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

<table>
<thead>
<tr>
<th>Level</th>
<th>Farm power characteristics</th>
<th>hand</th>
<th>Draught animal</th>
<th>tractor s</th>
<th>Nomin. speeds (km/h)</th>
<th>No. of speeds</th>
<th>8th</th>
<th>PTO speeds</th>
<th>rpm</th>
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<tbody>
<tr>
<td>1</td>
<td>Predominantly hand power</td>
<td>&gt; 80</td>
<td>&lt;= 20</td>
<td>&lt;= 5</td>
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<td>3</td>
<td>Significant use of tractors</td>
<td>15–45</td>
<td>&gt;= 40</td>
<td>&lt;= 19</td>
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<td>4</td>
<td>Tractors predominant</td>
<td>20–50</td>
<td>15–30</td>
<td>20–49</td>
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<td>5</td>
<td>Fully motorized technology level I</td>
<td>&lt;= 25</td>
<td>&lt;= 25</td>
<td>50–75</td>
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<td>&gt; 75</td>
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<td>2 – 30 (30)</td>
<td>3 – 10</td>
<td>CB, BB</td>
<td>540 (100)</td>
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<td>(0.5) 2 – 30 (40)</td>
<td>3 – 15</td>
<td>12/4 – 16/6</td>
<td>BB, HL</td>
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<td>(0.3) 2 – 40 (50)</td>
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<td>16/12 – 38/36</td>
<td>BB, PPB, FPB</td>
<td>540/100</td>
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<td>0 – 50 (60)</td>
<td>0 – 25</td>
<td>autom.</td>
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<td>11</td>
<td>Moderate share of autonomous vehicles</td>
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<td>12</td>
<td>Significant share of autonomous vehicles</td>
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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 wise) needing mechanization now

12.2 Operations (Crop wise) needing mechanization in next 5-10 years

12.3 Resources needed - Technology, Human Resource and Finance (Credit/Subsidy)
Thanks
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