



**CSAM**

Centre for Sustainable  
Agricultural Mechanization



**NIAAM**

# 10<sup>th</sup> Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific

*Gender Mainstreaming in Sustainable Agricultural Mechanization*

28-30 November 2023; Shanghai, China

## Empowering Women Engineers through Agricultural Mechanization

Engr. Janice P. Vargas

Division Chief

Standards Regulation and Enforcement Division

Bureau of Agricultural and Fisheries Engineering

Department of Agriculture

& Board of Trustee, Philippine Technological Council-Women Engineers Network

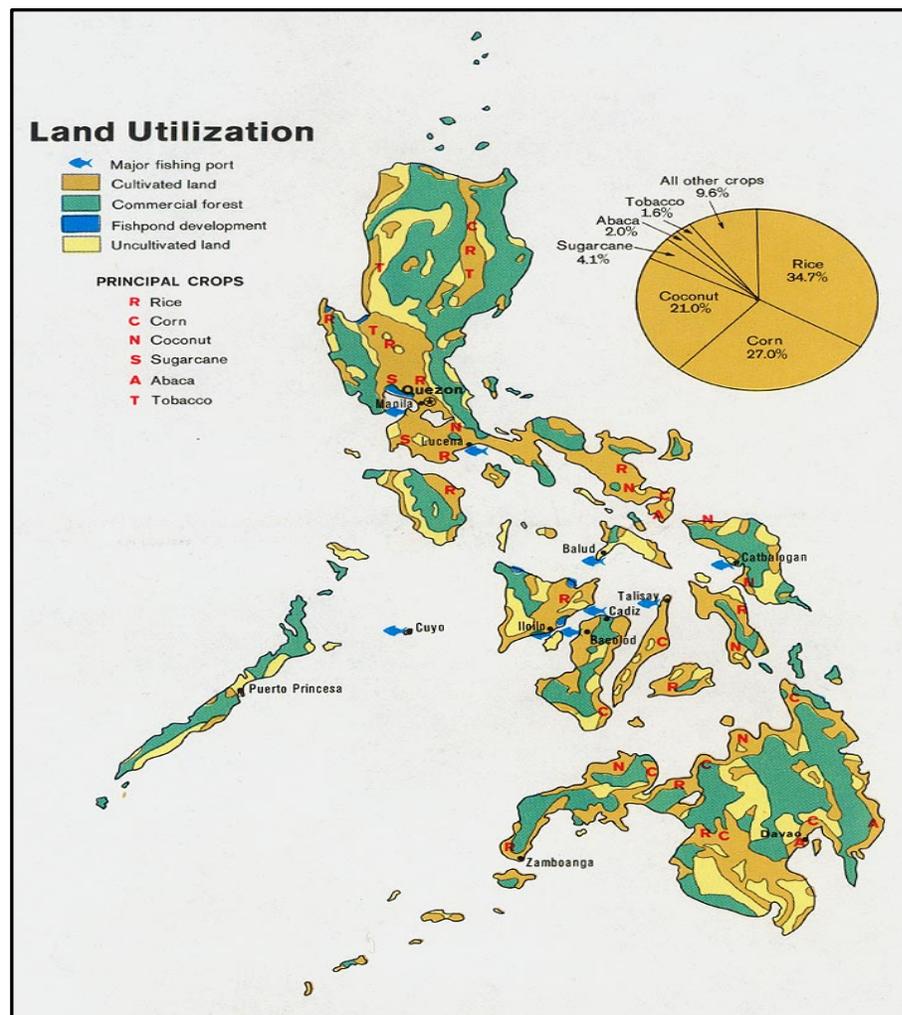
The International Conference of Women Engineers and Scientists (ICWES) is the flagship event of International Network of Women and Scientists (INWES), a global organization partner of UNESCO. It serves as a platform where female engineers from all over the world meet onsite and virtually to present and discuss a range of topics.

**CONGRATULATIONS!**  
**Assistant Director Juana T. Tapel**  
« for being voted as Board of Director of International Network of Women Engineers and Scientists (INWES) for 2024-2026 »

**Your BAFE family is proud of you!**



During the ICWES19 in Auckland, New Zealand held on September 3-6, 2023, it was announced that the Philippines, through the Philippine Technological Council-Women Engineers Network (PTC-WEN) will host the ICWES20 in August 2026.



9.417 million hectares of agricultural land (LMB 2020)

9.758 Million Employed in Agriculture (PSA 2020)

Mechanization as priority thrust for Philippine Agri-Fisheries modernization

Mostly non-TESDA certified AF Machinery Operators and Technicians

11,394 Agricultural and Biosystems Engineers (2021)

## **AGRICULTURAL AND BIOSYSTEMS ENGINEERING (ABE) AS A DISCIPLINE**

It is the application of engineering science and designs to the processes and systems involved in the sustainable production, post production and processing of safe food, feed, fiber, timber and other agricultural and biological materials and the efficient utilization, conservation and management of natural and renewable resources in order to enhance human health in harmony with the environment (**Republic Act No. 10915**)

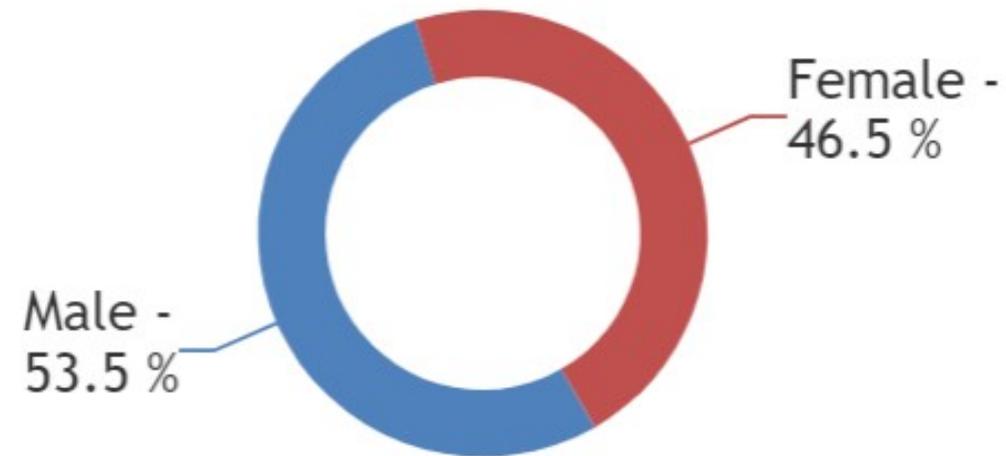
# ABE SPECIALIZATIONS

Cluster	Specialization
AB Machinery and Power Engineering	Agricultural and Biosystems (AB) Power and Machinery Renewable/Bioenergy
	Agricultural and Biosystems Automation and Instrumentation (Cut-across, applied to other specializations)
AB Land and Water Resources Engineering	Irrigation and Drainage Engineering
	Soil and Water Conservation Engineering
	Agrometeorology
	Forest Engineering
	Agricultural and Biological Resource and Conservation Management
	Aquacultural Engineering
AB Structures and Environment Engineering	Agricultural and Bio-information System (Cut-across, applied to all other specializations)
	Agricultural and Biosystems Buildings and Structures
	Farm Electrification
AB Process Engineering	Agricultural and Biological Waste Management
	Agricultural and Bioprocess Engineering
	Food Engineering



**11,394**  
**Agricultural and**  
**Biosystems**  
**Engineers (ABE)**

### Member Gender Statistics



Source: Philippine Society of Agricultural and Biosystems Engineers Inc. (PSABE, Inc.)

## ABE Services in Agricultural Mechanization

01

Preparation and/or evaluation of FS including the tech specs of AF machinery pools and service centers

Management or supervision of the operation and maintenance of AF machinery pools and service centers

02

03

Training and supervision of agri-machinery technicians and operators in AF machinery pools and service centers

05

Research and development to improve the operation and management of AF machinery pools and service centers, and in AF machinery assembling and manufacturing establishments

04

Management or supervision of the sales and distribution outlets, and assembling and manufacturing establishments of AF machinery and equipment, including the preparation of design and tech specs

## WOMEN ABEs



Source: Philippine Society of Agricultural and Biosystems Engineers (PSABE)  
Bureau of Agricultural and Fisheries Engineering (BAFE)

## WOMEN ABEs



Source: Philippine Society of Agricultural and Biosystems Engineers (PSABE)  
Bureau of Agricultural and Fisheries Engineering (BAFE)

# TVET and Higher Education Qualifications



## Technical-Vocational Education and Training (TVET)

### Existing Training Regulations (TR)

- Rice Machinery Operation NC II- Prior to AFMech Law
- Rubber Processing NC II- Prior to AFMech Law
- Agricultural Machinery Operation NC II (Non-Rice)
- Drying and Milling Processing Plant Servicing (NC III)
- Milking Operation NC II
- Farm Machinery Servicing (Tractor)- NC III
- Irrigation System Installation and Maintenance (NC II)
- Biogas Systems Installation and Maintenance (NC III)
- Hatchery Operation (NCII)

### With TR, For TESDA Board Approval

- Solar Powered Irrigation System Operation and Maintenance NC II

### Non-TR

- Diploma in Agricultural and Biosystems Engineering



## Higher Education

- BS Agricultural and Biosystems Engineering (CHED CMO No. 94, series of 2017)
- Master of Science in Agricultural Engineering/Agricultural and Biosystems Engineering
- Doctor of Philosophy in Agricultural Engineering/Agricultural and Biosystems Engineering

## Section 13 (Republic Act 10601)

Manpower Complement. – All agricultural and fisheries machinery pools and service centers, including sales and distribution outlets and manufacturing establishments, either public or private, shall have the **required manpower complement of licensed agricultural engineers and certified technicians and operators**, in accordance with the guidelines and standards to be promulgated by the Board of Agricultural Engineering (BoAE) of the Professional Regulation Commission (PRC) and the DOLE to ensure efficient operation and maintenance and good management practices. The DA shall ensure compliance to this manpower complement requirement.

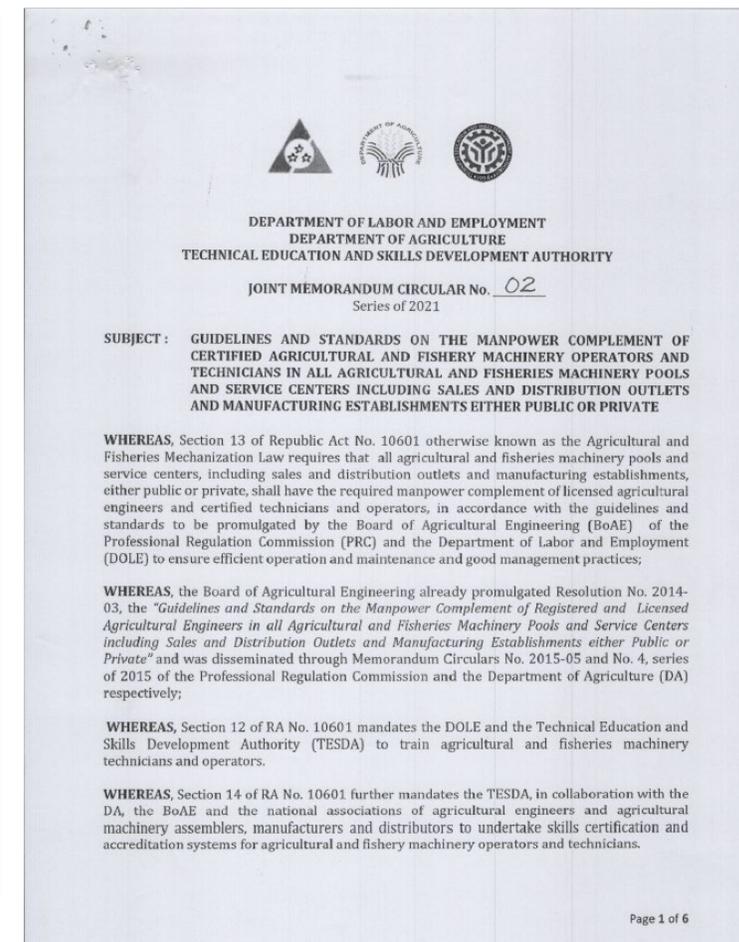
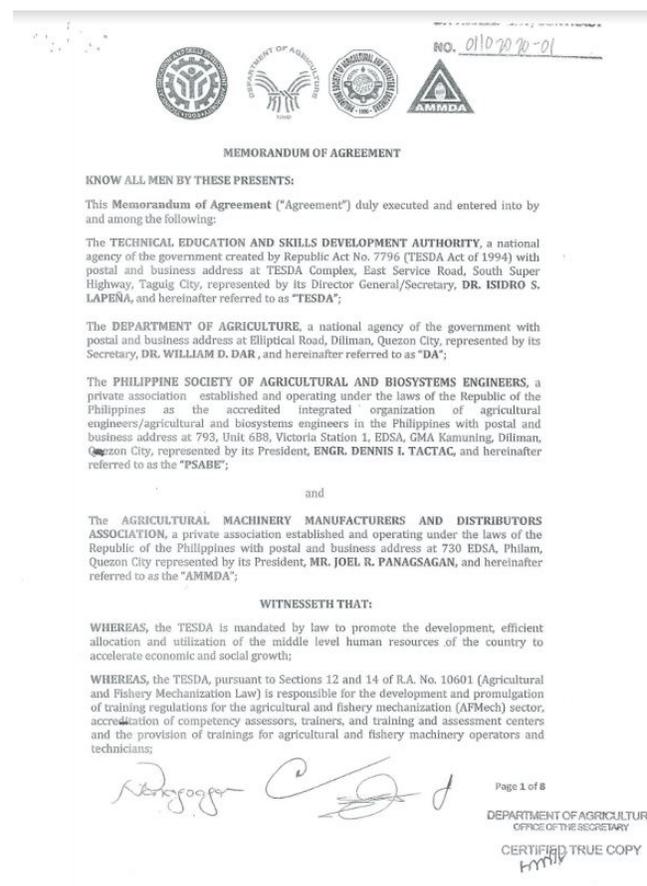




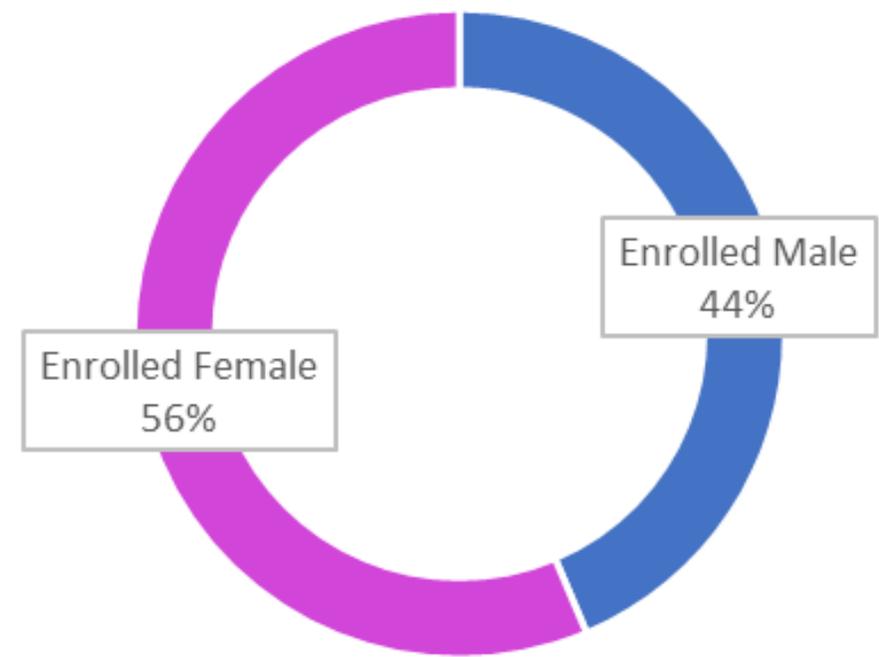
“Guidelines and Standards on the Manpower Complement of Registered and Licensed Agricultural Engineers in all Agricultural and Fisheries Machinery Pools and Service Centers including Sales and Distribution Outlets and Manufacturing Establishments either Public or Private”



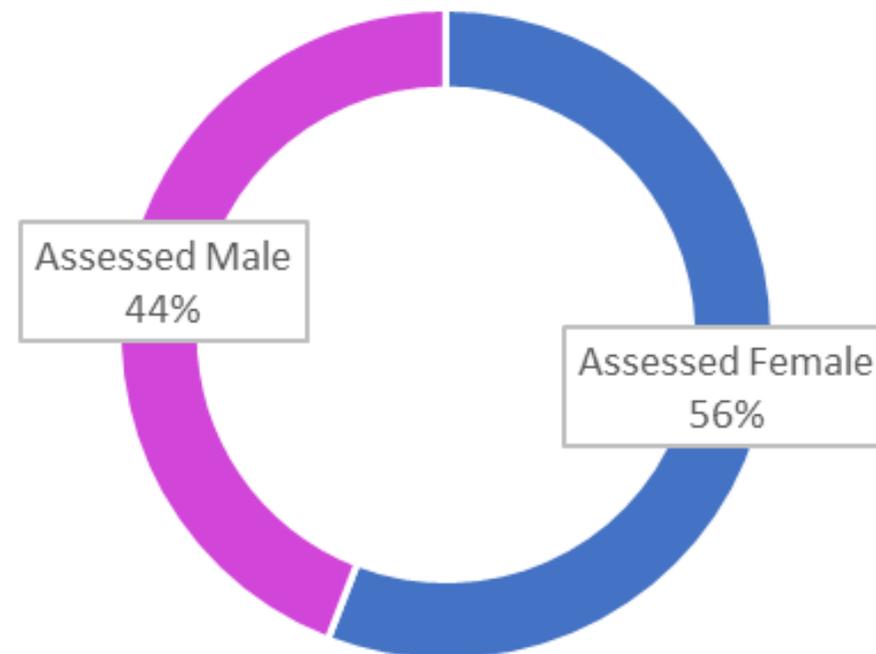
	Trainer NTTC	Assessor	Training Center	Assessment Center
RMO NCII	165	55	71	34
DM PS NCIII	20	8	3	5
AMO NCII	7	8	1	4
Milking NCII	4	4	0	1
Aquaculture NC II	76	27	13	0
Rubber NCII	0	0	0	0
Biogas NCIII	0	0	0	0
Pres. Irrig. NCII	0	0	0	0
Tractor NCIII	0	0	0	0



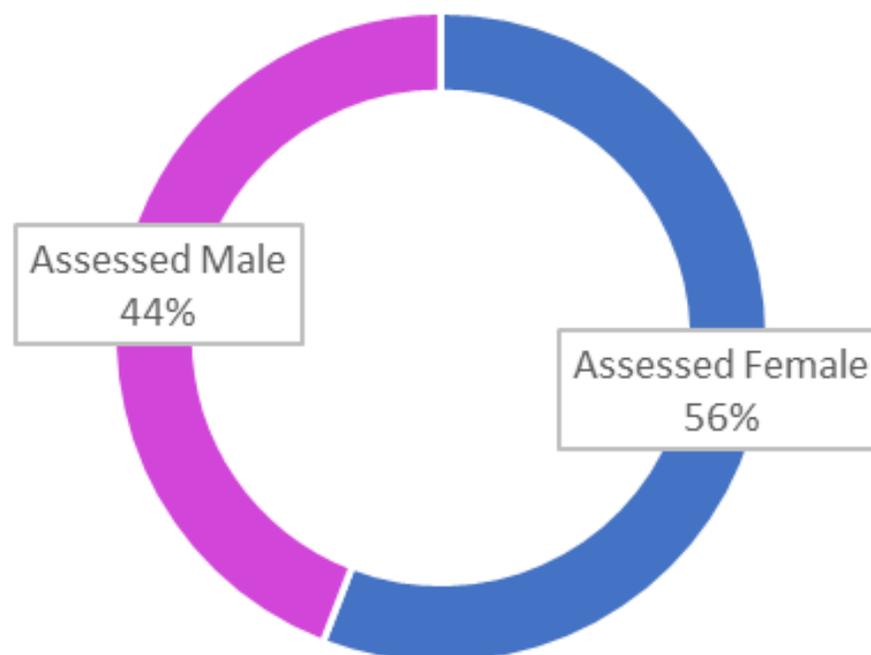
## Gender Distribution of Enrollees in the TESDA Agriculture, Forestry and Fishery Sector



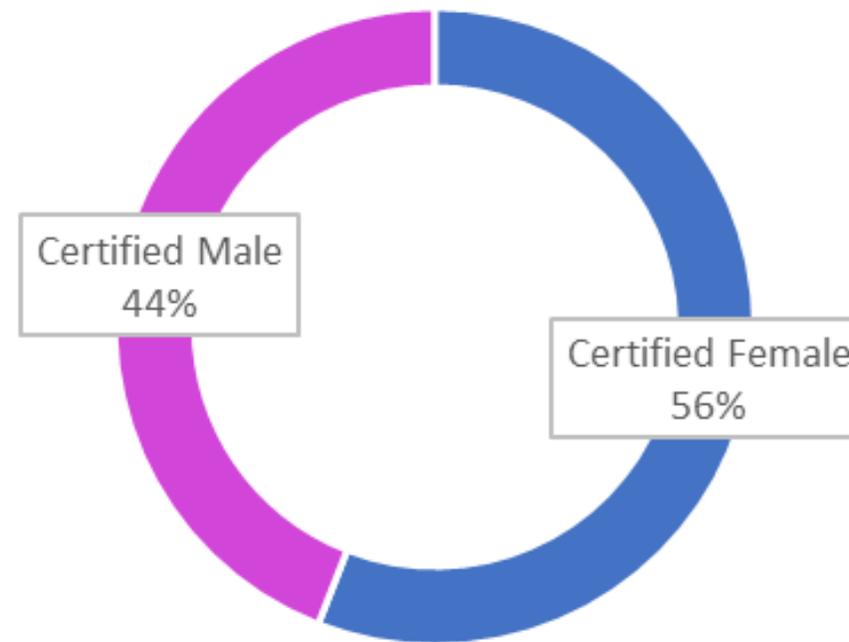
## Gender Distribution of Graduates in the TESDA Agriculture, Forestry and Fishery Sector



## Gender Distribution of Assessed Graduates in the TESDA Agriculture, Forestry and Fishery Sector



## Gender Distribution of Certified Graduates in the TESDA Agriculture, Forestry and Fishery Sector



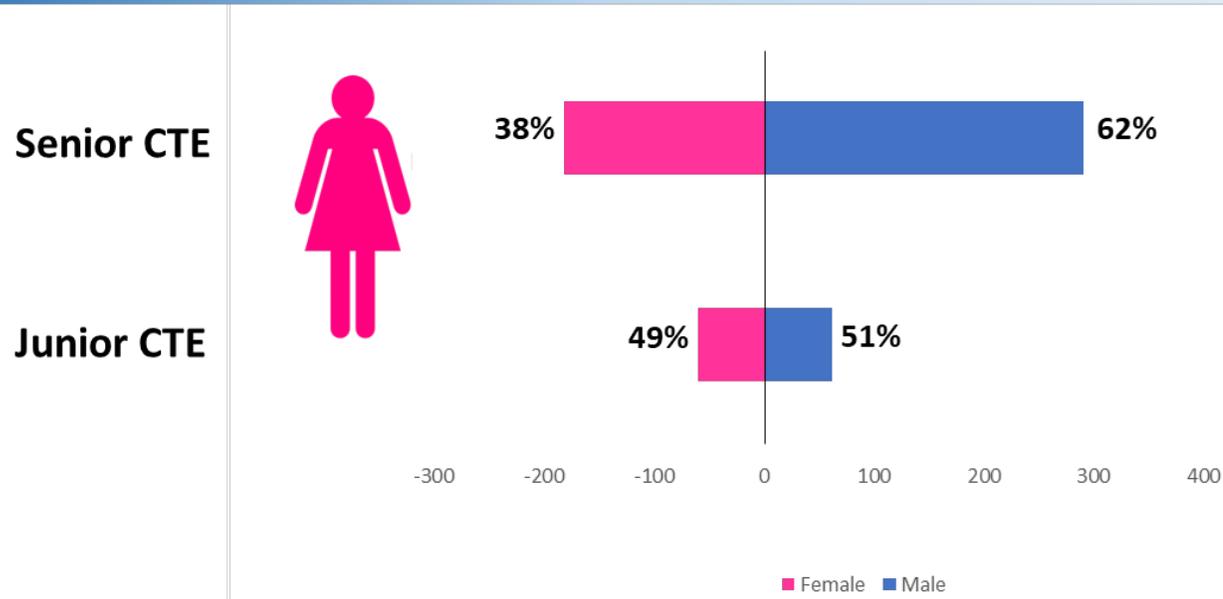
# NATIONAL GUIDELINES ON TESTING AND EVALUATION OF AGRICULTURAL AND FISHERIES MACHINERY

*DC NO. 02, SERIES OF 2023*



## CERTIFICATION OF TEST ENGINEERS

## Gender Distribution of Certified Test Engineers (CTE) for Testing of Agricultural and Fishery Machinery



**595** Total No. of CTEs  
**473** Tot. No. of Senior CTEs  
**122** Tot. No. of Junior CTEs





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Assistant Executive Secretary

*In the Service of Filipino Agricultural and Biosystems Engineers*

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Galaxy A53 5G



Galaxy A53 5G





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**A sustainable agriculture for a sustainable future**

**Thank you**



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