MARIANO MARCOS STATE UNIVERSITY

2024 SUSTAINABILITY REPORT

SUSTAINABLE DEVELOPMENT GOALS

Executive Summary

MMSU's vision for the future is to be a leading green university, recognized for its commitment to sustainability, environmental stewardship, and the development of conscious and accountable individuals. It strives to transform and integrate sustainability in its primary functions - instruction, research, extension and community engagement, and resource generation, and serve as a model in sustainability for the Philippine state university system.

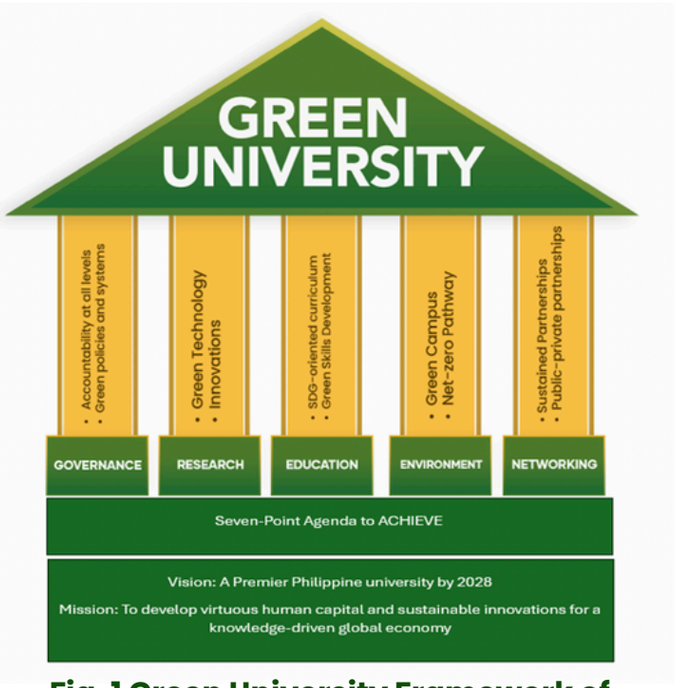

Fig. 1 Green University Framework of MMSU

The university's approach to sustainability rests on five pillars: governance, research, education, environment, and networking, constituting the GREEN University Framework, which provides strategic direction in pursuit of sustainability goals. The GREEN framework emphasizes accountability at all levels of the university's organizational structure.

Sustainability is the anchor of MMSU's five-year Strategic Plan (SP), 2023-2028. Crafted through a collaborative and participative process, the SP's thematic targets are aligned to the United Nations (UN) Sustainable Development Goals (SDGs), with specific strategies cascaded to the various colleges and units, fostering collective ownership of targets and accomplishments and unifying action toward the plan's fruition. This collective approach drives engagement stakeholder engagement, ensuring involvement in planning, implementing, monitoring and evaluating sustainability programs. The Futures Thinking and Sustainability Directorate, which serves as the University's focal unit for sustainability efforts, coordinates all SDG-related programs and activities.

This report provides a highlight of MMSU's notable initiatives and accomplishments in helping achieve the global goals in 2024. More than being a review of achievements, it provides a blueprint of future engagements to sustain its leadership and increase its impact on the SDGs.

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Capacity Building & Education

MMSU strengthens its awareness program on sustainable development

Mariano Marcos State University, through its Office of Sustainability and Futures Thinking, engaged in various programs to promote awareness and strengthen capacity in the SDGs. One strategy was done during the 2024 University Games (UniGames), in which an SDG Booth was set up in a public space. A fun and interactive SDG Quiz was offered to get students and other community members aware and engaged about the 17 global goals.

A special booth also shared easy tips on how students can make sustainable choices in daily life, encouraging them to adopt greener habits. The activities aimed to make students more aware of the SDGs while inspiring meaningful changes in the university community. The university recognizes the essential to prepare students for the challenges of creating a sustainable future. As an offshoot of this initiative, the university developed an institutionalized SDG quiz to assess the awareness and knowledge of students, faculty and staff in the university. The result will then be used in creating appropriate interventions to increase awareness and integrate SDG concepts in the daily routines of all members of the MMSU community.

Research

MMSU's researches are focused on building resilience

MMSU focuses its research on building resilience across several key areas, particularly in response to climate change. The university has established dedicated research centers and initiatives to address the specific challenges faced by the Ilocos Region.

Among the research centers dedicated to resilience building are the Regional Research and Training Center for Climate Change in Region 1 and The Coastal Engineering Research and Management Center whose goal is to develop and apply improved production and risk-management technologies to enhance the resilience of the agricultural sector against climate variability, protecting communities and infrastructure from coastal erosion, flooding, and other oceanic forces.

Research initiatives are complemented with extension and capacity building in coastal community across region 1, increasing community preparedness.

Community Engagement

MMSU's Extension Programs Enhances Livelihood of Ilocanos

MMSU's diversified extension programs empower the wider community through the dissemination of research-based agricultural technologies including enhanced crops varieties, climate-smart farming methodologies, and value-added processing techniques for products such as corn and bamboo. Initiatives such as the Coordinated Agribusiness, Research, and Extension Strategies (CARES) program and School-on-the-Air (SOA) offer training, technical support, and exposure to contemporary farming techniques, enabling farmers to boost productivity and evolve into entrepreneurs, thus enhancing the economic being of various stakeholders of the university such as farmers, fishers, housewives, entrepreneurs, and Local Government Units). In 2024, a total of 1,578 beneficiaries (farmers, Local Government Units, youth, and private sectors) received technical assistance from MMSU, helping them enhance their lives and governance.

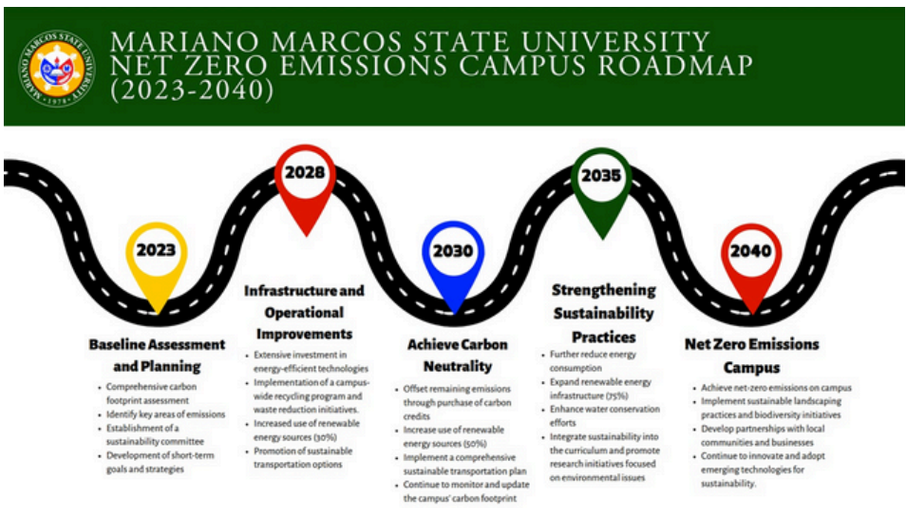
Governance

E-systems for efficient and effective governance

In order to achieve a smart campus and improve governance, MMSU deploys a variety of electronic applications for academic, administrative, and research operations under the e-systems umbrella. In order to facilitate well-informed decision-making, these comprise e-systems for data analytics, health records, and farm management. Prioritizing digital transformation to minimize environmental impact, MMSU intensified investments in its campus network infrastructure, incorporating walkways and electronic vehicles for environmentally friendly in-campus transportation.

Environment

MMSU pledged its commitment to sustainability through its net-zero emission road map



MMSU's commitment to sustainability is concretized in its Net-Zero Emission Road Map, which started in 2023. The Road Map provides a definite timeline to achieve the goal of having net-zero-energy operations across MMSU campuses, providing guidance for the university leadership and other stakeholders in ensuring responsive operations and integrating energy-efficient initiatives in its programs and core values. Aligned with this Road Map, MMSU has implemented infrastructure and operational improvements, including the installation and procurement of energy-efficient infrastructure to help achieve carbon neutrality.

Collaboration

Growing Partnership for the Global Goals

MMSU joined forces with 40 local and 42 international partners to support the well-being of stakeholders, faculty, staff, and students across the sustainability pillars. These collaborations focus on academic advancement, influential research and extension, and advocacy efforts aimed at transforming the MMSU community's mindset and fundamental principles towards sustainable development.

MMSU's Commitment

MMSU is committed to eradicating poverty through the continuing program on financial assistance to students to complete tertiary education especially the poor and vulnerable population.

More Scholarships for MMSU students were Obtained from Alumni and Partners

In 2024, MMSU expanded its anti-poverty programs through increased scholarship grants, leveraging the commitment of its alumni and other partners. Beneficiaries included first-generation, low-income students who are not receiving any form of financial assistance from other benefactors.

MMSU BSEd students chosen as Albarracin Scholarship grantees

Fifty-eight (58) students of the Bachelor of Secondary Education (BSE) program of the MMSU College of Teacher Education (CTE) received financial grants from the Albarracin One-Time Scholarship. The Albarracin Scholarship Program, founded by Mr. Magdaleno Albarracin, Jr. and Mrs. Trinidad Albarracin, is a private institution that aims to extend financial grants to students. For the academic year 2023-2024, the scholarship program aimed to expand its reach by selecting over eighty (80) beneficiaries, with twenty (20) chosen beneficiaries from each year level. The program will also identify ten (10) first-year BSEd students who will become long-term scholars, provided they adhere to the scholarship's retention policies.

The said scholarship is intended for students who are not recipient of any other private or government scholarships, thus, spreading opportunity to more MMSU students.

Normalites of Hawaii formalizes ongoing scholarships

MMSU and the Normalites of Hawaii (NOH) formalized their support for teacher education students through a memorandum of agreement signed on October 29 at the Ferdinand E. Marcos Hall. The NOH Scholarship Program will support eight CTE students—one from each academic program—providing USD 100 per semester to help cover essential school-related expenses.

MMSU OIC President Dr. Prima Fe R. Franco thanked NOH for its continued support, noting that the scholarship will inspire pre-service teachers to excel. NOH President Mr. Arlene John Peralta, an MMSU alumnus, expressed confidence in the potential of MMSU students and highlighted the organization's longstanding commitment to assisting future educators.

Eligible scholars must be regular fourth-year CTE students with a GWA of at least 2.0 and no incomplete grades, with selection handled by a dedicated screening committee. Established in 2011 in Oahu, Hawaii, NOH continues to support MMSU through various initiatives, and this partnership reaffirms the shared commitment of both institutions to quality education and student success.

Holidays light up for MMSU-CTE students with new scholarship grants

MMSU's College of Teacher Education (CTE) introduced two new scholarship grants during its Christmas Lighting Celebration on December 11, made official through a memorandum of agreement with alumni donors. The Maximilla Pangaliman Raquino Scholarship and a one-time financial grant from Federico Acob will support 18 students this year.

The Raquino Scholarship will provide eight CTE students with Php 5,000 per semester for four years, helping ease financial barriers for those from low-income households. Meanwhile, Mr. Acob's one-time assistance will grant Php 5,000 each to ten Bachelor of Elementary Education students.

MMSU officials led the signing ceremony, emphasizing continued alumni support for aspiring educators. These new grants add to the growing number of privately sponsored scholarships available to CTE students.

Now in its second year, the AGA Academy Presidential Scholarship helps deserving regular 4th year students taking BS Agriculture with a general weighted average of not lower than 1.75 and coming from low-income families.

During the signing of the scholarship contracts, MMSU President Shirley C. Agrupis challenged the scholars to finish their degrees and graduate at the top of their class. Furthermore, she also encouraged them to produce good research that will benefit their community.

The scholars expressed their gratitude to AGA Academy and MMSU. “I am thankful for the scholarship as it will help my parents sustain my studies,” Tumamao said.
For Sampayan and Tungpalan, a portion of the amount will be used for their preparation for the Agriculturists Licensure Examinations.

According to Prof. Krismary Sharmaine Yapo, MMSU Chief of Alumni Relations, the selection process of beneficiaries followed strict guidelines to ensure that the most qualified students would receive the scholarship.

Also present at the contract signing were Prof. Emil James Tanagon, Director of the MMSU Student Affairs and Services, and Dr. Jahnese Asuncion, Chief of the Institutional Student Programs and Services.
In 2022, three senior agriculture students of the MMSU were granted full scholarships from the AGA Academy.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	RESEARCHERS
Development of Vacuum-Fried Shallot Snacks	Development of Vacuum-Fried Shallot Snacks	Rhoda T. Garcia, Jayson M. Doroyan, Sonio II A. Sabejon
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 1: Development and Formulation of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 2: Promotion and Marketing of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 3: Production of IEC materials for Promotion and Commercialization of Pigeon Pea Nutri-based Products	Jocelyn A. Bernabe
The Production of Micrgreens Using Vegetables in Ilocos Norte to Achieve Food Security and Sustainability	The Production of Micrgreens Using Vegetables in Ilocos Norte to Achieve Food Security and Sustainability	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas, Aira Lilac I. Pungtilan

PROJECT	STUDY	RESEARCHERS
Development of Ceramic Crop Preservation Storage Utilizing Locally Available Raw Materials in Ilocos Norte	Development of Ceramic Crop Preservation Storage Utilizing Locally Available Raw Materials in Ilocos Norte	Anessa M. Dela Cruz, ANDREW C. DOÑO, SAMUEL S. FRANCO, DIONESIO C. PONDOC, ARLENE MIA G. RUGIAN
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 1. Palay and Corn Production	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 2. Poultry and Piggery Production	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 3. Pomology Project	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 4. Product Processing	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 5. Marketing	Susan G. Aquino

Number of Recipients who received Financial Aid

Scholarships are important in achieving SDG 1 because they give low-income students access to higher education, providing them with the skills and knowledge they need to break the cycle of poverty, find better jobs, and support the development of their families and communities. Scholarships promote social justice, economic empowerment, and the development of a trained labor force—all of which are critical to the eradication of property.

17,640	24.94%	951	435
Number of Students SY 2024-2025 1st Sem	Percentage of students receiving financial aids	Number of students provided housing support (MMSU dormitories)	Number of Students from Indigeneous People Communities

MMSU's Commitment

MMSU is committed to the eradication of hunger by implementing academic, research, development, and extension programs that promote sustainable agricultural practices and food products development.

At the heart of MMSU's commitment to eradicating hunger are its initiatives in collaboration with other development agencies. Its approach focuses on developing sustainable farming practices to increase agricultural productivity, deploying these to the grassroots. The university further supports the development of low-cost food products with high nutritional value, ensiing that people are not only fed but provided healthy food op[tions.

MMSU partners with LGU Sarrat to strengthen agricultural development for farmers

A three-year agreement was formalized on "Revitalizing Community Engagement to Institutionalize Partnerships for the Promotion, Extension, and Deployment of the MMSU-Glut 1 (Improved Honey Corn).

The three year agreement includes conduct of training on corn production, value-adding corn products, and literacy in enterprise development, and providing input assistance such as planting materials to the farmers. The project also aims to improve the quality of life of corn farmers in Sarrat by adopting improved farming technologies. This partnership shows the commitment of the MMSU to community development and agricultural advancement through sharing of MMSU's developed sustainable practices and innovative technologies in corn farming to foster growth of the Ilocano farmers.

Off-Season Tomato Production for Farmers

MMSU is committed to supporting farmers through knowledge-sharing and training programs, deploying the technology and knowledge-generated from researches conducted by the university. To support local farmers in improving their tomato yield, MMSU held a technology briefing on off-season tomato production on August 30 at ILAARRDEC-OSIS. The event drew 35 farmers from Burgos, Pasuquin, Vintar, Sarrat, Badoc, and Pinili, along with several agricultural extension workers. This new farming techniques aim to boost productivity and income of the local farmers.

Vintar farm grows MMSU hybrid tomatoes off-season

Despite the wet season and back-to-back typhoons this year, MMSU hybrid off-season tomatoes proved resilient. This was showcased during a technology demonstration at Pastor Wilmar Miguel's farm in Brgy. Saricao, Vintar, Ilocos Norte, proving that fresh tomatoes can be enjoyed year-round.

Pastor Miguel serves as the farmer-partner in demonstrating the viability of growing off-season tomatoes. The event was a collaboration involving MMSU, through its Research and Extension Directorate; the Provincial Government of Ilocos Norte, through the Office of the Provincial Agriculturist; and the Local Government Unit of Vintar.

Pastor Miguel believes that cultivating MMSU hybrid off-season tomatoes has the potential to improve farmers' livelihoods due to their “high yield and strong consumer preference.” He emphasized the importance of ensuring the successful reproduction of this variety and advocated for its widespread distribution and production.

Since its inception in 2016, the MMSU SOA program has been dedicated to empowering farmers by enhancing their knowledge and skills in modern agricultural practices. The initiative provides science-based, practical training to farmers across the region, promoting growth and innovation in agriculture.

With the assistance from the MMSU Technology Business Incubation and DA-PhilRice, RFAC will be able to use the facilities and equipment of the MMSU Food Innovation Center and participate in specialized training and coaching sessions. By working closely with local cooperatives, MMSU ensures that its innovations directly impact the local economy while also addressing the needs of consumers. MMSU recognizes the importance of developing technologies that have real-world applications, particularly those that can benefit the local economy and promote agricultural sustainability.

The commercialization of Brown Rice Krispies is expected to stimulate demand for brown rice, particularly the Hiami variety, and promote the sustainable use of local crops. Meanwhile, Brown Rice Coffee production will support the local coffee farming industry, offering farmers the chance to participate in the growing market for premium, locally-made coffee.

MMSU and the Department of Agriculture Regional Field Office 1 (DA-RFO1) agreed to renew the memorandum of agreement (MoA) that grants 25 years of use of 5.94 hectares of land for the Ilocos Norte Research and Experiment Center (INREC) at FEM Hall today, July 29.

The original MoA, signed on January 27, 2000, granted DA-RFO1 25 years to construct, install, establish, operate, and maintain a portion of MMSU's land as INREC Batac Station. This agreement facilitated research, development, and extension activities to improve the region's socio-economic conditions.

With the initial agreement set to expire next year, MMSU President Shirley C. Agrupis and DA-RFO1 Regional Executive Director Annie Bares signed a renewed contract, ensuring another 25 years of collaboration.

The signing was witnessed by Dr. Nathaniel Alibuyog, vice president for research, development, and innovation, Dr. Marilou Lucas, extension director, Dr. Dionisio Bucao, research director, Atty. Ma. Saniata Marcos, MMSU legal officer, Engr. Dennis Tactac, regional technical director for operation of Agricultural and Biosystems Engineer, Mr. Charles Charlie Belisario, OIC-INREC chief/Assistant APCO for Ilocos Norte, and Mr. Danny Russel Arcangel, laboratory technician.

During the MoA signing ceremony, President Agrupis emphasized, “This agreement is a testament to MMSU's commitment to expanding external linkages and partnerships, particularly with agencies such as DA that help us contribute to transforming lives in the region.”

The renewed agreement allows MMSU and INREC to continue their activities of mutual interest and benefit through their DA-MMSU Management Committee. These activities include research and development, technology promotion, publications, scholarships and training, technical assistance in their respective fields of expertise, sharing of high-value crop seeds, deployment of MMSU students for practicum, apprenticeship, and on-the-job training, and free use of facilities and equipment.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	RESEACHERS
R&D on the indigenous vegetable Alokon (Broussonetia luzonica)/ Menisa Antonio	Sty 4. Primary processing and food product development on alokon	Menisa Antonio, Evangeline Galacgac, Eleazar Grande, Felicitas Sanculi
Varietal development, evaluation and maintenance of legumes	Sty 1. Varietal evaluation of promising peanut lines and varieties	Jocelyn A. Bernabe
Varietal development, evaluation and maintenance of legumes	Sty 2. Varietal evaluation of promising soybean lines and varieties at MMSU	Jocelyn A. Bernabe
Varietal development, evaluation and maintenance of legumes	Sty 3. Varietal evaluation of promising mungbean lines and varieties at MMSU	Jocelyn A. Bernabe
Varietal development, evaluation and maintenance of legumes	Sty 4. Varietal evaluation of promising ICRISAT peanut genotypes at MMSU for drought tolerant areas	Jocelyn A. Bernabe
Identification of causal organisms of common dragon cactus diseases through STI for sustainable dragon fruit industry in Ilocos Norte	Identification of causal organisms of common dragon cactus diseases through STI for sustainable dragon fruit industry in Ilocos Norte	Mae Rose M. Maoirat-Abad, Noralyn B. Legaspi, Clarita Palacio, Grace Sheila P. Jalani
Technology Demonstration of MMSU Hybrid Tomatoes during Wet Season using Conventional and Improved Practices	Technology Demonstration of MMSU Hybrid Tomatoes during Wet Season using Conventional and Improved Practices	Jilves I. Jimenez, Dionisio S. Bucao, Marissa Atis, Constante Julian, Jonathan Ramos

PROJECT	STUDY	RESEARCHERS
R&D on the indigenous vegetable Alokon (Broussonetia luzonica)	Sty 4. Primary processing and food product development on alokon	Menisa Antonio, Evangeline Galacgac, Eleazar Grande, Felicitas Sanculi
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 1. Documentation of farmers' knowledge and practices on pigeonpea production, seed system and utilization	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 2. Assessment of the economic viability of pigeon pea as a climate change adaptation crop	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 3. Evaluation of farmers' acceptability of the pigeon pea (Cajanus cajan) as a climate-change adaptation crop	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 1. Revalidation of the production technology	NORALYN B. LEGASPI, Lea C. Agbigay
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 2. Optimization of the kamangeg flour production and karot detoxification technologies	NORALYN B. LEGASPI, Lea C. Agbigay

PROJECT	STUDY	RESEARCHERS
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 3. Food Product Development on Karot and Tugui	NORALYN B. LEGASPI, Lea C. Agbigay
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 1. Germplasm collection and characterization of vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien, Dionisio Bucao
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 2. Improvement of the cultural management of vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 3. Documentation of production practices for vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 4. Product development of vegetables in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien
Evaluation of promising varieties of vegetables for the Ilocos	Sty 2. Evaluation of different tomato lines in the Ilocos	Jonathan Ramos, Marissa Atis
Evaluation of promising varieties of vegetables for the Ilocos	Sty 3. Evaluation of eggplant developed at MMSU	Jonathan Ramos, Marissa Atis
Germplasm collection, evaluation, characterization, management practices and utilization of sweet potato and cassava in the Ilocos	Germplasm collection, evaluation, characterization, management practices and utilization of sweet potato in the Ilocos	Marissa Atis et al

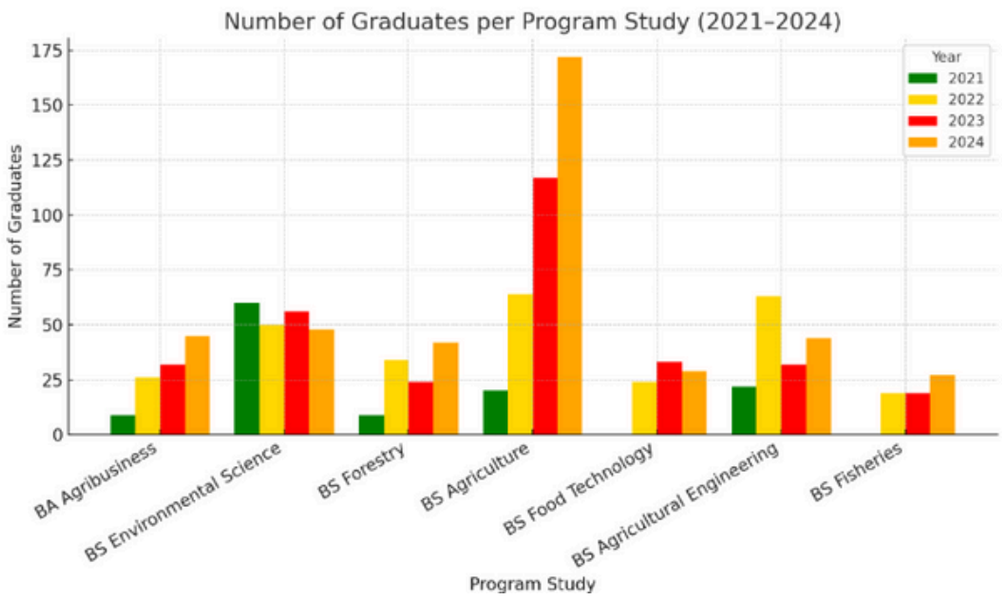
PROJECT	STUDY	RESEARCHERS
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 1. Varietal selection, maintenance, and seed production of glutinous corn	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 2. Performance evaluation of old entry yellow corn hybrids	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 3. Performance evaluation of new entry yellow corn hybrids	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 4. Performance evaluation of OPVs and glutinous corn varieties	Mario I. Remolacio, Constante Julian
Enhancing productivity and quality of aromatic rice cultivars through improved cultural and postharvest management practices and product development	Sty 1: Enhancing organic rice production through utilization of microbial inoculants	Dionisio Bucao
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 1: Development and Formulation of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 2: Promotion and Marketing of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 3: Production of IEC materials for Promotion and Commercialization of Pigeon Pea Nutri-based Products	Jocelyn A. Bernabe

PROJECT	STUDY	RESEARCHERS
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 1. Investigation of the effect of 1-MCP on ripening and shelf life of fruits and fruit vegetables (banana, mango, avocado) and fruit vegetables (tomato, bell pepper)	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 2. Evaluabon of the physicochemical and antioxidant properties of the different maturity of the freeze dried fruits and fruit vegetables (Papaya, mango, okra, tomato, cucurbit crops, and other high value crops)	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 3. Evaluation of the effect of maturity of fruit vegetables (high value crops (cucurbits, solanaceous)) and leguminous crops (mungbean, pigeonpea, and other crops) on the seed quality after storage.	Micah Benize G. Balbas, Raymund Julius G. Rosales, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 4. Evaluabon of the effect of maturity of fruits on the seed quality after storage (Custard apple, papaya, duhat, sugar apple, and tamarind)	Micah Benize G. Balbas, Raymund Julius G. Rosales, Christian Butch Andrew A. Balbas, Joanna P. Crosby, Glisten Faith S. Pascua
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 5. Evaluabon of the seed quality of primed seeds of agronomic and horbcultural crops (White corn, teosinte, leguminous crops, tomato, eggplant, pepper, and sugar apple)	Christian Butch Andrew Balbas, Raymund Julius G. Rosales, Micah Benize G. Balbas, Joanna P. Crosby, Glisten Faith S. Pascua

PROJECT	STUDY	RESEACHERS
National Garlic and other agri-food condiments R & D Center	Pj 1. Collection, Characterization, Conservation, and Improvement of Garlic Genetic Resources in the Philippines	Noralyn B. Legaspi, MaeRose Abad, Micah Benize Gregorio
National Garlic and other agri-food condiments R & D Center	Pj 2. Improvement of Garlic Productivity through Integrated Crop Management System	Dionisio S. Bucao, Nathaniel Alibuyog, Eugene Ramos, Julius Jimenez, Evangeline Galacgac, Marcylyn Ramos, Edwin Galutira, James Patrick Acang, Gerry Cantillo
Advancing Ilocos Indigenous Food Plants (IFP) food systems through academia-industry collaborative research and innovations toward health food security	Pj 1. Development of probiotics from indigenous root crops (Dioscorea spp.) duhat (Syzigium cumini), wax gourd (Benincasa hispida), garlic (Allium sativum) and bamboo shoot (Bambusa spp.) and nipa sap (Nypa fruticans) in Ilocos Norte	Shirley C. Agrupis, Dionisio Bucao, Rhian Jaymar D. Ramil, Ma Danica Ramil, Fairie Ann Domingo, Felicitas Sanculi, Grace Sheila Jalani, Johnmel Valerozo, Mee Jay Domingo, Arianne Faithe Mae Beseos, Mae Ann Batuyong, Karina Damo, Kristian Gaye Beltran, Xenia Elika Bucao,m Angelica May Mendoza, Alice Geraldine Pagaling, Jayson Cariaga,

Number of Graduates Associated with Food Sustainability

MMSU acknowledges its role for producing qualified professionals who can implement sustainable practices, drive the required changes in the local and national food systems, develop innovative solutions for food security, and eventually put an end to hunger and malnutrition.



MMSU's Commitment

Promote good health and holistic well-being among all University stakeholders and communities through education, research, training, and advocacy for improved quality life.

In 2024, MMSU intensified its commitment to health through the Blue Zone initiative, which advocates a healthy and balanced lifestyle. It also launched its Dentistry program with the aim of developing more health professionals for holistic health, achieved significant milestones in probiotics and black garlic research, and successfully implemented community health and wellness programs, including its annual university games. Aligned with the One Health approach, MMSU further expanded its reach by partnering with international universities in training its students for culturally-responsive healthcare, implementing health and wellness programs for persons deprived of liberty at the Batac City Jail, and implementing anti-rabies programs.

NUTRITALK: MMSU eyes to be a "blue zone' university

Fostering a healthier community in its 46th year, Mariano Marcos State University organized the first-ever NUTRITALK on January 11 at the MMSU SIP Hub. This lecture-cooking demo aims to promote a healthy lifestyle among MMSU constituents and stakeholders.

Nutritalk targeted the creation of a community dedicated to supporting and advocating balanced lifestyles. Furthermore, it highlights the university's desire to have a "Blue Zone", a specific scope of area where its people live longer due to their pristine health conditions.

Dr. Policarpio Joves Jr, the dean of the College of Medicine, served as the event's sole lecturer. He discussed details of architecting the "Blue Zone MMSU", where the university's constituents would be less vulnerable to health compromises, and as a result, would live a longer life.

MMSU joins Binawan University, Indonesia in strengthening global health education

To strengthen its commitment to producing globally competitive medical practitioners, MMSU officially partnered with Binawan University (BU) of Indonesia through signing a memorandum of agreement. The said partnership is a testament to our mission of nurturing medical professionals who can excel anywhere in the world.

The agreement includes plans for exchange programs for students and faculty members under the Bachelor of Science in Physical Therapy and Bachelor of Science in Pharmacy programs, as well as joint efforts in scientific research and publication.

Establishment of dentistry program in MMSU, the first among state universities and colleges in Northern Luzon

MMSU is once again breaking new ground with the establishment of its College of Dentistry, the first among state universities and colleges in Northern Luzon. After the rigorous technical evaluation by the Commission on Higher Education, the offering of the Dentistry program has been approved.

2024 UNIGAMES

The annual university games of the university is a platform to unite MMSU community sharing the passion for sportsmanship and excellence. Various sport events are competed among athletes from different colleges. This event also brings together all the students from the university to have the opportunity to socialize, enjoy and have fun – an academic break to balance their student life.

The 2024 MMSU University Games officially opened on November 19 at the MMSU Oval, marking the return of student-athletes and artists after recent storms. Representing OIC-President Dr. Prima Fe R. Franco, Vice President Dr. Bjorn Santos declared the games open, with 14 colleges—including the new College of Dentistry—joining the celebration of unity and sportsmanship.

Highlights of the ceremony included creative performances and the lighting of the MMSU athletic urn, led by volleyball team captain Lloyd Andrei Constantino and university officials. Technical officials and athletes also pledged fairness and integrity, reinforcing the values of the Unigames.

Sustainable Food Systems, probiotics discussed at MMSU forum

As part of its mission to improve community health, the MMSU Indigenous Food Plants (IFP) - Probiotics Program team under the Research Directorate, held a forum on December 16 at the Center for Flexible Learning. The forum, titled “Harnessing the Power of Probiotics and Functional Foods: A Path to Better Health and Wellness,” focused on exploring and sharing research and innovations in probiotics and food systems.

The forum was inspired by MMSU’s current CHED-LAKAS-funded research program, “Advancing Ilocos IFP Food Systems through Academia-Industry Collaborative Research and Innovations toward Healthy Food Security.” This initiative seeks to reduce malnutrition rates and enhance food security by unlocking the full potential of probiotics derived from the rich Indigenous Food Plants (IFPs) unique to the Ilocos Region. Through strong academia-industry collaboration, the project aims to modernize and innovate in fields such as food science, pharmacy, and food technology, to advance sustainable and health-focused solutions for the region and beyond.

MMSU community joins international AIDS Candlelight Memorial

Marking the International AIDS Candlelight Memorial, the Project SHIELD (Services on Health for Indigenous People/Indigents, Elderly, and Liberty Deprived) of the College of Health Sciences held an activity dubbed “Remember and Commit: A Call to Action that Encourages Global Solidarity, Resilience, and Progress Towards Achieving the Goal of Ending AIDS by 2030".

The memorial started with a foot parade followed by a series of lectures on the HIV/AIDS situation, stigma, and discrimination. Mr. Hallen T. Tawali of the Mariano Marcos Memorial Hospital and Medical Center served as guest lecturer, along with Prof. Zhiela Marie Abiva, Prof. Marianne Hazel Abad, and Prof. Jayflor Ronquillo of Project SHIELD.

The International AIDS Candlelight Memorial aims to raise awareness of HIV/AIDS and remove stigma and discrimination through education and support from professionals and local communities.

Led by Project SHIELD, the International AIDS Candlelight Memorial aims to raise awareness of HIV/AIDS and remove stigma and discrimination through education and support from professionals and local communities.

MMSU Black Garlic commercialized by BauerTek bags gold in international invention summit

Mariano Marcos State University reached another milestone in its R&D initiatives as Black Garlic, commercialized by BauerTek Farmaceutical Technologies Corp, secured the Gold Award (Pharma Category) and a Special International Award during the E-NNOVATE International Invention & Innovation Summit, held May 16-18, 2024 at Krakow, Poland. Black Garlic is one of the banner R&D products of the university.

MMSU's industry partner, BauerTek, and inventors Richard and Rigel Gomez, assisted in the black garlic's conversion from a research experiment into a full-blown commercial product. The packaged black garlic is aimed at helping patients with nerve disorders and certain forms of cancer.

E-NNOVATE is an annual event supported by the Polish Government in partnership with the International Federation of Inventors Associations. This year's summit featured more than 200 entries from 25 countries, competing along 20 categories such as Agriculture and Aquaculture, Energy, Drones and UAV, Pharma, Transport and Logistics, Chemistry, Medicine, Biotechnology and Medical Devices, Nanotechnology, Environment, Healthcare/Fitness, Food Technology, Information Technology, Safety/Security/Protection, Young Inventors, Industry 4.0, Electronics/Robotics/IoT, Education, Zero Waste Technologies, Home and Lifestyle, and Aerospace/Space Technology and Rockets.

MMSU CHS dean, pharmacy alumna bag awards in national health confab

Dr. Cheryll Didi Nellie Obra, acting dean of the MMSU College of Health Sciences (CHS) and a faculty member of the physical therapy department, secured 2nd place in the Oral Research Paper Presentation (Professional Category) at the 17th Philippine National Health Research System (PNHRS) conference held at Almont Inland Resort, Butuan City, from August 13-16.

The research on "Prevalence and Influencing Risk Factors of Health Conditions among Tobacco Farmers in Ilocos Norte" was one of six papers selected from 34 entries nationwide to compete in the PNHRS. Dr. Marlowe Aquino, planning director, and Prof. Ryan Dean Sucgang, center for human movement studies director, were also a part of the research team.

In the student category, recent BS Pharmacy graduate Ms. Eirenne Jem Soriano also achieved 2nd place with her presentation on “In vitro and in vivo blood glucose lowering activity and acute oral toxicity of Neonauclea bartlingii var. cumingiana leaf extract.”

The PNHRS conference, themed "Leveraging Global Networks in Advancing the National Health Research System," focused on enhancing national health research through global collaboration among researchers, policymakers, and stakeholders.

Earlier this year, on June 21, Soriano, as principal investigator, led her team to 1st place in the Student Category at the 2024 Region 1 Health Research and Development Conference (R1HRDC) held at Event Center, Virgen Milagrosa University Foundation Inc. Her team, including Shiloh Veil Aguillon, Riza Rogel, and Gabriel Silva, qualified for the PNHRS. Prof. Anabelle Alejo and Prof. Franklin Ibana served as their advisers.

The MMSU CHS continues to be a leading institution in health research and addressing the community's critical health needs.

Project SHIELD provides health promotion and disease prevention strategies to mitigate morbidity and mortality and emerging incidences of injuries, mental health issues, and alcohol and drug abuse.

MMSU President Shirley C. Agrupis highlighted the university's commitment to extending essential healthcare services to the marginalized. "You are in good hands. You are partnering with the top-performing health science provider in the country", she assured.

Dr. Agrupis emphasized that the partnership initiates a movement to uplift the marginalized, amplify their voices, and uphold the fundamental right to health for all.

Present in the MoA signing ceremony were Hon. Shiella Galano, Mayor of Paoay, Hon. Joseph De Lara, Mayor of Solsona, represented by Atty. Alfonso de los Reyes, and JInsp. Jayson DC Mabuti, District Jail Warden of the Batac District Jail.

Dr. Prima Fe Franco, MMSU Vice President for Academic Affairs; Dr. Marilou Lucas, MMSU Director for Extension; Dr. Doreen Domingo, dean of the MMSU Graduate School; Dr. Cheryll Didi Nellie Obra, dean of MMSU CHS; Dr. Roel Beljamin, chair of the Department of Nursing; Mr. Antonio Ganotisi, Municipal Administrator of Solsona; Dr. Ruth De Lara, Municipal Health Officer of Solsona; Mr. Jenar Buted, Public Health Nurse of Solsona; JO1 Kelvin Angelo Arcega of Batac District Jail; Prof. Mari Elaine Lorica, project leader of SHIELD; and other project staff and officials also served as attendees.

MMSU CVM holds seminar on rabies awareness

To strengthen the university's commitment to promoting public health, the Mariano Marcos State University College of Veterinary Medicine (MMSU-CVM) conducted a rabies awareness seminar on February 16. With the theme, "Fatal Bite Marks: Raising Awareness on the Reality of Rabies", the seminar provided knowledge about the transmission, symptoms, and preventive measures related to rabies.

Rabies is a preventable viral disease transmitted through the bite of wild mammals, including domestic animals. Every March, the country conducts an awareness campaign on rabies through Executive Order No.84, series of 1999. This advocacy raises people's insight on the dangers of the said infectious viral disease.

Dr. James Patrick Ku Peralta, MMSU College of Medicine (COM) Associate Dean, was selected as a Commission on Higher Education(CHED) scholar to attend an international training program at the Institute for Medical Research, National Institutes of Health in Setia Alam, Selangor, Malaysia, from December 2 to 6.

The program, titled "Clinical and Laboratory Diagnosis of Emerging Fungal Infections," was organized under the Southeast Asian Ministers of Education Organization – Tropical Medicine and Public Health Network (SEAMEO TROPMED Network), an organization renowned for advancing tropical medicine education and public health across Southeast Asia.

Dr. Peralta expressed his gratitude and emphasized the value of the training: "The emerging fungal infections discussed in this workshop widened my knowledge in the field of mycology. This is a crucial area, not only in hospital settings but also in the research field in our country," he shared.

As one of the scholars chosen under CHED's Higher Education Upskilling and Study for Advancement of Staff and Faculty (HUSAY) Program, Dr. Peralta's participation shows CHED's support for improving the skills of higher education professionals. The scholarship covered the program fees, accommodation, meals, and transportation, providing strong support for faculty development and international collaboration.

The training aimed to equip participants with advanced clinical and laboratory techniques for diagnosing and managing emerging fungal infections—a growing concern in both hospital and research settings globally. The event also fostered opportunities for collaboration among Southeast Asian nations to combat public health challenges.

Dr. Peralta's achievement not only enhances the capacity of MMSU but also contributes to strengthening research and clinical diagnostics in the Philippines, a critical step in addressing emerging fungal diseases.
The SEAMEO TROPMED Network is a specialized initiative under the Southeast Asian Ministers of Education Organization (SEAMEO). Its mission focuses on education, research, and capacity-building programs in tropical medicine and public health to address health priorities across the region.

RELEVANT RESEARCHES AND PROJECTS

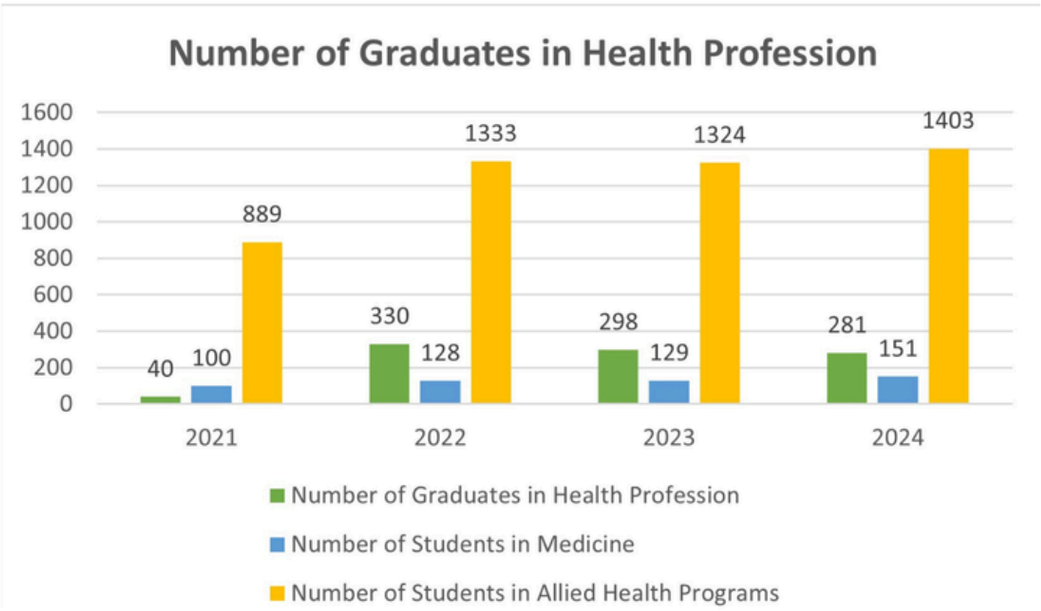
PROJECT	STUDY	Researchers
Epidemiology of Internal Parasites in Ilocos Norte	Epidemiology of Internal Parasites in Ilocos Norte	Melvin A. Bagot
Livestock Wastewater Treatment Using Constructed Freshwater Mangrove Wetland: A Nature-Based Solution to Tackle Pollution	Livestock Wastewater Treatment Using Constructed Freshwater Mangrove Wetland: A Nature-Based Solution to Tackle Pollution	Arlene L. Gonzales, Ronnel Puruganan
Consumption and Effects of Hallyu to the Filipino, Indonesian, and Malaysian Hallyu Consumers	Consumption and Effects of Hallyu to the Filipino, Indonesian, and Malaysian Hallyu Consumers	Clarizza Joy Tumenes, Karla Auria S. Galeon
Service Quality among Mariano Marcos State University (MMSU) Accommodation Establishments	Service Quality among Mariano Marcos State University (MMSU) Accommodation Establishments	PRINCESS PEARLY D. IGNACIO, QUINCY S. SAVELLANO, PRINCESS B. MUÑOZ, LOUELYN B. TABILI
In-vitro antihypertensive activity and gene expression analysis of Psychotria luzoniensis	In-vitro antihypertensive activity and gene expression analysis of Psychotria luzoniensis	Ma. Danica I. Ramil
LC-MS/MS-based metabolite profiling and In-vitro anticancer evaluation of the Philippine endemic Cinnamomum abacardium Kostern	LC-MS/MS-based metabolite profiling and In-vitro anticancer evaluation of the Philippine endemic Cinnamomum abacardium Kostern	Rhian Jaymar D. Ramil

PROJECT	STUDY	Researchers
Development of nature-based antimicrobial cosmeceutical products as RDE technologfies to combat COVID-19 crisis	Sty 1. Preliminary antimicrobial screening on extracts of locally-available herbals in ilocos Norte	Angelica May DC. Mendoza, Aileen O. Camangeg, Julie Ann V. Gattoc, Janelyn V. Rojas
Development of nature-based antimicrobial cosmeceutical products as RDE technologfies to combat COVID-19 crisis	Sty 2. Biological fingerprinting	Angelica May DC. Mendoza, Aileen O. Camangeg, Julie Ann V. Gattoc, Janelyn V. Rojas
Development of nature-based antimicrobial cosmeceutical products as RDE technologfies to combat COVID-19 crisis	Sty 3. Preformulation and formulation of nature-based cosmeceutical products	Angelica May DC. Mendoza, Aileen O. Camangeg, Julie Ann V. Gattoc, Janelyn V. Rojas
Development of nature-based antimicrobial cosmeceutical products as RDE technologfies to combat COVID-19 crisis	Sty 4. Antimicrobial assay of the formulated nature-based cosmeceutical products	Angelica May DC. Mendoza, Aileen O. Camangeg, Julie Ann V. Gattoc, Janelyn V. Rojas
Development of a Porous Ceramic-Based Material for Water Softening Applications	Development of a Porous Ceramic-Based Material for Water Softening Applications	ARLENE MIA G. RUGUIAN
A cross-sectional study on the readiness of community-based clinics in City of Batac, Ilocos Norte to Universal Health reform	A cross-sectional study on the readiness of community-based clinics in City of Batac, Ilocos Norte to Universal Health reform	Policarpio B. Joves, Jr., Phoebe Nicole Y. Agcaoili
Perceived competence in palliative care and end of life care among consultants of Mariano Marcos Memorial Hospital and Medical Center affiliated with Mariano Marcos State University-College of Medicine, A cross sectional study	Perceived competence in palliative care and end of life care among consultants of Mariano Marcos Memorial Hospital and Medical Center affiliated with Mariano Marcos State University-College of Medicine, A cross sectional study	Policarpio B. Joves, Jr., April L. Quintua-Alimbuyuguen

PROJECT	STUDY	RESEARCHERS
Tissue repair progression in liver and stomach of alcohol fed male ICR using freeze-dried Pomacea caniculata slime and bovine milk	Tissue repair progression in liver and stomach of alcohol fed male ICR using freeze-dried Pomacea caniculata slime and bovine milk	Doreen Domingo, Jessica Asuncion, Janelyn Rojas, Donna Mae B. Fronda, Rafael Jeve Macabiog
Development of rapid immunoassay-based multiples test kits for the simultaneous screening of HIV, HBV and Syphilis.	Development of rapid immunoassay-based multiples test kits for the simultaneous screening of HIV, HBV and Syphilis.	Cecile Melisse Derecho, Peter James Icalla, Christian Adam Espiritu, Genevieve Tupas, Jan Michael Antes, Lea Jane Ofima

Number of Graduates in Health Profession

MMSU is among the education institutions in the country producing the best graduates in the health profession. MMSU recognizes the critical role of these graduates in enhancing the country's capacity to deliver essential, high-quality, and accessible health services, building a resililient health system in the country.



MMSU's Commitment

Help achieve the goal of Quality Education by providing inclusive and equitable quality education and promoting lifelong learning opportunities with MMSU's brand of excellence.

MMSU continues to deliver its primary function of providing quality education through curricular reforms to promote inclusivity. In 2024, it increased its enrolment in both formal and non-formal educational programs, partnering with professional and media organizations to provide continuing education and alternative learning methods, and initiating mentoring programs for students as well as other institutions. It continued strengthening its flexible learning systems while intensifying quality assurance, paving the way to international recognition.

MMSU achieves Four QS Stars

Mariano Marcos State University (MMSU) further establishes its reputation as a leader in higher education in the Philippines, having been awarded a four-star rating by the prestigious Quacquarelli Symonds (QS) Stars rating system. This recent accolade marks another significant milestone in the history of MMSU which was the first state university in the Philippines to receive QS Stars rating, Three Stars, in 2020. With this new rating, MMSU aligns itself with some of the country's most respected universities.

The QS Stars rating system evaluates universities worldwide across eight critical performance indicators in four criteria: Core criteria (teaching, employability, internationalization, academic development; Learning environment (facilities); Specialist criteria (Program strength); and Advanced criteria (inclusiveness and social responsibility). MMSU excelled, achieving five stars in Teaching, Employability, Academic Development, and Social Responsibility. The university earned four stars in Facilities and Inclusiveness, three stars in Specialist Criteria relating to Education and Training, and two stars in Internationalization.

MMSU celebrated its exemplary ACHIEVEments by honoring alumni who have made significant social, economic, and cultural contributions in the Philippines and abroad. The awardees shared how their MMSU experience helped them overcome hardships, adapt to change, and excel in their fields. Among them, BGen. Godofredo D. Rabara reflected on his journey from poverty to a 34-year military career and expressed gratitude by donating Php 100,000 to the University.

Mr. Clarie P. Balagso, CFO of Luxury Holidays Inc., inspired the community with his story of rising from humble beginnings to becoming a global achiever. A BSBA Tourism Management graduate, he has traveled to over 50 countries, earned his first million at age 23, and received several international awards. Engr. Dennis Clyde Acantilado also credited MMSU for shaping him into a resilient and competent engineer, enabling his successful career in the Philippines and abroad.

MMSU President Shirley C. Agrupis emphasized that these alumni stories reflect the University's global impact and commitment to excellence. Alumni leaders and local officials likewise highlighted the importance of building a strong, supportive alumni community. The event gathered university officials, distinguished guests, alumni, and students in celebration of MMSU's legacy of achievement.

Envi Sci faculty, students win international pitching competition

The RecyConnect team—composed of faculty member Mr. Ronnel Pagurayan and BS Environmental Science students Mr. John Kenneth Calivoso and Ms. Wendy Villanueva—won 2nd place in the "Innovate for Impact: Solutions to Combat Plastic Pollution in Rivers and Canals" competition organized by the Asian Institute of Technology (AIT) on February 15. The event sought innovative technological and policy solutions aligned with SDG 12 (Responsible Consumption and Production) and SDG 14 (Life Below Water).

Their proposal, RecyConnect, is an online buying-and-selling platform for used plastic bottles designed to reduce plastic waste entering rivers. The team advanced to the finals after competing against 20 entries from Bangladesh, India, the Philippines, Sri Lanka, and Thailand. During the final round, they presented their idea before an evaluation panel composed of AIT and industry experts.

Mr. Pagurayan emphasized that the app harnesses the potential of web and mobile technology, while Mr. Calivoso credited the MMSU Bannuar Technology Business Incubation Program for inspiring their concept of turning waste into resources. For their achievement, the RecyConnect team will receive a $500 monetary award, with two other MMSU CAFSD entries also qualifying for the finals.

The National Mid-Year Convention (NMYC) is an annual event and inter-regional academic and non-academic competitions of 13 Regional Councils covered by the National Federation of Junior Philippine Institute of Accountants where Accountancy students of the MMSU College of Business, Economics, and Accountancy (CBEA) received awards during the 26th National Mid-Year Convention.

Margaret Cassandra Aganon, a senior accountancy student, and John Manuel Sanchez and Derrick Rykiel Labso, both junior accountancy students, placed 1st runner-up in Accounting Royale, which includes questions from the Licensure Examination for Certified Public Accountants (CPA) subjects. They represented Region 1 and CAR in the said competition.

MMSU produces licensed and top ranking professionals

Eighty-five graduates of Mariano Marcos State University passed the April 2024 Registered Electrical Engineer Licensure Examination, yielding an institutional passing rate of 54.49%. MMSU posted 61.82% for first-time takers (68 of 110) and 36.96% for retakers (17 of 46).

Additionally, Adrian Jude Calventas Dela Cruz of MMSU BSN Class 2023 placed seventh in the May 2024 Philippine Nurse Licensure Examination with a 90.60% rating. MMSU's latest board topnotcher is from Pagudpud, Ilocos Norte.

Joseph Ian Espiritu Baloaloa, a Bachelor of Secondary Education Major in Mathematics graduate of the MMSU College of Teacher Education, placed 10th in the March 2024 Licensure Examination for Professional Teachers, with a passing rate of 90.80%. A native of Bangui, Baloaloa is currently a student at the MMSU College of Law. He took a leave of absence to prepare for the board examination. Ninety-three of 97 first-time takers passed in the secondary level. Including retakers, MMSU's passing rate is 95.88%, way higher than the 58.78% national figure.

Janice Conceja Guillermo, a Bachelor of Science in Chemical Engineering graduate of MMSU, ranked sixth in the May 2024 Chemical Engineering Board Examination, with a passing rate of 84.80%. A DOST scholar from Laoag City, Ms. Guillermo also placed fourth in the December 2023 Chemical Technician Licensure Examination with a 91% rating. Twenty out of 38 MMSU examinees hurdled the examination, turning in a 52.63% passing rate. They are among the 640 new chemical engineers in the country.

Dee Vanna Galacgac, a 2023 magna cum laude of BS Food Technology and DOST scholar, has claimed the top spot in the August 2024 Food Technologist Licensure Examination. Jayson Doroyan, a 2021 graduate of the same program and faculty member of the MMSU Department of Food Science and Technology, also joined the ranks of the 510 new food technologists in the country.

Individual awards were also given to outstanding MMSU accountancy students. Mr. John Manuel Sanchez, an incoming fourth-year student, was recognized as the Most Outstanding Local Chapter President, while Mr. Derrick Rykiell Labso, also an incoming fourth-year student, bagged the Digital JPIAn Artist of the Year.

Mr. Sanchez was selected as the news editor of Adarna, the official publication of NJPIA. He also placed second in the Auditing Cup, a quiz bee for auditing theory and problems, and competed among local chapters of R1CAR. On the other hand, Ms. Z Angelhie Mei Blas, an incoming fourth-year student, was elected as next year's Vice President for Non-Academics for NFJPIA R1CAR.

The annual regional convention includes academic and non-academic competitions, selection of the next regional officers, and recognition of the various accomplishments of local chapters.

MMSU honors 538 academic achievers

The Mariano Marcos State University honored the academic achievers of the Class of 2024 on July 9 at the MMSU Covered Court, marking a historic milestone with 538 honorees—the largest in the university's history. This year's awardees include 37 magna cum laude, 489 cum laude, one with high distinction, and five with distinction. Leading the class is Godofredo D. Bumanglag IV, BA Communication graduate, magna cum laude, with a GWA of 1.2824. He also received the Villar Excellence Award and the UniFAST Academic Excellence Award.

The College of Teacher Education produced the most honor graduates with 222 awardees, followed by CBEA (170), CAS (53), CHS (41), CCIS (20), CAFSD (11), CIT (11), COE (7), and CAAT (3). In her message, University President Shirley C. Agrupis urged the graduates to uphold the values of excellence, integrity, and social responsibility, reminding them to carry forward the lessons and discipline cultivated at MMSU.

Efanna Felice Casil and Dominique Stefanny Lamoste, incoming fourth-year agriculture students of the MMSU College of Agriculture, Food, and Sustainable Development (CAFSD), won first place in project presentation during the 8th Summer Course Program held from July 21 to August 3 in Yogyakarta, Indonesia.
Together with two delegates from the University of Debrecen, Hungary, and Central Luzon State University, they presented their proposed action plan for improving global food sustainability and security.

The Faculty of Animal Science Universitas Gadjah Mada hosted this year's summer course program, which had the theme “Harmony in Animal and Agricultural Production for Global Food Security.” The program aimed to increase intercultural competence and expand international networks.

Dexter Lloyd Calderon, an incoming fourth-year agriculture student, also completed the summer course program. Althea Victoria Cainglit, an agricultural extension major, participated in the parallel session on the Asian Association of Agricultural Colleges and Universities (AAACU) Tour from July 21 to 31. They were accompanied by Mr. Keivin Cadavona, a faculty member of the Department of Agricultural Sciences (DAS).

MMSU President Shirley C. Agrupis praised the remarkable achievements of the students, emphasizing the institution's commitment to empowering agriculture students. She further underscored the university’s innovative learning programs tailored to meet the evolving needs of the agriculture sector.

Joining the MMSU team were participants from Cambodia, India, Indonesia, Malaysia, Pakistan, and South Korea. Through the support of Dr. Charlie Batin, OIC dean of CAFSD, and DAS faculty members, the students were able to engage in various lecture classes, laboratory practices, field works, cultural activities, and campus tours.

The Mariano Marcos State University College of Medicine (MMSU-COM) won 1st place in the National Healthcare Innovation Competition during the 7th APMC-SN National Convention held on May 3–5 in Pasig City. The winning team—first-year students Andrei Kelly Gomac, Alpha Kassandra Leonille Acain, Aira Kim de la Cruz, and Angelica Joy Garduque—also celebrated Gomac's recognition as Best Speaker. Western Visayas State University and the University of Santo Tomas placed second and third.

Guided by Dr. Phoebe Agcaoili and Dr. April Alimbuyuguen, the MMSU-COM team bested ten other medical schools with their project AdHEAR, a technology-based application designed to improve medication adherence among patients. Despite exhaustion from travel and limited sleep, the team credited their victory to teamwork, openness to feedback, and strong commitment to patient-centered innovation. Their project also won first place in the 13th APMC-SN Luzon Regional Assembly in April. Another MMSU entry, the FEELipino Project on mental health awareness, also qualified for the national competition.

MMSU-CTE project selected for USAID-funded UPSKILL program

The MMSU College of Teacher Education (CTE) educational innovation project has been selected for the USAID-funded U.S.-Philippines Partnership for Skills, Innovation and Lifelong Learning (UPSKILL) Transformation Accelerator Program. The project, "From Design to Impact: Last Mile Educational Innovation in the Northern Philippines," aims to improve educational access and quality in remote areas, aligning with USAID's mission to strengthen higher education institutions (HEIs) in the Philippines through innovative, community-centered solutions. MMSU's proposal is one of 12 accepted nationwide.

Funded by USAID Philippines and implemented by RTI International through the University Design Institute of Arizona State University, the UPSKILL program provides MMSU with a valuable opportunity to collaborate with global leaders in educational design. This collaboration will empower MMSU to develop practical and innovative solutions tailored to bridge educational gaps in Northern Luzon, with potential access to a Transformation Accelerator Grant for project implementation.

Through the UPSKILL program, MMSU is poised to pioneer innovative educational models that align with USAID's goals of enhancing the quality, accessibility, and relevance of education across the Philippines. This recognition not only strengthens MMSU's commitment to improving access to quality education but also reinforces its mission to promote sustainable and inclusive development in the Northern Philippines, delivering long-lasting benefits to underserved communities and setting a new standard for educational impact.

For Day 1, various speakers tackled internationalization, neuroscience on student learning and behaviors, different trends and experiences in teaching, inclusive learning, and exploring global perspectives in education. These are Dr. Peter Ndiang'ui of Florida Gulf Coast University; Dr. Ali Conant of Northern Arizona University; Mr. Wilbert C. Venzon of Institute of Information Technology College; Mr. Roberto H. Layague, Jr. of Jose Rizal University; Ms. Lucy O. Ayodo of International Community School, Ghana-Kumasi Campus; Dr. Kirsten Dyck of University of Virginia, USA and Dr. Saniya G. Abirin of Western Mindanao State University.

Discussions on innovative pedagogies and inclusive education were presented for Day 2. The speakers include Dr. Kristen Arnold of Gonzaga University; Dr. Didik Subiyanto of Universitas Sarjanawiyata; Dr. Margana of Vogyakarta State University; Prof. Jareason A. Fabre of MMSU CTE; Prof. Macharia Munene of United States International University; Dr. Ronald Candy S. Lasaten of MMSU CTE; Dr. Anna Saiti of University of West Attica Greece; Dr. Lucy Wandiri Mbirianjau of Kenyatta University, Kenya; Mr. Jose Feliciano Josef of FAQRA Academy; and Dr. Pranay Pandey of Bhatter College Dantan Paschim Medinipur.

The last day of the conference explored the emerging trends and technologies that shape the future of education. The speakers were Dr. Fredrick Ssempala of Kabale University); Dr. Senowarsito of Universitas PGRI Semarang, Indonesia; Ms. Tarisai Tara of MMSU Graduate School Student; Dr. Gatot Hari Priowirjanto, former Director of SEAMEO; Prof. Dr. Susilo Susilo of Mulawarman University, Indonesia; Mr. Haya Jahanzeb of Roots International Schools and Colleges, Pakistan; Dr. Riris Setyo Sundari of Universitas OGRI Semarang, Indonesia; and Ms. Funke Akpan of Top Fighters Academy, Nigeria.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 1: Foregrounding MMSU Students' Standpoints on Philippine Popular Arts: Bases in Designing and Developing Teaching-Learning Materials	KARLA S. GALEON, RICHARD S. AGBAYANI, RYAN BOI B. DOMINGO
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 2: Context-Based Instruction in Teaching the Different Genres of Popular Music	Janet F. Rivera, NELIE S. SALVADOR
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 3: Instructional Materials in Context-Based Learning on Pop Literature	Alma A. Sierra, DJOANNA D. PUNGTILAN
Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Economies) sa Ilocos Norte/Janet Rivera	Study 1: Pagmamapa ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Econmies) sa Ilocos Norte	Janet F. Rivera
Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Economies) sa Ilocos Norte/Janet Rivera	Study 2: Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Econmies) sa Ilocos Norte	Ana Marie Faith Corpuz

PROJECT	STUDY	Researchers
Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Economies) sa Ilocos Norte/Janet Rivera	Study 3: Pagbuo ng Kagamitang-Panturo bilang Gabay sa Pag-unawa ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence	Janet F. Rivera
Determinants of the academic performance of students of the College of Business, Economics and Accopuntancy, MMSU	Study 3. Determinants of the Academic Performance of Graduates of the Bachelor of Science in Business Administration Programs Programs	MEDIAH PERLE F. LAYAOEN
Determinants of the academic performance of students of the College of Business, Economics and Accopuntancy, MMSU	Study 4. Determinants of the Academic Performance of Graduates of the Bachelor of Science in Cooperative Management	CARMELA G. ADRIATICO
Determinants of the academic performance of students of the College of Business, Economics and Accopuntancy, MMSU	Study 6. Determinants of the Academic Performance of Graduates of the Bachelor of Science in Entrepreneurship Program	REENA GILAINE C. BAROT
Development of an Interactive Computer-Based Simulation Training for Tour Guiding/ PRINCESS B. MUÑOZ	Sty 1. A Framework Conceptualization for the integration of Theories and Practices in the Tour Guiding Sector	LOUELYN B. TABILI, PRINCESS B. MUÑOZ, RYAN D. DUQUE, QUINCY S. SAVELLANO, PRINCESS PEARLY D. IGNACIO
Development of an Interactive Computer-Based Simulation Training for Tour Guiding/ PRINCESS B. MUÑOZ	Sty 2. Application Software Development of Wonders-of-Ilocos-Norte (WIN) e-Travel Training	ARMAN A. BARRUGA, PRINCESS B. MUÑOZ * LOUELYN
Development of an Interactive Computer-Based Simulation Training for Tour Guiding/ PRINCESS B. MUÑOZ	Sty 3. Effectiveness and Acceptability Level of the Wonders-of-Ilocos-Norte (WIN) e-Travel Training	PRINCESS B. MUÑOZ, LOUELYN B. TABILI * ARMAN A. BARRUGA **

PROJECT	STUDY	Researchers
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 1: Foregrounding MMSU Students' Standpoints on Philippine Popular Arts: Bases in Designing and Developing Teaching-Learning Materials	KARLA S. GALEON, RICHARD S. AGBAYANI, RYAN BOI B. DOMINGO
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 2: Context-Based Instruction in Teaching the Different Genres of Popular Music	Janet F. Rivera, NELIE S. SALVADOR
Designing and Developing an Instructional Material (Workbook) for Philippine Popular Culture Course for MMSU Students/Alma Sierra	Study 3: Instructional Materials in Context-Based Learning on Pop Literature	Alma A. Sierra, DJOANNA D. PUNGTILAN
Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Economies) sa Ilocos Norte/Janet Rivera	Study 1: Pagmamapa ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Econmies) sa Ilocos Norte	Janet F. Rivera
Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Economies) sa Ilocos Norte/Janet Rivera	Study 2: Antropolohikal na Pagsusuri ng mga Lokal na Ekonomiyang Pamumuhay (Subsistence Econmies) sa Ilocos Norte	Ana Marie Faith Corpuz

PROJECT	STUDY	Researchers
Integration of Low, Medium, and High-Fidelity Simulation in Nursing Program: An Educational Innovation	Sty 1. The nursing learners' satisfaction on simulation expenses, clinical competence and confidence on sfae medication administration	Altroy Van C. Agtang, Zhiela Mari E. Abiva, Wilma F. Castillo
Integration of Low, Medium, and High-Fidelity Simulation in Nursing Program: An Educational Innovation	Sty 2. Experiences of nursing learners on medication administration: Simulation and clinical environment	Mari Elaine P. Loric, Sabina L. Pariñas
Integration of Low, Medium, and High-Fidelity Simulation in Nursing Program: An Educational Innovation	Sty 3: Effect of the progressive low, medium, and high-fidelity simulation teaching-learning modality on the clinical competence, confidence and satisfaction among the nursing learners	Sabina L. Pariñas, Zhiela Marie E. Abiva; Mari Elaine P. Lorica; Jonathan M. Laranang; and Marianne Hazel B. Abad, Altroy Van C. Agtang
Students' Perception of the Learning Environment of the Mariano Marcos State University – College of Medicine	Students' Perception of the Learning Environment of the Mariano Marcos State University – College of Medicine	Policarpio B. Joves, Jr., James Patrick K. Peralta, MD
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 1: Development of Pre-School Learning Materials for Flexible Teaching and Learning	Florante D. Romero, Anbert P. Layus, Mylene B. Rabe, May Flor C. Rivera, Celennie I. Sanchez, Cherish Joy B. Ulep
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 2: Development of Elementary School Learning Materials for Flexible Teaching and Learning	Gerry D. Abad, Romelyn T. Lagura, Leonardo D. Tejano, Mark Ian Tagami, Diana Lou Tapac, Catrina Mae Agustin

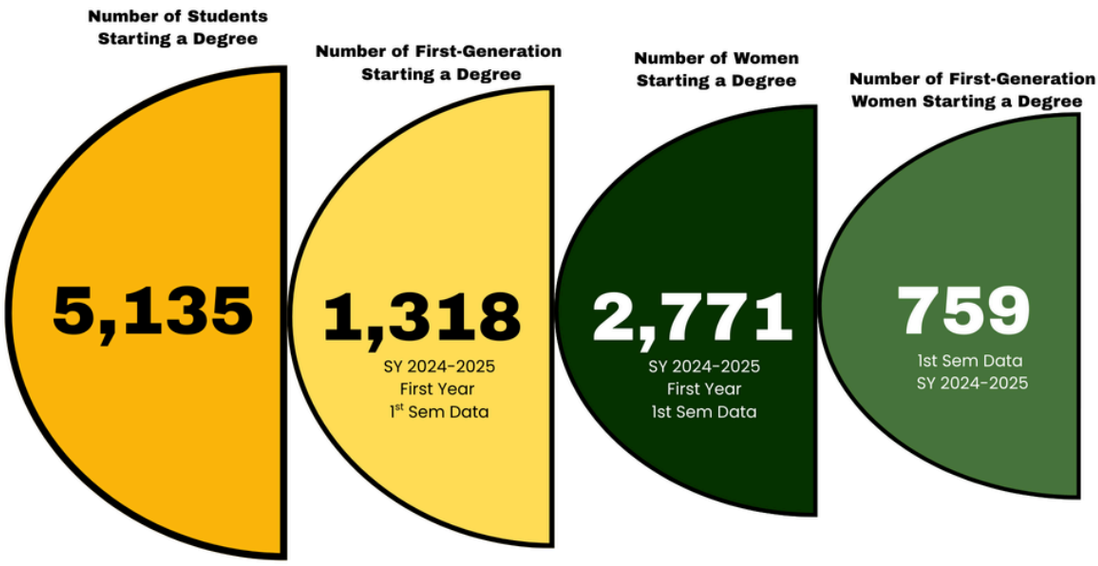
PROJECT	STUDY	Researchers
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 3: Development of Junior High School Learning Materials for Flexible Teaching and Learning	Froilan Alex C. Calixtro, Rosalie J. Bacister, Marlon R. Mamala, Hazel Marianne L. Mariano, Jayferson G. Panilo, Christy Ann M. Rahon
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 4: Development of Senior High School Learning Materials for Flexible Teaching and Learning	Elsie R. Marcelino, Edward O. Almazan, Jr., Rosalie J. Bacister, Mignon Cecilia S. Diego, Trichelita L. Pagtaconan, Daisy G. Sadian
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 5: Development of Learning Materials in Professional Education Courses for Flexible Teaching and Learning	Bert A. Gamiao, Liezel A. Concepcion, Andrian A. Dela Cruz, Romel Pascua, Michael T. Sacramed, Louie B. Villanueva
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 6: Development of Learning Materials in General Education Courses for Flexible Teaching and Learning	Ronald Candy S. Lasaten, John Paul C. Vallente, Mark R. Limon, Edelyn B. Asuncion, JR V. Cubangbang, Bryan Eli B. Sadorra
Development of Learning Materials for Flexible Teaching and Learning: A Response to the Challenges of the New Normal/ Ronald Candy S. Lasaten	Sty 7: Development of Learning Materials in Major Education Courses for Flexible Teaching and Learning	Estrella R. Pacis, Riel Anne B. Acosta, Jahnese D. Asuncion, Neil Christian T. Corales, Julius C. Pumaras, Eba Christie C. Rivera
Identifying the Basic Sight Words of Multilingual Ilokano Learners as a Basis in Developing Early Language Learning Materials	Identifying the Basic Sight Words of Multilingual Ilokano Learners as a Basis in Developing Early Language Learning Materials	LEONARDO D. TEJANO, May Flor C. Rivera, Lovely G. Simon, Anbert P. Layus, Mylene B. Rabe

PROJECT	STUDY	Researchers
Intelligibility and Acceptability of Internet Philippine English Lexical Items in Vlogs among ESL Teachers	Intelligibility and Acceptability of Internet Philippine English Lexical Items in Vlogs among ESL Teachers	JAREASON C. FABRE, DICHI RICA ALESON-FABRE
Students' Oral Communication Apprehension: Basis for the Development of Communicative-Based Activities in Purposive Communication	Students' Oral Communication Apprehension: Basis for the Development of Communicative-Based Activities in Purposive Communication	JAY-AR A. CRISTOBAL, BERT A. GAMIAO, RONALD CANDY S. LASATEN
Manual on Ethical and Responsible Use of Artificial Intelligence Tools in Education	Manual on Ethical and Responsible Use of Artificial Intelligence Tools in Education	MARK JOSEPH D. PASTOR, Jay-ar A. Cristobal Winicel May C. Ancheta, Bert A. Gamiao, Romelyn T. Lagura
Linking Theory to Practice by Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students/ Madeline T. Fernando	Sty 1. Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students in English, Filipino and Ilokano	Lilybeth C. Agno, Madeline T. Fernando, Gina Sylvia S. Gaoat, Leonardo D. Tejano
Linking Theory to Practice by Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students/ Madeline T. Fernando	Sty 2. Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students in Science and Mathematics	Leizel A. Concepcion, Romelyn T. Lagura, Julius C. Pumaras, Roselia A. Borromeo
Linking Theory to Practice by Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students/ Madeline T. Fernando	Sty 3. Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students in Music, Arts, Physical Education and Health	Gorge M. Bagaoisan, Marlon R. Mamala, Lei Cavin Joshua C. Agno

PROJECT	STUDY	Researchers
Linking Theory to Practice by Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students/ Madeline T. Fernando	Sty 4. Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students s in Edukasyong Pantahanan at Pangkabuhayan (EPP), Edukasyon sa Pagpapakatao (EsP), and Araling Panlipunan (AP)	Edelyn B. Asuncion, Janeth M. Luis, Mark Ian C. Tagami
Linking Theory to Practice by Investigating the Lesson Planning Problems of the Bachelor of Elementary Education (BEED) Students/ Madeline T. Fernando	Sty 5. Development and Validation of a Resource Book in Lesson Planning	Madeline T. Fernando , Lilybeth C. Agno, Leizel A. Concepcion, Gorge M. Bagaoisan, Edelyn B. Asuncion
Noncognitive Factors as Predictors of College Performance and Achievement in a Teacher Education Institution	Noncognitive Factors as Predictors of College Performance and Achievement in a Teacher Education Institution	Abril Ryan A. Dacanay, Melanie R. Arellano, Romnick R. Agag, Angelica L. Abella

Proportion of First Generation Students

First-generation students represent a core challenge and opportunity in the pursuit of inclusive and equitable quality education.



MMSU's Commitment

Help achieve gender equality and empowerment of all women and girls by instituting relevant policies and programs anchored on respect for the dignity of the human person.

Beyond compliance, MMSU continuously implements programs aimed at gender equality and empowerment for women and girls, as well as non-binary identities. Notably, in 2024, several student initiatives made waves within and outside the university, signifying the strong the strong integration and impact of MMSU's GAD advocacies and programs.

MMSU community celebrates women power with purple parade

The Mariano Marcos State University (MMSU) held its first-ever Purple Parade on March 8 to celebrate International Women's Day, gathering students and employees in support of gender equality. With the theme "Sustaining Gender Mainstreaming for an Equitable and Inclusive MMSU Community," the event featured advocacy chants, banners, and a zumba session that energized and unified participants.

Representing President Shirley C. Agrupis, Dr. Oscar Agpao emphasized MMSU's commitment to fostering a gender-inclusive environment and urged the community to challenge stereotypes and uphold everyone's rights. Organized by the Gender and Development Focal Point System and partner offices, the celebration will continue with forums, competitions, conferences, and the Rubuat ken Aruat fashion contest.

MMSU tourism student org bags regional GAD award for promoting young girl's welfare

Project Alikaka, a program that helps young girls, has won a top regional award for the Association of Tourism Management Students (AToMS) of MMSU College of Business, Economics, and Accountancy (CBEA). The group received the Ending Violence Against Women Project Excellence Award (E-VAW PEA) from the Commission on Higher Education Regional Office I (CHED RO1) on December 13.

Meaning "to take care" in Ilokano, Project Alikaka provides counseling and support to young girls at Parola Santuwaryo, Inc. in Laoag City. Launched in April 2022, it offers three main activities: education, mental health support, and skills training, all to help the girls cope.
The project, recognized as a positive example of change in Region I, is a collaboration between AToMS, the Laboratory Travel Hub, and the Junior Association of Hospitality Practitioners.

MMSU students org drawn to renewable energy at USAID ESP WISER Project

The United States Agency for International Development (USAID), through its Energy Secure Philippines (ESP) project, launched its WISER initiative, "Enabling Women in STEM, Strengthening Academic Partnerships for Renewable Energy," at MMSU on October 9. In partnership with the Department of Energy and the Philippine Technological Council, the program aims to strengthen women's participation in renewable energy engineering and increase student interest in engineering programs related to energy security and resilience.

USAID-ESP has already reached nearly 20,000 senior high school students nationwide and introduced mobile applications to help STEM learners prepare for college entrance exams. During the MMSU event, students participated in mentoring activities and a hands-on workshop building windmill models, where the MMSU Laboratory High School–Laoag Campus emerged as winners. University Laboratory Schools principal Prof. Philstia Mercuria Parreñas Bagayas highlighted the program's role in inspiring future scientists, engineers, and innovators.

USAID Project Manager Dr. May Rose Imperial emphasized the need to encourage more youth—especially young women—to pursue engineering careers. The event underscored women's empowerment in a traditionally male-dominated field and was organized by the MMSU Department of Electronics Engineering, together with partner organizations. Over 100 participants from the Laoag and Batac campuses attended.

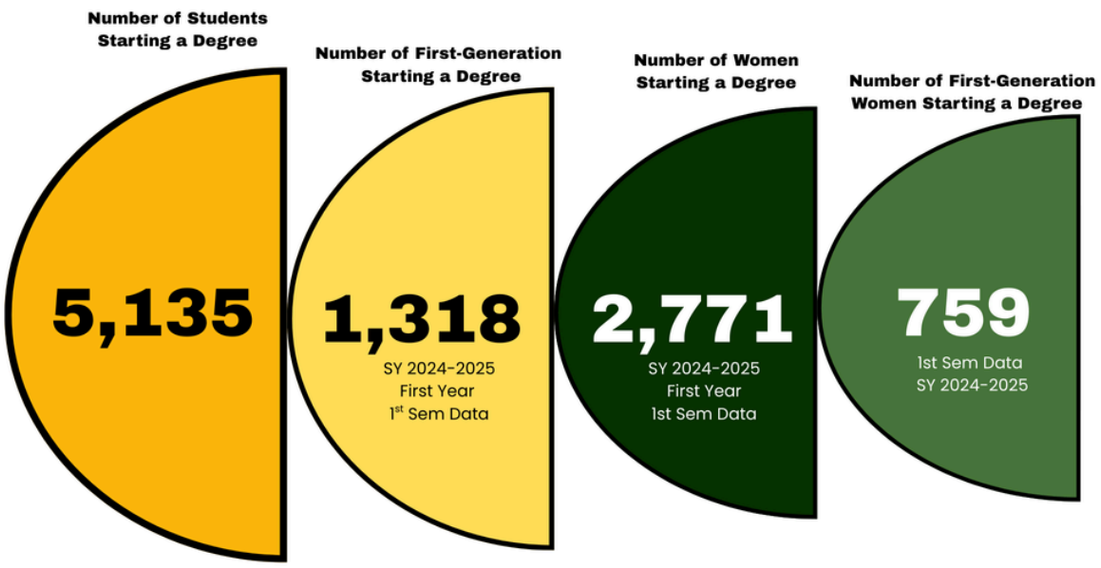
RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Gender mainstreaming framework for teacher education institution (TEIs) in Region I/ Imelda Najorda	Sty 1. Gender mainstreaming initiatives in administration governance for teacher education institution (TEIs) in region I	Imelda NajordaGorge Bagaoisan, Romnick C. Agag
Gender mainstreaming framework for teacher education institution (TEIs) in Region I/ Imelda Najorda	Sty 2. Gender mainstreaming initiatives in curriculum and instruction for teacher education institution (TEIs) in region I	Shalina R. Asuncion-Cusilit, Eva B. Macugay, Kharen Vidad
Gender mainstreaming framework for teacher education institution (TEIs) in Region I/ Imelda Najorda	Sty 3. Gender mainstreaming initiatives inresearch among teacher education institution (TEIs) in region I	Mark Ian Tagami, Jareason Fabre, Regie Boy B. Fabro, Abril Dacanay
Gender mainstreaming framework for teacher education institution (TEIs) in Region I/ Imelda Najorda	Sty 4. Gender mainstreaming initiatives in extension and community linkages among teacher education institution (TEIs) in region I	Nina Christelle M. Sumantac, Al Cameron G. Avila, Maverick Antony

PROJECT	STUDY	Researchers
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 1. Palay and Corn Production	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 2. Poultry and Piggery Production	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 3. Pomology Project	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 4. Product Processing	Susan G. Aquino
Gender in Agribusiness: An Analysis of Gender Dynamics in Selected Projects of MMSU Production	Study 5. Marketing	Susan G. Aquino

Proportion of First Generation Female Students

MMSU demonstrates commitment in creating inclusive environments and providing opportunities for women ehich is essential for sustainable development.



MMSU's Commitment

Help achieve the goal of ensuring access to water and sanitation for all as safe water and sanitation are key foundations for good health, higher production of food and energy, and the preservation of the water resources.

MMSU remains committed to ensuring access to clean water and sanitation, extending technical assistance to the communities. It launched an integrated solid waste management system that contributes to the promotion of overall sanitation on campus.

Hygiene awareness and Proper Handwashing Activity

Promoting Clean Hands for a Healthy Future: The Mariano Marcos State University Department of Biological Sciences and the Biological Circle Organization, in collaboration with the Schools Division of Ilocos Norte, led by Dr. Loida Natividad, hosted an engaging and informative handwashing activity at Adams Central Elementary School, Ilocos Norte.

Initiated by the Philippine Society for Microbiology Northern Luzon Chapter, Biology Teachers Association-Ilocos Region Chapter, and the Philippine Society of Biochemistry and Molecular Biology - North Luzon Chapter, the event combined vibrant visuals and interactive demonstrations to teach children the importance of proper hygiene and handwashing techniques.

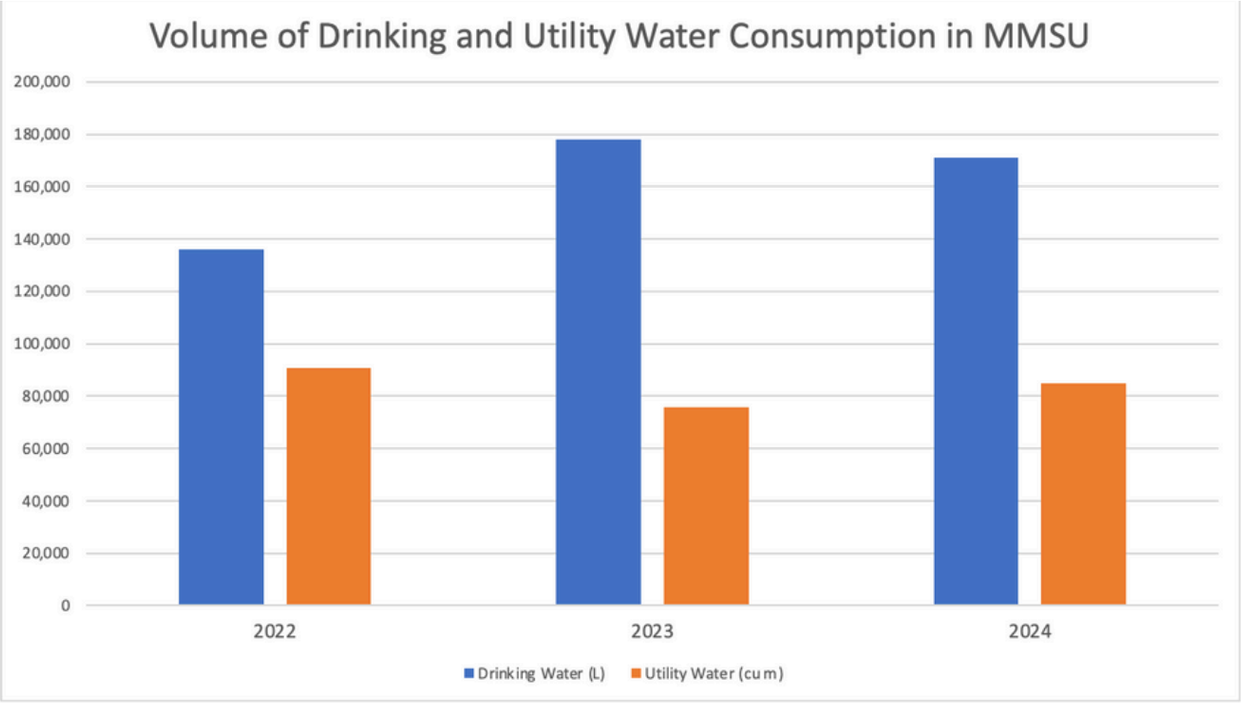
This initiative aimed to inspire young minds to adopt lifelong healthy habits for a cleaner and safer community

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Livestock Wastewater Treatment Using Constructed Freshwater Mangrove Wetland: A Nature-Based Solution to Tackle Pollution	Livestock Wastewater Treatment Using Constructed Freshwater Mangrove Wetland: A Nature-Based Solution to Tackle Pollution	Arlene L. Gonzales, Ronnel Pagurayan
Magwayen: A Ground Water Level Fluctuation, Quality and Monitoring System	Magwayen: A Ground Water Level Fluctuation, Quality and Monitoring System	Pricilla Faye T. Simon, LAWRENCE JOHN C. TAGATA, ABEGAIL E. RUIZ, MA. FREGIE GAILE PAGADOR, CHRISTIAN PHILIP M. AUSTRIA
Development of a Porous Ceramic-Based Material for Water Softening Applications	Development of a Porous Ceramic-Based Material for Water Softening Applications	ARLENE MIA G. RUGUIAN
Combined Aerobic and Anaerobic Treatment of Nipa-Based Bioethanol Distillery Spent Wash	Combined Aerobic and Anaerobic Treatment of Nipa-Based Bioethanol Distillery Spent Wash	Loreli Faye T. Manzano, Alice Geraldine H. Pagaling, Jansenn A. Sagadraca, Jayson F. Cariaga, Shirley C. Agrupis, Roque A. Ulep

Water Consumption Monitoring

For management and decision-making on water resources consumption and utilization, MMSU is keeping track of the distributed and consumed potable drinking water by the faculty, staff nd students of the university.



MMSU's Commitment

Ensure access to affordable, reliable, sustainable and modern energy for all and achieve the goal of energy self-sufficiency

As home to the National Bioenergy Research and Innovation Center and an affiliated renewable energy center, MMSU continues to conduct research on nonconventional energy sources, implement training and capacity building, and engage in related advocacies with national and international partners. As a result, it was recognized by the Department of Energy during the Sustainable Energy Awards 2024.

MMSU, the only HEI recognized at Sustainable Energy Awards 2024

Mariano Marcos State University (MMSU) was recognized as the only Philippine higher education institution to receive special recognition at the Sustainable Energy Awards 2024 from the Department of Energy (DOE) during the ceremony at Makati Diamond Residences on December 12. DOE Secretary Raphael P.M. Lotilla noted that the awards aim to inspire innovation, encourage sustainability, and accelerate the country's shift to cleaner energy.

Vice President for Resource Generation and Management Bjorn Santos accepted the award on behalf of MMSU OIC-President Prima Fe R. Franco, describing it as a milestone for both the university and the nation's renewable energy efforts. MMSU has a long-standing partnership with the DOE, dating back to the 1980s with the establishment of the Affiliated Renewable Energy Center (AREC), and continues to lead initiatives such as bioethanol research, capacity-building programs for local government units, and the National Bioenergy Research and Innovation Center (NBERIC).

Vice President for Research, Development, and Innovation Nathaniel Alibuyog emphasized the importance of DOE collaboration in advancing renewable energy in Northern Luzon. Alongside MMSU, several organizations—including ICSC, GIZ GmbH, UNDP's DREAMS project, and USAID Philippines—were recognized for their contributions to sustainable energy. This recognition further strengthens MMSU's role in promoting cleaner, more sustainable energy for the Northern Philippines and the country as a whole.

MMSU to adopt Japan's waste-to-energy and dioxins removal technologies

The National Bioenergy Research and Innovation Center (NBERIC) of MMSU will adopt Japan's Waste-to-Energy (WtE) and dioxins removal technology developed by Mitsubishi Heavy Industry Power IDS Co., Ltd. On Sept. 23, Mr. Masayoshi Hashikawa, Senior Engineer and Technical Advisor of Mitsubishi Power, delivered a lecture at the MMSU Center for Flexible Learning, presenting Japan's advanced waste-to-energy methods that convert garbage into energy while minimizing harmful emissions.

Mr. Hashikawa also discussed dioxins, furans, and related compounds, explaining global tolerance standards and Japan's compliance methods. He emphasized the importance of using technology to manage waste responsibly, while MMSU OIC President Dr. Prima Fe Franco expressed gratitude for the partnership and reaffirmed the university's commitment to transforming waste into sustainable energy.

The event was attended by MMSU officials, Mitsubishi representatives, faculty, students, and local government partners. This initiative addresses the country's waste management challenges and strengthens MMSU's commitment to environmental sustainability, reflected in its recent 251st global ranking in the UI GreenMetric World University Rankings.

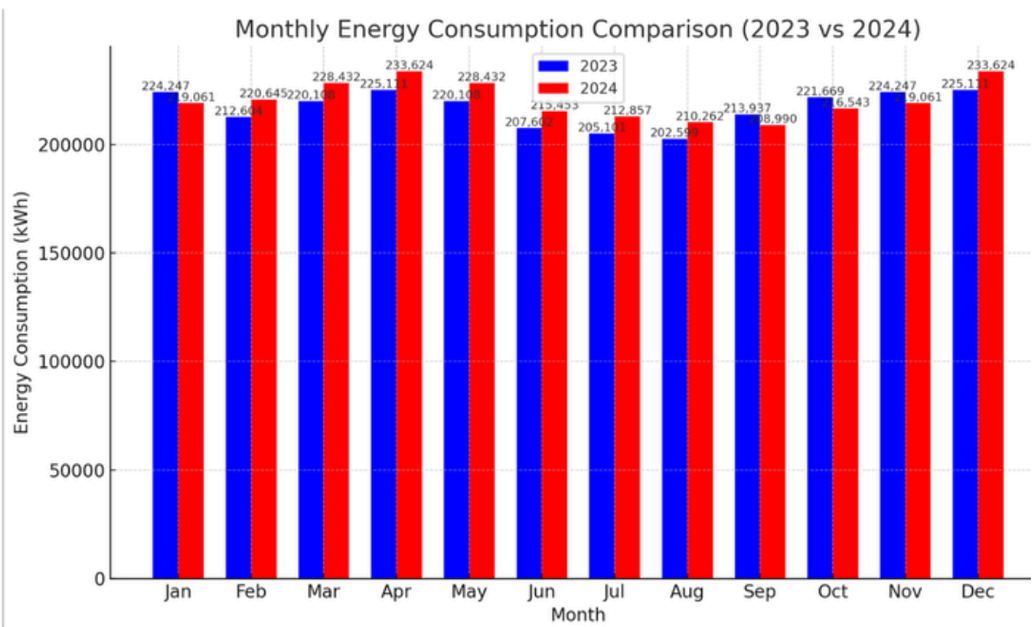
MMSU students drawn to renewable energy at USAID ESP WISER Project

The United States Agency for International Development (USAID), through its Energy Secure Philippines (ESP) project, launched its Women Engineers as Instruments for Sustainable Engineering in Renewable Energies (WISER) initiative titled "Enabling Women in STEM, Strengthening Academic Partnerships for Renewable Energy".

In collaboration with the Department of Energy and the Philippine Technological Council, this project seeks to promote women's participation in renewable energy engineering and address the growing need for energy security and resilience. Additionally, it aims to boost student enrollment in engineering programs focused on renewable energy.' During the workshop, participants created a Windmill working model using a DC Motor, Fan Blade (propeller), LED Light, red and black wire, folder, and illustration board for 30 minutes. LHS Laoag Campus students emerged as winners during the event.

Renewable Energy Sources in the University

Mariano Marcos State University is harnessing 3 sources of renewable energy - solar and biomass. Solar power has been utilized for a variety of applications (i.e. solar powered irrigation pumps, solar-powered lights, solar PV generators). On the other hand, through the National BioEnergy Research and Innovation Center, the university formulates 95% Bioethanol from Nipa sap. The produced bioethanol gets blended with clean gasoline at 20% blending to be used for university vehicles, motorcycles, and brush cutters running in spark-ignition engines.



RELEVANT RESEARCHES AND PROJECTS

TITLE	RESEARCHERS
Cost-Effectiveness and Performance Comparison of 1HP Solar-Powered and Conventional Irrigation Pumps for Small-Scale Farming in Batac City, Ilocos Norte	Psalm David A. Pastor, Darrel D. Pasalo, Jay Ar A. Malapira, Melwyn P. Pascua, Rigor G. Gabur, Thomas D. Ubiña
Lab-Scale Production, Formulation, and Testing of Anhydrous Biofuel Blends	Nathaniel Ericson R. Mateo, Roque A. Ulep, Christopher Baga, Loreli Faye T. Manzano
Bioethanol Production Process Optimization	Psalm David A. Pastor, Christopher C. Baga, Nathaniel Ericson R. Mateo, Thomas D. Ubiña, Raymart O. Villena, Loreli Faye T. Manzano, Laurenz Aglipay, Eric R. Halabaso,Nathaniel Ericson R. Mateo, Roque A. Ulep, Shirley C. Agrupis
Economic Viability of Bioethanol Production based on Feedstock Quality	Marjorie Garcia, Loreli Faye T. Manzano, Psalm David Pastor, Nathaniel Ericson R. Mateo, Shirley C. Agrupis
Bioenergy and Bioelectricity Production Using Fuel Cell Technologies	Eric R. Halabaso, Loreli Faye T. Manzano, Ralph Lawrence R. Queddeng, Laurenz R. Aglipay, Shan Caezar L. Tambio, Neal Janus R. Pacis, Ryan Jade l. Quibael
Potential Assessment and Comparison of a 300W Horizontal and Vertical Generator for Household Applications in the City of Batac, Ilocos Norte	Salustiano D. Morales, Jay Ar Malapira, Darrel D. Pasalo, Melwyn P. Pascua, Thomas D. Ubiña

8 DECENT WORK AND ECONOMIC GROWTH

MMSU's Commitment

Helps promote inclusive and sustainable economic growth and full and productive employment and decent work for all.

The program also features a self-service frictionless model for easy delivery of interactive content and webinars through the Wadhwani Technology Platform, recorded masterclasses by mentors and industry experts, video presentation case studies, open-source courses, booster clinics, and pitch days with assigned mentors. Facilitators and faculty members will also be assigned to assess the practice ventures.

It was highlighted that through this program, it will help to shape the future of entrepreneurship in the university. This endeavor is helpful in enhancing the design thinking skills of MMSU students particularly in strengthening entrepreneurship and technology classes.

Decent work and economic growth tackled in MMSU int'l biz confab 2024

Fortifying its agenda to empower women's rights, the Mariano Marcos State University (MMSU) conducted its first-ever purple parade today, March 8, in celebration of International Women's Day. With the theme "Sustaining Gender Mainstreaming for an Equitable and Inclusive MMSU Community," the parade featured a sea of purple-clad participants, including MMSU employees and students. This initiative showcases our dedication and commitment to address the changing societal concerns towards equitable and inclusive communities fostering dialogue, understanding, and action.

This gathering serves as a means to strengthen innovation and partnerships that align with our shared vision of a sustainable future. It is our responsibility to empower our faculty, students, and stakeholders to be catalysts of change.

MMSU conducts PRISTINE project discussion and workshop

As a way of contributing to economic growth and innovation in the region, the Mariano Marcos State University conducted a discussion and workshop dubbed "Promoting Research and Innovation to Strengthen Transformation of Industries and Enterprises (PRISTINE) in the Ilocos Region, Philippines" on February 15-16 at the Center for Flexible Learning-International Room. During the said event, MMSU researchers and experts from the Asian Development Bank (ADB) and the Department of Trade and Industry (DTI) presented the initiative's plans, goals, and proposals.

The PRISTINE initiative comprises of renewable energy, agri-fishery, creative and interactive media, information and communication technology, agri-tourism, and health and pharmaceuticals.

MMSU students org drawn to renewable energy at USAID ESP WISER Project

In collaboration with the Department of Energy and the Philippine Technological Council, this project seeks to promote women's participation in renewable energy engineering and address the growing need for energy security and resilience. Additionally, it aims to boost student enrollment in engineering programs focused on renewable energy.' The event featured career mentoring programs and the launch of mobile applications on both iOS and Android platforms designed to help STEM students prepare for college entrance exams. These apps cover a range of subjects, including chemistry, pre-calculus, and other scientific and mathematical disciplines, and are accessible offline.

The event also focused on the need to empower women in engineering, as shared by Ms. Lynx Marvia Orig from LHS Batac, who emphasized that the event was a powerful platform for encouraging young women to enter a traditionally male-dominated field like engineering.

The event was organized by the MMSU Department of Electronics Engineering, headed by Engr. Lawrence John Tagata, in partnership with the Institute of Electronics Engineers of the Philippines Ilocos Norte Chapter represented by Engr. Wilson Duldulao, and the College of Teacher Education. Over 100 participants from the MMSU Laoag and Batac campuses were present.

Accenture Inc. also donated 30 laptops to MMSU. This is part of Accenture's ongoing commitment to fostering academic excellence and equipping students with the tools needed for success in the digital age.

Ms. Tierro said Accenture Inc. is honored to be partnering with MMSU. She also stated that like Dr. Agrupis, Accenture Inc. is also a dreamer, particularly when it comes to human capital. “If we work together, we will achieve great things,” she added.

For her part, Marianne Castillo, managing director of Accenture, Inc., highlighted that the collaboration is significant in bridging the gap between academic learning and practical application, “MMSU has always been our partner. This day is a very special day for us because our mutually beneficial relationship between academia and industry continues,” she said.

On May 22, academic staff from Mariano Marcos State University participated in a workshop with Accenture that focused on curriculum development. The event aimed to strengthen Accenture's collaboration with MMSU by integrating their programs into the curricula of specific colleges, including CBEA, CAS, CCIS, and College of Health Sciences.

With over 200 locations worldwide, Accenture, Inc. is a leading global professional services company that helps the world’s leading businesses, governments, and other organizations build their digital core, optimize their operations, accelerate revenue growth, and enhance citizen services—creating tangible value at speed and scale.

MMSU partners with MechaniWeb Inc. to intensify technological capabilities in education service delivery

Mariano Marcos State University and MechaniWeb Inc. have forged a memorandum of understanding (MoU) today, June 28, at the University Review Center.

Signed by MMSU President Shirley C. Agrupis and Engr. Jomarc Baquiran, managing director of MechaniWeb Inc., the new partnership aims to provide hands-on support for integrating professional design and creative software into curricula, ensure easy access to licensed Autodesk and Adobe software, and create appropriate training materials.

The collaboration includes engaging students in core subjects and theory with hands-on projects, connecting with industry, partners, and communities, and guiding students to an intuitive understanding and mastery of professional tools and workflows.

Furthermore, MMSU will act as a digital creatives learning partner by subscribing to and integrating Autodesk and Adobe products into the curriculum, specifically Fusion 360 and other relevant CAD, digital arts, and creative design software.
In her message, Dr. Agrupis highlighted the university's commitment to enhancing educational service delivery, particularly in mainstreaming technological support services between and among university stakeholders.

Known as Autodesk's authorized academic partner in the Philippines, MechaniWeb Inc. provides educational and technical support such as free Autodesk software training and curriculum enhancement assistance to students, educators, and academic institutions.

MMSU TBI inks agreement with food start-ups in Ilocos Norte

To foster innovation among local startups, MMSU, through its Technology Business Incubation (TBI), has signed a memorandum of agreement (MoA) with food manufacturers Tasty Treats and Snack Stop today, September 23, at the FEM hall.

MMSU OIC President Dr. Prima Fe Franco, Research Director Dr. Dionisio Bucao, MMSU TBI chief Prof. Armie Sabugo, Food Innovation Center chief Dr. Felecitas Sanculi, Science Research Assistant Mr. Eleazar Grande, Tasty Treats representatives Junie Lei Gile and Vince Domingo, Snack Stop representatives Valerie Saludez and Chloe Denisse Ramiscal were present during the signing ceremony.

As part of the agreement, MMSU TBI will provide essential incubation services such as market validation, prototype development, Intellectual Property Protection, pilot testing, business model development, business plan preparation, pitching and registration, and training and coaching sessions.
Dr. Franco shared the university's dedication to supporting local businesses. "Through this partnership, we aim to equip our young incubatees with the necessary tools, knowledge, and technical expertise to thrive in the competitive food industry," she said.

The representatives of the local manufacturers, who are also fourth-year entrepreneurship students of MMSU, expressed their gratitude, recognizing the potential for growth and expansion that the university's incubation program can provide.

With these initiatives, MMSU aims to bridge the gap between academic research and local industry, providing technical assistance and expertise to boost product development, packaging, and marketability.

MMSU continues to lead in PH for decent work and economic growth

Mariano Marcos State University (MMSU) has once again established itself as a leading institution in the Philippines, maintaining its impressive global standing in the 2024 Times Higher Education (THE) Impact Rankings. MMSU ranks 601-800 globally and fifth in the Philippines. Replicating last year's feat, MMSU remains the nation's number one for SDG 8 (Decent Work and Economic Growth), with a global rank of 301-400. Home to the National Bioenergy Research and Innovation Center, MMSU also excels in SDG 7 (Affordable and Clean Energy), ranking 101-200 globally and 2nd in the Philippines.

MMSU achieved remarkable ranks across various SDGs, including SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 3 (Good Health and Well-being), SDG 11 (Sustainable Cities and Communities), and SDG 15 (Life on Land). MMSU President Shirley C. Agrupis commended the entire university community, expressing that "Our performance in the 2024 THE Impact Rankings reflects our strong commitment to helping improve the quality of life for our people." Dr. Mee Jay Domingo added, "This recognition underscores the collaborative efforts and dedication of our faculty, staff, and partners."

The Times Higher Education Impact Rankings assess universities against the United Nations' Sustainable Development Goals (SDGs), with 2,152 institutions worldwide participating this year. Over the years, MMSU has inspired and assisted other Philippine higher education institutions in pursuing international rankings, leading to a notable increase in the number of universities and colleges participating in prestigious global rankings.

MMSU holds its largest job fair for graduating students

To provide an avenue for graduating students and their potential employers, Mariano Marcos State University (MMSU) conducted its largest job fair yet for graduating students on June 28 at Teatro Ilocandia.

Organized by the MMSU Career Hub Unit of the Office of Student Affairs and Services (OSAS), in partnership with the Provincial Government of Ilocos Norte (PGIN) and Department of Labor and Employment (DOLE), this year's job fair accommodated 59 private companies and 12 government agencies in the province.

Hon. Medeldorf Gaoat, Board Member of the Second District of Ilocos Norte, served as the guest speaker during the event. He expressed his support by encouraging the graduating students to serve with passion and diligence once they graduate from MMSU.

As the number of participating companies and agencies doubled, MMSU President Shirley C. Agrupis extended her gratitude for the trust given to MMSU, stating that "the MMSU brand of academic excellence has always been a top choice among recruitment companies and agencies".

Meanwhile, Prof. Emil James Tanagon, OSAS director, said that the job fair prepares graduating students for real-life work situations by equipping them with the needed knowledge and skills. Prof. Tanagon also highlighted that the graduating students underwent pre-employment coaching activities and mock interviews to prepare for the job fair.

Also present during the event were Dr. Geraldeen Pascual, chief of the MMSU career hub unit; Police Colonel Frederick Obar, Provincial Director of the Ilocos Norte Police Provincial Office; Lt. Colonel Adrian Gayuchan, Chief of Police of the City of Batac Police Station; Ms. Leona Villa Duldulao of DOLE; Mr. Chandler Higoy, assistant head of PGIN PESO; and Ms. Chloe De la Rosa, job fair focal person of DOLE.

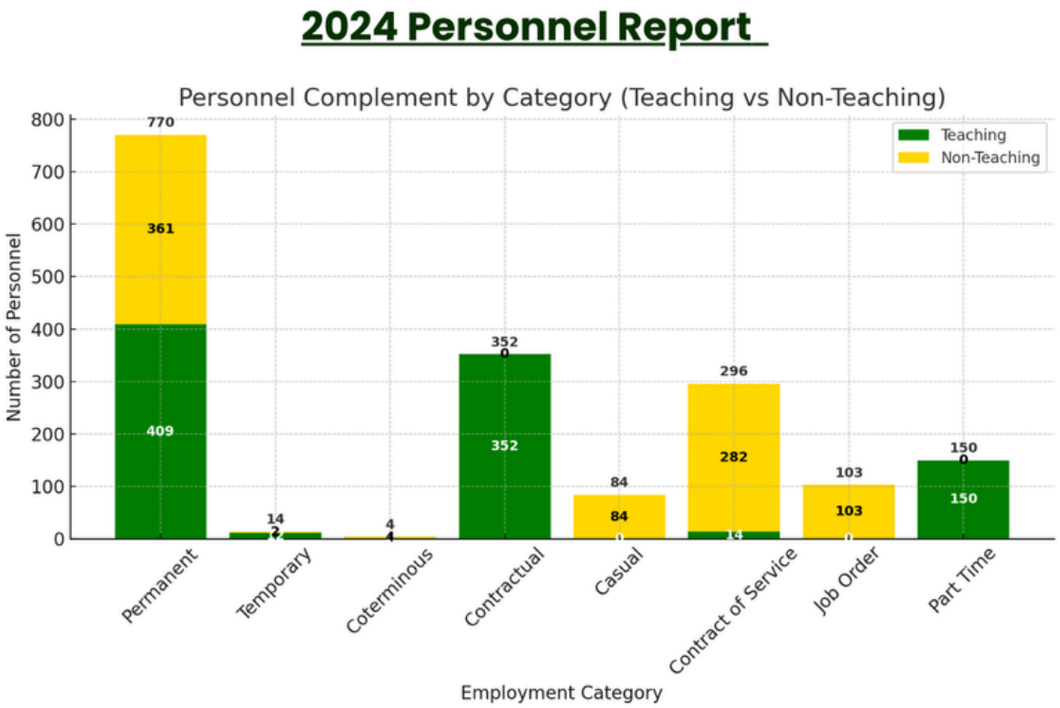
RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 1: Development and Formulation of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 2: Promotion and Marketing of Pigeon Pea Nutri-Based Products	Jocelyn A. Bernabe
Maximization and Commercialization of Pigeon Pea Nutri-Based Products as a Source of Livelihood	Study 3: Production of IEC materials for Promotion and Commercialization of Pigeon Pea Nutri-based Products	Jocelyn A. Bernabe
Pj 1. Strengthening the tourism industry in Ilocos Norte/ Luzviminda M. Mendiola	Sty 1. Mapping of the tourist attractions in Ilocos Norte	Eva Jean Y. Viernes, Sheila B. Baquiran, Marissa C. Lista, Richard Jay B. Agtang
Pj 1. Strengthening the tourism industry in Ilocos Norte/ Luzviminda M. Mendiola	Sty 3. Characterization of Ilocano cuisine for culinary tourism development in Ilocos Norte	Harlynn Joy G. Antonio/ Jerico T. Padamada, Rogelio A. Abiva, Jr., Jerico T. Padamada, Ma. Kristel T. Sacoco
Development of sea cucumber-based cosmeceutical	Development of sea cucumber-based cosmeceutical	Janelyn V. Rojas
Satisfaction Level of Employers on the Job Performance of Mariano Marcos State University Pharmacy Graduates for 2019-2022	Satisfaction Level of Employers on the Job Performance of Mariano Marcos State University Pharmacy Graduates for 2019-2023	Reynaldo B. Coloma, Aileen O. Camangeg, Trixie Ann Navarro, Esther Faith S. Gabriel, Kristian Gay D. Beltran

PROJECT	STUDY	RESEARCHERS
Regional Agri-aqua innovation system enhancement	Pj 1. Strengthening the IP-TBM offices in ILAARRDECs CMIs through the RAISE Program	Dionisio S. Bucao
Regional Agri-aqua innovation system enhancement	Pj 2. Reinforcing the agribusiness management in ILAARRDECs CMIs through the RAISE Program	Jay Pee B. Ilacas
Regional Agri-aqua innovation system enhancement	Pj 3A. Boosting the agri-aqua technology business incubator in MMSU through the RAISE Program	Ethel Reynda M. Caliboso
Regional Agri-aqua innovation system enhancement	Pj 4. Championing agri-aqua knowledge products/ technologies via media platform through the RAISE program	Love Grace D. Campano
Formulation and optimization of agri-based commodities and market potential	Formulation and optimization of agri-based commodities and market potential	Eleazer Grande, Felicitas P. Sanculi, Kathlene Tomas, Emil James Tanagon, Jerson S. Coloma, Lei Frances Ribac, Joyce Alejo, Johnmel A. Valerozo, Analie Rosales, Rendel Jay Nisperos

Proportion of Employees on Secure Contracts

Mariano Marcos State University looks after the welfare of its employees by prioritizing job security and worker protection for a sustained economic growth and inclusive employment for all.



MMSU's Commitment

Implement strategies to improve infrastructure, promote inclusive and sustainable industrialization, and foster innovation to make MMSU and its communities resilient and future-ready

To banner Industry, Innovation, and Infrastructure, MMSU launched several campaigns for upscaling innovation capacity of both students and beneficiaries. Several key infrastructure were also finished, equipped with sustainable technologies.

SILLAG-1, MMSU Bannuar TBI Wrap Up Provincial Startup Pitch Competition

The Consortium for Sustainability, Innovation, Leadership, Linkages, Access, and Growth (SILLAG) Region 1, together with MMSU Bannuar Technology Business Incubator, conducted a provincial startup pitch competition for college faculty researchers and students on July 3 at the University Center for Flexible Learning. The competition provided avenues for young entrepreneurs to share their startup ideas and receive mentorship from experts.

The winning teams are HABIYA by Ace Argee Vizcarra, Yoshilin Fujitani, and Roanne Kate Galarce; BINHI by Floren Mae Magulod, Trisha Mae Corpuz, and Abigail Jemimah Pasion; and Iloko Crafts by faculty researchers Marifaye Flores, Ryan Daniel Asuncion, and Krystel Jane Antonio. They will compete in the regional SILLAG hackathon, "Hackathon by the Beach," in La Union this September.

DOST-PSTO Pangasin and SILLAG Project Leader Engr. Arnold Santos thanked the Bannuar TBI and mentors for supporting innovative ideas and igniting entrepreneurial spirit. SILLAG-1 fosters startup growth, innovation, and entrepreneurship, contributing to the Department of Science and Technology's goal of creating a dynamic ecosystem for new ventures.

MMSU-CAFSD students bag 3rd place in Swiss Innovation Prize Competition

Senior students of the MMSU College of Agriculture, Food, and Sustainable Development (CAFSD) bagged third place in the Swiss Innovation Prize Competition hosted by the Embassy of Switzerland in the Philippines from November 19 to 21 at the Somerset Hotel, Makati City.

Efanne Felice Casil (BS Agriculture) and Jessa Ibon (BS Agribusiness) received a cash prize of Php 30,000 and a plaque for their win in the Sustainability category. Their coach, Mr. Christopher Demetrio Ruiz, a faculty member of the CAFSD Department of Agribusiness, along with Technology Business Incubator (TBI) chief Prof. Armie Sabugo and TBI mentor Engr. Eric Halabas, guided them throughout the competition.

The MMSU students will also be featured in the business journal of the Swiss Chamber of Commerce in the Philippines and the Swiss Embassy. A total of 162 entries competed under three streams: digitalization, sustainability, and prosperity streams.

In the competition, Casil and Ibon pitched their technology dubbed “MAIS: Revalorizing Corn Wastes to Solution,” an innovative approach that addresses groundwater contamination by using corn cobs and husks as natural purifying filters.

Now in its second year, the Swiss Innovation Prize Competition serves as a platform for innovation and supports new ideas with the potential to drive economic growth and improve society. It serves as an avenue for young scholars, entrepreneurs, startups, and researchers to showcase their solutions and secure initial funding.

DroneAcharya, MMSU hold international drone workshop

A five-day International Training Workshop on Drone Technology and Applications began on November 25 at the MMSU National Bioenergy Research and Innovation Center (NBERIC), running until November 29. Organized by the MMSU Office of Internationalization, Linkages, and Partnerships (ILP) in collaboration with DroneAcharya Aerial Innovations Ltd., the workshop aims to equip participants with techniques and knowledge to effectively utilize drone technology across various applications.

Participants include MMSU faculty and staff, as well as representatives from Mindanao State University-Maguindanao, Ilocos Sur Polytechnic State College, Cagayan State University, SEARCA, and local government units of Batac and Sta. Rosa. MMSU OIC-President Prima Fe Franco, represented by VP Dr. Virgilio Julius Manzano, emphasized that the workshop "provides participants with a valuable platform to master drone technology, empowering them to lead innovations in various industries."

DroneAcharya Aerial Innovations Ltd., an Indian deep-tech data science company, highlighted applications in delivery, farming, inspections, filming, and rescue operations. Participants gain hands-on experience in photogrammetry, remote sensing, drone safety, GIS, LiDAR technology, and drone simulations. This follows a 2023 MoU between MMSU and DroneAcharya to establish a drone school, a center of excellence, and GIS-related courses, strengthening MMSU's role in advancing drone technology education in the region.

MMSU, JICA launch cutting-edge equipment for black garlic value chain

Advancing its support for the black garlic value chain in the Philippines, Mariano Marcos State University (MMSU) and the Japan International Cooperation Agency (JICA) unveiled a range of new equipment designed to improve the efficiency and productivity of black garlic farming.

In a launching ceremony held at MMSU Crop Research Laboratory on June 20, Dr. Dionisio Bucao, director for research, innovation, and technology, highlighted that the new equipment will streamline the harvesting process of MMSU black garlic and boost the economic potential and global competitiveness of the Philippine black garlic industry.

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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In a launching ceremony held at MMSU Crop Research Laboratory on June 20, Dr. Dionisio Bucao, director for research, innovation, and technology, highlighted that the new equipment will streamline the harvesting process of MMSU black garlic and boost the economic potential and global competitiveness of the Philippine black garlic industry. The university`s black garlic is recognized for its health benefits and rising demand in local and international markets.

The equipment comprises a tractor, sprinklers, water pumps, motor-driven sprayers, preparation tables, push carts, food sealers, black garlic racks, and a tractor-trailer. Demonstrations of these tools were conducted during the event.

The equipment acquired is part of the "SDG Business Verification Survey with the Private Sector for the Value Chain of Black Garlic in the Philippines" project, carried out by MMSU and Takara Inc. In April 2023, JICA, MMSU, and Takara Inc. solidified their collaborative commitment by signing the Minutes of the Meeting for the Sustainable Development Goals (SDGs) Business Verification Survey with the Private Sector, with signatures from Dr. Agrupis, JICA Philippines Chief Representative Sakamoto Takema, and Takara Inc. President Takarada Kimio.

In February this year, MMSU and Takara Inc. extended their partnership to further promote black garlic production and enhance the value chain in Ilocos Norte. The MMSU Black Garlic, commercialized by BauerTek, won the Gold Award (Pharma Category) and a Special International Award at the E-NNOVATE International Invention & Innovation Summit, held from May 16-18, 2024, in Krakow, Poland.

MMSU, Accenture ink agreement to upskill future IT professionals

To strengthen digital upskilling of future information technology professionals, the Mariano Marcos State University and Accenture, Inc. have forged a partnership through a Memorandum of Agreement signing ceremony held on May 29, at the Center for Flexible Learning.

Signed by MMSU President Shirley C. Agrupis and Ambe Tierro, Country Managing Director of Accenture, Inc., the three-year partnership includes on-the-job training or internship opportunities, campus recruitment activities, learning sessions, and various seminars and workshops for students.

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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Accenture Inc. also donated 30 laptops to MMSU. This is part of Accenture's ongoing commitment to fostering academic excellence and equipping students with the tools needed for success in the digital age.

Present at the signing ceremony were Amy Castro, HR People Advisor of Accenture, Inc.; Mon Valentin, Site PMO of Accenture, Inc.; Dr. Prima Fe Franco, MMSU vice president for academic affairs; Prof. Emil James Tanagon, MMSU director of the students affairs and services office; Dr. Geraldeen Pascual, MMSU chief of career hub; Atty. Ma. Saniata Marcos, MMSU legal officer; Dr. Marlina Lino, dean of the College of Arts and Sciences (CAS); Dr. Angelina Abrojena, dean of the College of Business, Economics, and Accountancy (CBEA); Dr. Andrea Garcia, faculty member of the College of Computing and Information Sciences (CCIS); and other staff from Accenture, Inc.

On May 22, academic staff from Mariano Marcos State University participated in a workshop with Accenture that focused on curriculum development. The event aimed to strengthen Accenture's collaboration with MMSU by integrating their programs into the curricula of specific colleges, including CBEA, CAS, CCIS, and College of Health Sciences.

With over 200 locations worldwide, Accenture, Inc. is a leading global professional services company that helps the world’s leading businesses, governments, and other organizations build their digital core, optimize their operations, accelerate revenue growth, and enhance citizen services—creating tangible value at speed and scale.

MMSU unveils new buildings

Mariano Marcos State University unveiled state-of-the-art buildings and facilities today, January 22. Among these are the College of Medicine (COM) Academic Research and Support Facilities, Auxiliary Buildings, 4Ps and student dormitories, Research, Development, and Extension II (Garlic Research Center), and the MMSU High School Administration Building.

This launching specifically highlights the COM Academic Research and Support Facilities Building is equipped with modern laboratories, lecture halls, and research spaces to foster excellence in medical education and research while the auxiliary buildings of the College of Health Sciences (CHS), College of Arts and Sciences (CAS), College of Agriculture, Food and Sustainable Development (CAFSD), and College of Engineering (COE) will offer a wide array of foods and drinks with a cozy ambiance.

For further details: https://www.mmsu.edu.ph/news/mmsu-unveils-new-buildings

MMSU-CIT prof bags silver award in international inventions exhibit

Prof. Zaldy Fernandez, a faculty member of the MMSU College of Industrial Technology (CIT), is one of the Filipino inventors honored with a prestigious Silver Award at the 49th International Exhibition of Inventions Competition in Geneva, Switzerland, on April 17-21.

The Geneva International Exhibition of Inventions is the largest yearly gathering dedicated solely to inventions on a global scale. It is backed by the Swiss Federal Government, the State, and the City of Geneva, as well as the World Intellectual Property Organization (WIPO) and the International Federation of Inventors Associations (IFIA).

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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Prof. Fernandez showcased the Multi-Fuel Dryer, a 2022 NICE-winning device from Mariano Marcos State University. This innovative equipment offers a dual function of drying and baking for various products, making it a practical solution for micro, small, and medium enterprises (MSMEs) with diverse processing needs.
The CIT professor expressed his heartfelt gratitude and reflected on the significance of his achievement, stating, " Winning the silver medal at the esteemed 49th Geneva International Invention Contest serves as evidence that our sacrifices yielded fruitful outcomes."

MMSU President Shirley C. Agrupis commends the international awardee, emphasizing that this significant accomplishment is a testament to the university's commitment to advancing useful and sustainable innovations.
A recipient of the Civil Service Commission Pagasa Award, Prof. Fernandez also created machinery designed to enhance the livelihoods and efficiency of farmers and fishermen. His innovations have consistently earned top honors in local, regional, and national research symposiums.

ATI-RTC 1 recognizes MMSU-based ILAARRDEC's support in agri-fishery development

The Agricultural Training Institute - Regional Training Center 1 (ATI-RTC 1) recognized MMSU and the MMSU-based Ilocos Agriculture, Aquatic Resources Research and Development Consortium (ILAARRDEC) for their contributions to agri-fishery development in the region during the Agriculture and Fisheries Extension Stakeholder's Forum and Techno Gabay Program (TGP) Summit, held on October 10-11 in Lingayen, Pangasinan.

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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The Agricultural Training Institute - Regional Training Center 1 (ATI-RTC 1) recognized the MMSU-based Ilocos Agriculture, Aquatic Resources Research and Development Consortium (Ilaarrdec) for its contributions to agri-fishery development in the region during the Agriculture and Fisheries Extension Stakeholder's Forum and Techno Gabay Program (TGP) Summit on October 10-11 in Lingayen, Pangasinan. MMSU received a plaque of appreciation for its significant role in advancing agriculture and fisheries through research, technology, and extension services, and was also awarded as a Partner-Member Agency in the implementation of TGP.

Representing MMSU OIC President Dr. Prima Fe Franco, Vice President Dr. Virgilio Julius Manzano, Jr. described the award as a testament to the university's commitment to strengthening the agri-fishery sector amidst challenges such as climate change, market shifts, and limited resources. "Through research, technology, and extension services, we are ensuring that our innovations in agriculture and fisheries reach the people who need them most," he stated, noting the university's support for the Sustainable Development Goals.

The summit brought together extension workers from universities, government agencies, local government units, private institutions, and rural organizations to share agricultural and fishery technologies and highlight best practices. MMSU and ATI-RTC 1's partnership, strengthened in January 2023, continues to deliver research-based information and technical assistance, supporting programs such as Magsasaka Siyentista and FITS to improve the livelihoods of farmers and fisherfolk.

The Mariano Marcos State University (MMSU) and Enviro Scope Synergy Inc. (ESSI) entered into a memorandum of understanding (MoU) today, January 31, at the MMSU Ferdinand E. Marcos Hall.

Signed by MMSU President Shirley C. Agrupis and Mr. Prashant Dargani, chief executive officer of ESSI, the agreement marks the beginning of collaborative efforts to conduct technology demonstration and intervention projects on different agricultural technologies. This tie-up is also expected to elevate the competencies of students and community members involved in the initiative through applied technology and utilization.

The five-year agreement has three components: Technology demonstration of the agricultural technologies through enhancement and proper management system, evaluation of ESSI technologies for improved crop management, and educational capacity and promotional interventions of agricultural technologies. Dr. Marlowe Aquino, MMSU director for planning, will spearhead the said project.
Dr. Agrupis expressed her enthusiasm for the new partnership and underscored the importance of partnering with reputable organizations like ESSI to elevate the university's research and extension initiatives further.

Dr. Charlie Batin, dean of the College of Agriculture, Food, and Sustainable Development, Mr. Jeremiah Romano, research and development manager of ESSI, and other officials of both parties were also present at the event.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Safe ambulatory rehabilitation using kawayan orthopedic devices	Sty 1. Designing, Fabricating, and Testing a Prototype Sustainable Standard Bamboo Crutches	Richard Callo, Ryan Dean T. Sucgang, Charlie B. Batin, Rafael Domingo
Safe ambulatory rehabilitation using kawayan orthopedic devices	Sty 2. Designing, Fabricating, and Testing a Prototype Sustainable Standard Bamboo Parallel bars	Chester Mark Cariaga, Ryan Dean T. Sucgang, Charlie B. Batin, Rafael Domingo
Safe ambulatory rehabilitation using kawayan orthopedic devices	Sty 3. Designing, Fabricating, and Testing a Prototype Sustainable Bamboo Standard kawayan walkers	Francis Clarence C. Chua, Ryan Dean T. Sucgang, Charlie B. Batin, Rafael Domingo
Safe ambulatory rehabilitation using kawayan orthopedic devices	Sty 4. Designing, Fabricating, and Testing a Prototype Sustainable Bamboo Standard Wheelchair	Lordman Gregor D. Aldoz , Ryan Dean T. Sucgang, Charlie Batin, Ian Asuncion
Safe ambulatory rehabilitation using kawayan orthopedic devices	Sty 5. Designing, Fabricating, and Testing a Prototype Sustainable Bamboo Standard Cane	Ryan Dean T. Sucgang , Charlie Batin, Ian Asuncion
Comparative Study on the Different Methods of Extracting Virgin Coconut Oil in Terns of Recovery, Physical, Biological and Chemical Characteristics	Comparative Study on the Different Methods of Extracting Virgin Coconut Oil in Terns of Recovery, Physical, Biological and Chemical Characteristics	CHARELLE ROSE M. SALVADOR, ROSALIE P. AGCAOILI, ROSELLE Y. MAMUAD, SHARONA Q. BARROGA, AILEEN GRACE M. FRONDA

PROJECT	STUDY	Researchers
Internet of Things (IoT) and Artificial Intelligence (AI) Based UV Disinfection Light Control and Management System	Internet of Things (IoT) and Artificial Intelligence (AI) Based UV Disinfection Light Control and Management System	Meynard C. Nicolas, JULIE AILENE ASUNCION, WILSON R. DULDULAO, FRANCIS O. QUE, ABEGAIL E. RUIZ, LAWRENCE JOHN C. TAGATA
Assessing the Financial Viability and Efficacy of Using Fermented Sweet Sorghum Juice as a Sustainable Foliar Fertilizer and Bio-Pesticide for Selected Vegetable Crops in Ilocos Norte	Sty 1. Evaluation of fermented sweet sorghum juice on the growth and yield of selected vegetable crops	Mario I. Remolacio, Constante Julian
Assessing the Financial Viability and Efficacy of Using Fermented Sweet Sorghum Juice as a Sustainable Foliar Fertilizer and Bio-Pesticide for Selected Vegetable Crops in Ilocos Norte	Sty 2. Effect of fermented sweet sorghum juice as a pest-repellent for selected vegetable crops	Mario I. Remolacio, Constante Julian

PROJECT	STUDY	RESEARCHERS
HEIRIT: Establishment of DOST-MMSU BANNUAR technology business incubator for advancing the creative manufacturing industry in the Ilocos Region	HEIRIT: Establishment of DOST-MMSU BANNUAR technology business incubator for advancing the creative manufacturing industry in the Ilocos Region	Armie Sabugo
Accelerated R&D program for capacity building of research and development institutions and industrial competitiveness: Niche centers in the regions for R&D (NICER): Accelerating salt research and innovation center (ASIN Center) Project Title: Development of sustaonable and climate-resilient salterns: Best practices, standardization, site mapping and design of pilot saltern farm	Accelerated R&D program for capacity building of research and development institutions and industrial competitiveness: Niche centers in the regions for R&D (NICER): Accelerating salt research and innovation center (ASIN Center) Project Title: Development of sustaonable and climate-resilient salterns: Best practices, standardization, site mapping and design of pilot saltern farm	Nathaniel R. Alibuyog, Rodel Utrera, Sherlyn Nicolas, Cristina Valentin, Willen Mark Manzanas, Floramante Pastor, Joemel Agreda, Julius Jonar Butay, Lea Agbigay, Rose Margarette Lorenzo, Constante Julian, Josefa Pugat, Roxanne Joy Opelac, Shaira Camille Santos, Dionisio Bucao

MMSU's Commitment

Contribute to the reduction of inequality and help ensure that no one is left behind in development.

MMSU continued to expand its services to include and provide access to more sectors. Notably, it initiated a partnership with the Bureau of Jail Management and Penology (BJMP), extending health and wellness services to people deprived of liberty, among others.

Project SHIELD provides health promotion and disease prevention strategies to mitigate morbidity and mortality and emerging incidences of injuries, mental health issues, and alcohol and drug abuse.

MMSU President Shirley C. Agrupis highlighted the university's commitment to extending essential healthcare services to the marginalized. "You are in good hands. You are partnering with the top-performing health science provider in the country", she assured.

Dr. Agrupis emphasized that the partnership initiates a movement to uplift the marginalized, amplify their voices, and uphold the fundamental right to health for all.

Present in the MoA signing ceremony were Hon. Shiella Galano, Mayor of Paoay, Hon. Joseph De Lara, Mayor of Solsona, represented by Atty. Alfonso de los Reyes, and JInsp. Jayson DC Mabuti, District Jail Warden of the Batac District Jail.

The initiative creates an environment where students with special needs feel valued, respected, and fully integrated into the academic community. It also featured activities to foster camaraderie and friendship among students, educators, and supporters alike.

Free store for essential items at CAFSD

To help meet the essential needs of students and employees, the MMSU College of Agriculture, Food, and Sustainable Development (CAFSD) launched its Free Store. The college pantry offers free essential items such as clothing, school supplies, books, food, and other basic needs for anyone in need. The free store has already served 300+ students who usually requests for office supplies during the examination. Snacks are also provided most especially to students who are from the low-income family to ensure that they are not distracted from the exams due to starvation.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Panangtaldiap ken Panangamiris Kadagiti Kannawidan ni Ilokano (Glimpse and Analysis of Ilocano Cultures)	Panangtaldiap ken Panangamiris Kadagiti Kannawidan ni Ilokano (Glimpse and Analysis of Ilocano Cultures)	DJOANNA D. PUNGTILAN, NELIE S. SALVADOR, RICHARD S. AGBAYANI, WEENA G. FRANCO

MMSU's Commitment

Contribute to the development of inclusive, safe, resilient, and sustainable human settlements and cities and to the protection of the world's cultural and natural heritage.

MMSU strengthened the implementation of its disaster prepareness initiatives to promote resilience, complemented by tree-planting activities for a sustainable campus. At the same time, it bolstered its cultural and arts programs toward the protection of Ilocano cultural heritage.

Disaster readiness bolstered as MMSU joins Nationwide Simultaneous Earthquake Drill

Mariano Marcos State University (MMSU) joined the Nationwide Simultaneous Earthquake Drill (NSED) for the first quarter of 2024 on March 25, at the College of Engineering (COE) grounds. During the drill, participants followed evacuation procedures, including "Drop, Cover, and Hold On" techniques. Experts also simulated real-life scenarios to ensure everyone knew what to do during an earthquake.

This is an effort of the university in its dedication to bolstering disaster resilience and ensuring the safety of its community members, today's earthquake drill is another step in strengthening readiness and refining response strategies to various disasters.

BS Forestry seniors leave green footprints with pre-graduation tree planting



The graduate students from Mariano Marcos State University's College of Agriculture, Food, and Sustainable Development (MMSU CAFSD) Bachelor of Science in Forestry program demonstrated their strong commitment to environmental stewardship on July 9 at the Salinged Park. Planting a Podocarpus costalis (Igem-dagat) near the park entrance. Senior students then followed, planting various tree species including Cynometra ramiflora (balitbitan), Calophyllum inophyllum (bitaog), Cassia javanica (pink shower), and Lagerstroemia speciosa (banaba).

The collaborative event was organized by the CAFSD Department of Forestry and Junior Forester Association. It builds upon previous initiatives like the planting of 150 flowering and fruit-bearing seeds in August 2023, spearheaded by MMSU President Dr. Shirley C. Agrupis and attended by students, faculty, staff, and university officials.

PSCA leads MMSU community in annual tree planting activity


In the aftermath of typhoon Carina, President Shirley C. Agrupis responsively led the MMSU community in environmental rehabilitation efforts through the annual tree-planting activity held on July 25.

The initiative underscores the university's commitment to environmental sustainability and creating a greener future by enhancing micro-climate zones on university campuses.

This year, the focus was on rehabilitating the university peripheral road along the west section of the MMSU-CARES Farm with native fruit-bearing trees. A total of 60 individuals of kamagong (*Diospyros philipinnensis*) were planted to provide a future bounty for the university community to enjoy.

The tree planting activity is a long-term commitment of MMSU to sustain a vibrant campus environment for the future. This proactive approach serves as a powerful demonstration that collective action can lead to significant positive environmental outcomes.

MMSU contributes to the development of inclusive, safe, resilient, and sustainable human settlements and cities and to the protection of the world's cultural and natural heritage.

As a proof, it strengthened the implementation of its disaster preparedness initiatives to promote resilience, complemented by tree-planting activities for a sustainable campus. At the same time, it bolstered its cultural and arts programs toward the protection of Ilocano cultural heritage.

One of the student activities was the conduct of the InLadawan Cultural Exhibition Year 3, where the AB in English Language students presented MANGANTAYON, a very Ilokano exhibit about traditional cooking techniques, local ingredients, and their cultural significance. They also had interactive cooking demos, a tasting menu where participants got to taste a variety of Ilokano delicacies, and watch documentaries, and enjoy informative displays that explain the origins and significance of each dish.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Valuation of ecosystem services and assessment of practices and policies in the mangrove areas of Ilocos Norte/ Ronnel S. Pagurayan	Sty 1. Analysis of the policies implemented in the protection and conservation of mangrove areas	Ronnel S. Pagurayan, Charlie Maine Cacactin, Jovy Anne I. Pedro
Valuation of ecosystem services and assessment of practices and policies in the mangrove areas of Ilocos Norte/ Ronnel S. Pagurayan	Sty 2. Assessment and valuation of ecosystem services of mangrove forests in Ilocos Norte	Floramante Pastor, Charlie Maine Cacactin, Jovy Anne I. Pedro
Valuation of ecosystem services and assessment of practices and policies in the mangrove areas of Ilocos Norte/ Ronnel S. Pagurayan	Sty 3. Assessment of the conservation/protection and utilization practices, and management of mangrove ecosystems in Ilocos Norte	Daniel P. Puna, Charlie Maine Cacactin, Jovy Anne I. Pedro
Waste Analysis and Characterization Study (WACS) towards Campus Waste Management and Greening Program	Waste Analysis and Characterization Study (WACS) towards Campus Waste Management and Greening Program	ROMELYN T. LAGURA, JAYFERSON G. PANILO, RICA JANE NATIVIDAD
Gameng ni Ilokano: Paggalugad, pagdalumat sa mga kagamitan, kultura, at mga kaugaliang Ilokano na maaaninag sa tan-ok festival/	Sty 1. Pamulinawen, dinaklisan, binakul at iba pa: Isang pagsasalin sa mga Awiting-Bayang ilokano na itatampok Sa Tan-Ok Festival 2023	Francisca S. Nicolas
Gameng ni Ilokano: Paggalugad, pagdalumat sa mga kagamitan, kultura, at mga kaugaliang Ilokano na maaaninag sa tan-ok festival/	Sty 2. Kinagaget Ken Kinammayet: Pagsasadukomento Ng Mga piling kabuhayan ng Mga Ilokano, Basehan Sa Pagbuo Ng Training Modyul	Jean A. Arellano, Francisca S. Nicolas, John Ryane A. Laureta
Gameng ni Ilokano: Paggalugad, pagdalumat sa mga kagamitan, kultura, at mga kaugaliang Ilokano na maaaninag sa tan-ok festival/	Sty 3. Daklis, Karadikad, Muriski: Isang Sulyap Sa Mga Hanapbuhay Ng Mga Ilokano Na Maaaninag Sa Tan-Ok Festival, Basehan Sa Pagbuo Ng	Francisca S. Nicolas

PROJECT	STUDY	RESEARCHERS
Pagdodokumento ng Wika at Kultura sa Pilipinas	Pagdodokumento ng Wika at Kultura sa Pilipinas	Leonardo D. Tejano

MMSU's Commitment

Help ensure that responsible and sustainable production and consumption is integrated in the operation of the university.

MMSU promotes responsible and sustainable production and consumption by implementing sustainable agriculture, processing, and waste and pollution management programs. Notably, in 2024, students actively engaged in campaigns against single-use plastic, promoting the use of reusable water bottles, minimizing plastic waste and enabling responsible management of resources.

MMSU CAFSD rolls out waste and pollution management program

This program piloted by CAFSD aims to strengthen a culture of responsible waste management and sustainability practices among students and faculty while instilling core environmental values throughout the college.

CAFSD-WPM Focal Person Ronnel Pagurayan outlined the program's key components, including waste reduction, reuse, recycling, resource conservation, and the promotion of sustainable practices through awareness campaigns and advocacy support.

CAFSD has implemented several waste and pollution management initiatives over the past years. One of these is the establishment of its Materials Recovery Facility, which serves as a temporary storage facility for residual and recyclable wastes. Additionally, the college operates a composting facility, where biodegradable waste is processed into organic fertilizers for use in propagation projects. The college has also banned plastic bottled water in its auxiliary building, encouraging students and staff to bring reusable tumblers instead.

EnviSci faculty, students innovate to combat plastic pollution

The "RecyConnect" team composed of Mr. Ronnel Pagurayan, faculty member of the Department of Environmental Science, Mr. John Kenneth Calivoso, and Ms. Wendy Villanueva, senior students of the BS Environmental Science program, won 2nd place in the "Innovate for Impact: Solutions to Combat Plastic Pollution in Rivers and Canals" sponsored by the Asian Institute of Technology (AIT) on February 15. The competition aimed to develop innovative ideas and practical solutions to address the critical issue of plastic pollution, aligning with the sustainable development goals (SDGs) on responsible consumption and production (SDG 12) and life below water (SDG 14). These solutions involve technological interventions, policy innovations, or a combination.

The developed innovation is an online buying-and-selling application for used plastic bottles that aims to reduce the number of disposals in rivers. "It is an innovation that taps into the power of web and mobile digital platforms.

PSCA leads coastal clean-up drive in CASAT

In observance of the International Zero Waste Month (IZWM), the Mariano Marcos State University (MMSU) successfully conducted the Environment Coastal Clean-Up Drive 2024 on January 19 at the College of Aquatic Science and Applied Technology (CASAT) campus in Currimao, Ilocos Norte.

The clean-up drive collected a total of 130 sacks of non-biodegradable rubbish, including plastic bottles, plastic cups, cigarette butts, plastic packaging, glass bottles, discarded fishing gear, and garments, diapers, styrofoam, and other assorted plastic wastes. Additionally, 15 sacks contained biodegradable wastes such as washed seaweeds, coconut leaves, and driftwood ashore.

This year's Environment Coastal Clean-Up Drive received support from various partners, agencies, and stakeholders, including the Office of the Congressman Angelo Marcos Barba, the Provincial Government of Ilocos Norte (PGIN), and the Local Government Unit (LGU) of Currimao.

MMSU Student Councils joined hand in providing affordable drinking water and advocacy in bringing their own refillable drinking bottles to minimize waste

The different student councils and student organizations of MMSU responded to its call to become an environmentally conscious university by addressing the need for waste management, resource efficiency, and community well-being. To help reduce the consumption and generation of plastic bottle waste, the different organizations provided hydration stations in their respective units, selling it at an affordable price, way lower than the bottled water sold in cafeterias. This move of the student organizations helped the university in the reduction of plastic waste generated that end up in the landfill.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
AMResponsible: Knowledge, Attitude and Practices (KAP) on the Use of Veterinary Antibiotics in Ilocos Norte	AMResponsible: Knowledge, Attitude and Practices (KAP) on the Use of Veterinary Antibiotics in Ilocos Norte	Melvin A. Bagot, Hazel Achuela, Kelvin G. Cadavona
Biocontrol Methods for Fall Army Worm (FAW) of High-Value Crops in Ilocos Norte using Entomopathogenic Nematodes (EPN)	Study 1: Collection and Identification of Entomopathogenic Nematodes in Ilocos Norte	Eugine D. Ramos, Marcelyn B. Manuel
Biocontrol Methods for Fall Army Worm (FAW) of High-Value Crops in Ilocos Norte using Entomopathogenic Nematodes (EPN)	Study 2: Specific Assessment and Efficacy of Entomopathogenic Nematodes on Fall Army Worm in Ilocos Norte	Eugine D. Ramos, Marcelyn B. Manuel
Biocontrol Methods for Fall Army Worm (FAW) of High-Value Crops in Ilocos Norte using Entomopathogenic Nematodes (EPN)	Study 3: Mass Rearing of Entomopathogenic Nematodes	Eugine D. Ramos, Marcelyn B. Manuel
Bio-physical characterization of the mangrove areas in Ilocos Norte, Joselito Rosario	Sty 4. Soil characterization and assessment of mangrove areas in Ilocos Norte	Craig P. Lucas, Charlie Maine Cacactin, Jennifer Ventura, Jether C. Jorial, Bon Jovi Orteza, Pommel Pascual, Alvin Domingo
Development of Vacuum-Fried Shallot Snacks	Development of Vacuum-Fried Shallot Snacks	Rhoda T. Garcia, Jayson M. Doroyan, Sonio II A. Sabejon

PROJECT	STUDY	Researchers
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 1. Investigation of the effect of 1-MCP on ripening and shelf life of fruits and fruit vegetables (banana, mango, avocado) and fruit vegetables (tomato, bell pepper)	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 2. Evaluabon of the physicochemical and antioxidant properties of the different maturity of the freeze dried fruits and fruit vegetables (Papaya, mango, okra, tomato, cucurbit crops, and other high value crops)	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 3. Evaluation of the effect of maturity of fruit vegetables (high value crops (cucurbits, solanaceous)) and leguminous crops (mungbean, pigeonpea, and other crops) on the seed quality after storage.	Micah Benize G. Balbas, Raymund Julius G. Rosales, Christian Butch Andrew A. Balbas
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 4. Evaluabon of the effect of maturity of fruits on the seed quality after storage (Custard apple, papaya, duhat, sugar apple, and tamarind)	Micah Benize G. Balbas, Raymund Julius G. Rosales, Christian Butch Andrew A. Balbas, Joanna P. Crosby, Glisten Faith S. Pascua
Postharvest Strategies in the Improvement of the Qualities of Agronomic and Horticultural Crops	Study 5. Evaluabon of the seed quality of primed seeds of agronomic and horbcultural crops (White corn, teosinte, leguminous crops, tomato, eggplant, pepper, and sugar apple)	Christian Butch Andrew Balbas, Raymund Julius G. Rosales, Micah Benize G. Balbas, Joanna P. Crosby, Glisten Faith S. Pascua

PROJECT	STUDY	Researchers
Varietal development, evaluation and maintenance of legumes	Sty 2. Varietal evaluation of promising soybean lines and varieties at MMSU	Jocelyn A. Bernabe
Varietal development, evaluation and maintenance of legumes	Sty 3. Varietal evaluation of promising mungbean lines and varieties at MMSU	Jocelyn A. Bernabe
Varietal development, evaluation and maintenance of legumes	Sty 4. Varietal evaluation of promising ICRISAT peanut genotypes at MMSU for drought tolerant areas	Jocelyn A. Bernabe
Elimination of Common Garlic Viruses using a Combination of Thermotherapy, Chemotherapy and Tissue Culture and Validation through RT-PCR	Elimination of Common Garlic Viruses using a Combination of Thermotherapy, Chemotherapy and Tissue Culture and Validation through RT-PCR	Mae Rose M. Maoirat-Abad, Noralyn B. Legaspi, Clarita Palacio, Marvin Jericho E. Cava
Identification of causal organisms of common dragon cactus diseases through STI for sustainable dragon fruit industry in Ilocos Norte	Identification of causal organisms of common dragon cactus diseases through STI for sustainable dragon fruit industry in Ilocos Norte	Mae Rose M. Maoirat-Abad, Noralyn B. Legaspi, Clarita Palacio, Grace Sheila P. Jalani
A GIS-Based Site Suitability Assessment System for Sustainable and Productive Fish Rearing	A GIS-Based Site Suitability Assessment System for Sustainable and Productive Fish Rearing	Gerry L. Contillo, Nathaniel S. Castro Julius Jimenes Ernesto del Rosario

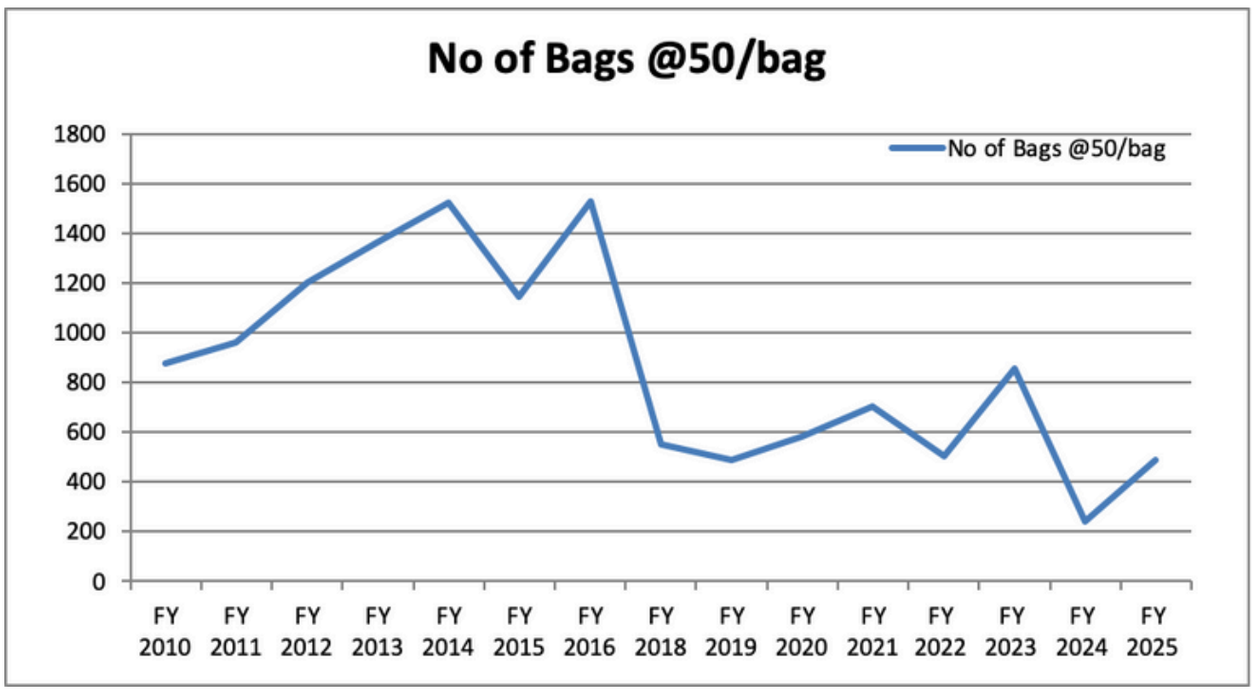
PROJECT	STUDY	Researchers
Technology Demonstration of MMSU Hybrid Tomatoes during Wet Season using Conventional and Improved Practices	Technology Demonstration of MMSU Hybrid Tomatoes during Wet Season using Conventional and Improved Practices	Jilves I. Jimenez, Dionisio S. Bucao, Marissa Atis, Constante Julian, Jonathan Ramos
Enhancing the Antioxidant Properties of Pigmented Rice Through Varying Nutrient Management in Rainfed Lowland	Enhancing the Antioxidant Properties of Pigmented Rice Through Varying Nutrient Management in Rainfed Lowland	Dionisio S. Bucao, JR Ramil, JI Jimenes, Lyca Xenia Bucao
Evaluation and Varietal Development of the Local Shallot Selection "Vintar Multiplier"	Sty 1. Performance evaluation of the local shallot selection “Vintar Multiplier”	NB LegaspiDS Bucao, LC Agbigay, ES Galacgac, CMB Aganus, CO Palacio, MI Atis
Evaluation and Varietal Development of the Local Shallot Selection "Vintar Multiplier"	Sty 2. Multi-location trial of the different shallot varieties in major shallot-growing areas.	NB LegaspiDS Bucao, LC Agbigay, ES Galacgac, CMB Aganus, CO Palacio, MI Atis
Evaluation and Varietal Development of the Local Shallot Selection "Vintar Multiplier"	Sty 3. Evaluation of the storability of different shallot varieties/accessions	NB LegaspiDS Bucao, LC Agbigay, ES Galacgac, CMB Aganus, CO Palacio, MI Atis
Evaluation and Varietal Development of the Local Shallot Selection "Vintar Multiplier"	Sty 4. Evaluation of shallot varieties for true seed production	NB LegaspiDS Bucao, LC Agbigay, ES Galacgac, CMB Aganus, CO Palacio, MI Atis

PROJECT	STUDY	Researchers
Validation of organic-based technologies for enhanced adoption	Sty 1. Validation of organic-based products and management technologies.	NB LegaspiLC Agbigay, CMB Aganus, CO Palacio
Validation of organic-based technologies for enhanced adoption	Sty 2. Performance of Dry-Season Crops Under Organic Farming System	NB LegaspiLC Agbigay, CMB Aganus, CO Palacio
Validation of organic-based technologies for enhanced adoption	Sty 3. Promotion of Developed Organic-based Technologies	NB LegaspiLC Agbigay, CMB Aganus, CO Palacio
Development of True-to-Type Bolinao Native Chicken through Market Assisted Selection (MAS)	Development of True-to-Type Bolinao Native Chicken through Market Assisted Selection (MAS)	Jeremy Christian Q. Santiago
Sustaining the multiplication of quality planting materials for garlic through tissue culture and bulbil methods	Sty 1. Multiplication of quality garlic planting materials through tissue culture	Marissa I. Atis, Ma. Joy T. Agacaoili Evangeline S. Galacgac Noralyn B. Legaspi, Hazel G. Obien, Jonathan R. Ramos and Dionisio S. Bucao
Sustaining the multiplication of quality planting materials for garlic through tissue culture and bulbil methods	Sty 2. Enhancing bulbil production of garlic through improved cultural management practices	Marissa I. Atis, Ma. Joy T. Agacaoili Evangeline S. Galacgac Noralyn B. Legaspi, Hazel G. Obien, Jonathan R. Ramos and Dionisio S. Bucao
Sustaining the multiplication of quality planting materials for garlic through tissue culture and bulbil methods	Sty 3. Mass production of garlic clean planting materials from tissue-culture and bulbil cum training of garlic seed growers.	Marissa I. Atis, Ma. Joy T. Agacaoili Evangeline S. Galacgac Noralyn B. Legaspi, Hazel G. Obien, Jonathan R. Ramos and Dionisio S. Bucao

PROJECT	STUDY	Researchers
Evaluation of promising varieties of vegetables for the Ilocos	Sty 2. Evaluation of different tomato lines in the Ilocos	Jonathan Ramos, Marissa Atis
Evaluation of promising varieties of vegetables for the Ilocos	Sty 3. Evaluation of eggplant developed at MMSU	Jonathan Ramos, Marissa Atis
Germplasm collection, evaluation, characterization, management practices and utilization of sweet potato and cassava in the Ilocos	Germplasm collection, evaluation, characterization, management practices and utilization of sweet potato in the Ilocos	Marissa Atis et al
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 1. Varietal selection, maintenance, and seed production of glutinous corn	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 2. Performance evaluation of old entry yellow corn hybrids	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 3. Performance evaluation of new entry yellow corn hybrids	Mario I. Remolacio, Constante Julian
Varietal improvement , seed production and maintenance of of MMSU glutinous corn	Sty 4. Performance evaluation of OPVs and glutinous corn varieties	Mario I. Remolacio, Constante Julian
Enhancing productivity and quality of aromatic rice cultivars through improved cultural and postharvest management practices and product development	Sty 1: Enhancing organic rice production through utilization of microbial inoculants	Dionisio Bucao

Generated Organic Fertilizer from Organic Wastes

Since 2010, MMSU has been using its collected biomass wastes (leaves, chopped gMMS produce commercial-grade organic soil since the institution views the organic wastes as a valuable resource. The university's signature technology for promoting the production of organic soil is vermicomposting. Over the years, MMSU has been used as a knowledge and talent base in the province, assisting LGUs in developing their organic soil production potential.



MMSU's Commitment

Institute programs and policies to combat climate change and its impacts.

MMSU remains at the forefront of battling climate change through innovative initiatives, such as launching the Climate Health-Competence Center, the first of its kind in the Philippines, and organizing public events that harmonize climate action across various sectors.

First in PH: Climate-Health Competence Center launched in MMSU

To strengthen climate information services and address climate-induced health risks, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) of Germany, in collaboration with the Climate Change Commission (CCC), University of the Philippines Manila - National Institute of Health (UPM-NIH), and MMSU, formally launched the country's first Subnational Competence Center (SNCC) for Health on November 4, 2024 at the MMSU National Bioenergy Research and Innovation Center.

The center, part of the South-South Collaboration on Climate Information Services (SSCIS) Project, will be a hub for collaborative research and various climate change services, including risk assessments, adaptation strategies, and community-level mitigation planning. This center is a step forward in our commitment to address climate-health challenges with actionable, localized information to benefit and protect the community of Ilocos Norte and neighboring provinces against the health impacts of climate change.

NASA Senior Scientist delivers lecture on climate change

Dr. Josefino C. Comiso, Senior Scientist Emeritus at the Cryospheric Sciences Laboratory of the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center, delivered a lecture on climate types and climate change in the Philippines today, August 27, at the MMSU Center for Flexible Learning. This event was organized in collaboration with the MMSU Research Directorate, Planning Directorate, and Sustainability and Futures Thinking which highlighted the university's commitment to addressing global environmental challenges.

Dr. Comiso delivered a comprehensive analysis of the global impacts of climate change. He emphasized the importance of recognizing the different climate types and their boundaries in order to utilize them effectively.

PSCA leads MMSU community in annual tree planting activity

In the aftermath of typhoon Carina, President Shirley C. Agrupis responsively led the MMSU community in environmental rehabilitation efforts through the annual tree-planting activity held on July 25.

The initiative underscores the university's commitment to environmental sustainability and creating a greener future by enhancing micro-climate zones on university campuses. This is in support to the long-term plan of greening the university to increase the green spaces on-campus for carbon sequestration and for groundwater retention.

This year, the focus was on rehabilitating the university peripheral road along the west section of the MMSU-CARES Farm with native fruit-bearing trees. A total of 60 individuals of native tree species of kamagong (*Diospyros philipinnensis*) were planted to provide a future bounty for the university community to enjoy.

MMSU's homegrown environmental journo covers UN climate change confab in Azerbaijan

Mr. Edmar Delos Santos, a faculty member and alumnus of MMSU, covered the UN Climate Change Conference (COP29) held from November 17 to 22 in Baku, Azerbaijan. His participation was part of a reporting fellowship, after being selected as one of two climate journalists from the Philippines by the Philippine Network of Environmental Journalists and Deutsche Welle (DW) Akademie.

During the fellowship, Mr. Delos Santos published three video reports for Rappler featuring the COP29 venue, Filipino youth delegates advocating for climate justice, and Filipino farmers promoting agroecology for climate-resilient food systems. He also produced additional videos and photographs documenting civil society demonstrations at the conference, exceeding the fellowship's requirements.

Attending a global climate summit for the first time, he described the experience as rewarding and challenging, gaining insights into contextualizing climate stories and the social impacts of climate change. Post-fellowship, he plans to incorporate these experiences into his MMSU classes and continue producing climate-focused journalism. COP29 focused on climate finance for developing nations, setting a new goal of $300 billion annually by 2035.

MMSU, UPM forge partnership for climate information services

Mariano Marcos State University sealed a Memorandum of Understanding (MoU) with the University of the Philippines-Manila (UPM) National Institutes of Health-Institute of Child Health and Human Development (NIH-ICHHD) on May 22 at the Ferdinand E. Marcos Hall Conference Room.

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 13 CLIMATE ACTION

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Signed by MMSU President Shirley C. Agrupis; MMSU Research and Innovation Vice President Nathaniel Alibuyog; UP Manila Chancellor Michael Tee, represented by Dr. Michelle Ylade of UP-NIH; and Mr. Jimmy Loro of Deutsche Gessellschaft für Internationale Zusammenarbeit (GIZ), the MoU paves the way for the project "Effects of Climate Change on Health: Data from the Philippines," aimed at providing up-to-date local data on the effects of climate change parameters on health. Other officials of the two universities and the CCC witnessed the signing ceremony.

In her message, President Agrupis expressed her gratitude to UP-NIH for their commitment and dedication. She acknowledged the two universities' role in advancing knowledge on climate change through research and information dissemination. She also stated her desire to explore possibilities for more partnerships. Home to the Regional Research and Training Center for Climate Change Studies (RRTCCS), MMSU is a leader in agricultural and climate change research. Dr. Alibuyog is a member of the National Panel of Technical Experts of the Climate Change Commission (CCC).

Present at the activity were Mr. Leocris Batucan Jr., NCBP-HSBP Project Leader, and DOST-NCBP S&T Fellow; Dr. Aimee Yvonne Criselle Aman, DOST- PCHRD S&T Fellow, and the Technical Panel Chair for Health System; Dr. Sittie Aisha Macabago, Assistant Professor of the University of Santo Tomas and the Technical Panel Chair for Science Education and Talent Retention; Ms. Marie Lizette Anne Rivera, Project Administrative Aide V; Dr. Nathaniel Alibuyog, MMSU vice president for research, development, and innovation; and Dr. Doreen Domingo, dean of the MMSU graduate school.

The HSBP project is a futures thinking elicitation study where experts in biotechnology and allied fields from multiple sectors were invited to identify and discuss the technologies and issues relevant to the future of Philippine biotechnology.

During the promotional activity, the excellent results of the HSBP study were showcased. This comprehensive study, covering various operational areas identified in the National Academy of Science and Technology (NAST) Pagtanaw 2050, is the first DOST-funded inter-disciplinal and trans-disciplinal project on Philippine-focused STI Foresight and Strategic Plan. The study also includes blue economy, materials, information and communication technology, science education and talent retention, food security and nutrition, health systems, energy and water, and environment and climate change.

In 1990, NCBP was created through Executive Order No. 430, to coordinate and harmonize inter-agency and multi-sector efforts in developing biosafety policies in all genetic engineering experiments in the country. NCBP is composed of the Department of Agriculture, Department of Environment and Natural Resources, Department of Health, and the Department of Science and Technology.

CIS-COP workshop at MMSU strengthens climate-health partnerships for resilient

A workshop on the Climate Information Services-Community of Practice (CIS-COP) was held today, November 5, at the MMSU Center for Flexible Learning to strengthen community-based approaches in climate information services and health. The event was organized by the University of the Philippines Manila - National Institute for Health (UPM-NIH), Deutsche Gesellschaft für Internationale Zusammenarbeit of Germany (GIZ), and MMSU.

The workshop brought together experts, practitioners, and stakeholders, introducing CIS-COP, familiarizing participants with its structure, goals, and objectives, and developing an action plan to strengthen the network's impact.
Mr. Jaker de Claro, Policy and Health Systems Specialist consultant of GIZ for community of practice, presented the Theory of Change (TOC) for CIS-COP, sparking participant discussions that provided feedback and identified areas for improvement. The discussions emphasized the CIS-Health connection, exploring pathways for integrating climate and health services effectively.

The workshop further outlined actionable steps for CIS-COP's progress. Participants worked in groups to draft short-term initiatives and long-term strategies, including policy integration and capacity-building programs aligned with TOC goals.

In his remarks, Mr. de Claro highlighted the need to institutionalize the community of practice to address the rising challenges of climate change. "Sustained planning and collaboration are key to ensuring our efforts create immediate impact and lasting change," he said.

This workshop follows the launch of the country's first Subnational Competence Center (SNCC) for Health on November 4 at MMSU's National Bioenergy Research and Innovation Center, a collaboration with GIZ, the Climate Change Commission (CCC), UPM-NIH, and MMSU. The center aims to address climate-related health risks through strengthened climate information services.

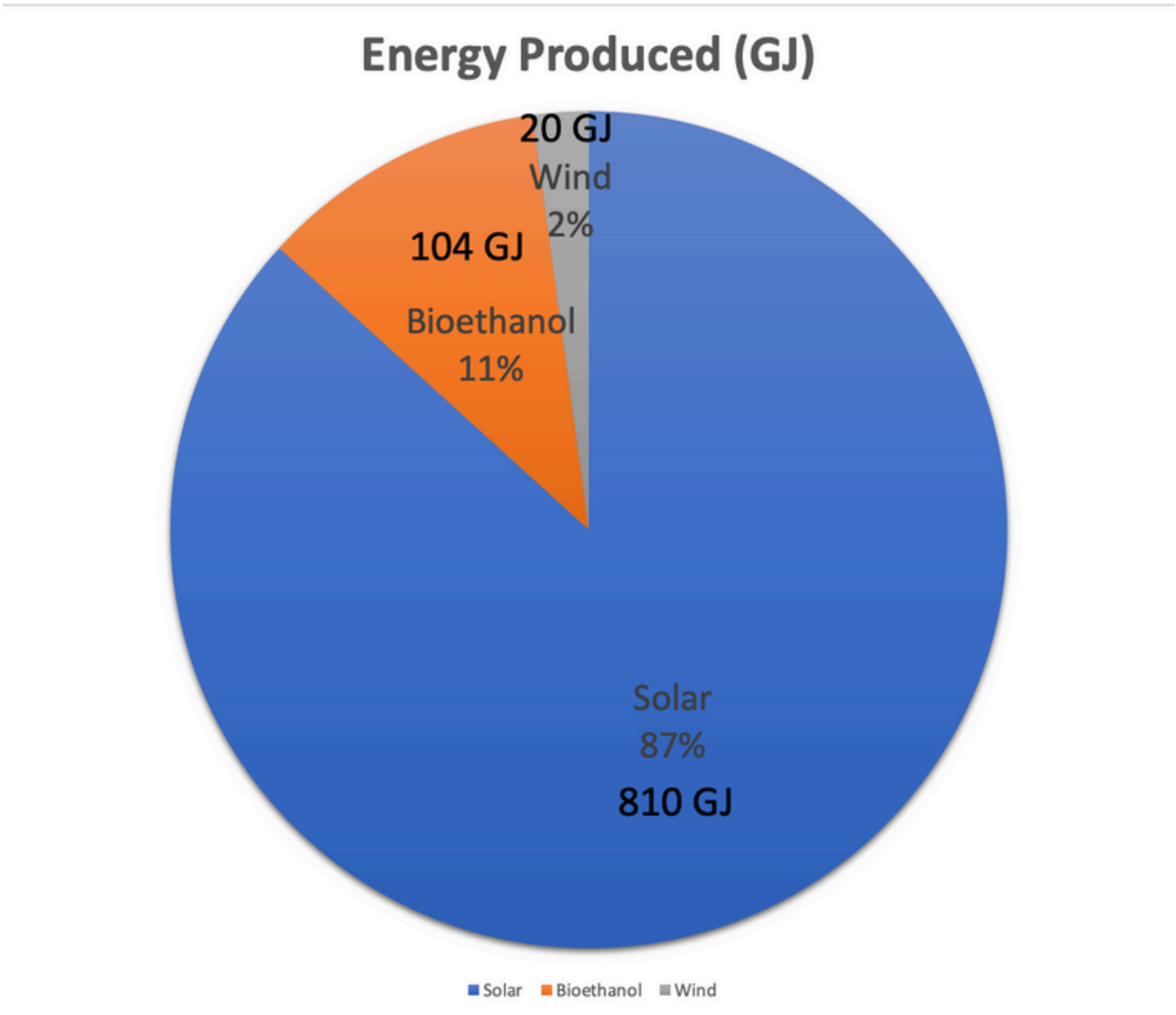
Participants concluded the CIS-COP workshop with a commitment to ongoing collaboration, focused on building resilient, climate-ready communities.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	RESEARCHERS
Establishment of coastal engineering and management research and development center (CoastER)	Pj 2. Assessment, monitoring, and prediction of coastal flooding of selected municipalities in Region I	Nathaniel Alibuyog, Floramante Pastor, Jorge Escalona, Jonas Paul de la Cruz, Diana Rose Tambogon, Frederick Barut, Reymart Pecpec, Arman Barruga, Gerry Contillo, Josefa Pugat, Joemel Agreda, Lea h Tute, Russel John Guinto, Xeth Carlo Bielza, Francis Que, Meynard Nicolas, John Vincent Toribio
Establishment of coastal engineering and management research and development center (CoastER)	Pj 4. Enhancing coastal design and infrastructure intervention through the establishment of wave testing facility	Vasco Vic Valdez, Marlon Acoba, Rodel Utrera, Marie Angeli Penaflor, Charles Mateo, Willen Mark Manzanas, Aljay Santos, Karen Joyce Santiago, Kenneth Edra, Melissa Pungtilan, Emerson Bolibol

Low-carbon Energy Tracking

Currently, Mariano Marcos State University is harnessing 3 sources of renewable energy - solar and biomass. Solar power has been utilized for a variety of applications (i.e. solar powered irrigation pumps, solar-powered lights, solar PV generators). On the other hand, through the National BioEnergy Research and Innovation Center, the university formulates 95% Bioethanol from Nipa sap. The produced bioethanol gets blended with clean gasoline at 20% blending to be used for university vehicles, motorcycles, and brush cutters running in spark-ignition engines.



MMSU's Commitment

Contribute significantly to the conservation and sustainable use of the oceans, seas and marine resources for sustainable development.

In 2024, MMSU intensified its coastal initiatives, implementing coastal clean up activities and seaweeds research to conserve marine and coastal ecosystems.

MMSU CASAT leads annual International Coastal Clean Up in Currimao

The MMSU College of Aquatic Sciences and Applied Technology, in collaboration with the Movement Against Plastic Pollution and the Office of Congressman Angelo Marcos Barba, leads the annual International Coastal Cleanup (ICC) 2024, today, September 21, in Currimao, Ilocos Norte.

ICC is the world's largest volunteer effort for ocean health and engages individuals to remove trash from beaches, rivers, lakes, and waterways.

Among the participants were representatives from the Local Government Unit of Currimao headed by Municipal Mayor Hon. Edward Quilala, Provincial Government of Ilocos Norte, Philippine Coast Guard, and Philippine National Police - Ilocos Norte, together with MMSU employees and students. A total of 58 bags were filled from the cleanup activity.

Dr. Bjorn Santos, vice president for Resource Generation and Management, emphasized the university's continuous commitment and support towards preserving our coastal areas and protecting the environment.

Conducted every third Saturday of September of each year, this global cause encourages communities to maintain the cleanliness of shorelines, aiming to battle the worsening of water pollution and protect marine biodiversity.

MMSU CASAT faculty research on sustainable seaweed production, wins in a national conference

Ms. Jhoanna Faye Jacinto, instructor of MMSU College of Aquatic Sciences and Applied Technology, won first place in the Fishing for Solution Competition during the First Philippines Small-Scale Fisheries National Symposium, held from October 16 to 18 at the University of the Philippines Visayas, Iloilo City.

Jacinto's project titled "Sea-Lution: Sustainable Empowerment Through Archipelagic Seaweed and Locally Sourced Bioplastics for Fisheries" emphasizes the use of seaweed-based bioplastics made from food-grade agar, alginate, and semi-refined carrageenan, with glycerol serving as a plasticizer. This innovative solution supports sustainability in the fisheries sector by aiming to reduce plastic waste and revolutionize fishery product packaging.

MMSU hosts West Philippine Sea Provincial Caravan

The MMSU Institute of Environmental Governance (MMSU-IEG), in collaboration with the Department of the Interior and Local Government (DILG), Provincial Government of Ilocos Norte (PGIN), and City Government of Batac, hosted the Provincial Caravan on the West Philippine Sea (WPS) today, August 19, at the Teatro Ilocandia.

The Provincial Caravan titled, "Bayanihang Adhikain, Bayaning Aksiyon Para sa Kanlurang Dagat ng Pilipinas," aims to cascade and finalize the action plans of the various local government units of Ilocos Norte on the conservation and protection of the WPS. These plans were initially crafted during the National Summit held in August 2023.

MMSU pledge its commitment to continuously support dialogues for the West Philippine Sea.

DOST-PCAARRD, MMSU launch nature-based solutions project on mangrove management in Ilocos Norte

Failure to preserve mangrove ecosystems can lead to carbon emissions and negatively impact the livelihoods of communities that depend on them.

To mitigate coastal risks in vulnerable areas of Ilocos Norte, a collaboration between the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) and the Mariano Marcos State University (MMSU) was forged and officially launched on June 27, 2024 at the MMSU Review Center.

The project, "Nature-based Solutions (NbS) for Sustainable Mangrove Management and Resilient Coastal Communities Through Innovative Green Engineering Approach," under the leadership of Dr. Arlene Gonzalez of MMSU aims to enhance mangrove ecosystem resilience by implementing green engineering solutions in the project sites.

Dr. Gonzales found that among the challenges in mangrove restoration and mangrove plantation establishment are poor hydrological conditions, which significantly hinder the growth of young propagules. Technology-assisted plantations can be key to successfully establishing mangrove areas even in challenging conditions. Various green technologies will be showcased by the project in the municipalities of Badoc and Currimao, Ilocos Norte.

DOST-PCAARRD's Technology Transfer and Promotion Division (TTPD) Director Noel A. Catibog emphasized the significance of the project stating, "The mangrove ecosystem is vital for the environment and the livelihoods of many local communities, especially in the Ilocos region. Through NbS, we aim to restore and sustain this ecosystem, ultimately enhancing the resilience of the communities that rely on them.".

Project Manager Analiza C. Diaz of DOST-PCAARRD's TTPD highlighted the importance of a science-based approach, noting past failures in mangrove rehabilitation in the country. She explained that other than accessing new technologies, the project will also utilize locally-available and ecologically-friendly materials.

Given the current climate change impacts, this project is both timely and relevant. It stands out among the many programs successfully implemented by MMSU in Ilocos Norte, aiming to serve as a model for other areas in the country.

DOST-PCAARRD's TTPD Supervising Science Research Specialist Yolanda M. Tanyag emphasized that the project's success relies heavily on the active participation and support of the local government, the Department of Environment and Natural Resources (DENR), and the local communities.

Representatives from the DENR and local government units who attended the launching expressed their support to the project, highlighting its potential to significantly improve local environmental and socio-economic conditions.

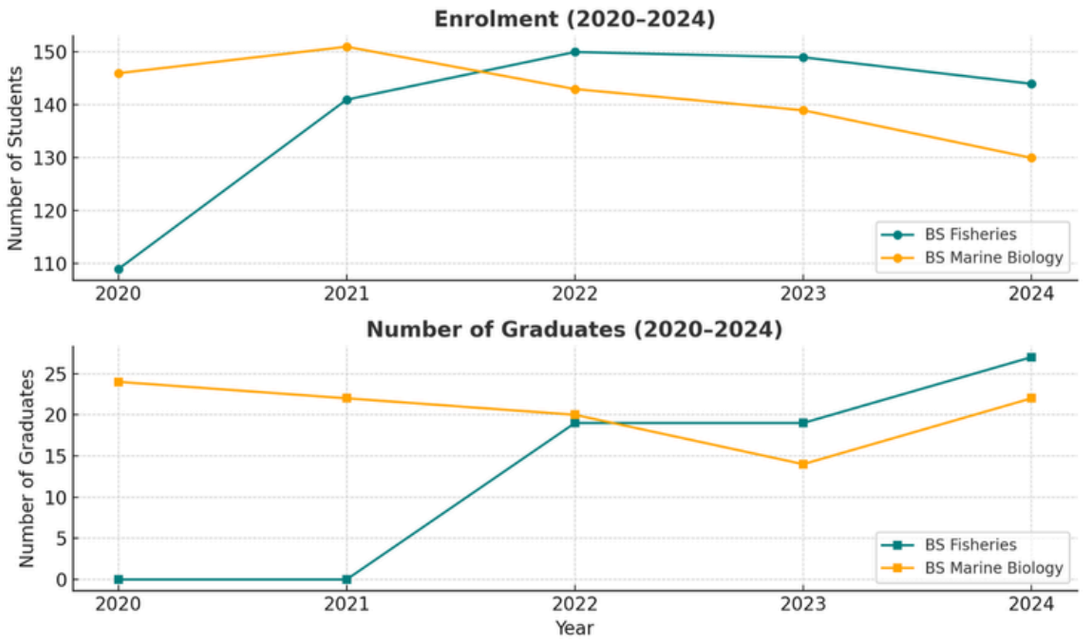
Professor Ronnel Pagurayan of MMSU and the project team facilitated and organized the project launch. The project will run from May 1, 2024 to April 30, 2026.

RELEVANT RESEARCHERS AND PROJECTS

PROJECT	STUDY	RESEARCHERS
Program: Nursery of Eel Enhancement and Development (NEED) Program	Project 3. Glass eel early weaning and nursery grow-out operations	Ernesto S. Del Rosario Jr., Jeric Reinard C. Balauro
Ecological factors affecting mesophotic coral reef ecosystems: Potential refuge from disturbances	Pj 1. Biodiversity in mesophotic coral reefs	Rhea R. Espiritu, Felix R. Olivas, Jr., Jun Dangcil
Real- time Monitoring and Early Warning for Harmful Algal Blooms (HABs) Using High Throughput Imaging and Molecular Methods (HABs Watch)	Real- time Monitoring and Early Warning for Harmful Algal Blooms (HABs) Using High Throughput Imaging and Molecular Methods (HABs	Rommel Q. Pascua, Mary Jean C. Fronda, Christopher C. Santillan, Rhea R. Espiritu, Felix R. Olivas, Jr., Pilar Carolyn V. Pascual, Mr. Keibriel Keill P. Arcilla

Number of Graduates in Marine and Aquatic Science Profession

MMSU is among the educational institutions in the country producing competent and dedicated graduates in the marine and aquatic sciences. The University recognizes the vital role of these professionals in promoting sustainable fisheries, conserving marine biodiversity, and advancing the nation's capacity to ensure food security and environmental resilience.



MMSU's Commitment

Take an active role in protecting and promoting sustainable use of terrestrial ecosystems, responsible land use, and biodiversity conservation.

As a green university, MMSU's campus ecosystem was boosted through meaningful multisectoral engagements. This includes several initiatives around developing the biodiversity park, promoting environmental stewardship.

MMSU maintains healthy campus ecosystems through enrichment planting

The graduate students from Mariano Marcos State University's College of Agriculture, Food, and Sustainable Development (MMSU CAFSD) Bachelor of Science in Forestry program demonstrated their strong commitment to environmental stewardship on July 9 at the Salinged Park – the biodiversity park of the university.

This activity is a continuation of the previous planting initiatives of the BS Forestry students like the planting of 150 flowering and fruit-bearing seeds in August 2023, spearheaded by MMSU President Dr. Shirley C. Agrupis and attended by students, faculty, staff, and university officials.

The tree planting added various tree species including Cynometra ramiflora (balitbitan), Calophyllum inophyllum (bitaog), Cassia javanica (pink shower), and Lagerstroemia speciosa (banaba) to the existing tree species that are already growing in the park.

CHED monitors MMSU resource development plan

The Commission on Higher Education (CHED) Regional Office I, along with the Office of Institutional Quality Assurance and Governance - Coordination and Governance Division (OIQAG-CDG), visited MMSU today, October 8, to monitor and evaluate the Land Use Development and Infrastructure Plan (LUDIP) grant project of the university. The visit aimed to establish a comprehensive plan to optimize the university's resources for implementing and developing the project.
Supervising Education Program Specialist Ms. Anunciacion Peñaflorida and Education Program Specialist Ms. Theresa Maestro led the monitoring team. Meanwhile, the CHED Regional Office I delegation comprised education supervisors Mr. Ricky Cerna and Ms. Leonora Quarte.

During the courtesy call, MMSU OIC President Prima Fe R. Franco emphasized the significance of the LUDIP grant project, highlighting the university's dedication to advancing facilities and resources for students and faculty. "We give importance to these projects because our stakeholders will benefit from it," she said.
The LUDIP grant project aims to enhance the university's land resources while improving infrastructure to serve its community better. Its successful implementation will allow necessary adjustments to ensure that development remains aligned with the university's long-term goals.

In accordance with the Republic Act No. 11396, all state universities and colleges are mandated to prepare and implement a LUDIP, which is a prerequisite for the approval of future infrastructure projects.

MMSU to launch soil and land management project with Griffith University, PGIN

To enhance the productivity of rice-based cropping systems through soil health management, partner consultants of the program titled "Soil Knowledge, Information and Capacity to Improve the Productivity and Sustainability of Key Cropping Systems in the Philippines" visited Mariano Marcos State University on Monday, July 1.

MMSU President Shirley C. Agrupis, Dr. Janet Villamor, project leader and soil science faculty member, and Dr. Dinah Marie Dayag, project staff and soil science faculty member, welcomed the visitors at the Ferdinand E. Marcos hall.

Among the partner consultants present were Dr. Johnvie Goloran, Soil Scientist at Griffith University; Atty. Jaybe Quiñonez, Chief of Staff of Hon. Cong Eddiebong Plaza, 2nd District of Agusan del Sur; Mr. Arnold Pascua, Senior Agriculturist of the Provincial Agriculture Office; and Atty. Juan Alfonso Augustus Jose, Chief of Staff of Governor Matthew Marcos Manotoc.

Set to launch in October 2024, the five-year project aims to develop a soil information system that will improve the productivity, sustainability, and resilience of key cropping systems through improved soil health management. Furthermore, the project will support farmers and various stakeholders in managing soil for sustainable agricultural production.

During the courtesy call, MMSU President Shirley C. Agrupis reaffirmed the university's support and commitment to the project. She emphasized that MMSU is fully prepared to take on the challenge of improving soil health management in Luzon.

The project is in collaboration with the Australian Centre for International Agriculture Research (ACIAR), Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST - PCAARRD), Griffith University and Provincial Agriculture Offices in Ilocos Norte, Tarlac, Bataan, and Agusan del Sur.

RELEVANT RESEARCHES AND PROJECTS

PROJECT	STUDY	Researchers
Bio-physical characterization of the mangrove areas in Ilocos Norte	Sty 1. Macro floral species composition, diversity, spatial distribution and carbon sequestration of mangroves in Ilocos Norte	Joselito Rosario, Charlie Maine Cacactin, Jennifer Ventura, Jether C. Jorial, Bon Jovi Orteza, Pommel Pascual, Alvin Domingo
Bio-physical characterization of the mangrove areas in Ilocos Norte	Sty 2. Macro faunal species composition, diversity, and spatio-temporal distribution in mangrove areas in Ilocos Norte	Ronnel S. Pagurayan, Charlie Maine Cacactin, Jennifer Ventura, Jether C. Jorial, Bon Jovi Orteza, Pommel Pascual, Alvin Domingo
Bio-physical characterization of the mangrove areas in Ilocos Norte	Sty 3. Micro species composition, diversity, and spatio-temporal distribution in mangroves areas in Ilocos Norte	Resurection Bernadette C. Imbat, Charlie Maine Cacactin, Jennifer Ventura, Jether C. Jorial, Bon Jovi Orteza, Pommel Pascual, Alvin Domingo
Bio-physical characterization of the mangrove areas in Ilocos Norte	Sty 5. Water quality assessment of coastline areas in Ilocos Norte for mangrove suitability	Elmer Francis Morales, Charlie Maine Cacactin, Jennifer Ventura, Jether C. Jorial, Bon Jovi Orteza, Pommel Pascual, Alvin Domingo
Spatial analysis and vulnerability assessment of mangrove resources in Ilocos Norte	Sty 1. Spatial inventory and mapping of mangrove resources in Ilocos Norte	Rodel Utrera, Jennifer Ventura, Bon Jovi Orteza
Spatial analysis and vulnerability assessment of mangrove resources in Ilocos Norte	Sty 2. Mapping and spatial analysis of the ecological characteristics of mangrove resources in Ilocos Norte	Floramante Pastor, Jennifer Ventura, Bon Jovi Orteza

PROJECT	STUDY	Researchers
Spatial analysis and vulnerability assessment of mangrove resources in Ilocos Norte	Sty 3. Vulnerability analysis of mangrove areas in Ilocos Norte	Saturnina Tangiday, Jennifer Ventura, Bon Jovi Orteza
The Production of Micrgreens Using Vegetables in Ilocos Norte to Achieve Food Security and Sustainability	The Production of Micrgreens Using Vegetables in Ilocos Norte to Achieve Food Security and Sustainability	Raymund Julius G. Rosales, Micah Benize G. Balbas, Christian Butch Andrew A. Balbas, Aira Lilac I. Pungtilan
Development of Smart Inland Pond System and Information Tools for land-Based Aquatic Systems	Development of Smart Inland Pond System and Information Tools for land-Based Aquatic Systems	Edwin F. Galutira, BOBBY A. ECLARIN, ALJAY SANTOS, IAN V. ROMAS, CHRISTIAN M. LIBUNGAN, DIANA ROSE A. TAMBOGON, MARIFAYE FLORES, LOVINA T. AGBAYANI, ENGELBERT T CARIÑO, MARY GRACE MATIAS, SUNSHINE R. GALDIANO
R&D on the indigenous vegetable Alokon (Broussonetia luzonica)/ Menisa Antonio	Sty 4. Primary processing and food product development on alokon	Menisa Antonio, Evangeline Galacgac, Eleazar Grande, Felicitas Sanculi
Agroclimatic Characterization for Crop Suitability Assessment in Central Lowland of Ilocos Norte	Study 1. Agroclimatic characterization under Ilocos Norte condition	Evangeline S. Galacgac, Joemel Agreda, Josefa Pugat, Sherwin Bartolome
Agroclimatic Characterization for Crop Suitability Assessment in Central Lowland of Ilocos Norte	Study 2. Development of Cropping Calendar for the Central lowlands of Ilocos Norte	Evangeline S. Galacgac, Joemel Agreda, Josefa Pugat, Sherwin Bartolome

PROJECT	STUDY	Researchers
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 1. Documentation of farmers' knowledge and practices on pigeonpea production, seed system and utilization	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 2. Assessment of the economic viability of pigeon pea as a climate change adaptation crop	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Assessment of the status of pigeonpea production as a climate-change adaptation crop in Ilocos Norte	Sty 3. Evaluation of farmers' acceptability of the pigeon pea (Cajanus cajan) as a climate-change adaptation crop	Lea C. Agbigay, Maria Cristina P. Pammit, Evangeline S. Galacgac
Design and Development of Intellectual Property Management System of the Mariano Marcos State University	Design and Development of Intellectual Property Management System of the Mariano Marcos State University	Rodel C. Cabugon, Artbellson B. Mamuri
Characterization and Management of Major Lowland and Upland Soils in the Ilocos Norte	Characterization and Management of Major Lowland and Upland Soils in the Ilocos Norte	Dionisio S. Bucao, AC Dono, Karina L. Damo, Alice Geraldine H. Pagaling, Maria Concepcion Birginias, Jilves Jimenez, Josefa L. Pugat
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 1. Revalidation of the production technology	NORALYN B. LEGASPI, Lea C. Agbigay

PROJECT	STUDY	Researchers
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 2. Optimization of the kamangeg flour production and karot detoxification technologies	NORALYN B. LEGASPI, Lea C. Agbigay
Verification, Pilot Application, and Optimization of the Production and processing Technologies of Less-Known Yam Species (kamangeg, karot, tugui) for Sustainable Commercialization	Pj 3. Food Product Development on Karot and Tugui	NORALYN B. LEGASPI, Lea C. Agbigay
Optimizing Yield and Bulb Quality of shallot (allium cepa var. agregatum) as Influence by Planting Density and Nutrient Management	Optimizing Yield and Bulb Quality of shallot (allium cepa var. agregatum) as Influence by Planting Density and Nutrient Management	JILVES I. JIMENEZ, Dionisio S. Bucao, Noralyn B. Legaspi, Jocelyn A. Bernabe, Menisa A. Antonio
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 1: Strengthening Resilience of Iloco Crop Diversity through Complementary Conservation Approach Sty 1. Establishing Ex Situ Conservation Facilities for Iloco Crop Genetic Resources	MENISA A. ANTONIO, BJORN S. SANTOS
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 1: Strengthening Resilience of Iloco Crop Diversity through Complementary Conservation Approach Sty 2. Establishing Community Foodscapes and Seedbanks of Iloco Crop Genetic Resources	MENISA A. ANTONIO, BJORN S. SANTOS

PROJECT	PROJECT	Researchers
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 1: Strengthening Resilience of Iloco Crop Diversity through Complementary Conservation Approach Sty 3. Characterization and Evaluation of Indigenous Food Plant Species	MENISA A. ANTONIO, BJORN S. SANTOS
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 2: Germplasm Collection, Characterization and Evaluation of Underutilized Root and Tuber Crops Sty 1. Germplasm assembly & documentation on root and tuber crops	MENISA A. ANTONIO, Jomel Agreda, Josefa L. Pugat, Karina L. Damo
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 2: Germplasm Collection, Characterization and Evaluation of Underutilized Root and Tuber Crops Sty 2. Assessment of phenotypic diversity in root and tuber crops	MENISA A. ANTONIO, Jomel Agreda, Josefa L. Pugat, Karina L. Damo
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 2: Germplasm Collection, Characterization and Evaluation of Underutilized Root and Tuber Crops Sty 3. Agronomic and chemical evaluation of root and tuber crops	MENISA A. ANTONIO, Jomel Agreda, Josefa L. Pugat, Karina L. Damo

PROJECT	STUDY	Researchers
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 3: Leveraging the Potential of Indigenous Fruits in the Ilocos for Food and Nutrition Secirity Sty 1. Documentation and Germplasm Collection of Indigenous Fruits in the Ilocos	MENISA A. ANTONIO, Jonathan Ramos, Ma. Concepcion Birginias, Dionisio S. Bucao, Xenia Bucao, Zaldy Fernandez
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 3: Leveraging the Potential of Indigenous Fruits in the Ilocos for Food and Nutrition Secirity Sty 2. Varietal Development of Indigenous Fruits in the Ilocos	MENISA A. ANTONIO, Jonathan Ramos, Ma. Concepcion Birginias, Dionisio S. Bucao, Xenia Bucao, Zaldy Fernandez
Mainstreaming the Sustainable Conservation and Utilization of Iloco Crop Genetic Diversity	Project 3: Leveraging the Potential of Indigenous Fruits in the Ilocos for Food and Nutrition Secirity Sty 3. Product Development and Marketability Assessment for Indigenous Fruits and Value-Added Products	MENISA A. ANTONIO, Jonathan Ramos, Ma. Concepcion Birginias, Dionisio S. Bucao, Xenia Bucao, Zaldy Fernandez
Formulation and Optimization of the Microencapsulation of Crude Extracts from Selected Indigenous Plants for the Development of Anti-inflammatory Oral Dosage Forms	Formulation and Optimization of the Microencapsulation of Crude Extracts from Selected Indigenous Plants for the Development of Anti-inflammatory Oral Dosage Forms	Maingelline B. Vivit, Ma. Joy Theresa T. Agcaoili, Anabelle B. Alejo, Kristian Gay D. Beltran Engr. Arlene Mia G. Ruguian

PROJECT	STUDY	Researchers
Enhancing Stability of Crude Extracts in Topical Dosage Forms	Enhancing Stability of Crude Extracts in Topical Dosage Forms	Ma. Joy Theresa T. Agcaoili, Maingeline Vivit, Anabelle Alejo, Kristian Gay Beltran
IMPROVED MUSHROOM PRODUCTION FOR HIGH YIELD AND QUALITY THROUGH SMART TECHNOLOGY	Study1: Enhancing Mushroom Production through Tissue Culture Spawn Production.	Artbellson Mamuri, Maria Concepcion Birginias, Josefa Pugat, Erle Stanley Damaso
IMPROVED MUSHROOM PRODUCTION FOR HIGH YIELD AND QUALITY THROUGH SMART TECHNOLOGY	Study 2: Enhancing Mushroom Production through the Development of Smart System for Mushroom Cultivation.	Artbellson Mamuri, Maria Concepcion Birginias, Josefa Pugat, Erle Stanley Damaso
IMPROVED MUSHROOM PRODUCTION FOR HIGH YIELD AND QUALITY THROUGH SMART TECHNOLOGY	Study 3: Enhancing Mushroom Production through utilization of local agricultural waste.	Artbellson Mamuri, Maria Concepcion Birginias, Josefa Pugat, Erle Stanley Damaso
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 1. Germplasm collection and characterization of vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien, Dionisio Bucao
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 2. Improvement of the cultural management of vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 3. Documentation of production practices for vegetable landraces in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien

PROJECT	STUDY	Researchers
Conservation and improvement of vegetable landraces in Ilocos Norte	Sty 4. Product development of vegetables in Ilocos Norte	Marissa Atis,Menisa Antonio, Jonathan Ramos, Hazel Obien
Collection, Identification, Production and Conservation of Promising Bamboo Species.	Sty 1. Collection and morphological characterization of different bamboo species	Bonne Jovi Orteza
Collection, Identification, Production and Conservation of Promising Bamboo Species.	Sty 2. Enhancing the rooting efficiency and survival of selected bamboo species through improved macropropagation practices.	Bonne Jovi Orteza
Collection, Identification, Production and Conservation of Promising Bamboo Species.	Sty 3. Evaluation of different for bamboo species in different agro-ecological zones in Ilocos Norte	Bonne Jovi Orteza
Collection, Identification, Production and Conservation of Promising Bamboo Species.	Sty 4. Establishment of bamboo gene bank and conservation of different bamboo species	Bonne Jovi Orteza
Upscaling the Usability of Bio-Fertilizers for common vegetables in Ilocos Norte	Sty 1. Assessment and evaluate the effectiveness of bio-fertilizers vegetable (tomato, eggplant, ampalaya, okra)	Jilves I. Jimenez, Dionisio S. Bucao, Jerold Labii, Mae Rose Abad, Jonathan Ramos, Menisa Antonio
Upscaling the Usability of Bio-Fertilizers for common vegetables in Ilocos Norte	Sty 2. Development of a Bio-fertilizer processing facility in the university	Jilves I. Jimenez, Dionisio S. Bucao, Jerold Labii, Mae Rose Abad, Jonathan Ramos, Menisa Antonio
Upscaling the Usability of Bio-Fertilizers for common vegetables in Ilocos Norte	Sty 3. Technology Demonstration and Mass production of Bio-Fertilizer in Ilocos Norte	Jilves I. Jimenez, Dionisio S. Bucao, Jerold Labii, Mae Rose Abad, Jonathan Ramos, Menisa Antonio

MMSU's Commitment

Help build strong and inclusive institutions and societies by advocating for peace and justice toward sustainable development

In 2024, MMSU achieved several milestones in SDG 16, promoting peace and justice education while also extending legal services outside the university. At the forefront of these activities is the College of Law, which provides legal counseling services not only to university clients but also to the underserved and marginalized. Public lectures on the law and related topics were also held.

MMSU law students provide legal counsel to persons deprived with liberty

Nine fourth-year students from the MMSU College of Law joined the delegation of the Regional Trial Court (RTC) of Batac City today, September 19, during a jail visit and inspection at the Bureau of Jail Management and Penology (BJMP) Batac District Jail. The visit aimed to provide legal aid to persons deprived of liberty (PDLs).

During the visit, the students offered legal consultations to the PDLs, which included case assessments, discussions of prisoners' rights, and inspections of jail facilities. They were accompanied by Atty. Ma. Saniata Marcos, MMSU legal officer, and assisted by law practitioners from RTC-Batac City, the Public Attorney's Office, MCTC Paoay-Currimao, and MCTC Pinili-Badoc.

BJMP Batac District Jail Inspector Jayson DC Mabuti expressed his gratitude for the support and information received, highlighting that the assistance provided has a significant impact on the PDLs' situation.

The MMSU College of Law is continuously tapped by RTC Batac City to expose students to real-world legal environments and equip them with practical experience. The visit was in line with the guidelines set by Office of the Court Administrator No. 01-2024 and Administrative Circular No. 07-03-02 SC.

MMSU CLARA holds first public lecture on charter change

The MMSU Center for Legal Assistance, Research, and Advocacy (CLARA) held its first public lecture on charter change in the Philippines on February 19.

With the theme, "Charter Change: Boon or Bane?", the lecture focused on the current amendments and issues in the 1987 Philippine Constitution.

Atty. Josiah Patrick Bagayas, chief of CLARA, served as a lecturer and provided historical insights, including past attempts to amend the Constitution and the factors that have shaped its evolution over time.

SUSTAINABLE DEVELOPMENT GOALS 4 QUALITY EDUCATION 10 REDUCED INEQUALITIES 16 PEACE, JUSTICE AND STRONG INSTITUTIONS MMSUofficial MMSU_official www.mmsu.edu.ph

Students of the College of Arts and Sciences, College of Health Sciences, and College of Law engaged in discussions through an open forum and student engagement. Participants highlighted the potential benefits and drawbacks of altering the Constitution in response to contemporary challenges.

The public lecture served as a platform for examining current issues and debates surrounding charter change in the Philippines. Furthermore, it contributes to the public's understanding of charter change and its implications.

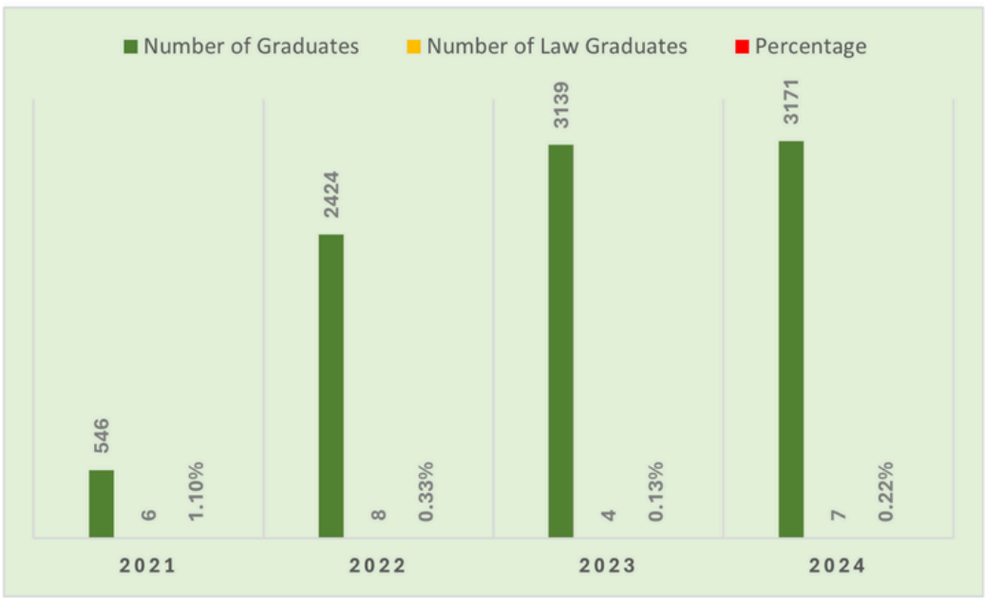
The Center for Legal Aid, Research, and Advocacy, housed within the MMSU College of Law, operates with a three-fold mission: to provide legal assistance to marginalized sectors, conduct pioneering legal research to enhance access to justice, and propose systemic reforms, and advocate for the rights of workers in the labor sector.

CLARA also offers free legal aid to the general public at the MMSU College of Law from 8:00 AM to 5:00 PM on weekdays. Walk-in clients are also welcome.

Proportion of Graduates in Law

MMSU is among the educational institutions in the country producing competent and principled graduates in the field of law. The University recognizes the vital role of these professionals in upholding justice, strengthening legal institutions, and promoting peace and good governance. Through their commitment to fairness, integrity, and the rule of law, MMSU law graduates contribute to building a just, inclusive, and accountable society in line with the goals of SDG 16.

Trend of Graduates and Law Graduates (2021–2024)



MMSU's Commitment

Help achieve the Sustainable Development Goals by forging linkage, not only across the goals, but also between institutions, government, NGOs, and people.

MMSU remains strong in coordinating and fostering partnerships that advance the SDGs. In 2024, it forged 81 new partnerships across national and international borders, focusing on the advancement of transnational education and knowledge sharing in areas such as agriculture, information technology and innovation, and intercultural understanding.

MMSU has forged partnerships with 11 universities in Turkey through memoranda of understanding signed during the Marmara Career Fair. The agreements focus on joint research, conferences, and capacity-building activities; exchange of faculty, staff, and students; development of transnational education and short-term courses; and promotion of the Sustainable Development Goals (SDGs).

The career fair serves as a platform for collaboration among institutions, businesses, and students in building skills and sharing experiences. Alongside this event, MMSU also established additional partnerships with other Turkish universities and is set to take part in an international higher education summit to further strengthen global academic linkages.

MMSU has entered into a five-year partnership with a university in Sakarya, Turkey to strengthen academic collaboration and international engagement. The agreement covers organizing conferences, conducting joint research, enhancing capacity-building initiatives, sharing academic resources, and facilitating faculty, staff, and student exchanges. It also includes the development of transnational education programs and short-term courses, with a strong focus on advancing the Sustainable Development Goals (SDGs).

The memorandum of understanding was signed alongside MMSU's other agreements with several Turkish universities during the Marmara Career Fair. The new partnerships aim to expand opportunities for global linkages, with MMSU also set to participate in the Eurasia Higher Education Summit (EURIE 2024), where its president will be a featured speaker and three university officials will serve as panelists.

Thailand's Huachiew Chalermprakiet University, MMSU forge academic partnership

To further enhance global academic collaborations, MMSU has formalized a three-year partnership with Huachiew Chalermprakiet University (HCU) in Thailand. The partnership was solidified through a memorandum of understanding (MOU) signed today, August 28, at the Center for Flexible Learning.

MMSU President and incoming CHED Commissioner Dr. Shirley C. Agrupis and HCU President Dr. Uraipan Janvanichyanont, represented by Vice President for Academic and Global Affairs Dr. Jonathan Carreon, signed the MOU, reflecting their institutions' shared commitment to advancing quality education and research. The agreement encompasses staff and student exchange programs, joint research initiatives, information sharing, and other mutually beneficial activities.

Also present at the signing were HCU Medical Technology Dean Sucha Chulsomlee, HCU Public and Environmental Health Dean Duanghathai Sangsawang, MMSU College of Health Sciences OIC Dean Cheryll Didi Nellie Obra, Department of Pharmacy Chair Janelyn Rojas, pharmacy faculty, and students.
This partnership represents another strategic step by MMSU in its mission to consolidate international alliances, pool resources, and expertise, and advance an innovative academic agenda.

มหาวิทยาลัยหัวเฉียวเฉลิมพระเกียรติ Huachiew Chalermprakiet University, founded over fifty years ago under the Poh Tek Tung Foundation is recognized for its international academic excellence.

MMSU inks agreement with United University for intensified student mobility

Mariano Marcos State University (MMSU) has entered into a five-year agreement with a university in India to strengthen academic collaboration and student mobility. The memorandum of agreement covers student exchange programs with credit transfer, joint curriculum development, and collaborative research initiatives, aimed at broadening opportunities for academic and cultural learning.

The partnership also features the Student Study Semester Abroad Program, which allows Indian students to study at MMSU. The agreement was signed during the university's foundation celebration, underscoring the shared commitment to academic synergy and global collaboration.

MMSU inks MOU with partner SUCs, agencies to advance RAISE program

MMSU together with partner State Universities and Colleges (SUCs) and regional agencies, signed a Memorandum of Understanding (MoU) on April 5 to strengthen their commitment to the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The agreement reinforces the role of the RAISE Advisory Council in fostering an innovative ecosystem that advances technologies and ideas in the agri-aqua sectors while serving as the program's foundation for expertise and support.

Ahead of the MoU signing, a pre-terminal review and project proposal writeshop was held to evaluate the program's outcomes and sustainability. With the support of DOST-PCAARRD, the RAISE Program continues to empower local innovators and entrepreneurs through capacity building, mentorship, agri-technology business development, intellectual property management, and regional collaborations.

MMSU, NIA-INIMO secure partnership for digitalization services

The MMSU College of Computing and Information Sciences (CCIS) and the National Irrigation Administration - Ilocos Norte Irrigation Management Office (NIA-INIMO) forged a memorandum of agreement (MoA) on Monday, May 27, to provide digitalization services for NIA-INIMO.

Signed by MMSU President Shirley C. Agrupis and Engr. Joselito De Vera, acting division manager for NIA-INIMO, the new partnership includes enhancing NIA-INIMO's IT capabilities, such as resource lectures, where distinguished faculty and industry experts will deliver comprehensive and insightful presentations on IT-related topics, and specialized training programs designed to build and refine practical skills in various IT disciplines.

Vice President for Planning and Strategic Foresight Dr. Virgilio Julius Manzano Jr., CCIS Dean Dr. Saturnina Nisperos, CCIS faculty members, and NIA-INIMO staff witnessed the signing ceremony.

In October 2022, NIA partnered with MMSU to improve the irrigation systems in Ilocos Norte. In the five-year MOU, MMSU and NIA signed a partnership to study all available water resources in the country for irrigation purposes in Ilocos Norte, construct multiple-purpose water resources projects for irrigation within MMSU campus, and improve the irrigation and appurtenant structures in the MMSU's 26-hectare Coordinated Agribusiness, Research and Extension Strategies (CARES) program farm. Both parties also agreed to exchange irrigation-related information, publications, and materials.

MMSU partners with LGU Sarrat to strengthen agricultural development for farmers

To promote and extend its agricultural and natural resources, MMSU College of Agriculture, Food, and Sustainable Development (CAFSD) formalized its partnership with the Local Government Unit of Sarrat through a ceremonial signing of the Memorandum of Agreement (MoA) today, August 2, at the Center for Flexible Learning.

The three-year agreement titled, "Revitalizing Community Engagement to Institutionalize Partnerships for the Promotion, Extension, and Deployment of the MMSU-Glut 1 (Improved Honey Corn)" includes conducting training on corn production, value-adding corn products, and literacy in enterprise development, and providing input assistance such as planting materials to the beneficiaries. The project also aims to improve the quality of life of corn farmers in Sarrat, targeting 30 beneficiaries, by adopting improved farming technologies.

Sarrat Mayor Remigio Medrano, represented by Ms. Annette Calvelo, expressed his gratitude towards MMSU and emphasized the continuous support of the LGU in fostering growth, agricultural practices, and local enterprises.

Present at the event were Dr. Marilou Lucas, extension director; Atty. Ma. Saniata Marcos, MMSU legal officer; Mr. Esteban Ballesteros, Sarrat Municipal Agriculturist, also represented by Ms. Annette Calvelo; Mr. Rheanie Calaro, barangay chairman of San Andres, represented by Ms. Jamaica Alcom, barangay kagawad; Prof. Raymund Julius Rosales, project and program lead; Prof. Glisten Faith Pascua, CAFSD extension coordinator; Prof. Sean Vidad, department chair of the Department of Agricultural Sciences, along with CAFSD faculty members Ms. Glisten Faith Pascua, Ms. Frances Charlyn Batara, Ms. Luzell Pungtilan, Mr. Reynold Guiang and Mr. Bryan Pungtilan.

The project titled "Hybrid Techniques on Effective Assessment: Capacitating 21st Century Teachers of Paoay National High School" aims to empower PNHS teachers with both theoretical and hands-on expertise in traditional/manual as well as modern/technological (hybrid) methods of designing and constructing tests and various assessment tools and rubrics.

Led by MMSU President Dr. Shirley C. Agrupis, MMSU Vice President for Academic Affairs Dr. Prima Fe R. Franco and PNHS Principal Mr. Daniel Tabili, the partnership was formalized a Memorandum of Agreement (MoA) and Memorandum of Understanding (MoU).

In the three-year agreement, MMSU will provide training sessions, workshops, and consultancy services for PNHS teachers to assess student learning effectively. Additionally, MMSU will create, distribute, and leverage the training materials developed during this period while closely monitoring the progress of teacher participants in designing test and assessment tools. Dr. Richard Agbayani, research coordinator of GS, will lead the extension project management team.

Number of Forged Partnerships

MMSU is among the educational institutions in the country committed to forging strong and meaningful local and international partnerships for sustainable development. The University recognizes the vital role of collaboration with global institutions, government agencies, industries, and communities in advancing research, innovation, and capacity building. Through these strategic linkages, MMSU strengthens collective action toward achieving the Sustainable Development Goals and fostering inclusive, resilient, and globally engaged growth for all.