

# **National Data Requirement for a Regional Database of Agricultural Mechanization in Asia and the Pacific**

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# **Section 1 – General Information**

- 1.1 Geography- Location, Area, Land Use Classification**
- 1.2 Population- Total, Rural and Urban**
- 1.3 GDP- Total, Agriculture, Industry and Services, Per Capita Income (GDP)**
- 1.4 Labor Force- Total, Agriculture, Industry and Services**
- 1.5 Literacy – Urban, Rural**
- 1.6 Life Expectancy**

# **Section 2- Natural Resources**

- 2.1 Agro-ecological Zones/Regions**
- 2.2 Area under different Soils Groups/Types**
- 2.3 Land Holdings-Number, Percentage and Average under Class sizes**
- 2.4 Area under different Crops, Yields and Production**
- 2.5 Available Water- Rainfall, Ground Water, Rivers, lakes, Ponds**

# **Section 3- Agricultural Inputs**

- 3.1 Source wise and Crop wise irrigated area,  
Drip Irrigation**
- 3.2 Consumption of Fertilizers – Crop wise  
per ha**
- 3.3 Consumption of Pesticides – Crop wise  
per ha**
- 3.4 Institutional Credit, Subsidies**

# **Section 4- Power Sources**

- 4.1 Agricultural Workers- Total, Gender wise, Owner Cultivators and Hired Workers**
- 4.2 Draft Animals**
- 4.3 4-Wheel Tractors by size (hp)**
- 4.4 Power Tillers by size (hp)**
- 4.5 Diesel and Petrol Engines by size (hp)**
- 4.6 Electric Motors by size (hp)**

# **Section 5 - Tools, Implements and Machines**

- 5.1 Hand Tools**
- 5.2 Animal drawn Implements**
- 5.3 Stationary Machines- Pumps and Tube wells, Threshers**
- 5.4 Sprayers – Manual and Power operated**
- 5.5 Tractor drawn Equipment – Ploughs, Harrows, Tillers and Cultivators, Rotary Tillers, Seed-Fertilizer Drills, Weeders, Reapers, Binders, Combines, Laser Leveler**
- 5.6 Power Tiller drawn Equipment**
- 5.7 Self Propelled Machines – Rice Transplanter, Weeder, Reaper, Combine Harvester**

# **Section 6 – Post Harvest and Processing Equipment**

- 6.1 Cleaners, Graders, Dryers**
- 6.2 Grain Storage Structures**
- 6.3 Cold Storage**
- 6.4 Milling Machines for Grains, Pulses,**
- 6.5 Processing Machines for Fruits and Vegetables**
- 6.6 Processing Units/Plants**

# **Section 7 – Renewal Energy Sources**

- 7.1 Agriculture based Biomass, Biogas**
- 7.2 Biofuels - Sugarcane, Jatropha**
- 7.3 Solar Energy –Dryers, Photo-voltaic for Pumps, Electricity**
- 7.4 Wind Energy – Wind Mills for Water Pumps, Electricity**



# **Section 8 – Level of Mechanization**

- 8.1 Availability of Custom Hire Services –  
Operations and Crops**
- 8.2 For major Crops – Degree/Level of  
Mechanization Operation wise**
- 8.3 Overall Level of Mechanization?**

## Status and projection of agr. mechanization in surveyed regions: *Twelve levels of agricultural mechanization*

Level	Farm power characteristics	hand	Draught animal	tractors	Nomin. speeds (km/h)		No. of speeds forw./rev.	Shift	PTO speeds rpm
					forw.	rev.			
1	Predominantly hand power	> 80	<= 20	<= 5					
2	Significant use of draught animal power	46 - 80	21 - 39	<= 10					
3	Significant use of tractors	15 - 45	>= 40	<= 19					
4	Tractors predominant	20 - 50	15 - 30	20 - 49					
5	Fully motorized technology level I	<= 25	<= 25	50 - 75					
6	Fully motorized technology level II	<= 10	<= 10	> 75	2 - 20 (25)	3 - 8	6/2 - 8/2	8G, CB	540
7	Fully motorized technology level III	*	*	*	2 - 30	3 - 10	8/4 - 12/4	CB, 88	540(1000)
8	Fully motorized technology level IV	*	*	*	(0,5) 2 - 30 (40)	3 - 15	12/4 - 16/8	88, HL	540/1000
9	Fully motorized technology level V	*	*	*	(0,3) 2 - 40 (50)	2 - 20	16/12 - 36/36	88, FFB, FFB	540/1000
10	Fully motorized technology level VI	*	*	*	0 - 50 (60)	0 - 25	*	autom.	(750/1250)
11	Moderate share of autonomous vehicles								
12	Significant share of autonomous vehicles								

Source: Clarke et al. (2002) / Renus (2005), modified

# **Section 9 – Supply of Equipment and Machines**

- 9.1 Local Manufacture of Equipment and Machines**
- 9.2 Imported Equipment and Machines**
- 9.3 Export of Equipment and Machines**

# **Section 10 – Standards and Testing**

# **Section 11 – Education, Training and Extension**

- 11.1 Agricultural Engineering related Institutions (Degree and Diploma)**
- 11.2 Skill Training Institutions**
- 11.3 Extension Programs**

# **Section 12 – Future Needs of Mechanization**

- 12.1 Operations (Crop wize) needing mechanization now**
- 12.2 Operations (Crop wize) needing mechanization in next 5-10 years**
- 12.3 Resources needed - Technology, Human Resource and Finance (Credit/Subsidy)**

**Thanks**

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