. Electric Fencing wire
3. Electric motor (single phase) - Submitted to BSB
4. Potato digger
5. Cardamom dryer
6. Power thresher
7. Rotary blade
8. Power weeder
9. Transplanter – Submitted to BSB
10. Electric motor – Submitted to BSB

2. FARM MACHINERY TESTING & CERTIFICATION PROCEDURE

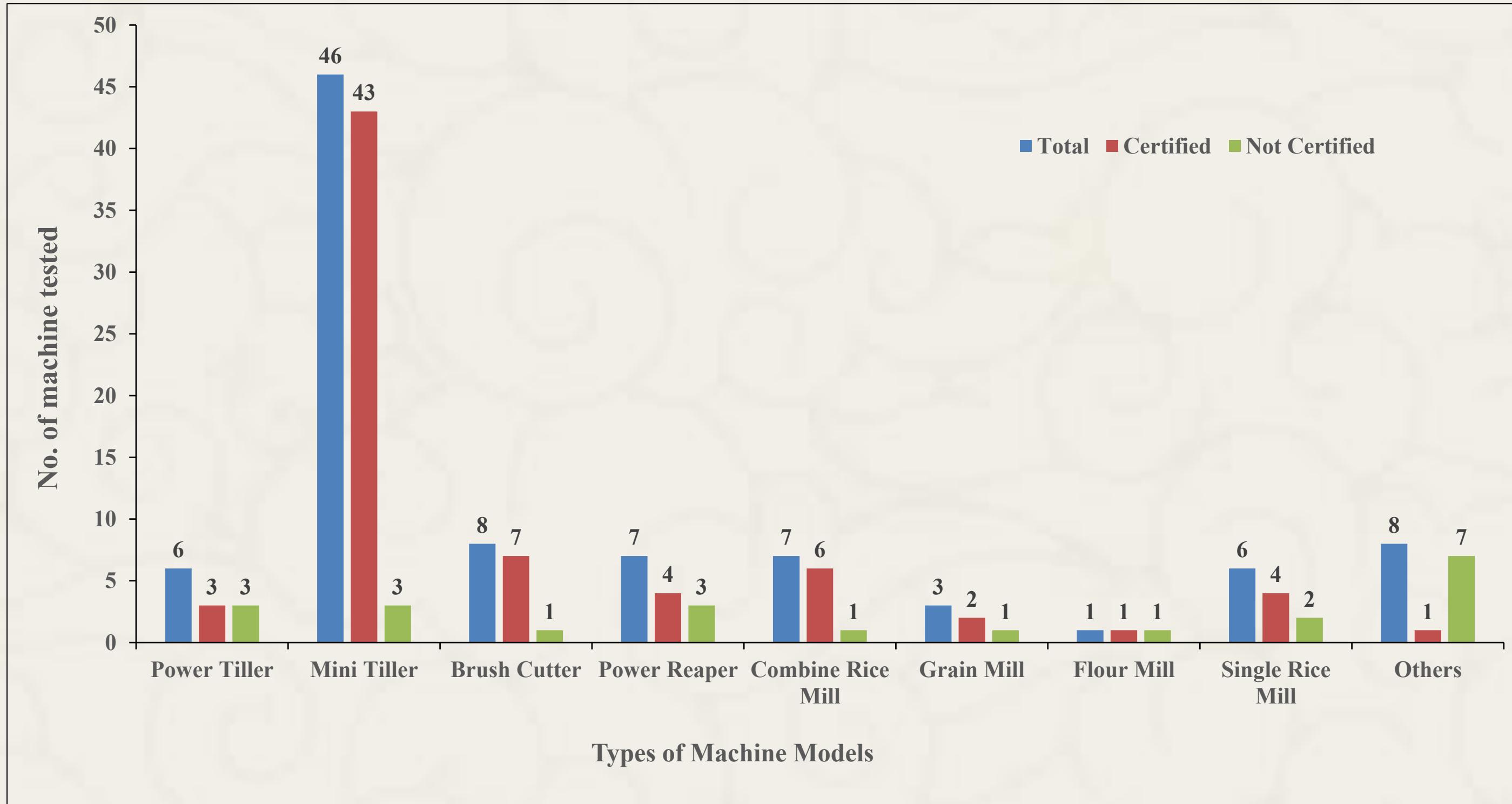
- Testing of Farm Machines are on Voluntary Basis

- No testing fee



KEY ACHIEVEMENTS

1. Number of machines tested and certified (Machine model)



KEY ACHIEVEMENTS

2. INSTITUTIONAL LINKAGES & COLLABORATION

1. Local Firms

SL. No	Name of the Firm
1	Farm Machinery Corporation Ltd. (FMCL), Bonday, Paro
2	Sonam Wangchuk Drongphen Dealer (SWDD), Lobesa, Wangdue Phodrang
3	Karma One Stop Shop, Babesa, Thimphu
4	State Trading Corporation Bhutan Ltd, (STCBL), Babesa, Thimphu
5	Depel Agro Tech Pvt. Ltd, Phuntsholing, Thimphu
6	Sonam Yargyel Enterprise, Thimphu
7	Sherab Enterprise, Near Nimazampa, Paro, Thimphu
8	Agrimart, Thimphu
9	JLW Enterprise, Near Nimazampa, Paro
10	Dukar Machine Tools, Thimphu
11	Bhutan Agri tech, Thimphu
12	Himalayan Tools & Machinery; Thimphu
13	Druk Horticulture, Thimphu

KEY ACHIEVEMENTS

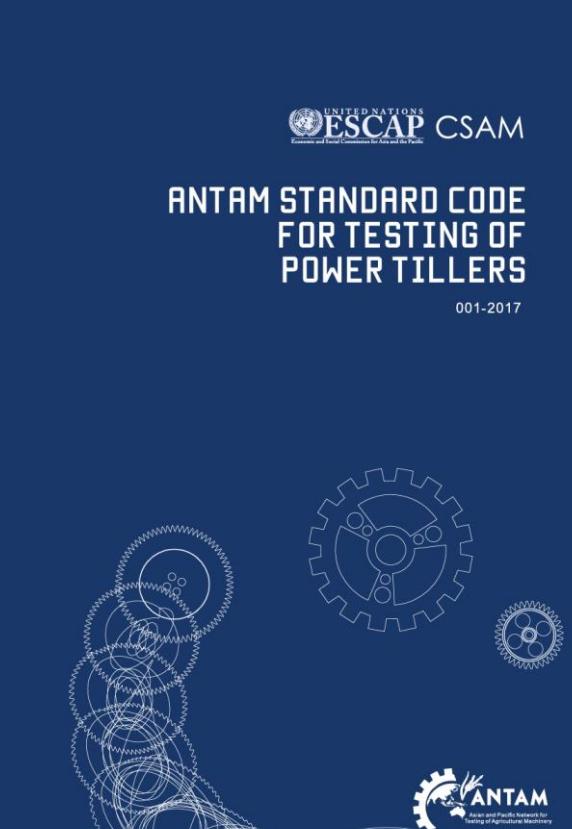
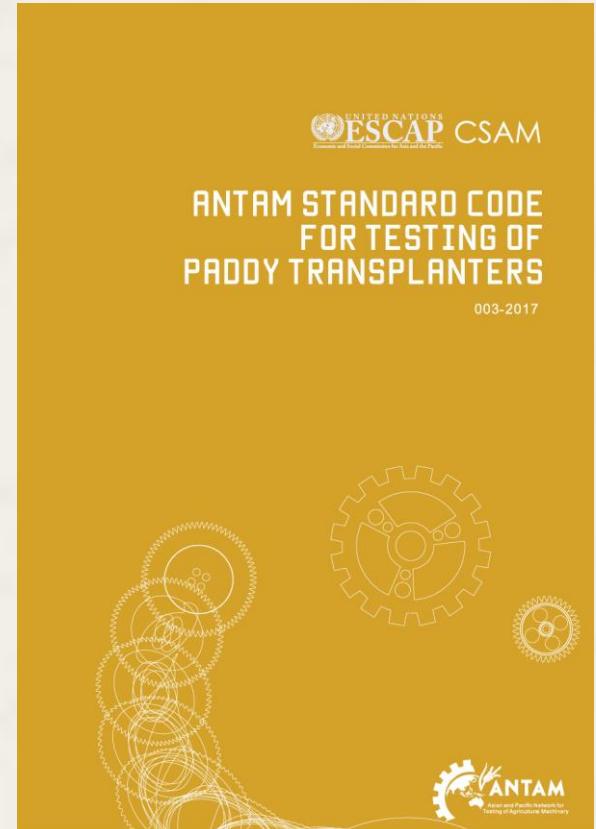
2. INSTITUTIONAL LINKAGES & COLLABORATION

2. ANTAM Membership

- Joined as member in 2019
- Contribution to ANTAM code as TWG members

Opportunities & advantages of being member:

- i. ANTAM Code adoption – Combine Harvester
 - Power tiller and Paddy Transplanter
 - Combine Harvester under deliberation phase at BSB
- ii. Regional capacity building
- iii. Cross-country collaboration for test code harmonization



CHALLENGES

Challenges:

- i. Limited Testing Equipment and Infrastructure
- ii. Difficult Terrain
- iii. Lack of Standardized Test Codes, specifically focused for Mountain/Hilly Regions
- iv. Lack of Skilled Testing Personnel
- v. Terrain-specific Adaptation Issues

EXPECTATIONS FROM ANTAM & MEMBER COUNTRIES; and WAYFORWARD

Expectations from ANTAM & Member Countries

- i. Technical support for laboratory development
- ii. Hands-on training on test codes
- iii. Joint research on mountain-oriented machinery
- iv. Knowledge exchange and study visits
- v. Possibility of regional certification pathway

EXPECTATIONS FROM ANTAM & MEMBER COUNTRIES; and WAYFORWARD

Way Forward

- i. Upgrading testing laboratory and facilities
- ii. Expanding to new mechanization domains (digital mechanization, precision tools)
- iii. Strengthening linkage with private sector and manufacturers
- iv. Moving towards Smart Mountain Agriculture



Deliberation with BSB



Vibration Test



Field Capacity Test



Sound Test



Soil Moisture Test



Soil Hardness Test



Fuel Consumption



Engine Test

THANK YOU