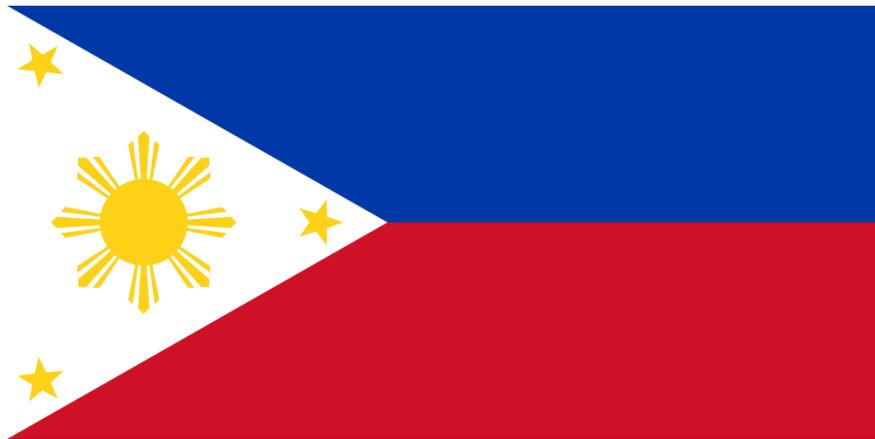


# Country Presentation

# PHILIPPINES



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**Training Workshop on Sustainable Mechanization for Smallholder Farmers  
in Asia and Africa in Support of the Sustainable Development Goals**

*12 – 18 May 2019, Nanjing, China*

# I. Introduction and background

## Brief Description of the Country and its Agriculture



# Key Demographics

- 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

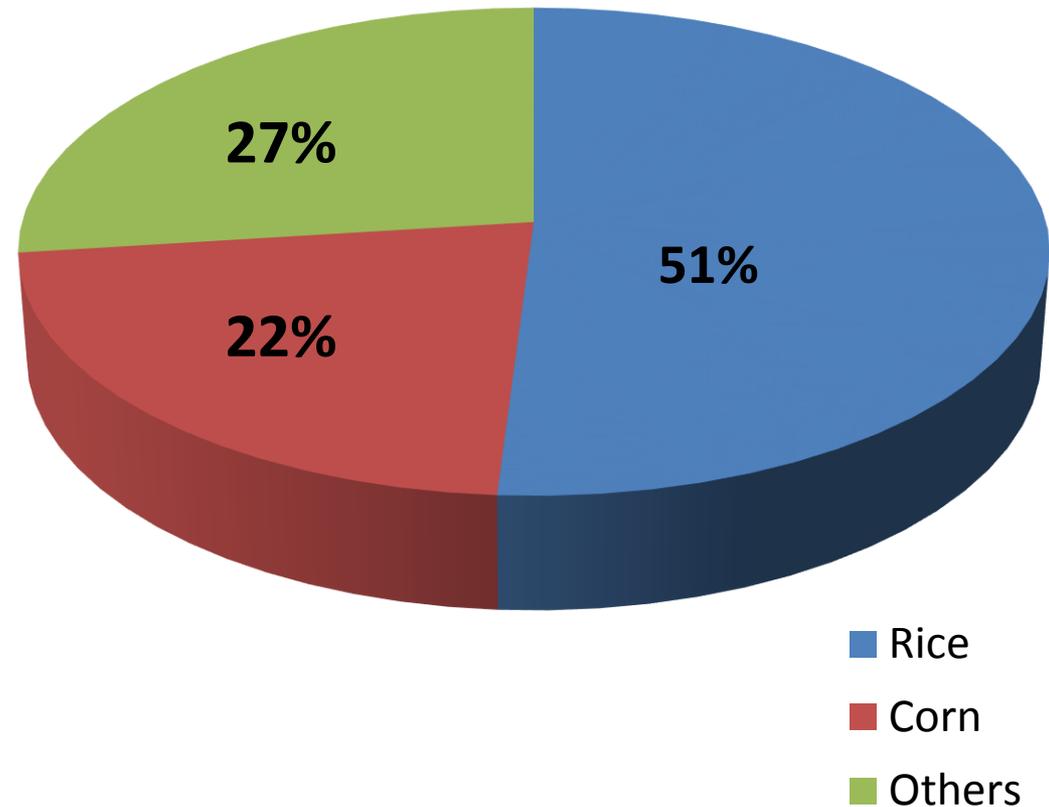
- Philippines – a developing country with an economy anchored on Agriculture
- National Economy 37th largest in the world, 2017 – GDP – US\$313.595B
- With substantial contributions from: manufacturing, mining, remittances from overseas workers and service industries like tourism

# SOCIO-ECONOMIC CHARACTERISTICS OF THE COUNTRY

**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.

# Agricultural Area and Production

- 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.*



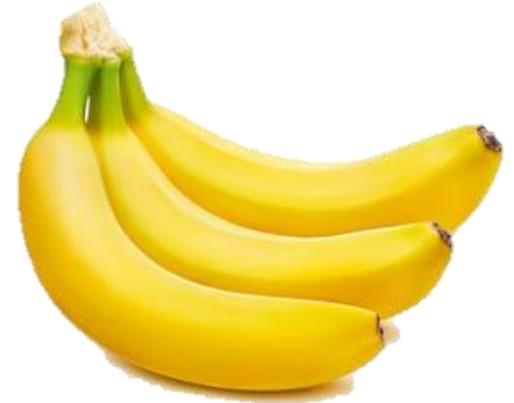
# KEY AGRICULTURAL PRODUCTS



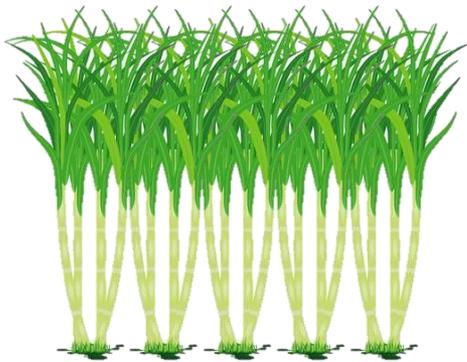
RICE



CORN



BANANA



SUGAR CANE



COCONUT

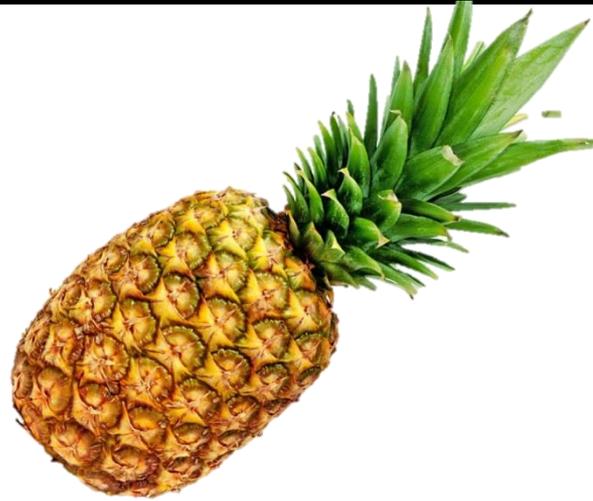


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# KEY AGRICULTURAL PRODUCTS



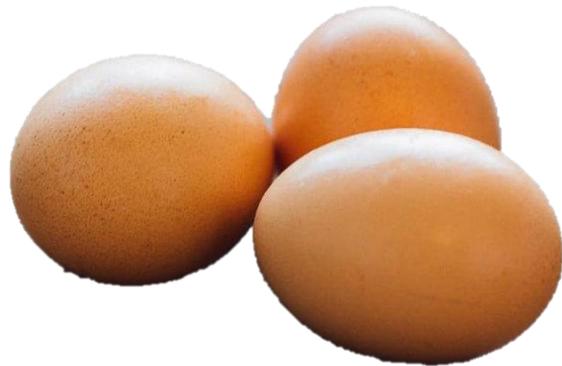
CASSAVA



PINEAPPLE



PORK



EGGS



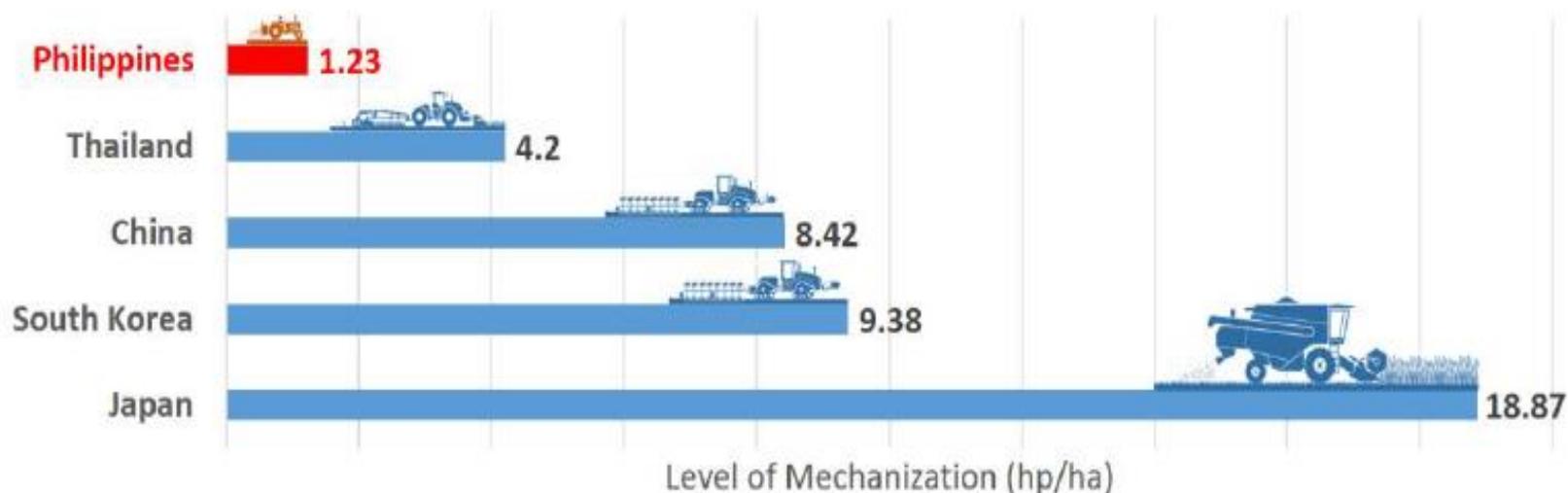
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# II. Situation analysis at country level

## Status of Agri-mechanization



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)

Country	1968	1990	Latest Year
Japan	3.00	7.00	18.87 (2011)
Republic of Korea	0.435	4.11	9.38 (2011)
People's Republic of China	n/a	3.88	8.42 (2012)
Thailand	0.348	0.79	4.2 (2009)
Vietnam	n/a	n/a	1.20 (2010) 1.56 (2011)
Philippines	0.198	0.52	1.23 (2011)

# 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

Costs (P/kg)	Philippines	Thailand	Vietnam
Seed	0.58	1.12	0.44
Fertilizer	1.94	1.56	1.36
Pesticide	0.36	0.90	0.87
Hired Labor	3.76	0.66	0.46
Operator, Family, & Exchange Labor	0.66	0.65	0.81
Animal, Machine, Fuel & Oil	1.73	1.66	0.81
Irrigation	0.45	0.14	0.08
Land Rent	2.11	1.89	1.49
Interest on Capital	0.43	0.07	0.08
Others	0.40	0.20	0.13
<b>Total Cost/kg</b>	<b>12.41</b>	<b>8.85</b>	<b>6.53</b>

# **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)**

# **Policies, Strategies and Programs on Agricultural Mechanization in the Philippines**

## **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

<b>Census Reference Year<sup>2</sup></b>	<b>Number of Farms/ Holdings</b>	<b>Average Area per Farm/ Holding</b>
1980	3,420,323	2.84
2012	5,562,577	1.29

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!*

谢谢

