Country Presentation

PHILIPPINES

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I. Introduction and background

Brief Description of the Country and its Agriculture
PHILIPPINES – was named after the King of Spain in 16th century King Phillip-II
Manila : Capital City
7,107 - Total no. of islands
300,000 sq.m. – Total land area
Division of land Area: Luzon, Visayas, Mindanao
Local Climate - hot (tag-init or tag-araw, March to May); humid (tag-ulan, June to November), tropical(taglamig, December to February)
12th most populous country in the world with 102,664,193 (ao October 9, 2016, UN Estimates)
Key Demographics

- 1.3% of the world population
- Population density: 343 per sq. km

Life Expectancy:
- Total population - 70.8 yrs
- male - 67.89 yrs
- female - 73.85 yrs
- 44.9% of the population is URBAN
- Median Age: 24.4 years
- Fertility rate: 3.01
Key Demographics

- Stable administration and an educated, English speaking workforce drive growth
- Asia’s predominantly Christian country
- Philippines enjoys one of the highest literacy rates in the world - 96.5% in 2013
- Youth literacy rate, 96.98%(M) / 98.94% (F)
Key Demographics

- Per capita GNI-Nominal USD3,660
  Rank 112 over 183 countries (2017)
- Global competitiveness /rank 52 over 144 countries
- Human development index/ rank 117 over 187 countries
- Per capita GDP USD 2,635
Languages

- Filipino -(official based on Tagalog)
- English – (official)
- Eight Major Dialects: Tagalog, Cebuano, Ilocano, Hiligaynon or Ilonggo, Bicol Waray, Pampango, and Pangasinan
- 170 languages throughout the country
SOCIO-ECONOMIC CHARACTERISTICS OF THE COUNTRY

• Philippines – a developing country with an economy anchored on Agriculture
• National Economy 37th largest in the world, 2017 – GDP – US$313.595B
• With substantial contributions from: manufacturing, mining, remittances from overseas workers and service industries like tourism
Agriculture plays a significant role in the Philippine economy. Involving about 40 percent of Filipino workers, it contributes an average of 20 percent to the Gross Domestic Product.
The Philippines has a land area of 30 million ha

- **9.5 million ha agricultural land**
  - 4.8 million ha are used for rice production
  - 2.6 million ha for corn production
  - 2.1 Million ha for major plants including coconut, sugar cane, banana, pineapple, cassava, rubber, mango, and vegetables.
KEY AGRICULTURAL PRODUCTS

RICE

CORN

BANANA

SUGAR CANE

COCONUT

MANGO
KEY AGRICULTURAL PRODUCTS

- Cassava
- Pineapple
- Pork
- Eggs
- Beef
- Fish
II. Situation analysis at country level

The level of mechanization remains low compared with other Asian countries that took the route to industrialization by initially bringing mechanization into their agriculture-based economies.
## II. Situation analysis at country level

**Level of Mechanization (hp/ha)**

<table>
<thead>
<tr>
<th>Country</th>
<th>1968</th>
<th>1990</th>
<th>Latest Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>3.00</td>
<td>7.00</td>
<td>18.87 (2011)</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>0.435</td>
<td>4.11</td>
<td>9.38 (2011)</td>
</tr>
<tr>
<td>People’s Republic of China</td>
<td>n/a</td>
<td>3.88</td>
<td>8.42 (2012)</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.348</td>
<td>0.79</td>
<td>4.2 (2009)</td>
</tr>
<tr>
<td>Vietnam</td>
<td>n/a</td>
<td>n/a</td>
<td>1.20 (2010)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.56 (2011)</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.198</td>
<td>0.52</td>
<td>1.23 (2011)</td>
</tr>
</tbody>
</table>
Brief History of Agricultural Mechanization in the Philippines

1521 (Pre Spanish era): Filipinos were using simple tools and machines

1890s: Agricultural machines from Spain and US were introduced into the country. They found applications in large estates.

1940s: Preferential tax incentives were given to imported agricultural machines. Mechanization was heavily biased to large scale farming.

1966-1980: The CB-IBRD loan encouraged the acquisition of four-wheel tractors, and later, small power tillers.

1970s: The Green Revolution saw the growth of local agricultural machinery manufacturing industry. A shift of model of mechanization from large scale to small scale.
## Comparative Production Cost

<table>
<thead>
<tr>
<th>Costs (P/kg)</th>
<th>Philippines</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>0.58</td>
<td>1.12</td>
<td>0.44</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>1.94</td>
<td>1.56</td>
<td>1.36</td>
</tr>
<tr>
<td>Pesticide</td>
<td>0.36</td>
<td>0.90</td>
<td>0.87</td>
</tr>
<tr>
<td>Hired Labor</td>
<td>3.76</td>
<td>0.66</td>
<td>0.46</td>
</tr>
<tr>
<td>Operator, Family, &amp; Exchange Labor</td>
<td>0.66</td>
<td>0.65</td>
<td>0.81</td>
</tr>
<tr>
<td>Animal, Machine, Fuel &amp; Oil</td>
<td>1.73</td>
<td>1.66</td>
<td>0.81</td>
</tr>
<tr>
<td>Irrigation</td>
<td>0.45</td>
<td>0.14</td>
<td>0.08</td>
</tr>
<tr>
<td>Land Rent</td>
<td>2.11</td>
<td>1.89</td>
<td>1.49</td>
</tr>
<tr>
<td>Interest on Capital</td>
<td>0.43</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td>Others</td>
<td>0.40</td>
<td>0.20</td>
<td>0.13</td>
</tr>
<tr>
<td><strong>Total Cost/kg</strong></td>
<td><strong>12.41</strong></td>
<td><strong>8.85</strong></td>
<td><strong>6.53</strong></td>
</tr>
</tbody>
</table>
Policies, Strategies and Programs on Agricultural Mechanization in the Philippines

Legislations in support to Agricultural Mechanization/Modernization

• Agriculture and Fisheries Modernization Act of 1997 (RA No. 8435)

• Agricultural and Fisheries Mechanization (AFMech) Law of 2013 (RA No. 10601)

• An Act Liberalizing the Importation, Exportation and Trading of Rice, Lifting for the Purpose the Quantitative Restriction on Rice and other Purposes (RA No. 11203)
Government Agencies with Roles in Agricultural Mechanization/ Modernization

• Philippine Center for Postharvest Development and Mechanization (PHilMech)
• Philippine Rice Research Institute (PhilRice)
• Philippine-Sino Center for Agricultural Technology (PhilSCAT)
• Philippine Council on Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST)
• Agricultural Machinery Testing and Evaluation Center (AMTEC)
• Center of Agri-Fisheries and Biosystems Mechanization (BIOMECH)
III. CONSTRAINTS AND CHALLENGES IN AGRICULTURAL MACHINERY ADOPTION (Rice & Corn Experiences)

❖ Small farm holdings

Table A – Number of Farms/ Holdings and Average Area per Farm/ Holding: 1980 and 2012

<table>
<thead>
<tr>
<th>Census Reference Year</th>
<th>Number of Farms/ Holdings</th>
<th>Average Area per Farm/ Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>3,420,323</td>
<td>2.84</td>
</tr>
<tr>
<td>2012</td>
<td>5,562,577</td>
<td>1.29</td>
</tr>
</tbody>
</table>

Source: PSA, Censuses of Agriculture and Fisheries 1980 and 2012

❖ Increasing population

1.72% growth rate per annum (2015 Census)
III. CONSTRAINTS AND CHALLENGES IN AGRICULTURAL MACHINERY ADOPTION (Rice & Corn Experiences)

❖ Extended use of old/inefficient machines

❖ Issue on reduced labor utilization/labor displacement
III. CONSTRAINTS AND CHALLENGES IN AGRICULTURAL MACHINERY ADOPTION (Rice & Corn Experiences)

❖ Lack of infra such as access roads that impede mechanization of less favorable or far-flung areas

❖ Lack of knowledge or awareness of some farmers about emerging mechanization technologies
III. CONSTRAINTS AND CHALLENGES IN AGRICULTURAL MACHINERY ADOPTION (Rice & Corn Experiences)

❖ Weak/non-viable structure of coop/org. movement (conduit for gov’t projects, corn farmers low membership)

❖ High investment cost on big machines/ Affordability
III. CONSTRAINTS AND CHALLENGES IN AGRICULTURAL MACHINERY ADOPTION (Rice & Corn Experiences)

❖ “Cut & weld” fabrication of local machineries and equipment

❖ Cultural background of farmers (traditions and customs of the IPs)
IV. Good Practices and Experiences

Custom hiring and rental practices

• Farmers who cannot afford to buy their own machines avail of the services offered by other farmers with single machine or sets of machines. (Custom hiring)
IV. Good Practices and Experiences

Custom hiring and rental practices

• In some areas of the country, there are privately-owned Farm Service Providers with sets of machines from production to postharvest (land preparation, seedling preparation, transplanting, harvesting and hauling).
V. Recommendations

Policy Issues, Directions and Strategies for Sustainable Agricultural Mechanization for Small Farm Holdings

1. Land Consolidation/Organize smallholder farmers into clusters to facilitate mechanization, establishment of irrigation systems and farm roads, delivery of support services and marketing

   - Farm sizes are predominantly small.
   - Use of large machines is not viable in small farms.

2. Setting-up operating models of clustered farms to showcase advantages for easier adoption

   “to see is to believe”
V. Recommendations

Policy Issues, Directions and Strategies for Sustainable Agricultural Mechanization for Small Farm Holdings

3. Formation of cooperatives/associations

4. Adoption of machinery pools/ Farm Machinery Service Centers as farmers’ access to agricultural machinery

5. Strong social preparation to change traditional practice in terms of land preparation & seedling preparations, among others of concerned farmers by extension workers of LGUs in collaboration with the concerned national government agencies
V. Recommendations

Policy Issues, Directions and Strategies for Sustainable Agricultural Mechanization for Small Farm Holdings

6. Collaboration of institutions involved in agricultural mechanization

7. Establish a centralized information service for agricultural mechanization

There should be readily available and updated information on:

- Mechanization statistics
- Market demands
- Available technologies
- Researches
- Directory of stakeholders
- Success cases of mechanization

8. Establish an agricultural machinery manufacturers accreditation and classification board
V. Recommendations

Policy Issues, Directions and Strategies for Sustainable Agricultural Mechanization for Small Farm Holdings

9. Joint-venture arrangements for local manufacture of critical machines

10. Exchange of prototypes

11. Develop and/or promote scale-appropriate machines for smallholder corn farmers, appropriate for smaller, rolling and/or less favorable production areas.

12. More aggressive information or educational campaign among stakeholders about the benefits of mechanization and availability of new technologies.
VI. Conclusion

Smallholder farmers in the rural communities need supports like **financing/credit access, market linkage, infrastructure** and **capacity building** to sustain their venture into agriculture.

**Government support** plays a crucial role in the sustainability of mechanization for smallholder farmers.

There is a need to **update obsolete data** on the level of agricultural mechanization through comprehensive assessment to guide the policy makers and planners in crafting plans and programs for the agriculture sector.

Provision of **credit facility** to farmers will allow them to buy the machines or equipment they needed for their farm.
Through Sustainable Mechanization:
Thank you!
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