MSU - MAGUINDANAO

RED

RESEARCH, EXTENSION, AND DEVELOPMENT

AGENDA 2025-2030

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RED AGENDA 2025-2030

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Acknowledgement

The Mindanao State University (MSU) – Maguindanao Research, Extension, and Development (RED) Agenda for 2025–2030 was crafted and updated through a series of comprehensive consultations with internal and external stakeholders. This agenda reflects the strong collaborative efforts and shared vision of the University's leadership and academic community.

We extend our profound gratitude to the University Chancellor, Bai Hejira Nefertiti Sinsuat Macalandong-Limbona, for her unwavering support and strategic guidance in advancing the research and extension thrusts of the University. Her visionary leadership has been instrumental in shaping a responsive and future-oriented RED Agenda.

We extend our heartfelt appreciation to the members of the Research and Extension Committee for their invaluable insights and collective wisdom. Their thoughtful contributions were instrumental in ensuring that the agenda remains aligned with the University's institutional priorities and strategic direction.

We also acknowledge with deep appreciation the faculty members, academic units, and administrative staff who actively participated in the consultation process. Their engagement, expertise, and support have been vital in ensuring the relevance and integrity of this initiative.

Rationale

MSU – Maguindanao stands at the forefront of advancing research and extension initiatives in the region. It acknowledges the prevailing global, national, regional, and local challenges that shape the contemporary development landscape. Furthermore, the University reaffirms its unwavering commitment to contributing meaningfully to national development priorities and, ultimately, to the attainment of inclusive and sustainable development.

In response to these imperatives, MSU – Maguindanao has crafted and updated its RED Agenda for the period 2025–2030. This comprehensive agenda is informed by recent developments, pressing issues, and emerging trends in both the applied and social sciences.

The overarching objective of this initiative is to generate new knowledge, sharpen the focus on priority research, extension and development areas, harness emerging technologies, and implement evidence-based strategies that address the multifaceted needs of communities and promote equitable regional development. Equally important, this agenda reinforces the University's pursuit of excellence in research and scientific innovation, and supports its strategic vision of attaining international recognition and scholarly visibility.

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Development of the RED Agenda

Research and extension, along with instruction, comprise the three core functions of a university. At Mindanao State University – Maguindanao (MSU-Maguindanao), these functions are pursued with a deep commitment to national development. By continuously advancing scientific and technological knowledge, the university aims to improve the quality of life, particularly in underserved communities.

The overarching goal of MSU-Maguindanao's Research, Extension, and Development (RED) Agenda is to promote human development through responsive programs that address both national and local needs.

To guide its formulation, the university applies a well-defined set of criteria to ensure that all RED initiatives are relevant, community-driven, and capable of delivering meaningful and sustainable outcomes.

MSU-Maguindanao takes a responsive and adaptive approach in setting its RED priorities—grounded in current realities and emerging challenges. These priorities are aligned with the MSU Charter and Code of Governance and are intended to address both immediate and long-term community needs. Emphasis is placed on addressing fundamental issues and emerging concerns, while ensuring alignment with local, national, and global development goals. Other key considerations include the availability of funding, infrastructure, and resources, along with the presence of qualified experts and technical personnel.

The development of the RED Agenda was shaped through a series of consultations with students, staff, faculty members, the University's Research and Extension Committee, civil society organizations, and government agencies (see Appendix). These engagements ensured that the agenda reflects institutional objectives, local and regional development priorities, particularly in the Mindanao context.

During the Core Values Revisit and RED Agenda Revision workshop held in Bukidnon from August 8 to 10, 2024, all seven (7) colleges identified and selected their respective research and extension priorities.

The consolidated and refined RED Agenda was then presented at the Research and Extension Committee (REC) meeting held via Zoom on May 8, 2025, where it underwent further improvement based on additional feedback.

On June 10, 2025, the MSU-Maguindanao RED Agenda for 2025 to 2030 was approved by the Board of Regents through Resolution No. 245, Series of 2025.

MSU-Maguindanao RED Agenda

The Mindanao State University's Research, Extension, and Development (RED) Agenda for 2025 to 2030 covers eight research disciplines:

I. Agricultural Innovation and Sustainability

II. Aquatic Research, Resources, and Livelihoods

III. Green Agenda

IV. Governance For Inclusive Nation Building

V. Health Systems and Services

VI. Inclusive Education for Sustainable Futures

VII. Industry, Energy, and Emerging Technologies

VIII. Women, Peace and Security, Indigenous, and Halal Studies

Further details are provided in the following pages.

I. Agricultural Innovation and Sustainability

The **Agricultural Innovation and Sustainability** research discipline of the University covers six research agenda with 46 research priorities.

A. Crops (Abaca and other crops, coconut, rice, corn and other grains, fruit crops (mango, banana, other tropical fruits), legumes, natural source of dye, pili and cashew, ornamentals, medical plants, plantation crops (cacao, coffee, oil palm, rubber, sugarcane), root crops, sericulture and apiculture, vegetables

1. Crop selection mechanisms that can help identify sources of resistance/resilience to abiotic stresses including heat, cold, and drought
2. Technological innovations focused on reducing production losses as well as post-harvest technological innovations that can ensure the quality, freshness, and marketability
3. Technological innovations such as small-scale irrigation projects and hydrologic mapping, heat and weather sensors, to help cushion farmers from weather extremes and dwindling crop yields brought by climate change;

B. Livestock [Goat, Sheep, Cattle (dairy and meat), Carabao (dairy and meat), Rabbit]

4. Animal genetic improvement
5. Breed development and genetic improvement
6. Conservation and improvement of native animals
7. Disease control and anti-microbial resistance management
8. Emerging technologies on breeding techniques
9. Food quality and safety assurance
10. Nutrition, feeds and feeding system
11. Product development and processing
12. Production and management decision support systems
13. Reproductive biotechniques for priority livestock species
14. Vaccine, biologics and diagnostics development

C. Pests, diseases, and natural enemies

15. Asset reform
16. Disease and pathogens of important crops
17. Economies of scale/collective farming
18. Emerging and re-emerging zoonotic diseases and its management
19. Environmental valuation
20. Market research
21. Supply and value chain development
22. Taxonomy of eco-friendly species (e.g. arthropods and microorganisms) for integrated pest management
23. Taxonomy of neglected and underutilized species for food Halal studies
24. Zoonotic diseases (etiology, transmission, and control)

D. Agriculture and Resource Economics

25. Asset reform
26. Economies of scale/collective farming
27. Environmental valuation
28. Market research
29. Supply and value chain development

E. Smart Farming

30. Drone-Based Crop Monitoring for Rice and Corn Production in the Pulangi River Basin
31. Remote Sensing for Early Detection of Crop Diseases in Ligawasan marsh
32. Deployment of IoT Soil Moisture Sensors
33. Smart Irrigation Systems for Banana and Coconut Plantations
34. Development of a Smart Crop Calendar for Rain-Fed Farms
35. Digital Decision Support Tools for Crop Diversification in Conflict-Affected Zones
36. IoT-Based Monitoring of Halal Goat and Cattle Production

37. Mobile Market Linkage Platforms

F. Gender-responsive approaches in agricultural planning, technology access, and decision-making

38. Assessment of Gender Inclusion in MAFAR Extension Programs and Budgeting Practices
39. Determinants of Women's Access to Farm Technologies and Inputs in Conflict-Affected Communities
40. Exploring Gender-Sensitive Approaches to Climate-Resilient Agriculture in Flood-Prone Areas Gender, Age, and Ethnicity in Agricultural Technology Access
41. Gendered Vulnerabilities and Responses to Climate-Induced Agricultural Risks
42. Gender-Inclusive Monitoring and Evaluation Frameworks for Agricultural Projects in BARMM
43. Gender-Responsiveness of Agricultural Training and Extension Programs in BARMM
44. Mainstreaming Gender in Municipal and Provincial Agriculture Development Plans in BARMM
45. Participatory Planning Approaches to Integrate Women’s Voices in Agricultural Development Projects
46. Role of Female Farmer-Leaders in Agricultural Cooperatives and Community-Based Organizations

II. Aquatic Research, Resources, and Livelihoods

The **Aquatic Research, Resources, and Livelihoods** research discipline of the University outlines nine research agenda with 43 research priorities.

A. Taxonomic studies of flora and fauna as food sources from aquatic environment

1. Genetic analysis (biochemical, cytogenetics, molecular);
2. Morphological, allelopathic, and bioecological studies for food and sustainability
3. Physiological and ecological studies of aquatic species

B. Vulnerable ecosystems (lakes, rivers, wetlands, seas, and oceans)

4. Soil science, carrying capacity models of ecosystems

C. Marine Fisheries

5. Applications of genomics in breeding and selection;
6. Sustainable marine fisheries; Improved seed production of high value fish and invertebrates

D. Inland fisheries

7. Aquaponic systems
8. Biological studies and genetic enhancement and breeding of mangrove crab and commercial shrimp species
9. Resource and socio-economic assessment of mainland and island river systems, marshes and lakes (Ligawasan Marsh, Basak Singa, Lake Dapao, Lake Buluan, Lanao Lake and other lakes in BARMM);
10. Stock assessment and enhancement of indigenous freshwater species; Sustainable management strategies on agricultural and aquatic commodities
11. Wetland fisheries assessment and management;

E. Aquatic diseases

12. Application of genomics in the study of diseases of aquatic species and fish resistance to climate change

13. Fish disease diagnostic tools and vaccines
14. Fish health, disease diagnostics and disease management
15. Fish kill warning and mitigation systems

F. Sustainable aquaculture production practices

16. Alternative feeds and feed additives for improved nutrition of aquatic species
17. Application of genomics in the study of diseases of aquatic species and fish resistance to climate change
18. Culture systems (broodstock management, hatchery, nursery, grow-out)
19. Fish health, disease diagnostics and disease management
20. Mechanization and automated systems for feeding, water and culture management and post production
21. Molecular phylogenetics
22. New species for culture
23. Nutrition, feeds and feeding system
24. Physiological and ecological studies of aquatic species;
25. Population genetics
26. Postharvest handling, processing and new product development
27. Production and management decision support systems

G. Fish Stock Assessment

28. Baselining and assessment of fish stock and other coastal and marine resources and ecosystem conditions in Fisheries Management Areas

H. Marine Resources/Ocean Studies

29. Alternative feeds and feed additives for improved nutrition of aquatic species
30. Economic value of marine biodiversity and what this means for planning and designing effective and sociably acceptable conservation strategies;
31. Improved trans-disciplinary understanding and perspective of the Philippine marine environment and the interactions within this environment (marine life and genetic resources, wind farms, coastal tourism, and

recreation, marine security, marine transport) and how this knowledge can contribute to integrated policies and plans/schemes to conserve the environmental richness of the Philippine coastal communities

32. Innovations that help communities to manage and restore ecosystems vis-à-vis climatic fluctuations and other stressors
33. Nutritional and health impact of biodiversity

I. Integration of gender in research, stock assessments, and sustainable production practices

34. Assessing Gender Bias in Agricultural and Fisheries Research
35. Development of Gender-Responsive Indicators in Livestock and Fisheries Monitoring Systems
36. Documenting Gender-Differentiated Knowledge and Practices in Agro-Fisheries in Ligawasan Marsh
37. Exploring Gender Differences in Adoption of Sustainable Aquaculture and Agroforestry Techniques
38. Gender Roles in Inland Fisheries Stock Monitoring
39. Gendered Division of Labor in Sustainable Rice-Fish Farming Systems in Lowland Maguindanao
40. Integrating Women's Participation in Community-Based Fish Stock Assessment Programs
41. Livelihood and Resource Use Mapping by Gender
42. Participatory Research Approaches to Enhance Women's Engagement in Resource Data Collection and Interpretation
43. Role of Moro and IP Women in Preserving Native Plant Varieties and Local Livestock Breeds

III. Green Agenda

The **Green Agenda** research discipline of the University outlines 12 research agenda with 51 research priorities.

A. Biodiversity Studies

1. Establishment of National Integrated Sharing Network for plant genetic resources for food and agriculture.

B. Climate Change Adaptation and Mitigation

2. Environmental health management
3. Smart farming approaches and other climate-resilient agricultural production technologies;
4. Strategies/decision management tools for climate change- and disaster-resilient environment;
5. Technology development for resilient and adaptive communities and ecosystems

C. Decision tools for forest tree plantation management and marketing

6. Cost-benefit analysis
7. Market trends
8. Supply chain management

D. Forestry and Watershed Studies

9. Biological, chemical, and physical characterization;
10. Innovative techniques for processing of timber and non-timber species
11. Inventory of flora, fauna and fungi in watersheds and islands;
12. Livelihood opportunities for upland communities
13. Physiological and ecological studies
14. Role of forestry in disaster risk reduction
15. Selection and production of superior genetic materials of selected agroforestry and forestry species

16. Sustainable agroforestry models including, but not limited, to silvopasture models
17. Sustainable production, management and processing of priority agroforestry/non-timber and forestry species
18. Upland farming in urban setting

E. Vulnerable ecosystems (lakes, rivers, wetlands, seas, and oceans)

19. Endangered species; economic valuation of ecosystems, natural capital, and cost-benefit analyses;
20. Environmental scanning of physical, aquatic, marine, and terrestrial resources;

F. Risk communication studies for disaster management

21. S&T Action Frontline for Emergencies and Hazards (SAFE)

G. Ecosystem valuation

22. Mitigation and adaptation studies of vulnerable communities and ecosystems
23. Valuation and payment, including development of financing instruments, for ecosystem services of watersheds and other resources

H. Decision tools for forest tree plantation management and marketing

24. Remote sensing and GIS
25. Risk management models

I. Non-timber

26. Bamboo, rattan, King Grass/Napier Grass or Elephant Grass

J. Natural Resources Management

27. Strategies/decision management tools for climate change resilient environment

K. Humans Dimensions of Wildlife and Ecosystem Management

28. Alternative Livelihood Programs and Their Effects on Conservation Behavior

29. Community Attitudes Toward Endangered Species (e.g., Philippine Crocodile, Colasisi, Hornbills) in Rural and Marshland Areas
30. Community Participation in Watershed and Forest Governance: Challenges and Opportunities
31. Community Perceptions of Ancestral Domain Protection Plans and Environmental Rights
32. Community-Based Approaches to Managing Human-Wildlife Conflict and Promoting Coexistence
33. Cultural and Religious Influences on Human-Wildlife Interactions in Moro and IP Communities
34. Ecotourism and Community-Based Conservation: Social Impacts and Local Perspectives
35. Effectiveness of Environmental Education in Changing Conservation Attitudes and Practices
36. Environmental Worldviews and Their Influence on Pro-Environmental Behavior in Rural BARMM
37. Local Knowledge and Beliefs about Wildlife Species in Ligawasan Marsh and Their Impact on Conservation
38. Mapping Human-Wildlife Conflict Hotspots in the Uplands and Marshland Edges of BARMM
39. Perceptions of Ecosystem Services Among Farmers, Fishers, and Forest Users in Maguindanao
40. Social Acceptability of Conservation Policies and Protected Areas in BARMM
41. Socioeconomic Drivers of Wildlife Hunting and Trapping in Conflict-Affected Communities
42. Understanding Risk Perception and Fear of Wildlife: Implications for Community Engagement

L. Role of women and gender-diverse communities in ecosystem protection, climate adaptation, and forest and watershed governance

43. Barriers and Enablers of Women's Participation in Watershed Governance Committees and Councils
44. Climate Resilience through Women's Livelihood Diversification in Watershed Communities

45. Gendered Perceptions of Climate Risks and Adaptation Strategies in Flood-Prone Agricultural Communities
46. Inclusive Early Warning and Disaster Preparedness: Women's and LGBTQ+ Involvement in Climate-Responsive Planning
47. Role of Women in Building Climate Resilience in Drought-Affected Farming Systems in BARMM
48. Roles of Women and LGBTQ+ Individuals in the Protection of Watershed Areas in South Upi and Talayan
49. Strengthening the Role of Indigenous Women in Forest Land Use Planning and Ancestral Domain Protection
50. The Role of Gender and Identity in Access to Forest Resources and Ecosystem Services
51. Women as Environmental Stewards: Documenting Conservation Practices in Moro and IP Upland Communities

IV. Governance for Inclusive Nation Building

The **Governance for Inclusive Nation Building** research discipline of the University outlines 7 research agenda with 36 research priorities.

A. Inclusive nation-building

1. Bangsamoro and IP Knowledge Systems and Practices
2. Human security
3. Socio-economic status of residents in BARMM
4. Unemployment, underemployment and skills development and Job matching

B. Women and Youth

5. Culture-sensitive gender and development
6. Gender dimensions in the IP and Bangsamoro contexts
7. Programs and projects for youth organizations and the youth capacity building on the role of the youth/support through policy
8. Research on women and development (adolescent pregnancy, domestic, violence, and other gender issues)
9. Women leaders and Women's roles and contributions to leadership and governance

C. Social dimensions of health

10. Development and evaluation of culturally appropriate health programs and interventions for ICCs
11. Development and evaluation of interventions to address the specific health needs of the elderly, such as fall prevention programs, dementia care models, and health promotion activities tailored to this age group.
12. Health management practices
13. Improving access to healthcare services
14. Perceptions and concepts on health of Herbal and folkloric medicines
15. Research on tool development to be used for measurement and intervention for all regions

16. The health status and health-seeking behaviors of Indigenous Cultural Communities (ICCs)

D. Applied rural sociology

17. Characterizing and understanding rural communities; demographic and intergenerational changes among stakeholders
18. Role of social institutions and institutional arrangements
19. Social practices and behavior and their implications to technology adoption

E. Socio-economics and policy research

20. Agriculture policy research
21. Aquatic policy research
22. Natural resources policy research

F. Delivery of social services

23. Assessment on the delivery of social services and social welfare in the BARMM;
24. Compliance readiness assessment to RA 9003

G. Role of women and youth in shaping policies and accessing social services

25. Barriers and Enablers to Political Participation Among Young Moro and Indigenous Women
26. Experiences of Young Women in Accessing Reproductive Health Services in Conservative and Rural Communities
27. Exploring the Role of Women and Youth in the Implementation of the Bangsamoro Organic Law
28. Faith, Gender, and Youth Identity: Navigating Modern Policy Spaces in Traditional Muslim Societies
29. Gender and Age Disparities in Access to Health, Education, and Livelihood Services in Conflict-Affected Areas
30. Influence of Youth and Women Leaders in Shaping Climate, Education, and Health Policies in BARMM

31. Intersectional Barriers: Women and Youth with Disabilities Accessing Public Services in Rural BARMM
32. Participation of Women and Youth in Local Development Planning and Barangay Governance in BARMM
33. Role of Madrasah and Public Schools in Developing Youth Leadership for Social Change
34. Roles of Women and Youth in Peace Advocacy and Community Dialogue in Post-Conflict Maguindanao
35. Social Protection and Safety Nets: Awareness and Utilization of Government Programs by Youth and Women
36. Youth Political Engagement and Advocacy in the BARMM Parliamentary Process

V. Health Systems and Services

The **Health Systems and Services** research discipline of the University covers 11 research agenda with 50 research priorities.

A. Disease Management

1. Addressing access to treatment barriers
2. Enhancing the quality of services in rural areas
3. Studies on the burden, prevention, diagnosis, treatment, and management of Non-communicable Diseases (NCDs) diseases
4. The health impact of environmental changes, occupational health diseases, and the triple burden of disease (communicable diseases, NCDs, and injuries) in urban and industrial settings.
5. Understanding the impact of chronic diseases on the population

B. Nutrition and Food Security

6. Assessment of food security
7. Chemical and halal analysis of feeds, animal, and aquaculture products
8. Creating new food products that are both nutritious and appealing
9. Developing innovative agricultural techniques to increase food production
10. Development of functional foods
11. Effectiveness of adoption of farm technology
12. Exploring the use of technology in improving food distribution and reducing food waste
13. Studies on predictive microbiology and intervention technologies to identify mitigation steps to reduce contamination during food production and processing
14. Studying the impact of climate change on food security

C. Mental Health

15. Implementation and effectiveness of workplace mental health programs
16. Psychological health

17. Psycho-social factors (e.g., armed conflict) that affect the mental health of the community
18. The impact of work-related stress on mental health
19. The implementation and effectiveness of school-based mental health programs and interventions
20. The prevalence of mental health issues among workers in different industries and occupational groups
21. Understanding the unique mental health challenges in these groups, including prevalence

D. Sexual and Reproductive Health

22. Effectiveness of sexual health education curricula in schools and community settings, focusing on their impact on knowledge, attitudes, and behaviors related to sexual health
23. Evaluating and improving current interventions and policies on gender-based violence
24. Innovative, digital, or peer-led strategies to enhance accessibility and impact of sexual health education in underserved populations.
25. The prevalence, causes, and impact of gender-based violence, as well as factors that perpetuate it

E. Health Security, Emergency, and Disaster Risk Management

26. Capacity assessment to deliver health services during and after disasters or climate-related events
27. Enhancement of health worker capacity to respond to emergencies.

F. Health Promotion, Communication, and Education

28. The impact of social media on the health-seeking behavior of Filipinos

G. Health Information Systems (HIS)

29. Effectiveness of current health governance structures and policies in achieving Universal Health Care (UHC)
30. Impact of governance structures on health system performance and health outcomes

31. Research on health research-its governance, effectiveness and efficiency of policies to support health research, and the use of evidence in policy- and decision-making
32. The assessment of UHC implementation in across regions
33. The role of leadership in health promotion.

H. Innovative Approaches in Health Promotion and Education

34. Development, implementation, and effectiveness of novel health education strategies
35. The use of digital technologies in health promotion

I. Environmental Health and Sanitation

36. Assessment of solid waste management implementation
37. Development of functional foods
38. Evaluating the effectiveness of current sanitation practices in preventing diseases and developing new practices based on identified gap
39. The impact of specific environmental factors on health (air and water quality, waste management, exposure to hazardous substances) and developing strategies to mitigate these impacts

J. Health Systems

40. Improving doctor-patient communication
41. Strategies for enabling better integration of services, such as maternal, neonatal, child health, and nutrition, detection and prevention of tuberculosis, HIV, malaria, and other infectious diseases as well as other chronic conditions such as hypertension and diabetes

K. Gendered impacts of health crises and the need for resilient, inclusive systems

42. Disruptions in Maternal and Reproductive Health Services During Health Crises: Experiences from Rural Maguindanao
43. Evaluation of Gender and Development (GAD) Budget Utilization in Emergency Health Programs
44. Gaps in Gender Integration in BARMM's Health Crisis Response Framework

45. Gender-Based Violence and Mental Health Challenges During Prolonged Quarantine and Displacement in BARMM
46. Gender-Sensitive Evaluation of Public Health Interventions in BARMM During Epidemics and Natural Disasters
47. Health Literacy and Trust in Public Health Systems Among Moro Women and Youth
48. Inclusive WASH and Hygiene Solutions for Displaced Women and Girls in Evacuation Centers
49. Mobile and Community-Based Health Solutions for Women and Children in Upland and Marshland Barangays
50. Women's Roles in Community-Led Health Response and Recovery Programs

VI. Inclusive Education for Sustainable Futures

The **Inclusive Education for Sustainable Futures** research discipline of the University outlines 7 research agenda with 41 research priorities.

A. Inventory of regional Islamic education

1. Asatidz in the MBHTE
2. Islamic institutions (taqweem [calendar], masajid, madaris, markaz, majalis, and munadhamat)
3. Islamic Library
4. Madaris Education
5. Zakat collection system

B. Education in BARMM

6. Assessment and monitoring on peace and security in the BARMM
7. Assessment of impact on student learning in STEAM programs
8. Capacity building program for madrasah (both technical and management system);
9. Case studies and other innovations in STEAM education from pre-K through university
10. Lifelong learning on STEAM
11. Preservation and promotion of Islamic and Indigenous Heritage;
12. Women and STEAM

C. Mother-tongue based education

13. Availability of mother-tongue resources in schools
14. Best practices for mother-tongue instructions
15. Functionally illiterate research
16. Improving literacy and numeracy skills through mother tongue
17. Mother-tongued based curricula

D. Education Management

18. Graduate tracer studies
19. Institutional development studies
20. Madrasa Education in Maguindanao
21. Manpower demand and supply studies
22. Model building studies
23. Policy-oriented studies
24. Program/curricular studies on higher education
25. Research on quality and standards context; technology and education

E. Health Prophetical Education and Services

26. Data banking on health prophetical education and services

F. Education for STEAM (Science, Technology, Engineering, Agriculture-Fisheries, and Mathematics)

27. Case studies and other innovations in STEAM education from pre-K through university

G. Gender disparities in both traditional and modern educational frameworks

28. Assessment of BARMM's Education Code through a Gender Lens
29. Barriers to Girls' Participation in Public and *Madrasah* Education in Rural Maguindanao
30. Comparative Study of Dropout Rates Among Boys and Girls in Upland and Conflict-Affected Communities
31. Evaluation of Gender Mainstreaming in DepEd-BARMM and MBHTE Programs
32. Experiences of Female Teachers in *Madaris* and Public Schools: Challenges and Agency
33. Exploring the Role of Gender in Literacy, Numeracy, and Digital Skills Acquisition Among Youth
34. Gender Composition of Teaching Staff and Its Influence on Girls' Educational Experience
35. Gender Disparities in Transition from Primary to Secondary and Tertiary Education in BARMM

36. Gender Gaps in Enrollment, Attendance, and Retention in Public, Islamic, and ALS (Alternative Learning System) Schools
37. Gendered Educational Experiences of Internally Displaced Youth in BARMM
38. How Gender Bias in Textbooks and Teaching Practices Shapes Learning Outcomes
39. Perceptions of Parents and Religious Leaders on Gender and Educational Content
40. Representation of Gender in *Madrasah* and DepEd Curricula in the BARMM Region
41. Vocational and Technical Education Access Among Young Women and Men in Marginalized Areas

VII. Industry, Energy, and Emerging Technologies

The **Industry, Energy, and Emerging Technologies** research discipline of the University outlines 5 research agenda with 35 research priorities.

A. Inventions and Innovations

1. Advances in Computing
2. Advances in Engineering
3. Agricultural and Biosystems Engineering
4. Artificial Intelligence, Machine Learning, and Deep Learning
5. Bioengineering
6. Climate-Smart and Adaptive Infrastructure
7. Cloud Computing
8. Data Analytics and Visualization
9. Development of Smart Technologies (e.g. farms, meters, grids, etc.)
10. Internet of Things
11. Network System and Security
12. Renewable Energy
13. Structural Designs
14. Web and Mobile technologies

B. Emerging Methods in Engineering

15. Adoption of Composites and Biodegradable Alternatives
16. Application of Composite Materials in Structural Design
17. High-Performance and Advanced Concrete Technologies
18. Software Development Methodologies
19. Streamlined and Efficient Engineering Processes
20. Sustainable Material Use and Resource Optimization

C. Warning and risk communication

21. Early Warning Systems

22. ICT applications of flooding, earthquake, typhoons, drought and other disasters

D. Alternative energy

23. Identification and characterization of clean and renewable sources of energy (wind, solar, biofuels, hydro)
24. Localization of equipment including balance of systems (BOS);
25. Resource assessment of potential sources of clean and renewable sources of energy;
26. Unified GIS Mapping of all potential energy sources in BARMM

E. Gender-responsive risk communication and digital literacy

27. Assessing the Digital Readiness of Women Entrepreneurs in BARMM for Crisis-Resilient Business Continuity
28. Capacity-Building Programs for Women as Community Risk Communicators in Bangsamoro
29. Evaluating the Effectiveness of Mobile Applications in Delivering Risk Information to Women and IPs in BARMM
30. Exploring Cultural and Religious Barriers to Digital Literacy Among Muslim Women in BARMM
31. Gender-Based Violence (GBV) and Online Harassment: Risks and Reporting Mechanisms in the Bangsamoro Context
32. Gendered Access to Digital Technologies in Conflict-Prone and Rural BARMM Communities
33. Integrating Digital Literacy in Madrasah and Alternative Learning Systems for Girls
34. Risk Communication Strategies for Women and Youth in Conflict-Affected Areas of BARMM
35. Role of Women and Youth in Community-Based Early Warning Systems

VIII. Women, Peace and Security, Indigenous, and Halal Studies

The **Women, Peace and Security, Indigenous, and Halal Studies** research discipline of the University outlines 7 research agenda with 60 research priorities.

A. Peace Building and Conflict Resolution

1. BARMM security and sovereignty
2. Community-based peace-building initiatives;
3. Comparative studies on conflict resolution strategies (focusing on Islamic traditions and practices)
4. Effectiveness of existing peace-building initiatives

B. Philippine Indigenous knowledge, culture, and heritage

5. Agrarian reform beneficiaries, migrants-settlers
6. Art history
7. Bangsamoro and Indigenous peoples' struggles
8. Community entrepreneurship and indigenous business models
9. Conflict resolution (between and among ancestral domain holders
10. Conservation, preservation, and restoration of the architectural, archaeological, anthropological, cultural, historical and political heritage
11. Cultural mapping on the tangible and intangible cultural heritage of BARMM
12. Culture appropriate and culture-based plans, programs, and activities
13. Documentation, preservation, and knowledge transfers
14. Ethnic music and musical traditions
15. Extant arts, music, and language
16. Extant cultural heritage of ethnolinguistic groups;
17. Food and Cuisine
18. Historical sites and personalities or marital arts in BARMM
19. Implementation of the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP)
20. Indigenous technologies (e.g. food preservation, weaving and textiles) of moro and non-moro

21. Indigenous technology in Filipino expressive culture;
22. Models and metrics for culture-sensitive
23. Peace studies; Human security
24. Performing arts (music, dance and theater);
25. Photo documentation on the weaving and textile industries of the Bangsamoro and Indigenous Peoples
26. Rites and rituals; Living heritage; Belief and value systems in BARMM
27. Social movements and struggles on legal and political structures in BARMM
28. Tribal Hall of indigenous peoples (artifact of their way of life)

C. Halal Studies

29. Assessment of the community awareness on the halal chain (from livestock raising until food processing)
30. Documentation of consumption and production practices (product-specific)
31. Integration and mainstreaming of Halal in the food and beverage industry
32. Inventory, monitoring, evaluation and patenting of the halal practices in the Bangsamoro (food and non-food products);

D. Halal Food and Nutrition Security

33. Exploring the use of Halal-certified ingredients in drug production
34. Food Safety and Halal Processing
35. Halal compliance with food and processes
36. Investigation on the processes involved in certifying pharmaceuticals as Halal, and the regulatory frameworks that govern this.
37. Research, development, and production of pharmaceutical products that comply with the principles of Halal.
38. Studies on halal-ness of feeds and other food production inputs
39. The integration of Halal principles into the food and beverage industry. It covers the entire food supply chain, from the sourcing of ingredients to the preparation and packaging of food products
40. The promotion of Halal food and nutrition in mainstream markets

E. Halal in Health

41. The integration of Halal principles into the food and beverage industry. It covers the entire food supply chain, from the sourcing of ingredients to the preparation and packaging of food products
42. The promotion of Halal food and nutrition in mainstream markets

F. Ancestral Domains

43. Agrarian reform beneficiaries, migrants-settlers
44. Bangsamoro and Indigenous peoples' struggles
45. Conflict resolution (between and among ancestral domain holders)
46. Implementation of the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP)
47. Peace studies; Human security

G. Bridges peacebuilding, indigenous knowledge, and cultural identity, focusing on gender empowerment.

48. Cultural Identity and Women's Leadership in Post-Conflict Community Development
49. Cultural Mapping as a Tool for Gender-Inclusive Peacebuilding and Development Planning
50. Documenting Women's Oral Histories of Peace and Survival in Conflict-Affected BARMM Areas
51. Gender Mainstreaming in the Implementation of the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP)
52. Gender Roles in the Preservation and Transmission of Indigenous Knowledge in BARMM
53. Gender-Sensitive Peace Education in Madrasah and Public Schools in the Bangsamoro
54. Halal, Hijab, and Heritage: Gendered Expressions of Faith and Identity in Contemporary BARMM
55. Indigenous Women's Struggles for Land, Identity, and Autonomy in the Bangsamoro Peace Process

56. Reclaiming Cultural Spaces: Empowering Women Through Traditional Arts, Weaving, and Cuisine
57. Rites, Rituals, and Roles: How Gender Shapes Participation in Ancestral and Religious Ceremonies
58. The Role of Women and Elders in Safeguarding Islamic and Indigenous Belief Systems in BARMM
59. Women as Peacebuilders: Indigenous Mechanisms of Conflict Resolution in Moro and IP Communities
60. Women's Participation in Cultural Councils, Peace Panels, and Community Mediation in BARMM

RED Agenda Summary

In general, MSU-Maguindanao presents a comprehensive RED Agenda. It covers eight research disciplines, encompassing a total of 64 research agenda.

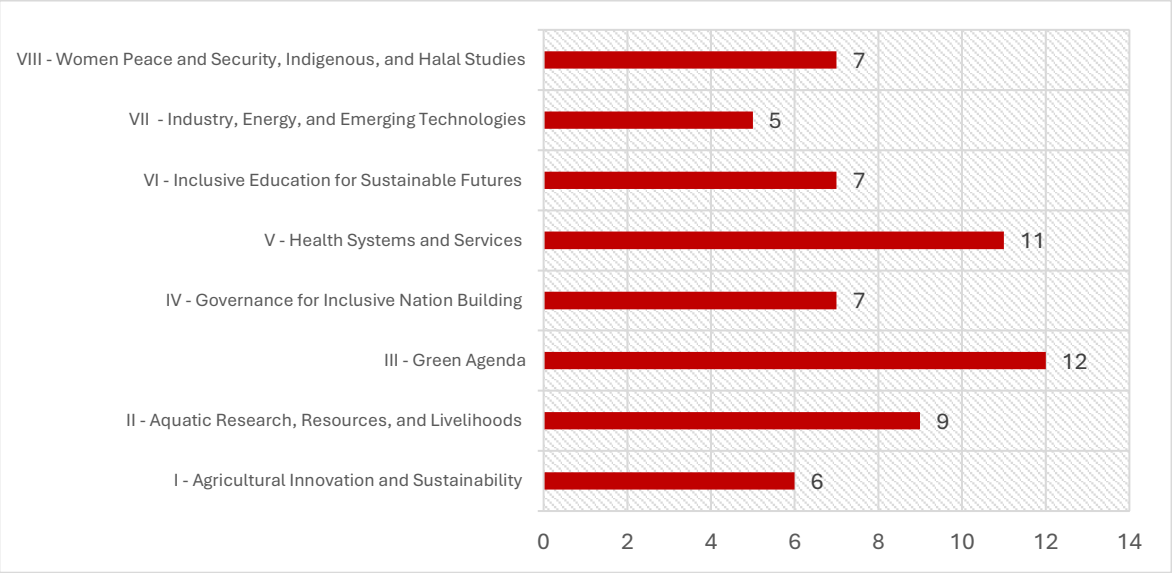


Figure 1. Distribution of Research Agenda Across Disciplines.

The MSU-Maguindanao RED Agenda also highlights 362 priority research areas, aimed at addressing critical community needs and fostering innovation across various sectors. The distribution of these according to research disciplines is presented in Figure 2.

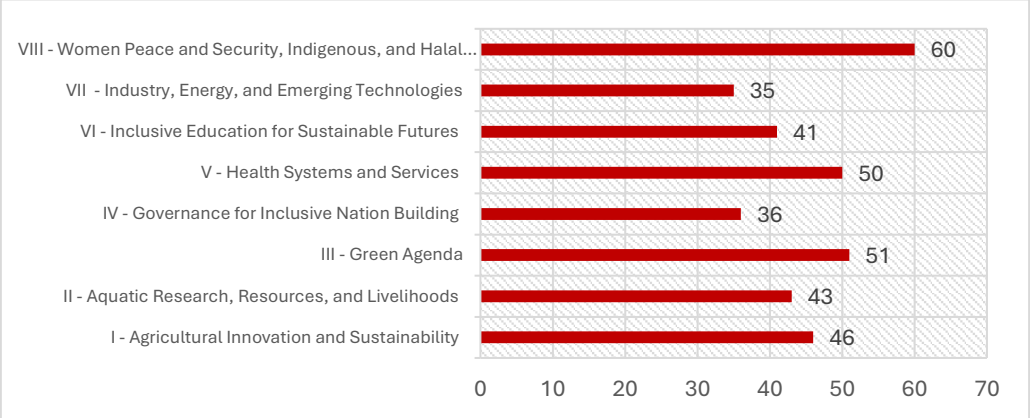


Figure 2. Distribution of Research Priorities Across Disciplines.

Table 1 presents the research disciplines, the number of agenda items, and their corresponding research priorities. As shown, there are 8 research disciplines, 64 research agendas, and 362 identified research priorities

Table 1. Tabular Summary of the MSU-Maguindanao Red Agenda.

	Discipline	Agenda	Priorities
I	Agricultural Innovation and Sustainability	6	46
II	Aquatic Research, Resources, and Livelihoods	9	43
III	Green Agenda	12	51
IV	Governance for inclusive Nation Building	7	36
V	Health Systems and Services	11	50
VI	Inclusive Education for Sustainable Futures	7	41
VII	Industry, Energy, and Emerging Technologies	5	35
VIII	Women, Peace and Security, Indigenous, and Halal Studies	7	60
	Total	64	362

Alignment to SDGs

The Mindanao State University RED Agenda aims to advance knowledge, foster innovation, and empower communities by supporting research that addresses pressing societal needs. In line with this, the university's research priorities are strategically aligned with the Sustainable Development Goals (SDGs) to ensure relevance, impact, and long-term value for both local and global communities.

Table 2. The Sustainable Development Goals.

SDG	Description
SDG 1	No Poverty: End poverty in all its forms everywhere.
SDG 2	Zero Hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
SDG 3	Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages.
SDG 4	Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
SDG 5	Gender Equality: Achieve gender equality and empower all women and girls.
SDG 6	Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all.
SDG 7	Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all.
SDG 8	Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
SDG 9	Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
SDG 10	Reduced Inequalities: Reduce inequality within and among countries.
SDG 11	Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.
SDG 12	Responsible Consumption and Production: Ensure sustainable consumption and production patterns.
SDG 13	Climate Action: Take urgent action to combat climate change and its impacts.
SDG 14	Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
SDG 15	Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
SDG 16	Peace, Justice, and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
SDG 17	Partnerships for the Goals: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Figure 3 reveals that the MSU Maguindanao RED Agenda is in line with the 17 SDGs. This underscores the University's commitment to advancing sustainable development through research, extension, and innovation that address both local priorities and global challenges.

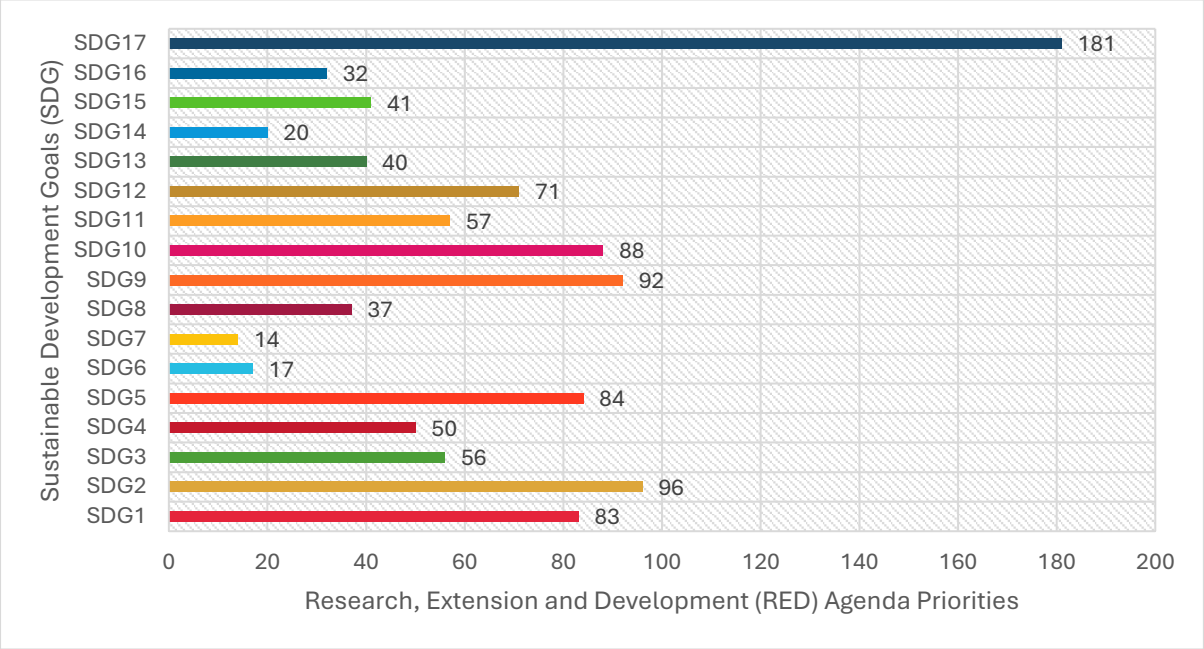


Figure 3. Distribution of Research Priorities According to SDGs.

Alignment to the 8-Point Socioeconomic Agenda

Mindanao State University Maguindanao aligns its initiatives with the 8-Point Socioeconomic Agenda under the Medium-Term Fiscal Framework (MTFF), which focuses on the following priority areas: (1) food security, (2) improved transportation, (3) affordable and clean energy, (4) health care, (5) social services, (6) education, (7) bureaucratic efficiency, and (8) sound fiscal management.

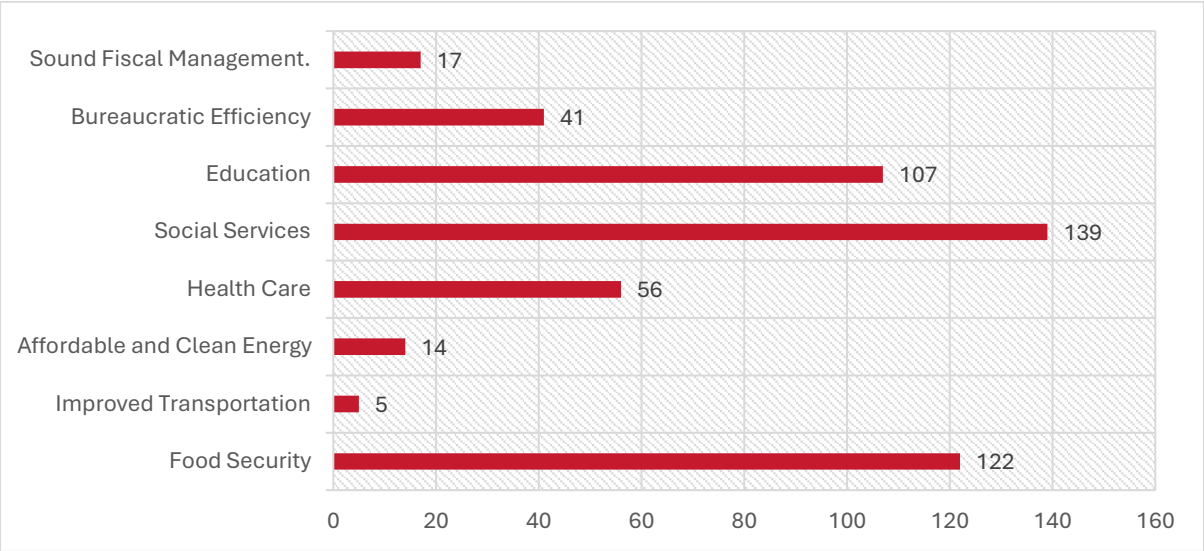


Figure 4. Distribution of Research Priorities Based on the Philippine 8-Point Socioeconomic Agenda.

Appendix



Figure 5. Chancellor, Vice Chancellor, Deans, Directors, Heads of Offices, Student Supreme Council (SSC) President, and Student Representative during the RED (Research, Extension, and Development) Agenda revision workshop in Kitaotao, Bukidnon on August 8-10, 2025.



Figure 6. Faculty members and staff identifying priorities during the workshop on the revision of the 2025–2030 Research, Extension, and Development (RED) Agenda.



Figure 7. Vice Chancellors, Deans, Faculty Members; representatives from Civil Society Organizations, including the Ministry of Public Works (MPW), Rural Health Unit of Datu Odin Sinsuat (RHU-DOS), Integrated Provincial Health Office (IPHO) Maguindanao, and the Ministry of Health (MOH); along with parents and students, participated in the Stakeholders' Consultation Meeting held at the DOS Gymnasium on February 28, 2025.



Figure 8. Raquel D. Santiago-Arenas, Vice Chancellor for Research and Extension, presenting the 2025–2030 Research, Extension, and Development (RED) Agenda, during the Stakeholders' Consultation Meeting last February 28, 2025.



Figure 9. Faculty members and students actively participating in the open forum of the Stakeholders' Consultation Meeting held on February 28, 2025.



Figure 10. Parents, alumni, and representatives from civil society organizations (CSOs) actively engaging in the open forum of the Stakeholders' Consultation Meeting held on February 28, 2025.

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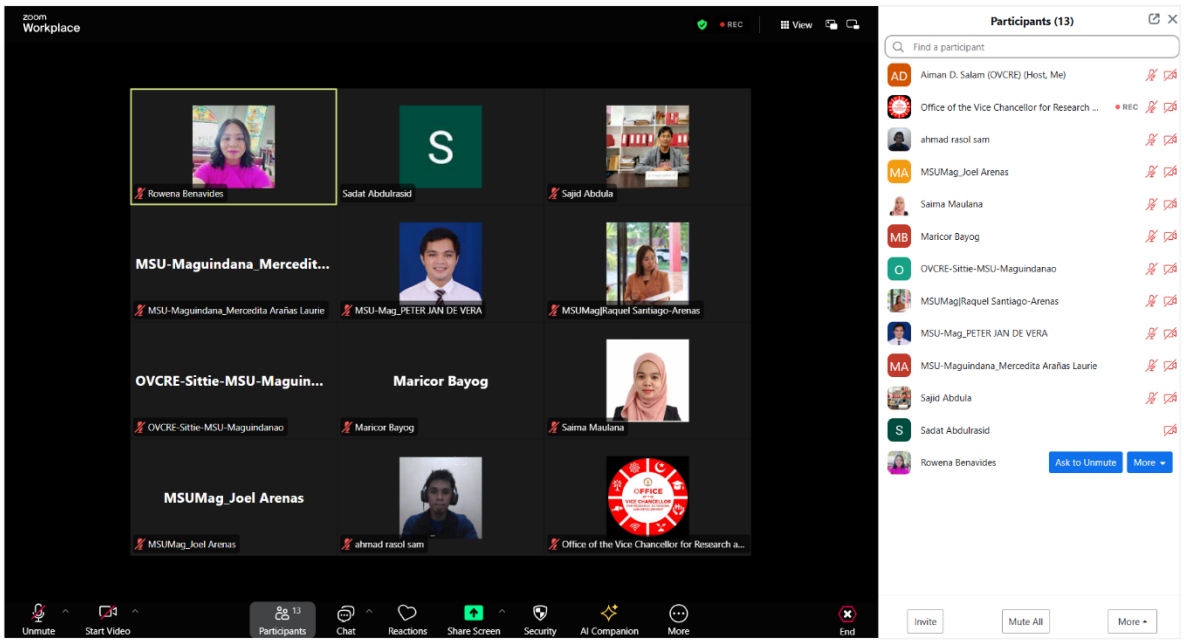
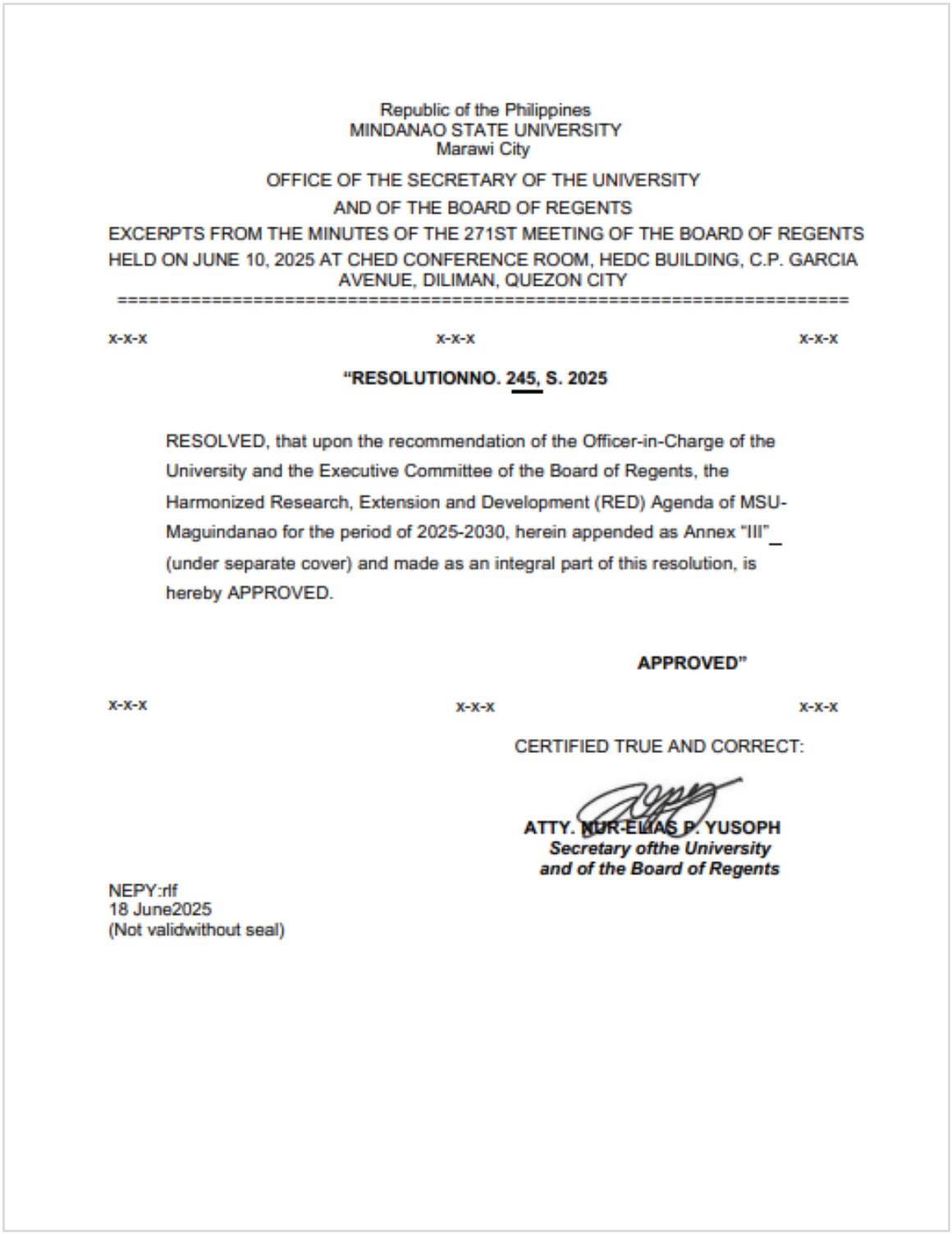


Figure 11. The Research and Extension Committee convening via Zoom on May 8, 2025, to discuss updates on the Research, Extension, and Development (RED) Agenda.



Republic of the Philippines
MINDANAO STATE UNIVERSITY
Marawi City

OFFICE OF THE SECRETARY OF THE UNIVERSITY
AND OF THE BOARD OF REGENTS
EXCERPTS FROM THE MINUTES OF THE 271ST MEETING OF THE BOARD OF REGENTS HELD ON JUNE 10, 2025 AT CHED CONFERENCE ROOM, HEDC BUILDING, C.P. GARCIA AVENUE, DILIMAN, QUEZON CITY

x-x-x x-x-x x-x-x

"RESOLUTIONNO. 245, S. 2025

RESOLVED, that upon the recommendation of the Officer-in-Charge of the University and the Executive Committee of the Board of Regents, the Harmonized Research, Extension and Development (RED) Agenda of MSU-Maguindanao for the period of 2025-2030, herein appended as Annex "III" (under separate cover) and made as an integral part of this resolution, is hereby APPROVED.

APPROVED"

x-x-x x-x-x x-x-x

CERTIFIED TRUE AND CORRECT:

ATTY. NUR-ELIAS P. YUSOPH
Secretary ofthe University
and of the Board of Regents

NEPY:rlf
18 June2025
(Not validwithout seal)

Figure 12. The Harmonized Research, Extension, and Development (RED) Agenda of MSU-Maguindanao was approved through Resolution No. 245, S. of 2025.

Mindanao State University – Maguindanao

Dalican, Datu Odin Sinsuat, Maguindanao, Philippines

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