

*Theme: Agriculture Beyond the Covid-19 Pandemic:  
Building Back Better through Sustainable Agricultural Mechanization*

## Overview of Covid-19 Impact on Agriculture and Building Back Better through Sustainable Mechanization: The Case of the Philippines



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# Covid 19 Impact to Agriculture

## Proclamation No. 926 – ( March 16, 2020)

### DECLARING A STATE OF CALAMITY THROUGHOUT THE PHILIPPINES DUE TO CORONA VIRUS DISEASE 2019

MALACAÑAN PALACE  
MANILA

BY THE PRESIDENT OF THE PHILIPPINES

PROCLAMATION NO. 929

#### DECLARING A STATE OF CALAMITY THROUGHOUT THE PHILIPPINES DUE TO CORONA VIRUS DISEASE 2019

WHEREAS, Under Section 15, Article II of the Philippine Constitution, it is the State's Policy to protect and promote the right to health of the people;

WHEREAS, Proclamation No. 922, s. 2020, was issued declaring a State of Public Health Emergency throughout the Philippines due to Corona Virus Disease 2019 (Covid-19), enjoining all government agencies and local government units (LGUs) to render full assistance and cooperation and mobilize the necessary resources to undertake critical, urgent, and appropriate response and measures in a timely manner to curtail and eliminate the threat of Covid-19;

WHEREAS, the Code Alert System for COVID-19 was raised to Code Red Sublevel Two (2) in accordance with the recommendation of the Department of Health (DOH) and the Inter-Agency Task Force for Emerging Infectious Diseases (IATF);

WHEREAS, despite government interventions, the number of confirmed cases of Covid-19 continues to rise;

WHEREAS, pursuant to Republic Act No. 10121, or the "Philippine Disaster Risk Reduction and Management Act of 2010," the National Disaster Risk Reduction and Management Council has recommended the declaration of a State of Calamity throughout the Philippines; and

WHEREAS, such declaration will, among others, afford the National Government, as well as LGUs, ample latitude to utilize appropriate funds, including the Quick Response Fund, in their disaster preparedness and response efforts to contain the spread of Covid-19 and to continue to provide basic services to the affected population;

NOW, THEREFORE, I, RODRIGO ROA DUTERTE, President of the Philippines, by virtue of the powers vested in me by the Constitution and existing laws, do hereby proclaim as follows:

SECTION 1: There is hereby declared a State of Calamity throughout the Philippines for a period of six (6) months, unless earlier lifted or extended as circumstances may warrant.

SECTION 2: There is hereby imposed an Enhanced Community Quarantine throughout Luzon beginning 12 midnight tonight until 12 April 2020, unless earlier lifted or extended as circumstances may warrant.

SECTION 3: All government agencies and LGUs are enjoined to render full assistance and cooperation with each other and mobilize the necessary resources to undertake critical, urgent, and appropriate disaster response aid and measures in a timely manner to curtail and eliminate the threat of Covid-19.

SECTION 4: All law enforcement agencies, with the support from the Armed Forces of the Philippines, are hereby directed to undertake all necessary measures to ensure peace and order in affected areas, as may be necessary.

SECTION 5: The Executive Secretary, the Secretary of Health, and all other concerned heads of departments, are directed to issue guidelines governing the implementation of the Enhanced Community Quarantine throughout Luzon.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the Republic of the Philippines to be affixed.

Done in the city of Manila, this 16th day of March in the year of Our Lord, Two Thousand and Twenty.

By the President:

SALVADOR C. MEDIALDEA  
Executive Secretary



*Philippine President Rodrigo Duterte issued Proclamation No. 929 which: (a) declared the whole Philippines under a State of Calamity for a period of six (6) months from 16 March 2020; and (b) imposed an Enhanced Community Quarantine throughout the island of Luzon from 12:00 a.m. of 17 March 2020 to 12:00 a.m. of 13 April 2020, both effective unless earlier lifted or extended as the circumstances may warrant.*

Source: <https://www.officialgazette.gov.ph/downloads/2020/03mar/20200316-PROC-929-RRD.pdf>

<https://globalcompliancenews.com/enhanced-community-quarantine-ph-covid19-25032020/>



# Covid 19 Impact to Agriculture

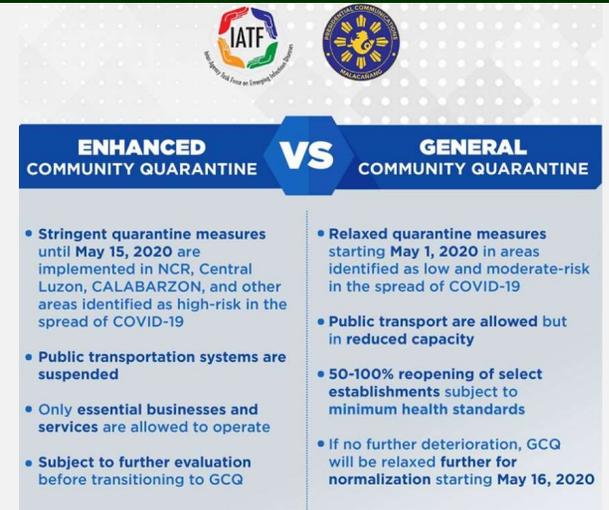
Restrictions on the Movement of People

Unhampered movement of all cargoes within, to, and from the entire Luzon

Business establishments were closed except certain businesses, such as: (a) which provide basic utilities and critical services (e.g., water, electricity, internet, telecommunication, gas, garbage collection, funeral services); (b) involved in the production, processing and distribution of basic necessities (e.g., food, pharmacies / drugstores, banks); (c) capital markets (PSE)

Retailers are enjoined to sell products in quantities sufficient to meet a household's needs for a maximum of seven days only.

Source: [Donemark Calimon](#) and [Marvin Masangkay](#)  
<https://globalcompliancenews.com/enhanced-community-quarantine-ph-covid19-25032020/>



The infographic compares Enhanced Community Quarantine (ECQ) and General Community Quarantine (GCQ). It features logos for IATF and the Department of Health. The ECQ section lists: Stringent quarantine measures until May 15, 2020 in high-risk areas; suspended public transportation; only essential businesses operating; and subject to further evaluation. The GCQ section lists: Relaxed quarantine measures starting May 1, 2020 in low and moderate-risk areas; public transport allowed in reduced capacity; 50-100% reopening of select establishments; and relaxation of GCQ for normalization starting May 16, 2020.

ENHANCED COMMUNITY QUARANTINE	VS	GENERAL COMMUNITY QUARANTINE
<ul style="list-style-type: none"><li>Stringent quarantine measures until May 15, 2020 are implemented in NCR, Central Luzon, CALABARZON, and other areas identified as high-risk in the spread of COVID-19</li><li>Public transportation systems are suspended</li><li>Only essential businesses and services are allowed to operate</li><li>Subject to further evaluation before transitioning to GCQ</li></ul>		<ul style="list-style-type: none"><li>Relaxed quarantine measures starting May 1, 2020 in areas identified as low and moderate-risk in the spread of COVID-19</li><li>Public transport are allowed but in reduced capacity</li><li>50-100% reopening of select establishments subject to minimum health standards</li><li>If no further deterioration, GCQ will be relaxed further for normalization starting May 16, 2020</li></ul>

Source: <http://www.pnp.gov.ph/index.php/news-and-information/3700-differences-between-enhanced-community-quarantine-and-general-community-quarantine>



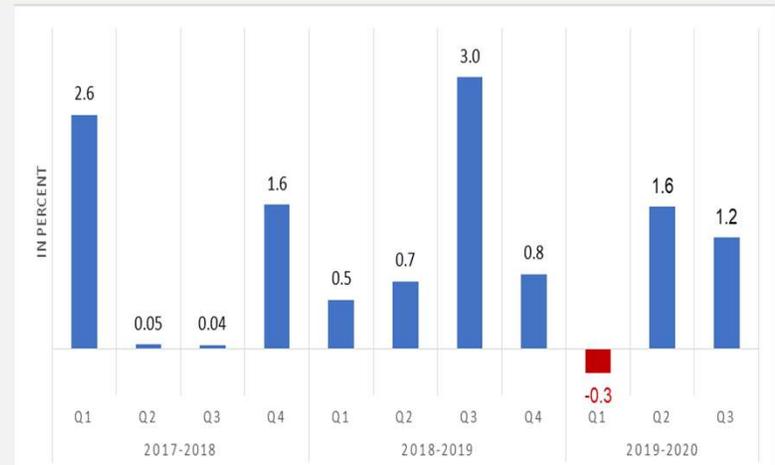
<http://northernforum.net/da-cag-valley-hits-p1-9m-sales-from-kadiwa-ops/>



# Covid 19 Impact to Agriculture

## Affected by the pandemic

- 7,190,000 ha farm holdings with around 5,562,577 farms (CAF 2012)
- DFA repatriated a total of 204,481 overseas Filipinos worldwide with 69,477 sea-based workers and 135,004 land-based workers. Most of them returned to the countryside.



Agriculture, forestry and fishing, Q1 2018 to Q3 2020 Growth Rates, At constant 2018 prices

## Gross Domestic Product (GDP)

- Agriculture, forestry and fishing (AFF) posted a growth of 1.2 percent in the third quarter of 2020
- Palay, grew by 15.4%; Corn, by 4.1%; Support activities to agriculture, forestry and fishing, by 2.7%; Fishing and aquaculture, by 2.1%; and Mango, by 2.4%
- Livestock, which dropped by 7.7%; Poultry and egg production, 3.6%; Other animal production, 4.9%; Banana, 1.3%; and Coconut including copra, which by 2.0%

Source: <https://globalnation.inquirer.net/191403/dfa-repatriated-more-than-200k-filipinos-overseas-during-pandemic>  
<https://psa.gov.ph/nationalaccounts/sector/Agriculture,%20Forestry%20and%20Fishing?fbclid=IwAR3XaWzSBx82IJZ4IuHSXuFLGRvSHvKYQj852LuhIJ9ac7Gp-vUOIMpD2ok>



# Covid 19 Impact to Agriculture

Mobility restrictions due to lockdowns resulted in **quantity reduction in farm labor** translated to overall reduction in agricultural output.

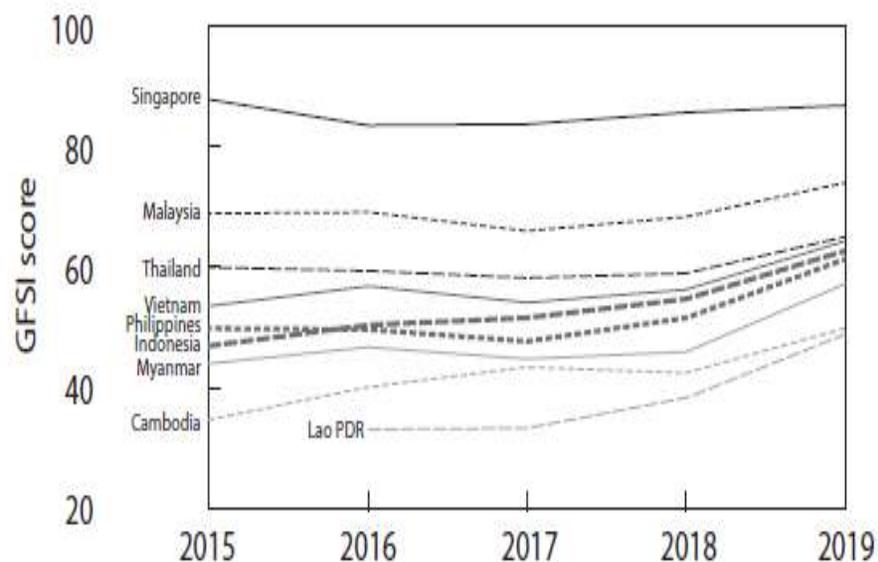
**Reduced agricultural production** caused by farmers' limited access to farm inputs and markets to sell the produce

First quarter of 2020 - **reduction in aggregate volume of agricultural production** estimated in 3.11 percent or 17.03 million tons

Southeast Asia **decline in agricultural farm labor** affecting 100.77 million individuals. Reduction translated to 1.4 percent (USD 3.76 billion.) decrease in GDP of the Southeast Asian region.

**Drop in agricultural labor force (ALF)** in 2020 with a 1.4 percent drop from the ALF in 2019.

(Source: Gregorio and Ancog, 2020)



Global Food Security Index in Southeast Asia, 2015–2019  
Source: The Economist Intelligence Unit (2020) as presented by Gregorio and Ancog, 2020



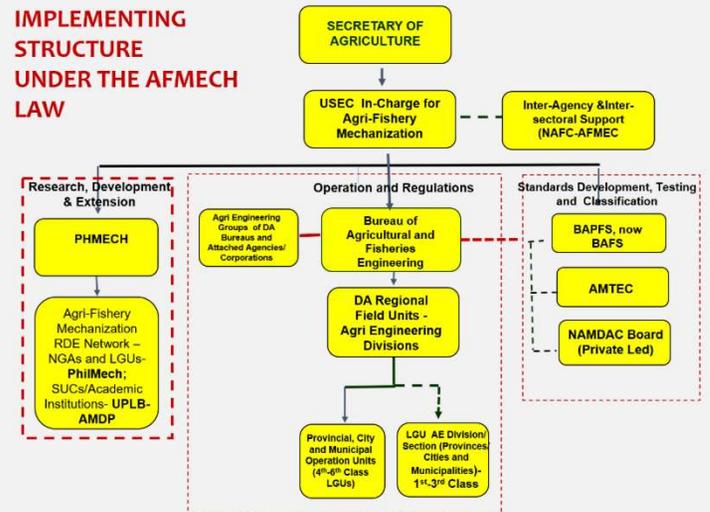
# Building Back Better through Sustainable Agricultural Mechanization

## RA 10601 AFMech Law of 2013

**Six** strategic areas towards attaining comprehensive agricultural mechanization development:

- (1) Promotion of appropriate agricultural and fisheries mechanization technologies to increase agricultural productivity for food security and safety and farmers income;
- (2) Improvement of the local assembling and manufacturing industry;
- (3) Development and enforcement of standards, testing and evaluation, and registration of agricultural and fisheries machinery;
- (4) Improvement of support services including marketing and credit facilities, research, training and extension programs, infrastructures, and postharvest facilities;
- (5) Implementation of agricultural and fisheries mechanization programmes; and
- (6) Provision of integrated support services to farmers and stakeholders for the successful operation and management of agricultural and fisheries mechanization projects.

### IMPLEMENTING STRUCTURE UNDER THE AFMECH LAW



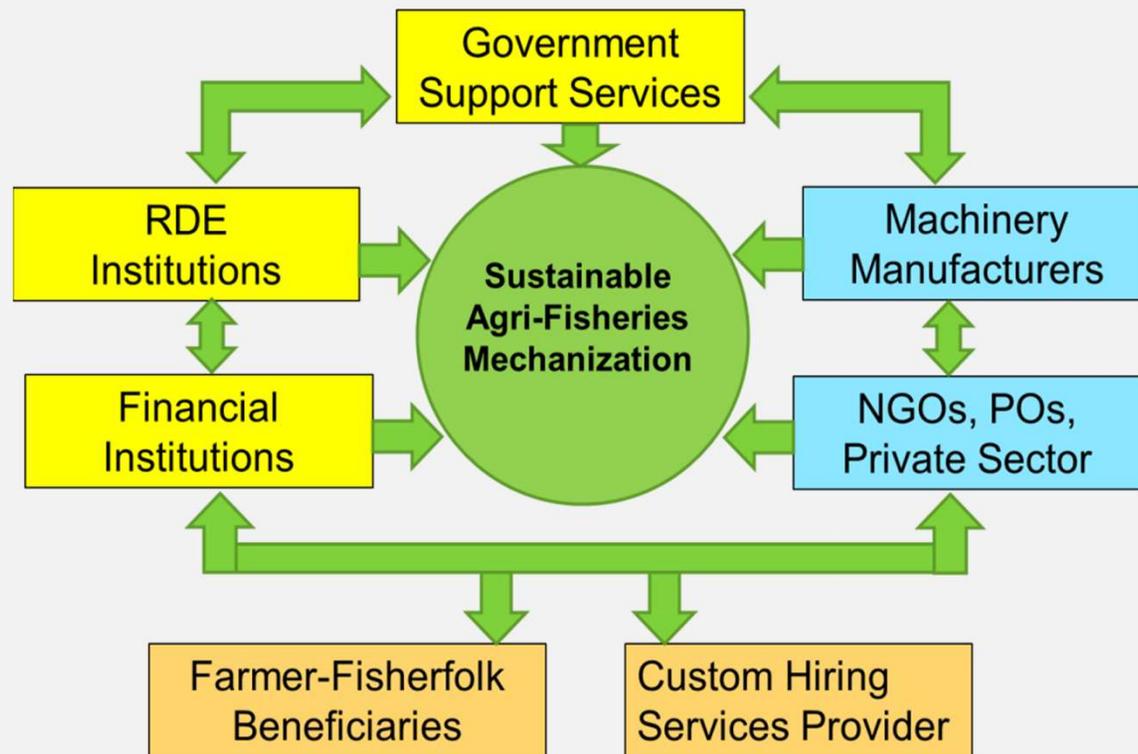
Source: Rico, 2014

Source: <https://www.officialgazette.gov.ph/2013/06/05/republic-act-no-10601/>



# Building Back Better through Sustainable Agricultural Mechanization

## RA 10601 AFMech Law of 2013 Enabling Environment



Source: Amongo, et al. 2018.



# Government Support to Mechanization

## FUNDS ALLOCATED FOR AGRICULTURAL MACHINERY AND SMALL SCALE IRRIGATION PROJECTS

YEAR	NATIONAL RICE PROGRAM (P '000)		NATIONAL CORN PROGRAM (P'000)	
	Agricultural Machinery	Small Scale Irrigation Projects	Agricultural Machinery	Small Scale Irrigation Projects
2011	1,000,000	584,922	3,660	-
2012	2,588,249	618,000	338,610	12,810
2013	2,197,743	1,280,000	517,351	15,050
2014	2,141,238	1,142,732	556,285	15,400
2015	850,880	1,338,381	1,203,403	18,120
2016	614,389	1,195,906	1,093,042	35,525
2017	2,016,700	2,871,088	1,202,927	101,370
2018	1,921,744 <sup>a</sup>	1,992,849 <sup>b</sup>	1,103,991	366,070
2019	650,840	1,759,032	503,130	33,625
2020	890,638	997,494	482,800	42,500
<b>Sub-Total:</b>	<b>14,872,421</b>	<b>13,780,404</b>	<b>7,005,199</b>	<b>640,470</b>
<b>TOTAL:</b>	<b>36,298,494</b>		<b>USD 753,373,306.38</b>	

Source: General Appropriations Act as presented by NAFIAT, 2020

1 USD = 48.1813 PHP

08 December 2020

<https://www.xe.com/currencyconverter>



# Government Support to Mechanization

## NUMBER OF RICE AND CORN MACHINERY DISTRIBUTED BY DA

Year	No. of Agricultural Machinery Distributed		
	Rice Program	Corn Program	Total
2011	3412	75	3487
2012	7718	486	8204
2013	8005	644	8649
2014	3052	811	3863
2015	1622	1182	2804
2016	2274	1265	3539
2017	2687	1650	4337
2018	1600	1428	3028
2019	926	556	1482
<b>TOTAL:</b>	<b>31,296</b>	<b>8,097</b>	<b>39,393</b>

Source: DA Rice and Corn Programs as presented by NAFIAT 2020



# Government Support to Mechanization

## NUMBER OF SPIS PROJECTS DISTRIBUTED BY DA FOR THE PERIOD 2017-2020

Region	Number		Region	Number	
	Rice	Corn		Rice	Corn
CAR	12	6	R8	8	2
R1	19	8	R9	6	3
R2	11	15	R10	7	3
R3	12	13	R11	6	3
R4A	11	12	R12	13	5
R4B	11	3	R13	8	-
R5	17	-	BARMM	-	-
R6	8	2	<b>Sub-total:</b>	<b>162</b>	<b>75</b>
R7	13	-	<b>TOTAL:</b>	<b>237</b>	

Source: BAFE Feb. 2020 as presented in NAFIAT 2020



# Government Support to Mechanization

## RA 11203 – Agricultural Tariffication Law of 2019 RCEF -Rice Competitiveness Enhancement Fund

To fund key interventions such as **mechanization**, seeds, financing, and other strategic interventions that will improve productivity and competitiveness, enhance the value chain and increase farm incomes.

### Four Key Programs of RCEF

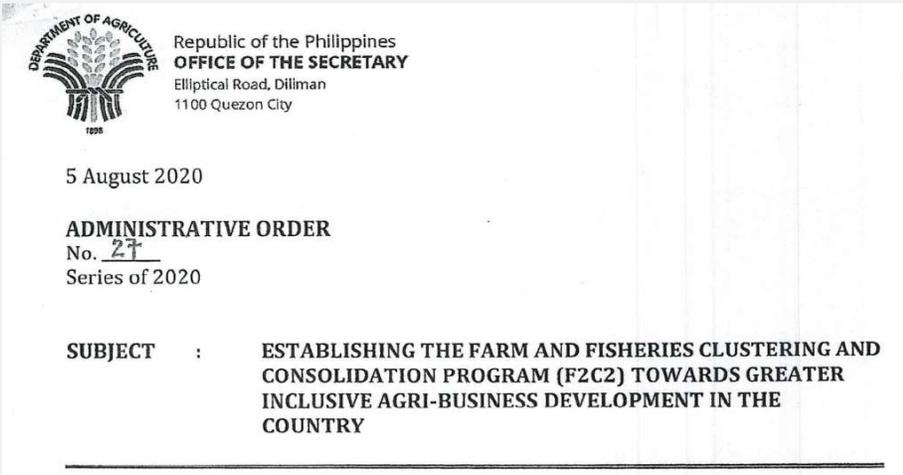


Source: <https://www.da.gov.ph/wp-content/uploads/2020/07/RCEF.pdf>



# Government Support to Mechanization

## DEPARTMENT OF AGRICULTURE- AO 27 S. 2020



The **F2C2 program** seeks to advance the interest and condition of Filipino small farmers and fishers by encouraging them to adopt the strategy of clustering and consolidation of their production, processing, and marketing activities as community business enterprises, including the pooling of assets, labor and other resources in order to:

- (1) bring about economies of scale in Philippine agriculture production,
- (2) ensure better access to markets, financing and investments for crops, livestock and fisheries ventures and development projects,
- (3) strengthen the active role and contribution of farmers and fishers to the economy, and
- (4) accelerate agriculture growth and countryside development;

**e) Ensure greater availability and wider utilization of agri-aqua technologies, farm mechanization, logistics and transport support, and post-harvest facilities;**

- a) Effectively achieve and benefit from economies of scale in commodity production;
- b) Forge stronger linkages among farm and fish producers to their commodity's markets and the bigger global value chain;
- c) Improve the bargaining and market power of primary farm and fishery producers;
- d) Establish better access to sources of credit and financing and investments, and as well better access to domestic and export markets;
- e) Ensure greater availability and wider utilization of agri-aqua technologies, farm mechanization, logistics and transport support, and post-harvest facilities;
- f) Encourage active "Big Brother-Small Brother" partnerships, joint ventures, and contract growing arrangements between Farmers Cooperatives and Associations (FCAs) and the much larger corporate enterprises and attract more private investments towards the agriculture sector;
- g) Effectively raise the overall productivity of the sector and the incomes of Filipino farmers and fishers.



# Covid 19 Impact to Agriculture

**The Bayanihan to Recover As One Act or the Bayanihan 2 Law (RA 11494 – July 27, 2020)** allocated ₱24 billion to the DA for direct cash assistance and low-interest rate subsidies to qualified farmers, fisherfolk, and agri-fishery enterprises.

## **Senate Bill No. 1927 or the Cash Assistance for Filipino Farmers Act of 2020 (December 7, 2020)**

- Department of Agriculture (DA) to use excess revenues from the ₱10 billion Rice Competitiveness Enhancement Fund (RCEF) in giving cash aid to farmers
- The Bill also states that only farmers who own one hectare or less of rice land are eligible to receive the financial aid
- In November 2020, DA and DBP signed a memorandum of agreement to distribute ₱5,000 cash assistance for almost 900,000 farmers affected by the COVID-19 pandemic. Each farmer-beneficiaries are slated to receive ₱3,000 in cash and ₱2,000 worth of food items.

Source: <https://www.cnnphilippines.com/news/2020/12/8/Senate-passes-bill-on-using-excess-rice-tariffs-as-cash-aid-for-farmers-.html>



# RESEARCH INSTITUTIONS

## Implementability of Contiguous Farming in the Philippines

**RA 10601: Section 34**



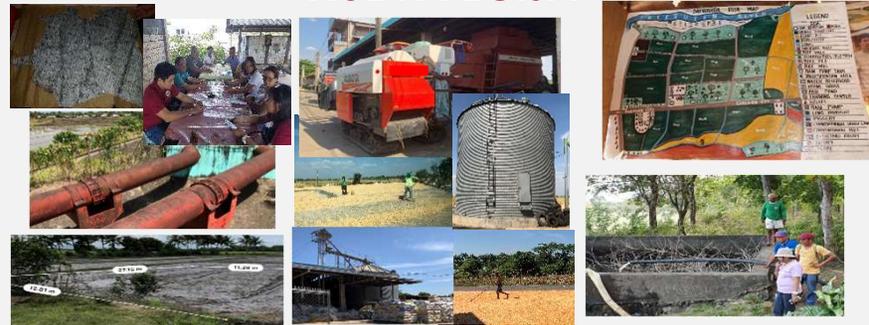
**Local Benchmarking**

**NIA, SRA, DAR**



**PHILRICE**

**NUEVA ECIJA PALAWAN**



**CAMARINES SUR**

**ISABELA**

**BACOLOD**

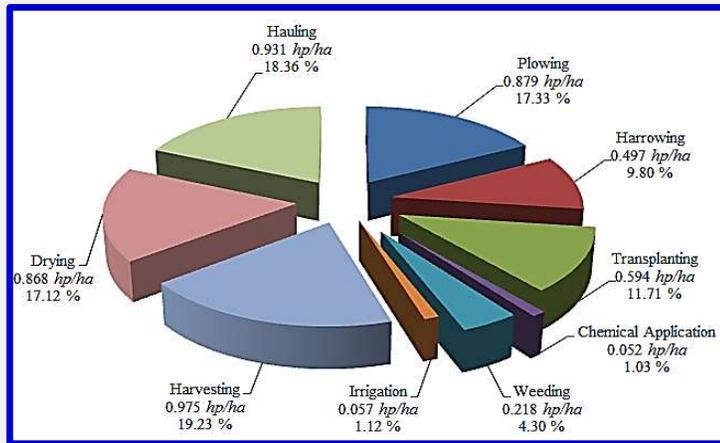
Enabling Environment for the implementation of Contiguous Farming in the Philippines.

Source: Amongo et al., 2019



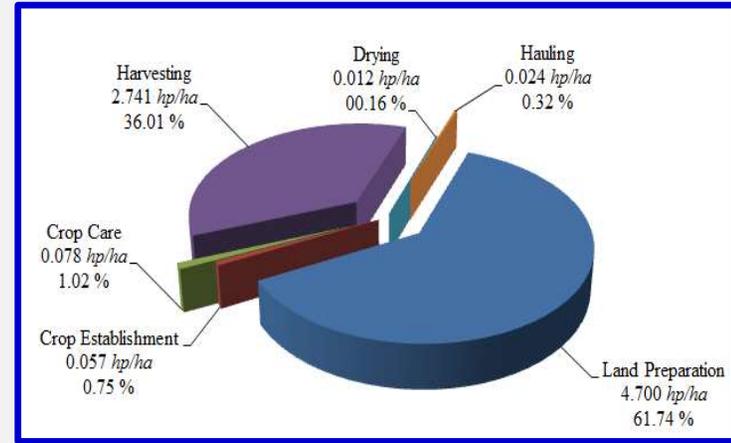
# RESEARCH INSTITUTIONS

## ASSESSMENT OF THE LEVEL OF MECHANIZATION OF THE RICE AND CORN PRODUCTION AND POSTPRODUCTION SYSTEMS IN REGION IV

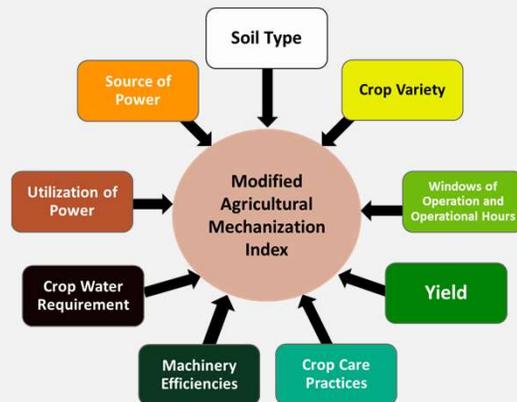


IDEAL

VS



ACTUAL (Mindoro Oriental)



Parameters in the Calculation MAMI

The **MAMI** has been adopted as national policy by the DA in November 2017 to determine the level of mechanization in the country

Mechanization requirement in the production systems to achieve the ideal level of mechanization  
 Identified mechanization gaps and interventions  
 Policy recommendation/ support to attain the required level of mechanization  
 Protocol/procedure for conducting assessment of the level of mechanization in other Regions of the Philippines

Source: Amongo, et al., 2018; Amongo et.al. 2019



# RESEARCH INSTITUTIONS

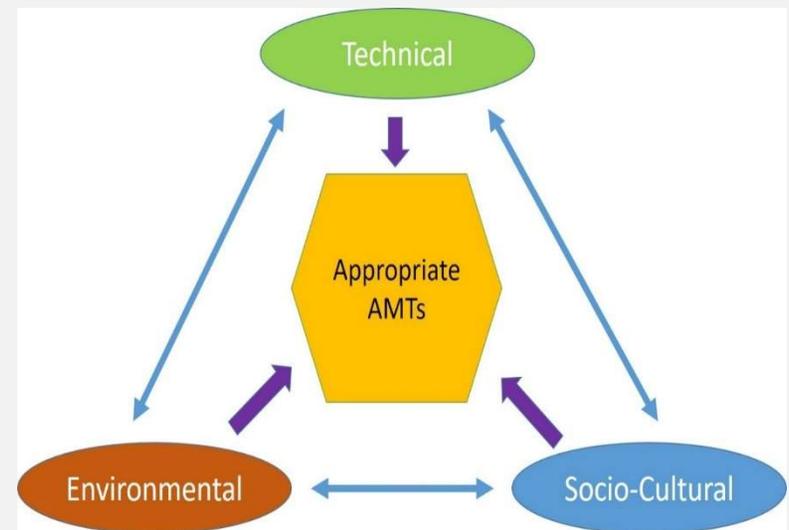
## Technology Appropriateness of the Government Agricultural Machinery Distribution Program

To enhance the effectiveness and optimize the DA's investment on mechanization through improved planning, efficient procurement and distribution and sustained utilization of farm machinery through the adoption of site-specific and appropriate AMTs in the agricultural production and postproduction systems.

### EXPECTED OUTPUTS

- Protocol/procedure for the selection of appropriate AMTs
- Appropriate AMT schemes for efficient utilization in the rice, corn and selected HVC production systems
- Sample Map of Appropriate AMT scheme for one commodity
- Policy recommendation/ strategies on the selection of appropriate AMTs as component of the different DA Banner programs

Source: Amongo & Gallegos, 2020



Source: Amongo and Gallegos, 2020

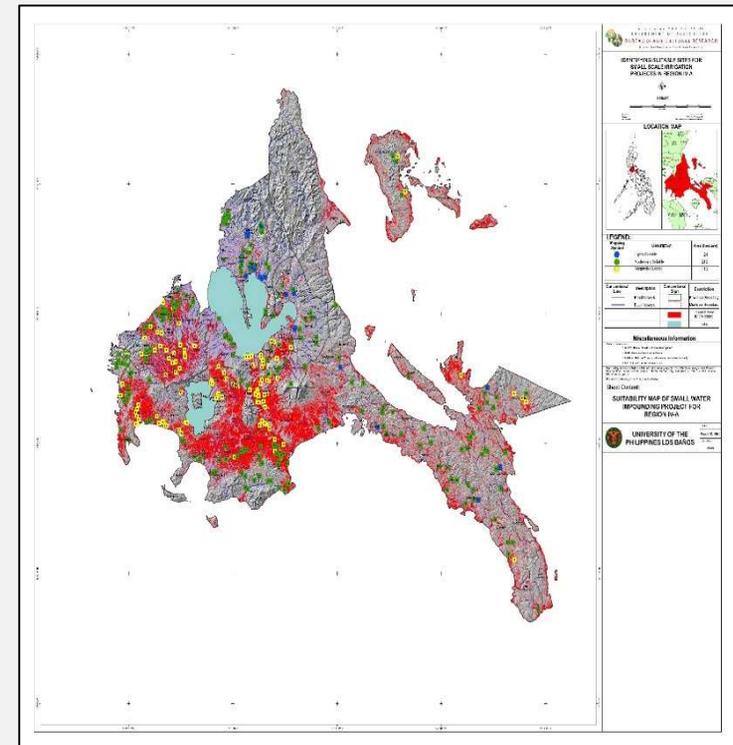


# SSIP Projects

## Identifying Suitable Sites for Small Scale Irrigation Projects (SSIPs) In Region IV-A (CALABARZON) Through GIS-Based Water Resources Assessment

### RDE Agenda Addressed

- Mitigating climate change and improving the adaptive capacity of farmers through provision of relevant technologies and information
- Increase rainwater use efficiency and water availability in rainfed areas through rainwater conservation and rainwater harvesting interventions
- The research project focuses on the development of an integrated geographic information system (GIS) and Remote Sensing (RS) framework for assessing suitable sites of SSIPs.



Source: Amongo, et al., 2020.



# HUMAN RESOURCE DEVELOPMENT

## Assessment and Analysis of the Effects of the Extensive Use of Mechanization on Farm Labor Use and Patterns: Study in Support for Policy on Sustainable Human Resource Development of the Agricultural Labor Sector.

RICE	Mechanized	Traditional
4WT-HT	1.63	5.09
Transplanter	7.0	22.47
Combine Harvester	2.5	27.22
Total	11.13	54.78
<b>% Decrease in man-day requirement</b>	<b>(79.68)</b>	

CORN	Mechanized	Traditional
4WT	1.13	6.45
Mechanical Seeder	0.61	7.18
Combine Harvester	1.71	22.40
Total	3.445	36.03
<b>% Decrease in man-day requirement</b>	<b>(90.44)</b>	

Sec. 4 No. 14 of Republic Act 7607 (Magna Carta for Small Farmers) defines a **"farm worker"** as a natural person who renders service value as an employee or laborer in an agricultural enterprise or farm regardless of whether his compensation is paid on a daily, weekly, monthly or *pakyaw* basis." For the purposes of the recommended policies, farm workers are further classified as being landless and whose contribution is purely farm work.

Farm workers are the **most vulnerable sector** in the drive of the government mechanization values chain. They do not have direct access to programs of the DA nor they are eligible for subsidies afforded to farmers;

**Shift of farm workers** from the **agriculture sector to the industry and services sector** especially during off-peak season in the farm

### Demand for labor of farm workers

RICE	% OF RESPONDENTS REPORTING		
	Iloilo	Nueva Ecija	S. Cotabato
Land Preparation	33.3	6.5	20.7
Planting	8.0	<b>59.1</b>	20.7
Manual Harvesting	<b>72.0</b>	<b>90.0</b>	<b>60.0</b>
Threshing	<b>68.4</b>	<b>93.8</b>	<b>80.0</b>
CORN	Iloilo	Isabela	Bukidnon
Land Preparation	20.0	<b>61.5</b>	<b>30.0</b>
Planting	8.0	<b>59.3</b>	11.5
Manual Harvesting	8.7	<b>50.0</b>	16.7
Shelling	25.0	<b>66.7</b>	-

Source: Rodulfo, et al., 2020



# MANUFACTURING

## Roadmap to Transform the Philippine Agricultural Machinery Manufacturing into a Competitive, Productive, Innovative and Sustainable Industry

To craft a roadmap to transform the Philippine agricultural machinery manufacturing into a competitive ,productive, innovative and sustainable industry

### Expected Output

A realistic, cohesive and integrative Industry Road map for the development and advancement of the local agricultural machinery manufacturing industry for increased competitiveness, growth, innovation and sustainability.

Source: Rodulfo, et al., 2020



Open Systems Design Tractor (Oggun)  
Source: Amongo, 2020 – Photo Gallery



# FINANCIAL INSTITUTIONS

## Banking System and Financial Support to Agricultural Mechanization

### Private Banking Institutions

Private Commercial Banks

Rural Banks

Private Development Banks

Stocks Savings and Loan Associations

### Government Banking Institutions

Development Bank of the Philippines

Land Bank of the Philippines

United Coconut Planters Bank (UCPB)

### Government Financial Support

From GAA Funding

Banner Programs

Rice Competitiveness Enhancement Fund (RCEF)

Agricultural Credit Policy Council (ACPC)

Source: Amongo, 2020



# NGOs/POs/PRIVATE SECTOR

## Private Sector as partners in sustainable agricultural mechanization

Involve in **policy formulation** as members of the Committee on Agricultural and Fisheries Mechanization (CAFMech) of the Department of Agriculture.

Providers of **local and imported AFMTs (AMMDA)** which propel the agricultural sector in providing food, feed, fiber and fuel to Filipinos.

Collaborators in the **R&D efforts** to address the gaps and issues for agricultural mechanization development.

**Extension agents** responsible in the diffusion and utilization of AFMTs in the entire the country.

**Private Sector** *serve as partners of farmers, fisherfolks, public sector and the government in attaining sustainable agricultural mechanization.*

Source: Amongo, 2020



# Synthesis

## COVID 19 Impact on Agricultural Mechanization

Despite of its ill effects to the world (economic shocks, lockdowns, restricting mobilities, restricting agricultural production value chains, etc) COVID 19 Pandemic can also be viewed as a propeller for sustainable agricultural mechanization in the country. Among others, through:

- Additional financial support from the government
- Additional government programs on agricultural mechanization
- Increased funding for RDE activities
- Boost the manufacturing, trade and investment of agricultural mechanization technologies (AMTs)
- Increased government assistance to financing institutions

*... for food security and sufficiency and for building back better through sustainable agricultural mechanization....*



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# Thank You!

