SUSTAINABILITY REPORT 2023-2024

Universitas Muhammadiyah Makassar



FOREWORD

With sincere gratitude and pride, we present the 2023–2024 Sustainability Report of Universitas Muhammadiyah Makassar. This report highlights our commitment to realizing our vision of becoming a Leading, Excellent, Trusted, and Independent Islamic University. With the spirit of "Integrated Green Islamic Futuristic", we continue to integrate the principles of Islam, sustainability, and innovation toward a better future.

Aligned with our 2024–2028 Roadmap toward becoming a Research and International Reputable University, this report captures our efforts and achievements in contributing to the United Nations Sustainable Development Goals (SDGs). Through education, research, community service, and institutional governance, Universitas Muhammadiyah Makassar actively takes part in addressing social, economic, and environmental challenges while promoting prosperity, equality, and sustainability at both local and global levels.

Our initiatives this year have encompassed all 17 SDGs, reflecting our holistic and inclusive approach to sustainable development. SDG 1: No Poverty and SDG 2: Zero Hunger, we continue to empower local communities. SDG 3: Good Health and Well-being, community-based health services and mental health awareness programs. SDG 4: Quality Education, we ensure access to inclusive, equitable, and innovative learning. SDG 5: Gender Equality, our policies promote women's leadership, equal opportunities, and protection from discrimination. SDG 6: Clean Water and Sanitation, research and community projects. SDG 7: Affordable and Clean Energy, the implementation of energy-efficient systems and renewable energy a greener campus. SDG 8: Decent Work and Economic Growth, entrepreneurship programs, job creation, and skills development and promote sustainable livelihoods. SDG 9: Industry, Innovation, and Infrastructure, we foster research-based innovation and resilient infrastructure to support sustainable industrial growth. SDG 10: Reduced Inequalities, inclusive education and community programs ensure equal access. SDG 11: Sustainable Cities and Communities, campus planning integrates eco-friendly principles, promoting green spaces and climate-resilient environments. SDG 12: Responsible Consumption and Production. SDG 13: Climate Action, research on climate resilience, environmental education, and mangrove to climate change. SDG 14: Life Below Water and SDG 15: Life on Land, conservation efforts for marine and terrestrial ecosystems. SDG 16: Peace, Justice, and Strong Institutions. SDG 17: Partnerships for the Goals, collaboration with government agencies, industries, and international partners toward sustainable development.

We extend our deepest appreciation to all academic members, partners, and communities who have supported our journey toward sustainability. May this report serve as an inspiration for continuous innovation, collaboration, and shared commitment in realizing a sustainable, equitable, and prosperous future for all.

Makassar, 30 Agustus 2024

Dr. Abd. Rakhim Nanda, ST., MT., IPU
Rector of Universitas Muhammadiyah Makassar

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END POVERTY IN ALL ITS FORMS EVERYWHERE

Universitas Muhammadiyah Makassar (Unismuh) demonstrates a firm commitment to Sustainable Development Goal (SDG) 1 – No Poverty, which aims to eradicate poverty in all its manifestations through inclusive access to education, economic empowerment, and social equity. As an Islamic higher education institution grounded in the principles of *rahmatan lil alamin* (a blessing for all humankind), Universitas Muhammadiyah Makassar integrates its social mission into academic, administrative, and community service practices that directly address the multidimensional nature of poverty.



Proportion of Students Receiving Financial Aid to Attend University Because of Poverty

Universitas Muhammadiyah Makassar demonstrates a robust and data-driven commitment to social inclusion and educational equity, ensuring that economic hardship never becomes a barrier to higher education.

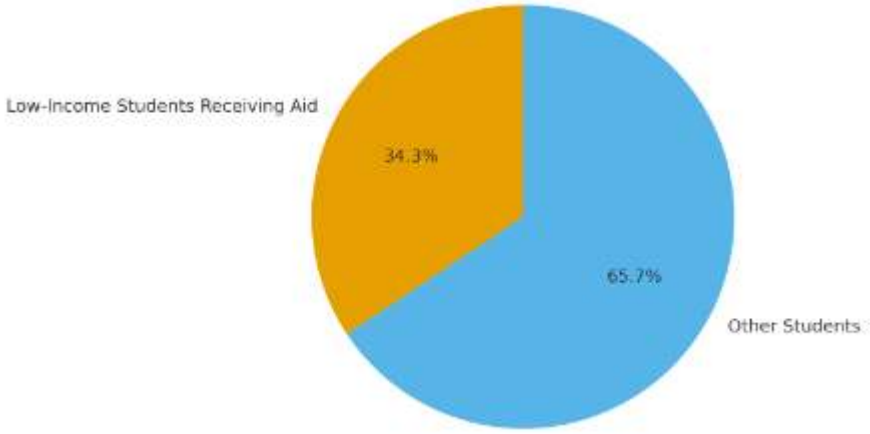
During the 2023/2024 academic year, the university recorded a total of 3,136 students, of whom 1,077 students were identified as low-income beneficiaries of financial aid schemes. This represents 34.33% of the total student population, a significant proportion that underscores the university's leadership in promoting inclusive education within Indonesia's private higher education sector.

The primary assistance schemes include:

1. **KIP Kuliah (Government-Funded Program):** Full tuition and living allowance for students from the lowest-income households.
2. **BUMM Institutional Scholarship:** A Unismuh-funded program offering tuition and study support for students experiencing financial difficulties.

Such financial aid mechanisms are not merely temporary relief measures; they are strategically aligned with the university's mission to break the intergenerational cycle of poverty through academic empowerment. These scholarships ensure that disadvantaged students gain access to transformative learning experiences that enhance employability and long-term income stability.

The following chart illustrates the proportion of students receiving financial aid due to poverty in the 2023/2024 academic year:



This high percentage of low-income beneficiaries demonstrates the effectiveness of Universitas Muhammadiyah Makassar's inclusive financial aid system. It reflects a well-functioning scholarship allocation mechanism that successfully reaches the most vulnerable groups, supported by strong collaboration between the government and the university in implementing equitable funding models. Moreover, it signifies effective alignment with **SDG Target 1.4**, which emphasizes ensuring equal rights to financial services and educational opportunities for all. Through these efforts, Universitas Muhammadiyah Makassar stands as a model of inclusive higher education, translating its Islamic and humanitarian values into measurable social impact and contributing meaningfully to sustainable poverty alleviation.

University anti-poverty programmes

Universitas Muhammadiyah Makassar actively implements an inclusive admission policy aimed at students from the bottom 20% of household income groups, supported by targeted financial aid mechanisms designed to remove economic barriers to education. During the 2023/2024 academic year, the university enrolled 15,554 students, with 1,077 (6.93%) receiving the KIP Kuliah Scholarship, a government-funded initiative covering full tuition and living costs, and 155 students (1%) receiving support through the BUMM Institutional Scholarship, funded directly by the university. These schemes prioritize economically disadvantaged students, ensuring that higher education remains accessible and equitable. By setting measurable inclusion targets, Unismuh aligns its admission strategy with SDG Target 1.2—reducing the proportion of people living in poverty by ensuring access to quality education—and reinforces its institutional mission to promote social mobility through learning opportunities.



Ensuring access is only the first step; Universitas Muhammadiyah Makassar also focuses on student success and graduation outcomes for low-income groups. Through its Student Affairs Office (LPKA), the university offers structured mentoring, career guidance, and motivational programs to maintain high academic retention among scholarship recipients. This commitment is exemplified by the Kemahasiswaan Award 2024, where 736 students were honored for academic and leadership achievements, including several KIP Kuliah beneficiaries who earned top GPAs and represented the university in national competitions. Such achievements demonstrate that students from low-income backgrounds not only persist but also excel academically and contribute to campus life, proving the effectiveness of Unismuh's inclusive education model. These results align directly with SDG Target 1.4, which calls for equal access to economic resources, education, and opportunities for all.

Unismuh Makassar provides extensive financial, housing, transportation, and legal support for students from low-income families to ensure they can complete their education without undue hardship. Based on Rector's Decree No. 138 of 2024, the university institutionalized comprehensive assistance programs covering free and subsidized support. The free schemes include full tuition coverage, monthly living allowances, research funding, and free accommodation at the PESMADINA Dormitory with utilities and study facilities, while subsidized schemes include partial tuition assistance, meal subsidies, visa and administrative fee waivers, and transportation aid. Additionally, the Language Development, Partnership, and International Office (LPBKUI) collaborates with the Student Affairs Bureau to offer legal and administrative assistance such as visa sponsorships, document processing, and welfare counseling. These initiatives ensure that financial challenges do not hinder academic progression, embodying Unismuh's holistic approach to student welfare and its Islamic humanitarian commitment to supporting the underprivileged.

In collaboration with the National Zakat Agency (BAZNAS), Unismuh operates the Beasiswa Riset BAZNAS, a zakat-based research scholarship targeting students from the bottom financial quintile (mustahik). The 2023 program, implemented between 30 August and 10 September 2023, provided monthly stipends and research grants for undergraduate, master's, and doctoral students to complete their final

research projects. This initiative reflects the university's effort to integrate Islamic social finance (zakat) into educational empowerment. By promoting equitable access to research completion and academic success, Unismuh ensures that financial barriers do not prevent low-income students from graduating, strengthening the link between faith-based resources and the national agenda for poverty reduction through education.

As part of its internationalization policy, Universitas Muhammadiyah Makassar provides scholarships for international students from low and lower-middle-income countries through the MAKERRA Scholarship (Muhammadiyah Makassar Rector's Scholarship for International Students). These scholarships offer



Overall, Universitas Muhammadiyah Makassar's University Anti-Poverty Programmes reflect a comprehensive framework that integrates access, retention, welfare, and empowerment. From scholarships and housing assistance to international support and zakat-based funding, the university consistently translates its Islamic humanitarian principles into actionable poverty reduction strategies. These initiatives demonstrate measurable social impact, foster equality in higher education, and position the university as a national model for inclusive educational development.

Community anti-poverty programmes

Universitas Muhammadiyah Makassar demonstrates a comprehensive approach to community empowerment and poverty reduction through various educational, financial, and policy-oriented initiatives. Universitas Muhammadiyah Makassar provides free entrepreneurship education, mentorship, and access to university facilities to support the creation of financially and socially sustainable small businesses. Through the Wirausaha Merdeka Bootcamp 2023, Unismuh trained more than 55 student start-ups and 25 local MSMEs in business innovation, marketing, and financial management, culminating in the Expo Wirausaha Merdeka 2023 where participants showcased their products and business plans to investors. Additionally, the university collaborated with the Halal Product Assurance Agency (BPJPH) and BTN Syariah to conduct Halal Certification and Business Training Workshops, providing technical guidance to small-scale entrepreneurs to ensure their businesses meet national halal standards. These programs, offered free of charge, directly contribute to sustainable local economic growth by empowering community members to establish and manage ethical and profitable enterprises.



Universitas Muhammadiyah Makassar extends its support by providing material and financial resources to community business groups. A notable example is the Community Empowerment Programme in Bulu Cindea Village, Pangkep Regency, where university lecturers supplied salt-processing and drying machines to the BUMDes Amanah Mandiri enterprise, offering both start-up capital and technical training in production and marketing. This initiative enhanced productivity and income for coastal farmers, demonstrating how Unismuh's practical assistance enables small enterprises to operate sustainably and lift families out of poverty. Such financial interventions illustrate the university's tangible commitment to SDG Target 1.4, ensuring that local communities have equal access to economic resources, skills, and support systems necessary for self-reliance.



Universitas Muhammadiyah Makassar works to improve community access to basic services, particularly healthcare. The Faculty of Medicine and BEM FK Unismuh organized free health screening activities in Maros Regency, offering blood pressure checks, glucose tests, and medical consultations to residents in rural areas with limited healthcare access. Furthermore, the PKU Muhammadiyah Hospital (RS PKU Unismuh) signed partnerships with BPJS Kesehatan and Jasa Raharja in July 2024, expanding access to affordable, insured medical care for low-income populations in Gowa Regency. These direct interventions strengthen the university's role as both a health promoter and a social service provider, contributing to improved community well-being and resilience.

Finally, for the policy addressing poverty highlights Unismuh's engagement in policy research and advocacy at multiple levels. At the local level, the university's researchers published a study titled "The Role of Makassar City Social Service in Addressing Poor Families", which evaluated municipal welfare coordination and proposed improvements in data management and inter-agency collaboration. At the regional level, Unismuh conducted studies in Jeneponto Regency on multi-partner governance for poverty alleviation, promoting collaboration between government, zakat institutions, and the private sector. At the national level, the university contributed to research on the Family Hope Program (PKH), offering policy recommendations to enhance Indonesia's national poverty reduction strategy. On a global scale, Unismuh scholars have published works on zakat governance and Islamic social finance, linking local faith-based poverty alleviation to international SDG implementation frameworks.

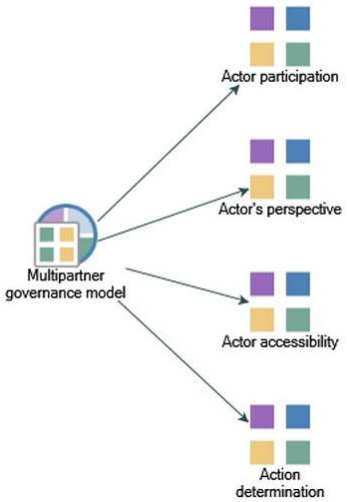
Through these community-focused, research-based, and policy-driven initiatives, Universitas Muhammadiyah Makassar strengthens its position as an agent of sustainable development and poverty eradication. By integrating entrepreneurship, health, financial assistance, and evidence-based policymaking, the university creates long-term social impact consistent with its mission as an Islamic, leading, trustworthy, and independent institution committed to empowering communities and ensuring that no one is left behind.

RESEARCH RELATED TO SDG 1

Multipartner governance and the urgency of poverty alleviation policy: Zakat fundraising management



Nuryanti Mustari and her team conducted research about *Multipartner Governance and the Urgency of Poverty Alleviation Policy: Zakat Fundraising Management*. (2024), reflects Universitas Muhammadiyah Makassar's strong contribution to SDG 1: No Poverty through research-based community empowerment. The study examines a multipartnership governance model involving government, zakat institutions, private sectors, and community organizations in Jeneponto Regency to optimize zakat fundraising for poverty alleviation. Findings highlight that collaborative commitment among stakeholders significantly enhances social welfare outcomes, though challenges remain in coordination, power balance, and resource distribution.



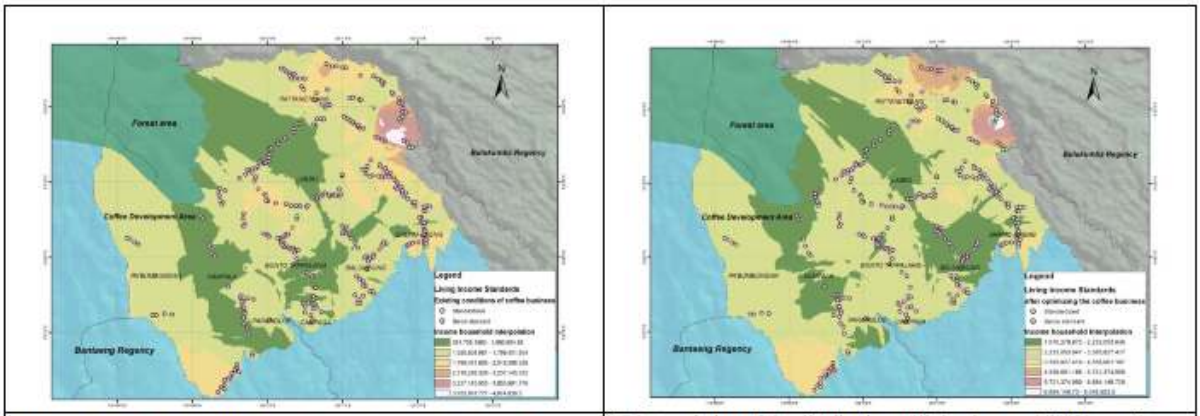
This research emphasizes the importance of inclusive governance and community participation, aligning with SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice, and Strong Institutions). It demonstrates how zakat-based collaboration can serve as a sustainable,

transformative framework for reducing poverty and promoting equitable socio-economic development in Indonesia.

Dynamics of living income for coffee farming households in agricultural area development policy: Socio-spatial integration



Isnam Junais and his team conducted research about *Dynamics of Living Income for Coffee Farming Households in Agricultural Area Development Policy: Socio-Spatial Integration* (2024). Their research directly supports several Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 17 (Partnerships for the Goals)



(a) Interpolation of the distribution of living income (Rp) for coffee farmers under existing conditions. Min: 361,758.1; Max: 4,674,838.5; Mean: 1,401,665.3; S.Deviation: 560,310.8.

(b) Interpolation of the distribution of living income (Rp) for coffee farmers using coffee and clove productivity optimization engineering; Min: 1,070,279.8; Max: 8,046,922.5; Mean: 2,704,605.2; S.Deviation: 848,843.2.

The research analyzes the socio-spatial dynamics of living income among coffee-farming households in Bantaeng Regency, South Sulawesi, applying the Anker Living Wage Methodology to measure household welfare. The findings reveal that 96.6% of coffee farming households earn below a decent living income, highlighting structural poverty among smallholder farmers and the urgent need for inclusive, welfare-oriented agricultural policies. This contributes to SDG 1 by identifying poverty determinants in rural communities and proposing measurable income standards. It aligns with SDG 2 by promoting sustainable agricultural practices and equitable food

systems that ensure farmer welfare as part of national food security. The study's emphasis on improving farm productivity, optimizing land use, and diversifying income sources advances SDG 8 by fostering decent livelihoods and economic resilience. Furthermore, the research underlines the spatial inequality of income distribution, supporting SDG 10 through evidence-based strategies to reduce socio-economic disparities across regions. Finally, as the study was funded through collaboration between the Indonesian Environment Fund and the Ford Foundation's TERRA Program, it exemplifies SDG 17, demonstrating that cross-sectoral partnerships are vital in achieving sustainable rural development and equitable income distribution for agricultural communities.

The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq



Hasan and his team conducted research about *The Impact of Islamic Financial Inclusion on Economic Growth* (2024), published in the Universidad Business Review, aligns strongly with SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 16 (Peace, Justice and Strong Institutions), and SDG 17 (Partnerships for the Goals).

The study highlights how expanding access to Islamic financial services—such as zakat-based financing, microfinance, and profit-sharing systems—can significantly reduce poverty levels by empowering low-income individuals and small entrepreneurs with ethical and interest-free financial opportunities. This supports SDG 1 by promoting inclusive financial systems that help marginalized communities achieve economic self-reliance. By fostering entrepreneurship, job creation, and equitable economic participation, the research contributes to SDG 8, emphasizing sustainable and decent economic growth. Furthermore, the study advances SDG 16 through the establishment of transparent, justice-oriented, and ethical financial institutions that strengthen trust and accountability in economic systems. Lastly, it supports SDG 17 by encouraging collaboration between Islamic financial institutions, governments, and

development organizations, illustrating that effective partnerships and good governance are key to achieving long-term economic inclusion and social justice.

Equality of Rights and Accessibility Policy Interventions as Prevention of Sexual Violence against Persons with Disabilities: A Mixed Method Study



Suardi and his team conducted research about Equality of Rights and Accessibility Policy: Preventing Sexual Violence Against Students (2024), aligns closely with SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice and Strong Institutions).

Table 1.1 *Equality of rights and accessibility for students with disabilities.*

Equality of rights and accessibility for people with disabilities		Student		Lecturer		Pimpinan		Total	
	Yes	N	%	N	%	N	%	N	%
Providing courses with a disability perspective	No	534	93.85	76	97.44	30	100	640	95
	Yes	35	6.15	2	2.56	0	0	37	5
Providing seminars on the theme of law with a disability perspective	No	534	93.85	76	97.44	30	100	640	95
	Yes	35	6.15	2	2.56	0	0	37	5
Reporting services or channels are socialized to all disabilities on campus	No	521	91.56	70	89.74	30	100	621	92
	Yes	48	8.44	8	10.26	0	0	56	8
Providing prevention guidelines for people with disabilities on campus	No	498	87.52	65	83.33	30	100	593	88
	Yes	71	12.48	13	16.67	0	0	84	12
Providing an inter-unit coordination mechanism for people with disabilities on campus	No	438	76.98	54	69.23	26	86.67	518	77
	Yes	131	23.02	24	30.77	4	13.33	159	23
Organizing anti-sexual violence socialization activities on campus, including for people with disabilities	No	549	96.49	71	91.03	28	93.33	648	96
	Yes	20	3.51	7	8.97	2	6.67	29	4
Providing appropriate accommodation for persons with disabilities	No	436	76.63	72	92.31	28	93.33	536	79
	Yes	133	23.37	6	7.69	2	6.67	141	21
Establishing sexual violence ambassadors for people with disabilities	No	405	71.18	65	83.33	25	83.33	495	73
	Yes	164	28.82	13	16.67	5	16.67	182	27
Total	N	569		78		30		677	

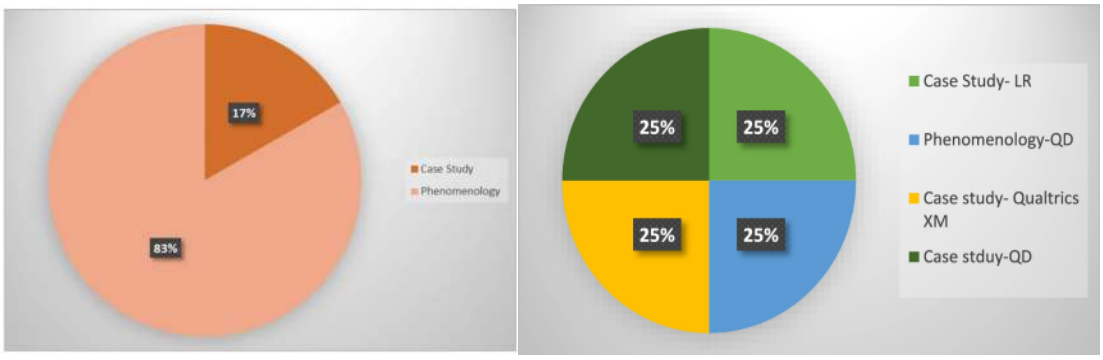
The study emphasizes the importance of institutional equality, accessibility, and justice in ensuring safe and inclusive educational environments. It argues that preventing sexual violence in educational institutions is not only a matter of human rights but also a foundation for breaking the structural cycle of poverty and social exclusion, thus contributing to SDG 1. By promoting safe, inclusive, and equitable

learning environments, the research strongly supports SDG 4, ensuring that all students—regardless of gender, ability, or background—can access education free from discrimination or fear. Furthermore, the study addresses SDG 10 by advocating for the reduction of systemic inequalities that affect vulnerable groups, emphasizing that true accessibility must be both physical and social. Finally, it contributes to SDG 16 by highlighting the need for strong, transparent, and justice-oriented institutional policies that uphold students' rights, promote accountability, and cultivate peace and trust within educational systems. This research reinforces the principle that equal rights, safety, and access to education are fundamental to achieving sustainable human development.

A review of global research trends on the impact of the COVID-19 pandemic on food security



Khaeriyah and her team conducted a research about a review of global research trends on the impact of the COVID-19 pandemic on food security (2024). The study critically examines the global body of research conducted since 2020 to understand how the pandemic affected food availability, access, and sustainability. Using PRISMA and bibliometric methods, the study reveals a predominance of quantitative research approaches and identifies the USA and China as the leading contributors to publications on this topic. The findings show a concerning rise in food loss and waste due to excessive household purchasing behaviors during lockdowns, posing risks to future food security and sustainable consumption patterns. The study's policy recommendations include providing incentives to minimize food waste, strengthening supply chain coordination, promoting innovation and training for small-scale farmers, and supporting food banks and local farmers' markets to ensure equitable access to food.



This research aligns closely with SDG 1 (No Poverty) by addressing the socio-economic vulnerabilities that threaten household food access, SDG 2 (Zero Hunger) by emphasizing the importance of resilient and inclusive food systems to sustain global nutrition, and SDG 12 (Responsible Consumption and Production) by advocating for reduced food waste and more efficient, sustainable food management practices. Collectively, the study underscores the urgent need for governments and global institutions to adopt evidence-based strategies that promote food security, sustainability, and economic resilience in the post-pandemic era.

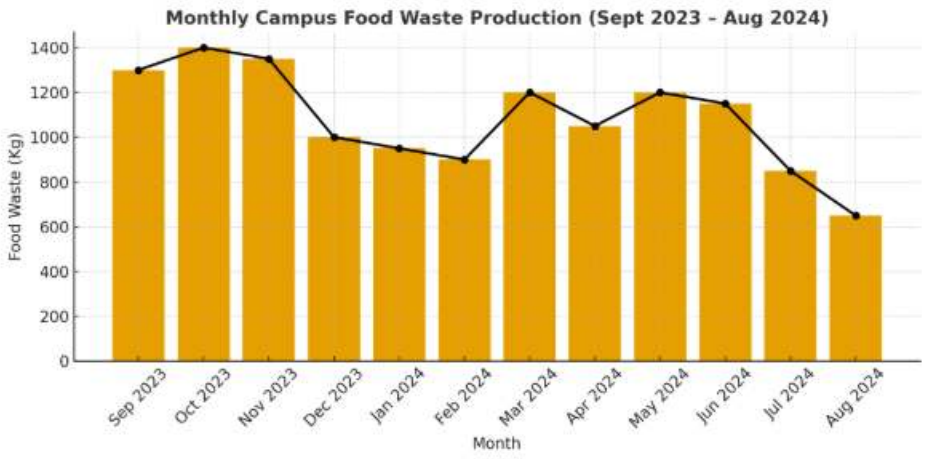
2 ZERO HUNGER

END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

Universitas Muhammadiyah Makassar (Unismuh) demonstrates a strong and measurable commitment to SDG 2: Zero Hunger, focusing on food security, nutrition, and sustainable agriculture across its academic, operational, and community initiatives. The university integrates food access and sustainability into campus life through sustainable dining facilities, food waste reduction programs, staff and student hunger interventions, and community engagement with local farmers and food producers.

2 ZERO HUNGER Campus Food Waste

Universitas Muhammadiyah Makassar places strong emphasis on food waste management as part of its comprehensive commitment to sustainability and food security. This initiative reflects the university's proactive contribution to the United Nations Sustainable Development Goal (SDG) 2: Zero Hunger and SDG 12: Responsible Consumption and Production, which emphasize the importance of efficient resource use and the reduction of food loss across production and consumption chains.



Between September 2023 and August 2024, the total food waste generated across campus facilities—including canteens, cafeterias, and university events—reached 13 metric tons. Despite serving a large community of 16,648 people, consisting of 15,554 students and 1,094 staff, the average daily food waste per person was remarkably low at 0.000013 metric tons. This demonstrates effective consumption management and the university's commitment to minimizing waste generation within its operations.

Through these comprehensive measures, Universitas Muhammadiyah Makassar demonstrates leadership in reducing campus food waste while promoting sustainable dining practices. The university's approach not only contributes to global sustainability goals but also enhances institutional efficiency, environmental stewardship, and food security awareness within its academic community.



Students and Staff Hunger Interventions

Universitas Muhammadiyah Makassar recognizes that ensuring food security within its academic community is essential to promoting student well-being, learning outcomes, and overall campus harmony. In alignment with SDG 2: Zero Hunger, the university implements targeted initiatives to prevent food insecurity and hunger among its students. These efforts focus on providing continuous access to affordable, nutritious, and culturally relevant meals while fostering an inclusive food environment that supports health and academic productivity.

At the core of these initiatives is the Warung Ma'had Al-Birr, a university-owned canteen that functions as an inclusive food access center for students from all economic backgrounds. The canteen offers balanced, halal, and affordable meals starting from Rp 15,000, ensuring that every student—especially those from low-income households—can afford daily nutritious food. The menu features locally inspired dishes such as Barobbo (corn porridge with vegetables and protein) and Kapurung (sago-based vegetable soup), both of which are known for their high nutritional value, fiber content, and energy balance. These meals are carefully

prepared using locally sourced ingredients supplied by smallholder farmers, thereby supporting both student nutrition and the local food economy.



The Warung Ma'had Al-Birr also provides customizable dietary options, including vegetarian and vegan choices, to accommodate diverse dietary preferences and promote inclusivity. This flexibility not only ensures that all students' needs are met but also supports environmentally responsible consumption habits. The canteen's emphasis on hygiene, freshness, and nutritional balance makes it a vital part of the university's welfare infrastructure.

By providing affordable and healthy meal options while fostering nutritional awareness, Universitas Muhammadiyah Makassar effectively addresses student hunger and supports academic resilience. This initiative not only contributes to SDG Target 2.1—ensuring access to safe, nutritious, and sufficient food for all—but also demonstrates the university's commitment to nurturing a compassionate, health-conscious, and sustainable campus community.

Proportion of graduates in agriculture and aquaculture including sustainability aspects

Universitas Muhammadiyah Makassar actively integrates sustainability principles into its agricultural and aquaculture education programs, reflecting the university's commitment to promoting environmentally responsible food production and management systems. In alignment with SDG 2: Zero Hunger and SDG 4: Quality Education, the university ensures that its graduates possess both theoretical and practical knowledge related to sustainable agriculture, food security, and ecological balance.



Based on the academic record for the 2023/2024 period, the university produced a total of 4,602 graduates, among whom 173 students (3.76%) graduated from agriculture and aquaculture-related programs that explicitly include sustainability aspects. These programs are designed to equip students with the competencies necessary to address the challenges of sustainable food systems, cli mate resilience, and responsible resource management.

The Faculty of Agriculture plays a central role in embedding sustainability into its curriculum. Courses emphasize topics such as organic farming, soil and water conservation, agroecology, waste-to-resource innovation, and sustainable aquaculture practices. Field training, research projects, and community engagement

activities allow students to apply sustainable techniques in real-world agricultural contexts—particularly through initiatives involving organic fertilizer production, aquaponics systems, and urban farming.



Furthermore, collaborative projects with partner institutions, including Universiti Malaysia Sabah (UMS), provide international exposure and knowledge exchange opportunities that strengthen the sustainability dimension of Unismuh's agricultural education. These joint programs focus on aquaponic farming, agribusiness efficiency, and rural empowerment, directly supporting sustainable livelihoods and environmental protection.

By producing graduates who are not only skilled in agricultural science but also grounded in sustainability ethics, Universitas Muhammadiyah Makassar contributes to developing future professionals capable of transforming Indonesia's agricultural landscape. This achievement reinforces the university's role in advancing SDG Targets 2.3 and 2.4, which emphasize increasing agricultural productivity and promoting sustainable food production systems that help achieve long-term food security and ecosystem health.

National Hunger

Universitas Muhammadiyah Makassar demonstrates a deep and practical commitment to addressing national hunger and food insecurity through education, research, and community empowerment. In alignment with SDG 2: Zero Hunger, the university extends its academic mission beyond campus by actively supporting local farmers, food producers, and communities to achieve food self-sufficiency, sustainable production, and improved nutrition. These initiatives integrate Islamic values of social welfare and environmental stewardship, making Unismuh a catalyst for sustainable agricultural transformation at the national level.



One of the flagship programs under this effort was the Community Service and Training Program on Organic Agriculture conducted by the Master of Agribusiness Program on 19 December 2023, titled "*Preparation of Organic Fertilizers and Herbal Pesticides: Implementation of Urban Farming with a Sustainable Agriculture Concept*." The program focused on training local farmers and urban communities to develop eco-friendly agricultural practices. Participants learned to produce organic fertilizers and natural pest repellents, thereby reducing dependence on synthetic chemicals and promoting environmentally sustainable farming methods. This initiative empowered

local communities to strengthen household food security, improve soil fertility, and adopt climate-resilient farming practices that directly contribute to SDG Target 2.4—ensuring sustainable food production systems.



Additionally, the Agribusiness Study Program organized training titled "*Production of Organic Compost Fertilizer from Bamboo Leaves*" in Tonasa Village, Gowa Regency, where 25 local farmers participated. The training applied participatory learning methods, encouraging farmers to convert bamboo waste into compost. This initiative not only improved soil quality but also reduced agricultural waste, promoting circular economy practices. Through this program, Unismuh demonstrated how higher education can play a transformative role in rural development, aligning with SDG Target 2.3, which focuses on doubling the productivity and income of small-scale food producers.

At the same time, the university strengthens partnerships that extend its food security initiatives across borders. Through collaboration with Universiti Malaysia Sabah (UMS), Unismuh implemented an Aquaponics and Agribusiness Training Program in Sandakan, Malaysia, on 28 May 2024. This international initiative provided local farmers with training in aquaponics—a sustainable method integrating fish farming and hydroponic plant cultivation—to maximize productivity while conserving resources. This program exemplifies Unismuh's commitment to South–South cooperation, promoting shared solutions for food sustainability and economic empowerment.



To ensure sustainable sourcing and continuous support for local economies, the university has also established a five-year cooperation agreement (No. 100/C.1-11/44/2022) between Ma'had Al-Birr and local food producers in Pacelekkang Village, Gowa Regency. This partnership guarantees the supply of fresh, locally sourced ingredients for the university's dining facilities, supporting local farmers' livelihoods while minimizing the carbon footprint from long-distance food transport. This approach aligns with SDG Targets 2.1 and 2.4, which emphasize ensuring year-round access to nutritious food and promoting sustainable food production systems.

Through these national and cross-border programs, Universitas Muhammadiyah Makassar positions itself as a leader in sustainable agricultural education and community-based poverty alleviation. Its initiatives holistically combine academic research, practical training, and local empowerment to address hunger from both production and consumption perspectives. By advancing sustainable farming knowledge, supporting small-scale producers, and fostering ethical food systems, Unismuh Makassar meaningfully contributes to achieving a hunger-free and food-secure Indonesia while exemplifying the spirit of Islamic humanitarianism in higher education.

RESEARCH RELATED TO SDG 2

Mediating role of leadership and group capital between human capital component and sustainability of horticultural agribusiness institutions in Indonesia



Akbar and his team conducted research about *Mediating Role of Leadership and Group Capital Between Human Capital Component and Sustainability of Horticultural Agribusiness Institutions in Indonesia* (2014) closely aligns with SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 17 (Partnerships for the Goals)

Table 2.1. Equality of rights and accessibility for students with disabilities.

	Original sample (O)	*t*-Statistic	*p*-Values
Individual Capability -> Institutional Sustainability	0.165	5.910	0.000
Individual Motivation -> Institutional Sustainability	−0.100	2.379	0.017
The Organizational Climate -> Institutional Sustainability	−0.095	2.275	0.023
Workgroup Effectiveness -> Institutional Sustainability	0.239	5.251	0.000
Individual Capability -> Group Capital -> Institutional Sustainability	0.071	1.964	0.050
Individual Motivation -> Group Capital -> Institutional Sustainability	−0.081	3.464	0.001
The Organizational Climate -> Group Capital -> Institutional Sustainability	0.143	3.817	0.000
Workgroup Effectiveness -> Group Capital -> Institutional Sustainability	0.218	5.109	0.000
Individual Capability -> Leadership -> Institutional Sustainability	0.030	2.344	0.019
Individual Motivation -> Leadership -> Institutional Sustainability	0.075	3.288	0.001
The Organizational Climate -> Leadership -> Institutional Sustainability	0.091	3.400	0.001
Workgroup Effectiveness -> Leadership -> Institutional Sustainability	0.076	3.055	0.002

The study highlights how strengthening human capital, leadership, and group capital can ensure the long-term sustainability of horticultural agribusiness institutions, particularly in rural Indonesia. By enhancing farmers' skills, motivation, and organizational capacity, these institutions contribute directly to SDG 2 through improved agricultural productivity, food security, and sustainable farming systems that reduce rural hunger. Furthermore, the research demonstrates how effective leadership and collaboration within farmer groups foster innovation, efficiency, and fair value-chain participation, thereby promoting SDG 8 by generating decent work opportunities and supporting inclusive rural economic growth. Finally, the study underlines the importance of cooperation between universities, local governments, and farmer organizations in building resilient agribusiness institutions—an approach

that resonates with SDG 17, emphasizing multi-stakeholder partnerships for knowledge exchange, capacity building, and sustainable rural development.

Sustainability of agribusiness institutions (case study on horticultural agribusiness farmer groups in Bantaeng Regency)



Akbar and his team conducted study *about Sustainability of agribusiness institutions (case study onhorticultural agribusiness farmer groups in Bantaeng Regency)* (2024) investigates the institutional dynamics and sustainability strategies of farmer-group institutions in the horticultural agribusiness sector in Bantaeng Regency, South Sulawesi, Indonesia. By examining how inputs translate through processes into outputs and how institutions adapt via mechanical, adaptive, reactive and interactive strategies, the research highlights how these farmer groups strengthen their operations and enhance resilience.

This work contributes to SDG 2 (Zero Hunger) because by improving the performance, institutional capacity, and sustainability of horticultural agribusiness farmer groups, the study supports more reliable, locally-anchored food production systems that can better supply nutritious crops and reduce hunger in rural communities. It also advances SDG 8 (Decent Work and Economic Growth): the focus on institution-building among farmer groups fosters inclusive economic opportunities, enhances value-added through product diversification (e.g., fried onions, potato chips) and improves farmers' bargaining power, all of which help generate decent work and sustainable livelihoods in the agriculture sector.

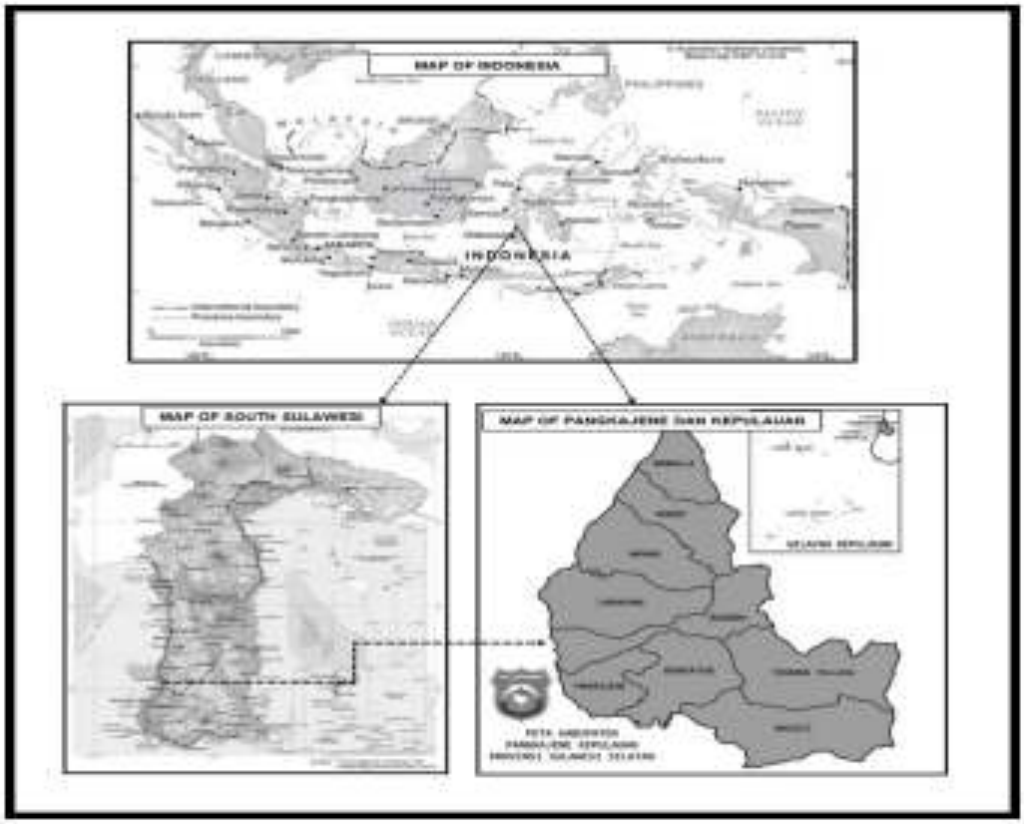
Moreover, the study aligns with SDG 12 (Responsible Consumption and Production): the emphasis on institutional strategies for system capacity improvement, quality production, and diversification signals a move toward more efficient use of resources, innovative production practices, and reducing waste in the output subsystem. For example, the research describes how institutions implement good agricultural practices (GAP), standard operating procedures (SOPs), and

packaging strategies tied to consumer demand, thereby promoting more sustainable consumption and production patterns.

The Influence of Household Characteristics, Income, and Technology Access on Household Food Security Post-COVID-19 Pandemic



Darwis and his team conducted study about *The Influence of Household Characteristics, Income, and Technology Access on Household Food Security Post-COVID-19 Pandemic* (2024). The study investigates how household socioeconomic characteristics, income levels,



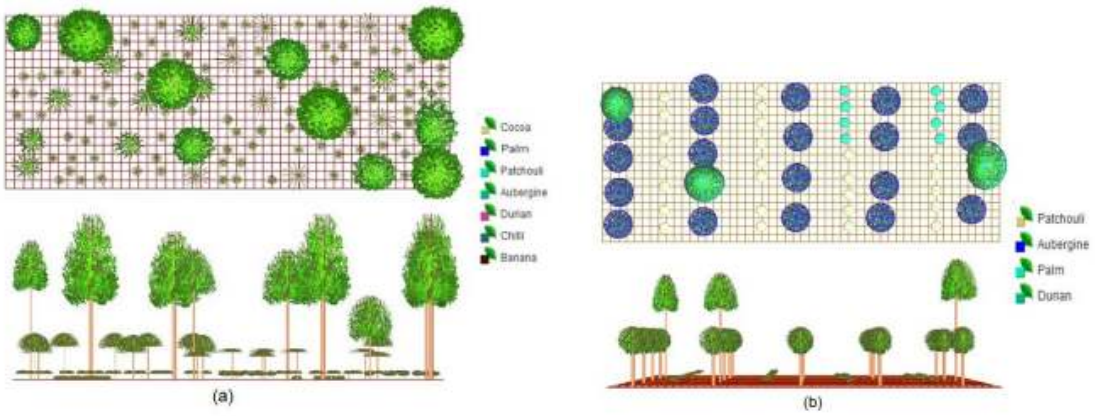
The study investigates how household socioeconomic characteristics, income levels, and access to technology influence food security and nutritional outcomes in Indonesian households. By examining factors such as income variation, technological access (e.g., information, appliances, tools) and household demographics, the

research reveals that households with higher incomes and better technology access tend to achieve more stable food availability, improved diet variety, and better nutritional status. This strongly aligns with SDG 2 (Zero Hunger) by highlighting pathways through which improvements in income and technology can reduce hunger, enhance food security and promote better nutrition. Moreover, the study connects to SDG 3 (Good Health and Well-being) because food security and diet diversity are foundational to good health, and households that secure adequate nutrition through stabilized food supply and improved capacities are more likely to achieve positive health outcomes. This research underscores the critical interdependency between economic, technological and nutritional factors in advancing food security and health, demonstrating how multisectoral approaches are necessary to realize sustainable well-being for all.

Productivity and Yield of Patchouli (*Pogostemon cablin Benth*) in Community Forest using Agroforestry Patterns in Tommo District, Mamuju Regency, West Sulawesi



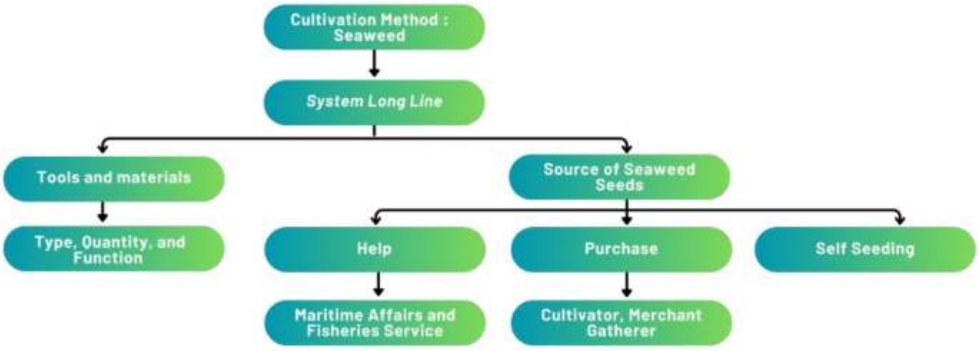
Daud and his team conducted research about *Productivity and Yield of Patchouli (Pogostemon cablin Benth) in Community Forest using Agroforestry Patterns in Tommo District, Mamuju Regency, West Sulawesi Province* (2024). The study explores how adopting agroforestry patterns for patchouli cultivation within community forests in West Sulawesi enhances productivity and yield, offering smallholder farmers a more stable and diversified source of income and crop output. This research advances SDG 2 by demonstrating how sustainable cultivation practices can contribute to food security and livelihoods: higher productivity helps ensure that rural households have access to the resources needed to meet basic food and economic needs, while diversified cash crops like patchouli reduce dependence on unstable commodities and promote resilient agricultural systems. Beyond raw yield, the integrated agroforest system supports soil health and ecosystem services, which are critical for long-term agricultural sustainability — thereby showing that hunger eradication efforts must incorporate ecological and livelihood dimensions rather than solely focusing on staple crops.



Social Capital in the Patron-Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia



Nadir and his team conducted research about Social Capital in the Patron-Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia (2024). The study explores how social capital within patron-client networks supports the sustainability of seaweed cultivation businesses in rural South Sulawesi, Indonesia. It highlights that trust, reciprocity, and community networks among cultivators, middle-men and local patrons are critical to ensuring stable production, market access and livelihood resilience. From an SDG 2 perspective, by strengthening seaweed cultivation—an alternative and sustainable crop for coastal communities—the research contributes to improving food security and economic resilience among vulnerable populations. In terms of SDG 4, the study underscores the importance of knowledge transfer, community training, and capacity building within these networks, enabling farmers to adopt better cultivation practices and make informed decisions—thus enhancing educational outcomes in non-formal settings. Finally, in relation to SDG 8, the article shows how seaweed-based livelihoods, when supported by strong social capital and inclusive business relations, can generate decent work opportunities, increase household incomes and foster sustainable rural economic growth.



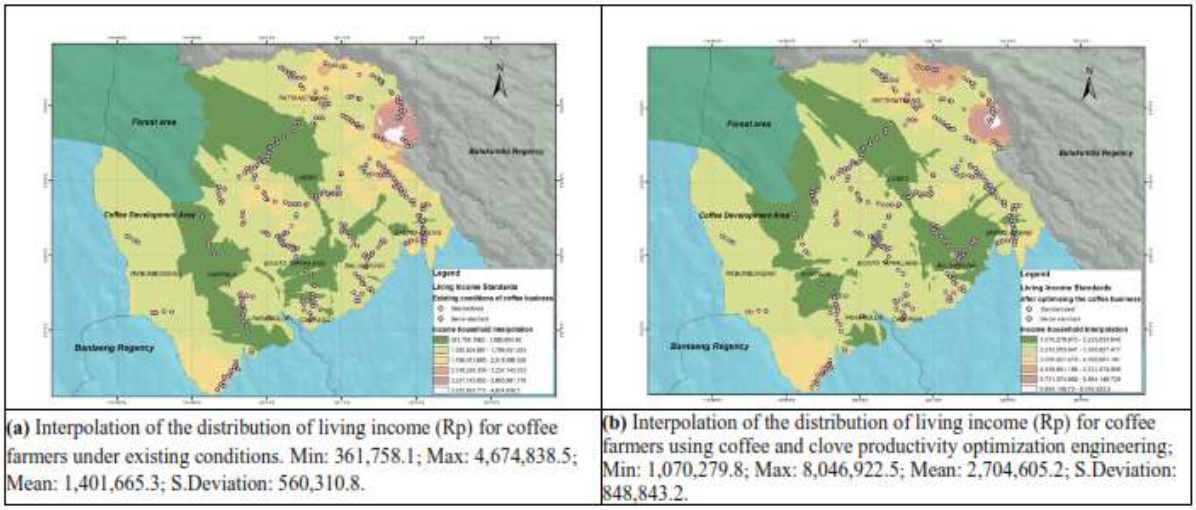
This research demonstrates that social structures and educational empowerment in rural seaweed economies can align production systems with hunger alleviation (SDG 2), lifelong learning and skills development (SDG 4), and decent employment and economic growth (SDG 8) — revealing a holistic pathway toward sustainable development in coastal agribusiness contexts.

Dynamics of living income for coffee farming households in agricultural area development policy: Socio-spatial integration



Junais and his team conducted research about *Dynamics of living income for coffee farming households in agricultural area development policy: Socio-spatial integration* (2024). The study examines coffee-farming households in Indonesia's national coffee development area and finds that a staggering 96.6% live below a "living income" benchmark—despite efforts to boost productivity via agricultural policies.
This reality underscores the continuing challenge of rural poverty (SDG 1) and the critical need for resilient food systems where producers themselves are not economically vulnerable. By spotlighting smallholder farmers who supply food commodities yet remain in precarious economic conditions, it links directly to SDG 2 by addressing the supply-side of food security and the welfare of the food producers themselves. The focus on income, productivity, and livelihoods contributes to SDG 8, emphasizing decent work and sustainable rural economic growth—highlighting that farming alone is not guaranteeing decent incomes unless broader structural issues are addressed. Given the socio-spatial mapping of income inequality among farming

households, the research addresses SDG 10 by illuminating regional and household inequalities in income and productivity, suggesting that more equitable policies are needed across space and between actors. Finally, by laying out the implications for agricultural development policy—calling for integrated, evidence-based, multi-stakeholder approaches—the study resonates with SDG 17, demonstrating the necessity of partnerships between government, agricultural communities, researchers, and development actors to raise living incomes, secure food systems, and reduce inequalities in rural settings.



(a) Interpolation of the distribution of living income (Rp) for coffee farmers under existing conditions. Min: 361,758.1; Max: 4,674,838.5; Mean: 1,401,665.3; S.Deviation: 560,310.8.

(b) Interpolation of the distribution of living income (Rp) for coffee farmers using coffee and clove productivity optimization engineering; Min: 1,070,279.8; Max: 8,046,922.5; Mean: 2,704,605.2; S.Deviation: 848,843.2.

The Effect of Individual Capability and Motivation on Farmer Institutional Sustainability in The Highlands: Evidence From Gowa, Indonesia



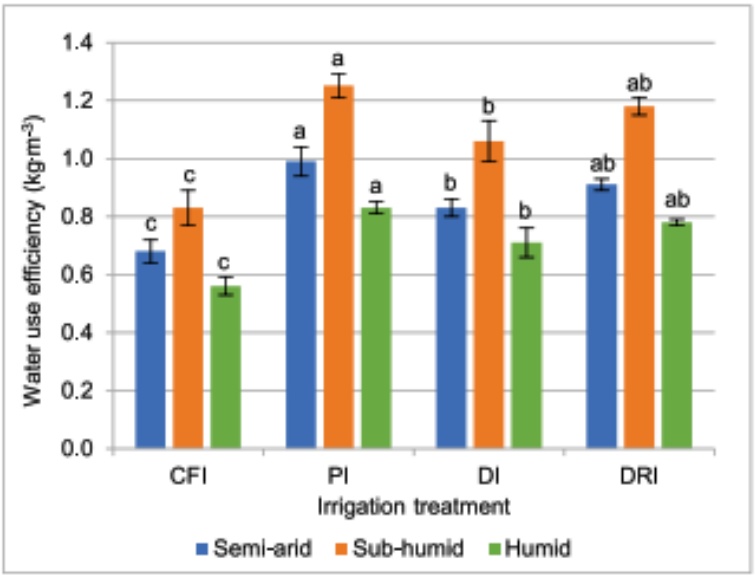
Akbar and his team conducted research about *The Effect of Individual Capability and Motivation on Farmer Institutional Sustainability in The Highlands: Evidence From Gowa, Indonesia* (2024). This research underscores how strengthening farmers' individual capabilities and leadership competencies contributes to sustainable agricultural institutions in highland regions. By highlighting that leadership mediates the relationship between personal motivation and institutional sustainability, the study promotes human resource empowerment and lifelong learning among rural farmers—core elements of SDG 4. The findings demonstrate that building farmers' knowledge,

professional skills, and organizational capacity enhances productivity, resilience, and food security in agribusiness systems, aligning with SDG 2's aim to end hunger through sustainable agriculture. Conducted in Gowa Regency, the study also reflects the role of higher education institutions in providing evidence-based capacity development for rural communities, reinforcing education as a driver for achieving sustainable and inclusive food systems.

Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq



Nurnawaty and her team conducted research about *Comparative Analysis of Precision, Deficit, and Drip Irrigation for Water Efficiency in Iraq* (2024). This study demonstrates that sustainable irrigation technologies—such as precision irrigation, deficit irrigation, and drip irrigation—can increase crop yield by up to 38% while saving 20–30% of water compared to conventional flood irrigation. By optimizing water use efficiency and improving soil health, the research advances **SDG 2** through enhanced food security and resilient agricultural productivity. The water-saving and recycling aspects contribute to **SDG 6** and **SDG 12**, promoting efficient resource management and reducing environmental stress from over-irrigation. Furthermore, the findings emphasize the economic benefits of modern irrigation systems that empower local farmers, boost productivity, and support sustainable rural livelihoods—key contributions to **SDG 8**. The study also addresses **SDG 13** by providing adaptive strategies for agriculture in the face of climate variability and water scarcity, reducing the carbon footprint of traditional irrigation. Lastly, by advocating integrated water governance, technological innovation, and stakeholder engagement across academic, governmental, and community institutions, the paper reinforces the principles of **SDG 16**, emphasizing transparent and evidence-based policymaking for sustainable resource management.



Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency



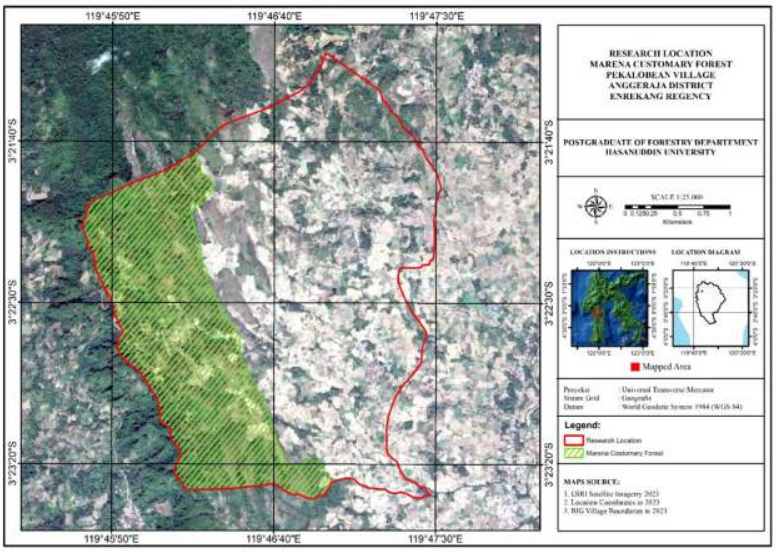
Isnam and his team conducted research about *Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency* (2024). The study investigates sustainable agricultural practices that can both increase food production and enhance environmental resilience—offering the potential to advance multiple Sustainable Development Goals simultaneously. By adopting improved cultivation methods (such as optimized planting, resource-efficient inputs or climate-smart techniques), the research supports SDG 2 by helping to ensure adequate, reliable food supply and improving nutrient availability for vulnerable populations. At the same time, by strengthening farmer capacities, introducing innovations, and creating scalable agribusiness opportunities, the article contributes to SDG 8, promoting decent employment, sustainable rural livelihoods, and inclusive economic growth in agricultural communities. Finally, the focus on climate-smart agriculture, resource

efficiency and adaptive strategies in the face of climate variability aligns with SDG 13, emphasizing the need to integrate mitigation and adaptation measures into food systems to safeguard both productivity and ecosystems for future generations.

Land Productivity and Land Equivalent Ratio of Agroforestry System in Marena Customary Forest, Enrekang Regency, South Sulawesi Province, Indonesia



Isnam and his team conducted research about *Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency* (2024). he study demonstrates how implementing agroforestry systems enhances both land productivity and the economic welfare of indigenous communities. With an impressive land equivalent ratio (LER) of 2.34 and productivity reaching IDR 20,512,208 per hectare per year, agroforestry enables sustainable food and income generation, ensuring long-term agricultural resilience and food security. By integrating diverse crops such as coffee, cocoa, avocado, and timber trees, the system promotes ecological balance while improving household income stability and community welfare. This model exemplifies a sustainable rural livelihood approach that aligns with SDG 2 through increased food production and SDG 8 by empowering local farmers and promoting inclusive economic growth based on environmentally sound practices.



Coffee Farming Resilience in Coffee Development Area in Bantaeng Regency: A Socio-Economic Review



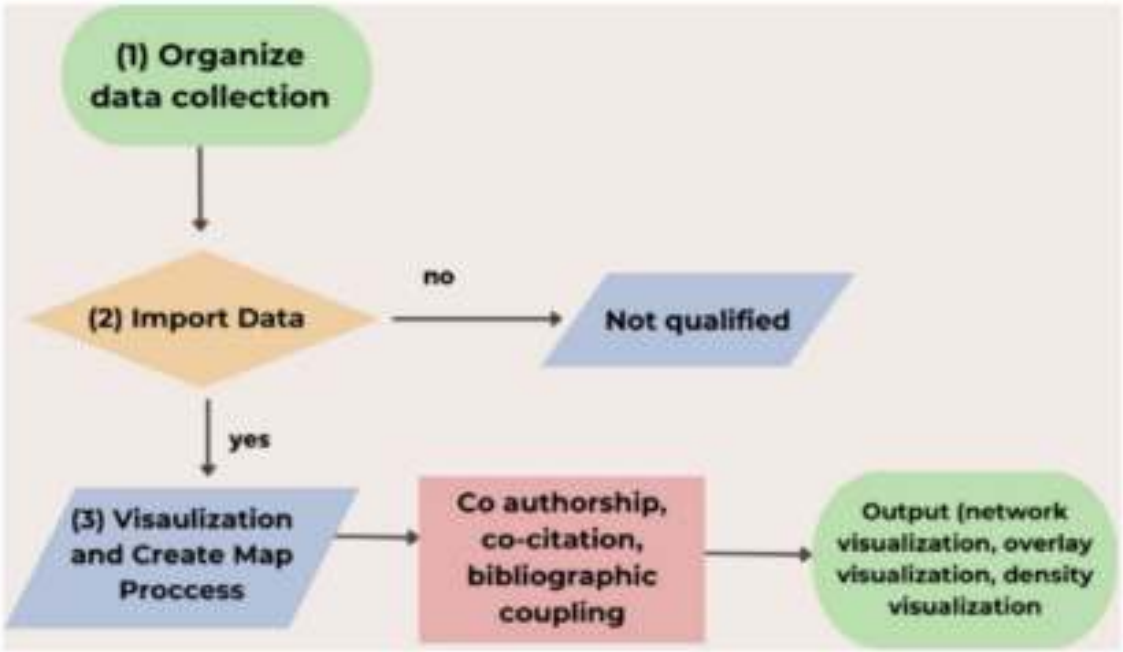
Junais and his team conducted research about *Coffee farming resilience in coffee development area in Bantaeng regency: A socio-economic review* (2024). examines how climate change, pest and disease pressures, market access limitations and resource constraints threaten the productivity and livelihoods of coffee-farming households in the coffee development area of Bantaeng Regency, Indonesia. This research strongly aligns with SDG 2 (Zero Hunger) by highlighting the need to secure and stabilize the food and cash-crop output of coffee farmers through resilient farming systems, thereby helping to ensure sustainable access to nutritious produce and stable livelihoods. It also supports SDG 8 (Decent Work and Economic Growth) since improving resilience means enabling farmers to sustain and improve their income, create more stable agricultural enterprises, and participate in value chains that offer decent work and fair remuneration. Finally, the study contributes to SDG 13 (Climate Action) because it situates coffee farming clearly within the context of climate vulnerability—showing how adaptation strategies such as landscape-management integration, agroforestry, and improved access to technology and markets are essential for mitigating climate impacts and building adaptive capacity in agricultural communities.

In sum, by focusing on the socio-economic and environmental dimensions of coffee cultivation in a climate-sensitive region, the paper presents an integrative approach that links food security, economic resilience, and climate adaptation—and thus offers actionable insights for achieving SDGs 2, 8 and 13 in rural agricultural contexts.

A review of global research trends on the impact of the COVID-19 pandemic on food security



Khaeriyah and her team conducted research about *A review of global research trends on the impact of the COVID-19 pandemic on food security* (2024). The study highlights how the pandemic exacerbated poverty and food insecurity through income loss, market disruptions, and supply chain breakdowns, pushing vulnerable populations into greater economic hardship. It reveals that panic buying and food hoarding led to significant food waste, threatening long-term food availability and sustainability. The authors recommend strategic policy actions, including providing incentives to reduce food loss and waste, supporting food banks and local farmers' markets, enhancing supply chain coordination, and promoting technological innovation for small-scale farmers. These measures directly support poverty alleviation, strengthen sustainable food systems, and encourage responsible consumption and production practices, ensuring equitable access to resources and environmental sustainability in the post-pandemic recovery era.



GOOD HEALTH AND WELL-BEING

Current Collaborations with Health Institutions

Universitas Muhammadiyah Makassar (Unismuh Makassar) actively establishes collaborations with various health institutions at the local, national, and international levels as part of its effort to enhance the quality of education, research, and public health services. These collaborations are a vital part of the university's commitment to supporting the achievement of Sustainable Development Goal (SDG) 3-Good Health and Well-Being, which emphasizes equitable access to quality health care services.



At the local level, Unismuh Makassar strengthens its partnerships through strategic collaborations with the Makassar City Government and several leading hospitals in South Sulawesi. These collaborations include human resource development programs, research capacity building, and internship opportunities for students. The objective is to improve students' practical skills, broaden their real-world experience in the health sector, and enhance the university's tangible contribution to community well-being. The partnerships also involve medical training, joint research, and technical assistance for healthcare workers in the partner regions.

At the international level, Unismuh Makassar has built a partnership with the National University of Malaysia (UKM). This collaboration focuses on improving academic quality, conducting joint research, and developing globally oriented healthcare services. Through benchmarking and academic exchange activities, this partnership provides opportunities for lecturers and students to learn best practices in medicine and expand the university's international network.



Additionally, the Faculty of Medicine and Health Sciences (FKIK) at Unismuh collaborates with the Asian Society for Cardiovascular and Thoracic Surgery (ASCTS). This collaboration includes cardiovascular and thoracic surgery training, medical staff exchanges, and joint research in cardiovascular health development. Through this initiative, Unismuh strengthens its academic and professional standing in internationally standardized medical specializations while enhancing the university's global reputation.

Beyond international engagement, Unismuh also expands its collaboration across Indonesia's island regions through a partnership with Pimpinan Daerah Muhammadiyah (PDM) Buru Maluku. This initiative aims to develop new academic programs in health and education, including curriculum development and capacity-building for lecturers and students in remote island areas. The program expands community access to education and healthcare while reinforcing Muhammadiyah's social and religious role in regional development.

Health Outreach Programmes

The Faculty of Medicine and Health Sciences (FKIK), plays an active role in improving public health through educational, collaborative, and community empowerment initiatives. All activities described in this document demonstrate the continuity and interconnection between education, research, and community service,



reflecting the university's vision as an academic institution that contributes directly to national and regional health development.

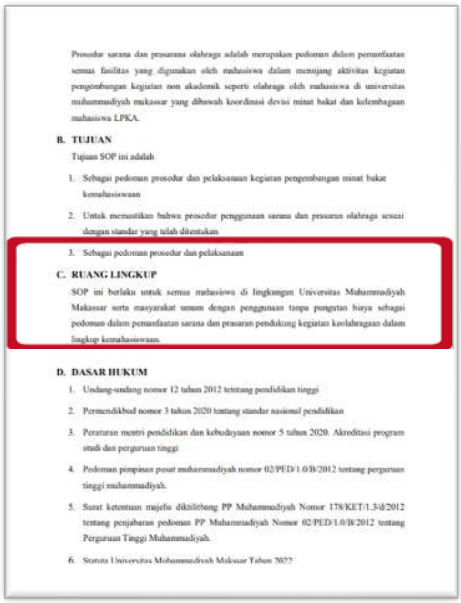
One of the programs implemented is a collaboration between the Midwifery Study Program of FKIK Unismuh Makassar and the Government of Wajo Regency in a research and community service project titled *"Mapping the Problems of Stunting, Wasting, and Child Marriage to Improve Public Health in Wajo Regency."* This program not only aims to identify public health issues such as stunting and child marriage but also serves as the foundation for developing evidence-based health policies. Through this initiative, the university provides applicable academic contributions by engaging local government, academic staff, students, and community organizations in a collaborative ecosystem. The results of this research were translated into policy briefs and health care training programs, which serve as an extension of the university's role in raising community awareness and health literacy at the grassroots level.



In addition, Unismuh Makassar also carried out a Community Service Program (PKM) through the Healthy Adolescent Support Group (PARAS) training for members of Nasyiatul 'Aisyiyah in Gowa Regency. This activity, held on March 1, 2024, at the Muhammadiyah Dakwah Center in Gowa, was part of the Muhammadiyah Research Grant Batch VII and was attended by 45 participants, most of whom were teachers and Nasyiatul 'Aisyiyah cadres. The training materials covered topics such as adolescent reproductive health, balanced nutrition, prevention of early marriage, adolescent violence, mental health, and the dangers of drug abuse and HIV/AIDS. The program began with free health screenings and concluded with the formation of the PARAS group, which serves as a pioneering force in promoting adolescent reproductive health education within their respective communities.

Shared Sports Facilities

Unismuh Makassar demonstrates a strong commitment to promoting health and well-being through its policy of sharing sports facilities with the local community. The university has implemented a **Standard Operating Procedure (SOP)** that regulates the use and management of sports facilities on campus, allowing all members of the academic community to use them free of charge while also opening access to the general public as part of the institution's social contribution to the surrounding community.



Prosedur sarana dan prasarana olahraga adalah merupakan pedoman dalam pemanfaatan semua fasilitas yang digunakan oleh mahasiswa dalam menujang aktivitas kegiatan pengembangan kegiatan non akademik seperti olahraga oleh mahasiswa di universitas muhammadiyah makassar yang dibawah koordinasi devisi minat bakat dan kelembagaan mahasiswa LPKA.

B. TUJUAN

Tujuan SOP ini adalah

1. Sebagai pedoman prosedur dan pelaksanaan kegiatan pengembangan minat bakat kemahasiswaan
2. Untuk memastikan bahwa prosedur penggunaan sarana dan prasaran olahraga sesuai dengan standar yang telah ditentukan
3. Sebagai pedoman prosedur dan pelaksanaan

C. RUANG LINGKUP

SOP ini berlaku untuk semua mahasiswa di lingkungan Universitas Muhammadiyah Makassar serta masyarakat umum dengan penggunaan tanpa pungutan biaya sebagai pedoman dalam pemanfaatan sarana dan prasaran pendukung kegiatan keolahragaan dalam lingkup kemahasiswaan.

D. DASAR HUKUM

1. Undang-undang nomor 12 tahun 2012 tetntang pendidikan tinggi
2. Permendikbud nomor 3 tahun 2020 tentang standar nasional pendidikan
3. Peraturan mentri pendidikan dan kebudayaan nomor 5 tahun 2020. Akreditasi program studi dan perguruan tinggi
4. Pedoman pimpinan pusat muhammadiyah nomor 02/PED/1.0/B/2012 tentang perguruan tinggi muhammadiyah.
5. Surat ketentuan majelis diktilitbang PP Muhammadiyah Nomor 178/KET/1.3/d/2012 tentang penjabaran pedoman PP Muhammadiyah Nomor 02/PED/1.0/B/2012 tentang Perguruan Tinggi Muhammadiyah.
6. Statuta Universitas Muhammadiyah Maksaar Tahun 2022

The SOP, established by the **Student and Alumni Development Institute (LPKA)** of Unismuh, outlines in detail the schedule of facility usage, borrowing procedures, rules of conduct, and maintenance provisions. This policy ensures that the use of sports fields is organized, efficient, and sustainable. Its primary objective is to provide equal access for all students without financial barriers while encouraging the development of sports interests and talents as part of a healthy lifestyle within the campus environment.



As a concrete implementation, Unismuh Makassar provides two main outdoor sports facilities a soccer field and a basketball court located in front of the campus mosque. Based on documentation presented on page 2 of the report, both facilities are equipped with adequate space to accommodate sports activities for students and the local community. Additionally, the university offers indoor facilities, such as badminton and volleyball courts, which are used for both academic and non-academic purposes.



This policy aligns with the university's mission to support SDG 3: Good Health and Well-Being**,** by providing inclusive spaces for physical activity and community engagement. Through this approach, Unismuh not only strengthens social interaction between students and local residents but also fosters an open, community-oriented campus environment.

Furthermore, this initiative reinforces the university's role as a center for community engagement**,** positioning the campus as more than an academic learning site it also serves as a hub for social activities that contribute to the overall well-being of the surrounding community. With this SOP in place, Unismuh ensures that sports facilities are utilized sustainably, orderly, and beneficially for all stakeholders.

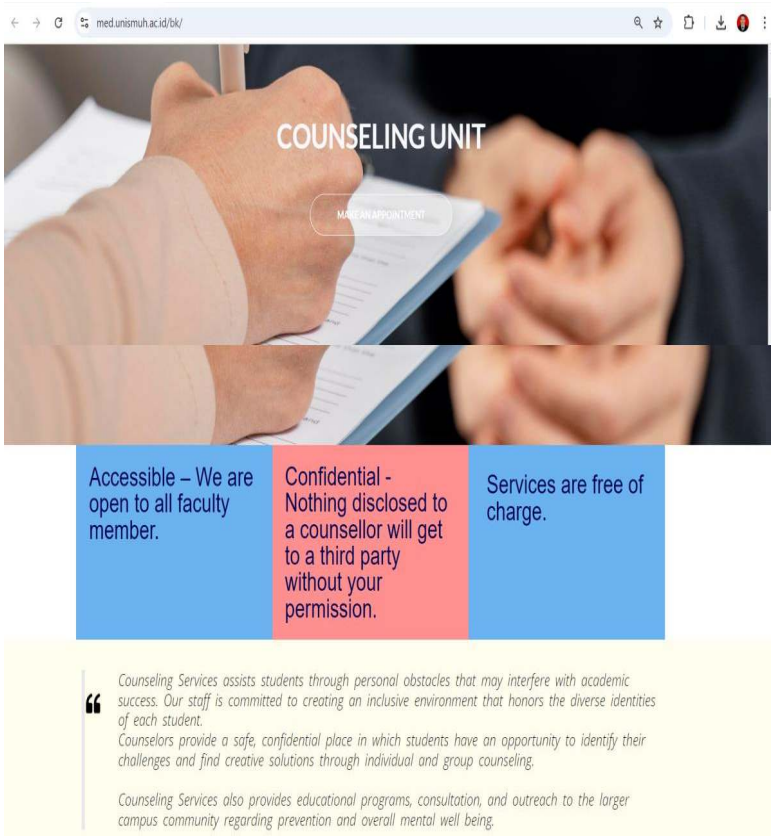
Sexual and Reproductive Health Care Services for Students



Unismuh Makassar reaffirms its strong commitment to providing safe, inclusive, and easily accessible sexual and reproductive health services for students and the entire academic community. This policy is regulated through the Student Health Service Guidelines, developed by the Institute for Student and Alumni Development (LPKA), which serve as the official framework for health service implementation through the Unismuh Medical Centre (UMC).

The guidelines are valid for four years and function as the operational standard for all healthcare activities within the university. The service process at UMC begins with patient identification and registration, followed by an initial examination by a nurse, consultation with a general practitioner, and laboratory testing if required. For students, lecturers, and education staff, medical consultations and medications are provided **free of charge**, while medical procedures receive a 50% discount. Patients covered by BPJS Kesehatan insurance are fully exempted from all medical costs.

In addition to medical services, the university also provides a Counseling Unit under the Faculty of Medicine, accessible through its official website (https://med.unismuh.ac.id/bk/). This unit offers **free, confidential, and easily accessible counseling services** for both students and lecturers. Services are provided by professional psychologists and psychiatrists to help individuals manage personal and academic challenges while promoting mental and emotional well-being. Through this initiative, Unismuh aims to foster an inclusive, healthy campus environment that supports students' overall personal growth and potential development.

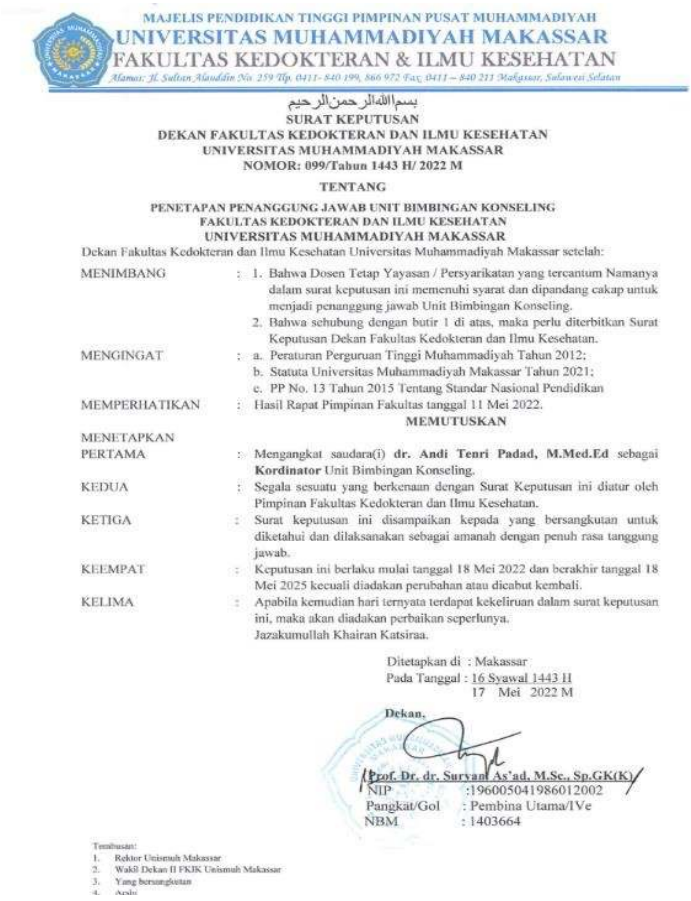




As part of its effort to strengthen protection and safety measures, Unismuh Makassar also organized a socialization program on the prevention and handling of sexual harassment, bullying, and intolerance on March 25, 2024, at the Faculty of

Teacher Training and Education (FKIP). This activity serves as a follow-up to Ministerial Regulation No. 30 of 2021 and marks the establishment of the PPKS-PI Task Force (Prevention and Handling of Sexual Harassment, Bullying, and Intolerance). The initiative aims to build a safe, ethical, and fair academic culture across the university.

Mental Health Support for Students



MAJELIS PENDIDIKAN TINGGI PIMPINAN PUSAT MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH MAKASSAR
FAKULTAS KEDOKTERAN & ILMU KESEHATAN
Alamat: Jl. Sultan Alauddin No. 259 Tlp. 0411- 840 199, 866 972 Fax 0411 – 840 213 Makassar, Sulawesi Selatan

بسم الله الرحمن الرحيم

SURAT KEPUTUSAN
DEKAN FAKULTAS KEDOKTERAN DAN ILMU KESEHATAN
UNIVERSITAS MUHAMMADIYAH MAKASSAR
NOMOR: 099/Tahun 1443 H/ 2022 M

TENTANG

PENETAPAN PENANGGUNG JAWAB UNIT BIMBINGAN KONSELING
FAKULTAS KEDOKTERAN DAN ILMU KESEHATAN
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Dekan Fakultas Kedokteran dan Ilmu Kesehatan Universitas Muhammadiyah Makassar setelah:

MENIMBANG : 1. Bahwa Dosen Tetap Yayasan / Persyarikatan yang tercantum Namanya dalam surat keputusan ini memenuhi syarat dan dipandang cakap untuk menjadi penanggung jawab Unit Bimbingan Konseling.
2. Bahwa sehubung dengan butir 1 di atas, maka perlu diterbitkan Surat Keputusan Dekan Fakultas Kedokteran dan Ilmu Kesehatan.

MENGINGAT : a. Peraturan Perguruan Tinggi Muhammadiyah Tahun 2012;
b. Statuta Universitas Muhammadiyah Makassar Tahun 2021;
c. PP No. 13 Tahun 2015 Tentang Standar Nasional Pendidikan

MEMPERHATIKAN : Hasil Rapat Pimpinan Fakultas tanggal 11 Mei 2022.

MEMUTUSKAN

MENETAPKAN

PERTAMA : Mengangkat saudara(i) **dr. Andi Tenri Padad, M.Med.Ed** sebagai **Kordinator** Unit Bimbingan Konseling.

KEDUA : Segala sesuatu yang berkenaan dengan Surat Keputusan ini diatur oleh Pimpinan Fakultas Kedokteran dan Ilmu Kesehatan.

KETIGA : Surat keputusan ini disampaikan kepada yang bersangkutan untuk diketahui dan dilaksanakan sebagai amanah dengan penuh rasa tanggung jawab.

KEEMPAT : Keputusan ini berlaku mulai tanggal 18 Mei 2022 dan berakhir tanggal 18 Mei 2025 kecuali diadakan perubahan atau dicabut kembali.

KELIMA : Apabila kemudian hari ternyata terdapat kekeliruan dalam surat keputusan ini, maka akan diadakan perbaikan seperlunya.

Jazakumullah Khairan Katsiraa.

Ditetapkan di : Makassar
Pada Tanggal : 16 Syawal 1443 H
17 Mei 2022 M

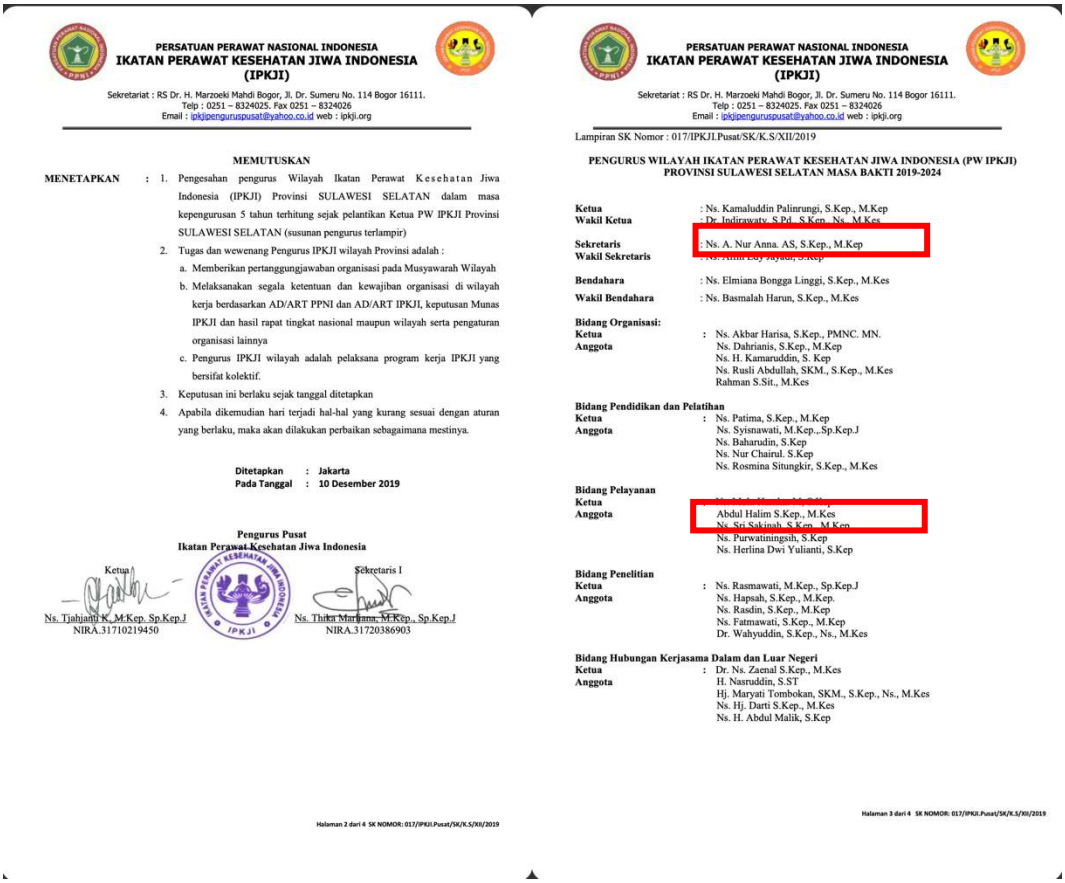
Dekan,

Prof. Dr. dr. Suryani As'ad, M.Sc., Sp.GK(K)
NIP :196005041986012002
Pangkat/Gol : Pembina Utama/IVe
NBM : 1403664

Tembusan:
1. Rektor Unismuh Makassar
2. Wakil Dekan II FKIK Unismuh Makassar
3. Yang bersangkutan
4. Arsip

The Faculty of Medicine and Health Sciences (FKIK) at Universitas Muhammadiyah Makassar demonstrates a strong commitment to supporting students' mental health by establishing an Official Counseling Unit, as stipulated in the Dean's Decree of FKIK. The formation of this unit aims to provide structured, professional, and sustainable counselling services to support students' well-being and academic development.

In addition to establishing the counselling unit, FKIK Unismuh Makassar also highlights the active role of nursing lecturers in the activities of the Indonesian Mental Health Nurses Association (IPKJI) for the South Sulawesi region. This involvement is formalized through an official appointment letter, demonstrating the university's contribution to developing psychiatric nursing practices at the regional level. Through this role, the lecturers participate in supervision, competency development, and the implementation of professional practices in the field of community mental health. These activities not only strengthen academic capacity but also serve as a means of enhancing community-based mental health services.



PERSATUAN PERAWAT NASIONAL INDONESIA
IKATAN PERAWAT KESEHATAN JIWA INDONESIA
(IPKJI)
Sekretariat : RS Dr. H. Marzoeki Mahdi Bogor, Jl. Dr. Sumeru No. 114 Bogor 16111.
Telp : 0251 – 8324025. Fax 0251 – 8324026
Email : ipkjipengurupusat@yahoo.co.id web : ipkji.org

MEMUTUSKAN

MENETAPKAN :
1. Pengesahan pengurus Wilayah Ikatan Perawat Kesehatan Jiwa Indonesia (IPKJI) Provinsi SULAWESI SELATAN dalam masa kepengurusan 5 tahun terhitung sejak pelantikan Ketua PW IPKJI Provinsi SULAWESI SELATAN (susunan pengurus terlampir)
2. Tugas dan wewenang Pengurus IPKJI wilayah Provinsi adalah :
   a. Memberikan pertanggungjawaban organisasi pada Musyawarah Wilayah
   b. Melaksanakan segala ketentuan dan kewajiban organisasi di wilayah kerja berdasarkan AD/ART PPNI dan AD/ART IPKJI, keputusan Munas IPKJI dan hasil rapat tingkat nasional maupun wilayah serta pengaturan organisasi lainnya
   c. Pengurus IPKJI wilayah adalah pelaksana program kerja IPKJI yang bersifat kolektif.
3. Keputusan ini berlaku sejak tanggal ditetapkan
4. Apabila dikemudian hari terjadi hal-hal yang kurang sesuai dengan aturan yang berlaku, maka akan dilakukan perbaikan sebagaimana mestinya.

Ditetapkan : Jakarta
Pada Tanggal : 10 Desember 2019

Pengurus Pusat
Ikatan Perawat Kesehatan Jiwa Indonesia

Ketua
Ns. Tjahjanti K., M.Kep. Sp.Kep.J
NIRA.31710219450

Sekretaris I
Ns. Thika Mariyana, M.Kep., Sp.Kep.J
NIRA.31720386903

Halaman 2 dari 4 SK NOMOR: 017/IPKJI.Pusat/SK/K.S/XII/2019

PERSATUAN PERAWAT NASIONAL INDONESIA
IKATAN PERAWAT KESEHATAN JIWA INDONESIA
(IPKJI)
Sekretariat : RS Dr. H. Marzoeki Mahdi Bogor, Jl. Dr. Sumeru No. 114 Bogor 16111.
Telp : 0251 – 8324025. Fax 0251 – 8324026
Email : ipkjipengurupusat@yahoo.co.id web : ipkji.org

Lampiran SK Nomor : 017/IPKJI.Pusat/SK/K.S/XII/2019

PENGURUS WILAYAH IKATAN PERAWAT KESEHATAN JIWA INDONESIA (PW IPKJI)
PROVINSI SULAWESI SELATAN MASA BAKTI 2019-2024

Ketua : Ns. Kamaluddin Palinrungi, S.Kep., M.Kep
Wakil Ketua : Dr. Indirawaty, S.Pd., S.Kep., Ns., M.Kes
Sekretaris : Ns. A. Nur Anna. AS, S.Kep., M.Kep
Wakil Sekretaris : Ns. Amin Ely Ayyub, S.Kep
Bendahara : Ns. Elmiana Bongga Linggi, S.Kep., M.Kes
Wakil Bendahara : Ns. Basmalah Harun, S.Kep., M.Kes

Bidang Organisasi:
Ketua : Ns. Akbar Harisa, S.Kep., PMNC. MN.
Anggota : Ns. Dahrianis, S.Kep., M.Kep
Ns. H. Kamaruddin, S. Kep
Ns. Rusli Abdullah, SKM., S.Kep., M.Kes
Rahman S.Sit., M.Kes

Bidang Pendidikan dan Pelatihan
Ketua : Ns. Patima, S.Kep., M.Kep
Anggota : Ns. Syisnawati, M.Kep.,.Sp.Kep.J
Ns. Baharudin, S.Kep
Ns. Nur Chairul. S.Kep
Ns. Rosmina Situngkir, S.Kep., M.Kes

Bidang Pelayanan
Ketua : Ns. Mukmin Muslim, M.Kep
Anggota : Abdul Halim S.Kep., M.Kes
Ns. Sri Sakinah, S.Kep., M.Kep
Ns. Purwatiningsih, S.Kep
Ns. Herlina Dwi Yulianti, S.Kep

Bidang Penelitian
Ketua : Ns. Rasmawati, M.Kep., Sp.Kep.J
Anggota : Ns. Hapsah, S.Kep., M.Kep.
Ns. Rasdin, S.Kep., M.Kep
Ns. Fatmawati, S.Kep., M.Kep
Dr. Wahyuddin, S.Kep., Ns., M.Kes

Bidang Hubungan Kerjasama Dalam dan Luar Negeri
Ketua : Dr. Ns. Zaenal S.Kep., M.Kes
Anggota : H. Nasruddin, S.ST
Hj. Maryati Tombokan, SKM., S.Kep., Ns., M.Kes
Ns. Hj. Darti S.Kep., M.Kes
Ns. H. Abdul Malik, S.Kep

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A concrete example of this commitment can be seen in the implementation of the Community Service Program (PKM) themed *"Education and Training on Emergency First Aid and Psychological First Aid"*, held on April 27, 2024, at the Muhammadiyah Da'wah Center in Gowa Regency. This activity was a collaboration between FKIK Unismuh Makassar and the Muhammadiyah Disaster Resilience Institute (LRB) of Gowa Regency. A total of 20 Muhammadiyah volunteers were trained to provide both physical first aid and initial psychological support for disaster survivors. Funded by the Muhammadiyah Research Grant Batch VII, this program

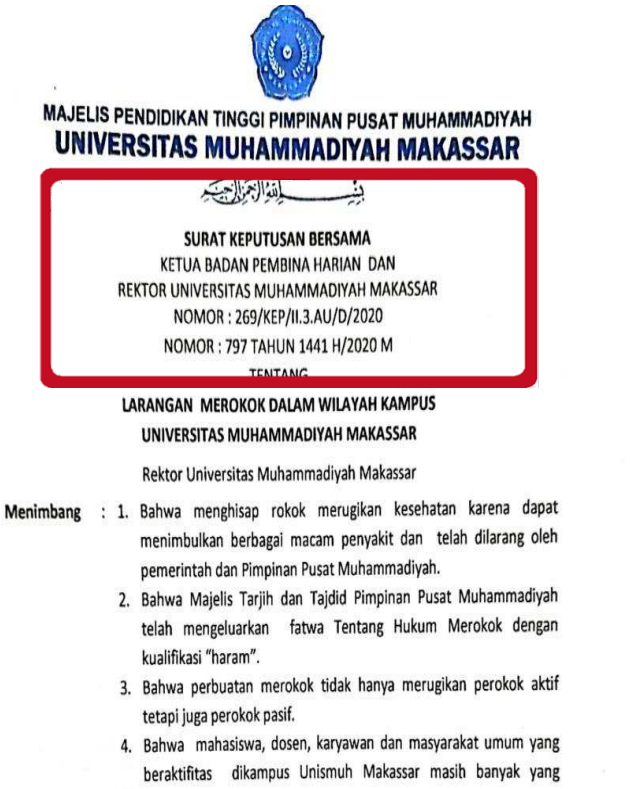


demonstrates an integration of medical science, humanitarian concern, and social responsibility. Its goal is not only to build disaster preparedness but also to strengthen volunteers' capacity to provide post-disaster psychosocial interventions — a tangible form of mental health support for the community.



In addition to external activities, student counseling services are also available online through the official website **https://med.unismuh.ac.id/bk/**, which offers free, confidential, and easily accessible sessions. The platform is open to all faculty members and provides individual counselling, online appointments, and direct access to professional psychologists. The website emphasizes that all personal information is confidential and will not be shared without user consent. This reflects the university's strong commitment to ensuring privacy and comfort for students seeking psychological assistance.

Smoke-Free Policy



MAJELIS PENDIDIKAN TINGGI PIMPINAN PUSAT MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH MAKASSAR

بسم الله الرحمن الرحيم

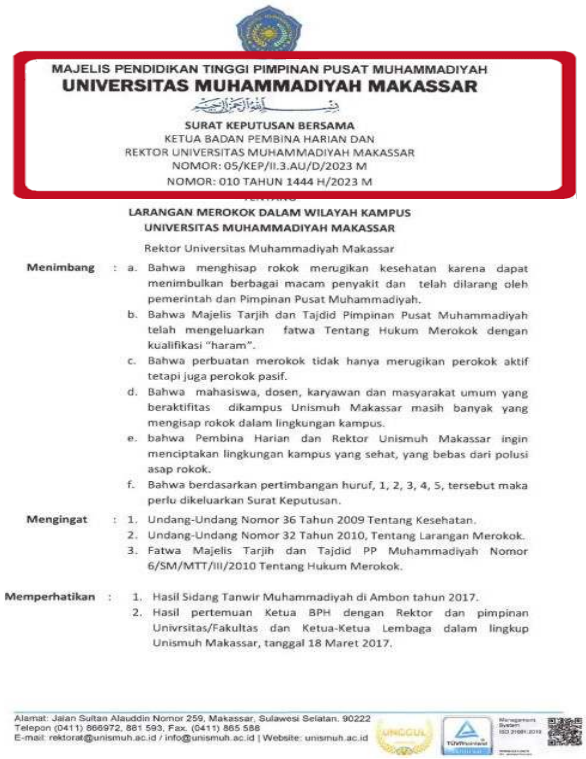
SURAT KEPUTUSAN BERSAMA
KETUA BADAN PEMBINA HARIAN DAN
REKTOR UNIVERSITAS MUHAMMADIYAH MAKASSAR
NOMOR : 269/KEP/II.3.AU/D/2020
NOMOR : 797 TAHUN 1441 H/2020 M
TENTANG
LARANGAN MEROKOK DALAM WILAYAH KAMPUS
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Rektor Universitas Muhammadiyah Makassar

Menimbang : 1. Bahwa menghisap rokok merugikan kesehatan karena dapat menimbulkan berbagai macam penyakit dan telah dilarang oleh pemerintah dan Pimpinan Pusat Muhammadiyah.
2. Bahwa Majelis Tarjih dan Tajdid Pimpinan Pusat Muhammadiyah telah mengeluarkan fatwa Tentang Hukum Merokok dengan kualifikasi "haram".
3. Bahwa perbuatan merokok tidak hanya merugikan perokok aktif tetapi juga perokok pasif.
4. Bahwa mahasiswa, dosen, karyawan dan masyarakat umum yang beraktifitas dikampus Unismuh Makassar masih banyak yang

Unismuh Makassar demonstrates a strong commitment to implementing a healthy and smoke-free campus environment. This policy was first established in 2020 through a Joint Decree between the Chair of the Board of Trustees (BPH) and the Rector of Unismuh Makassar under numbers 265/KEP/II.3/AU/D/2020 and 797/Year 1441 H/2020. The policy was later reviewed in 2023 to ensure its relevance and effectiveness in creating a clean, healthy, and comfortable learning environment for all members of the academic community.

The content of the policy strictly prohibits all forms of smoking and vaping activities throughout the campus area, both indoors and outdoors. The enforcement of this policy is based on the Rector's Circular Letter No. 10 of 1444 H/2023 M, which applies to all lecturers, education staff, and students. This policy has three main objectives: (1) to protect the health of all campus members, (2) to ensure comfort in



MAJELIS PENDIDIKAN TINGGI PIMPINAN PUSAT MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH MAKASSAR

SURAT KEPUTUSAN BERSAMA
KETUA BADAN PEMBINA HARIAN DAN
REKTOR UNIVERSITAS MUHAMMADIYAH MAKASSAR
NOMOR: 05/KEP/II.3.AU/D/2023 M
NOMOR: 010 TAHUN 1444 H/2023 M

LARANGAN MEROKOK DALAM WILAYAH KAMPUS
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Rektor Universitas Muhammadiyah Makassar

Menimbang :
a. Bahwa menghisap rokok merugikan kesehatan karena dapat menimbulkan berbagai macam penyakit dan telah dilarang oleh pemerintah dan Pimpinan Pusat Muhammadiyah.
b. Bahwa Majelis Tarjih dan Tajdid Pimpinan Pusat Muhammadiyah telah mengeluarkan fatwa Tentang Hukum Merokok dengan kualifikasi "haram".
c. Bahwa perbuatan merokok tidak hanya merugikan perokok aktif tetapi juga perokok pasif.
d. Bahwa mahasiswa, dosen, karyawan dan masyarakat umum yang beraktifitas dikampus Unismuh Makassar masih banyak yang mengisap rokok dalam lingkungan kampus.
e. bahwa Pembina Harian dan Rektor Unismuh Makassar ingin menciptakan lingkungan kampus yang sehat, yang bebas dari polusi asap rokok.
f. Bahwa berdasarkan pertimbangan huruf, 1, 2, 3, 4, 5, tersebut maka perlu dikeluarkan Surat Keputusan.

Mengingat :
1. Undang-Undang Nomor 36 Tahun 2009 Tentang Kesehatan.
2. Undang-Undang Nomor 32 Tahun 2010, Tentang Larangan Merokok.
3. Fatwa Majelis Tarjih dan Tajdid PP Muhammadiyah Nomor 6/SM/MTT/III/2010 Tentang Hukum Merokok.

Memperhatikan :
1. Hasil Sidang Tanwir Muhammadiyah di Ambon tahun 2017.
2. Hasil pertemuan Ketua BPH dengan Rektor dan pimpinan Univrsitas/Fakultas dan Ketua-Ketua Lembaga dalam lingkup Unismuh Makassar, tanggal 18 Maret 2017.

Alamat: Jalan Sultan Alauddin Nomor 259, Makassar, Sulawesi Selatan. 90222
Telepon (0411) 866972, 861 593, Fax. (0411) 865 588
E-mail: rektorat@unismuh.ac.id / info@unismuh.ac.id | Website: unismuh.ac.id

academic and social activities, and (3) to maintain the cleanliness of the university environment. Violations of this policy are subject to disciplinary action in accordance with university regulations, reaffirming Unismuh Makassar's strong commitment to sustaining a smoke-free campus.

The practical implementation of this policy is evident through the installation of **"Smoke-Free Area"** signs in various strategic locations on campus, including every floor of the Rusunawa building and the Iqra Building. These visual reminders encourage the entire academic community to maintain a smoke-free environment and ensure effective policy enforcement. Additionally, **no-smoking banners** are displayed in outdoor areas and around the sports fields to extend public awareness among campus visitors and the local community.





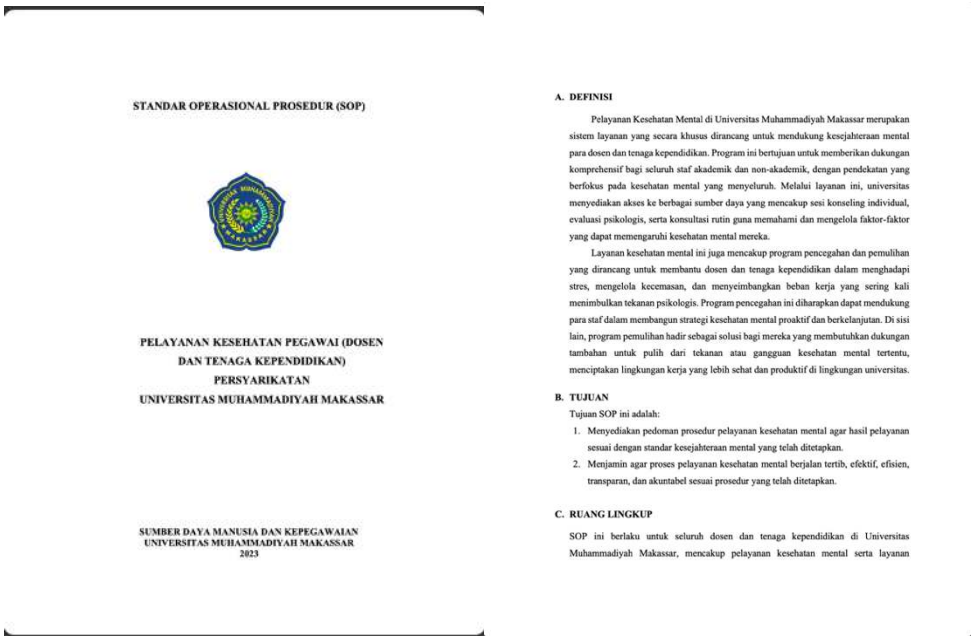
Photographic evidence shows banners reading **“No Smoking in the Campus Area”,** featuring the university logo and an official statement from the Rector. The messages call upon all members of the university to “create a healthy and smoke-free campus.” Furthermore, notice boards in each building display the full regulations, space usage schedules, and reminders about the smoking ban.



The policy has also been publicly disseminated through media coverage, such as the Radar Selatan news article (May 14, 2023) titled *“Unismuh Makassar Officially Becomes a Smoke-Free Campus.”* The publication highlights Unismuh as one of the leading universities in South Sulawesi that consistently prioritizes environmental health and the well-being of its academic community through the effective implementation of its smoke-free campus policy.

Mental Health Support for Staff

Unismuh Makassar continues to strengthen its mental health support services for lecturers and administrative staff. This commitment is realized through the implementation of the Standard Operating Procedure (SOP) for Mental Health Services, which serves as the official guideline for providing professional, structured, and sustainable psychological support to all university staff—both academic and non-academic.



STANDAR OPERASIONAL PROSEDUR (SOP)

PELAYANAN KESEHATAN PEGAWAI (DOSEN DAN TENAGA KEPENDIDIKAN) PERSYARIKATAN UNIVERSITAS MUHAMMADIYAH MAKASSAR

SUMBER DAYA MANUSIA DAN KEPEGAWAIAN
UNIVERSITAS MUHAMMADIYAH MAKASSAR
2023

A. DEFINISI

Pelayanan Kesehatan Mental di Universitas Muhammadiyah Makassar merupakan sistem layanan yang secara khusus dirancang untuk mendukung kesejahteraan mental para dosen dan tenaga kependidikan. Program ini bertujuan untuk memberikan dukungan komprehensif bagi seluruh staf akademik dan non-akademik, dengan pendekatan yang berfokus pada kesehatan mental yang menyeluruh. Melalui layanan ini, universitas menyediakan akses ke berbagai sumber daya yang mencakup sesi konseling individual, evaluasi psikologis, serta konsultasi rutin guna memahami dan mengelola faktor-faktor yang dapat memengaruhi kesehatan mental mereka.

Layanan kesehatan mental ini juga mencakup program pencegahan dan pemulihan yang dirancang untuk membantu dosen dan tenaga kependidikan dalam menghadapi stres, mengelola kecemasan, dan menyeimbangkan beban kerja yang sering kali menimbulkan tekanan psikologis. Program pencegahan ini diharapkan dapat mendukung para staf dalam membangun strategi kesehatan mental proaktif dan berkelanjutan. Di sisi lain, program pemulihan hadir sebagai solusi bagi mereka yang membutuhkan dukungan tambahan untuk pulih dari tekanan atau gangguan kesehatan mental tertentu, menciptakan lingkungan kerja yang lebih sehat dan produktif di lingkungan universitas.

B. TUJUAN

Tujuan SOP ini adalah:

1. Menyediakan pedoman prosedur pelayanan kesehatan mental agar hasil pelayanan sesuai dengan standar kesejahteraan mental yang telah ditetapkan.
2. Menjamin agar proses pelayanan kesehatan mental berjalan tertib, efektif, efisien, transparan, dan akuntabel sesuai prosedur yang telah ditetapkan.

C. RUANG LINGKUP

SOP ini berlaku untuk seluruh dosen dan tenaga kependidikan di Universitas Muhammadiyah Makassar, mencakup pelayanan kesehatan mental serta layanan

This SOP outlines the university's primary goal of creating a healthy, productive, and supportive work environment by ensuring equal access to individual counseling services, psychological assessments, as well as stress prevention and recovery programs. Through this guideline, Unismuh Makassar ensures that every service is carried out effectively, efficiently, and accountably, involving mental health professionals to provide continuous support for staff well-being. The document also states that this SOP remains in effect until a revised policy is issued, indicating the university's commitment to long-term mental health management.



The implementation of this policy is supported by the establishment of the Counseling Unit for Lecturers and Staff, which offers free, confidential, and easily accessible counseling services through the university's official

website: https://www.unismuh.ac.id/unit-konseling-dosen-tenaga-kependidikan/. As shown in the document, the website provides detailed information about counseling hours, contact details, and an online appointment form. The service aims to help lecturers and staff cope with both personal and professional challenges such as academic pressure, work fatigue (*burnout*), and anxiety.



In addition, Unismuh Makassar actively organizes educational activities to promote mental health awareness. One such initiative is a public lecture titled **"Heal Your Mind with Dhikr",** held by the *Islamic Education Counseling Program (BKPI)* of the Faculty of Islamic Studies (FAI) on May 31, 2024. This event aims to strengthen the spiritual and psychological balance of lecturers and students by using *dhikr* (spiritual remembrance) as a therapeutic approach for inner peace. The program also reinforces Unismuh's identity as an Islamic higher education institution that harmonizes science and faith.



Another initiative supporting mental health for staff and students is a guest lecture on Adolescent Mental Health**,** organized by the *Nursing Study Program of FKIK* on November 27, 2024**.** The lecture featured mental health experts who discussed current issues such as *Self-Harm* and *Suicidal Self-Injury (SSI)* among adolescents. Through this event, Unismuh actively promotes early education and

prevention of mental health disorders among both the academic community and the wider public.

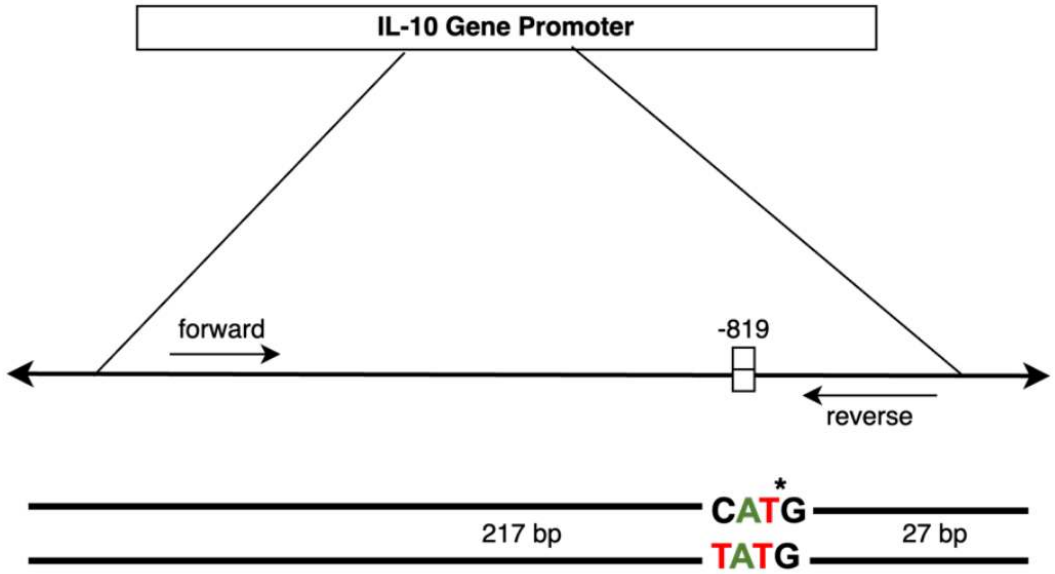
Overall, this document illustrates a comprehensive mental health support system at Unismuh Makassar, encompassing policy (SOP), professional services, digital accessibility, and educational and spiritual initiatives. This integrated approach not only prioritizes staff psychological well-being but also fosters a caring, inclusive campus culture that emphasizes the balance between intellectual, spiritual, and mental health dimensions.

RESEARCH RELATED TO SDG 3

Single-nucleotide polymorphism of interleukin-10 promoter (IL-10 -819C/T) in leprosy patients with and without erythema nodosum leprosum, and healthy household contacts



Arif and Massi conducted a short communication study titled “Single-nucleotide polymorphism of interleukin-10 promoter (IL-10 −819C/T) in leprosy patients with and without erythema nodosum leprosum, and healthy household contacts.” The research investigates whether variation in the IL-10 promoter −819C/T (rs1800871) is distributed differently among three groups: leprosy patients with erythema nodosum leprosum (ENL), leprosy patients without ENL, and healthy household contacts. Using a cross-sectional design, the authors recruited 54 participants in South Sulawesi—18 multibacillary leprosy patients with ENL, 18 multibacillary leprosy patients without ENL, and 18 adult household contacts who had lived with leprosy patients for more than five years. Diagnoses of leprosy and ENL were confirmed by skin smear and histopathology, and venous blood samples were collected for genetic analysis. Polymorphisms of the IL-10 −819C/T promoter were determined using polymerase chain reaction followed by restriction fragment length polymorphism (PCR–RFLP), in which NlaIII digestion distinguished the C and T alleles based on characteristic banding patterns on agarose gel.



The results confirmed the presence of all three genotypes—TT, CT, and CC—across the study groups, but with differing distributions. Among household contacts, the TT genotype predominated (94.4%), with only a single CT case and no CC genotype detected. In contrast, leprosy patients showed a more heterogeneous pattern: CT was the most frequent genotype in leprosy without ENL (50.0%) and nearly as frequent as TT in ENL (44.4%), while the CC genotype appeared only in a small proportion of ENL and non-ENL patients (5.56% each). At the allele level, the T allele remained the most common in all groups, but the C allele was markedly more frequent in patients (27.8% in ENL and 30.6% in non-ENL leprosy) than in household contacts (5.26%). These preliminary data suggest that IL-10 −819C/T polymorphism is more diverse among leprosy and ENL patients than among their household contacts, raising the possibility that specific genotypic patterns—particularly the presence of the C allele—may be linked to susceptibility to leprosy or to ENL reactions. However, the authors emphasise that the sample size is limited and that larger, multi-centre studies are needed to clarify whether IL-10 −819C/T can be used as a predictive or risk marker for leprosy and reactional states.

This study contributes to SDG 3: Good Health and Well-Being by advancing understanding of the host genetic factors that may influence susceptibility to leprosy and severe reactional episodes such as ENL, which are major causes of nerve damage and long-term disability. By exploring IL-10 polymorphisms as potential markers of risk, the research supports efforts to develop more targeted screening, early detection,

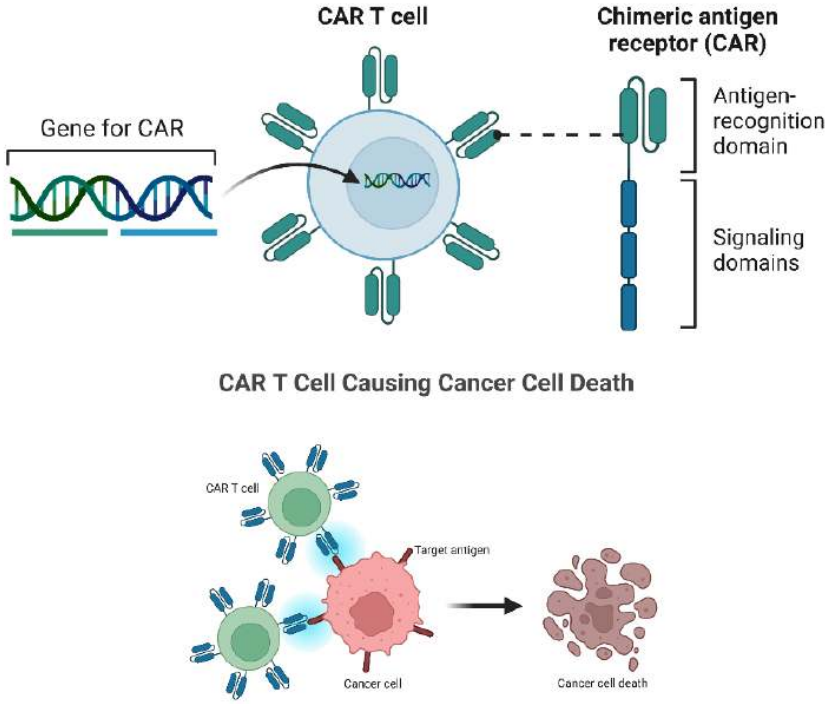
and personalised management strategies for high-risk individuals, including household contacts in endemic areas. The focus on one of Indonesia's persistent neglected tropical diseases also aligns with SDG 3's target of ending epidemics of communicable diseases and strengthening research capacity in low- and middle-income countries. Furthermore, by highlighting the need for larger genetic and immunological studies across different populations, the work encourages collaborative research networks and capacity-building between institutions, contributing to SDG 17: Partnerships for the Goals through shared data, expertise, and technology to combat leprosy and its complications

The Art of Bioimmunogenomics (BIGs) 5.0 in CAR-T Cell Therapy for Lymphoma Management



Anurogo and colleagues authored a comprehensive review titled "The Art of Bioimmunogenomics (BIGs) 5.0 in CAR-T Cell Therapy for Lymphoma Management." The article synthesizes current advances in chimeric antigen receptor (CAR) T-cell therapy for Hodgkin and non-Hodgkin lymphoma, beginning with an overview of lymphoma epidemiology, immunophenotypes, and conventional immunotherapies, then moving to the design and optimization of CAR-T cells. The review details the modular structure of CARs—extracellular scFv antigen-binding domain, hinge, transmembrane segment, and intracellular activation and co-stimulatory domains—and explains how these elements are engineered to target B- and T-cell lymphoma antigens such as CD19, CD20, CD22, CD30, kappa light chain, and ROR1. It compiles clinical trial data demonstrating high complete and partial response rates across diverse lymphoma subtypes, while also addressing key toxicities including cytokine release syndrome (CRS) and ICANS, as well as challenges like antigen loss, limited CAR-T persistence, and high manufacturing complexity. Beyond biology, the review discusses manufacturing workflows (leukapheresis, ex vivo activation, viral and non-viral gene transfer, bioreactor expansion), delivery strategies for solid tumors, and global regulatory issues, emphasizing the need for harmonized GMP standards and

international coordination among agencies such as FDA, EMA, and others. It then looks to the future, highlighting the integration of nanotechnology, bioinformatics, artificial intelligence, machine learning, medical imaging, and automated AI-driven manufacturing platforms to enhance targeting accuracy, predict patient response, optimize CAR design, and reduce production costs, thus framing CAR-T therapy as a rapidly evolving, multidisciplinary field.



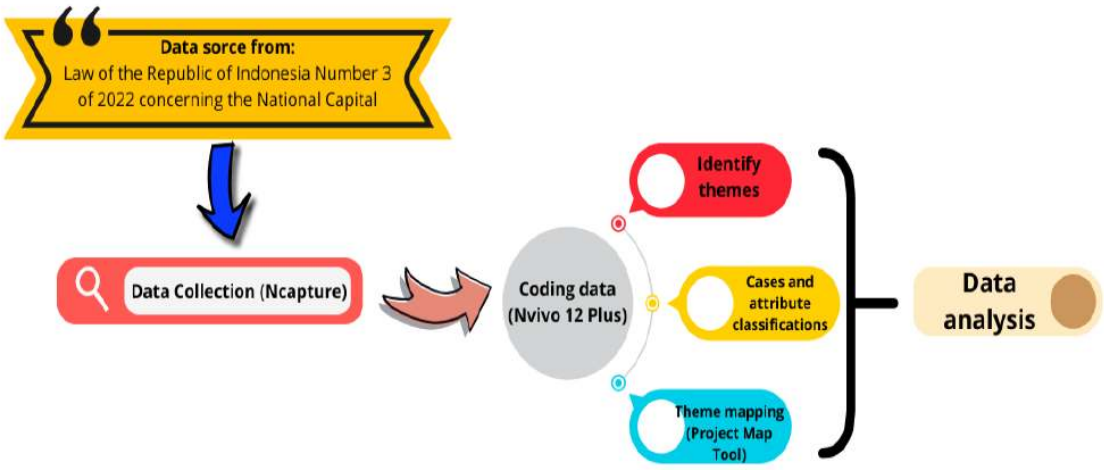
The contributions of this review align strongly with SDG 3: Good Health and Well-Being, as it consolidates knowledge on how CAR-T therapy can improve outcomes for patients with relapsed or refractory lymphoma, who often have exhausted standard treatment options. By mapping antigen choices, toxicity mechanisms, and design strategies for safer and more persistent CAR-T cells, the article directly supports efforts to reduce premature mortality from non-communicable diseases and to expand access to advanced, life-saving therapies. Its in-depth discussion of bioprocess engineering, nano-enabled delivery systems, and AI-assisted CAR design also reflects SDG 9: Industry, Innovation and Infrastructure, showcasing how cutting-edge technologies and smart manufacturing hospitals can transform cell-therapy production into more scalable, cost-efficient, and locally accessible systems. Furthermore, the emphasis on global regulatory harmonization,

multi-country clinical trials, and cross-institutional data sharing embodies SDG 17: Partnerships for the Goals, underscoring that the safe, equitable deployment of CAR-T therapy for lymphoma depends on sustained collaboration between universities (including Universitas Muhammadiyah Makassar), hospitals, regulators, and industry worldwide.

Healthy city development: Indonesian government plans to build a new capital city



Razak and her colleagues conducted a study titled “Healthy city development: Indonesian government plans to build a new capital city.” The research responds to the urgent problem of urban health in Indonesia, where rapid urbanisation has led to air and noise pollution, limited clean water, and unequal access to health services. Focusing on the planned relocation of Indonesia’s capital to Kalimantan, the authors analyse how the government integrates the *healthy city* concept into this mega-project. Using a qualitative thematic analysis approach, they examine official documents especially Law No. 3 of 2022 on the National Capital (IKN) which are coded and organised with NVivo 12 Plus to identify key themes, references, and strategies underpinning healthy city development. The findings show that the new capital’s planning draws heavily on three main references: the WHO healthy city model and healthy city strategies from Cardiff and Vancouver, which emphasise community participation, equality, healthy environments, sustainable spatial planning, green open spaces, sustainable transport, and access to health and social services. The study also identifies major challenges, including air pollution in Kalimantan, weak infrastructure, unresolved land acquisition, limited budgets, and rapidly increasing urban populations, and offers adaptive policy recommendations such as integrating health into all urban policies, using public private partnerships, and adopting collaborative governance with government, private sector, and civil society.



The contributions of this study are strongly aligned with SDG 11: Sustainable Cities and Communities because it places the healthy city concept at the core of planning Indonesia's new capital, aiming to create inclusive, safe, resilient, and sustainable urban environments. By drawing on WHO, Cardiff, and Vancouver models, the study promotes urban design that prioritises walkability, access to green public spaces, quality housing, and integrated health and social services as a foundation for a healthy city. At the same time, by highlighting the need for equitable access to services, community participation, and attention to vulnerable groups, the research also reinforces SDG 3: Good Health and Well-Being, as it frames urban planning as a public health intervention that can reduce exposure to pollution, improve access to healthcare, and encourage active, healthy lifestyles. These insights underline that the new capital's success will depend not only on physical infrastructure, but also on social policies and community empowerment that allow residents to enjoy better health outcomes in a rapidly urbanising context.

Moreover, the study closely supports SDG 13: Climate Action by stressing environmental risks associated with the new capital—such as forest and land fires, air pollution, and ecosystem degradation—and arguing for mitigation through environmentally friendly transportation, urban greening, and careful spatial planning. By linking healthy city policies with climate-resilient infrastructure and reduced emissions, the research frames the new capital as an opportunity to adopt low-carbon, climate-sensitive urban development. Finally, the emphasis on collaborative governance, public–private partnerships, transparent budget management, and cross-sectoral cooperation directly contributes to SDG 17: Partnerships for the Goals. The

authors argue that only through effective collaboration among government, private investors, civil society, and local communities can Indonesia overcome budget constraints, land acquisition issues, and implementation challenges, and ensure that the new capital becomes a long-term model of healthy and sustainable urban development.

The severity of distal sensory polyneuropathy increasing with HIV/AIDS stage



Sompa and his colleagues conducted a letter-based study titled “The severity of distal sensory polyneuropathy increasing with HIV/AIDS stage.” The research focuses on distal sensory polyneuropathy (DSP), the most common neurological complication in people living with HIV/AIDS, and aims to identify factors associated with the severity of DSP. Using a cross-sectional design, the authors examined 50 HIV/AIDS outpatients from several hospitals in Makassar, Indonesia. DSP and its severity were assessed using the Subjective Peripheral Neuropathy Screen (SPNS), a non-invasive screening tool that classifies neuropathy into mild, moderate, and severe. The study found that 86% (43/50) of participants had DSP, with most experiencing moderate severity (48%), followed by severe (20%) and mild (18%). Statistical analysis using Pearson’s chi-square and Spearman’s correlation revealed a significant positive correlation between HIV/AIDS stage and DSP severity ($p = 0.032$), indicating that *the later the disease stage, the more severe the neuropathy*. In contrast, CD4 count, antiretroviral (ARV) use, body mass index (BMI), and hemoglobin levels did not show a significant correlation with DSP severity, although the authors note that low CD4 levels and neurotoxic ARVs (e.g., older NRTIs) may still indirectly contribute to neuropathy risk.

The contributions of this study are closely aligned with SDG 3: Good Health and Well-Being, as it highlights DSP as a major source of morbidity and neuropathic pain in people living with HIV, especially in advanced stages. By demonstrating that disease

stage is a key determinant of neuropathy severity, the study underscores the importance of early HIV diagnosis, timely initiation of ART, and routine neurological screening to prevent or mitigate disabling complications. These findings support health systems in designing protocols that integrate neuropathy screening (such as SPNS) into HIV care, improving quality of life and functional outcomes for patients. The focus on symptomatic patients in later stages also draws attention to the burden of chronic pain, sensory loss, and reduced mobility, reinforcing the need for comprehensive HIV services that include pain management, rehabilitation, and mental health support, all central to SDG 3's aim of ensuring healthy lives for all.

Beyond SDG 3, the research also relates to SDG 10: Reduced Inequalities and SDG 9: Industry, Innovation and Infrastructure. By documenting a high prevalence of DSP in outpatient settings in Makassar, the study indirectly exposes inequities in access to specialized neurological assessment and supportive care for people living with HIV, particularly in low- and middle-income contexts. Recognizing DSP as a frequent, serious complication can help policymakers prioritize equitable distribution of diagnostic tools, rehabilitation services, and safer ART regimens, thereby reducing health disparities among HIV-positive populations. At the same time, the use of systematic screening tools and the call to better understand neurotoxic effects of certain ARVs point toward the need for innovation in HIV treatment protocols and health infrastructure, including safer drug choices, improved monitoring systems, and collaborative research between neurologists and HIV clinicians. Through these insights, Sompa and his team contribute to a more holistic, neurologically informed approach to HIV care that advances sustainable development in the health sector.



QUALITY EDUCATION

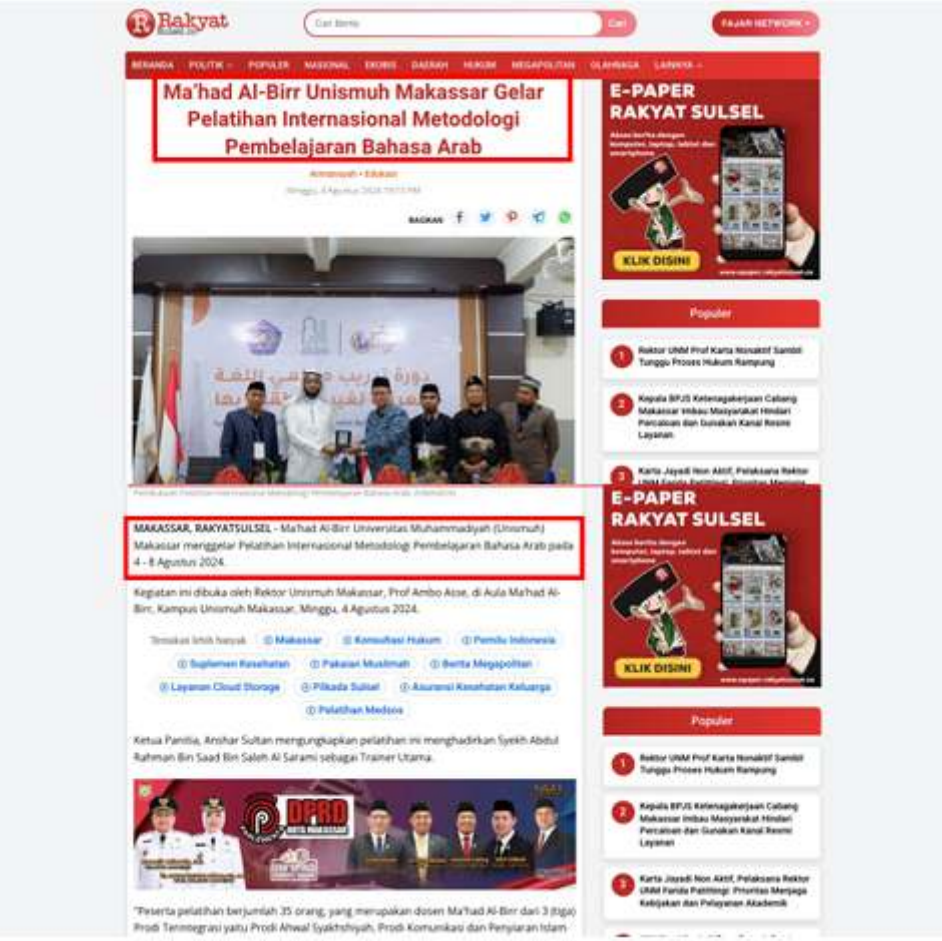
Free Access to Campus Facilities and Equipment

Within the sub-indicator Free Access to Campus Facilities and Equipment, Universitas Muhammadiyah Makassar affirms its commitment to lifelong learning by providing broad, free access to on-campus learning facilities. Through the official Unismuh Makassar Library portal and its integrated physical library services, the university enables both members of its academic community and the wider public to use reading rooms, computer facilities, and other learning infrastructure at no cost. Access is not restricted to enrolled students; it is also extended to teachers, school pupils, researchers, community activists, and members of the public who require high-quality learning spaces and resources. In this way, the campus functions as an open centre of literacy and knowledge, rather than an exclusive space reserved only for internal stakeholders.

In practice, external visitors may come to the library, utilise reading rooms, operate computers to access catalogues, e-books, and digital databases, and benefit from a conducive learning environment without paying any fees. This policy demonstrates that Unismuh Makassar recognises the importance of an inclusive learning environment, in which physical facilities—such as reading desks, printed reference collections, and technological devices—should not become barriers to learning due to cost or membership status. By opening its facilities as a shared “learning space”, the university contributes to the development of a culture of literacy, intellectual discussion, and collaboration across institutions and communities.

Furthermore, free access to these facilities reinforces a lifelong learning ecosystem at the local and regional levels. School teachers and education practitioners can prepare teaching materials in the library; school students can draw on reference collections for assignments and competitions; and community leaders or activists can obtain data and references for empowerment programmes. In the longer term, this approach strengthens the position of Universitas Muhammadiyah Makassar as a

public scholarly space that bridges academia and society. Campus facilities thus operate not only as internal infrastructure, but also as instruments of social service that promote fair and equitable access to knowledge.



Free Access to Online Resources

In the sub-indicator Free Access to Online Resources, Universitas Muhammadiyah Makassar provides open access to digital learning materials through the Digital Library Unismuh Makassar portal. This platform functions as an institutional repository that stores and disseminates various forms of academic publications, including undergraduate theses, master's theses, dissertations, journal articles, and research reports. All content is freely accessible to the public without temporal or financial restrictions, serving students, lecturers, researchers, and the general public alike. This open access policy reflects the university's firm commitment to removing financial and geographical barriers to scholarly knowledge and to extending the reach of its academic impact beyond the campus.

Users can search and download academic works from multiple disciplines, using keywords, study programme categories, and publication years to identify relevant

references. This greatly supports students in preparing final projects and theses, assists lecturers in advancing their research agendas, and enables external practitioners, teachers, and policymakers to access the latest scientific findings produced by Unismuh Makassar. The digital repository thus not only archives academic work but also transforms it into a public resource that can be reused and adapted for the development of knowledge and practice.

The policy of free access to online resources also strengthens the university's reputation as an institution that promotes transparency and the dissemination of scientific knowledge. The public can assess the quality of scholarly outputs, cite them legitimately, and build new research upon existing foundations. In the context of lifelong learning, the availability of a digital library means that learning is no longer confined to classrooms and scheduled lectures; anyone with internet access can study, explore references, and develop their capacities anytime and anywhere. In this way, Universitas Muhammadiyah Makassar makes a concrete contribution to achieving SDG 4 by providing an inclusive and sustainable open access ecosystem.



Free Courses Leading to Certificate or Award

The sub-indicator Free Courses Leading to Certificate or Award is embodied in the International Training on Arabic Language Teaching Methodology organised by Ma'had Al-Birr, Universitas Muhammadiyah Makassar. Held from 4–8 August 2024,

this international training programme targets Arabic language lecturers and teachers from various universities and Muhammadiyah Islamic boarding schools across South Sulawesi. The entire programme is offered free of charge, ensuring that participants are not burdened by registration or tuition fees. It is designed as a competency-based professional course which, upon completion, provides participants with an official certificate as formal recognition of the capacities and competencies gained.

The training was attended by 35 participants, consisting of lecturers from three integrated study programmes—Ahwal Syakhshiyah, Communication and Islamic Broadcasting (KPI), and Arabic Language Education—as well as Arabic teachers from Muhammadiyah boarding schools. Participants received direct instruction and guidance from Sheikh Abdul Rahman Bin Saad Bin Saleh Al Sarami, an expert in Arabic language teaching methodology invited as the international trainer. Over the five-day programme, they engaged in both theoretical and practical sessions covering a range of teaching approaches, including classical methods, communicative techniques, and learner-centred strategies. This structure ensures that the training not only enriches participants' conceptual understanding, but also hones their pedagogical skills for immediate application in the classroom.

At the conclusion of the programme, participants were awarded official certificates issued jointly by Ma'had Al-Birr and LPBKUI Unismuh Makassar. These certificates function not merely as proof of attendance, but as institutional acknowledgement that participants have successfully completed an international course meeting defined standards. By offering a free certified course, the university provides equitable access to professional development opportunities for educators who may otherwise face financial barriers. This initiative illustrates how Universitas Muhammadiyah Makassar translates its vision of lifelong learning into concrete practice: creating avenues for continuous professional growth, enhancing the quality of Arabic language teaching, and contributing directly to the achievement of SDG 4 on inclusive and quality education.



Free Events and Both Charged and Free

At Universitas Muhammadiyah Makassar (Unismuh), Indicator 4.3.2 is reflected in the organisation of various lifelong learning activities that are open to the wider community, both in the form of free activities (free events) and activities that implement a “paid and free” scheme (both charged and free). Through these two schemes, the university demonstrates a strong commitment to expanding access to education beyond regular students and to reaching groups from diverse socioeconomic backgrounds.

In the Free Events category, a prominent example is the Halal Slaughterer Training (JULEHA) organised by the Unismuh Makassar Halal Center in collaboration with Bank Indonesia on 12–14 June 2024 at Swiss-Belinn Panakkukang Hotel. This programme was designed as a fully free public training, enabling participation from a wide range of groups, including the general public, mosque administrators, and owners of slaughterhouses. Through this training, participants gained both theoretical and practical understanding of halal slaughter procedures in accordance with Islamic law, health and food safety aspects, and heightened awareness of the importance of maintaining a halal product chain. The presence of trainers who are practitioners and board members of the Association of Halal Slaughterers enriched the quality of the

material, ensuring that participants not only acquired knowledge but also practical technical skills that can be directly applied in their respective contexts.

The implementation of JULEHA illustrates that Unismuh understands education as a process that is not confined to the classroom. By making this activity free of charge, the university removes financial barriers while simultaneously fulfilling its function of community service. This activity also supports the development of the halal ecosystem in South Sulawesi, in line with Unismuh's role as an Islamic higher education institution that bears a moral responsibility to enhance halal literacy in society.

Meanwhile, under the Both Charged and Free category, Unismuh organised the International Conference on Sustainable and Democratic Governance (ICOSDEG) 2024, coordinated by the Faculty of Social and Political Sciences on 23 August 2024 at Swiss-Bel Hotel Pantai Makassar. This international conference brought together keynote speakers from Thailand, Ireland, and the Philippines, as well as participants from 15 countries. The theme, "Intersecting Law, Society, and Digital Ecosystems", reflects Unismuh's concern for issues of democratic governance and digital transformation from a global perspective.

ICOSDEG 2024 applied a fee-based scheme for general and professional participants as a form of contribution to financing the event and ensuring the sustainability of this international academic forum. At the same time, however, students, academic staff, and institutional partners were granted free access to encourage academic participation without financial obstacles. This dual scheme ensures that the conference remains professionally organised and of high quality, while still being inclusive for academic communities who may face financial constraints.

Through the design of activities such as JULEHA and ICOSDEG, Indicator 4.3.2 is fulfilled not merely in an administrative sense, but also substantively. Unismuh has succeeded in providing learning spaces that are inclusive, responsive to community needs, and connected to global agendas. These programmes extend the reach of higher education to various segments of society, strengthen a culture of lifelong learning, and make a tangible contribution to the achievement of SDG 4: Quality Education.



Figure :	**Gandeng Bank Indonesia, Halal Center Unismuh Makassar Kembali Gelar Pelatihan Juru Sembelih Halal**
Source :	https://news.unismuh.ac.id/2024/06/13/gandeng-bank-indonesia-halal-center-unismuh-makassar-kembali-gelar-pelatihan-juru-sembelih-halal/

Vocational Training Events (Programmed & Ad Hoc)

At Unismuh Makassar is realised through the implementation of vocational training activities designed to improve participants' practical competencies, both on a sustained (on programmed basis) and a temporary (ad hoc) basis. Through these two approaches, the university not only enhances student competencies but also strengthens the capacities of the wider community and institutional partners in the labour market and community sectors.

In the on programmed basis category, the Communication Studies Study Programme, in collaboration with the Research and Information Systems Institute of PDA 'Aisyiyah Makassar City, organised a Digital Literacy and Journalism Training on 9 May 2024 at the 'Aisyiyah Da'wah Building in Makassar. This activity was systematically structured as part of a continuing vocational training programme focusing on improving digital literacy and journalistic skills among 'Aisyiyah cadres in the information age. Participants came from 25 Branch Leaderships of 'Aisyiyah across Makassar City, thereby ensuring wide and equitable impact.

Entrepreneurship Bootcamp Program of Universitas Muhammadiyah Makassar for the Year 2023



Image :	*Entrepreneurship Bootcamp Program of Universitas Muhammadiyah Makassar*
Source :	https://rakyat.news/read/83595/unismuh-makassar-gelar-bootcamp-program-wirausaha-merdeka-tahun-2023-di-sulawesi-selatan

The training materials covered the productive and responsible use of information and communication technology (ICT), news writing techniques and digital publication, and contemporary journalism ethics within the context of da'wah and community empowerment. Participants were guided by experts and media practitioners, including the Head of the Communication Studies Programme and lecturers who are active journalists. Consequently, participants received a combination of academic perspectives and field-based experience. The training was designed as an ongoing programme to continuously strengthen the capacity of 'Aisyiyah cadres in managing information and building a positive public image of the organisation in digital spaces.

In the ad hoc category, Unismuh served as one of the implementing universities for the Wirausaha Merdeka (Independent Entrepreneurship) Programme (WMK) and organised the Wirausaha Merdeka Bootcamp 2023 from 31 October to 4 November 2023 at UIN Alauddin Hotel Makassar. This activity was a short-term intensive vocational training focusing on strengthening students' entrepreneurial competencies through an experiential learning approach.

The bootcamp was attended by approximately 550 students from 26 universities in South Sulawesi and 8 universities from other regions. The programme included business idea presentations, mentoring on product and service development,

question-and-answer sessions with business practitioners, group fitness sessions, and inspirational talks from successful entrepreneurs. Participants also received direct guidance from the WMK Unismuh management team and spiritual motivation from promoters of Islamic business principles. Although temporary (ad hoc), the training was packaged in a dense and highly practical format to accelerate the improvement of students' business planning skills, innovation, and market orientation. These two types of activity—ongoing programmes in digital literacy and journalism, and intensive entrepreneurial bootcamps—demonstrate that Indicator 4.3.3 goes beyond mere reporting of activity numbers. Unismuh consistently strives to offer vocational training that is aligned with contemporary developments, grounded in the real needs of society and the labour market, and oriented towards fostering independence and competitiveness among young people. As such, vocational training at Unismuh contributes to enhancing employability, strengthening the capacity of women's organisations, and developing an entrepreneurial ecosystem that is in line with SDG 4 (Quality Education) and the spirit of the Merdeka Belajar – Kampus Merdeka policy.

Digital Literacy and Journalism Training – Communication Science Study Program of Unismuh Makassar & PDA Makassar



Image : **Unismuh Makassar-PDA Makassar Gelar Pelatihan Literasi Digital dan Jurnalisme**

Source : https://tvmu.tv/unismuh-makassar-pda-makassar-gelar-pelatihan-literasi-digital-dan-jurnalisme

Education Outreach Activities Beyond Campus

At Unismuh Makassar, Indicator 4.3.4 is realised through educational activities that reach communities beyond the campus, both on an ad hoc basis and as part of programmed initiatives. Through these outreach activities, the university positions itself as a strategic partner for communities, schools, and local governments in improving the quality of education, health, and social capacity.

In the Ad Hoc category, a notable example is the Healthy Adolescents Companion Group Training (PARAS) organised by the Diploma III Midwifery and Bachelor of Pharmacy Study Programmes under the Faculty of Medicine and Health Sciences (FKIK) of Unismuh, in collaboration with Nasyiatul ‘Aisyiyah of Gowa Regency. This activity took place on 1 March 2024 at the Muhammadiyah Da’wah Building in Gowa as part of the Muhammadiyah Research Grant Batch 7. The training was attended by 45 participants, most of whom were teachers and active female cadres in Muhammadiyah schools.

PARAS training aims to strengthen the capacity of Nasyiatul ‘Aisyiyah cadres in accompanying adolescents on issues related to reproductive health, nutrition, and

mental health. The training materials include the prevention of early marriage, violence against adolescents, substance abuse, HIV/AIDS prevention, and education on healthy life skills. Beyond the educational sessions, the activity also included free health checks, such as measurements of body weight, height, and blood pressure. Thus, the programme is not only educational but also provides direct health services to the community. As it was conducted once and targeted a specific context, this programme is categorised as ad hoc education outreach beyond campus, oriented towards empowering women and adolescent communities.

In the On Program Basis category, Unismuh runs the Teacher Professional Development Programme (P2K), managed by the Faculty of Teacher Training and Education (FKIP). P2K is an integral part of the curriculum, founded on the Four Pillars of Muhammadiyah Higher Education: education, research, community service, and the development of Islamic personality and Muhammadiyah values. Since 2006, P2K has been a regular programme replacing previous forms of community service (KKN) and focusing on strengthening the professional competencies of prospective teachers.

On 4 September 2023, a total of 595 FKIP students were officially placed in 27 primary to secondary schools across 10 sub-districts in Maros Regency. They were supervised by 140 mentor teachers and 73 academic supervisors. Over approximately two months, students conducted teaching practice, engaged in collaborative research with teachers, and carried out community service activities in schools and surrounding Muhammadiyah–'Aisyiyah branches. The programme promotes project-based learning, classroom research, and the internalisation of Islamic and Muhammadiyah values.

Through P2K, Unismuh not only sends students to schools for individual teaching practice, but also builds long-term partnership relationships with local governments, schools, and community organisations. This makes P2K a programmed education outreach initiative that is sustainable and wide-reaching in its impact. Overall, Indicator 4.3.4 is embodied in the strong synergy between ad hoc activities such as PARAS and regular programmes such as P2K, which together broaden the university's role in educating society and support the achievement of SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 17 (Partnerships for the Goals).

Healthy Adolescent Companion Group Training (PARAS) – Nasyiatul 'Aisyiyah, Gowa Regency

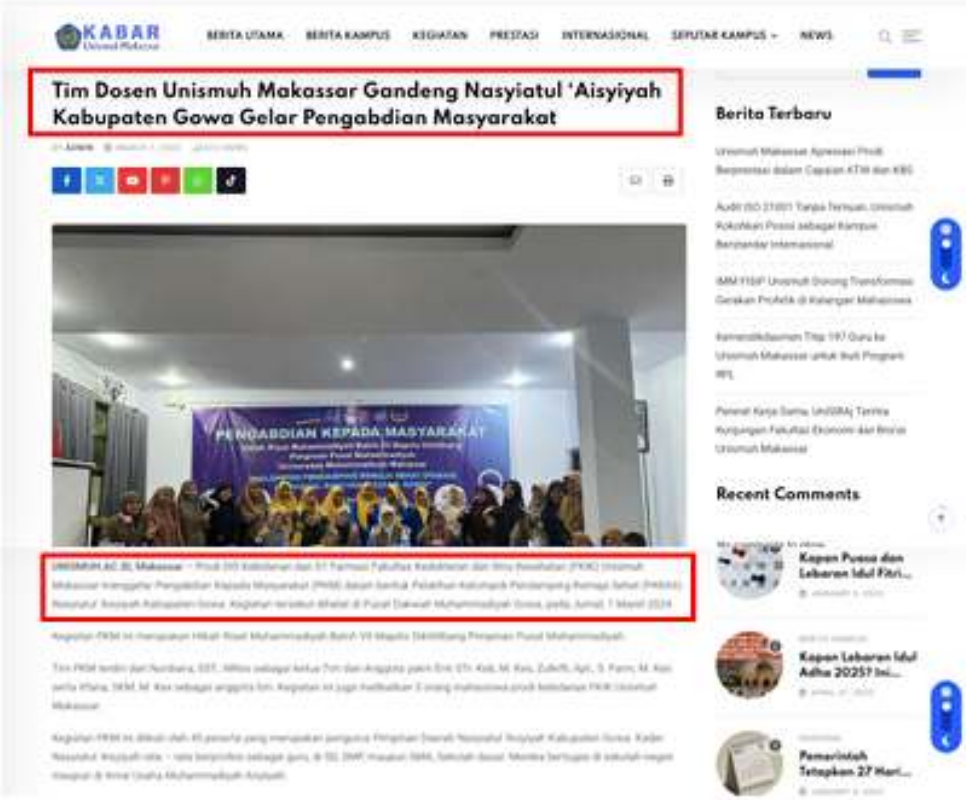


Image : Tim Dosen Unismuh Makassar Gandeng Nasyiatul 'Aisyiyah Kabupaten Gowa Gelar Pengabdian Masyarakat

Source : https://news.unismuh.ac.id/2024/03/01/tim-dosen-unismuh-makassar-gandeng-nasyiatul-aisyiyah-kabupaten-gowa-gelar-pengabdian-masyarakat/

Lifelong Learning Access Policy

Focuses on the existence of an inclusive lifelong learning access policy. Unismuh Makassar demonstrates a strong commitment to inclusivity through the formulation and implementation of an Inclusive Education Policy that ensures all students, including those with disabilities, obtain equitable access to higher education.

In 2022, the university established policies and service guidelines for students with disabilities, covering individuals with physical, sensory, intellectual, and social impairments. This policy affirms that every prospective student with special needs has an equal opportunity to pursue higher education. To support this, the campus provides various facilities and services, such as wheelchair-accessible classrooms, adaptive academic services, and assistance for students in academic and non-academic activities.

In 2023, this framework was expanded into a more comprehensive inclusive education policy. The revised policy reaffirms the university's commitment to treating all students equally, without discrimination based on physical, intellectual, social, emotional, or linguistic conditions. Its primary aim is to create a learning environment that is adaptive, supportive, and appreciative of diversity, enabling each student to develop their potential according to their individual needs and abilities. The policy explicitly integrates principles of non-discrimination, equality, and social justice into all aspects of higher education provision.

Implementation of the policy does not stop at the level of documentation but is realised through the provision of accessible infrastructure and facilities. Across various campus buildings, there are accessible toilets equipped with handrails on both sides, ramps designed with appropriate gradients, non-slip surfaces, and wheelchair-friendly walkways. Corridors are fitted with handrails to assist users with mobility limitations. Parking areas and pedestrian routes are also modified with markings and blue-and-white colour schemes to enhance safety and visibility.

These facilities indicate that Unismuh does not merely declare its commitment normatively but integrates the principle of inclusivity into the physical design of the campus. This is crucial because equitable access to education must be supported by a learning environment that is genuinely accessible, not only by written policy. Through a combination of inclusive policies and infrastructural support, Unismuh contributes directly to the achievement of SDG 4 (Quality Education), particularly in terms of providing fair access to education for vulnerable groups.

Thus, Indicator 4.3.5 at Unismuh Makassar reflects a system that strives to ensure that higher education is accessible to all, without exception. This approach simultaneously positions the university as a model of an inclusive campus in Indonesia, upholding human dignity, social justice, and respect for diversity.

Inclusive Education Policy – Universitas Muhammadiyah Makassar



Number of Students Starting a Degree & First-Generation Students

Highlights the number of students commencing degree programmes and the proportion of first-generation students, namely those who are the first in their families to undertake higher education. Unismuh Makassar consistently documents and reports these data through a digital-based new student admission system.

Based on official data for the 2023/2024 academic year collected through the online admission system (e-PMB), the number of new students starting degree programmes at Unismuh reached 3,136 individuals. Of this total, 742 students were identified as first-generation, while 2,394 students fell into the non-first-generation category. In other words, first-generation students account for approximately 23.7%, whereas 76.3% come from families with prior experience of higher education.

This proportion indicates that almost one quarter of new students at Unismuh come from families that had not previously accessed higher education. This reflects the university's important role in facilitating social and educational mobility for groups that have historically been underrepresented in higher education. The presence of first-generation students serves as a key indicator that Unismuh's admission policies are inclusive and equity-oriented, offering opportunities to a broad range of socioeconomic groups to pursue higher education.

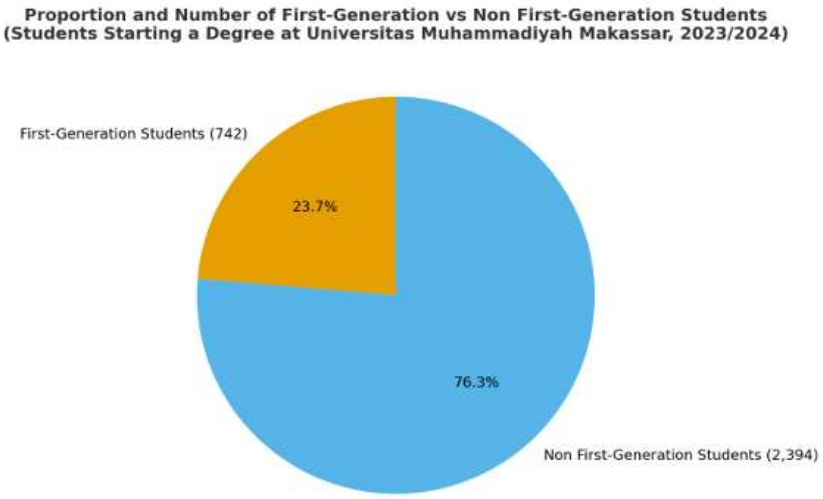


Image : *Proportion of first-generation Vs Non-first-generation students of Universitas Muhammadiyah Makassar 2023/2024*
Source : https://drive.google.com/drive/folders/1AHoMse2CD7Qm7kbS6sumdutbdjSVFHR?usp=sharing

Data collection is carried out systematically through admission forms that include socio-demographic information, such as the highest educational attainment of parents and whether the student is the first in their family to attend university. These data are managed by the Directorate of Academic and Student Affairs (DAKMA) and are used as a basis for monitoring equity of access and designing support programmes for specific groups, such as scholarship schemes, academic mentoring, or orientation activities that are sensitive to the particular needs of first-generation students.

Through this data-driven approach, Unismuh is able to demonstrate accountability in supporting the achievement of SDG 4 (Quality Education), particularly in terms of increasing access to higher education for historically underrepresented groups. The figure of 742 first-generation students is not merely a statistic; it represents a social transformation facilitated by the university through the provision of expanded learning opportunities.

Overall, Indicator 4.4.1 at Unismuh Makassar shows that the university has a well-organised admission and data management system, inclusive access policies, and a strong concern for the sustainability of education among students from diverse family backgrounds. This underscores Unismuh's role as an institution that is oriented not only towards academic excellence but also towards equity and inclusiveness in higher education.

Formulir Data Mahasiswa Baru Tahun Akademik 2023/2024

Assalamualaikum, Wr. Wb. Mahasiswa Unismuh Makassar yang kami banggakan, Kami sedang melakukan pendataan mahasiswa yang memulai studi pada tahun akademik 2023/2024. Tujuan pengisian form ini adalah untuk mengetahui Jumlah mahasiswa generasi pertama di Universitas Muhammadiyah Makassar (yaitu mahasiswa yang merupakan orang pertama dikeluarganya yang menempuh pendidikan tinggi). Data yang Anda berikan akan dijaga kerahasiannya dan hanya digunakan untuk kepentuan akademik dan pengembangan kebijakan pendidikan.
Silakan isi form ini dengan jujur dan lengkap.
Terima kasih atas partisipasi Anda!

Mulai →

NAMA LENGKAP *

NOMOR INDUK MAHASISWA (NIM) *

JENIS KELAMIN *

- LAKI-LAKI
- PEREMPUAN

TAHUN MASUK (ANGKATAN) *

- 2023
- 2024

EMAIL *

NOMOR HP (WA) *

FAKULTAS *

PRODI *

Next →

Status Pendidikan dan Latar Belakang

Apakah Anda sedang memulai program studi (degree) untuk pertama kalinya di perguruan tinggi ini (Unismuh Makassar)? *

- Ya, ini pertama kali saya memulai program sarjana/diploma
- Tidak, saya sudah pernah menempuh pendidikan tinggi sebelumnya

Apakah Anda merupakan Mahasiswa Generasi Pertama di keluarga Anda yang menempuh pendidikan tinggi (orang tua tidak menempuh kuliah)? *

- Ya, saya adalah generasi pertama di keluarga yang kuliah
- Tidak, salah satu atau kedua orang tua saya pernah kuliah

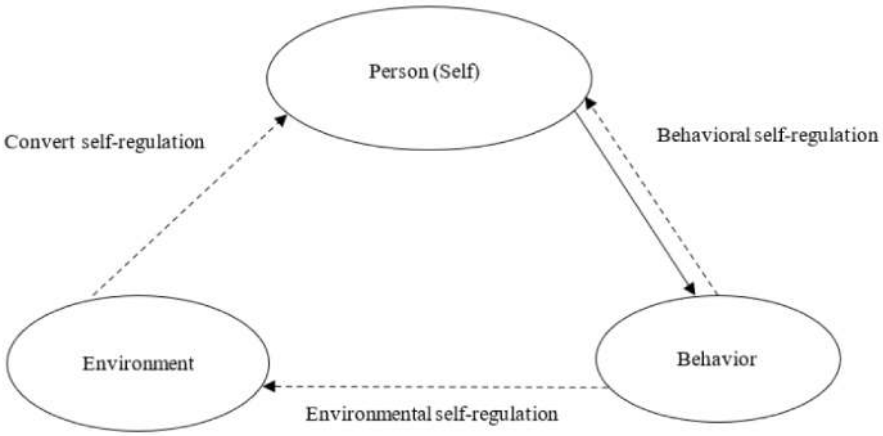
Jenjang pendidikan tertinggi yang pernah diselesaikan oleh Ayah/Wali Laki-laki Anda: *

- Tidak bersekolah
- SD
- SMP/Mts
- SMA/SMK/MA
- Diploma (D1-D4)
- Sarjana (S1)
- Pascasarjana (S2/S3)

The effect of the family environment, school environment, and community environment on students' independence through distance learning



Anriani and her colleagues conducted a quantitative correlational survey study titled "The effect of the family environment, school environment, and community environment on students' independence through distance learning." The research investigates how the three education centres—family, school, and community influence students' learning independence in the context of distance learning in Banten Province, Indonesia. Using 2,263 junior high, senior high/equivalent, and tertiary students selected via random cluster sampling, the authors collected data through a learning independence questionnaire and scales for family, school, and community environments, then analysed them with multiple linear regression. Descriptively, students' independence in distance learning is categorised as very high, with an average score of 94.52; female students (mean 96.45) show slightly higher independence than males (mean 93.38), and junior high students' independence (mean 95.81) is marginally higher than that of high school (93.42) and tertiary students (94.21).



Regression analysis reveals that the family environment has a strong, significant positive effect on learning independence ($\beta = 0.766$; $p = 0.000$), confirming that supportive parenting, conducive study atmosphere, and family communication

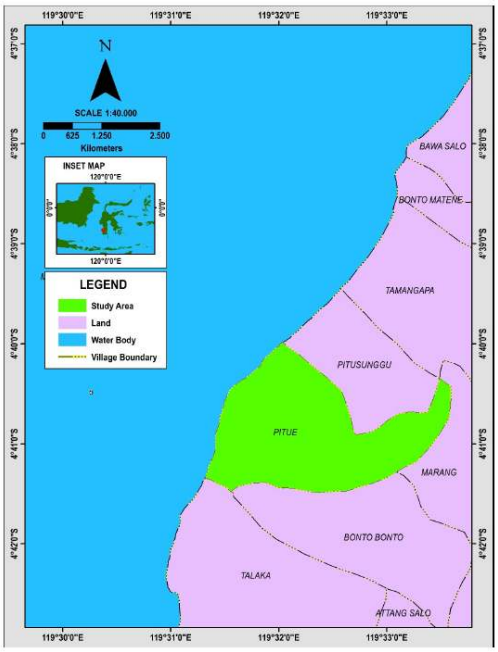
are crucial for students' ability to manage their own learning during distance education. In contrast, the school environment shows no significant direct effect (β = 0.015; *p* = 0.770), likely because during online learning the school's role in daily supervision and character formation is reduced. The community environment—including peer groups, neighbourhood social interactions, and broader socio-cultural setting—has a strong significant positive effect (β = 0.801; *p* = 0.000), making it the most influential factor in the model. Together, the three education centres explain around 98.9% of the variance in students' learning independence, underscoring that independence is shaped not only by personal traits but by synergy between family, school, and community. The authors emphasise that families must provide emotional support and routines, schools must design learning that truly trains autonomy (not just task completion), and communities must create a positive social environment that encourages self-discipline and responsibility.

The contributions of this study are closely aligned with **SDG 4: Quality Education** and **SDG 10: Reduced Inequalities**. By demonstrating that home and community environments decisively shape students' capacity for self-regulated learning in distance education, the research supports efforts to create inclusive, supportive learning ecosystems beyond the classroom, ensuring that students from different levels and backgrounds can still learn independently when schooling shifts online. The finding that family and community factors are more decisive than school factors in distance learning also has implications for **SDG 5: Gender Equality**, as it highlights the need to consider gendered roles and expectations in households that may affect boys' and girls' independence differently. Moreover, the call for coordinated roles among family, school, and community resonates with **SDG 17: Partnerships for the Goals**, showing that effective distance education—and, by extension, resilient education systems—requires collaborative effort among multiple social institutions to cultivate independent, responsible learners.

Social Capital in the Patron-Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia



Arief and his colleagues conducted a qualitative grounded theory study titled "Social Capital in the Patron–Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia." The research examines how bonding, bridging, and linking social capital among seaweed farmers and other actors in Pitue Village, Ma'rang District, Pangkep Regency sustain seaweed cultivation as a rural livelihood system. Using semi-structured interviews, observation, and open–axial–selective coding, the authors mapped interactions among seaweed cultivators, punggawa (patrons), pappalele (middlemen), sawi (clients), families, and village officials. They show that bonding social capital appears in trust-based patron–client relations: punggawa and pappalele provide capital (seeds, ropes, boats, cash) without formal collateral, while cultivators repay through harvest sharing and loyalty. Bridging social capital is expressed through mutual help in opening new plots and harvesting, and in patrons' social and political support networks. Linking social capital connects cultivators and patrons to wider marketing chains and information on prices, enabling access to broader markets despite farmers' limited formal credit access—65% of production capital comes from non-formal actors (punggawa/pappalele), while banks and cooperatives account for only 3–6%.



The study also unpacks how these social capital relations both support and constrain sustainability. On the one hand, high mutual trust ("capital of trust") allows poor cultivators to obtain production capital and emergency support ("take now, pay later"), and reciprocity norms ("good news is shared, bad news is hidden") sustain collective labour at harvest and social security in times of crisis. On the other hand, patron–client structures can lock farmers into asymmetric power relations: punggawa often control investment, production decisions, labour, and marketing margins, while sawi accept unfavourable cost rules and price gaps as a livelihood risk-avoidance strategy. Production-sharing systems (typically 50:50 between capital owners and cultivators) and personalized marketing networks ("boro" guarantee ties) embed economic behaviour in cultural values of shame, loyalty, and communal belonging, making exit difficult even when terms are unequal. The authors therefore recommend strengthening social capital in more empowering ways—through farmer cooperatives, education and training in business management and marketing, broader networking with government, NGOs, and private sector, and greater community participation in policy processes—so that social capital not only helps households survive shocks but also improves bargaining power, equity, and long-term sustainability of seaweed livelihoods.

The contributions of this research are closely aligned with **SDG 14: Life Below Water**, as it focuses on sustaining seaweed cultivation—an important coastal

livelihood that can support low-impact marine resource use—through resilient social systems. By revealing how patron–client social capital provides capital access, social protection, and employment for 165 seaweed-farming households in Pitue, the study advances **SDG 1: No Poverty** and **SDG 8: Decent Work and Economic Growth**, while its critique of unequal power relations and call for cooperatives and fairer value chains relate directly to **SDG 10: Reduced Inequalities**. The emphasis on high-trust communities, moral norms, and participation in public policy resonates with **SDG 16: Peace, Justice and Strong Institutions**, highlighting that just, inclusive rural institutions are needed to prevent exploitation and support sustainable livelihoods.

At the same time, the recommendation to strengthen farmer cooperatives, provide training in business and marketing, and broaden access to information and networks supports **SDG 4: Quality Education**, especially targets on inclusive, lifelong learning and skills for decent work, by enhancing the knowledge, organisational capacity, and agency of coastal communities. Finally, the call to build multi-actor networks—linking farmers, government, NGOs, and markets—speaks to **SDG 11: Sustainable Cities and Communities** (through resilient coastal villages) and **SDG 17: Partnerships for the Goals**, showing that seaweed livelihood sustainability depends on both ecological conditions and strong, equitable, and learning-oriented social capital configurations.

The influence of flipbook learning media, learning interest, and learning motivation on learning outcomes



Bunari and his colleagues conducted a quantitative regression study titled “The influence of flipbook learning media, learning interest, and learning motivation on learning outcomes.” The research investigates how digital flipbook media, together with students’ interest and motivation, affect social studies learning outcomes among 64 Grade VIII students at Junior High School 1 Yogyakarta. Using interviews, observations, documentation, and three questionnaires (flipbook use, learning

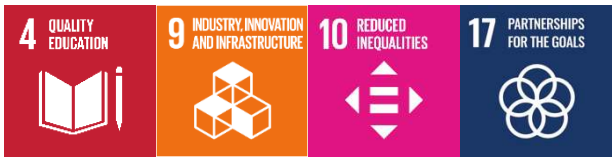
interest, and learning motivation) plus a multiple-choice learning outcomes test, the authors first tested the validity and reliability of their instruments (all correlation values > 0.349 and KR-20 reliability ≈ 0.8, indicating high reliability). Assumption tests showed that the data were normally distributed, free from multicollinearity (tolerance > 0.1; VIF < 10) and heteroscedasticity (sig > 0.05), allowing the use of simple and multiple linear regression to analyse relationships between flipbook use, interest, motivation, and learning outcomes.

The results indicate that each independent variable has a positive, statistically significant effect on learning outcomes. The use of flipbook learning media explains about 25.6% of the variance in learning outcomes, learning interest about 19.5%, and learning motivation about 29.6%, with all three variables showing high-category influence and *p*-values of 0.000 (< 0.005). When combined in a multiple regression model, flipbook media, interest, and motivation together significantly predict social studies learning outcomes (F = 47.879 > 2.77; sig 0.000), confirming that attractive multimedia content (text, animation, video, audio), strong interest, and high motivation mutually reinforce one another in improving students' academic achievement. The discussion highlights how flipbook media support independent and engaging learning, help students visualise abstract concepts, and make online or hybrid learning more interactive—especially important in the post-COVID era, where technology-based learning has become central to classroom practice.

The contributions of this study are closely aligned with **SDG 4: Quality Education**, as it demonstrates how innovative digital learning media can enhance learning outcomes by boosting students' interest and motivation in social studies. By showing that well-designed flipbook media can support both online and face-to-face learning, the research advances more inclusive and flexible pedagogies that help students succeed regardless of changing learning modalities. The emphasis on integrating multimedia, fostering self-regulated learning, and strengthening motivation also connects to **SDG 9: Industry, Innovation and Infrastructure**, through the application of digital technology in education, and to **SDG 10: Reduced Inequalities**, since engaging, low-cost digital resources can help reduce gaps in achievement between students with different backgrounds and levels of access. Overall, the study underscores that technology-enriched, student-centred learning

environments are key to improving educational quality and ensuring that all learners can achieve better outcomes.

Framework of Computer Science Learning Through Hybrid Service Learning Oriented Visual Toward the Continuum of Visualization Thinking and Generic Skills



Abd Majid and her colleagues conducted a quasi-experimental study titled "Framework of Computer Science Learning Through Hybrid Service Learning Oriented Visual Toward the Continuum of Visualization Thinking and Generic Skills." The research designs and tests HiPS-V (Hybrid Visual Service Learning), a web-based learning framework for a Computer Network course that integrates visual materials (mind maps, infographics, videos, multimedia modules) with hybrid service learning phases (investigation, preparation, action, reflection, demonstration). Over 15 weeks, 27 undergraduates (local and international) followed ten structured learning activities hosted on a dedicated website, designed using the ADDIE model and grounded in visual thinking theory and the continuum of visualization thinking (visual thinking, visual learning, visual communication). Paired t-tests show significant improvements ($p<0.05$) between pre- and post-activities for all three elements: mean scores for visual thinking increased from 2.44 to 3.22, visual learning from 2.37 to 3.18, and visual communication from 2.81 to 3.25, indicating that visual-rich hybrid service learning effectively strengthens students' ability to represent, process, and communicate abstract Computer Science concepts.



The study also demonstrates that HiPS-V substantially enhances generic skills. Using service-learning assignments assessed before, during, and after service phases, the authors report significant gains in four graduate attributes: scholarship (SC), leadership and teamwork (TW), adaptability (AD), and global citizenship (GC). Mean scores for generic skills rise across all stages—for example, pre- vs post-service "before-SL" activities increase from 1.96 to 2.43, "during-SL" from 2.88 to 3.23, and "after-SL" from 2.94 to 3.16, with one-way ANOVA confirming a strong overall effect of HiPS-V on generic skills ($F(2,80)=38.668$, $p<0.001$). Student surveys (Likert 5-point) show very positive perceptions of visual use (overall mean ≈ 4.79), visual integration (4.77), visual application (4.61), and hybrid service learning (4.76), while open-ended responses and interviews highlight perceived gains in knowledge, practical skills, real-life application, understanding, and enjoyable learning. The authors synthesise these quantitative and qualitative results into a Computer Science learning framework that sequences visual-based hybrid service learning to systematically build visualization thinking and generic skills.

The contributions of this research are strongly aligned with **SDG 4: Quality Education**, as HiPS-V offers an evidence-based model for student-centred, technology-enhanced learning that improves conceptual understanding and transversal skills needed in the 21st century. By leveraging web technology,

multimedia resources, and e-service learning, the study also supports **SDG 9: Industry, Innovation and Infrastructure**, demonstrating how digital platforms can deliver innovative pedagogies in higher education. The focus on global citizenship, teamwork, and community-oriented service projects connects to **SDG 10: Reduced Inequalities** and **SDG 17: Partnerships for the Goals**, since hybrid service learning engages diverse students in real-world community issues and encourages collaboration between universities and society. Overall, the HiPS-V framework illustrates how visual-oriented hybrid service learning can make Computer Science education more authentic, inclusive, and skill-rich, contributing to more resilient and future-ready graduates.

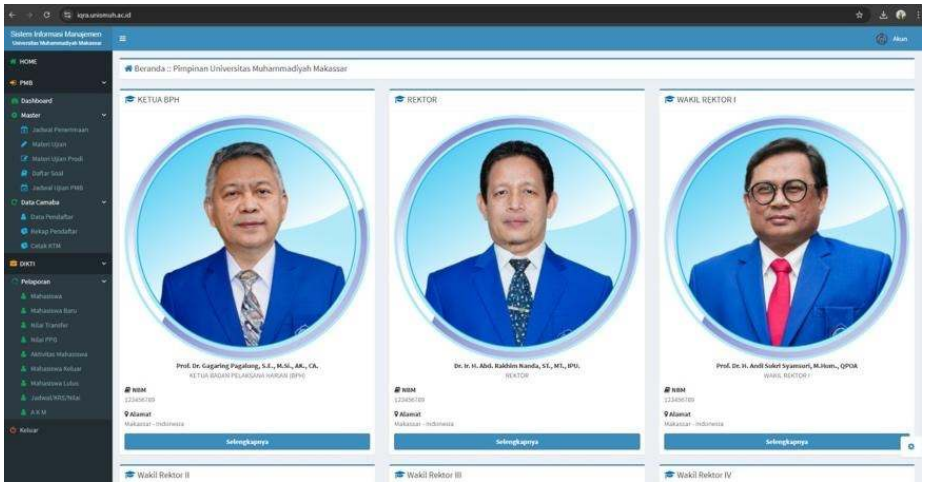
GENDER EQUALITY

Enhancing Women's Access to Higher Education

Universitas Muhammadiyah Makassar systematically tracks gender-based educational access through its integrated online admission system (https://e-pmb.unismuh.ac.id/).



In the 2023/2024 academic year, a total of 7,136 applicants participated in the admission process, with 3,136 students accepted, including 2,020 women (64.4%) and 1,116 men (35.6%). This demonstrates the university's strong commitment to gender equality and inclusivity in higher education access.



Among these female students, 518 (25.6%) are first-generation learners, being the first in their families to pursue university education. This significant proportion reflects

Unismuh Makassar's proactive role in expanding access to higher education for women from underrepresented and socio-economically disadvantaged backgrounds. The Directorate of Academic and Student Affairs (DAKMA) systematically collects and analyzes gender and parental education data to ensure continuous monitoring of equity in educational access. These data support the development of inclusive policies and targeted scholarship programs, ensuring that all female students—especially first-generation students—receive full institutional support to complete their studies successfully.



In 2024, Unismuh Makassar launched the Beasiswa Universitas Muhammadiyah Makassar (BUMM) scholarship program, providing 1,600 scholarships worth IDR 3.8 billion to support women's participation in higher education. This initiative includes several scholarship categories such as Academic Achievement, Hafidz Qur'an, and Persyarikatan Outstanding Cadre Scholarships, empowering women from diverse backgrounds, including young female leaders within Muhammadiyah and 'Aisyiyah networks.


KABAR Unismuh Makassar BERITA UTAMA BERITA KAMPUS KEGIATAN PRESTASI INTERNASIONAL

'Aisyiyah Kabupaten Gowa Gelar Pengabdian Masyarakat

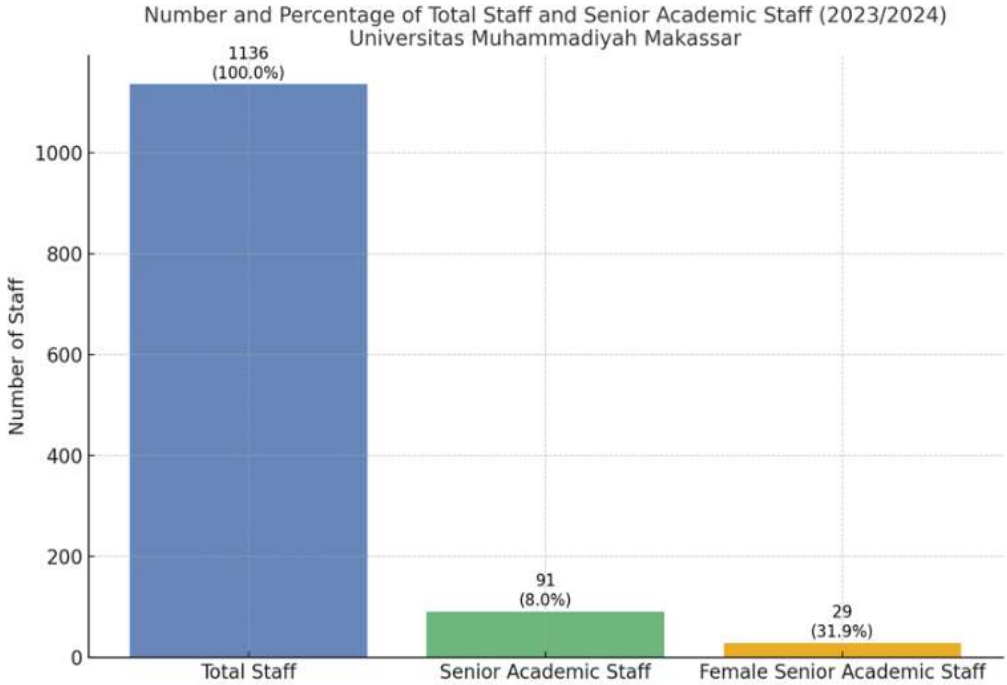
BY ADMIN MARCH 1, 2024 556 VIEWS

UNISMUH.AC.ID, Makassar – Prodi DIII Kebidanan dan S1 Farmasi Fakultas Kedokteran dan Ilmu Kesehatan (FKIK) Unismuh Makassar menggelar Pengabdian Kepada Masyarakat (PKM) dalam bentuk Pelatihan Kelompok Pendamping Remaja Sehat (PARAS) Nasyiatul 'Aisyiyah Kabupaten Gowa. Kegiatan tersebut dihelat di Pusat Dakwah Muhammadiyah Gowa, pada Jumat, 1 Maret 2024.

Additionally, the university encourages women's participation in underrepresented fields through outreach programs and collaborations. One example is the Adolescent Health Mentorship Group (PARAS) Training, conducted by the Faculty of Medicine and Health Sciences in collaboration with Nasyiatul 'Aisyiyah Gowa District. This initiative strengthens women's leadership capacity, reproductive health awareness, and advocacy against early marriage and gender-based violence.

Representation of Women in Senior Academic Positions

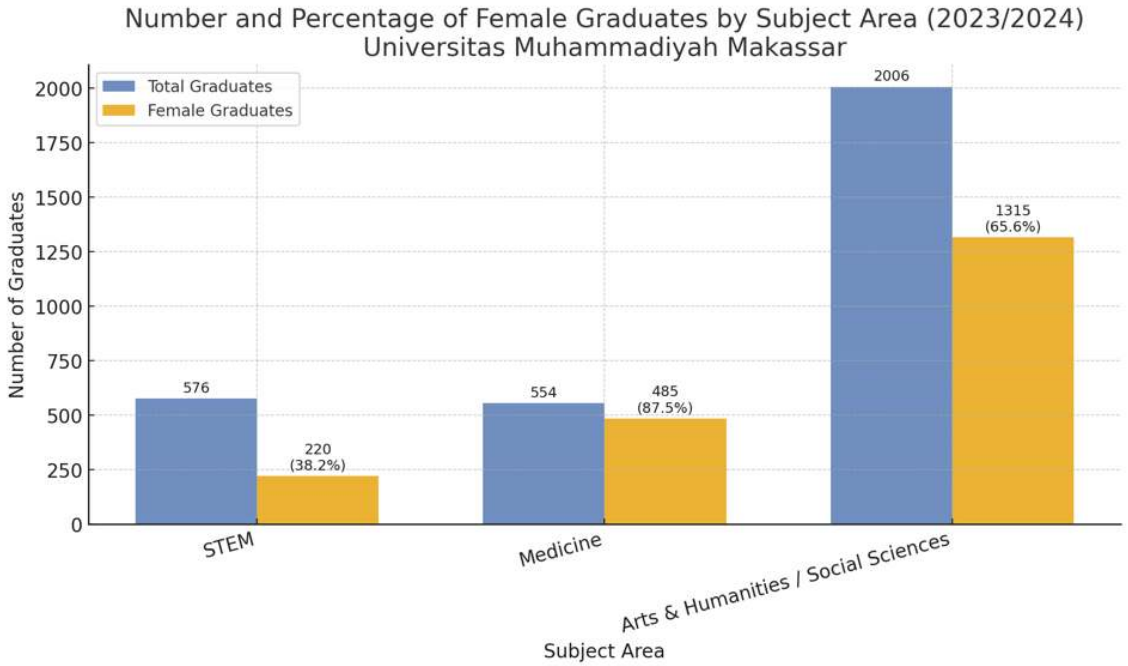
Based on 2023/2024 data, Universitas Muhammadiyah Makassar employs 1,136 staff members, including 91 senior academics, of whom 29 (31.9%) are women. This demonstrates substantial female representation in academic leadership roles, reflecting the university's dedication to gender equality in professional development and promotion.



By maintaining inclusive and merit-based career advancement pathways, Unismuh Makassar aligns with SDG 5: Gender Equality, ensuring women have equal opportunities to grow and lead within academia.

Proportion of Women Receiving Degrees

According to the 2023/2024 graduation data, Unismuh Makassar produced 3,136 graduates, of whom 2,020 (64.4%) were women. By field, 220 women (38.2%) graduated in STEM, 485 (87.5%) in Medicine, and 1,315 (65.6%) in Arts & Social Sciences.



This data shows women's strong academic presence across all disciplines, with particularly high achievement in health and social sciences and growing participation in STEM fields.

Women's Progress Measures

Universitas Muhammadiyah Makassar upholds the principles of equality and inclusivity through the Inclusive Education Policy and Guidelines (2022) and the Inclusive Education Standard Operating Procedure (SOP), which serve as institutional frameworks for preventing discrimination in all academic and professional settings. These documents explicitly prohibit any form of discrimination based on gender,

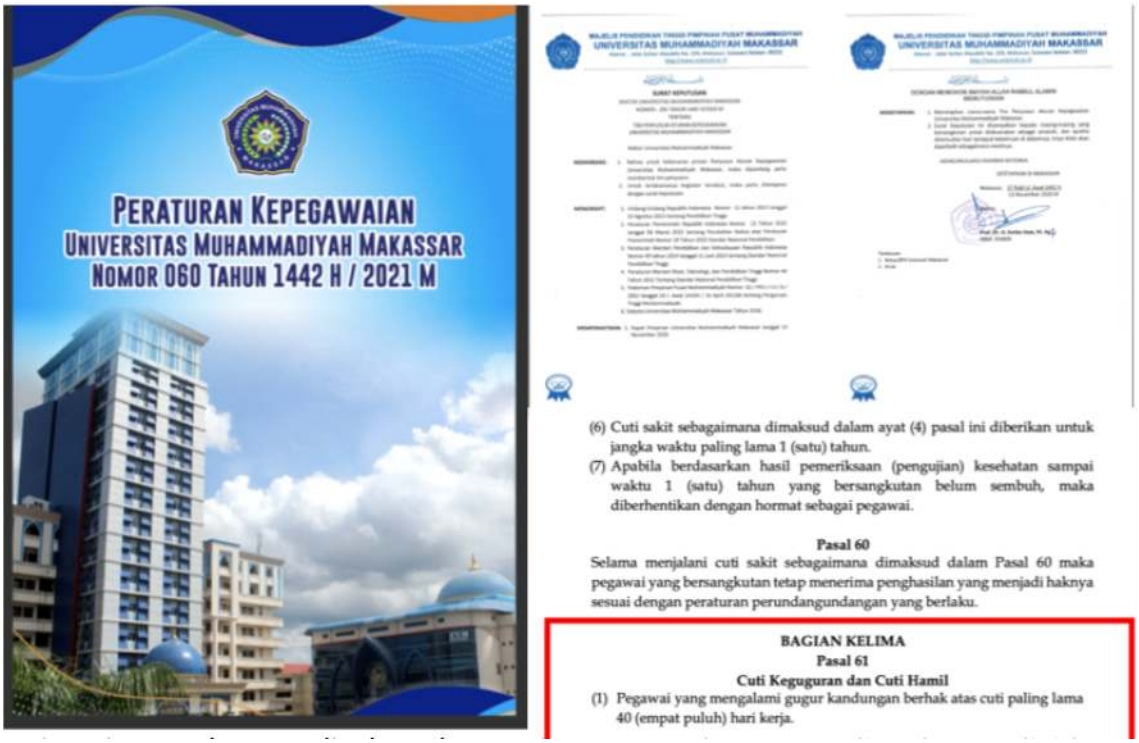
religion, ethnicity, and disability. They also define inclusive education as one that guarantees openness, equality, and accessibility for everyone, regardless of social or cultural background.



To ensure fairness, the policy establishes a transparent and victim-centered reporting and response mechanism for discrimination cases, with multiple reporting channels and clear follow-up procedures. The mechanism guarantees that all complaints are handled confidentially and professionally, providing both psychological and legal support when necessary.

Family-Friendly Employment Policies

To promote gender equity in the workplace, Universitas Muhammadiyah Makassar implements family-supportive policies that enable women to balance professional and personal responsibilities. The Employment Regulation No. 060 of 1442 H/2021 M stipulates comprehensive maternity rights, including three months of paid maternity leave and up to 40 days of miscarriage leave, ensuring that female employees maintain economic stability and career continuity during maternity. These policies provide not only legal protection but also a foundation for the university's broader gender-responsive employment system.



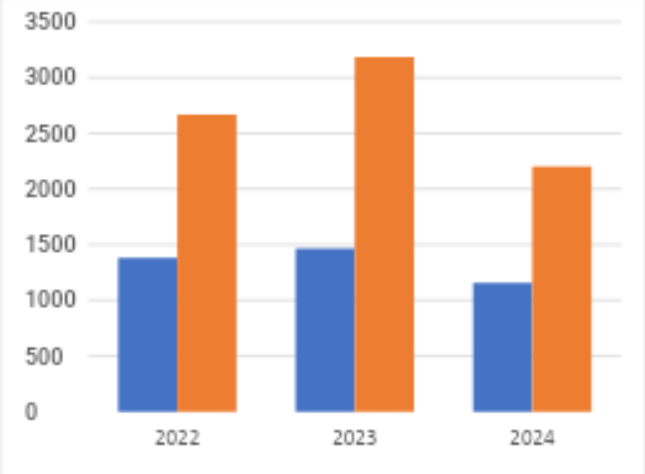
The university also supports mothers—both students and staff—through childcare (daycare) facilities located on campus. The daycare for students operates as a free service, while for staff and lecturers it functions under an affordable cost-sharing model. Both facilities provide safe, educational, and nurturing environments, including lactation rooms (Ruang ASI) and child-friendly play areas. These programs allow women to continue pursuing academic and professional goals without the burden of childcare constraints. Through these initiatives, Universitas Muhammadiyah Makassar embodies the concept of a family-friendly campus, fostering productivity, well-being, and gender equality across its community.

Gender Equality and Empowerment Programs

Universitas Muhammadiyah Makassar actively promotes women's empowerment through structured mentoring and academic monitoring programs. One of the flagship initiatives is the Women's Mentorship Scheme conducted by PIKOM IMM FKIP, which serves as a safe and empowering space for female students to discuss issues related to gender equality, women's rights, and leadership. The program includes interactive sessions that encourage open dialogue, empathy, and peer support, helping participants develop confidence and resilience in facing academic and social challenges.



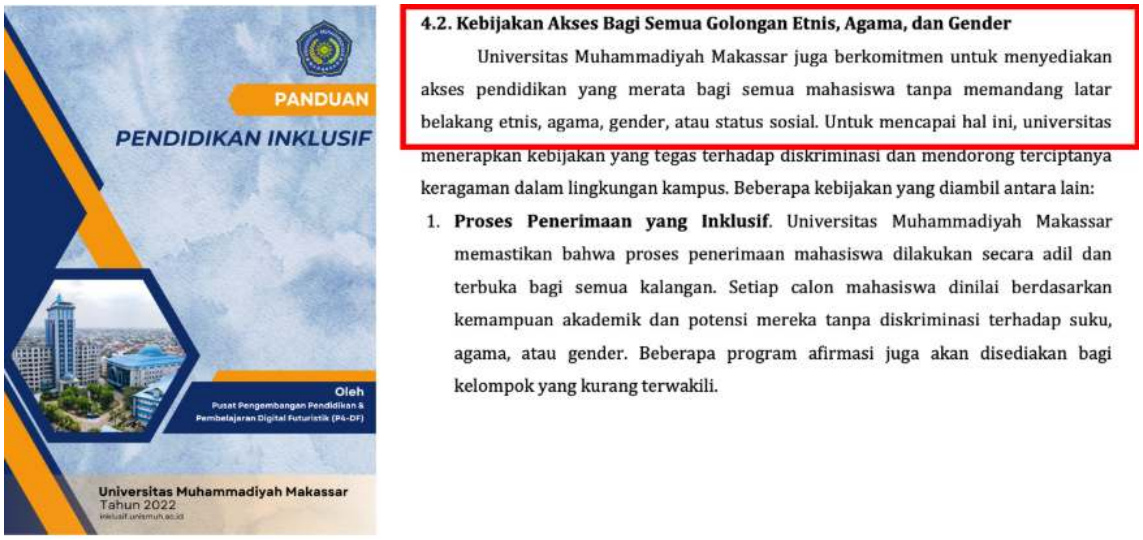
In addition, the university continuously tracks and analyzes student graduation rates based on gender to ensure equitable educational outcomes. Data from 2022 to 2024 show that female graduates consistently outnumber male graduates, reflecting the university's success in maintaining a gender-responsive academic ecosystem.



This ongoing monitoring provides a foundation for targeted interventions, such as mentoring, academic counseling, and scholarships, ensuring that women have equal opportunities to complete their education and excel in their chosen fields.

Paternity Policy

Universitas Muhammadiyah Makassar demonstrates a strong institutional commitment to gender equality through the implementation of the Inclusive Education Policy and Guidelines, which serve as the foundation for promoting shared family responsibilities, including childcare. Chapter 4.2 of the policy, Access Policy for All Ethnic, Religious, and Gender Groups, explicitly affirms that "Universitas Muhammadiyah Makassar is committed to supporting gender equality by providing equal opportunities for both male and female students and staff." This statement reflects the university's recognition of the importance of equitable participation in both professional and family roles.



4.2. Kebijakan Akses Bagi Semua Golongan Etnis, Agama, dan Gender

Universitas Muhammadiyah Makassar juga berkomitmen untuk menyediakan akses pendidikan yang merata bagi semua mahasiswa tanpa memandang latar belakang etnis, agama, gender, atau status sosial. Untuk mencapai hal ini, universitas menerapkan kebijakan yang tegas terhadap diskriminasi dan mendorong terciptanya keragaman dalam lingkungan kampus. Beberapa kebijakan yang diambil antara lain:

1. **Proses Penerimaan yang Inklusif**. Universitas Muhammadiyah Makassar memastikan bahwa proses penerimaan mahasiswa dilakukan secara adil dan terbuka bagi semua kalangan. Setiap calon mahasiswa dinilai berdasarkan kemampuan akademik dan potensi mereka tanpa diskriminasi terhadap suku, agama, atau gender. Beberapa program afirmasi juga akan disediakan bagi kelompok yang kurang terwakili.

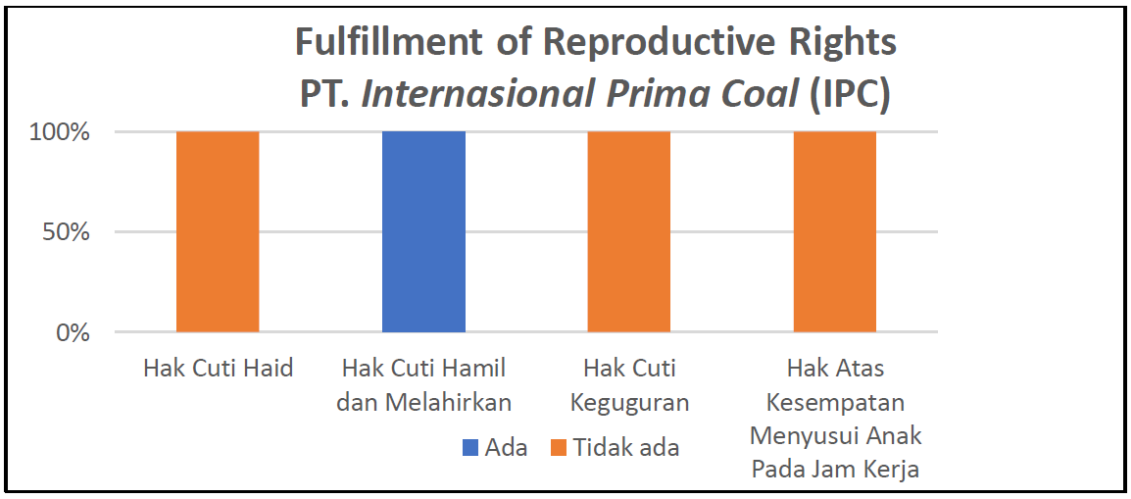
While the policy does not explicitly outline a formal paternity leave scheme, the principle of gender equality embedded within the document supports the active participation of fathers in caregiving and household duties. By ensuring that male employees are given equal opportunity to engage in family responsibilities, the university indirectly reinforces women's continued participation in education and the workforce.

RESEARCH RELATED TO SDG 5

Legal Responsibility of Coal Mining Company PT. International Prima Coal for Worker Welfare and Safety



Suryaningsi and her colleagues conducted a qualitative study titled "Legal Responsibility of Coal Mining Company PT. International Prima Coal for Worker Welfare and Safety." The research examines how Pancasila, the 1945 Constitution, and Indonesian labour law are implemented in protecting especially women workers' rights and welfare at PT International Prima Coal (IPC) in Samarinda, East Kalimantan. Using a descriptive qualitative approach with interviews, observation, and documentation, the authors analyse the application of national norms such as Article 27(2) and 28D(2) of the 1945 Constitution and Law No. 13/2003 on Manpower (as amended) in the context of an open-pit coal mine, where environmental risks, occupational hazards, and social impacts are high. The study finds that some special rights of women workers—maternity leave and childbirth leave—are already implemented, although the leave period granted (one month before and one month after delivery) is still shorter than the 1.5 + 1.5 months mandated by law. In contrast, other reproductive rights, notably menstrual leave, miscarriage leave, and dedicated breastfeeding time during working hours, are not yet explicitly regulated or fulfilled; menstrual pain is only accommodated indirectly through general sick leave, and there is no specific policy or facility to support nursing mothers.



Through interviews and legal analysis, the authors reveal that legal awareness among women workers about their rights remains low, and many employees assume that all rules are unilaterally determined by the company without room for legal challenge, even when provisions conflict with labour law. This weak legal consciousness, combined with patriarchal culture and asymmetrical power relations in the mining sector, creates structural barriers to claiming reproductive and gender-related rights. The study's assessment shows that only around 25% of women's reproductive labour rights at IPC are fulfilled, while 75% remain unfulfilled, indicating a serious gap between the normative framework of Pancasila-based social justice and the reality on the ground. At the same time, the company's Corporate Social Responsibility (CSR) implementation is judged to be "quite good", as it follows the East Kalimantan Blue Print and is considered consistent with an Islamic economics perspective, particularly in community development around the mine. The authors conclude that achieving justice and welfare for women workers requires stronger law enforcement, explicit internal regulations for all reproductive rights, improved working facilities, anti-discrimination and anti-harassment mechanisms, legal education for workers, and sustained gender-equality–oriented corporate policies.

The contributions of this study align closely with **SDG 8: Decent Work and Economic Growth**, as it addresses how coal mining companies should guarantee safe working conditions, fair wages, and full protection of labour rights in a high-risk industry. By focusing on menstrual leave, maternity and miscarriage leave, and breastfeeding rights, and by critiquing the patriarchal norms and discrimination that women face, the research directly advances **SDG 5: Gender Equality**, particularly

targets on ending workplace discrimination and recognising unpaid care and reproductive roles. The analysis of unequal benefit distribution from coal extraction, gaps in legal protection, and the vulnerability of women workers also supports **SDG 10: Reduced Inequalities**, highlighting how legal and institutional reforms are needed to ensure that marginalized groups share fairly in economic development. Furthermore, by invoking Pancasila values, constitutional principles, and the need for transparent, accountable, and rights-based regulation of mining companies, the study strongly contributes to **SDG 16: Peace, Justice and Strong Institutions**, calling for more robust enforcement of labour law, greater legal awareness, and CSR practices that genuinely reflect social justice. Indirectly, by linking coal-mining practices, environmental damage, and community health risks, the article also touches on **SDG 3: Good Health and Well-Being** and **SDG 12: Responsible Consumption and Production**, underscoring that fair and sustainable coal governance must integrate worker welfare, gender justice, and environmental responsibility.

Gender Equality in the Foreign Language Textbooks of Indonesian Junior High Schools



Dalle, Jabu, and Rimang conducted a content-analysis study titled “Gender Equality in the Foreign Language Textbooks of Indonesian Junior High Schools.” The research examines how male and female characters are represented lexically in three of the most commonly used English textbooks for grades VII, VIII, and IX in Indonesian junior high schools. Using a document/content analysis approach, the authors systematically read each textbook and coded all gendered lexical items—such as *she/her, girl, woman, mother, Mrs, Miss* for females and *he/him/his, boy, man, father, Mr, son* for males—then calculated their frequencies and percentages. The results show a consistent male dominance in lexical representation: in Book 1, male terms appear 236 times versus 225 female terms; in Book 2, male items still dominate key pronouns (*he, his, him*), even though the total of female items is slightly higher; and in Book 3, male items appear 561 times versus 260 female items, with *he/his/him* accounting for over 76% of all male references. Across all three books, the pronoun

“he” is used far more frequently than “she” in reading, writing, listening, and speaking texts, indicating that male characters are more visible and more widely distributed in textbook narratives and exercises.

Gender category	Lexical representation
Female	She (her), Mrs, Woman (women), Miss (Ms), lady (ies), Girl (s), Daughter (s), mother, widow, Dame (female knight).
Male	He (him, his), Mr, Man (Men), boy (boys), son (s), father, dad, gentleman (gentlemen), knight, Widower.

In the discussion, the authors argue that this imbalance reflects deeper cultural norms and male-dominated social structures in Indonesia, where men are traditionally portrayed as occupying more public and powerful roles. They show that the patterns in these textbooks are consistent with international findings on male-dominated representation in ELT materials from other countries, and conclude that gender equality is “not yet properly addressed” in the analyzed textbooks. The study has strong pedagogical and policy implications: it recommends revising foreign language textbooks so that women and men are represented more equally; building consensus among textbook authors and publishers to portray balanced gender roles; training “gender equality actors and actresses” (teachers, curriculum developers, editors) to recognise and correct bias; and providing clear policy frameworks for gender-fair curriculum and materials at national and institutional levels. The authors also stress that teachers must understand the basic concept of equality in education and apply it in classroom interaction so that all students—girls and boys—are treated and represented fairly in learning processes.

The contributions of this research align strongly with **SDG 5: Gender Equality** and **SDG 4: Quality Education**, as it exposes how seemingly neutral language textbooks can reproduce subtle gender bias and calls for gender-fair content, teacher awareness, and policy reform to ensure that girls and boys see themselves equally reflected in learning materials. By highlighting the structural roots of male-dominated representation and proposing textbook revision, training, and regulatory guidance, the study also supports **SDG 10: Reduced Inequalities**, addressing how educational resources can either challenge or reinforce social inequality from an early age. Finally, its emphasis on national legal commitments, UN gender-equality principles, and the

need for clear vertical and horizontal policy frameworks resonates with **SDG 16: Peace, Justice and Strong Institutions**, underscoring that ministries, education authorities, and schools must work together to embed gender equality into curriculum policy and textbook production.

Investigating the effect of learning styles on HyFlex learning towards equity of learning in higher education



The authors conducted a quantitative study that investigates how students' learning styles influence the use of HyFlex learning modalities and, in turn, the equity of learning in higher education. Using a structured online questionnaire, they collected data from 451 undergraduate students enrolled in various public and private universities across Indonesia. Measurement analysis confirmed that the survey instrument had good validity and internal consistency, and structural equation modelling (SEM) was then used to examine relationships among key constructs: learning styles (based on the Felder–Silverman model), three HyFlex modalities (face-to-face, synchronous online, asynchronous online), and learning equity. The findings show that students' learning styles positively influence their use of all three HyFlex modalities, and that each modality contributes positively to learning equity, with the asynchronous online mode having the strongest effect. In contrast, the effect of synchronous online learning on equity is statistically insignificant, suggesting that simply replicating classroom sessions live online does not automatically enhance fairness or inclusiveness.

The study further reveals that active/reflective learning styles significantly influence face-to-face learning, but do not significantly affect synchronous or asynchronous online modes, indicating that some learning style dimensions are more compatible with on-site interaction. Several learning-style dimensions exert indirect effects on learning equity through their impact on HyFlex modalities, and face-to-face and asynchronous online learning act as effective mediators between learning styles and equity. Importantly, gender and type of institution (public vs private) do not

significantly moderate the relationships between learning styles, HyFlex modalities, and equity—suggesting that the benefits of well-designed HyFlex environments can be broadly shared across student groups. The authors conclude that lecturers, instructional designers, and higher-education leaders should adapt HyFlex strategies to the positive dimensions of Felder–Silverman learning styles, with particular emphasis on asynchronous online components and flexible face-to-face activities that support equitable and inclusive learning opportunities. The study also lays a foundation for future research to explore additional constructs—such as digital readiness, learning analytics, or support services—that could further strengthen HyFlex learning.

The contributions of this research are strongly aligned with **SDG 4: Quality Education**, as it focuses on designing HyFlex learning environments that promote equity, inclusiveness, and flexibility in higher education. By demonstrating that asynchronous online modalities—when aligned with students' learning styles—can enhance learning equity, the study supports SDG 4 targets on equal access to affordable, quality tertiary education and inclusive, learner-centred pedagogies. Its emphasis on using structured data (SEM) to optimise modality use and address different learning preferences connects to **SDG 9: Industry, Innovation and Infrastructure**, highlighting the role of digital platforms and innovative instructional design in expanding access. The finding that equity gains are not strongly conditioned by gender or institutional status also resonates with **SDG 10: Reduced Inequalities**, suggesting that carefully designed HyFlex models can help reduce gaps in participation and outcomes across diverse student populations. Finally, by offering a conceptual and empirical basis for institutions and policymakers to develop evidence-based HyFlex strategies, the study contributes to building more resilient, responsive higher-education systems that are better prepared for disruption and more committed to fairness in learning opportunities.



CLEAN WATER AND SANITATION

Wastewater Reuse and Recycling Program

Wastewater Treatment is implemented through the Wastewater Reuse and Recycling Program. This program is designed to prevent water pollution, enhance the efficiency of water use, and support sustainable water resource management within the campus environment. In essence, the university does not only focus on the disposal of wastewater, but also on how this wastewater is treated and reused in a safe and responsible manner.

As a concrete manifestation of this commitment, the university has constructed and operates a Wastewater Treatment System (WWTP/IPAL) that treats wastewater generated from various campus activities, such as laboratories, health facilities, and student services. The WWTP applies biological treatment processes using an anaerobic–aerobic biofilter system, which utilises microorganisms to naturally break down pollutants. In the anaerobic stage, microorganisms work without oxygen to decompose organic matter, while in the aerobic stage, oxygen is supplied to complete the degradation process. Each stage of treatment is monitored through a Wastewater Treatment Control System to ensure that the quality of the treated water consistently complies with applicable environmental standards.

After undergoing biological treatment, the treated wastewater is not discharged immediately, but is further processed using a multilayer filtration system. This system consists of several media, including silica sand, activated carbon, greensand, resin, and an ultrafiltration unit. Each layer has a specific function: filtering suspended particles, reducing organic content, eliminating odour and colour, and lowering the concentration of metals and other contaminants. The combination of biological processes and multilayer filtration ensures that the final effluent attains a quality that is safe for non-consumptive uses.







The document also emphasises that the effluent from the WWTP is reused for purposes such as landscape irrigation and fish ponds within the campus. This reuse provides two simultaneous benefits: it reduces the volume of wastewater discharged into the environment and increases the efficiency of clean water use, as part of the water demand can be met through recycled water. In this way, Universitas Muhammadiyah Makassar not only fulfils its technical obligations in wastewater management, but also implements the principles of a circular economy in water management. Overall, the document portrays an integrated, well-controlled, and sustainability-oriented wastewater treatment system that supports the achievement of SDG 6 on the availability and sustainable management of water and sanitation for all.

Water Pollution Prevention and Wastewater Management Program

Preventing Water System Pollution refers to efforts to prevent pollution of water systems through wastewater management and the protection of water quality within the campus environment. The University reaffirms its commitment to “ensuring the availability and sustainable management of water and sanitation for all” by implementing a range of concrete programmes focused on preventing contaminated water from entering the water system, including contamination arising from waste, accidents, or operational incidents in campus areas.

One of the main programmes implemented is the Routine Drainage Cleaning Programme across all campus areas. This activity aims to ensure that drainage channels remain free from solid waste, sediment, and hazardous chemicals that could obstruct water flow or pollute the campus water system and its surrounding environment. The programme is not solely the responsibility of the environmental and sanitation units, but also involves the active participation of the academic community

through regular community service activities and clean-up campaigns. In this way, efforts to maintain water quality are not only technical in nature but also become part of an environmental care culture within the campus.



In addition, Universitas Muhammadiyah Makassar operates a Water Quality Monitoring System at its Wastewater Treatment Plant (WWTP/IPAL). Every stage of wastewater treatment—starting from sedimentation and filtration through to anaerobic–aerobic biofiltration—is closely supervised to ensure that the treated water meets quality standards before being discharged back into the environment. This monitoring is crucial to prevent inadequately treated wastewater from entering natural water bodies or contaminating soil and surrounding ecosystems. Notably, the effluent from the WWTP is not simply discharged, but is reused for non-consumptive purposes, such as landscape irrigation and fish ponds. This reuse practice supports water-use efficiency while simultaneously reducing the potential for pollution, as the wastewater has undergone standardised treatment processes prior to being reused.



Overall, the document illustrates that Universitas Muhammadiyah Makassar not only fulfils its technical obligations in wastewater management, but also integrates pollution prevention, efficient water use, and environmental education for

the entire campus community. The drainage cleaning programme keeps the water flow system clean, while the WWTP with its strict water quality monitoring ensures that water released into the environment is safe. The combination of adequate treatment infrastructure and active community involvement demonstrates the university's efforts to build a clean, healthy, and sustainable environment, in line with the targets of SDG 6 on clean water and sanitation for all.

Water-conscious building standards

Water-conscious Building Standards refers to the implementation of building standards that are oriented towards water conservation and sustainable water management. The main focus of this document is how the campus not only uses water efficiently, but also designs, manages, and modifies its building infrastructure to align with the principles of water conservation and environmental sustainability. The various technologies, policies, and systems implemented demonstrate that water management on campus is no longer regarded merely as an operational necessity, but as an essential component of the university's ecological responsibility.

One of the strategic measures outlined is the implementation of a Water Recycling Program, a water reuse initiative aimed at treating water generated from campus activities so that it can be reused for specific purposes. This program illustrates a paradigm shift from simply disposing of wastewater to reusing it as a valuable resource. The system is further integrated with an Automatic Water Level Control System in the storage tanks. Through this automated system, the volume of water in the tanks can be regulated intelligently, thereby preventing wastage due to overflow or uncontrolled filling. The integration between the water recycling system and water level control reflects careful technical planning to minimise the use of new water and optimise the utilisation of existing water.





At the level of daily utilisation, the university also implements Automatic Sensor Sinks in public areas, laboratories, and office buildings. These sensor-operated taps only release water when hands or objects are detected beneath them, thereby reducing unnecessary water flow. In addition, low-flow bidets with aerated heads are installed as sanitation facilities that maintain effective cleaning performance while using significantly less water. The use of such water-efficient technologies reflects the application of modern technical building standards that combine comfort, hygiene, and resource efficiency.







Beyond reliance on water supplied through the public network, the university has also developed a Rainwater Harvesting System. This system is designed to capture and store rainwater so that it can be utilised for non-potable purposes, such as garden and landscape irrigation and general cleaning activities in campus areas. Consequently, the water demand for these purposes does not depend entirely on clean water from the main supply system. In addition, the entire campus area is equipped with permeable paving blocks, a type of pavement that allows rainwater to infiltrate back into the soil. The use of these paving blocks helps maintain groundwater availability, reduce surface runoff, and mitigate the risk of localised flooding and waterlogging.

Overall, this document illustrates that Universitas Muhammadiyah Makassar has integrated the principles of water efficiency, environmental conservation, and sustainable building design into its campus infrastructure management. From water recycling systems, automatic water volume control, sensor taps, and water-saving bidets, to rainwater harvesting and the use of permeable paving blocks, all of these

measures demonstrate a comprehensive and systematic approach. These efforts not only contribute to water savings and the reduction of pressure on water resources, but also serve as a best practice model for the application of water-conscious building standards in higher education institutions. In doing so, the university plays an active role in advancing the objectives of SDG 6, particularly with regard to the availability of water and sanitation that are managed sustainably for all.

Water Reuse Policy

Water Reuse Policy. This policy affirms the university's commitment to maximising the reuse of water within the campus as part of sustainable water management. Through this policy, the campus does not only focus on the provision of clean water, but also on how used water can be treated and repurposed for other needs in a safe, efficient, and environmentally friendly manner. This approach is aligned with the principle of ensuring the availability and sustainable management of water and sanitation for all, which underpins the Sustainable Development Goals (SDGs), particularly SDG 6.

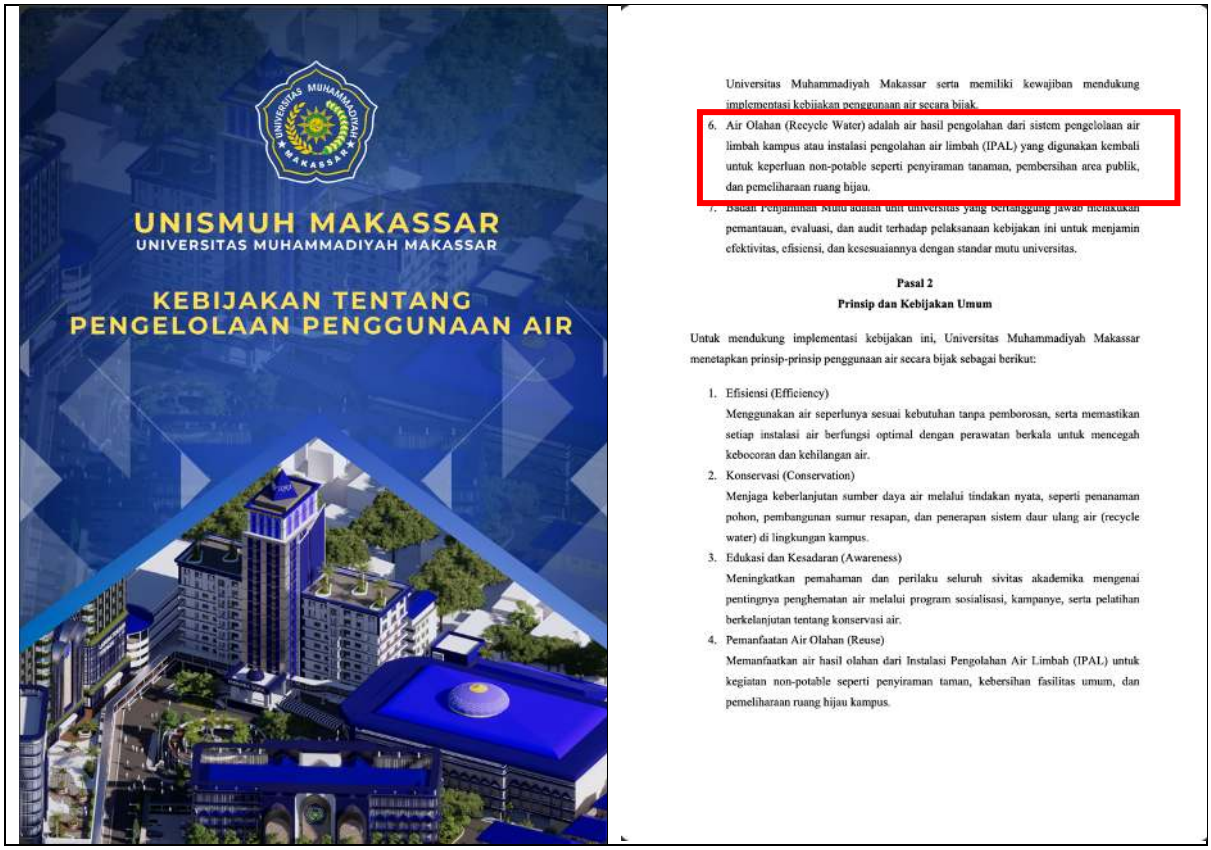
The core of this policy is the utilisation of treated water produced by the Wastewater Treatment Plant (WWTP/IPAL) system to meet various non-potable water needs on campus. The treated effluent from the WWTP is used, among other things, for landscape and green open space irrigation, cleaning of public areas, and maintenance of campus gardens and green spaces. Through this pattern of utilisation, the university successfully reduces its dependence on conventional clean water sources, such as the municipal water supply (PDAM) or deep wells, because a portion of its routine operational needs can be met by recycled water. This establishes a closed-loop system in water management, in which water is not discharged immediately after use, but is instead treated and optimally reused.

The policy also stipulates clear technical and operational standards for the utilisation of recycled water, including the application of an automatic control system to regulate water volume in order to prevent wastage. This system ensures that the distribution of recycled water to various points of use remains efficient, measurable, and need-based. In addition, regular monitoring and maintenance are carried out to ensure that the quality of treated water continues to meet environmental and safety

standards. The responsibility for technical and operational management lies with the Directorate of Inventory and Assets, under the supervision of the Quality Assurance Board (BPM), thereby integrating technical aspects with governance and quality assurance.

Beyond infrastructure and technology, the policy also addresses education and the strengthening of a water-saving culture within the campus. The university organises various awareness campaigns and training programmes targeting lecturers, administrative staff, and students. The aim is to build a shared understanding that water is a valuable resource that must be conserved and used wisely. Thus, the policy is not only structural and technical in nature, but also shapes the behaviour and mindset of the campus community to be more attentive to water conservation.

Overall, this document illustrates that Universitas Muhammadiyah Makassar has established a comprehensive institutional policy on water reuse. The combination of WWTP technology, automatic control systems, clear operational standards, monitoring mechanisms, and educational programmes positions this policy as a good practice example of sustainable water management in higher education. Through this Water Recycling Policy, the university not only contributes to water savings and the reduction of pressure on clean water resources, but also demonstrates a concrete commitment to supporting the achievement of SDG 6 within the context of a sustainable campus.



Universitas Muhammadiyah Makassar serta memiliki kewajiban mendukung implementasi kebijakan penggunaan air secara bijak.

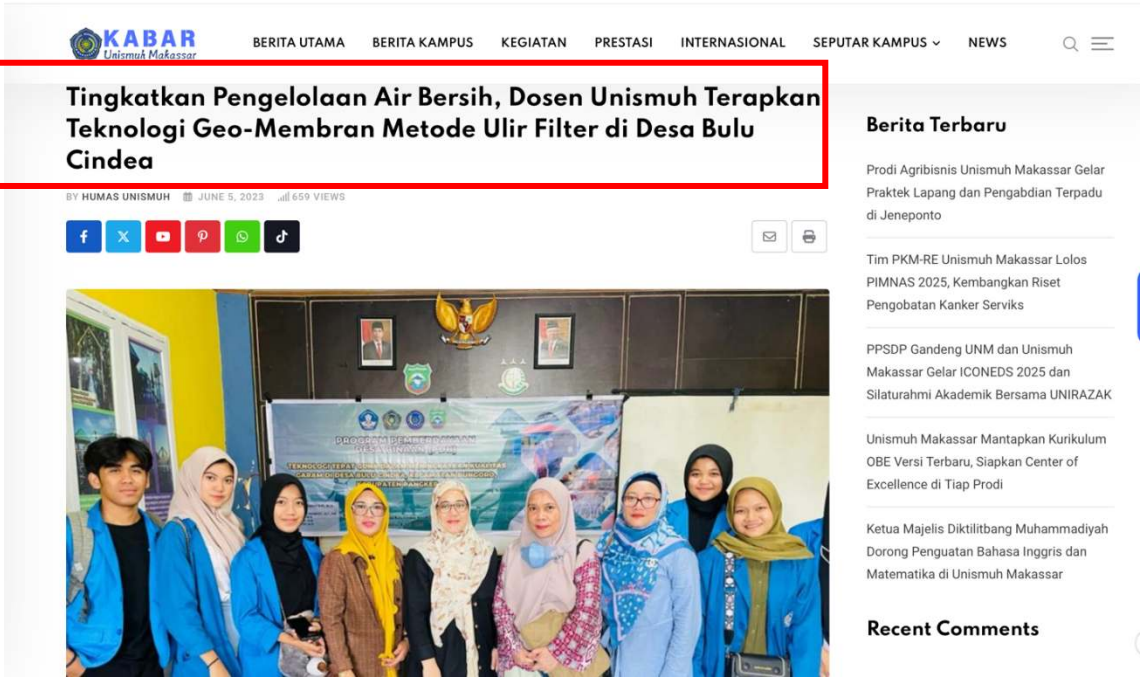
6. Air Olahan (Recycle Water) adalah air hasil pengolahan dari sistem pengelolaan air limbah kampus atau instalasi pengolahan air limbah (IPAL) yang digunakan kembali untuk keperluan non-potable seperti penyiraman tanaman, pembersihan area publik, dan pemeliharaan ruang hijau.
7. Badan Penjaminan Mutu adalah unit universitas yang bertanggung jawab melakukan pemantauan, evaluasi, dan audit terhadap pelaksanaan kebijakan ini untuk menjamin efektivitas, efisiensi, dan kesesuaiannya dengan standar mutu universitas.

Pasal 2
Prinsip dan Kebijakan Umum

Untuk mendukung implementasi kebijakan ini, Universitas Muhammadiyah Makassar menetapkan prinsip-prinsip penggunaan air secara bijak sebagai berikut:

1. Efisiensi (Efficiency)
   Menggunakan air seperlunya sesuai kebutuhan tanpa pemborosan, serta memastikan setiap instalasi air berfungsi optimal dengan perawatan berkala untuk mencegah kebocoran dan kehilangan air.
2. Konservasi (Conservation)
   Menjaga keberlanjutan sumber daya air melalui tindakan nyata, seperti penanaman pohon, pembangunan sumur resapan, dan penerapan sistem daur ulang air (recycle water) di lingkungan kampus.
3. Edukasi dan Kesadaran (Awareness)
   Meningkatkan pemahaman dan perilaku seluruh sivitas akademika mengenai pentingnya penghematan air melalui program sosialisasi, kampanye, serta pelatihan berkelanjutan tentang konservasi air.
4. Pemanfaatan Air Olahan (Reuse)
   Memanfaatkan air hasil olahan dari Instalasi Pengolahan Air Limbah (IPAL) untuk kegiatan non-potable seperti penyiraman taman, kebersihan fasilitas umum, dan pemeliharaan ruang hijau kampus.

Water management educational opportunities



Water Management Educational Opportunities refers to the provision of educational opportunities for communities on sound water management. Through

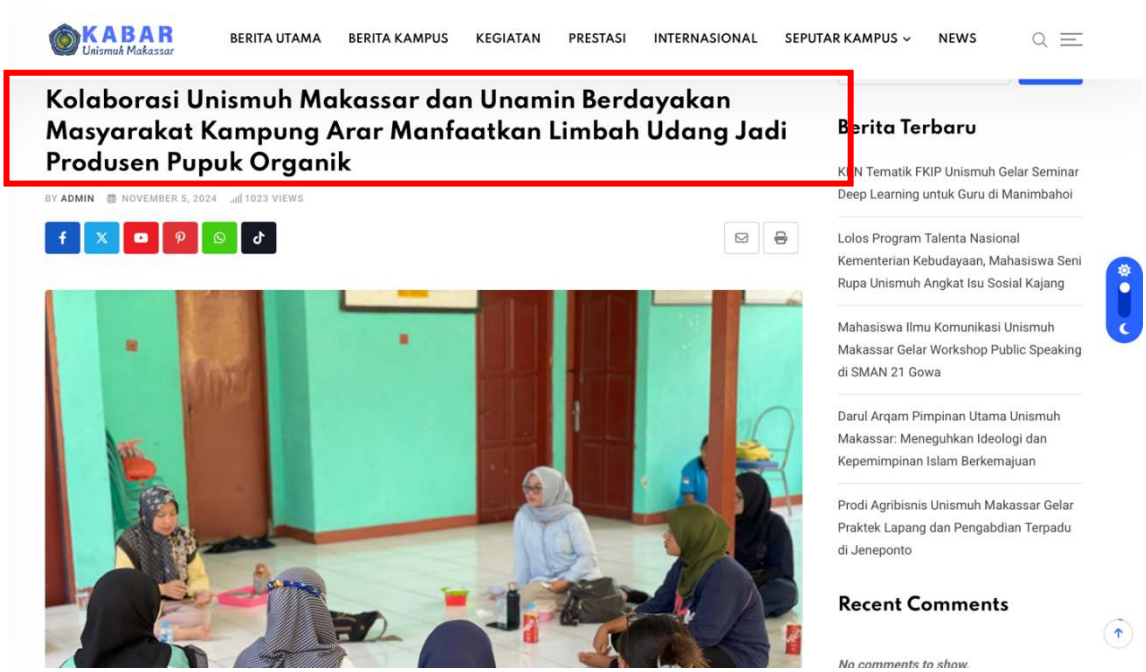
various community service programmes, university lecturers and teams act not only as technical advisors, but also as learning facilitators who help residents understand the importance of sustainable management of clean water and liquid waste.

The first programme was implemented in Bulu Cindea Village, Pangkep Regency, with a focus on improving clean water management. The academic team introduced geo-membrane technology and the screw filter method as water treatment solutions. Through training and direct mentoring, community members were taught how to operate the filtration system to produce clean water that is fit for consumption at a relatively low cost. This activity not only provided appropriate technology, but also built local capacity so that residents are able to manage and maintain the system independently. Such practical education helps the community to understand that clean water management is not only a matter of infrastructure, but also of knowledge and discipline in use and maintenance.

The second programme was carried out in Kampung Arar, Mayamuk District, Sorong Regency, West Papua, as a collaboration between Universitas Muhammadiyah Makassar and Universitas Muhammadiyah Sorong (Unamin). The main focus of this activity is the management of wastewater from shrimp washing, which has long posed a potential threat of environmental pollution. Through a participatory approach, the academic team provided training on how to process this wastewater into liquid organic fertiliser that can be utilised for agriculture and local greening. Two local community groups, namely the Kasia Fishers Group and the Kasia Women's Group (PKK), were actively involved in the production and trial use of the liquid fertiliser. In this way, the community is not merely the object of aid, but becomes an empowered subject with the skills to transform waste into a resource of economic value.

Overall, this document underlines that the community engagement activities undertaken by the university do not only address the technical aspects of water management, but also build community awareness and capacity in water resource conservation and environmentally friendly waste management. In Bulu Cindea Village, residents are equipped with skills to treat water into potable quality, while in Kampung Arar, the community is taught how to utilise wastewater as an economic asset. These two programmes exemplify an applied educational model in which communities learn

by doing, so that the knowledge provided is directly linked to their daily needs. In this way, Universitas Muhammadiyah Makassar makes a tangible contribution to providing educational opportunities on good water management at the community level, while at the same time strengthening the role of higher education institutions as agents of change towards more sustainable water management.



Off-campus water conservation support

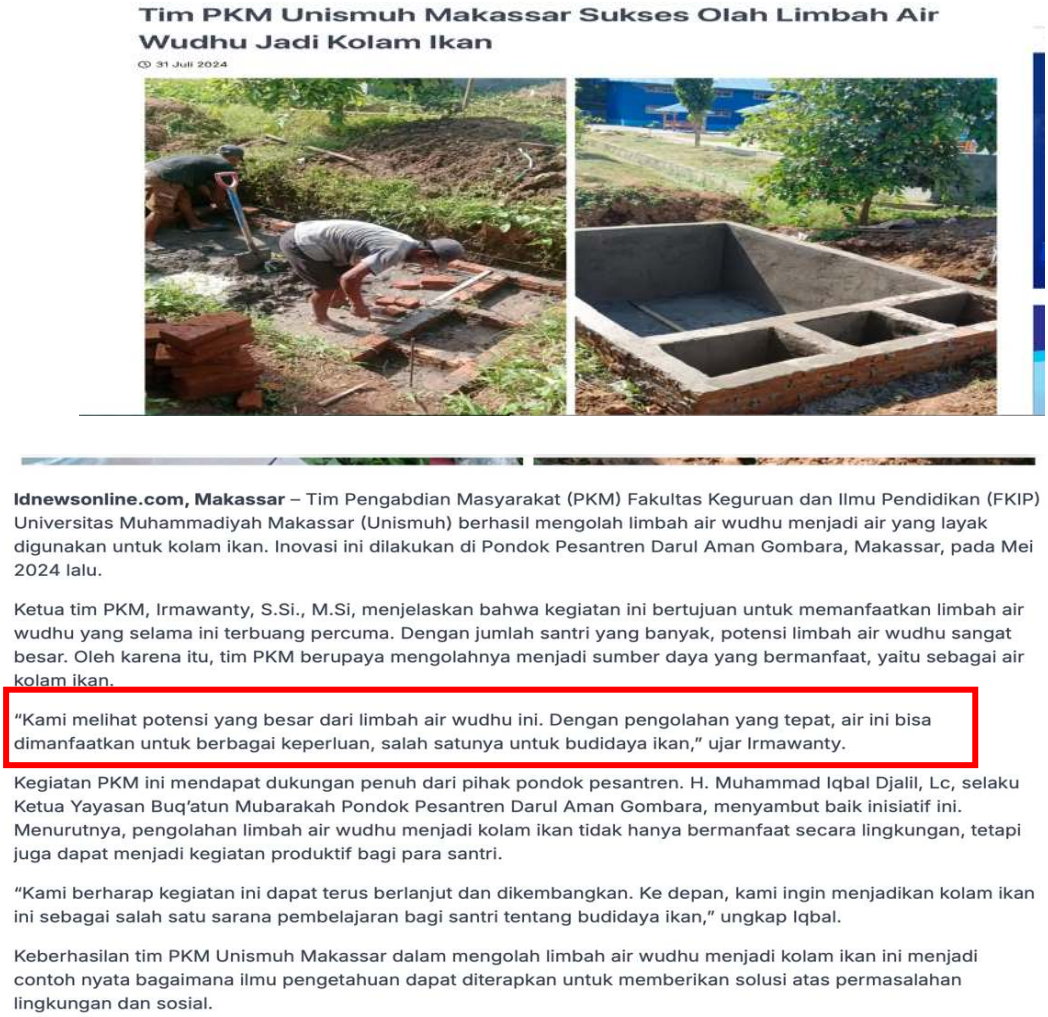
Off-campus Water Conservation Support is implemented through a range of water conservation programmes carried out beyond the campus environment. The core of these activities lies in how the university not only manages water sustainably on campus, but also brings knowledge, innovation, and water-saving practices directly to communities. This approach demonstrates that Unismuh Makassar serves as an active agent of change in water resource management, providing practical support to communities so they can use water more efficiently, reduce pollution, and promote the creative and beneficial reuse of wastewater.

One of the flagship programmes described is a collaboration with Universitas Muhammadiyah Sorong in Kampung Arar, Mayamuk District, Sorong Regency, West Papua. This programme focuses on the utilisation of wastewater from shrimp washing to be processed into liquid organic fertiliser. Wastewater that previously had

the potential to pollute the environment, especially nearby waters, is treated so that it gains new utility value and generates positive impacts for both the environment and the local economy. Through a circular use approach, wastewater is no longer viewed as something to be discarded, but as a resource that can be recovered and reused. The programme also provides practical training for local communities on how to process this waste, enabling them to manage and sustain the initiative independently. In this way, the activities not only address the problem of waste, but also strengthen community capacity in managing water resources sustainably.

In addition, Unismuh Makassar has implemented a wudu water recycling programme in which ablution water is reused as a source of water for community fish ponds. This initiative introduces a simple water circulation system that allows used ablution water—which is relatively clean in quality—not to be discharged directly, but diverted to fish ponds instead. This leads to a significant reduction in water wastage while simultaneously providing both economic and ecological benefits. Fish ponds that utilise recycled water can serve as a source of food, additional income, and an educational medium for communities on the importance of water conservation. The programme demonstrates that water conservation innovations do not always have to be complex or expensive; with appropriate design and proper mentoring, simple technologies can have a substantial impact on water-use efficiency at the community level.

Overall, this document affirms that Unismuh Makassar plays a strategic role in community-based water conservation through two main approaches: reducing water pollution by processing waste into useful products, and optimising the reuse of water that would otherwise be wasted. The two programmes processing shrimp-washing wastewater into liquid organic fertiliser and recycling ablution water for fish ponds illustrate a combination of environmental innovation, community empowerment, and the strengthening of a water-saving culture. Environmentally, these initiatives reduce the discharge of liquid waste into nature and curb potential pollution; socially, they enhance community awareness and participation in sustainable water management. In this way, Unismuh Makassar positions itself as an educational institution that not only teaches theories of water management, but also delivers concrete solutions to communities through practical support for off-campus water conservation efforts.



Tim PKM Unismuh Makassar Sukses Olah Limbah Air Wudhu Jadi Kolam Ikan

31 Juli 2024

Idnewsonline.com, Makassar – Tim Pengabdian Masyarakat (PKM) Fakultas Keguruan dan Ilmu Pendidikan (FKIP) Universitas Muhammadiyah Makassar (Unismuh) berhasil mengolah limbah air wudhu menjadi air yang layak digunakan untuk kolam ikan. Inovasi ini dilakukan di Pondok Pesantren Darul Aman Gombara, Makassar, pada Mei 2024 lalu.

Ketua tim PKM, Irmawanty, S.Si., M.Si, menjelaskan bahwa kegiatan ini bertujuan untuk memanfaatkan limbah air wudhu yang selama ini terbuang percuma. Dengan jumlah santri yang banyak, potensi limbah air wudhu sangat besar. Oleh karena itu, tim PKM berupaya mengolahnya menjadi sumber daya yang bermanfaat, yaitu sebagai air kolam ikan.

"Kami melihat potensi yang besar dari limbah air wudhu ini. Dengan pengolahan yang tepat, air ini bisa dimanfaatkan untuk berbagai keperluan, salah satunya untuk budidaya ikan," ujar Irmawanty.

Kegiatan PKM ini mendapat dukungan penuh dari pihak pondok pesantren. H. Muhammad Iqbal Djalil, Lc, selaku Ketua Yayasan Buq'atun Mubarakah Pondok Pesantren Darul Aman Gombara, menyambut baik inisiatif ini. Menurutnya, pengolahan limbah air wudhu menjadi kolam ikan tidak hanya bermanfaat secara lingkungan, tetapi juga dapat menjadi kegiatan produktif bagi para santri.

"Kami berharap kegiatan ini dapat terus berlanjut dan dikembangkan. Ke depan, kami ingin menjadikan kolam ikan ini sebagai salah satu sarana pembelajaran bagi santri tentang budidaya ikan," ungkap Iqbal.

Keberhasilan tim PKM Unismuh Makassar dalam mengolah limbah air wudhu menjadi kolam ikan ini menjadi contoh nyata bagaimana ilmu pengetahuan dapat diterapkan untuk memberikan solusi atas permasalahan lingkungan dan sosial.

Sustainable water extraction on campus

The main focus of this initiative is demonstrated through the organisation of an International Guest Lecture addressing flood control and water quality as part of efforts to achieve more sustainable water resource management. The event was organised by the Faculty of Engineering, Universitas Muhammadiyah Makassar, on 19 September 2024 at the 17th floor of the Iqra Rectorate Building, and was attended by lecturers, students, and faculty leadership. Through this scientific forum, the university demonstrated its strong commitment to strengthening academic capacity and enhancing the understanding of the academic community regarding water management, flood mitigation, and environmental conservation, which constitute an essential foundation for sustainable water extraction and use, both on and off campus.

The international guest lecture featured two experts from Saga University, Japan, namely Prof. Oshikawa Hideo and Yogo Takai. Prof. Oshikawa Hideo delivered a lecture entitled “A Simple Mathematical Model for Flood Control by a Dry Dam”, which discussed the application of a simple mathematical model in designing an efficient flood control system based on the concept of a dry dam. The model highlights how flood control infrastructure can be designed through a measured scientific approach so that water flow can be controlled in a safer and more sustainable manner. This concept is closely related to the principles of water extraction and management that are not only oriented towards utilisation, but also towards protecting downstream areas from flood risks and environmental degradation. In this way, participants were encouraged to understand that water management cannot be separated from rigorous, data-based scientific calculations.

Meanwhile, Yogo Takai presented material focusing on water quality and global drought management. He highlighted the challenges of water quality degradation and the increasing risk of drought in various parts of the world as a consequence of climate change. The lecture emphasised the importance of comprehensive water resource management, covering both quantity and quality dimensions, as well as the need for technologies and policies that support water conservation. In the campus context, these insights can serve as a foundation for developing policies and technologies that support sustainable water extraction, such as the utilisation of groundwater sources, rainwater harvesting, and water quality monitoring systems within the campus environment, ensuring that academic and operational activities can continue without compromising environmental sustainability.





Promoting conscious water usage on campus

Promoting Conscious Water Usage on Campus refers to the university's efforts to actively promote prudent and responsible water use within the campus environment. Through a combination of educational, technical, and participatory approaches, Unismuh Makassar seeks to cultivate a water-saving culture that is not only grounded in written policies, but also reflected in the daily behaviour of the academic community. The central message is that water is a vital resource that must

be used efficiently and responsibly for the sake of environmental sustainability and future generations.

From an educational perspective, the university conducts regular water conservation awareness campaigns. One tangible example is the installation of signs and notice boards in various public areas on campus, such as ablution areas, toilets, and laboratories. Messages such as “Save Water, Use Wisely” and “Conserve Water for the Future” are displayed as continuous visual reminders for students, lecturers, and administrative staff to be more cautious when using water. These simple media serve as a form of non-formal education that operates on a daily basis, gradually instilling the awareness that every drop of water has value and should not be wasted.

From a technical standpoint, Unismuh Makassar does not rely solely on appeals, but also provides water-efficient infrastructure. The campus has implemented water efficiency systems such as automatic faucets, which only release water when needed, thereby preventing water from flowing continuously without control. In addition, a water level control system is applied in storage tanks to ensure that water volume is properly managed and to avoid wastage due to overflow or excessive filling. The university also operates water recycling facilities, which enable certain types of wastewater to be treated and reused for non-potable purposes, such as garden irrigation and cleaning of campus areas. As a result, the use of clean water can be reduced because part of the demand is met by recycled water.

Furthermore, the participatory approach is realised through various educational activities and thematic campaigns involving students and staff. The university organises workshops, seminars, and campaigns on water conservation aimed at enhancing knowledge while encouraging members of the academic community to act as water-saving ambassadors in their respective environments. These activities go beyond theoretical discussions, incorporating practical components such as ways to reduce water consumption in laboratories, dormitories, or during ablution. By engaging multiple stakeholders, water conservation programmes are no longer seen merely as a technical matter for facility managers, but as a shared responsibility of the entire campus community.



2. Kegiatan mahasiswa, seperti organisasi kemahasiswaan, kegiatan akademik, dan kegiatan sosial di dalam maupun di luar kampus.
3. Fasilitas umum kampus, meliputi area sanitasi, kantin, asrama, taman, lapangan olahraga, dan ruang terbuka hijau.
4. Unit layanan dan kegiatan pendukung, seperti pengelolaan air bersih, instalasi air limbah, dan sistem distribusi air kampus.
5. Kerja sama eksternal, yang melibatkan mitra pemerintah, lembaga non-pemerintah, dan masyarakat sekitar dalam kegiatan konservasi dan edukasi air.

BAB II
STRATEGI IMPLEMENTASI

Pasal 5
Strategi

Untuk memastikan efektivitas pelaksanaan Kebijakan Pengelolaan Penggunaan Air Secara Bijak, Universitas Muhammadiyah Makassar menerapkan strategi implementasi sebagai berikut:

1. Peningkatan Kesadaran dan Edukasi
   a. Melaksanakan sosialisasi berkala kepada dosen, tenaga kependidikan, dan mahasiswa mengenai pentingnya penghematan air.
   b. Menyebarkan informasi melalui poster, media sosial, dan papan pengumuman bertema *Save Water* atau *Water Conservation Awareness*.
   c. Mengintegrasikan nilai-nilai konservasi air ke dalam kegiatan akademik, pengabdian masyarakat, dan program orientasi mahasiswa baru.
2. Pengelolaan Infrastruktur dan Teknologi Hemat Air
   a. Melakukan perawatan rutin dan inspeksi sistem pipa, kran, dan tangki air untuk mencegah kebocoran.
   b. Mengimplementasikan teknologi hemat air seperti kran otomatis, sensor aliran air, dan sistem resirkulasi air di fasilitas kampus.
   c. Mengoptimalkan pemanfaatan air olahan dari Instalasi Pengolahan Air Limbah (IPAL) untuk penyiraman taman dan kebersihan lingkungan kampus.

Implementation





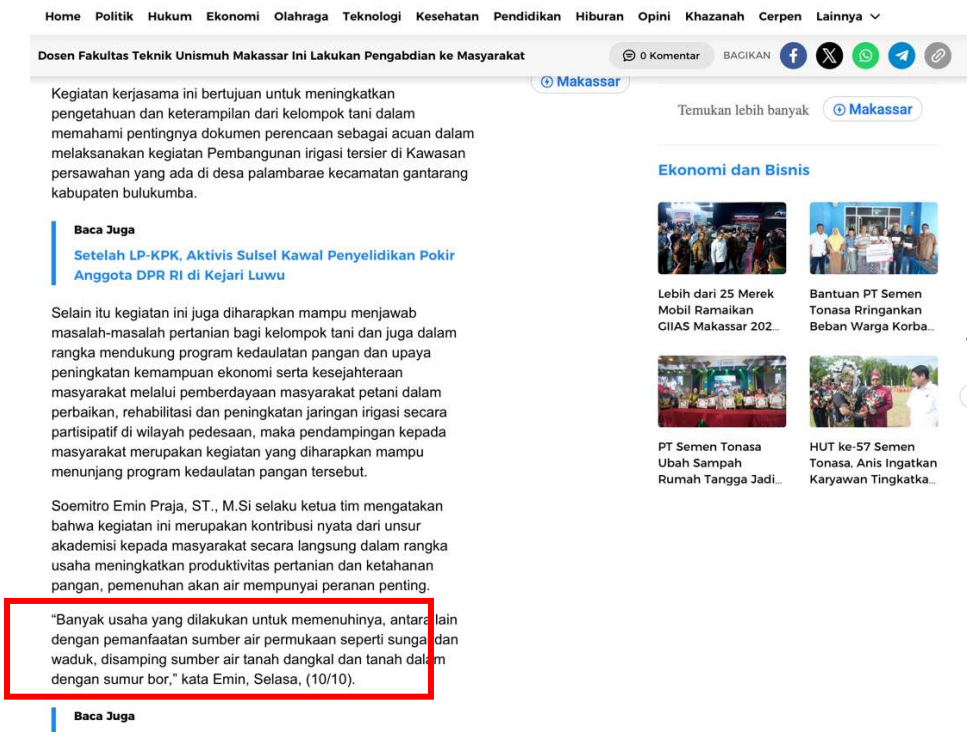
Promoting conscious water usage in the wider community

Promoting conscious water usage in the wider community. The initiative focuses on efforts to promote prudent and responsible water use within broader society. The activities are implemented by the Faculty of Engineering through the Urban and Regional Planning (URP) Study Program, which concentrates on raising public awareness regarding the importance of efficient, economical, and sustainable water management, particularly in the context of agricultural irrigation. Through this program, the university positions itself not only as a higher education institution, but also as a strategic partner for communities in encouraging more responsible practices in managing water resources.

The community engagement program is carried out in Palambarae Village, Bulukumba Regency, involving lecturers and students who provide education and assistance to the Bacari Farmer Group. The materials delivered include the importance of irrigation planning documents as a foundation for effective and efficient management of agricultural water use. Such planning documents enable farmers to understand how to regulate water distribution, determine usage priorities, and anticipate water shortages during the dry season. With proper planning, water can be utilised optimally to support agricultural productivity without causing waste or conflicts over water use among farmers.

In addition, the outreach team introduces strategies for conserving water resources and for utilising both surface water and groundwater in a sustainable manner. The community is encouraged to recognise that water is not only a support for current agricultural production, but must also be preserved for future generations. Practices such as excessive groundwater extraction, discharge of waste into irrigation channels, or the use of water without clear calculation are highlighted as behaviours that need to be reduced. This educational component helps farmers to see the link between their agricultural practices and the health of surrounding aquatic ecosystems.

The program goes beyond mere knowledge transfer by seeking to foster behavioural change in water management. Farmers are encouraged to balance production needs with environmental sustainability, for example by scheduling irrigation more efficiently, reducing water losses in distribution channels, and adopting simple technologies or methods to save water. The assistance provided also strengthens collaboration between the university and local communities, whereby the university contributes scientific knowledge and methodological support, while the community serves as the main actor implementing these practices in the field.



Home Politik Hukum Ekonomi Olahraga Teknologi Kesehatan Pendidikan Hiburan Opini Khazanah Cerpen Lainnya

Dosen Fakultas Teknik Unismuh Makassar Ini Lakukan Pengabdian ke Masyarakat

0 Komentar BAGIKAN

Makassar

Kegiatan kerjasama ini bertujuan untuk meningkatkan pengetahuan dan keterampilan dari kelompok tani dalam memahami pentingnya dokumen perencaan sebagai acuan dalam melaksanakan kegiatan Pembangunan irigasi tersier di Kawasan persawahan yang ada di desa palambarae kecamatan gantarang kabupaten bulukumba.

Baca Juga

Setelah LP-KPK, Aktivis Sulsel Kawal Penyelidikan Pokir Anggota DPR RI di Kejari Luwu

Selain itu kegiatan ini juga diharapkan mampu menjawab masalah-masalah pertanian bagi kelompok tani dan juga dalam rangka mendukung program kedaulatan pangan dan upaya peningkatan kemampuan ekonomi serta kesejahteraan masyarakat melalui pemberdayaan masyarakat petani dalam perbaikan, rehabilitasi dan peningkatan jaringan irigasi secara partisipatif di wilayah pedesaan, maka pendampingan kepada masyarakat merupakan kegiatan yang diharapkan mampu menunjang program kedaulatan pangan tersebut.

Soemitro Emin Praja, ST., M.Si selaku ketua tim mengatakan bahwa kegiatan ini merupakan kontribusi nyata dari unsur akademisi kepada masyarakat secara langsung dalam rangka usaha meningkatkan produktivitas pertanian dan ketahanan pangan, pemenuhan akan air mempunyai peranan penting.

"Banyak usaha yang dilakukan untuk memenuhinya, antara lain dengan pemanfaatan sumber air permukaan seperti sungai dan waduk, disamping sumber air tanah dangkal dan tanah dalam dengan sumur bor," kata Emin, Selasa, (10/10).

Baca Juga

Temukan lebih banyak Makassar

Ekonomi dan Bisnis

Lebih dari 25 Merek Mobil Ramaikan GIIAS Makassar 202...

Bantuan PT Semen Tonasa Ringankan Beban Warga Korba...

PT Semen Tonasa Ubah Sampah Rumah Tangga Jadi...

HUT ke-57 Semen Tonasa, Anis Ingatkan Karyawan Tingkatka...

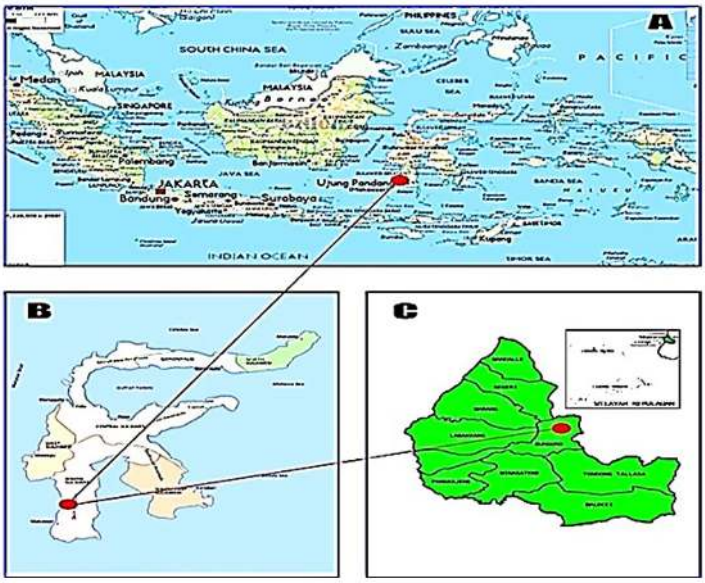
RESEARCH RELATED SDG 6

Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia



Yunus and his colleagues conducted a study titled "Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia." The research assesses how sustainable the Biringkassi mangrove ecosystem currently is, and which ecological, economic, social, and institutional factors most strongly influence its future management. Using a descriptive quantitative approach, the authors carried out field inventories of mangrove vegetation (species composition, density, dominance, Important Value Index), and collected socio-economic and governance data through observations and purposive interviews with government agencies, village authorities, community leaders, and

NGOs. Sustainability status was then evaluated with the RAPFISH (Rapid Appraisal for Fisheries) method using Multidimensional Scaling (MDS), scoring 24 attributes across four dimensions on a 0–100 index. The results show that the ecological (53.56%) and institutional (53.57%) dimensions are “quite sustainable”, while the economic (44.09%) and social (49.78%) dimensions are “less sustainable”, leading to an overall **multidimensional index of 50.64%**, which indicates that mangrove management in Biringkassi is still in a marginal, less sustainable condition.



The analysis reveals that ecological attributes such as land-use zoning, rehabilitation efforts, seed availability, and mangrove diversity currently support moderate sustainability, but remain vulnerable to land pressure and coastal abrasion. In contrast, the economic and social dimensions are weakened by open and largely unregulated community access to mangrove resources, low value-added use of mangrove products, limited government budgeting for management, and low levels of community education, knowledge, and participation. Institutionally, basic legality, local government commitment, and the existence of management programmes provide a relatively stronger foundation, yet leverage analysis identifies formal regulations, community institutional involvement, and coordination among stakeholders as highly sensitive attributes that must be strengthened to avoid further decline. Overall, the study concludes that sustainability improvements require better regulation of resource use, enhanced community empowerment and informal education, increased coordination across institutions, expanded rehabilitation

programmes, and greater engagement from researchers and academics in supporting evidence-based mangrove management strategies.

The contributions of this research are closely aligned with several Sustainable Development Goals (SDGs). By focusing on conservation and sustainable management of mangroves key coastal habitats that protect shorelines, support fisheries, and store blue carbon the study directly advances **SDG 14: Life Below Water** and **SDG 15: Life on Land**, emphasising the need to safeguard biodiversity and ecosystem services in coastal zones. Its discussion of abrasion control, flood protection, and buffering against seawater intrusion links healthy mangroves with **SDG 13: Climate Action** and **SDG 11: Sustainable Cities and Communities**, as they form a natural defence system that enhances the resilience of nearby settlements. At the governance level, the identification of institutional weaknesses and the call for strong formal regulations, coordination among agencies, and active community institutions speak to **SDG 16: Peace, Justice and Strong Institutions**, while the recommendation for collaboration among government, local communities, NGOs, and academia reflects **SDG 17: Partnerships for the Goals**. Together, these findings show that strengthening mangrove governance in Biringkassi is not only an ecological priority but also a critical pathway for achieving integrated, sustainable coastal development.

Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq



Jumintono and his colleagues conducted a study titled “Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq.” The research evaluates how three sustainable irrigation techniques precision irrigation (PI), deficit irrigation (DI), and drip irrigation (DRI) perform relative to conventional flood irrigation (CFI) in terms of crop productivity and water use efficiency (WUE) across three distinct agroecological zones (semi-arid Al-Anbar, sub-humid Diyala, and humid Maysan).

Using a randomised complete block design, the authors tested wheat, maize, and rice, respectively, with four irrigation treatments (CFI, PI, DI at 70% crop water requirement, and DRI at 90% crop water requirement) and collected detailed data on plant height, leaf area index (LAI), biomass, grain yield, soil moisture, and weather conditions. The results show that PI consistently produced the highest crop growth and yields, increasing wheat, maize, and rice grain yields by 33%, 38%, and 34%, respectively, compared to CFI. DI and DRI also improved growth and yield relative to CFI, though to a lesser degree. PI additionally increased WUE by 46–51% across the three zones, with DI and DRI also outperforming traditional flood irrigation. Hydrological modelling using SWAT revealed that PI, DI, and DRI reduced evapotranspiration and surface runoff and increased groundwater recharge compared with CFI, while remote-sensing indices (NDVI and EVI) showed strong positive correlations ($r \approx 0.79–0.91$) with LAI, biomass, and grain yield, confirming their utility for monitoring crop performance and guiding irrigation scheduling.

The study's findings are highly relevant to several Sustainable Development Goals (SDGs). By demonstrating that PI, DI, and DRI can save 20–30% of irrigation water while still increasing yields for staple crops, the research directly advances **SDG 2: Zero Hunger** and **SDG 6: Clean Water and Sanitation**, showing how water-efficient irrigation can simultaneously support food security and conserve scarce freshwater resources in arid and semi-arid regions like Iraq. The use of advanced sensors, remote sensing, and hydrological modelling to optimise irrigation links the work to **SDG 9: Industry, Innovation and Infrastructure**, highlighting the role of technological innovation and decision-support tools in sustainable agricultural systems. By reducing water losses, lowering pressure on rivers and aquifers, and improving resilience to climate-induced water stress, the study contributes to **SDG 13: Climate Action**, offering practical adaptation strategies that enhance water productivity under changing climatic conditions. More broadly, the emphasis on capacity building, stakeholder engagement, and supportive policy frameworks for the adoption of sustainable irrigation practices connects to **SDG 12: Responsible Consumption and Production**, as it promotes more efficient and responsible use of water in agricultural production. Through this integrated approach, the research positions water-saving

irrigation technologies as a cornerstone of climate-resilient, resource-efficient food systems.

Shincronization of SDGS in the concept of waterfront settlements in Makassar city



The article “Shincronization of SDGs in the Concept of Waterfront Settlements in Makassar City” examines how the design and upgrading of waterfront settlements in Makassar can be aligned with the 2030 Agenda for Sustainable Development under the principle of *“no one left behind”*. The study is motivated by the fact that, as of 2018, Makassar still had 650.74 hectares of untreated slum areas, with a large share of slum settlements concentrated along the water’s edge. In these waterfront kampungs, the main problems include seawater intrusion and sedimentation in household rainwater drainage, as well as the lack of access to safe drinking water and sanitation for low-income households (MBR) and widespread substandard, uninhabitable housing conditions. These conditions pose a major challenge for Makassar City in achieving its sustainable development goals. The research therefore aims to formulate a residential arrangement concept for waterfront settlements that is consistent with SDG standards, particularly in terms of building safety and resilience, adequate building area, access to sanitation, and access to drinking water. Methodologically, the study employs spatial analysis and SDG-based assessment to identify the characteristics and spatial distribution patterns of waterfront villages, overlay them with slum delineation, and determine which households meet or fail to meet criteria for adequate housing, water supply, and wastewater management. The main output is a conceptual model of a “water village” that is explicitly based on sustainable development achievement indicators for waterfront areas in Makassar.

The contribution of this research is strongly aligned with **SDG 11: Sustainable Cities and Communities**, as it focuses on upgrading slums and improving the safety, habitability, and basic service provision of informal waterfront settlements, thereby

promoting **inclusive, safe, resilient, and sustainable human settlements**. By centring its analysis on access to **drinking water, sanitation, and wastewater systems**, the study directly supports **SDG 6: Clean Water and Sanitation**, especially targets on universal access to safe and affordable drinking water and adequate sanitation for all. Because the targeted beneficiaries are predominantly **low-income communities (MBR)** living in precarious environments, the research also advances **SDG 1: No Poverty** and **SDG 10: Reduced Inequalities**, framing slum upgrading and service provision as instruments for reducing urban deprivation and spatial inequality. The focus on seawater intrusion and drainage problems, which are often exacerbated by **climate-related sea-level rise and extreme rainfall**, links the work to **SDG 13: Climate Action**, as more climate-resilient waterfront settlement design can reduce risk and vulnerability. Finally, by framing the "water village" concept as an SDG-synchronised model to guide local policy and planning, the study contributes to **SDG 17: Partnerships for the Goals**, encouraging coordination between municipal government, communities, planners, and service providers to jointly implement sustainable, SDG-compliant interventions in Makassar's waterfront areas.

AFFORDABLE AND CLEAN ENERGY

Energy Efficient Renovation and Building

Universitas Muhammadiyah Makassar demonstrates a strong commitment to energy efficiency through a policy that regulates all construction and renovation activities to comply with energy efficiency standards. This commitment is outlined in the Energy Efficient Renovation and Building Policy, particularly in Article 5, which states that every construction project must adhere to the university's established energy efficiency standards and align with national regulations.



BAB IV
KETENTUAN PELAKSANAAN
Pasal 5
Prinsip Pelaksanaan

1. Efisiensi energi menjadi pertimbangan utama dalam setiap tahap perencanaan, desain, dan pelaksanaan pembangunan.
2. diterapkan dalam setiap proyek.
3. Desain bangunan harus memperhatikan pencahayaan alami, ventilasi silang, dan orientasi bangunan terhadap arah matahari.
4. Penggunaan sistem energi terbarukan seperti panel surya didorong sesuai dengan potensi dan kebutuhan.

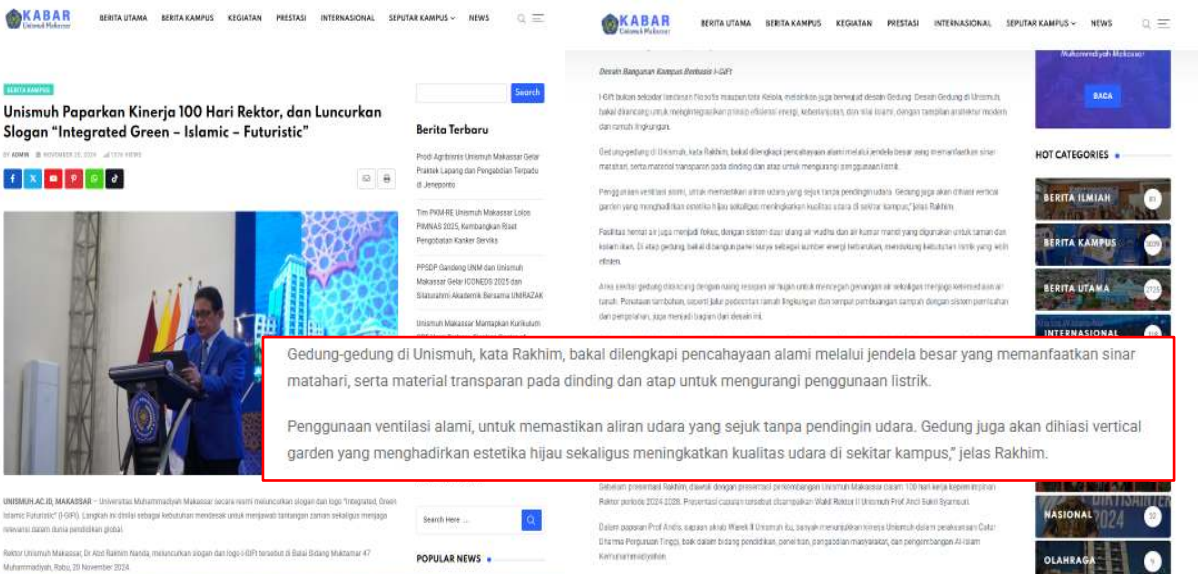
Pasal 6
Tanggung Jawab

1. Rektor menetapkan kebijakan dan melakukan pengawasan pelaksanaannya.
2. Wakil Rektor Bidang Keuangan dan Aset bertanggung jawab dalam perencanaan dan penganggaran proyek efisiensi energi.
3. Unit Sarana dan Prasarana wajib memastikan penerapan prinsip efisiensi energi dalam setiap kegiatan pembangunan dan renovasi.
4. Tim K3 melakukan monitoring dan evaluasi terhadap implementasi kebijakan.

In its implementation, the university ensures that every building design optimizes natural lighting, cross ventilation, and the use of environmentally friendly materials and energy-efficient technologies, such as LED lighting, solar panels, and low-energy air conditioning systems. This policy serves as the main guideline for all university units in developing sustainable infrastructure and supporting the implementation of green campus principles.

Furthermore, the commitment to energy efficiency is strengthened through the adoption of the Integrated–Green–Islamic–Futuristic (I-GIFt) concept. This concept

emphasizes sustainable resource management by utilizing eco-friendly technologies in all aspects of campus infrastructure development. Every renovation and construction activity is directed toward reducing electricity consumption and creating a comfortable, healthy, and sustainable learning environment.



Carbon Reduction and Emission Management





As part of its commitment to carbon management and CO_2 emission reduction, Universitas Muhammadiyah Makassar has implemented various energy efficiency programs and initiatives to utilize renewable energy sources across the campus. One concrete step is the replacement of all conventional lamps with energy efficient LED lighting, which not only reduces electricity consumption but also extends the lifespan of lighting equipment. In addition, the use of inverter-based air conditioning systems in several main buildings has helped lower the electrical load from cooling systems, which are among the largest contributors to indirect carbon emissions.



The university has also operated a solar panel system (PLTS) at several street lighting points and campus facility areas as an alternative low-carbon energy source. The utilization of solar energy helps reduce dependence on fossil-based electricity and supports the transition toward a green campus powered by clean energy. Over the past year, the solar panel system has generated 1,314 kWh of electricity, contributing to the university's total energy consumption of 1,951,548 kWh. Although the contribution of solar energy remains relatively small, this initiative represents an important initial step toward establishing a more sustainable energy system.



Additionally, the university is committed to reducing emissions in the transportation sector by providing comfortable, safe, and interconnected pedestrian pathways that link the main campus buildings. These facilities encourage the campus community to walk more frequently and reduce the use of motorized vehicles. These measures demonstrate the university's comprehensive approach to carbon emission management, which includes energy conservation, the use of renewable energy sources, and the reduction of indirect emissions.

Energy Consumption Reduction Plan

In an effort to strengthen overall energy efficiency, Universitas Muhammadiyah Makassar has implemented the Energy Efficiency Plan Policy to Reduce Overall Energy Consumption. This policy serves as a foundation for all university units to carry out efficient, effective, and sustainable energy management practices across campus operations.



BAB II

RENCANA DAN STRATEGI IMPLEMENTASI

Pasal 3

Rencana Efisiensi Energi

Untuk mengurangi konsumsi energi secara keseluruhan, Universitas Muhammadiyah Makassar menetapkan rencana sebagai berikut:

1. Melakukan audit energi tahunan untuk mengidentifikasi area pemborosan energi di seluruh unit kampus;
2. Menetapkan target pengurangan konsumsi energi listrik minimal 10% setiap tahun;
3. Mengganti peralatan listrik lama dengan peralatan hemat energi seperti lampu LED dan pendingin ruangan berstandar efisiensi tinggi;
4. Mengatur jadwal penggunaan energi di ruang-ruang perkuliahan, laboratorium, dan fasilitas umum;
5. Mengoptimalkan pencahayaan alami dan ventilasi alami dalam desain bangunan;
6. Mendorong penggunaan energi terbarukan seperti panel surya di area kampus;
7. Mengembangkan sistem pemantauan energi berbasis digital untuk mencatat dan mengontrol penggunaan energi kampus secara real-time.
8. Mendorong seluruh sivitas akademika untuk membiasakan perilaku hemat energi, termasuk mematikan lampu, pengingin ruangan (AC), komputer, dan peralatan listrik lainnya apabila tidak sedang digunakan

MONITORING DAN EVALUASI

Pasal 4

Monitoring dan Evaluasi

Monitoring dan evaluasi pelaksanaan kebijakan ini dilakukan oleh Direktorat Inventaris dan Aset.

1. Pemantauan dilakukan secara berkala terhadap:
   a. Konsumsi energi listrik, air, dan bahan bakar;
   b. Efektivitas penerapan teknologi hemat energi;

Through this policy, the university has established several strategic measures, including conducting annual energy audits to identify areas of energy waste, setting a target to reduce electricity consumption by 10% each year, and replacing outdated electrical equipment with energy-efficient technologies such as LED lighting and low-power air conditioning systems. In addition, building designs are optimized to maximize natural lighting and cross ventilation, while the adoption of solar panels has begun to support sustainable campus operations.

This energy reduction initiative is also accompanied by efforts to cultivate energy-saving behavior among the academic community. The university promotes habits such as turning off lights, air conditioners, and electronic devices when not in use. The implementation of this policy is supervised by the Directorate of Inventory and Assets through an annual monitoring and evaluation mechanism to ensure effectiveness and continuous improvement.

RESEARCH RELATED TO SDG 7

A VECM Analysis of the Impact of Economic Growth and Investment on Electricity Consumption in Indonesia



A study by Andi Abdul Halik Lateko from Universitas Muhammadiyah Makassar and Yusri Syam Akil from Hasanuddin University employs a Vector Error Correction Model (VECM) to analyze the impact of economic growth (GDP) and foreign direct investment (FDI) on electricity consumption (EPC) in Indonesia from 1971 to 2019. Using World Bank annual data, the authors conduct unit root tests, Johansen cointegration analysis, and VECM Granger causality tests to examine both long run equilibrium and short run dynamics among EPC, GDP, and FDI. The results show that the three variables are cointegrated, indicating a long run relationship: in the long term, EPC is negatively related to GDP but positively related to FDI. In the short run, GDP has a significant negative effect on EPC at a three year horizon, while FDI has a significant negative effect on EPC at one and two year horizons. Causality analysis further reveals a unidirectional causal relationship from GDP to EPC and a bidirectional relationship between EPC and FDI, with no causal link between GDP and FDI, underscoring the central role of electricity use in the interaction between growth and investment.

This research closely supports SDG 7 (Affordable and Clean Energy) by demonstrating how economic growth and foreign investment patterns shape electricity consumption, which in turn has implications for planning reliable, efficient, and sustainable power systems. By highlighting the need to ease constraints and improve access to electricity to sustain economic expansion and attract investment, the study aligns with SDG 8 (Decent Work and Economic Growth), emphasizing that energy policy is a key pillar of inclusive and sustained growth. The focus on long run infrastructure needs and the responsiveness of electricity demand to macroeconomic variables relates to SDG 9 (Industry, Innovation and Infrastructure), as effective planning of power infrastructure is critical for industrial development and

technological upgrading. Moreover, because electricity consumption is closely linked to emissions and environmental pressures, the paper indirectly contributes to SDG 13 (Climate Action) by providing empirical evidence that can inform the design of energy efficiency measures and low carbon power strategies in a growing economy.

In conclusion, the study shows that GDP and FDI are decisive drivers of Indonesia's electricity consumption, with complex long and short run effects that must be understood for sound policymaking. The presence of both unidirectional and bidirectional causalities suggests that managing electricity demand cannot be separated from strategies to guide investment flows and economic expansion. By using VECM based evidence to support integrated decisions on energy infrastructure, access, and efficiency, policymakers can better promote sustainable economic growth, strengthen industrial development, and steer Indonesia's power sector toward pathways that are consistent with affordable energy provision and climate resilient development.

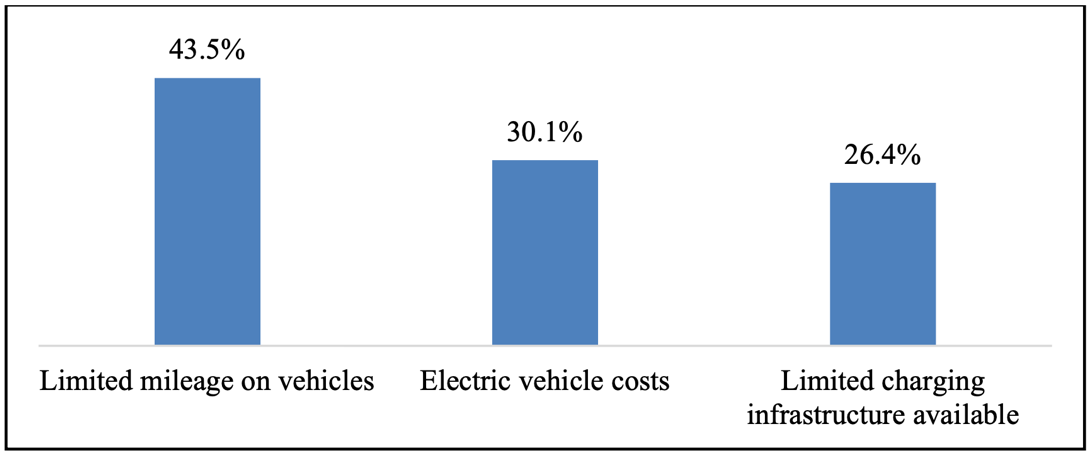
Null hyp.	Trace statistics		Maximum eigen value	
	t-statistics	*p*-value	Max. eigen statistics	*p*-value
*R = 0	50.3148	0.0001	27.2017	0.0062
**R ≤ 1	23.1131	0.0029	15.9907	0.0264
***R ≤ 2	7.12237	0.0076	7.12237	0.0076

Public Response on Twitter: The Urgency of Government Policy on Electric Vehicles



Luth, Kismartini, Dyah Lituhayu, Rani Maswati, and Tawakkal Baharuddin conducted a study titled "Public Response on Twitter: The Urgency of Government Policy on Electric Vehicles," examining public perceptions of electric vehicle (EV) policies in Indonesia through Twitter sentiment analysis. This research aims to assess the urgency of EV policies in addressing pressing environmental issues, such as air pollution, dependency on imported fuels, and climate change, while promoting energy efficiency and reducing greenhouse gas emissions. Using Nvivo 12 Plus software, the

researchers analyzed 5,789 tweets, capturing public reactions and sentiment toward EV policies. The findings reveal substantial negative public sentiment despite government incentives, such as fiscal benefits and tax exemptions for EVs. Key concerns include limited EV mileage, high costs, and inadequate charging infrastructure, all of which pose challenges to widespread adoption. Figure 6 shows the primary factors influencing negative sentiment and public acceptance regarding EV adoption in Indonesia.



The study contributes to **SDG 7: Affordable and Clean Energy** by highlighting the need for comprehensive government policies to facilitate the shift toward cleaner transportation alternatives. The findings emphasize that effective policy frameworks and infrastructure development are crucial for making EVs accessible and affordable, thus promoting energy efficiency in Indonesia's transportation sector. By addressing infrastructure and cost barriers, government efforts can significantly improve public access to clean and sustainable energy options.

In alignment with **SDG 13: Climate Action**, the study underscores the importance of EV policies in reducing carbon emissions and enhancing air quality, especially in urban centers. The push for EV adoption is seen as a strategic initiative to reduce the transportation sector's dependence on fossil fuels, supporting broader climate goals. The research highlights that robust policy interventions are needed to fully realize the environmental advantages of EVs.

Furthermore, this study aligns with **SDG 17: Partnerships for the Goals** by underscoring the critical role of collaboration among government bodies, the automotive industry, and the public. It emphasizes that partnerships are essential for

building the necessary infrastructure, providing subsidies, and conducting public awareness campaigns to boost EV adoption. The research suggests that establishing such alliances is vital to creating a supportive environment for EVs, thereby contributing to sustainable development on both national and global levels.



DECENT WORK AND ECONOMIC GROWTH

Fair Wages and Gender Pay Equity



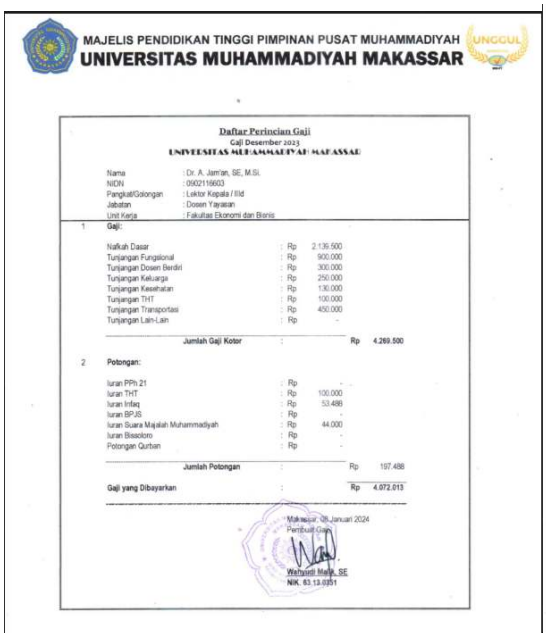
Universitas Muhammadiyah Makassar is strongly committed to ensuring the welfare of all employees through the implementation of fair, transparent, and non-discriminatory wage standards. This principle is embodied in the university's payroll policy based on the Employment Regulation of 2021, which remains in effect to this day. The policy guarantees that every employee receives a living wage in accordance with regional standards and enjoys fair financial entitlements, regardless of employment status, position, or gender.

The university also ensures that each employee receives a transparent payslip that clearly outlines salary components. This practice not only strengthens accountability but also enhances employee trust in the university's payroll system. Through this transparency, the university upholds the values of fairness and professionalism that form the foundation of its human resource management practices.

In addition to ensuring fair wages, the university regularly conducts monitoring of its payroll structure to prevent gender-based pay disparities. This monitoring process serves as tangible evidence of the university's commitment to gender equality in the workplace. Evaluation results consistently show that there is no difference in basic salaries between male and female employees holding equivalent positions and responsibilities.

This policy reflects the university's broader effort to create a fair and inclusive work environment, where all employees are treated with respect and equality. Continuous transparency and supervision of the payroll system demonstrate that the

university is committed not only to economic welfare but also to promoting social justice and equal opportunity for all staff..

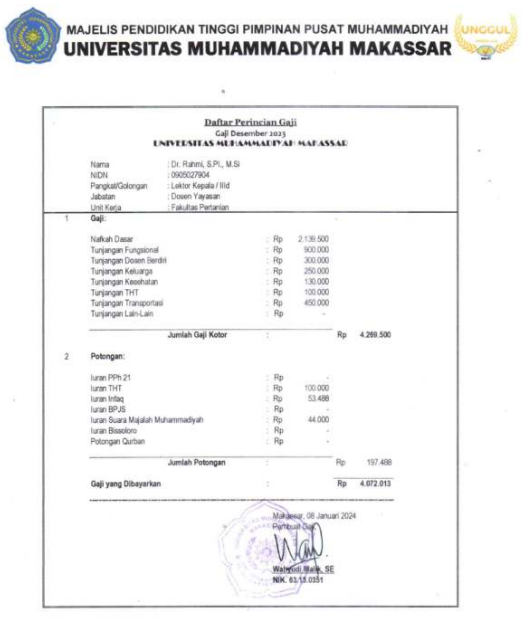


MAJELIS PENDIDIKAN TINGGI PIMPINAN PUSAT MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Daftar Perincian Gaji
Gaji Desember 2023
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Nama	: Dr. A. Jamʼan, SE, M.Si.		
NIDN	: 0902116603		
Pangkat/Golongan	: Lektor Kepala / IIId		
Jabatan	: Dosen Yayasan		
Unit Kerja	: Fakultas Ekonomi dan Bisnis		
1 Gaji:			
Nafkah Dasar		Rp	2.139.500
Tunjangan Fungsional		Rp	900.000
Tunjangan Dosen Berdiri		Rp	300.000
Tunjangan Keluarga		Rp	250.000
Tunjangan Kesehatan		Rp	130.000
Tunjangan THT		Rp	100.000
Tunjangan Transportasi		Rp	450.000
Tunjangan Lain-Lain		Rp	-
Jumlah Gaji Kotor		Rp	4.269.500
2 Potongan:			
Iuran PPh 21		Rp	-
Iuran THT		Rp	100.000
Iuran Infaq		Rp	53.488
Iuran BPJS		Rp	-
Iuran Suara Majalah Muhammadiyah		Rp	44.000
Iuran Bissoloro		Rp	-
Potongan Qurban		Rp	-
Jumlah Potongan		Rp	197.488
Gaji yang Dibayarkan		Rp	4.072.013

Makassar, 08 Januari 2024
Pembuat Gaji
Wahyuni Mallo, SE
NIK. 63.13.0351



MAJELIS PENDIDIKAN TINGGI PIMPINAN PUSAT MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Daftar Perincian Gaji
Gaji Desember 2023
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Nama	: Dr. Rahmi, S.Pi., M.Si.		
NIDN	: 0905027904		
Pangkat/Golongan	: Lektor Kepala / IIId		
Jabatan	: Dosen Yayasan		
Unit Kerja	: Fakultas Pertanian		
1 Gaji:			
Nafkah Dasar		Rp	2.139.500
Tunjangan Fungsional		Rp	900.000
Tunjangan Dosen Berdiri		Rp	300.000
Tunjangan Keluarga		Rp	250.000
Tunjangan Kesehatan		Rp	130.000
Tunjangan THT		Rp	100.000
Tunjangan Transportasi		Rp	450.000
Tunjangan Lain-Lain		Rp	-
Jumlah Gaji Kotor		Rp	4.269.500
2 Potongan:			
Iuran PPh 21		Rp	-
Iuran THT		Rp	100.000
Iuran Infaq		Rp	53.488
Iuran BPJS		Rp	-
Iuran Suara Majalah Muhammadiyah		Rp	44.000
Iuran Bissoloro		Rp	-
Potongan Qurban		Rp	-
Jumlah Potongan		Rp	197.488
Gaji yang Dibayarkan		Rp	4.072.013

Makassar, 08 Januari 2024
Pembuat Gaji
Wahyuni Mallo, SE
NIK. 63.13.0351

Through the implementation of an equitable wage system, Universitas Muhammadiyah Makassar reaffirms its position as an educational institution dedicated to sustainable development and the advancement of employee well-being. The Islamic values that underpin the university further reinforce the implementation of this policy, where justice, honesty, and responsibility serve as guiding principles in every decision-making process.

Labour Rights and Freedom of Association

Universitas Muhammadiyah Makassar reaffirms its commitment to respecting and protecting the rights of all employees, including the freedom of association and the right to collective bargaining. This principle is an integral part of the university's employment policies as outlined in the Employment Regulation of 2021, which remains in effect today. Through this regulation, the university ensures that every employee has the freedom to participate in organizations or labor unions that represent their interests.

As a tangible implementation of this principle, Universitas Muhammadiyah Makassar officially established the Universitas Muhammadiyah Makassar Labor Union, which was legitimized through the Rector's Decree of 2023. This union serves



UNIVERSITAS MUHAMMADIYAH MAKASSAR

SURAT KEPUTUSAN
REKTOR UNIVERSITAS MUHAMMADIYAH MAKASSAR
NOMOR : 419A TAHUN 1445H/2023M
TENTANG
ASOSIASI PEGAWAI
UNIVERSITAS MUHAMMADIYAH MAKASSAR

Rektor Universitas Muhammadiyah Makassar

Menimbang : a. Dabwa untuk membangunan kekuatan dan persatuan dalam bekerja menuju tujuan bersama dalam Visi dan Misi Universitas Muhammadiyah Makassar, maka perlu lembaga yang menaungi Pegawai (Tenaga Pendidik dan Tenaga Kependidikan) yang berfungsi sebagai lembaga pemersatu dalam lingkungan Universitas Muhammadiyah Makassar yang professional

b. Dabwa berdasarkan pertimbangan sebagaimana dimaksud dalam huruf a, perlu menetapkan bahwa Pengurus Asosiasi Pegawai Universitas Muhammadiyah Makassar

c. Dabwa untuk kepentingan huruf a dan b diatas, maka perlu menerbikan surat keputusan Rektor Universitas Muhammadiyah Makassar

Mengingat : 1. Undang - Undang Serikat Pekerja Nomor : 21 tahun 2000

2. Pedoman Pimpinan Pusat Muhammadiyah nomor : 02/PP/I/I/ 0/8/2017 tanggal 24 Jumadil awwal 1438H/16 April 2012M tentang Pergurtuan Tinggi Muhammadiyah

3. Undang - Undang Organisasi Kemasyarakatan Nomor : 17 tahun 2013.

4. Peraturan Pemerintah nomor 11 tahun 2017 tentang Manajemen Pegawai Negeri sipil (Lembaran Negara Republik Indonesia tahun 2017 nomor 63, tambahan Lembaran Negara republik Indonesian nomor 6037).

5. Anggaran Dasar dan Anggaran Rumah Tangga Asosiasi Pegawai Universitas Muhammadiyah Makassar

6. Undang - Undang Ketenagakerjaan Nomor : 13 tahun 2023

Memperhatikan : 1. Surat Keputusan Rektor Univeritas Muhammadiyah Makassar tentang Anggaran Dasar dan Anggaran Rumah Tangga Pegawai Universitas Muhammadiyah Makassar Nomor : 410A tahun 2023, Tgl 10 Juli 2023.

2. Hasil Keputusan rapat Pimpinan Universitas tanggal 20 Juli 2023.

Alamat : Jalan Sultan Alauddin No. 259 Makassar 90221
Telepon : (0411) 866972, 881593, Fax (0411) 865588

as a communication and advocacy platform that allows employees to express their aspirations, provide feedback, and raise concerns related to welfare and working conditions. Through this forum, the university strengthens healthy, transparent, and participatory industrial relations between management and employees.

The presence of the labor union within the university is not only a symbol of recognition of workers' rights but also an effective mechanism for maintaining balance between institutional and employee interests. In practice, the university encourages open dialogue between management and the labor union in the formulation of policies affecting staff welfare. This process reflects the spirit of democracy and social justice in harmony with the values of Muhammadiyah.

BAGIAN KEDUA
Pasal 5
Hak Pegawai

a. Memperoleh nafkah sesuai dengan ketentuan yang berlaku di lingkungan Universitas tanpa membedakan jenis kelamin antara laki-laki dan perempuan.
b. Memperoleh Cuti
c. Mendapatkan Izin
d. Memperoleh bantuan biaya pengobatan sesuai ketentuan dalam lingkungan Universitas.
e. Mendapat tunjangan dalam batas waktu yang ditentukan terhadap pegawai yang menderita cacat jasmani dan rohani.
f. Memperoleh hak pensiun bagi pegawai yang memasuki usia pensiun.
g. Memperoleh uang duka bagi keluarga yang meninggal dunia.
h. Melanjutkan pendidikan dan mengikuti pelatihan tertentu, sesuai kebutuhan Universitas.
i. Memperoleh hak untuk membuat perserikatan (asosiasi) di lingkup Universitas.

Furthermore, this commitment to protecting labor rights extends beyond permanent employees to include contract and outsourced workers. All individuals working under the university are guaranteed the right to fair treatment, legal

protection, and equal opportunity to voice their opinions. In this way, the university not only complies with national labor regulations but also embodies the universal principles of social justice and humanity within the workplace.

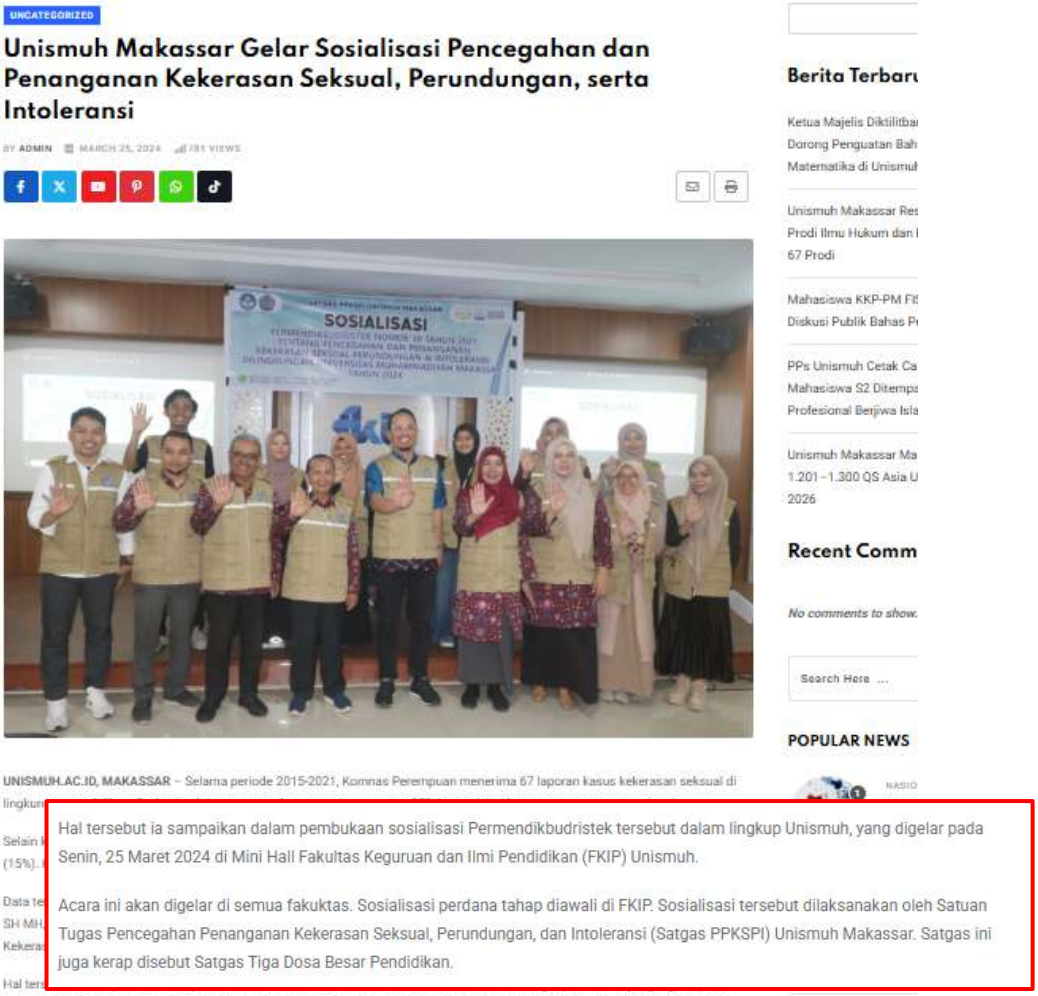
Anti-Discrimination and Modern Slavery Prevention

As an educational institution grounded in the values of humanity and Islam, Universitas Muhammadiyah Makassar is committed to creating a fair, inclusive, and discrimination-free work environment. This principle is an integral part of the university's governance system and is reflected in various policies that explicitly prohibit discriminatory practices based on religion, gender, age, sexual orientation, disability, or social status. The university believes that every individual has the right to be respected, protected, and given equal opportunities to develop within a safe and supportive workplace.



The university's anti-discrimination policy is reinforced by the Guidelines for the Prevention and Handling of Violence, issued in 2023. This document serves as an official reference for all members of the academic community in identifying, preventing, and addressing cases of violence, bullying, and intolerance within the university environment. The guidelines also emphasize accessible reporting mechanisms and the confidentiality of victims, demonstrating the university's firm commitment to protecting the rights of all staff and students.

In addition to its anti-discrimination policy, Universitas Muhammadiyah Makassar enforces a strict policy against modern slavery, including the prohibition of forced labor, child exploitation, and human trafficking. All forms of cooperation with third parties are required to adhere to the university's ethical labor standards. Through established regulations and continuous monitoring, the university ensures that all workers whether permanent or contractual operate under safe, humane, and dignified working conditions.



UNCATEGORIZED

Unismuh Makassar Gelar Sosialisasi Pencegahan dan Penanganan Kekerasan Seksual, Perundungan, serta Intoleransi

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UNISMUH.AC.ID, MAKASSAR – Selama periode 2015-2021, Komnas Perempuan menerima 67 laporan kasus kekerasan seksual di

Hal tersebut ia sampaikan dalam pembukaan sosialisasi Permendikbudristek tersebut dalam lingkup Unismuh, yang digelar pada Senin, 25 Maret 2024 di Mini Hall Fakultas Keguruan dan Ilmi Pendidikan (FKIP) Unismuh.

Acara ini akan digelar di semua fakuktas. Sosialisasi perdana tahap diawali di FKIP. Sosialisasi tersebut dilaksanakan oleh Satuan Tugas Pencegahan Penanganan Kekerasan Seksual, Perundungan, dan Intoleransi (Satgas PPKSPI) Unismuh Makassar. Satgas ini juga kerap disebut Satgas Tiga Dosa Besar Pendidikan.

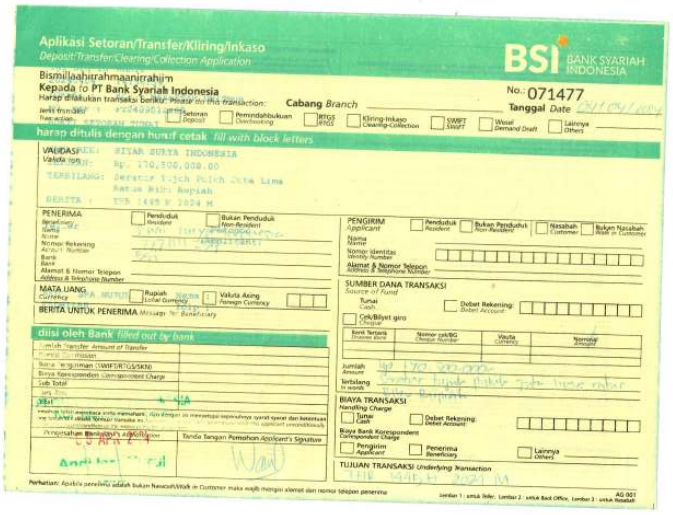
As part of its implementation efforts, the university actively conducts awareness and training programs on the prevention of violence and discrimination for both staff and students. These activities aim to foster a shared understanding of the importance of respecting human rights in the workplace. Through educational and persuasive approaches, the university builds a culture of fairness, empathy, and mutual respect that strengthens social harmony across the institution.

Equivalent Rights for Outsourced Workers

Universitas Muhammadiyah Makassar ensures equal rights and fair treatment for all outsourced workers, including security officers and support staff. The university guarantees wages that comply with the Regional Minimum Wage (UMR) and provides equal Religious Holiday Allowances (THR) comparable to those received by permanent employees.


SURAT PERJANJIAN KERJASAMA
PENGELOLAAN TENAGA KERJA SECURITY
(ALIH DAYA)

CV. SINAR SURYA INDONESIA


Aplikasi Setoran/Transfer/Kliring/Inkaso
Deposit/Transfer/Clearing/Collection Application

BSI BANK SYARIAH INDONESIA

No.: 071477

Bismillaahirrahmaanirrahiim
Kepada Yth PT Bank Syariah Indonesia

Cabang Branch

Tanggal Date

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diisi oleh Bank filled out by bank

This commitment is reinforced through a 2022 Cooperation Agreement with third-party service providers, explicitly regulating equality and worker protection. These measures demonstrate the university's dedication to fairness, inclusivity, and social justice for all employment categories.

Employment Practice: Appeal Process

To promote fairness and transparency in employment, Universitas Muhammadiyah Makassar provides a comprehensive appeal and grievance mechanism that enables all employees to raise concerns regarding their rights, including salaries, benefits, and working conditions. This mechanism is governed by the Standard Operating Procedure (SOP) on Salary Complaint Handling, issued in 2023 and still actively in use today.



Through this system, the university ensures that every complaint is addressed fairly, transparently, and responsibly. This initiative demonstrates the university's dedication to employee welfare while fostering a responsive and accountable workplace culture that values open communication and justice.

RESEARCH RELATED SDG 8

Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia

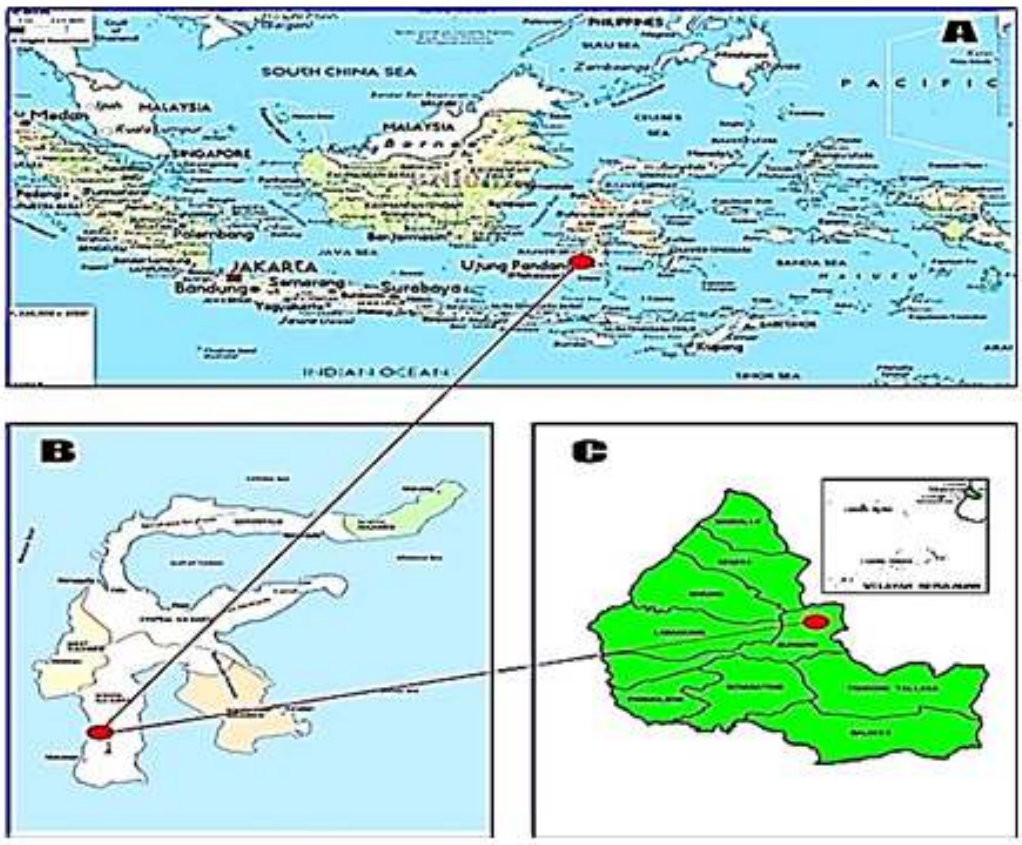


A study by Sattar Yunus from Universitas Muslim Indonesia, Zulkifli Mappasomba from Universitas Muhammadiyah Makassar, and Muh Haidir from Universitas Teknologi Sulawesi analyzes the sustainability of the Biringkassi mangrove ecosystem in Pangkep District, Indonesia. Using a descriptive quantitative approach, the authors compile biophysical, social, economic, and institutional data through field surveys and expert interviews, and then assess sustainability using Rapid Assessment for Fisheries (RAPFISH) with a Multidimensional Scaling (MDS) method. The analysis covers four dimensions ecological, economic, social, and institutional

and shows that ecological and institutional aspects are in a moderately sustainable condition, while the economic and social dimensions are less sustainable, resulting in an overall classification of “less sustainable” mangrove management. Key challenges include high dependence of local communities on mangrove resources, limited alternative income sources, low value added use of mangrove products, and insufficient financial and institutional support, all of which threaten both livelihoods and ecosystem resilience.

This research supports **SDG 8 (Decent Work and Economic Growth)** by highlighting the need to develop sustainable livelihood opportunities based on mangrove resources. Strengthening income diversification, improving market access for mangrove based products, and increasing government investment in community based management can contribute to more stable and dignified employment in coastal areas. The study is also closely linked to **SDG 14 (Life Below Water)**, as mangrove ecosystems function as nursery grounds, protect coastlines from erosion, and maintain the productivity and biodiversity of coastal and marine environments; sustainable management of Biringkassi mangroves is therefore vital for long term fisheries and coastal protection.

Furthermore, the emphasis on rehabilitation, monitoring, and the prevention of further degradation aligns with **SDG 15 (Life on Land)**, which calls for the conservation and restoration of terrestrial and coastal ecosystems. Mangrove restoration and improved land use practices in Biringkassi can enhance carbon storage, erosion control, and habitat quality. Finally, the study underlines the relevance of **SDG 17 (Partnerships for the Goals)** by stressing the importance of coordinated action among government agencies, local communities, and NGOs. Stronger partnerships and integrated policies are presented as essential conditions to move the Biringkassi mangrove ecosystem from a “less sustainable” toward a genuinely sustainable management regime.



Determinants of Animal Food Demand in The Urban Region South Sulawesi

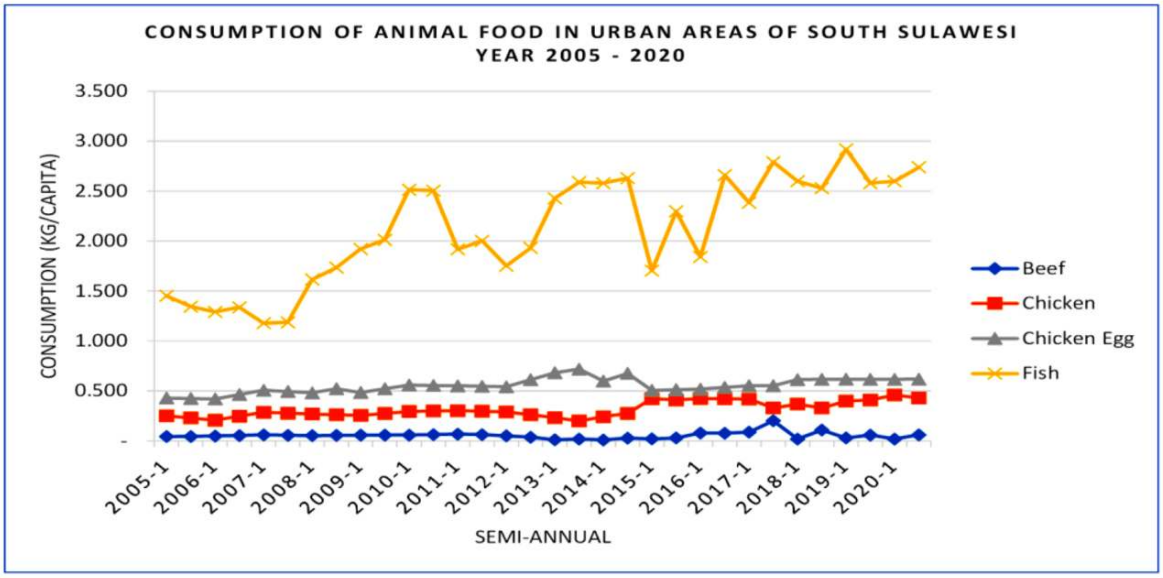


A study by Darmawaty from Universitas Muhammadiyah Makassar, together with Sri Mardiyati and Mohammad Natsir, examines the trends and determinants of animal food demand in the urban region of South Sulawesi, Indonesia. Using semi annual secondary data from 2005 to 2020 and applying trend analysis and multiple linear regression, the research analyzes consumption of beef, chicken meat, chicken eggs, and fish. The results show that overall animal food consumption in urban areas increased by 9.78 grams per capita per month over the study period. On average, monthly consumption reached 7.9 grams of beef, 53 grams of chicken meat, 92 grams of chicken eggs, and 352 grams of fish per capita, with fresh fish being the dominant source of animal protein. Econometrically, per capita expenditure, chicken meat

prices, and fish prices significantly influence animal food demand: a 1% increase in per capita expenditure raises demand by 1.58%, whereas a 1% increase in chicken meat price reduces demand by 0.43% and a 1% increase in fish price lowers demand by 2.12%.

This research is closely aligned with **SDG 2 (Zero Hunger)**, as it addresses access to nutritious food through sufficient animal protein intake, which is essential for improving diet quality and reducing undernutrition in urban households. By linking income, prices, and consumption, the study also supports **SDG 3 (Good Health and Well Being)**, highlighting how affordable animal source foods contribute to healthier and more productive populations. Furthermore, the focus on food expenditure, purchasing power, and consumer responsiveness to price changes relates to **SDG 8 (Decent Work and Economic Growth)**, since stable and inclusive economic growth is necessary to sustain adequate protein consumption. Indirectly, the findings inform **SDG 12 (Responsible Consumption and Production)** by providing evidence that can guide food and price policies toward more balanced and efficient consumption patterns in rapidly urbanizing regions.

In conclusion, the study demonstrates that rising incomes, combined with sensitive responses to animal food prices, shape the evolving pattern of protein consumption in South Sulawesi's urban areas. Ensuring that animal source foods, especially fish and poultry products, remain accessible and affordable is crucial to sustaining nutritional improvements. By integrating economic growth policies, price stabilization measures, and nutrition oriented food strategies, policymakers can better support urban food security, promote public health, and contribute meaningfully to the achievement of the relevant Sustainable Development Goals.



Implementation of environmental policies on the development of a new capital city in Indonesia



A study by Nurkaidah from Universitas Bosowa Makassar, together with Ali Anas and Tawakkal Baharuddin, analyzes the implementation of environmental policies in the development of Indonesia's new capital city (IKN) in East Kalimantan. Using a qualitative approach and thematic analysis of official government documents especially Presidential Regulation No. 63/2022 on the IKN Master Plan supported by NVivo 12 Plus, the authors examine how environmental sustainability is integrated into planning and governance. The analysis highlights four main areas of urgency: biodiversity protection, climate change mitigation, sustainable management of water, land, and energy resources, and improvement of residents' quality of life. At the same time, the study identifies serious challenges, including the very large project scale, complex inter agency coordination, difficulties in controlling environmental impacts, and the need to strengthen environmental awareness and education among stakeholders and local communities. The authors propose accommodative and adaptive policy measures, such as flexible regulations, continuous monitoring and

evaluation, and stronger collaboration between government, private actors, and citizens to ensure that IKN's development remains environmentally sustainable.

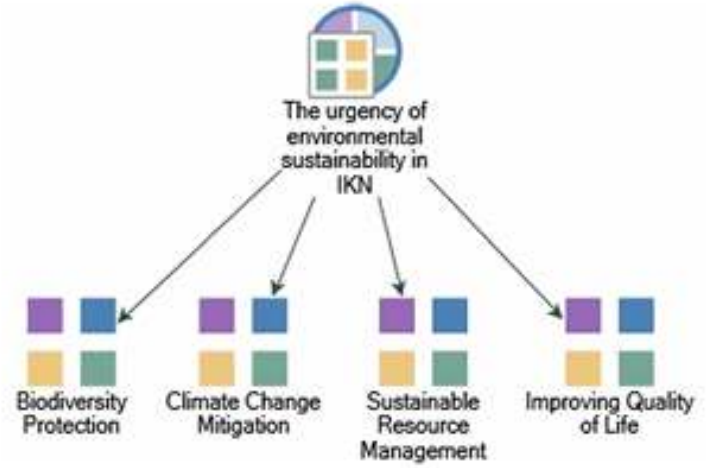


Figure 8.3 Sustainable environmental urgency in iKn. Source: Processed by researchers using nvivo 12 Plus, 2023

This research is closely aligned with **SDG 6 (Clean Water and Sanitation)** through its emphasis on sustainable water resource management and adequate sanitation systems for the new capital. By promoting renewable energy use and energy efficiency, it also supports **SDG 7 (Affordable and Clean Energy)**. The overarching objective of building a modern, livable, and environmentally friendly capital city is in line with **SDG 11 (Sustainable Cities and Communities)**, while efforts to promote efficient resource use, waste reduction, and circular management approaches reflect **SDG 12 (Responsible Consumption and Production)**. Furthermore, the integration of low carbon development strategies and climate sensitive urban planning contributes to **SDG 13 (Climate Action)**, and the protection of forests, habitats, and biodiversity within and around the IKN area directly advances **SDG 15 (Life on Land)**. Finally, the study's strong focus on collaboration among government institutions, the private sector, and local communities demonstrates the importance of **SDG 17 (Partnerships for the Goals)** in achieving coherent and effective environmental governance.

Contribute meaningfully to the achievement of multiple Sustainable Development Goals at both national and global levels.

A VECM Analysis of the Impact of Economic Growth and Investment on Electricity Consumption in Indonesia



A study by Andi Abdul Halik Lateko from Universitas Muhammadiyah Makassar and Yusri Syam Akil from Hasanuddin University employs a Vector Error Correction Model (VECM) to analyze the impact of economic growth (GDP) and foreign direct investment (FDI) on electricity consumption (EPC) in Indonesia from 1971 to 2019. Using World Bank annual data, the authors conduct unit root tests, Johansen cointegration analysis, and VECM Granger causality tests to examine both long run equilibrium and short run dynamics among EPC, GDP, and FDI. The results show that the three variables are cointegrated, indicating a long run relationship: in the long term, EPC is negatively related to GDP but positively related to FDI. In the short run, GDP has a significant negative effect on EPC at a three year horizon, while FDI has a significant negative effect on EPC at one and two year horizons. Causality analysis further reveals a unidirectional causal relationship from GDP to EPC and a bidirectional relationship between EPC and FDI, with no causal link between GDP and FDI, underscoring the central role of electricity use in the interaction between growth and investment.

This research closely supports **SDG 7 (Affordable and Clean Energy)** by demonstrating how economic growth and foreign investment patterns shape electricity consumption, which in turn has implications for planning reliable, efficient, and sustainable power systems. By highlighting the need to ease constraints and improve access to electricity to sustain economic expansion and attract investment, the study aligns with **SDG 8 (Decent Work and Economic Growth)**, emphasizing that energy policy is a key pillar of inclusive and sustained growth. The focus on long run infrastructure needs and the responsiveness of electricity demand to macroeconomic variables relates to **SDG 9 (Industry, Innovation and Infrastructure)**, as effective planning of power infrastructure is critical for industrial development and technological upgrading. Moreover, because electricity consumption is closely linked to emissions and environmental pressures, the paper indirectly contributes to **SDG 13**

(Climate Action) by providing empirical evidence that can inform the design of energy efficiency measures and low carbon power strategies in a growing economy.

Dependent variable: D(EPC)			
Excluded	Chi-sq	df	Prob.
D(GDP)	9.748195	3	0.0208
D(FDI)	11.02716	3	0.0116
Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(EPC)	0.923494	3	0.8198
D(FDI)	1.449251	3	0.6940
Dependent variable: D(FDI)			
Excluded	Chi-sq	df	Prob.
D(EPC)	10.61803	3	0.0140
D(GDP)	1.828923	3	0.6087

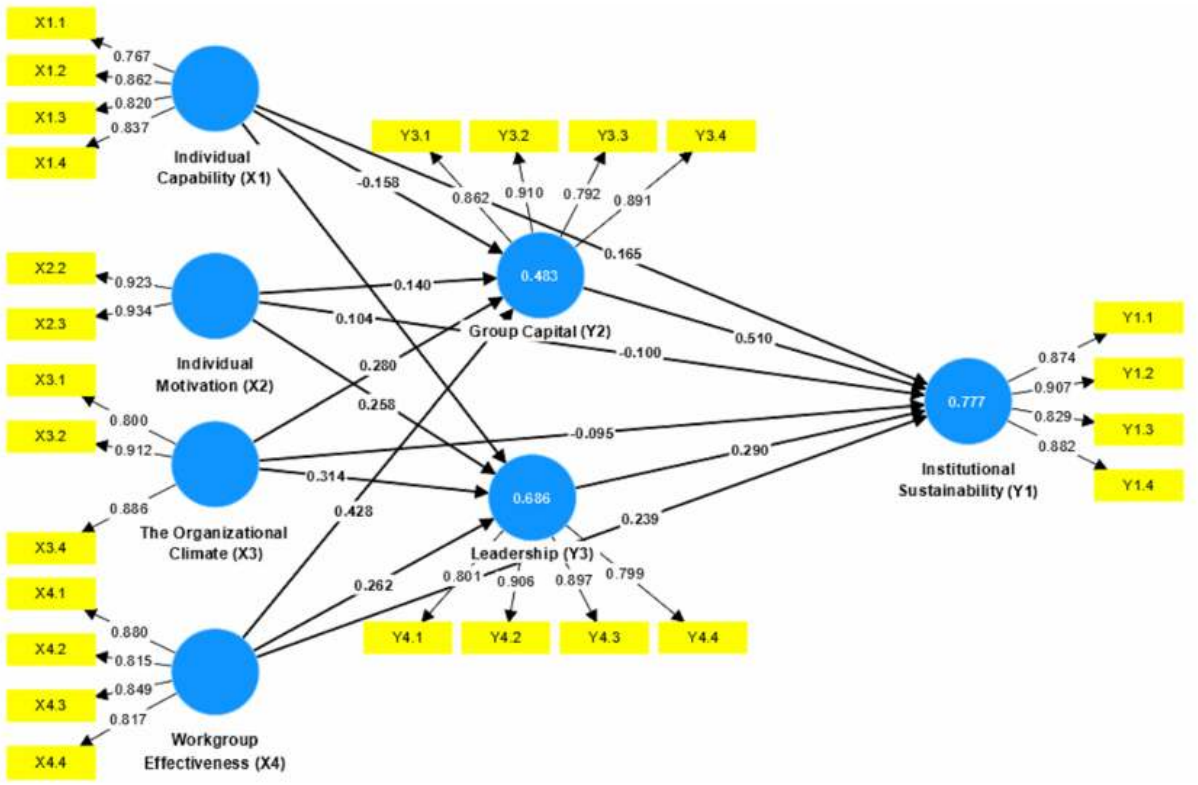
In conclusion, the study shows that GDP and FDI are decisive drivers of Indonesia's electricity consumption, with complex long and short run effects that must be understood for sound policymaking. The presence of both unidirectional and bidirectional causalities suggests that managing electricity demand cannot be separated from strategies to guide investment flows and economic expansion. By using VECM based evidence to support integrated decisions on energy infrastructure, access, and efficiency, policymakers can better promote sustainable economic growth, strengthen industrial development, and steer Indonesia's power sector toward pathways that are consistent with affordable energy provision and climate resilient development.

Mediating role of leadership and group capital between human capital component and sustainability of horticultural agribusiness institutions in Indonesia



A study by Akbar from Universitas Hasanuddin and Universitas Muhammadiyah Makassar, together with Muslim Salam, Muhammad Arsyad, and Rahmadanih from Universitas Hasanuddin, investigates how human capital, leadership, and group capital jointly influence the sustainability of horticultural agribusiness institutions in Bantaeng Regency, South Sulawesi, Indonesia. Using survey data from 233 farmer institution members and applying Structural Equation Modeling (SEM) with SmartPLS 4, the authors analyze the roles of individual capability, individual motivation, organizational climate, and workgroup effectiveness as key components of human capital. The findings show that professionalism, organizational experience, networks, and attitudes—along with a positive organizational climate and effective workgroups—have significant direct effects on institutional sustainability, while leadership and group capital (financial assets, administrative completeness, and member contributions) act as important mediating variables that strengthen the long term viability of farmer institutions.

This research contributes to **SDG 1 (No Poverty)** and **SDG 2 (Zero Hunger)** by emphasizing that stronger, more sustainable farmer institutions can improve farmers' bargaining power, access to finance and markets, and overall livelihood security in rural areas. By focusing on human capital development, leadership training, and organizational strengthening, the study also supports **SDG 4 (Quality Education)** and **SDG 8 (Decent Work and Economic Growth)**, as it underlines the need for continuous capacity building and professionalization within farmer groups to enhance productivity and income. Furthermore, the emphasis on institutional resilience, clear roles, effective communication, and rule based collective action is aligned with **SDG 16 (Peace, Justice and Strong Institutions)**, while the call for collaboration among local governments, educational institutions, and farmer organizations reflects the spirit of **SDG 17 (Partnerships for the Goals)** in addressing structural constraints to rural development.



In conclusion, the study demonstrates that human capital alone is not sufficient to secure the sustainability of horticultural agribusiness institutions; it must be complemented by credible leadership and robust group capital. Institutions that cultivate fairness, responsibility, and service oriented leadership, while simultaneously building collective financial and organizational resources, are better positioned to remain resilient and effective in supporting farmers. By integrating human resource development, leadership enhancement, and capital consolidation into rural policy and development programs, Indonesia can strengthen its horticultural agribusiness institutions, contributing to poverty reduction, food security, and more inclusive and sustainable economic growth in line with the relevant Sustainable Development Goals.

Multipartner governance and the urgency of poverty alleviation policy: Zakat fundraising management

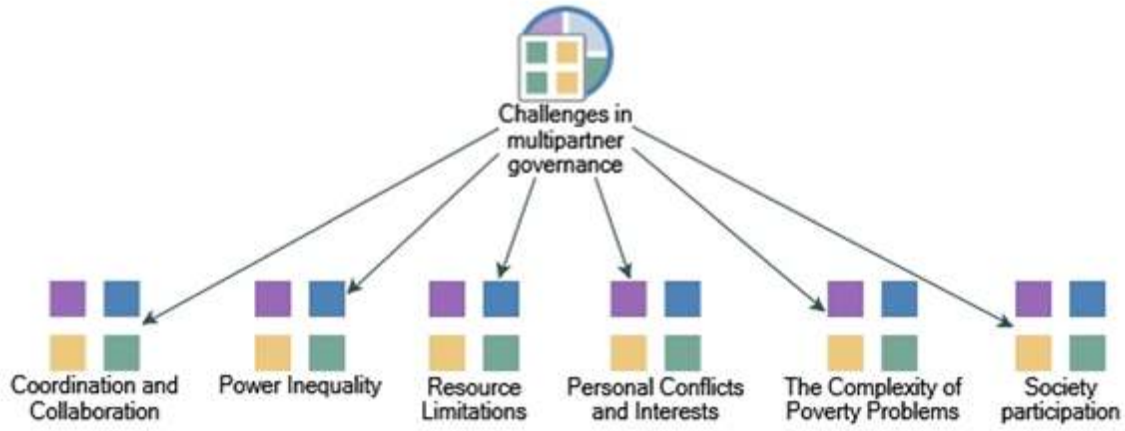


A study by Nuryanti Mustari, Rosdianti Razak, J. Junaedi, F. Fatmawati, Hardianto Hawing, and Tawakkal Baharuddin investigates a multipartner governance model for managing zakat fundraising as a strategy for poverty alleviation in Jeneponto Regency, Indonesia. Using a qualitative case study approach and thematic analysis with NVivo 12 Plus, the authors draw on in depth interviews with government agencies, community groups, and private zakat institutions such as BAZNAS and Lazismu. The analysis focuses on four indicators actor participation, actor perspectives, actor accessibility, and determination of action and shows that the "actor perspective" dimension scores highest, reflecting strong normative and ideological commitment to poverty reduction. BAZNAS emerges as the most influential actor in the network, while other institutions play complementary roles in identification of beneficiaries, program implementation, and monitoring. However, the study also reveals persistent challenges, including weak coordination, power imbalances between large and small actors, limited zakat resources relative to needs, inter organizational competition, and low community participation, which together undermine the effectiveness of zakat based poverty programs.

This research is strongly connected to **SDG 1 (No Poverty)** and **SDG 2 (Zero Hunger)** by positioning zakat as a structured instrument for meeting basic needs—such as food, education, health services, and livelihood support—for poor households in Jeneponto. By seeking to make zakat management more efficient and development oriented, the study also contributes to **SDG 8 (Decent Work and Economic Growth)** through support for microbusiness assistance and economic empowerment schemes financed by zakat funds. The focus on fairness in decision making, equitable access to resources, and preventing domination by powerful institutions aligns with **SDG 10 (Reduced Inequalities)**, as it calls for more just allocation of financial and institutional resources among marginalized groups. Furthermore, the emphasis on transparent, accountable, and inclusive governance of zakat institutions advances **SDG 16 (Peace,**

Justice and Strong Institutions), while the promotion of collaboration among government bodies, zakat agencies, NGOs, and community organizations directly embodies **SDG 17 (Partnerships for the Goals)** as a foundation for sustainable poverty alleviation.

In conclusion, the article demonstrates that zakat fundraising can become a more powerful poverty alleviation tool when embedded in a robust multipartner governance framework that balances participation, perspective, accessibility, and concrete action. Addressing coordination problems, power asymmetries, resource constraints, and conflicts of interest is essential if zakat institutions are to move beyond fragmented charity towards strategic, long term social protection and empowerment. By implementing the proposed reforms—such as formal coordination forums, clearer rules for collaboration, improved transparency, participatory monitoring, and incentive policies that encourage broader zakat participation—stakeholders in Jeneponto and beyond can enhance the developmental impact of zakat, strengthen local institutions, and contribute more effectively to the achievement of the relevant Sustainable Development Goals.



Social Capital in the Patron Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia

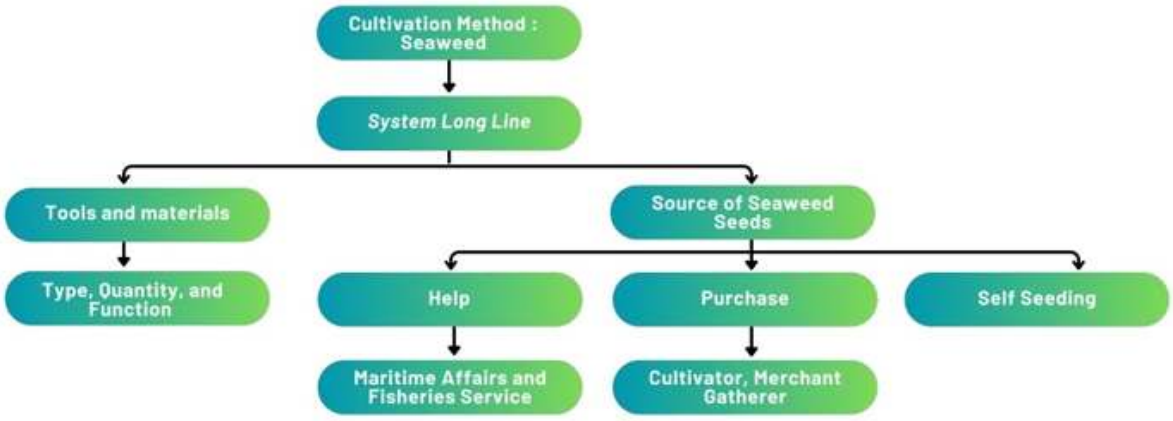


A study by Andi Adri Arief from Hasanuddin University, together with Harnita Agusanty, Marlini Novianty, Muh. Dalvi Mustapa, and Nadir, explores how social capital within patron client relations shapes the sustainability of seaweed cultivation businesses in rural South Sulawesi, Indonesia. Focusing on Pitue Village in Pangkajene Kepulauan Regency, the authors use a qualitative, grounded theory approach based on observations and semi structured interviews with seaweed farmers, *punggawa* (patrons), *pappalele* (middlemen), *sawi* (clients/laborers), and local officials. Through open, axial, and selective coding, they identify how bonding, bridging, and linking social capital operate at different stages of the livelihood system from access to production capital and seed supply to marketing and risk sharing. The findings show that farmers' strong reliance on patrons and middlemen for unsecured loans, inputs, and guaranteed buyers creates dense networks of mutual trust, reciprocity, and personalized credit ("take now, pay later"), which stabilize production but also entrench hierarchical patron client structures and uneven control over capital and labor.

This research engages with several Sustainable Development Goals. It speaks to **SDG 1 (No Poverty)** and **SDG 2 (Zero Hunger)** by revealing how social capital in seaweed value chains underpins household subsistence, access to food, and the capacity to cope with shocks in a low income coastal community. By examining how informal financing, labor arrangements, and market access sustain rural enterprises, the study aligns with **SDG 8 (Decent Work and Economic Growth)**, emphasizing the role of small scale aquaculture as a source of employment and local economic activity. The documented power asymmetries between patrons, middlemen, and laborers connect to **SDG 10 (Reduced Inequalities)**, as unequal access to production capital and markets reproduces structural disadvantages among poorer cultivators. At the same time, the focus on sustainable seaweed cultivation in a coastal

ecosystem links the study to **SDG 14 (Life Below Water)**, since long term business viability depends on maintaining marine environmental quality. Finally, the authors' recommendations for stronger cooperation among communities, government agencies, and other stakeholders resonate with **SDG 16 (Peace, Justice and Strong Institutions)** and **SDG 17 (Partnerships for the Goals)**, highlighting the need for supportive, inclusive institutions and collaborative governance.

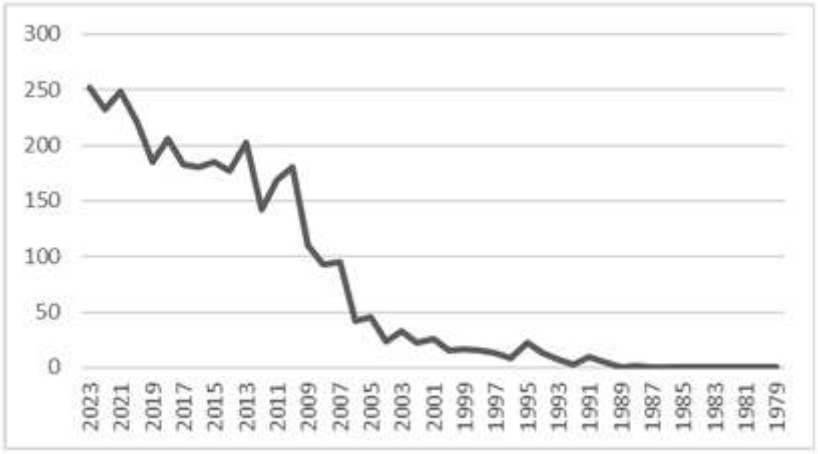
In conclusion, the article shows that social capital expressed through trust, reciprocity, and dense social networks plays a pivotal role in sustaining seaweed cultivation businesses under conditions of economic precarity and limited formal finance. However, the same patron client configurations that provide security can also concentrate power and constrain upward mobility for *sawi* and small cultivators. The authors therefore argue that policy interventions should not seek to dismantle local social capital, but rather to strengthen its positive functions while mitigating exploitative aspects through cooperative organization, fairer marketing arrangements, and supportive public policies. By reinforcing high trust community relations with more equitable economic and institutional frameworks, seaweed cultivation in rural South Sulawesi can contribute more effectively to poverty reduction, livelihood security, and sustainable coastal development in line with the relevant Sustainable Development Goals.



Climate change policy based on global study evolution 1979 2023: An insight and direction for Indonesia



A study by K. Karinda from Muhammadiyah University of Luwuk and T. Baharuddin from Muhammadiyah University of Makassar analyzes the global evolution of climate change policy research from 1979 to 2023 and derives implications for Indonesia. Using 3,390 documents from the Scopus database and applying bibliometric analysis with VOSviewer, the authors map publication trends by year, country affiliation, and subject area, as well as co occurring research topics. The results show a sharp increase in climate policy publications in recent decades, with the United States, United Kingdom, and Australia as leading contributors, while Indonesia's presence remains relatively marginal. Environmental Science and Social Sciences dominate the subject areas, followed by Economics and Finance, Energy, and Earth and Planetary Sciences, highlighting the multidimensional nature of climate governance. Topic mapping further reveals clusters around economic development, renewable and alternative energy, and mitigation–adaptation policy, underscoring that effective climate policy demands integrated attention to environmental, social, and economic systems.



This research engages several Sustainable Development Goals in a systematic way. It relates to **SDG 7 (Affordable and Clean Energy)** and **SDG 8 (Decent Work and Economic Growth)** by emphasizing the role of renewable and alternative energy policy

in supporting sustainable economic development and green job creation. By stressing the need for long term planning of low carbon infrastructure and technology deployment, it also connects with **SDG 9 (Industry, Innovation and Infrastructure)**. The focus on climate resilient development pathways for vulnerable countries, including Indonesia, aligns with **SDG 11 (Sustainable Cities and Communities)** and **SDG 12 (Responsible Consumption and Production)**, particularly through calls for more efficient resource use and reduced dependence on fossil fuels. Above all, the core theme of strengthening mitigation and adaptation strategies directly supports **SDG 13 (Climate Action)**, while the paper's emphasis on cross sector coordination, international collaboration, and knowledge sharing networks embodies **SDG 17 (Partnerships for the Goals)** as a prerequisite for effective climate governance.

In conclusion, the article argues that Indonesia can no longer remain a marginal contributor to the global climate policy knowledge base if it wishes to respond adequately to its own climate vulnerability. By drawing systematically on global research trends, expanding domestic studies on green infrastructure and renewable energy, and reinforcing multi actor coordination, Indonesia can formulate more adaptive and evidence based climate policies. Strengthening scientific capacity, financing mechanisms, and public awareness will enable the country to translate global lessons into context sensitive strategies that reduce emissions, enhance resilience, and position Indonesia as a more proactive actor in achieving climate related Sustainable Development Goals.

The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq



A study by Hurriah Ali Hasan from Universitas Muhammadiyah Makassar, together with Saidin Mansyur, Sabbar Dahham Sabbar, Omer Mohamed Taha Alkanan, Muryani Arsal, Hasyim M, and Amro Halfaoui, investigates the impact of Islamic financial inclusion on economic growth in Indonesia and Iraq. Using panel data from 2000–2014 and applying panel unit root tests, co integration analysis, and Fully Modified Ordinary Least Squares (FMOLS) estimators, the authors examine how GDP

per capita growth is related to education, inflation, government consumption, trade openness, domestic credit, loans from Islamic financial institutions, the rule of law, and regulatory quality. The results show significant cross country and inter period variation, but overall provide evidence of a long run co integrated relationship between Islamic financial inclusion and economic development. FMOLS estimates indicate that Islamic financial inclusion contributes positively to growth alongside trade openness, while high inflation and excessive government consumption tend to constrain economic performance, underscoring the importance of a stable macroeconomic and institutional environment for Islamic finance to support development.

This research is closely aligned with **SDG 1 (No Poverty)** by positioning Islamic financial inclusion as a mechanism to extend formal financial services—savings, credit, and risk management—to previously unbanked and vulnerable groups, thereby improving their capacity to smooth consumption, invest, and cope with shocks. Through its focus on GDP per capita growth and the productive use of finance, the study directly supports **SDG 8 (Decent Work and Economic Growth)**, showing that deeper Islamic financial intermediation can foster more inclusive and sustained expansion. By emphasizing domestic credit provision, financial sector depth, and the design of supportive regulatory frameworks, the article also relates to **SDG 9 (Industry, Innovation and Infrastructure)**, highlighting the role of financial systems in enabling investment and structural transformation. The discussion of financial literacy and education as prerequisites for effective use of Islamic financial products resonates with **SDG 4 (Quality Education)**, while the inclusion of governance indicators—rule of law and regulatory quality—connects the analysis to **SDG 16 (Peace, Justice and Strong Institutions)**. Finally, by encouraging other Asian and oil exporting countries to learn from the Indonesian and Iraqi experience and to cooperate in strengthening Islamic finance, the study reflects the spirit of **SDG 17 (Partnerships for the Goals)**.

In conclusion, the article demonstrates that Islamic financial inclusion can be an important driver of economic growth when it is embedded in sound macroeconomic conditions, robust institutions, and supportive regulatory frameworks. The authors argue that governments should improve legal and supervisory environments for Islamic banking, expand financial education to build an informed client base, and explicitly integrate Islamic finance into broader development

strategies. By doing so, countries such as Indonesia and Iraq can harness Islamic financial institutions to widen access to formal finance, reduce poverty and vulnerability, and promote more inclusive and sustainable growth trajectories that advance multiple Sustainable Development Goals simultaneously.

	ENDOGENOUS VARIABLE: GDP PER-CAPITA GROWTH RATE			
	(1)	(2)	(3)	(4)
Initial GDP per capita	0.000	-0.000	0.000	-0.000
	(0.76)	(-0.80)	(0.81)	(-0.80)
Education	0.181	0.231	0.221	0.229
	(1.19)	(1.18)	(1.21)	(1.41)
Inflation rate (log)	-0.681	-0.780	-0.880	-0.648
	(-1.88)**	(-1.97)**	(-1.81)*	(-1.51)
Government consumption/GDP	-0.297	-0.280	-0.351	-0.502
	(-1.18)	(-1.12)	(-1.77)*	(-1.81)*
Trade openness	-0.028	-0.050	-0.031	-0.030
	(-1.50)	(-1.61)	(-1.19)	(-1.18)

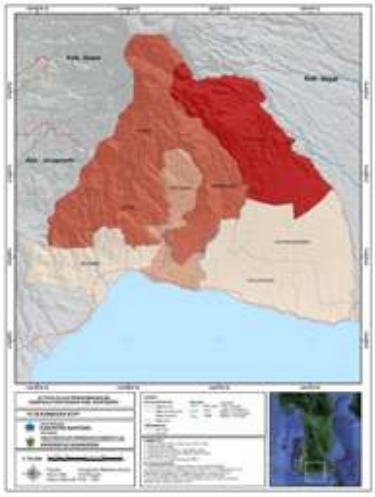
Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency



A study by Isnam Junais from Muhammadiyah University of Makassar, together with Samsuar, Didi Rukmana, Daniel Useng, and Eymal B. Demmallino from Hasanuddin University, examines the dynamics of land use change in the national coffee development area of Bantaeng Regency, South Sulawesi, Indonesia. Using Landsat 8 imagery for 2016 and 2022, combined with a Markov Cellular Automata (CA–Markov) model and ground check surveys, the authors analyse past trends and project land use patterns to 2026. The results show a substantial conversion of coffee plantations to clove cultivation in the last five to seven years, driven by declining coffee productivity, ageing trees, climate related yield reductions, and stronger short term income prospects from cloves; simulations indicate that clove area will continue to expand while coffee land is projected to shrink further, threatening the long term

viability of coffee as a local flagship commodity and eroding farmers' traditional livelihood base.

This research is closely linked to **SDG 1 (No Poverty)** and **SDG 2 (Zero Hunger)** because it highlights how declining coffee yields and shrinking landholdings push poor farming households to make rapid land use decisions in order to secure basic income and food needs. By documenting how crop choices, market prices, and land fragmentation affect rural livelihoods, the study also relates to **SDG 8 (Decent Work and Economic Growth)**, underscoring that agricultural development must prioritise farmers' welfare rather than production volume alone. The focus on unsustainable cultivation systems, land degradation, and the need for better land use planning connects to **SDG 12 (Responsible Consumption and Production)** and **SDG 15 (Life on Land)**, as sustainable management of coffee landscapes is essential to preserve ecosystem functions. At the same time, the discussion of climate change impacts rising temperatures, extreme events, and uneven suitability across elevations directly supports **SDG 13 (Climate Action)**, calling for improved adaptation support, climate information access, and mitigation oriented land management in smallholder coffee regions.



In conclusion, the article shows that land conversion from coffee to cloves in Bantaeng Regency is both an indicator of farmers' resilience and a warning sign of structural vulnerability in the coffee based livelihood system. Without policies that address narrow land ownership, ageing plantations, low farmer education, and limited access to climate adaptation resources, the regional designation as a national coffee development area will not translate into improved welfare for farming families. By integrating climate smart agricultural support, targeted replanting and rejuvenation

programmes, farmer capacity building, and more farmer oriented land use regulations, policymakers can help stabilise coffee based livelihoods, reduce poverty and food insecurity, and guide land use change in ways that are consistent with sustainable rural development and the achievement of the relevant Sustainable Development Goals.

Legal Responsibility of Coal Mining Company PT. International Prima Coal for Worker Welfare and Safety



A study by Suryaningsi from Universitas Mulawarman, together with Endang Herliah, Muhammad Syarif, Rosmini, Aullia Vivi Yuliangrum, and Moh. Bahzar, examines the legal responsibility of coal mining company PT International Prima Coal (IPC) in safeguarding worker welfare and safety, with particular emphasis on women workers in Samarinda, East Kalimantan. Using a qualitative descriptive approach based on interviews, observation, and documentation conducted between January and April 2024, the authors analyze how the principles of Pancasila, the 1945 Constitution, and Law No. 13/2003 on Manpower are implemented in practice. The findings show that while IPC provides equal employment opportunities and wage parity between male and female workers, as well as maternity leave and some social protections, key reproductive rights—especially menstrual leave, miscarriage leave, and adequate breastfeeding facilities—remain only partially fulfilled. The research also identifies low legal awareness among women workers regarding their rights and highlights that, despite these shortcomings in labor protection, the company's Corporate Social Responsibility (CSR) programs are relatively well implemented and aligned with regional development guidelines and Islamic economic perspectives.

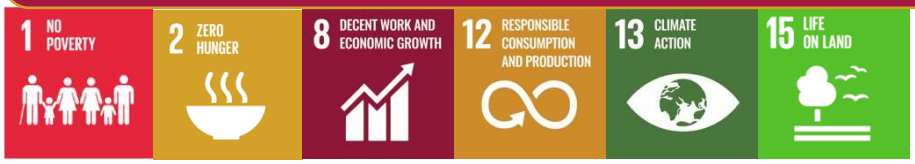


This research is closely connected to **SDG 1 (No Poverty)**, as the fulfillment of labor rights and fair remuneration is essential for ensuring basic welfare among mining workers and their families. By addressing occupational safety, reproductive health protections, and decent working conditions, the study also advances **SDG 3 (Good Health and Well Being)**. Its core focus on eliminating discrimination, ensuring equal pay, and recognizing specific needs of women workers directly supports **SDG 5 (Gender Equality)**, while the broader concern with fair work relations and legal compliance in the mining sector aligns with **SDG 8 (Decent Work and Economic Growth)**. Moreover, the documented inequalities in access to rights and protections, especially for women in a male dominated industry, relate to **SDG 10 (Reduced Inequalities)**, and the call for stronger law enforcement, transparency, and accountability in corporate behavior reflects **SDG 16 (Peace, Justice and Strong Institutions)**.

In conclusion, the article demonstrates that legal responsibility in the coal mining sector cannot be reduced to CSR compliance or wage equality alone; it must encompass full recognition and enforcement of gender sensitive labor rights in line with national law and constitutional principles. Strengthening legal awareness among workers, clarifying and enforcing provisions on menstrual and miscarriage leave, and improving workplace facilities for women are critical steps toward realizing substantive justice and welfare in PT International Prima Coal and similar companies. By integrating robust labor protection with socially responsible mining and more responsive state oversight, Indonesia’s coal industry can move closer to providing a

safe, fair, and dignified work environment that contributes meaningfully to poverty reduction, gender equality, and the broader achievement of the relevant Sustainable Development Goals.

Land Productivity and Land Equivalent Ratio of Agroforestry System in Marena Customary Forest, Enrekang Regency, South Sulawesi Province, Indonesia



A study by Samsul Samrin, Syamsuddin Millang, Ridwan, and M. Daud analyzes land productivity and the land equivalent ratio (LER) of agroforestry systems in the Marena Customary Forest (MCF), Enrekang Regency, South Sulawesi, Indonesia. Using survey methods, field observations, and cost revenue analysis with 30 indigenous farmer respondents, the authors examine mixed stands combining tree crops (such as gmelina, suren, coffee, jackfruit, and cloves) with agricultural crops (including cocoa, ginger, turmeric, bananas, and chilies). The results show that agroforestry management generates an average income of IDR 33,841,467 per land unit, equivalent to land productivity of IDR 20,512,208/ha/year. Compared with coffee monoculture which yields only IDR 8,769,222.22/ha/year the agroforestry system attains an LER of 2.34, meaning that 1 ha of agroforestry land produces the same output as 2.34 ha under monoculture, thereby demonstrating substantially higher productivity and efficiency.

This research supports **SDG 1 (No Poverty)** and **SDG 2 (Zero Hunger)** by showing that diversified agroforestry in customary forests can significantly increase household income and secure more stable food and cash flows for indigenous communities. By enhancing smallholder earnings from both forestry and agricultural components, the study also advances **SDG 8 (Decent Work and Economic Growth)**, emphasizing that multifunctional land use can provide more resilient rural livelihoods than single commodity systems. Furthermore, the efficient use of land and inputs, reflected in a high LER and continuous harvests from multiple species, aligns with **SDG 12 (Responsible Consumption and Production)**. Because well managed agroforestry contributes to carbon sequestration, soil conservation, and climate resilience, the

findings relate to **SDG 13 (Climate Action)** and **SDG 15 (Life on Land)**, underscoring the role of customary forest agroforestry in conserving biodiversity while sustaining production.

No	Form of Land Cultivation	Income (IDR/ha/year)	LER
1	Monoculture (Coffee)	8,769,222.22	1.00
2	Agroforestry	20,512,207.78	2.34

In conclusion, the article demonstrates that agroforestry in the Marena Customary Forest is not only economically superior to coffee monoculture but also ecologically advantageous, combining higher land productivity with improved environmental stewardship. The high LER value indicates that agroforestry allows indigenous farmers to obtain greater benefits without expanding cultivated area, thus reducing pressure on surrounding ecosystems. By recognizing and supporting customary agroforestry practices through appropriate policies, technical assistance, and market access, decision makers can strengthen indigenous livelihoods, promote sustainable forest management, and contribute meaningfully to the achievement of poverty reduction, food security, and environmental sustainability targets embodied in the relevant Sustainable Development Goals.

Policy Design for Sustainable Development: A Bibliometric Study of Ecological Communications



A study by Made Devi Wedayanti from Universitas Islam Riau, together with Anirwan, Ismail, Afrinaldy Rustam, Samaun Hi. Laha, Iqbal Aidar Idrus, Tawakkal Baharuddin, Nur Ilmiah Rivai, Almuhajir Haris, and Muhammad Ali, conducts a bibliometric analysis of research on ecological communication and sustainable development between 2018 and 2022. Using 366 Scopus indexed documents and VOSviewer for co occurrence analysis of all keywords, the authors map publication trends, citation patterns, and thematic clusters. The results show a clear increase in scientific output on ecological communication and sustainability, alongside high

impact works on ICT, smart agriculture, environmental costs of non renewable energy, and ecological intensification. Topic mapping reveals that ecological communication is strongly linked to information and communication technologies, economic and social impacts, conservation, and agriculture, indicating that environmental discourse is increasingly embedded in broader socio technical and governance systems.

This research relates to several Sustainable Development Goals. It supports **SDG 4 (Quality Education)** by emphasizing ecological communication as an educational tool to raise public awareness and change behaviour toward more sustainable practices. The strong presence of ICT, smart systems, and digital platforms in the mapped literature connects to **SDG 9 (Industry, Innovation and Infrastructure)**, while the focus on governance, urban regeneration, and smart cities speaks to **SDG 11 (Sustainable Cities and Communities)**. The identification of topics such as sustainable agriculture, conservation, and efficient resource use aligns with **SDG 12 (Responsible Consumption and Production)** and **SDG 15 (Life on Land)**, whereas the overarching concern with climate change mitigation and adaptation directly advances **SDG 13 (Climate Action)**. Finally, the study's insistence on multi actor collaboration across governments, researchers, civil society, and businesses embodies **SDG 17 (Partnerships for the Goals)** as a prerequisite for effective ecological policy design.

Document Title (Year)	Authors	Cited
A systematic literature review on machine learning applications for sustainable agriculture supply chain performance (2020)	Sharma, R., Kamble, S.S., Gunasekaran, A., Kumar, V., Kumar, A.	222
Advanced UAV–WSN system for intelligent monitoring in precision agriculture (2020)	Popescu, D., Stoican, F., Stamatescu, G., Ichim, L., Dragana, C.	109
Environmental cost of non-renewable energy and economic progress: Do ICT and financial development mitigate some burden? (2022)	Ramzan, M., Raza, S.A., Usman, M., Sharma, G.D., Iqbal, H.A.	86
Microbe-induced plant volatiles (2018)	Sharifi, R., Lee, S.-M., Ryu, C.-M.	82
Experience versus expectation: farmers' perceptions of smart farming technologies for cropping systems across Europe (2020)	Kernecker, M., Knierim, A., Wurbs, A., Kraus, T., Borges, F.	79
Integrated ecological–economic fisheries models—Evaluation, review and challenges for implementation (2018)	Nielsen, J.R., Thunberg, E., Holland, D.S., et al.	75
Stretching "smart": Advancing health and well-being through the smart city agenda (2019)	Trencher, G., Karvonen, A.	74
A synthesis: What is the future for coasts, estuaries, deltas and other Transitional habitats in 2050 and beyond? (2019)	Elliott, M., Day, J.W., Ramachandran, R., et al.	62
A novel ICT framework for sustainable development goals (2019)	Kostoska, O., Kocarev, L.	58
Ecological intensification for sustainable development (2021)	Raj, A., Jhariya, M.K., Khan, N., Banerjee, A., Meena, R.S.	55

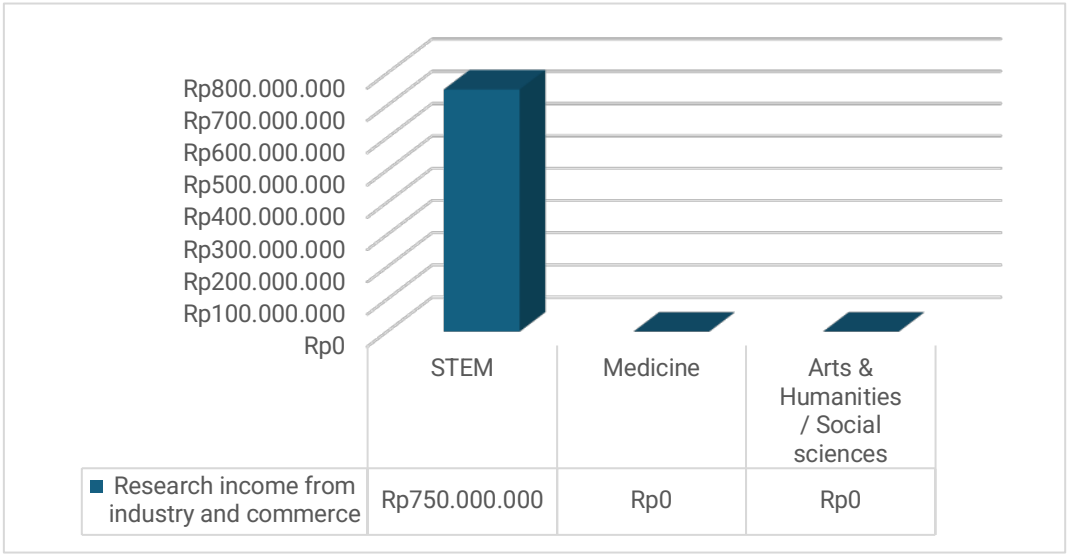
In conclusion, the article demonstrates that understanding the evolution of ecological communication research is crucial for designing adaptive, evidence based policies for sustainable development. By identifying research frontiers and gaps around ICT, economic and social impacts, conservation, and agriculture, the study

offers concrete entry points for policymakers to anchor environmental policies in robust scientific knowledge and targeted communication strategies. The authors argue that integrating recent scholarly insights, applying context sensitive communication approaches, and fostering cross sector collaboration can enhance the legitimacy, effectiveness, and societal uptake of sustainability policies, thereby accelerating progress toward the relevant Sustainable Development Goals.

INDUSTRY, INNOVATION AND INFRASTRUCTURE

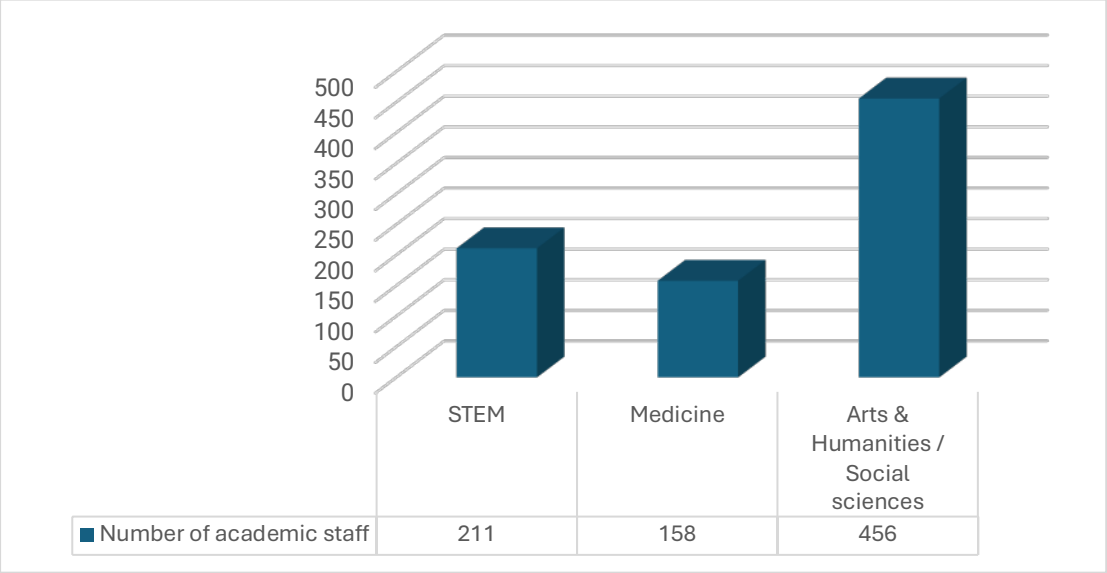
Research Income from Industry and Commerce

As part of its commitment to supporting the implementation of the Sustainable Development Goals (SDGs), particularly SDG 9 – Industry, Innovation, and Infrastructure, Universitas Muhammadiyah Makassar continues to strengthen its role in fostering collaboration between academia and the industrial sector. The graphs below present data on research income from industry and commerce by subject area, as well as the number of academic staff in each discipline, which reflect the application of SDG indicator 9.4.1 – Research Income from Industry and Commerce by Subject Area. This indicator focuses on enhancing innovation, research productivity, and strategic partnerships between universities and industry to generate applicable solutions that benefit both society and the business sector.



Based on the first graph, the STEM (Science, Technology, Engineering, and Mathematics) field shows the highest contribution in generating research income from industry and commerce, with a total of Rp750,000,000. In contrast, the fields of Medicine and Arts, Humanities, and Social Sciences have not yet recorded any research income from industrial collaboration. This condition indicates that research activities based on external collaboration remain concentrated in the STEM

disciplines, which are directly linked to technological innovation, engineering development, and industrial product advancement.



Furthermore, the second graph shows the distribution of academic staff by subject area, comprising 211 staff in STEM, 158 in Medicine, and 456 in Arts, Humanities, and Social Sciences. Although non-STEM disciplines have a greater number of academic staff, their contribution to research income from industry still needs to be enhanced through cross-disciplinary synergy. Such collaboration is essential to promote the integration of social sciences and humanities into innovation processes that are sustainability-oriented, ensuring that technological progress is accompanied by social relevance and environmental responsibility.

RESEARCH RELATED TO SDG 9

As part of its commitment to advancing sustainable development, Universitas Muhammadiyah Makassar positions research and innovation as key pillars in supporting Sustainable Development Goal (SDG) 9: Industry, Innovation, and Infrastructure. This goal focuses on strengthening resilient infrastructure, fostering inclusive industrial development, and promoting sustainable innovation to enhance societal well-being. Through a variety of interdisciplinary research initiatives, Unismuh Makassar strives to provide applicable solutions to contemporary challenges in modern industry, clean energy, and equitable governance. The following studies serve

as concrete evidence of the university's contribution to bridging science, technology, and policy in pursuit of innovation-driven and sustainable development.

Assessing Open-Graded Asphalt's Resistance to Degradation Via Cantabro Test in Hot-Mix Cold Laid Asbuton



The research titled "Assessing Open-Graded Asphalt's Resistance to Degradation via Cantabro Test in Hot-Mix Cold Laid Asbuton" by Sri Gusty, Israil, Siti Nurjanah Ahmad, and Miswar Tumpu explores technological innovation in sustainable construction materials through the utilization of Asbuton (Buton Asphalt) — a natural asphalt resource originating from Buton Island, Southeast Sulawesi. This study emphasizes the importance of using local resources to reduce dependence on imported petroleum-based asphalt while simultaneously supporting environmentally friendly infrastructure development in Indonesia.



From the perspective of SDG 9 (Industry, Innovation, and Infrastructure), this research serves as concrete evidence that local innovation can strengthen the self-reliance of the national construction industry. The open-graded asphalt technology developed using the hot-mix cold laid method can be processed at a lower temperature of around 50°C, which is significantly more energy-efficient than conventional hot-mix asphalt requiring temperatures between 120–160°C. This approach not only reduces energy consumption and production costs but also directly decreases carbon emissions, thereby contributing to resilient and sustainable infrastructure development.

Furthermore, the study aligns with **SDG 11 (Sustainable Cities and Communities)** through the use of **porous asphalt**, which minimizes road surface water accumulation, enhances driving safety, reduces traffic noise, and mitigates urban heat

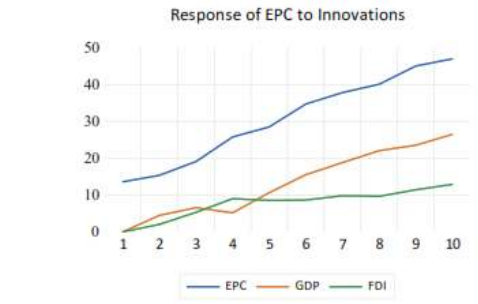
island effects. Due to its high porosity, rainwater can infiltrate the soil more effectively, thereby supporting **SDG 6 (Clean Water and Sanitation)** by promoting groundwater recharge and reducing runoff pollution.

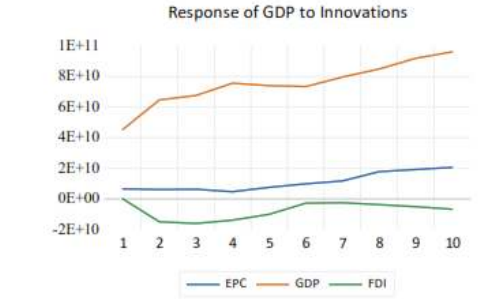
Additionally, this research supports **SDG 12 (Responsible Consumption and Production)** by incorporating recycled materials such as waste rubber and PET plastics as additives in the asphalt mixture. This initiative not only reduces industrial waste volume but also promotes a **circular economy**. Lastly, the **low-energy hot-mix cold laid technology** reinforces **SDG 13 (Climate Action)** by contributing to the reduction of greenhouse gas emissions from the construction sector.

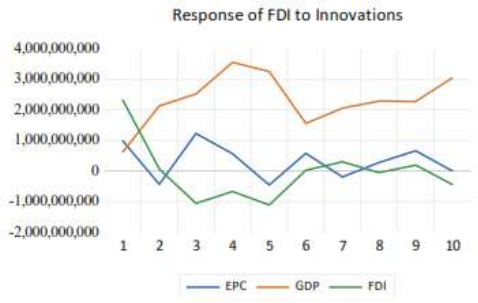
A VECM Analysis of the Impact of Economic Growth and Investment on Electricity Consumption in Indonesia



The research conducted by Andi Abdul Halik Lateko and Yusri Syam Akil, titled *"A VECM Analysis of the Impact of Economic Growth and Investment on Electricity Consumption in Indonesia"*, is an empirical study that explores the interrelationship between economic growth (GDP), foreign direct investment (FDI), and electricity consumption (EPC) in Indonesia over nearly five decades, from 1971 to 2019. Using the Vector Error Correction Model (VECM) approach, the study not only examines the statistical relationship among these three variables but also analyzes both their short-term and long-term impacts on Indonesia's sustainable development.







The findings reveal a causal relationship between electricity consumption and economic growth. In the long run, economic growth significantly influences the increase in electricity consumption, while in the short term, GDP has a significant effect on EPC within a three-year period. Interestingly, FDI shows a negative impact on EPC during the first one to two years. Another notable finding is the bidirectional relationship between FDI and electricity consumption, indicating that higher electricity consumption can attract foreign investment, while increased investment simultaneously enhances the capacity of national energy infrastructure.

The relevance of this research to the **Sustainable Development Goals (SDGs)** is evident through its contribution to four primary goals. First, **SDG 7 (Affordable and Clean Energy)**, where the study highlights the importance of energy efficiency and sustainable electricity management policies to prevent environmental degradation. Second, **SDG 8 (Decent Work and Economic Growth)**, as energy is demonstrated to be a key driver of productivity and national economic expansion. Third, **SDG 9 (Industry, Innovation, and Infrastructure)**, since increased investment in the energy sector can strengthen resilient and innovation-oriented electricity infrastructure. Lastly, **SDG 13 (Climate Action)**, as the research underscores the importance of transitioning to cleaner energy sources to reduce carbon emissions amid growing electricity demand.

Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network



The research titled *"Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network"* by Andi Luhur Prianto, Aqmal Reza Amri, and Mohd Na'eim Ajis provides an in-depth analysis of the governance and policy framework surrounding the protection of Indonesian Migrant Workers (PMI) in Malaysia. Employing a policy network and innovation governance approach, the study examines how the governments of Indonesia and Malaysia collaborate to enhance migrant worker protection, law enforcement, and welfare through a more transparent and equitable innovation system.



The findings reveal that migrant workers face a range of complex challenges, including illegal recruitment, unpaid wages, workplace violence, and limited access to justice. To address these issues, the Indonesian government introduced a digital innovation known as the One Channel System (OCS), which integrates the placement and supervision processes of Indonesian migrant workers in a transparent manner. This system represents a tangible example of modern governance that emphasizes collaboration among government agencies, private institutions, and international organizations to improve the protection of migrant workers.

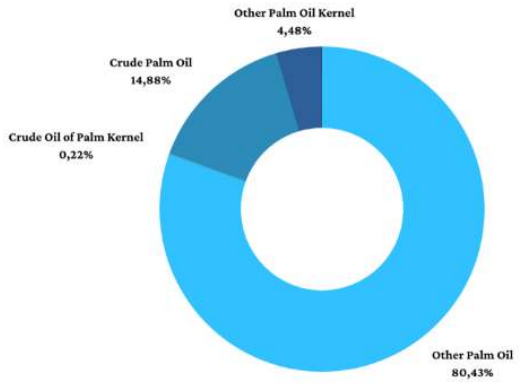
From the perspective of the **Sustainable Development Goals (SDGs)**, this study aligns strongly with **SDG 8 (Decent Work and Economic Growth)**, as it underscores the importance of ensuring safe, fair, and exploitation-free working environments for migrant workers. It is also closely related to **SDG 10 (Reduced Inequalities)** by promoting policies that enable safe, orderly, and responsible migration.

Furthermore, the research contributes to **SDG 16 (Peace, Justice, and Strong Institutions)** by reinforcing institutional coordination and cross-border legal frameworks to uphold the human rights of migrant workers. The study also highlights the relevance of **SDG 5 (Gender Equality)** through its attention to the protection of female migrant workers, particularly in the domestic sector. Finally, the bilateral cooperation between Indonesia and Malaysia in developing sustainable migration policies reflects strong support for **SDG 17 (Partnerships for the Goals)**, demonstrating how international collaboration can foster justice, inclusivity, and resilience in global labor governance.

Sustainable investment strategies in the palm oil industry in Indonesia



The article titled *"Sustainable Investment Strategies in the Palm Oil Industry in Indonesia"* by Nina Yuslaini, R. Widya Setiabudi Sumadinata, Muhammad Fedryansyah, Abdillah Abdillah, Andi Luhur Prianto, and Doris Febriyanti discusses sustainable investment strategies in the palm oil industry—a strategic sector of Indonesia's economy that has a profound impact on the environment, society, and national development. The study underscores the importance of applying sustainability principles in investment policies, industrial governance, and the implementation of green technological innovations, ensuring that the palm oil industry operates not only with economic objectives but also in alignment with the broader goals of sustainable development.



In the context of SDG 9 (Industry, Innovation, and Infrastructure), the article highlights how the modernization of palm oil industrial infrastructure through biomass and biogas technologies can transform palm waste into renewable energy sources. This strategy not only reduces dependency on fossil fuels but also enhances national energy efficiency.

The study's relevance to **SDG 12 (Responsible Consumption and Production)** is reflected through the implementation of the **RSPO (Roundtable on Sustainable Palm Oil)** certification, which serves as a global sustainability standard. This certification ensures that the palm oil industry's supply chain adheres to sustainable practices, including waste management, resource efficiency, and social protection for workers and local communities surrounding plantations.

From an environmental perspective, the article contributes to **SDG 13 (Climate Action)** by emphasizing the role of the palm oil industry in reducing carbon emissions through **waste-to-energy conversion** and **carbon offset programs**. Furthermore, the adoption of **replanting policies** and **land conservation efforts** supports **SDG 15 (Life on Land)** by maintaining ecological balance and preventing deforestation.

The article also demonstrates **cross-sectoral synergy** among government bodies, financial institutions, and private corporations in promoting **green investment**. Such collaboration aligns with **SDG 17 (Partnerships for the Goals)**, underscoring the importance of multi-stakeholder partnerships in achieving equilibrium between economic growth, environmental preservation, and social well-being. Through these integrated strategies, the research highlights Indonesia's potential to lead in sustainable industrial transformation while maintaining global competitiveness in the palm oil sector.

REDUCE INEQUALITIES

Measures Against Discrimination

As a tangible manifestation of its commitment to Sustainable Development Goal (SDG) 10: Reduced Inequalities, Universitas Muhammadiyah Makassar (Unismuh Makassar) consistently implements various policies and initiatives aimed at preventing discrimination and promoting equality in access to higher education. The university's core principle is to create an academic environment that is fair, inclusive, and just for all members of the academic community, regardless of social, economic, gender, ethnic, religious, or physical backgrounds. The implementation of these policies aligns with the university's mission as a modern Islamic higher education institution that upholds universal humanistic values.



One of the strategic measures undertaken by Unismuh Makassar is the implementation of a non-discriminatory admissions policy. Through this policy, every prospective student has equal opportunity for admission without distinction based on ethnicity, religion, gender, sexual orientation, socioeconomic status, disability, or nationality. This initiative reinforces the university's commitment to the principles of fairness, transparency, and equal access to higher education for all segments of society.

Furthermore, Unismuh Makassar has developed an inclusive and digital-based student admission system, integrated with the university's official online admission platform (https://pmb.unismuh.ac.id/). This system allows the university to monitor applications from underrepresented groups such as ethnic minorities, persons with disabilities, women, low-income students, and refugees. Through this approach, the university ensures that the admission process is conducted transparently and equitably, thereby expanding access to higher education for all social groups.



In the context of increasing the representation of underrepresented groups within the academic community, Unismuh Makassar also implements inclusive recruitment policies. These strategies include affirmative scholarships, community-based outreach programs, and continuous monitoring to ensure diversity among students, faculty, and administrative staff. Such initiatives not only aim to widen educational access but also foster collective awareness of the importance of gender equality and social justice within the university environment.

Furthermore, Universitas Muhammadiyah Makassar (Unismuh Makassar) has established an Anti-Discrimination Policy for Students that applies comprehensively across the university environment. This policy ensures that every student is treated fairly, with dignity, and without discrimination in any form—whether based on race, religion, gender, sexual orientation, or socioeconomic background. Through this policy, the university fosters a safe and respectful learning environment that values diversity and promotes an academic culture grounded in mutual respect and inclusivity.



Unismuh Makassar continues to strengthen its inclusive policies and practices that guarantee equal access and opportunities for all members of the academic community without prejudice or discrimination. Through a series of institutional measures, the university seeks to create a higher education environment that is just, safe, and respectful of diversity. One of the main pillars of this commitment is the establishment of the University Diversity Officer, an internal body responsible for ensuring the implementation of equality, diversity, and inclusion principles across all university activities. The main functions of this body include developing and supervising anti-discrimination policies, handling reports related to equality violations, and conducting training programs on gender awareness and cultural diversity. The establishment of this unit reinforces Unismuh Makassar's commitment to upholding a university governance framework rooted in social justice and respect for human rights.



In addition, Unismuh Makassar places special emphasis on support for underrepresented groups. Through affirmative policies and capacity-building programs, the university provides scholarships, academic mentoring, and psychological support for students from economically disadvantaged backgrounds, individuals with disabilities, and minority groups. Mentoring and counseling sessions are conducted regularly to help these students adapt to the academic environment while developing their personal and professional potential. These efforts aim to create an equitable learning ecosystem where every student has equal opportunities to succeed, free from social and structural barriers.







Support for vulnerable groups is further strengthened through the provision of disability-friendly campus facilities (accessible facilities). According to indicator report 10.6.7, Universitas Muhammadiyah Makassar (Unismuh Makassar) provides a variety of facilities that ensure the full participation of persons with disabilities in both academic and social activities on campus. These facilities include ramps for wheelchair users, accessible toilets, priority parking areas, tactile guiding paths for the visually impaired, accessible signage, and assistive learning technologies. All these facilities are regulated under the Standard Operating Procedure (SOP) and Inclusive Education Policy Guide, which set standards for accessibility, define maintenance responsibilities, and establish mechanisms for continuous evaluation and improvement.

The implementation of these inclusive policies is not merely an act of administrative compliance but rather a reflection of the Islamic values of *rahmatan lil ‘alamin*, which serve as the philosophical foundation of Universitas Muhammadiyah Makassar. The principles of justice, equality, and respect for human dignity are translated into concrete institutional policies that ensure every individual has equal rights and opportunities to access education, free from physical, social, or economic barriers.

Unismuh Makassar continues to strengthen its policies and services for persons with disabilities as part of its commitment to implementing SDG 10.6 – Measures Against Discrimination. The university believes that education must be accessible to all individuals without exception, including those with physical, sensory, intellectual, or psychosocial disabilities. Therefore, various policies, services, and facilities have

been developed in an integrated manner to guarantee fairness and equal rights for all students.



Through the Disability Support Services document, Unismuh Makassar provides academic and psychosocial support for students with disabilities. These services include individualized academic mentoring, examination assistance, the provision of learning materials in accessible formats, and the use of assistive technologies such as screen readers and speech-to-text software. In addition, the university's disability services unit regularly conducts needs assessments to ensure that each student receives appropriate support tailored to their specific learning conditions and requirements. This needs-based approach emphasizes that every student has the right to an equitable learning experience comparable to that of their peers, without any form of discrimination.

Furthermore, through the Disability Access Scheme, Universitas Muhammadiyah Makassar implements a disability-friendly higher education access system by opening a special admission pathway for students with disabilities. This scheme provides administrative flexibility and academic requirement adjustments to ensure that prospective students with special needs can participate in the selection process fairly and equitably. In addition, Unismuh Makassar regularly conducts training sessions for lecturers and academic staff on inclusive teaching and disability awareness to cultivate an empathetic, adaptive, and just academic culture. Thus, the learning environment at Unismuh not only emphasizes physical accessibility but also promotes a culture of equality that respects diverse abilities.

Furthermore, the primary policy supporting the implementation of inclusive services is outlined in the Disability Accommodation Policy. This policy regulates the provision of reasonable accommodation across academic, physical, and digital domains, including accessible campus infrastructure, disability-friendly learning materials, assistive learning technologies, and individualized academic support. The implementation of this policy is coordinated by the Disability Services Unit, which

conducts regular assessments, monitoring, and evaluations to ensure fairness and alignment with national regulations. Notably, the policy undergoes a five-year evaluation cycle to adapt to the evolving needs of persons with disabilities and advancements in inclusive education technology.

The connection between this policy and the Sustainable Development Goals (SDGs) is clearly reflected in Unismuh Makassar's ongoing efforts to eliminate all forms of discrimination in higher education. Support for students with disabilities not only expands access to education but also strengthens the achievement of SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). By providing an inclusive academic space, the university contributes to the creation of a socially just society that respects human rights and upholds equality in all aspects of education.

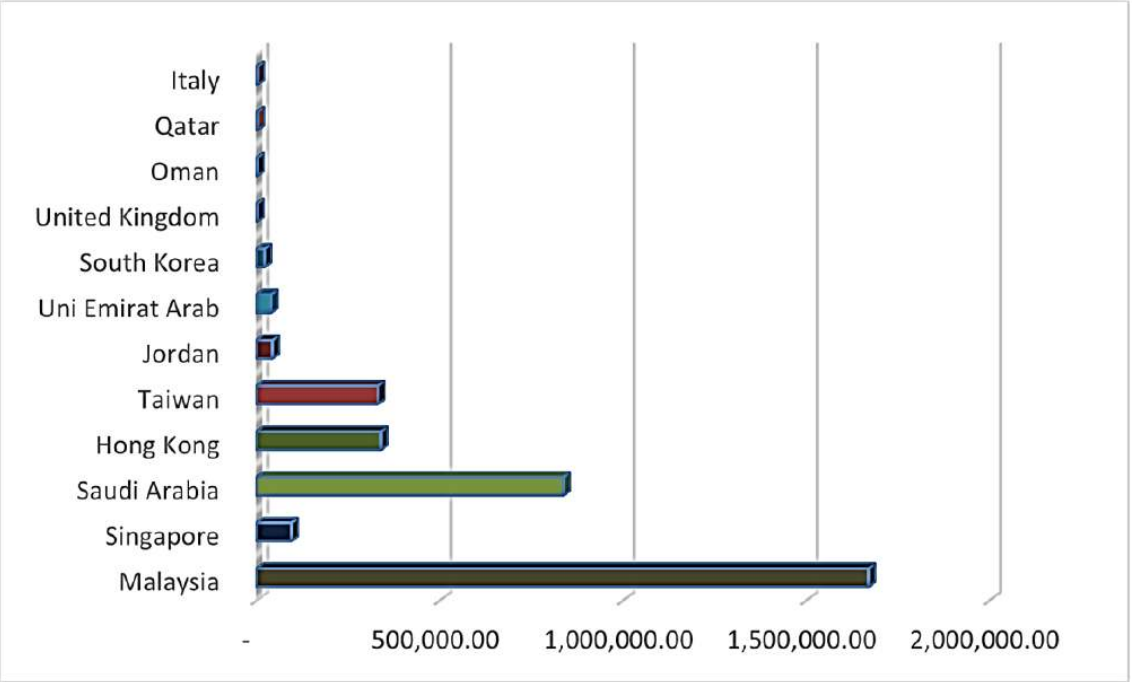
RESEARCH RELATED TO SDG 10

Universitas Muhammadiyah Makassar actively advances SDG 10: Reduced Inequalities through research that tackles structural injustice in labour, education, and social protection. Studies on the governance and protection of Indonesian migrant workers in Malaysia show how legal frameworks, bilateral cooperation, and digital systems like the One Channel System (OCS) can reduce exploitation and secure fairer treatment for migrants. Research on multipartner zakat governance in Jeneponto reframes zakat as a rights-based poverty instrument, demonstrating how collaboration between government, religious bodies, NGOs, and communities can narrow welfare gaps. Work on digital literacy in physics education highlights inequalities between *penggerak* and non-*penggerak* schools and between urban and rural students, informing policies to expand digital access and teacher capacity. Complementing these, analysis of gendered labour rights in coal mining exposes unequal access to reproductive rights, legal protection, and environmental safety for women workers and nearby communities, calling for stronger enforcement and corporate accountability. Together, these efforts strengthen understanding and practical pathways to reduce inequalities in line with SDG 10.

Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network



Prianto and his colleagues conducted a study titled “Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network.” The research analyses how Indonesia and Malaysia govern and protect Indonesian migrant workers (IMWs) through interconnected institutions, regulations, and digital innovations. Using qualitative document analysis supported by NVivo 12 and bibliometric mapping with VOSviewer, the authors review academic literature, official statistics from BP2MI and the World Bank, and a wide range of legal and policy documents from both countries. The study shows that IMWs make up the largest group of foreign workers in Malaysia (about 1.67 million workers, or more than 48% of all Indonesian migrants abroad), concentrated in manufacturing, construction, plantations, agriculture, services, and domestic work. At the same time, Malaysia is among the top three destinations with the highest number of IMW complaints, with recurring issues such as unpaid wages, deportation, illegal recruitment, deception, human trafficking, unsafe working conditions, and lack of social protection. To address this, both governments have built a dense policy and institutional network involving ministries of labour, foreign affairs, human resources, BP2MI, immigration departments, embassies and consulates, joint task forces (JTF/JWG), and a comprehensive set of laws and regulations in Indonesia and Malaysia that regulate recruitment, working conditions, health, social security, and anti-trafficking.



The study highlights that protection of IMWs is increasingly organised through a policy network and collaborative governance approach, where national constitutions, labour laws, anti-trafficking regulations, social security schemes, and regional/local regulations interact to safeguard migrant workers before departure, during employment, and upon return. A key innovation emerging from bilateral cooperation is the One Channel System (OCS), an integrated digital platform that links Indonesia's SIAPKERJA system with Malaysia's Foreign Workers Centralised Management System (FWCMS) as the only official recruitment and supervision mechanism for IMWs. The OCS is designed to standardise recruitment, reduce costs and illegal levies, close loopholes exploited by unethical intermediaries and recalibration schemes (such as Malaysia's *Maid Online System*), improve monitoring of immigration and work permits, and strengthen access to consular services and complaint mechanisms. However, the authors find that implementation remains uneven and contested, with continued use of parallel systems, gaps in enforcement, and persistent vulnerabilities to exploitation, indicating that stronger political commitment, cross-border coordination, and oversight are needed to fully realise the protective potential of these innovations.

The contributions of this research align closely with **SDG 8: Decent Work and Economic Growth** and **SDG 10: Reduced Inequalities**, as it focuses on securing fair

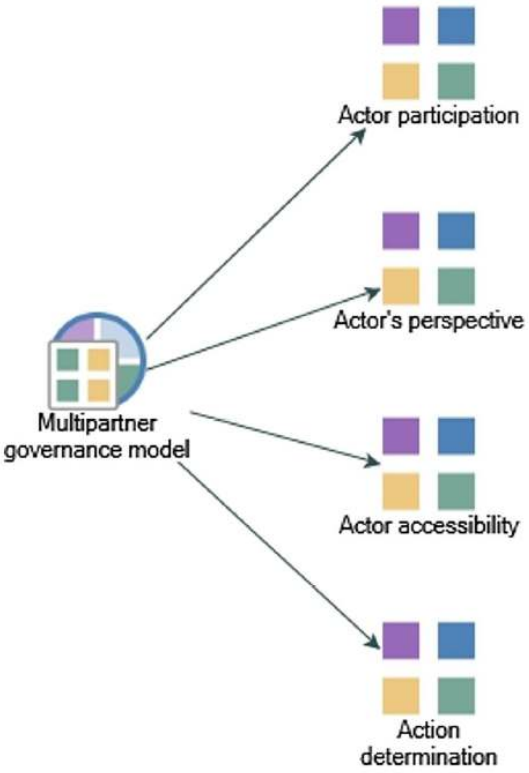
wages, safe working conditions, social security, and non-discriminatory treatment for IMWs who occupy precarious positions in Malaysia's labour market. By mapping how Indonesian and Malaysian laws and institutions attempt to guarantee equal treatment before the law, prevent forced labour, and provide access to redress, the study also strongly supports **SDG 16: Peace, Justice and Strong Institutions**, showing that migrant protection depends on robust legal frameworks, accountable enforcement bodies, and accessible justice mechanisms. Furthermore, the emphasis on bilateral MoUs, joint task forces, and the OCS digital platform demonstrates how cross-border policy networks and technological innovation function as practical expressions of **SDG 17: Partnerships for the Goals**, enabling the two states to coordinate recruitment governance, combat trafficking, and reduce undocumented migration. By integrating governance, legal reform, and digital innovation, this research offers a model for more humane, rights-based governance of labour migration in line with the SDGs.

Multipartner governance and the urgency of poverty alleviation policy: Zakat fundraising management



Mustari and her colleagues conducted a study titled "Multipartner governance and the urgency of poverty alleviation policy: Zakat fundraising management." The research focuses on Jeneponto Regency in South Sulawesi, the district with the highest proportion of poor residents in the province, and explores how a multi-partner governance model can optimise zakat fundraising and distribution to support poverty alleviation. Using a qualitative case study with in-depth interviews and thematic analysis supported by NVivo 12 Plus, the authors engaged key stakeholders from government (Social Service, Village Community Empowerment Service, village governments, Ministry of Religion), community groups (Family Welfare Empowerment Team, self-help groups), and private/faith-based organisations (BAZNAS, Lazismu, NGOs). They evaluate four core indicators of the governance model—actor participation, actor perspective, actor accessibility, and determination of action—to assess each institution's contribution to zakat management. The findings show that actor perspective dominates with the highest score (112), indicating strong normative

and strategic commitment to poverty alleviation, while BAZNAS Jeneponto emerges as the most influential actor (score 60), followed by the Social Service, Ministry of Religion, and Lazismu, which together drive collection, targeting, and distribution of zakat funds for social assistance, education, microbusiness capital, and health support.



Despite this promising network, the study identifies serious governance challenges that limit the impact of zakat on poverty reduction. Coordination across institutions is often fragmented, with differing approaches, policy priorities, and allocation preferences making it hard to agree on targeting and programme design. Power imbalances mean that larger institutions can dominate decision-making, while community groups and smaller NGOs feel they have “less say” in how funds are used. Limited zakat resources relative to the scale of need force difficult prioritisation—some poor households are excluded even when needs are evident. The research also documents conflicts and competition between institutions for donors and legitimacy, as well as low community participation in planning, implementation, and monitoring, which weakens transparency and accountability. To address these problems, the authors recommend establishing formal coordination forums, balancing power

through inclusive decision-making, improving transparency and conflict-resolution mechanisms, strengthening institutional and human capacity, and adopting a holistic, cross-sectoral approach that links zakat with education, health, livelihoods, and social protection. They also highlight policy innovations such as tax incentives for zakat contributions (as applied in Malaysia) as a way to increase fundraising and stakeholder engagement.

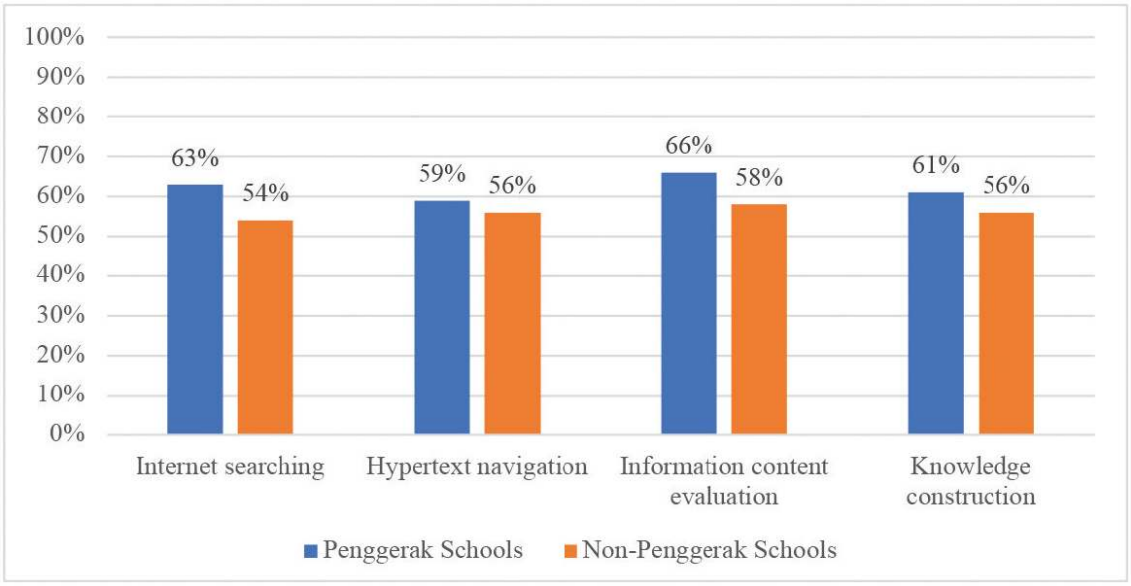
The contributions of this study are closely aligned with **SDG 1: No Poverty** and **SDG 10: Reduced Inequalities**, as it positions zakat not merely as charity but as a structured, rights-based poverty alleviation instrument embedded in local governance. By mapping how governments, religious bodies, NGOs, and communities share roles in identifying mustahik, mobilising funds, and designing programmes, the research shows how inclusive, multi-actor governance can improve the targeting, scale, and sustainability of poverty interventions. At the same time, the focus on transparency, accountability, conflict management, and fair power-sharing among institutions directly supports **SDG 16: Peace, Justice, and Strong Institutions**, while the call for cross-sectoral collaboration (government, private sector, civil society, and faith-based organisations) reflects **SDG 17: Partnerships for the Goals**. The proposed multi-partner governance model—built on participation, perspective, accessibility, and joint action—offers a replicable framework for other regions seeking to integrate Islamic social finance into broader development policies, making zakat a more effective and sustainable driver of local welfare improvement.

Digital Literacy in Physics Education: A Quantitative Analysis of High School Students Across Different School Environments



Saputri and her colleagues conducted a study titled “Digital Literacy in Physics Education: A Quantitative Analysis of High School Students Across Different School Environments.” The research investigates how school type (penggerak vs non-penggerak) and location (urban vs rural) shape high school students’ digital literacy

when learning physics. Using a cross-sectional survey of 330 students from various schools in South Sulawesi, the authors measured four core dimensions of digital literacy—internet searching, hypertext navigation, information content evaluation, and knowledge construction—with a validated Likert-scale questionnaire. Descriptive and inferential statistics (Kolmogorov–Smirnov, Mann–Whitney U, independent samples t-test) show clear gaps: students in penggerak schools achieve a higher mean score (93) than those in non-penggerak schools (84), and students in urban schools also outperform their rural peers (mean 94 vs 84). Effectiveness percentages across the four dimensions confirm this pattern: penggerak schools score 63–66% versus 54–58% in non-penggerak schools, while urban schools score 61–66% versus 54–59% in rural schools. These differences are statistically significant (Mann–Whitney U = 8207.500, p = 0.001; t = 6.008, p = 0.001), indicating that educational infrastructure, digital programmes, and access to devices and connectivity strongly influence students' ability to search, evaluate, and construct knowledge from digital physics resources.



The contributions of this study are closely aligned with **SDG 4: Quality Education** and **SDG 10: Reduced Inequalities**. By documenting how penggerak school programmes—with stronger digital infrastructure, teacher support, and literacy movements—lead to significantly higher digital literacy, the research provides evidence that targeted school transformation initiatives can enhance students' readiness for 21st-century learning, particularly in demanding subjects like physics. At

the same time, the clear urban, rural gap underscores that many students in rural and non-penggerak schools still lack equal opportunities to develop essential digital skills, reinforcing territorial and socio-economic disparities. The authors argue for expanding penggerak-like models, investing in infrastructure and teacher training in under-resourced schools, and designing inclusive digital literacy policies that ensure all students—regardless of geography or school status—can access, evaluate, and use digital information effectively in science learning.

Beyond SDG 4 and SDG 10, the study has implications for **SDG 9: Industry, Innovation and Infrastructure** and **SDG 8: Decent Work and Economic Growth**. By treating digital literacy as a core competency for participation in a technology-driven economy, the authors highlight that schools are foundational "infrastructure" for human capital development in the digital era. Bridging digital literacy gaps in physics education contributes to a more equitable pipeline of future scientists, engineers, teachers, and technicians, supporting inclusive growth and innovation. The call for collaboration between policymakers, education authorities, and technology providers to improve connectivity, devices, and digital learning resources also resonates with **SDG 17: Partnerships for the Goals**, as multi-actor cooperation is needed to sustain digital literacy improvements over time. Overall, the study positions digital literacy in physics not only as a pedagogical issue but as a strategic lever for inclusive, sustainable development.

Legal Responsibility of Coal Mining Company PT. International Prima Coal for Worker Welfare and Safety



Suryaningsi and her colleagues conducted a study titled "Legal Responsibility of Coal Mining Company PT. International Prima Coal for Worker Welfare and Safety." Focusing on PT International Prima Coal (IPC) in Samarinda, East Kalimantan, the research examines how legal norms based on Pancasila, the 1945 Constitution, the Mineral and Coal Mining Law, and the Manpower Law are implemented to protect workers especially women workers in a high risk open pit coal mining environment.

Using a qualitative descriptive approach with interviews, observation, and documentation, the authors analyse how IPC fulfils special rights for women workers (menstrual leave, miscarriage leave, maternity and childbirth leave, breastfeeding time), equality of employment opportunities, and fair remuneration. The findings show that, in practice, only maternity and childbirth leave are clearly implemented, while menstrual and miscarriage leave and breastfeeding time are not explicitly regulated or fulfilled, so that only around 25% of reproductive rights mandated by Law No. 13/2003 are realised. At the same time, the company is assessed as providing equal pay and opportunities for women and men—female workers hold managerial positions and receive the same salaries and continued wages during leave—indicating partial progress in gender equality within a male-dominated sector.



The study further explores broader issues of legal awareness, justice, and social responsibility in coal mining governance. Many women workers have limited knowledge of their legal rights, and some perceive company regulations as absolute and unquestionable, which weakens their ability to claim protections guaranteed by law. Drawing on social contract theory (Hobbes) and critiques of structural injustice (Marx), the authors argue that coal mining management in Indonesia often still falls short of the social justice values in Pancasila and Article 33 of the 1945 Constitution, where natural resources must be managed for the greatest prosperity of the people. At IPC, Corporate Social Responsibility (CSR) is considered “quite good” and aligned with the East Kalimantan Blue Print and Islamic economic principles, yet environmental and social risks remain high: open-pit operations create deforestation, water and air pollution, land degradation, flooding, and health risks for surrounding communities. The study concludes that genuine justice for women workers requires

not only compliance on paper, but also clear company regulations on reproductive rights, stronger law enforcement, systematic legal education, and integrated stakeholder efforts to ensure safe working conditions, fair treatment, and meaningful participation of local communities in coal-mining governance.

These findings are closely aligned with **SDG 5: Gender Equality**, **SDG 8: Decent Work and Economic Growth**, and **SDG 10: Reduced Inequalities**. By scrutinising how menstrual leave, miscarriage leave, maternity protection, breastfeeding rights, non-discrimination, and equal pay are implemented (or neglected) in a coal mining company, the study directly addresses targets on ending discrimination, reducing gender-based inequalities, and ensuring fair treatment for vulnerable groups in the labour market. The clear power imbalance between company and workers, limited legal awareness, and unequal distribution of environmental and health burdens on surrounding communities highlight how structural inequalities are reproduced in extractive industries, making SDG 10 highly relevant. The call for stronger legal awareness, transparent labour practices, and effective state oversight also speaks to **SDG 16: Peace, Justice and Strong Institutions**, while the discussion of environmental damage and community impacts connects to **SDG 12: Responsible Consumption and Production** and **SDG 13: Climate Action**. Through this lens, the research shows that gender-responsive, inequality-sensitive labour protection and CSR are not only ethical imperatives but also key to building a more inclusive, just, and sustainable mining sector in line with the SDGs.



SUSTAINABLE CITIES AND COMMUNITIES

University Support of Arts and Heritage

Universitas Muhammadiyah Makassar demonstrates a strong and inclusive commitment to Sustainable Development Goal 11 (Sustainable Cities and Communities) through initiatives that promote accessibility, artistic expression, cultural engagement, and heritage preservation. Across its campus environment, the University ensures that educational, artistic, and cultural resources are open and beneficial not only to its students and faculty but also to the wider community.



The University's central library plays a crucial role in promoting public access to knowledge. Through a simple and inclusive membership system, both members of the university community and the general public can access reading materials, academic references, and selected digital resources for educational and personal use. In addition to its physical facilities, Unismuh Makassar operates a comprehensive digital library accessible worldwide via https://digilib.unismuh.ac.id/, providing open access to e-books, theses, dissertations, journals, and other scholarly resources that foster lifelong learning.



Unismuh Makassar also fosters community access to art and culture. Through the Fine Arts Department and the student organization TALAS (Seni dan Budaya), the University regularly organizes public art exhibitions, theatre performances, musical showcases, and cultural festivals. These programs are free and open to the public, reflecting Unismuh's dedication to community engagement and cultural development. While most activities take place on campus, some are held in external venues to accommodate wider audiences and evening performances, as campus regulations limit nighttime activities.

The University provides open and green spaces that are accessible to the public during designated hours. These spaces host educational, cultural, and social events, including fun walks, bazaars, exhibitions, graduation ceremonies, blood donation drives, and religious gatherings.



Through well-maintained pedestrian pathways and shaded areas, Unismuh offers an environmentally friendly and safe campus atmosphere that supports social cohesion and sustainability. The University's emphasis on accessibility and inclusivity ensures that its green areas are shared by both the academic community and local residents.



In addition to its artistic and environmental efforts, Unismuh Makassar demonstrates a deep commitment to preserving South Sulawesi's cultural and linguistic heritage. The student organization UKM Bahasa organizes seminars such as the 2024 Cultural Class, "Challenges of Traditional Musical Instruments in Collaboration with Sulawesi Mythology," which introduces traditional instruments alongside local folklore. Furthermore, Unismuh Makassar has initiated the digitalization of ancient Bugis manuscripts under the leadership of the Vice Rector II, preserving valuable cultural artifacts and making them accessible to future generations. This initiative supports research, cultural preservation, and the safeguarding of intangible heritage in the digital era.

Through these integrated initiatives, ranging from library access and open spaces to art exhibitions and cultural preservation, Universitas Muhammadiyah Makassar positions itself as a vibrant educational and cultural hub in Eastern Indonesia. Its dedication to community accessibility, environmental sustainability, and heritage conservation underscores the University's enduring contribution to building sustainable, inclusive, and culturally rich communities in alignment with the principles of the Sustainable Development Goals.

Sustainable Practices at Unismuh Makassar

Universitas Muhammadiyah Makassar has demonstrated continuous efforts to enhance sustainability through practical and inclusive commuting initiatives.



The University provides shuttle bus services connecting the main campus with its various learning centres and training facilities, ensuring that students and staff can travel safely and efficiently while reducing dependence on private vehicles. These shuttle operations not only support academic mobility but also contribute to the reduction of carbon emissions across campus activities.



Additionally, well-designed pedestrian pathways have been established to create a safer and more pleasant environment for walking, encouraging healthier habits and reducing the campus's overall carbon footprint. These walkways are complemented by green landscaping, proper lighting, and accessibility features for persons with disabilities, ensuring comfort and inclusivity for all campus users. By prioritizing walkability and reducing vehicle dependency, the University not only enhances the quality of campus life but also contributes to the realization of a greener and more sustainable academic ecosystem.

While Universitas Muhammadiyah Makassar has not yet formalized a measurement system for sustainable commuting, the University has already set clear internal targets and begun implementing tangible actions toward responsible mobility. Among the most notable developments is the introduction of hybrid electric vehicles used by university leadership, symbolizing the institution's progressive transition toward low-emission transportation. These practical steps are part of a larger sustainability vision that includes the gradual expansion of zero-emission vehicles and the establishment of measurable mobility indicators in the near future.

Universitas Muhammadiyah Makassar promotes flexible working and learning arrangements as part of its commitment to sustainable commuting and responsible

mobility. The University implements a policy that allows first- and second-semester students to attend online classes, enabling lecturers to conduct teaching activities remotely through digital platforms. Lecturers are not required to be on campus every day, but attend only for scheduled in-person lectures or administrative duties. This arrangement reduces unnecessary commuting, supports work-life balance, and contributes to carbon emission reduction. During specific conditions, such as the COVID-19 pandemic, official circulars were issued to allow both academic and administrative staff to work from home, ensuring safety and continuity of operations.

Furthermore, the University extends its sustainability initiatives through the provision of affordable housing for both students and lecturers. The Islamic Boarding House K.H. Djamaluddin Amien, also known as **Pesmadina**, offers well-maintained and affordable dormitory facilities designed to support academic growth, personal discipline, and social interaction. Although primarily intended for students, the dormitory also accommodates lecturers who apply for residency through the university's housing management system. The male dormitory consists of 93 rooms and the female dormitory of 113 rooms, each with a capacity for two residents.



Unismuh Makassar's student housing system emphasizes accessibility and fairness. The registration process for dormitory placement is simple, requiring only basic administrative documentation, and is open to all students regardless of background or economic capacity. With its subsidized rental rates, Pesmadina significantly reduces students' living costs and commuting needs, while fostering a campus culture grounded in cooperation, discipline, and shared responsibility. These housing initiatives strengthen Unismuh's holistic approach to sustainability—one that unites social welfare, academic development, and environmental consciousness under a single institutional vision.

Sustainable Land Use and Brownfield Development

Universitas Muhammadiyah Makassar demonstrates a clear commitment to sustainable campus development through its practice of building on brownfield sites. Instead of expanding into undeveloped or green areas, the University prioritizes the reuse of existing land for new infrastructure projects within its campus boundaries. This approach reflects responsible land-use planning and ensures that the institution's physical growth remains environmentally sound and spatially efficient.

A notable example of this practice is the ongoing construction of the four-floor Rumah Tahfidz located beside the campus mosque. The new facility is being developed on the site of the former imam's residence, effectively transforming previously utilized land into a modern educational and religious facility. By optimizing built spaces rather than encroaching on new land, Unismuh Makassar showcases its dedication to sustainable urban principles and the efficient management of limited campus resources. This initiative not only preserves the surrounding environment but also strengthens the University's commitment to integrating functionality, spirituality, and sustainability in its architectural planning.

RESEARCH RELATED TO SDG11

Implementation of environmental policies on the development of a new capital city in Indonesia



Nurkaidah and her colleagues conducted a study titled "Implementation of Environmental Policies on the Development of a New Capital City in Indonesia." The research analyzes how environmental policies are being designed and implemented in the development of Indonesia's new capital city (IKN), a large-scale national project that will radically transform land use, ecosystems, and socio-economic dynamics in East Kalimantan. Using a qualitative thematic analysis, the authors examined official

government documents—particularly Presidential Regulation No. 63 of 2022 on the IKN Master Plan—coded and visualized with NVivo 12 Plus to map themes such as biodiversity protection, climate change mitigation, sustainable resource management, and quality of life improvements. The study finds that while the government frames IKN as a model of sustainable, modern urban development, significant challenges remain, including the massive project scale, complex multi-level coordination among institutions, the risk of environmental degradation (deforestation, flooding, habitat loss), and relatively low public awareness of environmental issues. The authors propose accommodative and adaptive policy recommendations emphasizing flexible, responsive regulations, continuous monitoring and evaluation, cross-sector collaboration, and enhanced environmental education to ensure that IKN's development aligns with long-term sustainability goals.

The contributions of this study are closely aligned with SDG 11: Sustainable Cities and Communities, as it critically assesses how Indonesia's new capital can become a sustainable, resilient urban center rather than a source of new ecological crises. By highlighting the need to integrate green open spaces, safe and efficient infrastructure, and environmentally sound waste management into the IKN Master Plan, the research supports the creation of inclusive, safe, resilient, and sustainable human settlements. The study also aligns with SDG 6: Clean Water and Sanitation and SDG 12: Responsible Consumption and Production, through its emphasis on sustainable water management, waste treatment, and efficient use of natural resources such as land, energy, and water. These elements echo the broader sustainability agenda promoted in the university's sustainability reporting, where responsible resource use and environmentally conscious planning are central to institutional commitments.

Furthermore, the study strongly supports SDG 13: Climate Action by stressing that IKN's development must incorporate climate change mitigation through renewable energy, energy efficiency, and sustainable transportation systems to reduce greenhouse gas emissions and the project's overall carbon footprint. Its focus on protecting forests, conserving biodiversity, and preventing ecosystem degradation also connects directly with SDG 15: Life on Land, as it warns that poorly managed capital relocation could accelerate habitat loss and environmental risk. Finally, by calling for close collaboration between government, stakeholders, and communities,

the research advances SDG 17: Partnerships for the Goals, demonstrating that only multi-actor, multi-level governance—combining policy, science, and public participation—can ensure that the new capital city becomes a genuine model of sustainable development rather than a new source of environmental pressure.

Healthy city development: Indonesian government plans to build a new capital city



Razak and her colleagues conducted a study titled “Healthy city development: Indonesian government plans to build a new capital city.” The article responds to Indonesia’s worrying urban health conditions—marked by air and noise pollution, limited clean water, and unequal access to health facilities—by analyzing how the government integrates the *healthy city* concept into the planning of the new capital city (IKN) in Kalimantan. Using a qualitative thematic analysis, the authors examined official documents, especially Law No. 3 of 2022 on the National Capital, which were captured via NCapture and coded in NVivo 12 Plus. Through theme identification, case and attribute classification, and thematic mapping, the study reveals that the government’s healthy city plan draws heavily on three major references: the WHO Healthy City model, the Cardiff healthy city strategy, and the Vancouver healthy city strategy. These frameworks emphasize community participation, equity, a healthy physical environment, sustainable spatial planning, environmentally friendly transportation, access to healthy food, mental and social well-being, and community empowerment as core principles for the new capital’s development.

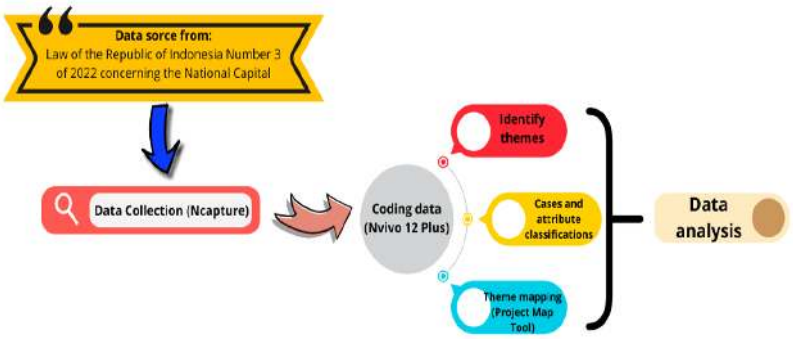


Figure 1. Data analysis process. Source: processed by researchers, 2024.

The findings highlight that, while these global models provide a strong normative foundation, Indonesia faces significant implementation challenges in turning the new capital into a truly healthy city. The study identifies serious issues such as air pollution in Kalimantan (largely from forest and land fires), damaged and inadequate infrastructure, unresolved land acquisition in the core government area, limited budget capacity, and risks related to transparency and corruption in public spending. Rapid urbanisation—with Indonesia's urban population rising from 53.3% in 2015 to 56.4% in 2020—adds further pressure on health services, transportation, clean water, and sanitation, especially given the projection that IKN's population may reach 1.9 million by 2045. To address these challenges, the authors propose adaptive policy recommendations: integrating health and environmental considerations into all sectors (spatial planning, transport, waste, urban greening), strengthening budget transparency, and adopting collaborative governance that links government, private sector, and civil society to co-finance and co-implement healthy city initiatives.

The contributions of this study align strongly with SDG 3: Good Health and Well-Being and SDG 11: Sustainable Cities and Communities, as it places urban health at the center of capital relocation and promotes city planning that ensures equitable access to health services, green public spaces, and healthy living environments. By calling for environmentally friendly transportation, reduced emissions, and effective control of air pollution and land-use impacts, the research also supports SDG 13: Climate Action. Its emphasis on transparent budgeting, public–private partnerships, and multi-stakeholder collaboration in financing and governing IKN reflects SDG 17: Partnerships for the Goals, demonstrating how cross-sector cooperation is essential to realize a healthy, sustainable new capital. Through these insights, the study offers a comprehensive framework for transforming Indonesia's new capital into a model healthy city that addresses structural health risks while advancing broader sustainable development objectives.

Developing Information System Governance for Historical Buildings: A Bibliometric Analysis



The book chapter “Developing Information System Governance for Historical Buildings: A Bibliometric Analysis” examines the intellectual landscape and research trends surrounding information system governance in the context of historical buildings. Focusing on the intersection between digital technologies and heritage preservation, the authors use a bibliometric approach to systematically map the scientific literature on how information systems are designed, governed, and implemented to support the management, monitoring, and conservation of historic built environments. Through techniques such as performance analysis and science mapping, the chapter identifies publication trends, influential authors and outlets, key thematic clusters (for example, digital documentation of heritage, building information modelling for historic structures, risk and asset management, and governance frameworks), as well as patterns of collaboration among institutions and countries. The analysis demonstrates that information system governance for historical buildings is not merely a technical issue, but also involves institutional arrangements, data standards, policy frameworks, and multi-stakeholder coordination between government agencies, heritage managers, and private or community actors. In doing so, the chapter highlights the need for an integrated governance model in which digital infrastructures and information systems are aligned with broader cultural, legal, and urban development objectives.

The contributions of this chapter are closely aligned with SDG 11: Sustainable Cities and Communities, particularly target 11.4 on strengthening efforts to protect and safeguard the world’s cultural and natural heritage. By clarifying how research has conceptualised and operationalised information system governance for historic buildings, the chapter provides an evidence-based foundation for developing urban policies that integrate heritage data, condition monitoring, and risk information into planning and decision-making processes. In this way, digital governance of heritage becomes a tool to maintain the cultural identity of cities while supporting sustainable

urban development and adaptive reuse of historic structures. The chapter is also relevant to SDG 9: Industry, Innovation and Infrastructure, as it underscores the importance of innovative digital infrastructures—such as centralised heritage databases, building information models, and monitoring platforms—that require robust governance mechanisms to ensure reliability, interoperability, and long-term sustainability.

Moreover, by foregrounding questions of authority, institutional roles, transparency, and accountability in the management of heritage-related information, the chapter speaks directly to SDG 16: Peace, Justice and Strong Institutions. Effective information system governance for historical buildings depends on clear rules, enforcement mechanisms, and participatory structures that allow different stakeholders to access and use data in fair and responsible ways. Finally, the bibliometric perspective adopted in the chapter inherently reinforces SDG 17: Partnerships for the Goals: by mapping co-authorship networks, international collaboration patterns, and thematic linkages across countries, the analysis illustrates how cross-border scientific and institutional partnerships can advance shared standards, methodologies, and platforms for digital heritage governance. Taken together, the chapter offers a conceptual and empirical basis for designing information system governance frameworks that leverage digital innovation to safeguard historic buildings and integrate cultural heritage more effectively into sustainable urban development strategies.

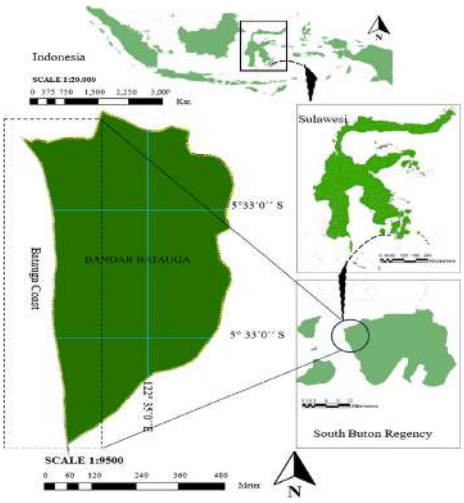
Study of coastal land change in sand mining activities in Bandar Batauga Village, South Buton Regency, Indonesia



Mappasomba and Suleman conducted a study titled “Study of coastal land change in sand mining activities in Bandar Batauga Village, South Buton Regency, Indonesia.” The research investigates how long-standing sand mining, both on land and along the coast, has altered the coastal landscape and increased disaster risk for nearby settlements. Using a mixed-methods approach, the authors combine

quantitative spatial analysis of coastline change (ArcGIS-based measurements with 5 m digital transects, SMA and DMA forecasting models) with qualitative insights from in-depth interviews with landowners, miners, and local officials. Their analysis of historical data from 2007 to 2022 shows a sharp increase in erosion: abrasion area grew from 124.5 m² in 2007 to 511.3 m² in 2022, with projections suggesting it could reach 1,157.22 m² by 2050 if no mitigation measures are implemented. The maximum area of coastline change is forecast to rise to 2,463.6 m², indicating severe future threats to housing, public facilities, and coastal ecosystems. Complementing this physical analysis, the study employs the Analytic Hierarchy Process (AHP) with 12 key informants to prioritise mitigation strategies across social, economic, physical, and biotic environmental dimensions, highlighting the protection of human life, shoreline stability, and coastal vegetation as the most urgent policy goals.

The study's findings are highly relevant to SDG 11: Sustainable Cities and Communities, as they address the vulnerability of coastal settlements to land degradation and disasters driven by unsustainable resource extraction. By demonstrating how uncontrolled sand mining has already eroded substantial portions of the coastline—and by projecting future losses—the research supports the need for integrated coastal planning, stricter land-use control, and community-oriented disaster mitigation to safeguard housing, infrastructure, and public services in Bandar Batauga. The work also directly advances SDG 13: Climate Action, since coastal erosion, sea-level dynamics, and exposure to extreme waves and tsunamis are exacerbated by climate-related hazards; the authors explicitly argue for proactive, preventive measures, stronger enforcement, and adaptive management to reduce risk under uncertain future conditions.



At the same time, the explicit focus on coastal vegetation, marine life, and coral reefs within the AHP framework links the research to SDG 14: Life Below Water and SDG 15: Life on Land. The study underlines that sand mining not only affects human settlements but also undermines the integrity of coastal ecosystems, threatening marine organisms, degrading coral reefs, and removing natural vegetative buffers that protect the shore. Maintaining these biotic components is treated as a policy priority for ensuring long-term ecological resilience.

Finally, by diagnosing weaknesses in environmental governance—such as limited institutional capacity, weak enforcement of UPL/UKL environmental management requirements, slow government response to community complaints, and low compliance among permit holders—the article contributes to SDG 16: Peace, Justice and Strong Institutions and SDG 17: Partnerships for the Goals. It calls for stronger inter-agency collaboration, more stringent sanctions, community participation, and the development of alternative, environmentally based livelihoods (such as ecotourism) that can reconcile economic needs with coastal conservation. Through this combined physical, socio-economic, and governance analysis, the study offers a comprehensive framework for balancing development and environmental preservation in disaster-prone coastal areas.



RESPONSIBLE CONSUMPTION AND PRODUCTION

University Support of Responsible Consumption and Production

Universitas Muhammadiyah Makassar demonstrates a robust and multi-faceted commitment to achieving Sustainable Development Goal 12 (SDG 12): Responsible Consumption and Production through a comprehensive set of policies, programs, and operational practices designed to optimize resource efficiency, promote sustainable materials, and instill ethical behavior across the university community. Central to this effort is the establishment of an Ethical Procurement Policy for Food and Supplies, which serves as an institutional framework ensuring that all procurement processes are conducted with attention to sustainability, transparency, social responsibility, and environmental impact. This policy guides every university unit in considering ethical, environmental, social, and sustainable economic aspects in decision-making. By enforcing general provisions that require procurement activities to be carried out transparently, fairly, and accountably, while prioritizing community welfare and environmental preservation, the university ensures that ethical principles underpin all resource acquisition practices.



The principle of sustainable procurement is applied not only in the selection and purchase of goods but across the entire product lifecycle, encompassing raw material sourcing, production, distribution, and waste management. Ethical sourcing practices ensure that all suppliers and partners adhere to business operations that respect human rights, maintain workplace safety, and minimize environmental harm. Universitas Muhammadiyah Makassar operationalizes these principles through Procurement Standard Operating Procedures (SOPs), which include sustainability-based criteria for supplier selection and systematic training programs for both internal units and external vendors. This strategic approach enables the

university to cultivate a culture of integrity, environmental awareness, and social responsibility while fostering efficient, professional, and accountable procurement governance. The integration of sustainable procurement practices illustrates the university's proactive contribution to SDG 12, as it not only minimizes environmental impacts but also ensures that the university's operations embody principles of ethical consumption and production.



Complementing procurement initiatives, the university has implemented a comprehensive Policy on Waste Disposal that systematically addresses the management of both recyclable and residual waste across all campus activities. Each campus area is required to provide waste segregation facilities for organic, inorganic, and residual waste, allowing the sanitation unit to accurately measure waste volume and weight prior to transfer to temporary collection points. Data collected from these processes are routinely incorporated into the university's environmental performance monitoring system, providing a transparent and measurable framework for evaluating waste management outcomes. Recyclable materials, including plastics, paper, and metal, are directed to the campus waste bank or processed through recycling mechanisms to support the 3R principles (Reduce, Reuse, Recycle), facilitating the development of a circular economy within the university environment. Residual waste that cannot be recycled is sent to licensed final disposal sites (TPA) in compliance with national regulations and in collaboration with officially authorized third-party operators.



A notable aspect of the university's SDG 12 initiatives is its Policy on the Use of Plastic and Single-Use Items, which operationalizes the principle of Source Reduction across campus operations. This policy emphasizes minimizing plastic use from the planning stage through procurement and daily operational activities, promoting reusable, biodegradable, and sustainably sourced alternatives. All third-party service providers, including canteens, catering, cleaning, and event vendors, are required to comply with the university's plastic reduction standards, ensuring that external contracts align with sustainable objectives. Internally, the university has eliminated single-use plastic water bottles, replaced disposable plastic bags with cloth alternatives, and installed refill stations to encourage environmentally responsible behaviors. Externally, suppliers and service providers are expected to adhere to zero single-use plastic principles through contracts and periodic compliance audits. These comprehensive measures reinforce ecological awareness and promote a culture of sustainable living among both the internal academic community and external partners, positioning the university as a model for environmentally responsible practices in higher education.



The effectiveness of Universitas Muhammadiyah Makassar's SDG 12 initiatives is further reflected in quantitative monitoring of waste generation and management across campus. Based on recorded data, the university generates a total of 102.655 tons of waste, comprising 6.336 tons of plastic, 15.552 tons of paper, 64 tons of organic waste, 16.013 tons of non-toxic organic waste, and 0.754 tons of hazardous waste. Of this total,

Jenis Limbah	Jumlah Sampah (Ton)	Didaur Ulang	TPA
Plastik	6.336	0	6.336
PET kotor	2.928		2.928
PET bersih	0.912		0.912
Botol Bersih	1.584		1.584
Tutup botol	0.912		0.912
Kertas	15.552	0	15.552
Kardus	2.932		2.932
Kertas campuran	1.596		1.596
Kertas kotor	2.98		2.98
Kertas bersih	2.364		2.364
Kertas berwarna	5.68		5.68
Organik	64	7	57
Sampah makanan	13	2	11
Daun dll	51	5	46
Organik Tidak Beracun	16.013	1.455	14.558
Plastik	6.336	0.45	5.886
Kertas	9.552	1	8.552
Kaca	0.125	0.005	0.12
Beracun	0.754	0.01302	0.74098
Baterai Bekas	0.021	0.0012	0.0198
Jarum Suntuk Bekas	0.096	0.00125	0.09475
Sarung Tangan Medis	0.204	0.0012	0.2028
Kasa/Perban	0.288	0.00627	0.28173
Laboratorium Farmasi	0.145	0.0031	0.1419
Total	**102.655**	**8.46802**	**94.187**

8.468 tons (8.2%) are successfully recycled, while 94.187 tons (91.75%) are sent to final disposal sites. These figures indicate that the majority of campus waste originates from organic and non-toxic organic categories, highlighting substantial potential for conversion into compost or other environmentally friendly products. In contrast, recyclable waste such as plastic and paper remains underutilized, primarily due to limited sorting and recycling infrastructure within the campus. The monitoring of these waste streams provides essential insights for planning capacity improvement, evaluating policy effectiveness, and establishing annual sustainability targets.

Despite these challenges, the university has taken strategic steps to address gaps in resource efficiency and waste management. The provision of water refill stations, reduction of single-use plastics, and widespread environmental education programs are designed to cultivate awareness among students, staff, and faculty regarding the importance of sustainable waste management. These measures not only facilitate tangible reductions in environmental impact but also create opportunities to instill sustainable habits and ecological literacy within the campus community. By combining monitoring, capacity-building, and continuous evaluation, the university ensures that waste management practices evolve in a systematic, data-informed, and accountable manner, consistent with the overarching objectives of SDG 12. Beyond operational practices, Universitas Muhammadiyah Makassar emphasizes the integration of sustainability principles into broader institutional culture. Waste management initiatives, ethical procurement, and plastic reduction policies are part of a holistic approach linking day-to-day operational activities with strategic sustainability objectives. This integration strengthens the university's capacity to foster responsible production and consumption, reduce environmental burdens, and

promote ethical engagement with suppliers and service providers. By prioritizing lifecycle thinking, from raw material sourcing to disposal or recycling, the university ensures that sustainability considerations are embedded in all processes, reinforcing both environmental stewardship and social responsibility.

The university's comprehensive approach also illustrates the interconnectivity of SDG 12 with other sustainable development goals. For instance, effective waste management contributes to SDG 3 (Good Health and Well-Being) by mitigating pollution, disease risks, and unsafe waste disposal practices, and supports SDG 6 (Clean Water and Sanitation) by protecting water bodies from contamination. Moreover, ethical procurement and robust governance mechanisms link directly to SDG 16 (Peace, Justice, and Strong Institutions) by fostering transparency, accountability, and trust across institutional and community stakeholders. Collaborative initiatives, including partnerships with recycling facilities, vendors, and governmental agencies, reflect SDG 17 (Partnerships for the Goals) by mobilizing diverse actors toward shared sustainability outcomes.

RESEARCH RELATED TO SDG12



Universitas Muhammadiyah Makassar actively advances SDG 12: Responsible Consumption and Production through research and community programmes that promote efficient resource use, sustainable materials, and ethical business models. The studies conducted by Israil and his team, Mustari and colleagues, and Gafur and his team collectively underscore significant advancements toward SDG 12: Responsible Consumption and Production by demonstrating practical strategies for sustainable resource use and waste management in Indonesia. Israil's research on utilizing Buton Island natural asphalt (Asbuton) as a substitute for petroleum-based bitumen highlights a circular approach in the construction sector, where optimized

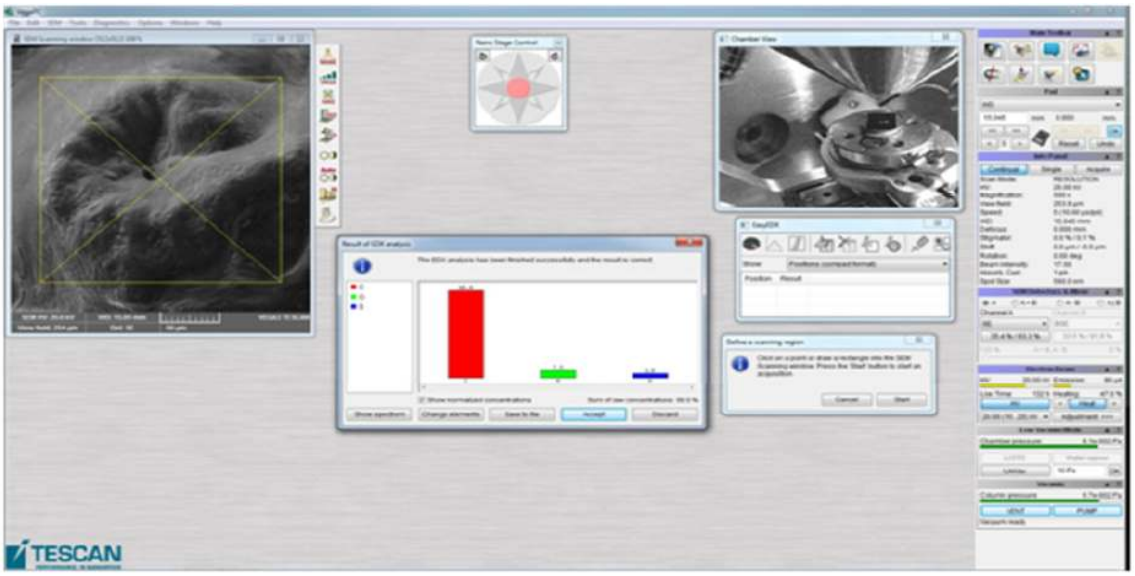
emulsified asphalt formulations reduce reliance on finite fossil resources, minimize energy consumption, and lower emissions during road paving, thus promoting resource-efficient production practices. Complementing this, Mustari's investigation of waste management policies in Bulukumba Regency shows how local government regulations, community-based TPS, and interorganizational coordination can improve household waste sorting, reduce unmanaged waste, and enhance environmental quality, while identifying critical gaps such as limited supervision, infrastructure, and public awareness that require targeted interventions. Similarly, Gafur's study on collaborative leadership in Watampone City illustrates how multi-stakeholder engagement, shared authority, and trust-building among government, communities, businesses, and academia can advance integrated waste management systems, fostering sustainable consumption and production at the municipal level. Collectively, these studies demonstrate that adopting locally sourced materials, optimizing production processes, enforcing robust policies, and promoting participatory governance are essential for achieving SDG 12 objectives, including minimizing environmental impacts, enhancing resource efficiency, and embedding sustainability into both industrial and urban systems. They also highlight the interconnectedness of SDG 12 with SDG 11, 13, 16, and 17, showing that responsible consumption and production is not only a technical challenge but also a social, institutional, and collaborative endeavor requiring innovation, governance, and community engagement to ensure resilient, sustainable, and equitable outcomes.

Reducing the Environmental Impact of Asphalt Emulsion Production from Petroleum Bitumen utilizing Buton Island Natural Asphalt in Various Scenarios



Israil and his team conducted a study titled "Reducing the Environmental Impact of Asphalt Emulsion Production from Petroleum Bitumen utilizing Buton Island Natural Asphalt in Various Scenarios." The research responds to growing concerns about the heavy use of finite fossil-based bitumen in road construction and its contribution to greenhouse gas emissions and resource depletion. Using a life-cycle

perspective, the authors explore Buton natural asphalt (Asbuton) from Southeast Sulawesi as an alternative solid phase for emulsified asphalt, replacing conventional petroleum bitumen. Bitumen is first extracted from Buton rock asphalt (EBBRA) using a Soxhlet process, then formulated into cationic slow setting (CSS-1h) emulsion asphalt through careful design of solid and liquid phases. A series of laboratory optimizations varied EBBRA content (55.4–59.4%) and kerosene content (4–6%) while keeping emulsifier, HCl, CaCl and water within Indonesian SNI 4798:2011 specifications. The optimal mixture (E3) was identified as 57.4% EBBRA and 5% kerosene with 1% emulsifier, 0.5% HCl, 0.1% CaCl and 36% water, meeting ASTM and SNI requirements for viscosity, storage stability, residue content, penetration, ductility and solubility. The findings demonstrate that Buton asphalt can serve as a technically viable primary solid component in emulsified asphalt, while reducing dependence on petroleum bitumen and supporting more sustainable cold-mix paving technologies.



The contributions of this study are strongly aligned with **SDG 9: Industry, Innovation and Infrastructure**, as it introduces an innovative use of a domestic natural resource—Buton asphalt—to produce high-performance emulsified asphalt that complies with national and international standards for road materials. By optimizing EBBRA and kerosene contents within the SNI 4798:2011 framework and demonstrating stable physical properties such as viscosity, storage stability and ductility, the research supports the development of resilient and efficient transport infrastructure based on locally sourced materials. At the same time, the work advances **SDG 11: Sustainable Cities and Communities**, since more sustainable

emulsified asphalt directly underpins durable, low-maintenance road networks that are essential for safe, accessible and environmentally sound urban and regional mobility.

The study also closely supports **SDG 12: Responsible Consumption and Production** by reducing reliance on petroleum-based bitumen and promoting the use of a long-life natural asphalt deposit with an estimated 300-year mining potential on Buton Island. Through a life-cycle assessment perspective, the authors emphasize minimizing environmental burdens across raw material extraction, production and use phases, ensuring that improvements in one part of the cycle do not increase impacts elsewhere. Optimized emulsified asphalt formulations using EBBRA require less virgin petroleum and can be applied at lower temperatures, which decreases energy consumption, material waste and emissions during construction, embodying more circular and resource-efficient practices in the construction sector.

Furthermore, the research advances **SDG 13: Climate Action** by targeting the reduction of greenhouse gas emissions associated with asphalt production and road paving. The shift from hot-mix, petroleum-heavy binders toward cold-mix emulsified asphalt based on Buton natural asphalt supports lower-temperature application, reduced fuel use, and consequently a smaller carbon footprint for road infrastructure. By showing that EBBRA-based emulsions can match or exceed conventional performance while using less fossil bitumen and optimized solvent contents, the study provides a practical pathway for the asphalt industry to transition toward climate-conscious materials and technologies in line with global efforts to mitigate climate change.

Waste management policies at Bulukumba Regency, Indonesia



Mustari and her colleagues conducted a study titled “Waste management policies at Bulukumba Regency, Indonesia” focusing on the implementation of waste policy at TPS Bukit Asri, a community-based Waste Management Site in Polewali

Village, Gantarang District, Bulukumba. Using a qualitative descriptive method with observation, interviews, document study, and NVivo 12+ analysis, the research applies Søren C. Winter's implementation theory, examining three key dimensions: interorganizational relationship behaviour, lower-level implementer behaviour, and target group behaviour. The findings show that interorganizational relations work relatively well: there is a written cooperation agreement between the Bulukumba Spatial Planning Office and the Bukit Asri Community Self-Help Group (KSM), regular monthly coordination for worker salaries, and ongoing communication with the Environmental and Forestry Service (DLHK) about equipment and manpower needs. Lower-level implementers (TPS managers and workers) demonstrate strong organizational control, work ethic, and professionalism—the TPS chair actively supervises staff performance, enforces discipline to avoid delayed collection, and ensures workers understand waste collection, sorting, and composting procedures.





At the same time, the study finds that policy implementation remains constrained by weak supervision, limited facilities, and low public awareness. Government monitoring of waste policy at TPS Bukit Asri is still not optimal, resulting in trash remaining scattered on roads, empty land, and even in canals and waterways, especially when the only operational collection motorbike breaks down or when residents do not pay service fees. While residents generally respond positively—feeling helped by door-to-door collection and the availability of a TPS in a dense housing area—they still often litter and do not consistently practice 3R (Reduce, Reuse, Recycle), and environmental education remains limited. The research concludes that successful implementation of Bulukumba Regent Regulation No. 66/2017 (3R-based household waste management) requires stronger government commitment and supervision, additional facilities (vehicles, bins, tools) and human resources, and intensive community education so that waste sorting and responsible behaviour begin "from below" at the source.

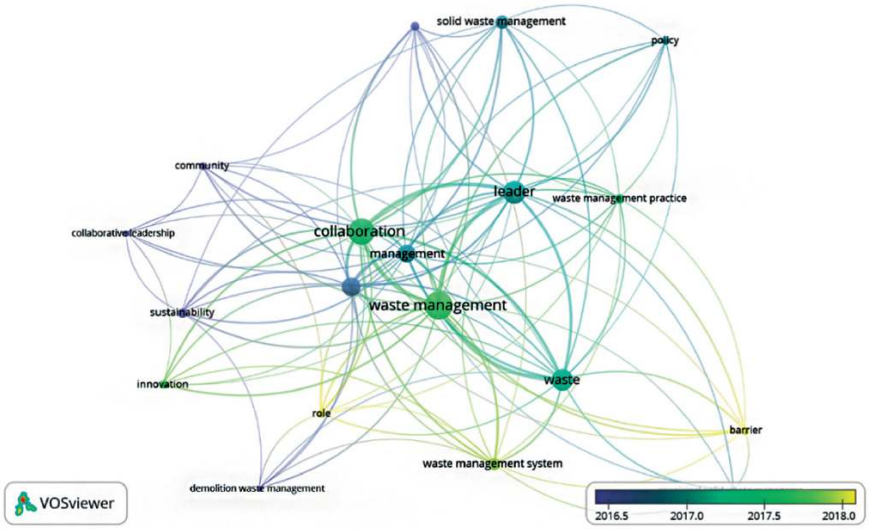
The contributions of this study align strongly with **SDG 11: Sustainable Cities and Communities** and **SDG 12: Responsible Consumption and Production**, as it evaluates how local policy, community-based TPS, and interagency coordination can reduce unmanaged household waste and improve environmental quality in a rapidly growing settlement. By highlighting that unmanaged trash in drains, open spaces, and neighbourhoods leads to flooding, pollution, disease risks, and declining environmental health, the research also supports **SDG 3: Good Health and Well-Being** and **SDG 6: Clean Water and Sanitation**, underlining the need for safe waste services to protect public health and water bodies. Furthermore, the focus on government commitment, supervision quality, interorganizational coordination, and community participation connects directly to **SDG 16: Peace, Justice and Strong Institutions**, showing that clear roles, effective monitoring, and responsive public services are essential for turning waste regulations into real improvements on the ground. Through this lens, TPS Bukit Asri becomes a practical example of how local governance and citizen engagement can be strengthened to achieve cleaner, healthier, and more sustainable communities.

Collaborative Leadership in Waste Management: A Case Study of Watampone City, Indonesia



Gafur and his colleagues conducted a study titled “Collaborative Leadership in Waste Management: A Case Study of Watampone City, Indonesia.” The research explores how collaborative leadership shapes the Bone Bersih Sampah (BBS) programme, a multi-stakeholder initiative to address growing solid waste problems in Watampone, a developing city in Bone Regency, South Sulawesi. Using a descriptive qualitative approach, the authors conducted in-depth interviews with six key stakeholder leaders—from local government, community, business actors, academia, and the mass media—supported by literature review, observation, and NVivo 12-based coding. Framed by Edwards and Smit’s (2008) four characteristics of collaborative leadership, the study assesses how far waste management in Watampone reflects:

(1) prioritising function over position, (2) sharing authority, (3) working for a shared vision, and (4) building mutual trust. The findings show relatively strong awareness that waste is a shared responsibility, with stakeholders actively campaigning for “zero waste,” conducting media campaigns, and integrating NGOs and private actors into the BBS programme. Authority over waste initiatives is also widely delegated to around 400 stakeholders, including villages and universities, enabling diverse actors to design and implement local waste management models.



However, the study also reveals that collaborative leadership in Watampone is not yet fully realised. While stakeholders broadly agree on the vision of a clean, waste-free city, this shared vision is still strong at the conceptual level but weak in concrete, joint action—many initiatives remain fragmented and not fully integrated under the BBS umbrella. Mutual trust among stakeholders is reported to be high, helped by the local culture of gotong royong (mutual aid) and the perception that waste is a common, non-controversial problem, which eases cooperation and authority-sharing. Yet the authors argue that sustained progress towards “zero waste” will require stronger policy intervention, clearer role mapping, and a pilot project that fully embodies collaborative leadership—where all stakeholders work across institutional boundaries, share power, and collectively implement integrated, sustainable waste management systems.

The contributions of this study align closely with **SDG 11: Sustainable Cities and Communities** and **SDG 12: Responsible Consumption and Production**, as it shows how collaborative governance can underpin community-based, multi-actor

waste management to keep cities cleaner and reduce unmanaged solid waste flows. By emphasising cross-sector cooperation, shared responsibility, and data-informed reflection on leadership practices, the research also advances **SDG 16: Peace, Justice and Strong Institutions**, illustrating how transparent authority-sharing, trust-building, and policy intervention can strengthen local institutions and improve public service delivery. Finally, the BBS model—rooted in gotong royong and involving government, communities, businesses, academia, and media—embodies **SDG 17: Partnerships for the Goals**, demonstrating that effective, sustainable waste governance in growing cities depends on collaborative leadership that mobilises all stakeholders toward a common environmental vision.

In summary, Universitas Muhammadiyah Makassar's approach to responsible consumption and production encompasses multiple dimensions: sustainable procurement, ethical supply chain management, systematic waste tracking, recycling, reduction of plastics and single-use items, community education, and monitoring-based continuous improvement. By implementing policies and operational practices that address the entire lifecycle of resources and waste, the university not only reduces environmental impacts and enhances resource efficiency but also fosters a culture of sustainability that integrates social, institutional, and ecological dimensions. The measured data, including over 96 tons of waste tracked annually, alongside strategic interventions such as refill stations, recycling programs, and strict vendor compliance, highlight a practical, evidence-based commitment to SDG 12. Through these initiatives, Universitas Muhammadiyah Makassar demonstrates how higher education institutions can lead by example in promoting responsible consumption and production, embedding sustainable practices into organizational culture, and preparing communities to contribute actively to a greener, more equitable, and resilient future.

CLIMATE ACTION

University Support of Climate Action

Universitas Muhammadiyah Makassar demonstrates a comprehensive and proactive commitment to Sustainable Development Goal 13 (SDG 13): Climate Action through a range of initiatives encompassing education, mitigation, adaptation, and community engagement. The university recognizes that climate change poses multidimensional challenges—including increased flooding, environmental degradation, and health risks—and positions itself as a strategic actor capable of translating academic knowledge into practical, field-based interventions that strengthen both local and regional resilience. Central to these efforts are educational campaigns and programs that raise awareness about climate risks, the impacts of extreme weather, strategies for mitigation and adaptation, and early warning systems, ensuring that the university community and surrounding populations are well-informed and prepared for climate-related challenges.



A flagship example of the university's climate action initiatives is the Climate Action Summit 2024, organized by the Student Executive Board of the Faculty of Medicine and Health Sciences (BEM FKIK) on May 19, 2024, at Tanjung Bayang Beach, involving more than 250 students and faculty volunteers. This event extended beyond traditional environmental clean-up activities, integrating sanitation education, promotion of clean and healthy living behaviors (PHBS), and raising awareness of the health and environmental consequences of climate change. The

summit not only engaged participants in hands-on mitigation activities but also fostered a collective culture of environmental responsibility and community action. Similarly, the university's implementation of porous cylindrical drainage technology in



Taeng Village, Gowa Regency, represents an innovative, localized adaptation strategy. By introducing this technology to reduce flooding caused by extreme rainfall patterns and land-use conversion, the university exemplifies how academic research and technical expertise can directly support community resilience, highlighting the practical application of climate science in real-world contexts.

In addition to educational and technological interventions, Universitas Muhammadiyah Makassar actively integrates humanitarian action into its climate adaptation strategy. Rapid-response initiatives led by students during flood events in South Sulawesi demonstrate how the university mobilizes its human and financial resources to address immediate climate-induced disasters. For instance, fundraising campaigns generated approximately IDR 4,000,000, which was distributed to flood



victims in collaboration with local government agencies. Moreover, students from the Faculty of Economics and Business provided essential humanitarian aid—including rice, cooking oil, instant noodles, and clothing—to flood victims in Wajo Regency on May 17, 2024. These efforts illustrate that the university's commitment to climate action extends beyond theoretical education and research to include practical, community-focused interventions that enhance disaster preparedness, strengthen early warning systems, and build robust collaboration between academic actors, local authorities, and residents.

Strategic collaboration with civil society organizations further reinforces the university's role as a catalyst for climate action. A notable example is the PKM-RSH research team, which received funding from the Ministry of Education, Culture, Research, and Technology (Kemdikbud-Ristek) in 2024 to conduct a community-based study with the Kajang Indigenous People. This research explored how



customary laws and traditional ecological knowledge—particularly those related to forest conservation and environmental protection—can be integrated into effective climate change mitigation strategies. The initiative exemplifies the university's holistic approach to climate action, which combines rigorous academic research with community engagement and empowerment. By integrating traditional ecological knowledge with modern mitigation strategies, the university enhances the adaptive capacity of local communities while promoting sustainable environmental stewardship.

Collectively, these initiatives underscore Universitas Muhammadiyah Makassar's approach to SDG 13 as encompassing education, research, technology, humanitarian aid, and community empowerment. By fostering awareness of climate risks and instilling a culture of proactive action, the university ensures that both students and local communities are equipped to participate in climate mitigation and adaptation efforts. The university's programs also highlight the importance of translating academic knowledge into tangible, field-based solutions that address local vulnerabilities while reinforcing broader regional and national climate resilience frameworks. Moreover, cross-sector collaboration—including partnerships with NGOs, indigenous communities, government agencies, and civil society organizations—demonstrates how inclusive governance and multi-stakeholder engagement can amplify the impact of climate initiatives, creating synergies that enhance overall effectiveness.

Through these multifaceted efforts, Universitas Muhammadiyah Makassar exemplifies the dual role of higher education institutions as centers of knowledge generation and active agents of social and environmental change. By linking climate action to education, research, technological innovation, and community support, the university demonstrates that climate solutions require integrated approaches that address both technical and socio-cultural dimensions. Furthermore, initiatives such as flood response campaigns, adaptive drainage technology, and traditional

knowledge integration reflect a recognition that effective climate action is not solely a scientific or technical endeavor but also a participatory, culturally-informed process that requires the engagement and empowerment of local communities.

Ultimately, Universitas Muhammadiyah Makassar's climate action programs reinforce its identity as a model green university, positioning it as a key contributor to SDG 13. The university's initiatives demonstrate measurable impact, from community-based disaster response and adaptation technologies to educational campaigns and environmental awareness programs. By promoting climate resilience, facilitating active community participation, and fostering collaborative governance, the university ensures that its contributions are both practical and sustainable. This integrated approach not only advances the academic and social missions of the institution but also generates long-term benefits for communities in South Sulawesi, enhancing their capacity to respond effectively to climate-related risks. In doing so, Universitas Muhammadiyah Makassar illustrates how higher education institutions can serve as catalysts for climate action, bridging theory and practice, and inspiring broader societal engagement in the fight against climate change.

RESEARCH RELATED TO SDG13



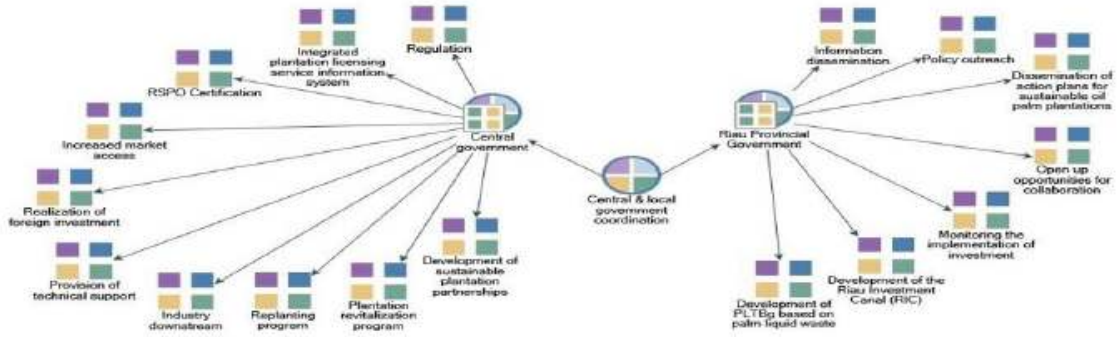
Universitas Muhammadiyah Makassar actively advances SDG 13: Climate Action through research that links climate risks with policy, technology, and community livelihoods. Studies on sustainable palm oil investment promote downstream processing, biogas from POME, and stronger safeguards to cut emissions and deforestation. Work on electric vehicle policy and public response uses Twitter-based analysis to show how low-emission transport, industrial strategy, and social media campaigns can support decarbonisation while highlighting gaps in infrastructure and affordability. In agriculture and food systems, research on chili price volatility in Makassar, precision/deficit/drip irrigation, and land-use change in Bantaeng's coffee area connects climate variability, water scarcity, and farmer

resilience to climate-smart water use and land management. Complementary studies on global climate policy trends and curcumin-based photodynamic food preservation underscore the role of governance and innovation in reducing emissions and food waste. Together, these efforts strengthen mitigation and adaptation capacity in line with SDG 13.

Sustainable investment strategies in the palm oil industry in Indonesia



Yuslaini and her colleagues conducted a study titled “Sustainable investment strategies in the palm oil industry in Indonesia.” Focusing on Riau Province, Indonesia’s largest palm-oil-producing region, the research analyses how government strategies and investment services can support a more sustainable palm oil industry while addressing serious environmental and social issues. Using Online Research Methods (ORMs), the authors systematically collected secondary data from official government portals and sectoral institutions, then coded and mapped these documents with NVivo 12 Plus to identify key themes, cases, and relationships. The study shows that central and provincial governments coordinate across a wide range of instruments: regulatory frameworks, an integrated plantation licensing information system (Siperibun), improved market access and RSPO certification, foreign investment promotion, industrial downstreaming, oil palm replanting and revitalisation programmes, and sustainable plantation partnerships. At the same time, the analysis highlights persistent challenges—especially land conflicts, climate change, environmental degradation, technology gaps, and dependence on export markets—that threaten both long-term investment and the credibility of Indonesia’s palm oil as a sustainable commodity.



The contributions of this study are strongly aligned with **SDG 9: Industry, Innovation and Infrastructure** and **SDG 12: Responsible Consumption and Production**. By documenting policies that encourage downstream processing (from crude palm oil and kernel oil into higher value products such as soap, margarine, biodiesel, and biochemicals) and technology upgrading in mills and plantations, the research illustrates how palm oil can move beyond raw-commodity export toward a more innovative, value-added industrial ecosystem. The integrated licensing information system and coordinated investment services improve transparency, reduce bureaucratic delays, and create a more predictable environment for sustainable investors. At the same time, the push for RSPO/ISPO-style certification, replanting of ageing plantations with better varieties, and the development of biogas and biomass energy from palm oil mill effluent (POME) directly support SDG 12 by reducing waste, improving resource efficiency, and embedding environmental and social safeguards across the supply chain. These measures help shift palm oil production toward cleaner, more circular practices that can meet stricter global sustainability expectations.

The study also relates closely to **SDG 13: Climate Action**, **SDG 15: Life on Land**, and **SDG 17: Partnerships for the Goals**. By emphasising how deforestation, peatland conversion, water and soil pollution, and biodiversity loss undermine both environmental integrity and long-term investment prospects, the authors argue that climate and ecosystem risks must be integrated into palm oil policy and financing decisions. Initiatives such as biogas power plants from POME and the careful planning of infrastructure like the Riau Investment Canal (RIC) are presented as examples where climate mitigation, energy transition, and economic development can be aligned—provided that environmental impacts are properly managed and local

communities are meaningfully involved. The mapping of central–provincial coordination, regulations, replanting and revitalisation schemes, and sustainable plantation partnerships underscores that only multi-level, cross-sector collaboration between national government, local authorities, companies, smallholders, and communities can reconcile economic growth with environmental protection and social justice in Riau's palm oil industry. Through this governance-focused perspective, the study offers a strategic framework for steering palm oil investment toward more sustainable, climate-conscious, and socially inclusive pathways in line with the SDGs.

Indonesian Policy Campaign for Electric Vehicles to Tackle Climate Change: Maximizing Social Media



Lestaluhu and his colleagues conducted a study titled "Indonesian Policy Campaign for Electric Vehicles to Tackle Climate Change: Maximizing Social Media." The research examines how the Indonesian government, particularly through the official Twitter account @jokowi, uses social media to campaign for the adoption of electric vehicles (EVs) as part of a broader climate change mitigation strategy. Using a quantitative descriptive content analysis approach, the authors collected 1,897 tweets (1,126 tweets related to "electric vehicles" and 771 to "climate change") up to February 2023, captured with NCapture and analysed using NVivo 12 Plus. Tweets were coded for themes, cases/attributes, and sentiment. The study finds that government Twitter campaigns emphasise several dominant issues: reducing CO_2 emissions, building an electric vehicle ecosystem, attracting investment, increasing state revenue, encouraging public engagement and participation, and providing subsidies to make EVs more affordable. The analysis shows that the government's EV–climate change campaign has generated substantial online discussion and is used to educate and influence public perception around low-emission transport and sustainability.



The results demonstrate that social media can be an effective tool for fostering public support for climate-related transport policies, aligning this work strongly with **SDG 13: Climate Action** and **SDG 11: Sustainable Cities and Communities**. By linking EV adoption to reduced greenhouse gas emissions and cleaner urban air, the campaign supports a transition toward low-carbon, environmentally friendly transport systems, a key pillar of sustainable cities. The study also highlights Indonesia's potential to develop a domestic EV and battery industry based on abundant nickel, cobalt, and copper resources, which connects closely to **SDG 9: Industry, Innovation and Infrastructure**. Government narratives about investment, industrial competitiveness, and ecosystem building signal a strategy to position Indonesia as a major player in the global EV value chain, while using fiscal incentives and infrastructure development (charging stations) to accelerate adoption. At the same time, mapping public discussion frequencies and sentiment shows that a majority of conversations focus on electric vehicles (59.4%) and that public sentiment is predominantly moderately positive (44.4%), suggesting that well-designed online campaigns can build social acceptance and legitimacy for climate policies when messages are clear, relatable, and supported by incentives.

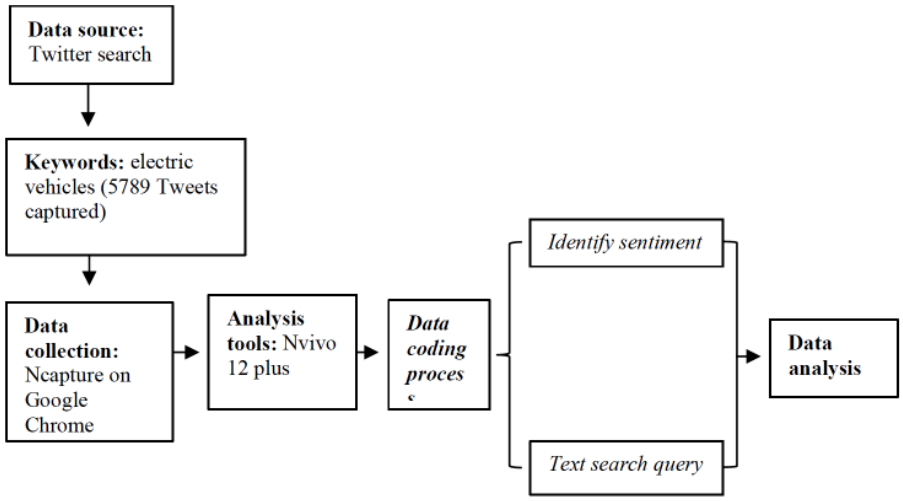
Beyond emissions reduction, the study's emphasis on public participation, information transparency, and investor involvement links it to **SDG 12: Responsible Consumption and Production** and **SDG 17: Partnerships for the Goals**. By encouraging citizens to switch from fossil-fuel vehicles to EVs, promoting behavioural change through education, and calling for cleaner electricity sources and greener battery technologies, the campaign supports more sustainable consumption patterns in the transport sector. Meanwhile, the paper underlines that building a robust EV ecosystem requires collaboration between government, industry, financial

institutions, and the public, including green finance, private investment in charging infrastructure, and corporate innovation in battery recycling and renewable energy integration. The authors conclude that Indonesia's Twitter-based EV campaign contributes to global climate action while also revealing limitations—such as dependence on a single platform and challenges in controlling narratives—pointing to the need for multi-platform strategies and stronger integration with traditional media and civil society initiatives to sustain long-term public engagement on climate issues.

Public Response on Twitter: The Urgency of Government Policy on Electric Vehicles



Luth and his colleagues conducted a study titled "Public Response on Twitter: The Urgency of Government Policy on Electric Vehicles." The research assesses both the rationale (urgency) behind Indonesia's electric vehicle (EV) policy and how the public reacts to it on Twitter. Using a quantitative descriptive content analysis, the authors collected 5,789 tweets containing the keyword *"electric vehicles"* via Twitter search, captured with NCapture in Google Chrome and analysed using NVivo 12 Plus. The data were coded using *Identify Sentiment* and *Text Search Query* features to map sentiment and frequently occurring terms. The study finds that the urgency of EV policy in Indonesia is grounded in multiple environmental and energy challenges: severe urban air pollution from fossil-fuel vehicles, heavy dependence on imported fuel, the need for energy efficiency and cost savings, and the imperative to reduce greenhouse gas emissions and mitigate climate change. At the same time, public discourse on Twitter reveals that EV adoption is perceived as constrained by limited vehicle range, high purchase costs, and insufficient charging infrastructure, indicating a gap between the policy's environmental rationale and everyday user concerns.



The findings show that public sentiment toward EV policy on Twitter is predominantly negative. As illustrated by the sentiment analysis, 92.6% of tweets are "moderately negative," 2.2% "very negative," 4.8% "moderately positive," and only 0.4% "very positive," suggesting that current policies and infrastructure are not yet sufficient to convince most users to switch to EVs. Further analysis identifies three dominant factors behind this negativity: limited driving range (43.5%), high EV prices (30.1%), and limited charging infrastructure (26.4%). The authors argue that without accelerated investment in charging networks, price incentives, and domestic EV production using Indonesia's raw-material potential, negative sentiment will continue to hinder public acceptance and slow EV diffusion. As a result, the study recommends that government and industry work together to expand charging infrastructure, provide fiscal and regulatory incentives, and support R&D to improve battery technology and reduce costs, while actively monitoring and responding to public opinion on social media as part of policy evaluation.

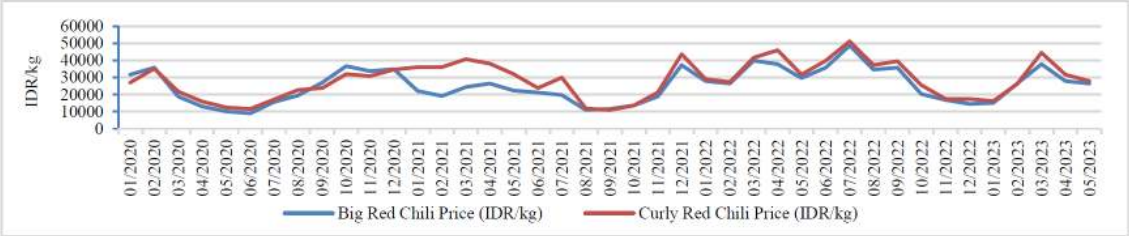
This research is strongly aligned with **SDG 13: Climate Action** and **SDG 11: Sustainable Cities and Communities**, as it frames EV policy as a response to air pollution, greenhouse gas emissions, and urban environmental degradation, while highlighting public acceptance as a critical condition for transitioning to low-carbon, cleaner transport systems. By emphasising energy efficiency and reduced dependence on imported fossil fuels, the study also contributes to **SDG 7: Affordable and Clean Energy**, demonstrating how EVs can support energy security when coupled with cleaner electricity generation. Furthermore, its focus on charging infrastructure, technological improvement, and incentives for EV development speaks directly to **SDG**

9: Industry, Innovation and Infrastructure, underlining the need for robust EV charging networks, domestic EV manufacturing capacity, and innovation in battery technology. Finally, the use of Twitter as a tool to gauge social trust and policy legitimacy reflects the spirit of **SDG 17: Partnerships for the Goals**, showing how government, industry, and citizens—connected through digital platforms—must interact and collaborate to realise a just and effective transition to sustainable mobility.

Fluctuations and trends in the prices of red chilies and cayenne peppers in the traditional markets of Makassar City



Mardiyati and Natsir conducted a study titled “Fluctuations and trends in the prices of red chilies and cayenne peppers in the traditional markets of Makassar City.” The research responds to the problem of high price volatility in strategic food commodities—particularly large red chilies, curly red chilies, and red cayenne peppers—which affects farmer income, consumer welfare, and local inflation. Using a quantitative descriptive approach, the authors analysed monthly time-series data from January 2020 to May 2023 for two major traditional markets in Makassar (Pabaeng-baeng and Daya), obtained from the Strategic Food Price Information Centre (PIHPS). They calculated coefficients of variation (CV) to measure price fluctuations, linear trend equations to assess monthly price trends, and t-tests to compare prices between chili types and between markets. The results show that prices of large and curly red chilies experience moderate fluctuations (CV ≈ 36–40%), while red cayenne pepper shows high volatility (CV ≈ 50%). On average, prices in Makassar’s traditional markets increased each month by IDR 144.24/kg for large red chilies, 200.99/kg for curly red chilies, and 362.42/kg for red cayenne pepper, with cayenne consistently the most expensive. Despite these differences by chili type, there is no significant price difference between Pabaeng-baeng and Daya markets, indicating that consumers face similar price levels across locations.



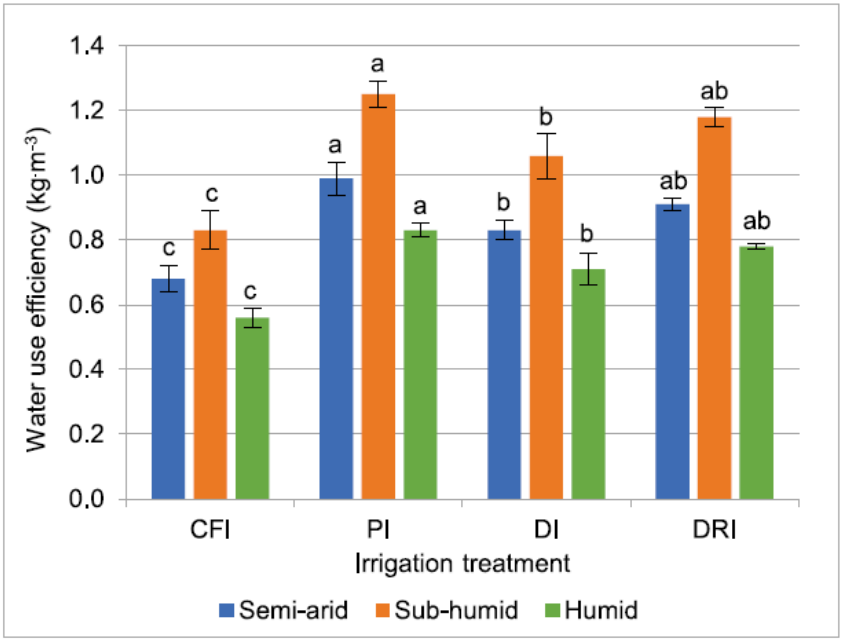
The study's findings are closely aligned with **SDG 2: Zero Hunger** and **SDG 1: No Poverty**, as they shed light on how volatile prices for essential cooking ingredients can threaten food affordability for low-income households while also affecting farmers' income stability. By quantifying the degree of volatility and identifying cayenne pepper as the most unstable and fastest-increasing commodity, the research provides an evidence base for food price stabilisation policies, including improved market information systems, climate-resilient production strategies, and risk-management instruments to protect both producers and consumers. The work also supports **SDG 12: Responsible Consumption and Production** and **SDG 13: Climate Action** by linking chili price fluctuations to climate-related production risks and seasonal supply imbalances, highlighting the need for better planning of planting cycles, post-harvest handling, and distribution so that markets remain supplied without excessive wastage or shock price spikes. Through these contributions, the study helps policy-makers design more resilient and equitable food systems in Makassar and similar urban centres.

Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq



Jumintono and his colleagues conducted a study titled "Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq." The research addresses the twin challenges of water scarcity and food insecurity in arid and semi-

arid regions by comparing three sustainable irrigation techniques—precision irrigation (PI), deficit irrigation (DI), and drip irrigation (DRI)—against conventional flood irrigation (CFI). Field experiments were conducted in three distinct agroecological zones of Iraq (semi-arid, sub-humid, and humid) using wheat, maize, and rice, arranged in a randomised complete block design. Each treatment plot received CFI, PI, DI (70% of crop water requirement), or DRI (90%), and crop growth, biomass, yield, and water use efficiency (WUE) were measured. The results show that PI significantly increased plant height, leaf area index, biomass, and grain yield for all three crops, with yield improvements of 33% (wheat), 38% (maize), and 34% (rice) compared to CFI. DI and DRI also improved yields relative to CFI, though to a lesser extent. Remote-sensing indices (NDVI, EVI) were strongly positively correlated with LAI, biomass, and yield, while hydrological modelling (SWAT) revealed that PI reduced evapotranspiration and surface runoff and increased groundwater recharge relative to CFI. Overall, sustainable irrigation practices provided 20–30% water savings compared to CFI, while maintaining or increasing yields.



The study's findings are closely aligned with **SDG 2: Zero Hunger** and **SDG 6: Clean Water and Sanitation**. By showing that PI can raise crop yields by 33–38% while simultaneously boosting WUE by 46–51% across all zones, the research demonstrates how smarter irrigation can produce more food per unit of water, strengthening food security in water-scarce regions. DI and DRI treatments further

illustrate that even where precision technologies are not yet feasible, farmers can still save up to 30% of water and sustain acceptable yields, which is crucial in contexts of limited water availability and climate stress. These results support SDG 6 by promoting efficient and sustainable water management in agriculture, reducing waste from evaporation, runoff, and deep percolation, and minimising negative impacts such as soil salinisation and groundwater depletion. The integration of remote sensing and hydrological modelling also provides tools for monitoring water use and crop performance at scale, supporting evidence-based policy for water allocation and irrigation planning.

The research also contributes directly to **SDG 13: Climate Action** and **SDG 12: Responsible Consumption and Production**. By reducing water use, improving WUE, and lowering evapotranspiration and runoff, PI, DI, and DRI collectively help build climate-resilient agricultural systems capable of withstanding more frequent droughts and variable rainfall. The findings emphasise a holistic approach that combines field technology (sensors, drip systems), remote sensing, modelling, capacity building, and supportive policies to overcome barriers such as high initial investment costs and limited technical knowledge. Encouraging the adoption of these water-saving technologies promotes more resource-efficient production, reduces pressure on already stressed river and groundwater systems, and aligns agricultural practices with long-term sustainability goals. The study's recommendations—to prioritise PI where feasible, promote DI and DRI as effective alternatives, and mainstream remote sensing and hydrological tools into irrigation management—offer a practical roadmap for countries seeking to harmonise agricultural development with water conservation and climate adaptation.

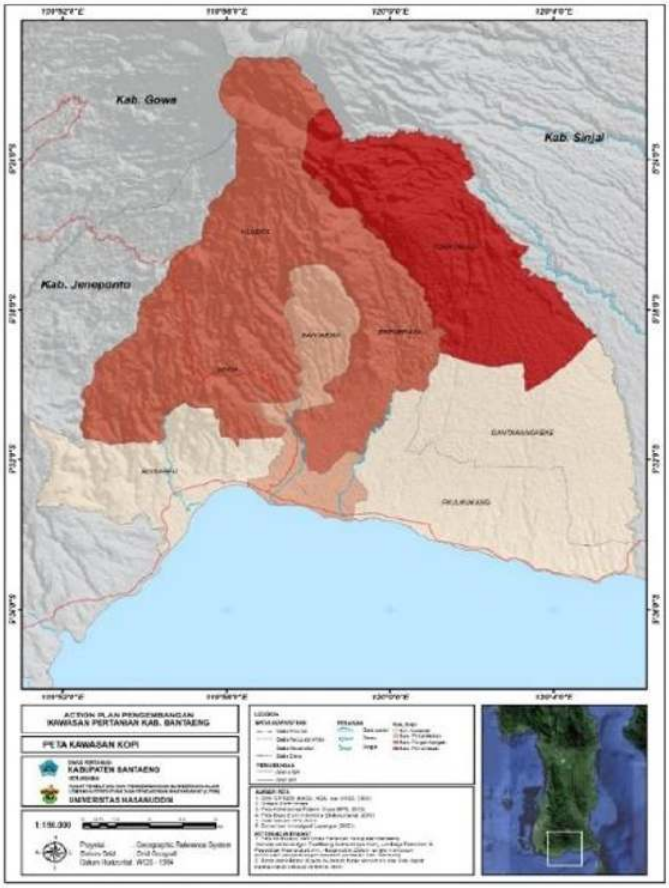
Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency



Junais and his colleagues conducted a study titled "Dynamics of Changes in Land Use in the National Coffee Development Area in Bantaeng Regency." The

research examines how a nationally designated coffee development area in Bantaeng, South Sulawesi, has experienced rapid land-use change over the last decade, largely driven by declining coffee productivity, climate stress, and farmers' socio-economic pressures. Using a combination of Landsat 8 satellite imagery (2016 and 2022), ground-check surveys, and farmer interviews, the authors applied a Cellular Automata–Markov (CA–Markov) model to analyse past land-cover changes and project future scenarios. The results show a marked shift from coffee to clove cultivation, with coffee land decreasing by around 30–31% between 2017 and 2022 (about 975–1,128 ha), while clove plantation area expanded by 818 ha, accompanied by higher clove production and attractive market prices. Population growth and urgent household economic needs further intensify pressure on land, prompting conversions not only to cloves but also to other crops (porang, onions, bananas, potatoes) and, in some areas, to settlement land.

Using CA–Markov simulations, the study projects that clove plantation area in the coffee zone will continue to grow from 343.8 ha (2016) to 1,538.2 ha (2022) and is expected to reach about 1,665.5 ha by 2026, with a high model accuracy (kappa ≈ 97.5%). Coffee land, by contrast, is predicted to continue shrinking as farmers replace old, unproductive coffee trees—often >23 years old—with more profitable crops, despite the long immature period (4.5–6.5 years) required for cloves to reach full productivity. Survey data from 219 farmers show that 78.68% of land-use conversions are from coffee to clove, with an average converted area of 0.36 ha per farmer. The authors interpret these shifts as a form of farmer resilience and livelihood diversification, but also as a warning sign: without targeted support for coffee rejuvenation, climate adaptation, and farmer capacity-building, the region risks losing a key local commodity that has long underpinned rural economies.

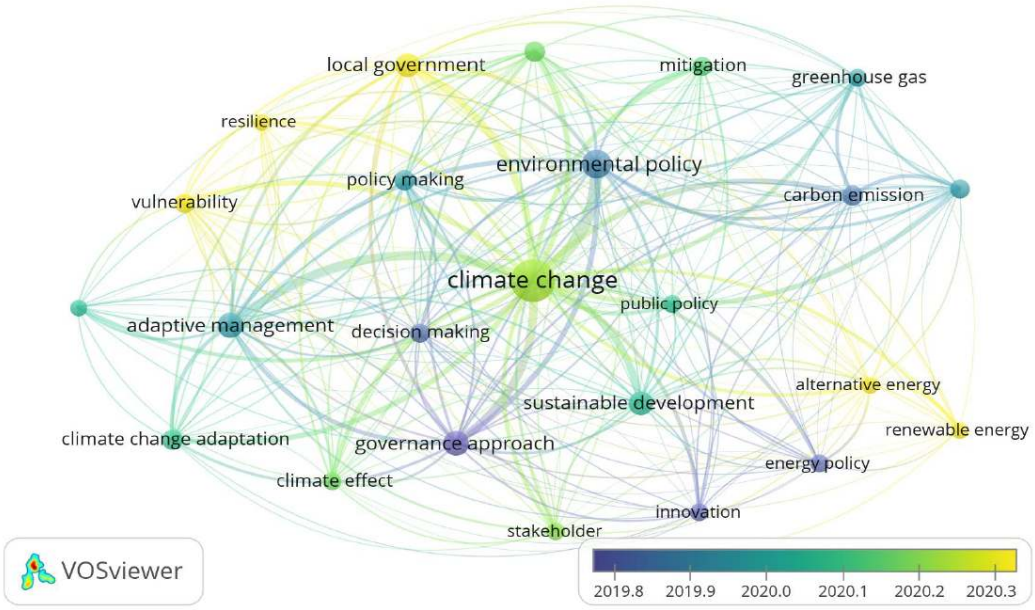


The contributions of this study are closely aligned with **SDG 2: Zero Hunger** and **SDG 1: No Poverty**, as it reveals how land-use change is driven by efforts of smallholder farmers—often on plots <0.5 ha—to maintain income and food security amid declining yields, narrow landholdings, and volatile markets. By quantifying the pace and direction of conversion, the research provides essential evidence for designing pro-farmer policies, such as coffee replanting programs, improved extension services, and diversified livelihood strategies that safeguard household welfare. At the same time, the focus on climate change impacts (heat stress, unpredictable rainfall, drought, erosion) and the need for adaptation and mitigation links the work to **SDG 13: Climate Action**, while its emphasis on sustainable land-use planning, landscape conservation, and prevention of long-term degradation supports **SDG 15: Life on Land**. The authors stress that resilience in coffee areas must be understood not only as maintaining production levels but as ensuring decent living standards, adaptive capacity, and informed decision-making for farming families—goals that require stronger institutions, better access to climate and market information, and participatory planning involving local communities and government.

Global Government Policies on Climate Change: A Bibliometric Analysis



Normawati and her colleagues conducted a study titled “Global Government Policies on Climate Change: A Bibliometric Analysis.” The research systematically maps how global scholars in the social sciences have studied government responses to climate change, focusing on policy, governance, and adaptation/mitigation frameworks. Using the Scopus database and filtering for the period 2018–2022, keywords *“government policy”* and *“climate change”*, and the social sciences subject area, the authors identified 1,925 documents which were then analysed using VOSviewer for keyword co-occurrence and Scopus’ built-in visualisations for trends, affiliations, and citation patterns. The results show a rising trend of publications on government climate policy, from 281–375 papers per year in 2018–2019 to 358–498 in 2020–2022, reflecting growing research attention to climate governance. The United States leads with 432 publications, followed by the United Kingdom, Australia, China, Canada, Germany, the Netherlands, India, South Africa, and Italy, but there is a marked under-representation of authors from Asia and Africa. The keyword network reveals three main clusters: (1) climate change, decision-making, governance, local government, vulnerability and resilience; (2) environmental policy, mitigation, greenhouse gas, carbon emission; and (3) sustainable development, alternative/renewable energy, energy policy, innovation, and stakeholders. The study also identifies future research gaps in topics such as vulnerability, resilience, local government, and renewable energy within the climate policy literature, highlighting areas where further work is needed.

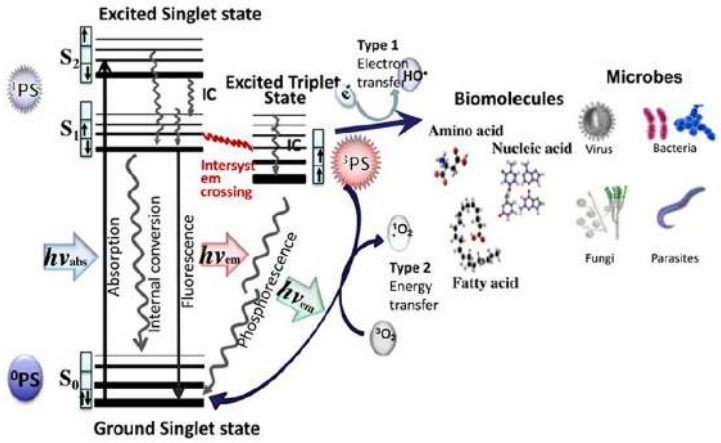


The contributions of this research align strongly with **SDG 13: Climate Action** and **SDG 16: Peace, Justice and Strong Institutions**. By synthesising how global research addresses climate mitigation, adaptation, and policy instruments—such as emissions reduction, renewable energy promotion, spatial planning, and risk governance—the study offers governments an evidence base to design more adaptive, integrated climate policies. The clustering of topics around governance approaches, local government action, and adaptive management underscores that effective climate action depends on robust institutions, coherent multilevel governance, and participatory decision-making rather than technological solutions alone. At the same time, the clear emphasis on sustainable development, renewable energy, and innovation situates this work within **SDG 7: Affordable and Clean Energy**, **SDG 9: Industry, Innovation and Infrastructure**, and **SDG 11: Sustainable Cities and Communities**, showing how energy policy, urban planning, and infrastructure choices are central to climate governance. By explicitly mapping research gaps, especially in vulnerability, resilience, local government roles, and perspectives from Asia and Africa, the paper also advances **SDG 17: Partnerships for the Goals**, encouraging more inclusive, geographically diverse research collaborations and policy dialogues that bring Global South experiences into global climate policy debates.

Reduction of biofilm and pathogenic microorganisms using curcumin-mediated photodynamic inactivation to prolong food shelf-life



Angga Pramana and his team conducted a review study titled “Reduction of biofilm and pathogenic microorganisms using curcumin-mediated photodynamic inactivation to prolong food shelf-life.” The article examines how curcumin-mediated photodynamic inactivation (Cur-m-PDI) can be used as a non-thermal, residue-free, eco-friendly technology to control pathogenic bacteria, fungi, and their biofilms in food systems, thereby extending shelf life and reducing food waste. Curcumin functions as a natural photosensitizer that, when activated by visible/blue light in the presence of oxygen, generates reactive oxygen species (ROS) through both Type I (electron transfer) and Type II (energy transfer) pathways, damaging microbial cell membranes, DNA, proteins, and extracellular polymeric substances in biofilms. The review synthesizes evidence that Cur-m-PDI is effective against major foodborne bacteria (such as *Escherichia coli, Staphylococcus aureus, Listeria monocytogenes, Vibrio parahaemolyticus, Aeromonas hydrophila*), spoilage fungi (including *Botrytis cinerea, Penicillium expansum, Aspergillus* spp.), and mixed biofilms, across diverse food matrices like meat, fish, fruits, vegetables, dairy products, and juices. It also highlights integration of Cur-m-PDI into active and intelligent packaging (e.g. chitosan-, carrageenan-, carboxymethyl cellulose-, and polycaprolactone-based films with curcumin and other functional additives), showing that microbial inactivation can be achieved while maintaining sensory and nutritional quality and slowing oxidation. Finally, the authors discuss challenges such as light-exposure safety, potential food oxidation from excess ROS, curcumin instability, and the need to optimize curcumin dose, light wavelength/energy, exposure time, and food type to ensure both efficacy and safety.

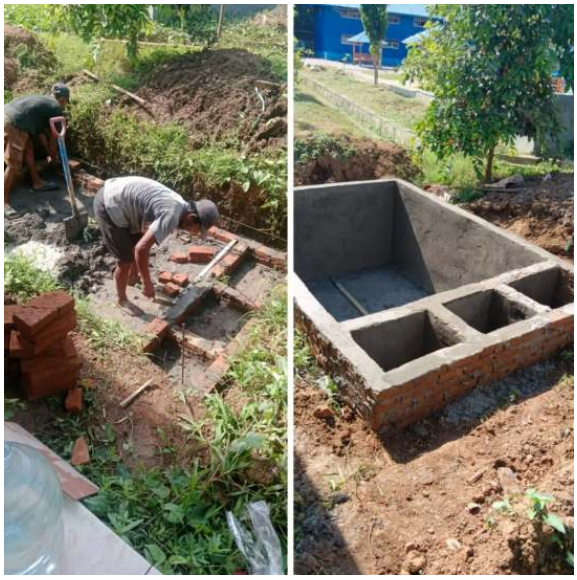


The contributions of this review align strongly with **SDG 2: Zero Hunger** and **SDG 12: Responsible Consumption and Production**, as Cur-m-PDI offers a practical strategy to reduce food spoilage, microbial contamination, and resulting food waste, thereby improving food availability while minimizing resource loss across supply chains. By inactivating foodborne pathogens and mycotoxin-producing fungi without relying on high heat or harsh chemicals, the technology directly supports **SDG 3: Good Health and Well-Being** through safer food and lower incidence of foodborne disease. The proposed use of curcumin—an abundant, plant-derived compound—as a natural photosensitizer, along with low-energy light sources and novel packaging systems, advances **SDG 9: Industry, Innovation, and Infrastructure** by promoting innovative, scalable preservation technologies for the food industry. In addition, by limiting food waste and associated greenhouse gas emissions, Cur-m-PDI contributes to **SDG 13: Climate Action**, positioning this technology as part of climate-smart food systems. The review also calls for further research on formulation, packaging integration, and safety, encouraging collaboration between food technologists, material scientists, and health regulators, thus indirectly supporting **SDG 17: Partnerships for the Goals** through interdisciplinary and cross-sector innovation in sustainable food preservation.

LIVE BELOW WATER

Supporting Aquatic Ecosystems Through Education

In supporting the achievement of Sustainable Development Goal (SDG) 14: Life Below Water, Universitas Muhammadiyah Makassar (Unismuh Makassar) has demonstrated a strong commitment through various educational, research, and community service activities aimed at the conservation and sustainable use of aquatic ecosystems. These programs not only emphasize academic excellence but also direct community engagement through coastal community empowerment, environmental awareness initiatives, and the implementation of eco-friendly technologies to maintain the balance of freshwater and marine ecosystems.



One of Unismuh Makassar's flagship initiatives is the Community Service Program that focuses on recycling ablution wastewater into fish ponds. This program successfully transforms wastewater, which would otherwise be discarded, into a productive resource with economic value. Moreover, it includes community education on water conservation, sustainable irrigation practices, and freshwater ecosystem management. Thus, Unismuh contributes not only to technological innovation in wastewater treatment but also to fostering a sense of ecological responsibility among local communities.

In addition, through funding from the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek), Unismuh Makassar implemented a sustainable aquaculture training program in Desa Popo, Takalar Regency. This initiative enhanced the capacity of coastal communities to manage fishery resources sustainably by



utilizing tofu waste as raw material for fish feed production. The program exemplifies how higher education institutions can serve as catalysts for social and technological innovation, promoting both environmental sustainability and community-based economic growth.

Furthermore, Unismuh Makassar has provided training and technical assistance to fish farmers in Sidrap Regency through the implementation of biofloc technology. This program represents a concrete step toward mitigating overfishing by introducing an efficient and environmentally friendly fish-farming system. The initiative encourages communities to transition from excessive wild fish capture to sustainable aquaculture practices, thereby preserving aquatic ecosystems and maintaining biodiversity balance.



Collectively, these initiatives illustrate Universitas Muhammadiyah Makassar's proactive role as a higher education institution that not only focuses on knowledge dissemination but also integrates sustainability principles into practical environmental management. By combining research-based approaches, cross-sector collaboration, and community empowerment, the university effectively supports the realization of SDG 14: Life Below Water, ensuring that aquatic resources are preserved for the benefit of present and future generations.

Supporting Aquatic Ecosystems Through Action

Universitas Muhammadiyah Makassar (Unismuh Makassar) continues to play an active role in supporting SDG 14.3 – Supporting Aquatic Ecosystems through Action. Through a diverse range of research, educational, and community service initiatives, the university directly contributes to the conservation, rehabilitation, and sustainable management of aquatic ecosystems—spanning marine, coastal, and freshwater environments. These programs reaffirm the university's role not only as an

academic institution but also as an agent of change that makes tangible contributions to environmental conservation.



One of the key activities aligned with this indicator is the planting of 500 mangrove trees along the coastal area of Lantebung, Makassar Strait, led by students from the Primary School Teacher Education program. This initiative serves as a concrete example of marine and coastal ecosystem conservation through educational and participatory approaches involving local communities. Beyond preventing coastal abrasion and preserving marine habitats, this activity fosters environmental awareness among students while strengthening collaboration between the university and local residents in sustaining coastal resources.



Support for biodiversity and ecosystem preservation is further demonstrated by Unismuh's success in securing the international Forest Programme IV Sulawesi grant, a collaboration between the Government of Indonesia and the Federal Republic of Germany, administered by the Ministry of Environment and Forestry (KLHK). This program focuses on social forestry boundary mapping, forest resource inventory, and land-use zoning across Sulawesi, aiming to protect ecosystems and expand biodiversity under threat from environmental degradation and land conversion. Through research and direct community engagement, Unismuh reinforces its role in maintaining ecosystems and biodiversity, serving as a concrete example of academic collaboration with government and industry sectors.

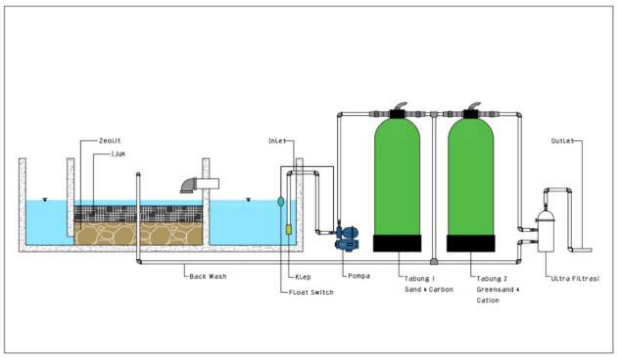


Moreover, in the area of environmental technology, Unismuh Makassar has implemented biofloc technology for tilapia aquaculture as a contribution to preventing aquatic ecosystem degradation. This technology utilizes microbiological processes to treat nitrogen waste, preventing water pollution. Complementing this, the program includes training on the production of fermented vegetable-based fish feed, introducing sustainable aquaculture practices grounded in eco-friendly innovation. By engaging directly with local fish farmers, this initiative enhances technical skills, maintains water quality, and supports aquatic biodiversity conservation.

Collectively, these initiatives demonstrate Universitas Muhammadiyah Makassar's dedication to aquatic ecosystem preservation through integrated action in research, education, and community engagement. Its scientific, participatory, and collaborative approaches position Unismuh as a model higher education institution consistently practicing ecological stewardship. Through concrete efforts such as mangrove conservation, sustainable resource management, and green technology adoption, Unismuh Makassar strengthens its commitment to marine and freshwater sustainability, advancing the realization of SDG 14 – Life Below Water in Indonesia.

Water Sensitive Waste Disposal

Universitas Muhammadiyah Makassar (Unismuh Makassar) has actively demonstrated its tangible commitment to SDG 14.4 – Water Sensitive Waste Disposal, which emphasizes the importance of sustainable waste and wastewater management to preserve water quality and protect aquatic ecosystems. Through various institutional initiatives, research programs, and community engagement activities, Unismuh Makassar strives to establish an integrated, environmentally conscious waste management system that supports the sustainability of both marine and freshwater ecosystems.



One of the key implementations supporting Indicator 14.4.1 – Water Discharge Guidelines and Standards is the application of a Wastewater Treatment Plant (IPAL) system that fully complies with the Regulation of the Minister of Environment and Forestry (Permen LHK) No. P.68/MENLHK/SETJEN/KUM.1/8/2016 on Domestic Wastewater Quality Standards and the Regulation of the Minister of Health (Permenkes) No. 7 of 2019 on Environmental Health. The IPAL system at Unismuh Makassar employs anaerobic–aerobic biofilter, membrane ultrafiltration, and chlorination technologies, which function to reduce BOD, COD, TSS, and eliminate pathogenic microorganisms. Regular testing of water quality parameters—such as pH, ammonia, and total suspended solids—is conducted to ensure that effluent meets national quality standards before discharge into the environment. Through this approach, the university ensures that wastewater disposal processes are carried out responsibly, preventing negative impacts on surrounding aquatic ecosystems.



Furthermore, Unismuh Makassar expands its commitment by implementing educational and community empowerment programs in Galesong Village, Takalar Regency, where lecturers and students provide training for local *'Aisyiyah* women's groups on the environmental impacts of plastic waste and practical recycling methods to transform plastic waste into economically valuable handicrafts. This initiative exemplifies the circular economy model at the community level, turning waste into productive resources while reducing marine pollution from plastic debris. The participatory approach also fosters collective ecological awareness, empowering communities to take responsibility for maintaining water cleanliness and environmental sustainability.

Both initiatives demonstrate the synergy between technology, education, and community empowerment, which serves as the foundation for implementing the concept of Water Sensitive Waste Disposal. Unismuh Makassar not only functions as

an academic institution but also as a pioneer of environmentally responsible practices that directly contribute to the preservation of aquatic ecosystems. Through technological innovation in wastewater treatment, environmental education, and cross-sector collaboration, the university plays a vital role in maintaining water quality, reducing pollution, and promoting sustainable development principles in both coastal and urban areas.

With its ongoing commitment, Universitas Muhammadiyah Makassar stands as a leading example among higher education institutions that consistently integrates SDG principles into environmental governance and community engagement programs. These efforts not only reinforce its reputation as a green and ecologically minded campus, but also demonstrate its significant contribution to achieving the SDGs, particularly through concrete actions in wastewater management and plastic waste reduction that ensure the long-term sustainability of aquatic ecosystems.

Maintaining A Local Ecosystem

Universitas Muhammadiyah Makassar (Unismuh Makassar) consistently carries out a wide range of activities focused on the conservation and sustainable management of aquatic ecosystems through research, education, and community service programs. Within the framework of Indicator 14.5 – Maintaining a Local Ecosystem, the university has implemented various strategic initiatives emphasizing conservation, coastal community empowerment, and cross-institutional collaboration to safeguard the sustainability of marine, coastal, and freshwater ecosystems.



One of the flagship initiatives aligned with Indicator 14.5.2 – Monitoring the Health of Aquatic Ecosystems is a collaborative program between Unismuh Makassar and Universitas Muhammadiyah Sorong in Kampung Arar, Sorong Regency, Southwest Papua. This program focuses on utilizing Kasia shrimp waste to produce environmentally friendly liquid organic fertilizer, which not only holds economic value but also contributes to monitoring and maintaining the health of coastal aquatic ecosystems. By converting organic waste into beneficial products, this initiative helps

reduce water pollution, minimize marine waste discharge, and preserve ecological balance in coastal areas. Additionally, the program provides community education on water hygiene and the implementation of sustainable waste management systems.



Unismuh Makassar commitment to Indicator 14.5.3 – Programs towards Good Aquatic Stewardship Practices is demonstrated through its awareness programs promoting environmentally friendly fishing gear for Kasia shrimp fishermen in Sorong. The program introduces innovative fishing technologies designed to minimize marine habitat degradation while supporting sustainable fishery yields. Complementary training activities also focus on processing fishery products into value-added commodities such as shrimp paste, floss, and sambal, which enhance the coastal community's economic resilience without harming the environment. This initiative promotes sustainable fishing practices and empowers local communities to become active stewards of marine ecosystems.



In support of Indicator 14.5.4 – Collaboration for Shared Aquatic Ecosystems, Unismuh Makassar implemented a Community Service Program in Minasa Baji Village, Tana Keke Islands, Takalar Regency, focused on mangrove conservation. Through collaboration among faculty members, students, and the Inspirasi Pesisir Community, this program involves mangrove planting and maintenance as a crucial component of shared aquatic ecosystem restoration. The initiative adopts a holistic approach, combining environmental conservation, community training, and the development of ecology-based educational tourism. Beyond fostering environmental awareness, it also contributes to local economic growth through the promotion of community-based ecotourism.

Universitas Muhammadiyah Makassar demonstrates consistent dedication to integrating sustainability values into all academic and social dimensions. Its programs extend beyond education and research to include practical environmental

conservation actions, community capacity building, and multi-stakeholder collaboration across institutions and regions. These efforts reflect the university's deep commitment to maintaining local ecosystem balance and ensuring the sustainability of aquatic resources for future generations, thereby reinforcing its vital role in achieving the objectives of SDG 14 – Life Below Water.

RESEARCH RELATED TO SDG 14

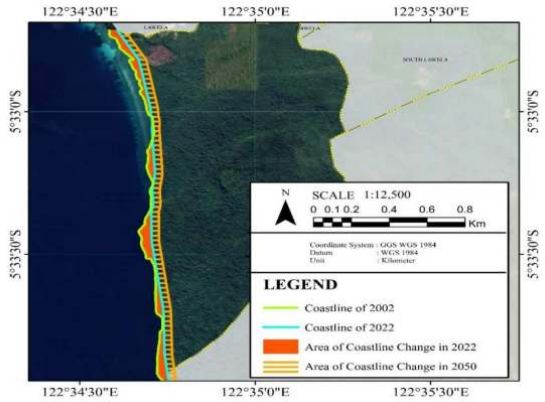
As a manifestation of its commitment to the preservation of marine and aquatic resources, Universitas Muhammadiyah Makassar (Unismuh Makassar) consistently conducts various research activities that directly contribute to the achievement of Sustainable Development Goal (SDG) 14: Life Below Water. These studies focus on coastal ecosystem management, marine biodiversity conservation, and the implementation of environmentally friendly technologies to ensure the sustainability of aquatic ecosystems. Through a holistic and collaborative scientific approach, Unismuh Makassar seeks to produce research-based innovations and policy recommendations that not only strengthen the protection of aquatic ecosystems but also promote a balanced integration of ecological, social, and economic dimensions for the well-being of coastal communities.

Study of coastal land change in sand mining activities in Bandar Batauga Village, South Buton Regency, Indonesia



The research titled *"Study of Coastal Land Change in Sand Mining Activities in Bandar Batauga Village, South Buton Regency, Indonesia"* by Zulkifli Mappasomba and Romiyatno Suleman provides an in-depth analysis of the environmental, social, and economic impacts resulting from sand mining activities along the coastal area of Bandar Batauga Village, South Buton Regency. The study employs both quantitative and qualitative approaches, utilizing ArcGIS technology to analyze shoreline changes and predict coastal abrasion levels up to the year 2050. In addition, the Analytic

Hierarchy Process (AHP) method is applied to determine priority strategies for disaster mitigation based on social, economic, physical, and biotic factors.



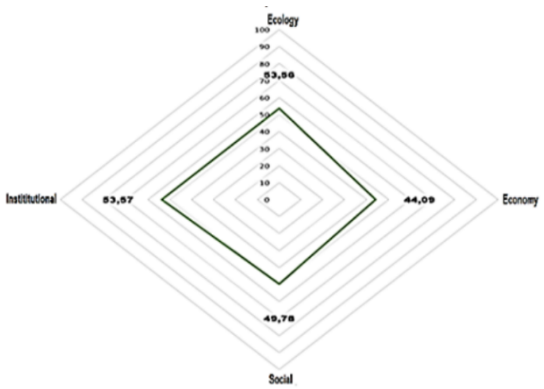
The findings reveal that coastal abrasion in the study area has increased significantly—from 124.5 square meters in 2007 to 511.3 square meters in 2022, and it is projected to reach 1,157.22 square meters by 2050 if no effective control measures are implemented. Over five decades of continuous sand mining have led to the destruction of coastal vegetation, loss of marine habitats, and increased vulnerability to natural disasters such as high waves and tsunamis. These environmental degradations not only result in ecological losses but also have direct socioeconomic impacts on coastal communities, threatening homes, public facilities, and local livelihoods due to the escalating rate of shoreline erosion.

This research is closely aligned with several **Sustainable Development Goals (SDGs)**. Its connection to **SDG 14 (Life Below Water)** is reflected in efforts to protect coastal and marine ecosystems through the regulation of sand resource exploitation. **SDG 15 (Life on Land)** is embodied in the study's recommendations for **coastal vegetation rehabilitation** and **post-mining land management**. Moreover, **SDG 13 (Climate Action)** is supported through proposed abrasion mitigation measures that strengthen coastal resilience to climate change impacts. The study also contributes to **SDG 11 (Sustainable Cities and Communities)** by advocating for protective policies for settlements and infrastructure in coastal regions. Lastly, **SDG 8 (Decent Work and Economic Growth)** is reflected in the call for developing **sustainable alternative economic activities**, such as **ecotourism and environmentally friendly fisheries**, to reduce community dependence on sand mining.

Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia



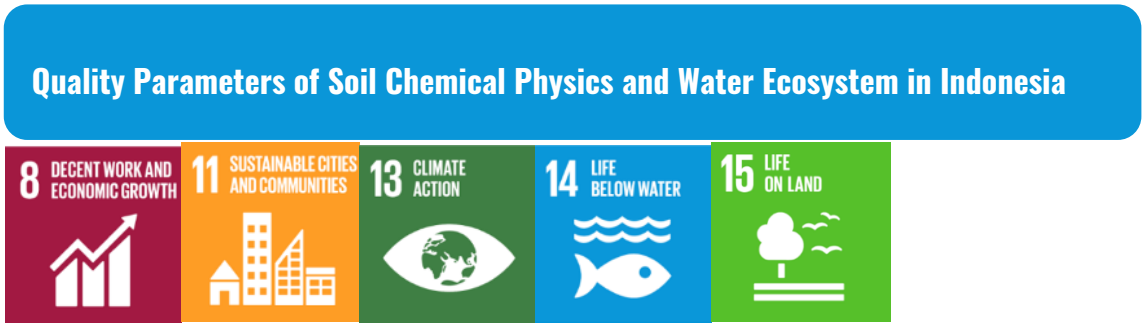
The article titled *"Analysis of Mangrove Ecosystem Sustainability in the Biringkassi Mangrove Area, Pangkep District, Indonesia"* by Sattar Yunus, Zulkifli Mappasomba, and Muh Haidir provides a comprehensive analysis of the sustainability level of mangrove ecosystems in the coastal area of Pangkajene and Islands Regency (Pangkep), South Sulawesi Province. The study employs the Rapid Appraisal for Fisheries (RAPFISH) method with a Multidimensional Scaling (MDS) approach to assess sustainability across four key dimensions: ecological, economic, social, and institutional. Through this methodology, the research aims to evaluate the current condition of mangrove ecosystems while offering policy recommendations to ensure the long-term sustainability of coastal environments.



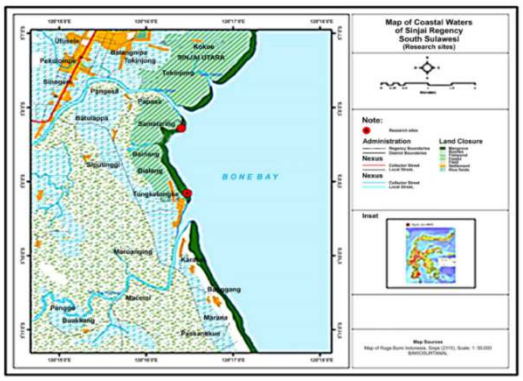
The analysis reveals that the ecological dimension has the highest sustainability index at 53.56%, categorized as "moderately sustainable," while the social and institutional dimensions show a medium level of sustainability. Conversely, the economic dimension scores the lowest at 44.09%, categorized as "less sustainable." These findings indicate that the mangrove ecosystem faces considerable pressure from human activities such as mangrove tree logging for economic purposes, land conversion into fishponds, and low public awareness regarding conservation importance. Consequently, the study emphasizes the need for strong collaboration between local communities, government agencies, and the private sector to preserve mangrove ecosystems through rehabilitation programs,

environmental awareness campaigns, and economic diversification for coastal communities.

The connection between this study and the **Sustainable Development Goals (SDGs)** is evident. It supports **SDG 14 (Life Below Water)** by highlighting the importance of sustainable coastal and marine ecosystem management that serves as critical habitats for marine life. Its relevance to **SDG 15 (Life on Land)** is reflected in the recommendations to preserve biodiversity and prevent land erosion. The research also contributes to **SDG 13 (Climate Action)** by emphasizing the role of mangroves as **natural carbon sinks** that mitigate the effects of climate change. From a socio-economic perspective, the article aligns with **SDG 8 (Decent Work and Economic Growth)** through its recommendations for developing **mangrove-based ecotourism and environmentally friendly creative industries**. Furthermore, it relates to **SDG 11 (Sustainable Cities and Communities)** by promoting **coastal protection measures** and improving the quality of life for local communities.



The article titled *"Quality Parameters of Soil Chemical Physics and Water Ecosystem in Indonesia"* by Abdul Haris Sambu, Burhanuddin, and Amruddin presents the results of a study analyzing soil and water quality conditions in the coastal area of Tongke-Tongke Village, Sinjai Regency, South Sulawesi Province. The research employs laboratory analysis methods to measure several key environmental quality parameters, including soil pH, nitrogen (N), phosphorus (P), potassium (K), dissolved oxygen (DO), salinity, and water turbidity. The findings provide a comprehensive understanding of the interrelationship between the physicochemical properties of soil and water and the sustainability of coastal ecosystems, particularly the mangrove-dominated areas of the region.



The results indicate that the coastal soils in Tongke-Tongke have an average pH of 5.53 and a sandy loam texture, which supports optimal mangrove vegetation growth. Meanwhile, the quality of seawater in the area sustains diverse marine life such as fish, crabs, shrimp, and shellfish due to high dissolved oxygen levels and stable salinity. Based on these findings, the authors emphasize that the balance of coastal ecosystems heavily depends on sustainable environmental management and the preservation of mangrove forests as natural barriers against coastal abrasion and seawater intrusion.

This study is closely aligned with several **Sustainable Development Goals (SDGs)**. Firstly, it supports **SDG 14 (Life Below Water)** by promoting sustainable management of marine and coastal ecosystems through the maintenance of water quality and marine habitats. Secondly, it contributes to **SDG 15 (Life on Land)** by highlighting the role of mangroves in stabilizing soil and preserving biodiversity in coastal zones. Thirdly, it advances **SDG 13 (Climate Action)** by underlining the function of mangroves as **natural carbon sinks** essential for mitigating global climate change. Fourthly, it supports **SDG 11 (Sustainable Cities and Communities)** through recommendations for developing **mangrove-based educational tourism (edutourism)** that raises public awareness while balancing environmental conservation and economic activity. Lastly, it relates to **SDG 8 (Decent Work and Economic Growth)** by demonstrating how **silvofishery and ecotourism-based ecosystem management** can create sustainable livelihood opportunities for coastal communities.

LIFE ON LAND

Supporting land ecosystems through education

Universitas Muhammadiyah Makassar has adopted an integrated, community-oriented approach to the sustainable use and management of terrestrial ecosystems. The evidence on events about the sustainable use of land highlights a large-scale environmental initiative centred on the development of a training and education area that functions simultaneously as a reforestation site, a field laboratory, and a productive landscape. By combining tree planting with horticultural and agricultural activities, the university promotes land-use models that link ecological restoration with economic productivity, while strengthening its own capacity for research, field-based learning, and community training in sustainable land management. This initiative is explicitly aligned with regional reforestation and climate-resilience agendas and underscores the institution's commitment to long-term environmental stewardship and community-based green development. Complementing this, the materials on educational programmes on ecosystems describe community engagement with small-scale fish farmers, in which lecturers and student teams introduce ecosystem-sensitive aquaculture practices designed to improve water quality, enhance fish health and productivity, and reduce negative environmental impacts. These activities not only transfer technical knowledge, such as the application of appropriate technologies and good aquaculture practices, but also build local awareness of the interconnectedness between aquatic ecosystems, land use, and community livelihoods. The documentation on sustainable management of land for agriculture further shows how the Master's Program in Agribusiness uses



community service as a vehicle to socialise organic and environmentally friendly agricultural practices. Through structured training and mentoring, local farmers and urban growers are introduced to the production and use of plant-based fertilisers and biopesticides, encouraging reduced dependence on synthetic chemical inputs, improving soil health, and opening pathways for higher value-added, sustainable agribusiness. Finally, the evidence on sustainable management of land for tourism presents a community empowerment programme in a rural tourism village, in which lecturers from the Master of Public Administration, together with international partners, facilitate community learning on participatory tourism planning, policy, and the use of information systems to support destination management. This initiative promotes a tourism model that respects ecological carrying capacity, values local culture, and positions residents as key actors in governance and benefit-sharing. Taken together, the four documents show a consistent institutional pattern: Unismuh Makassar integrates teaching, research, and community service to operationalise SDG 15 through practical interventions in land use, agriculture, aquaculture, and tourism, thereby advancing both environmental sustainability and inclusive local development. Across all programmes, students are actively involved as facilitators and mentees, gaining experiential learning in participatory methods, applied environmental science, and policy implementation at the grassroots level. The university also emphasises collaboration with government agencies, professional associations, and international scholars, thereby embedding its local interventions within broader networks of expertise and policy support. This multi-stakeholder orientation strengthens the





continuity and scalability of the initiatives, while systematic documentation of activities and outcomes provides an evidence base for institutional reporting, quality assurance, and continuous improvement in line with the indicators of SDG 15. The portfolio of activities illustrates how a higher education institution in a developing-region context can translate global sustainability goals into contextually relevant, locally owned practices.

Supporting land ecosystems through action

Universitas Muhammadiyah Makassar shows a strong, institution-wide commitment to sustainable land use, conservation, and restoration, anchored in a formal regulatory framework and supported by concrete community-based collaborations. At the policy level, the university has enacted Rector's Regulation No. 221-B of 1446 H/2024 M on the Policy for Conservation, Restoration, and Sustainable Use of Land, which establishes environmental stewardship as a core dimension of institutional governance and social responsibility. This regulation articulates clear definitions and principles for land conservation, restoration, and sustainable use, stressing the need to balance development with ecological carrying capacity, protect biodiversity, rehabilitate degraded areas, and integrate research, innovation, and environmental education into campus planning and management. It applies to all land-related activities including green open spaces, experimental plots, and infrastructure development and requires decision-makers to consider social, cultural, and ecological interests in a holistic manner. To operationalise these commitments, the policy mandates the formation of a Land Conservation and Restoration Team under LP3M, tasked with mapping green and degraded zones, designating permanent conservation areas, and coordinating annual greening and reforestation programmes as part of the eco-campus vision. It also stipulates compliance obligations for all work units and introduces administrative sanctions for practices that damage vegetation, misuse land, or encroach upon conservation zones, thereby embedding accountability



mechanisms into routine campus operations. Monitoring and evaluation are to be conducted at least annually in collaboration with the Quality Assurance Body, with results feeding into SDG reporting and continuous policy refinement. Complementing this internal framework, the university also demonstrates its commitment to shared land ecosystems through collaborative initiatives beyond the campus boundary. A key example is the facilitation of a Social Forestry Management Plan (RKPS) for the Rimba Hijau Community Forest Farmers Group (GAPOKTANHUT) in Mamasa Regency, West Sulawesi, carried out by LP3M in partnership with Forest Programme IV, a German-funded project supported by KfW. This collaboration focuses on approximately 150 hectares of community forest in Salubalo Village and promotes sustainable, community-based forest governance through participatory boundary mapping, resource inventories, and functional zoning. The RKPS prioritises the sustainable use of non-timber forest products such as honey and resin to improve local livelihoods



while maintaining forest integrity, and explores environmental service potentials, including ecotourism and carbon sequestration, in coordination with watershed and forestry agencies. This initiative demonstrates how the university extends its expertise to empower forest-dependent communities, aligning conservation objectives with rural economic development and strengthening multi-stakeholder cooperation in landscape-level ecosystem management. Taken together, the policy framework and the collaborative social forestry programme illustrate a coherent model in which Universitas Muhammadiyah Makassar links normative regulation, institutional structures, and field-level engagement to advance SDG 15. The university does not only regulate its own land use but also actively contributes to the governance of shared ecosystems, positioning itself as both a learning institution and a strategic partner in the sustainable management of terrestrial environments.

Land sensitive waste disposal

Universitas Muhammadiyah Makassar has established a comprehensive and integrated policy framework for the environmentally responsible management of liquid waste, plastic waste, and hazardous waste, in order to safeguard terrestrial and aquatic ecosystems within and around the campus. Through Rector's Regulation No. 466-B 1445 H/2023 M on Water Discharge Quality Standards and Guidelines, the university sets stringent effluent quality standards for all academic, non-academic, domestic, commercial, health, and religious activities, stipulating parameters such as pH, BOD, COD, TSS, oil and grease, and heavy metals. All units are required to treat wastewater so that it meets these standards prior to discharge, to separate hazardous from non-hazardous liquid waste, to provide appropriate wastewater treatment facilities, to implement the principles of reduce, reuse, and recycle (3R), and to establish a Water Discharge Quality Management Team responsible for planning, monitoring, and periodic audits that feed into SDG reporting and continuous improvement. This regulatory instrument is reinforced by Rector's Regulation No. 331-B 1445 H/2023 M on the Management of Domestic and Non-Hazardous Waste, which explicitly governs plastic waste reduction by classifying plastics, along with paper, glass, metals, and construction debris as non-hazardous waste that must be source-segregated into organic, inorganic, and residual fractions. All campus units, including laboratories, offices, student services, canteens, dormitories, and public spaces are encouraged to minimise single-use plastics, provide segregated waste bins in all areas, channel plastics with economic value to waste banks or recycling partners, and send only non-recyclable residues to final disposal sites via licensed third parties. The application of 3R principles and a circular-economy approach, backed by systematic recording of waste volumes, monthly reporting, and annual evaluations by quality assurance and K3L (occupational health, safety, and environmental) units, makes plastic reduction a measurable and accountable institutional practice.



An equally critical dimension is the management of hazardous waste generated by laboratories and research activities. The hazardous waste disposal policy clarifies the definitions, classifications, and governance of waste containing toxic substances such as organic solvents, heavy metals, strong acids and bases, and flammable materials. Each laboratory is obliged to maintain an up-to-date inventory of chemicals and hazardous waste, to conduct source-level segregation, to package and label hazardous waste correctly, and to store it temporarily in a certified hazardous waste storage facility prior to transfer exclusively to licensed third-party handlers under an official manifest system. The K3L unit maintains chain-of-custody documentation, ensures the use of adequate personal protective equipment, enforces strict standard operating procedures, and conducts regular monitoring and annual evaluations together with the Quality Assurance Body to guarantee that hazardous waste management protects the health of the academic community and prevents contamination of surrounding ecosystems. Taken together, the three documents present a standardised, scientifically informed, and accountability-oriented waste governance system that contributes directly to the achievement of SDG 15 on the protection of terrestrial ecosystems, while concurrently reinforcing the university's alignment with SDGs 6, 12, and 14 through integrated management of wastewater, plastic reduction, and hazardous waste control in the higher education environment.



RESEARCH RELATED TO SDG 15

Universitas Muhammadiyah Makassar actively advances SDG 15: Life on Land through research on biodiversity conservation, ecosystem sustainability, and eco-friendly land management. Studies on the Biringkassi mangrove ecosystem in Pangkep identify ecological, social, economic, and institutional gaps and recommend stronger regulation, rehabilitation, and community-based livelihoods to achieve sustainable mangrove management. Research on the endemic Rainbow Celebes fish (Marosatherina ladigesi) shows that synbiotic feeds enriched with Sargassum and plant extracts improve growth and survival in culture, supporting ex-situ conservation and reducing pressure on wild stocks. In parallel, work on botanical molluscicides from agave, cashew, and rambutan leaves provides low-cost, plant-based alternatives to synthetic chemicals for controlling invasive golden snails in rice fields, helping protect agro-biodiversity and reduce environmental harm. Together, these efforts strengthen the protection and sustainable use of terrestrial and coastal ecosystems in line with SDG 15.

Molluscicides Efficacy of Leaf Powders from Agave angustifolia, Cashew and Rambutan on Mortality of the Golden Snails *(Pomacea canaliculata L.)*



Hamzah and his colleagues conducted a study titled “Molluscicides Efficacy of Leaf Powders from *Agave angustifolia*, Cashew and Rambutan on Mortality of the Golden Snails (*Pomacea canaliculata* L.)” to develop a more environmentally friendly method of controlling golden snail, a highly invasive pest of rice in many Asian and American countries. The research compares the molluscicidal efficacy of leaf powders from *Agave angustifolia* (agave), cashew (*Anacardium occidentale*), and rambutan (*Nephelium lappaceum*) at six concentrations (0.00–1.25 g/L) using a factorial completely randomised design with three replications. Adult golden snails (2–3 cm shell diameter) were collected from rice fields, acclimated in jars, then exposed to the

different plant leaf powders, and their activity, feeding, and mortality were observed over 12–72 hours. Results show that all three leaf powders can cause up to 100% mortality, but with different speeds and dose–responses. At concentrations of 0.50–1.25 g/L, *Agave* and cashew leaf powders caused 100% mortality within 24 hours, while rambutan required 36 hours to reach 100% mortality at the same concentrations. Probit analysis indicates that at 24 hours, cashew leaf powder has the lowest LC_{90} (0.42 g/L), followed closely by *Agave* (0.46 g/L), whereas rambutan's LC_{90} is much higher (1.37 g/L), confirming that cashew and *Agave* are more potent molluscicides.



Figure 1. Symptoms of mortality of golden snails a. golden snails secrete foam, b,c: Operculum opens and the legs and body of golden snails wrinkle

Lethal time analysis further shows that at 1.25 g/L, cashew and *Agave* leaf powders achieve $LT_{90} \approx 14.7$ hours, compared to 26.5 hours for rambutan, meaning snails die much faster under cashew and *Agave* treatments. Across treatments, higher concentrations shorten LT_{50} and LT_{90}, but concentrations above 0.50 g/L for *Agave* and cashew do not significantly increase mortality, suggesting 0.50 g/L is already an effective, efficient dose. Behavioural observations reveal that, after exposure to *Agave* and cashew leaf powders, golden snails close their operculum, stop feeding, and become immobile before dying, with typical symptoms such as foam secretion, wrinkled feet and body, and open operculum after death. In all plant-based molluscicide treatments (≥0.25 g/L), no feeding damage occurred on the offered *Gliricidia* (gamal) leaves, while snails in the control caused 100% defoliation within 12 hours, demonstrating strong feeding deterrence as well as toxicity. The authors conclude that leaf powders of cashew and *Agave angustifolia* are highly effective, fast-acting botanical molluscicides for golden snail, with rambutan as a viable but less potent alternative, and that all three offer an easily produced, low-cost, and farmer-

friendly option to reduce dependence on synthetic molluscicides such as niclosamide and metaldehyde.

The contributions of this study align strongly with **SDG 2: Zero Hunger**, as controlling golden snail with plant-based molluscicides helps protect rice crops and reduce yield losses in smallholder systems. By replacing or reducing synthetic molluscicides that pollute water and harm non-target organisms, the research supports **SDG 12: Responsible Consumption and Production** and **SDG 13: Climate Action**, promoting safer pest management technologies that lower chemical loads in agroecosystems. Because golden snail infestations force farmers to replant and increase production costs, effective botanical control methods also contribute to **SDG 1: No Poverty** and **SDG 8: Decent Work and Economic Growth**, improving farm productivity and income stability. Finally, by reducing contamination of aquatic environments and protecting biodiversity in rice-field ecosystems, these plant-derived molluscicides advance **SDG 14: Life Below Water** and **SDG 15: Life on Land**, while indirectly supporting **SDG 3: Good Health and Well-Being** through lower exposure of farmers and rural communities to hazardous synthetic chemicals.

Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia



Yunus and his colleagues conducted a study titled “Analysis of mangrove ecosystem sustainability in the Biringkassi mangrove area, Pangkep District, Indonesia.” The research assesses how sustainable the Biringkassi mangrove ecosystem is across ecological, economic, social, and institutional dimensions, providing a basis for future management policies. Using a descriptive quantitative approach, the team inventoried mangrove conditions (biophysical, social, economic, and institutional data) through field observations, vegetation sampling, GPS mapping, and questionnaires, complemented by interviews with government agencies (Fisheries, Forestry, Environment, BAPPEDA), village authorities, NGOs, and community leaders.

Sustainability status was analysed with RAPFISH software using the Multidimensional Scaling (MDS) method (Rap_Mforest), scoring 24 attributes (6 per dimension) on a 0–2 scale and converting them into a 0–100 index.

Results show that the ecological (53.56%) and institutional (53.57%) dimensions are “fairly sustainable”, while the economic (44.09%) and social (49.78%) dimensions are “less sustainable”, leading to an overall multidimensional index of 50.64%, which is borderline and signals that management is still “less sustainable”. In the ecological dimension, attributes such as land-use zoning, rehabilitation efforts, seed availability, abrasion, land pressure, and mangrove diversity currently support a moderate level of sustainability, though leverage analysis highlights zoning, land pressure, and rehabilitation as highly sensitive attributes that can quickly improve or worsen the index. Ecological observations show dominance of *Rhizophora mucronata* and note that rehabilitation has been implemented but with limited community involvement in planning and evaluation, reducing its effectiveness and raising concerns about future abrasion and degradation risks.

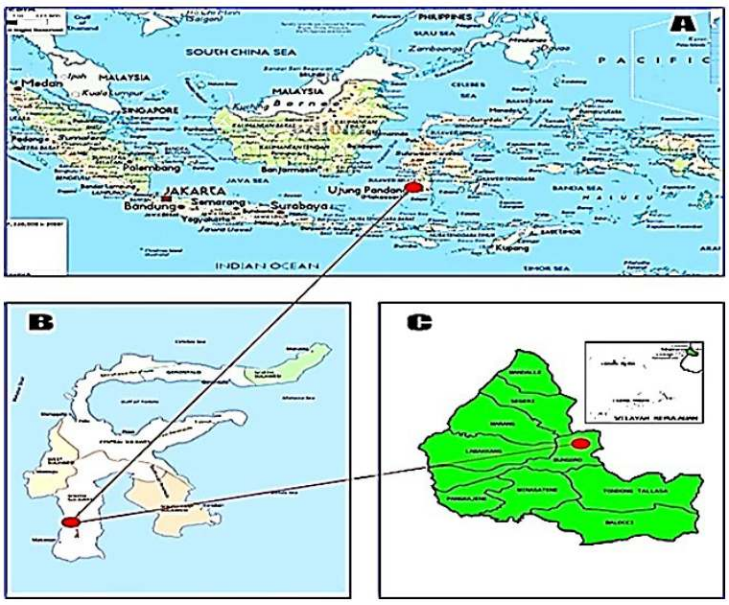


Figure 2. Study area of Pangkajene Kepulauan Regency, South Sulawesi Province, Indonesia

In the economic dimension, attributes like accessibility, community welfare, mangrove resource use, government budget, alternative income, and minimum wage are weak: open access and high dependence on wood and fisheries from the

mangroves, combined with limited management budgets, make the system vulnerable. Socially, high community access but low education, knowledge, and participation produce a social index below 50%, showing that local people benefit from mangroves but often exploit them without clear rules or sense of ownership. The institutional dimension performs better thanks to basic area legality, local government commitment, the presence of community institutions, and formal regulations, but leverage analysis shows that formal regulations, involvement of community institutions, and inter-stakeholder coordination are the most critical attributes to strengthen. Overall, the authors recommend increasing coordination among stakeholders, strengthening formal regulations, raising community productivity and creativity in mangrove-based livelihoods, developing an integrated mangrove management plan, intensifying rehabilitation, empowering mangrove groups, and enhancing research and academic attention to move Biringkassi from "less sustainable" toward genuinely sustainable management.

The study's contributions align strongly with **SDG 14: Life Below Water** and **SDG 15: Life on Land**, as it focuses on conserving and restoring a critical coastal mangrove habitat that protects shorelines, supports fisheries, and stores blue carbon. By diagnosing weaknesses in economic and social sustainability—community over-extraction, low knowledge, and insufficient alternative incomes—the research also supports **SDG 1: No Poverty** and **SDG 8: Decent Work and Economic Growth**, pointing to the need for mangrove-based livelihoods and value-added products that reduce destructive harvesting while improving welfare. The emphasis on formal regulations, institutional coordination, and community involvement directly advances **SDG 16: Peace, Justice and Strong Institutions**, demonstrating how clear legal frameworks and participatory governance can safeguard common-pool coastal resources. At the same time, by highlighting mangroves' role in buffering abrasion, protecting coastal settlements, and maintaining water quality, the study contributes to **SDG 11: Sustainable Cities and Communities** and **SDG 13: Climate Action**, showing that robust mangrove management is essential for resilient, low-carbon coastal development.

The Effect of Natural *(Daphnia Sp.)* and Different Synbiotic Feed on Rainbow Celebes *(Marosatherina ladigesi)* Growth Performance and Survival Rate



Anshar and her colleagues conducted a study titled "The Effect of Natural (Daphnia sp.) and Different Synbiotic Feed on Rainbow Celebes (Marosatherina ladigesi) Growth Performance and Survival Rate." The research focuses on Rainbow Celebes fish, an endemic and endangered ornamental species from the Bantimurung–Maros area in South Sulawesi, whose wild populations are threatened by overfishing. To support ex-situ conservation and sustainable culture, the authors tested how different feeding strategies affect growth performance, morphometry, survival rate, and water quality. Using 120 juvenile fish divided into four treatment groups with triplicate jars, they compared: A – artificial feed, B – natural feed *Daphnia sp.*, C – synbiotic feed plus Sargassum sp. extract, and D – synbiotic feed plus teak leaf extract (Tectona grandis L.), fed three times daily for 30 days. The results show that treatment C (synbiotic + Sargassum) produced the best morphometric growth (final length 5.78 ± 0.08 mm, width 2.70 ± 0.10 mm), significantly higher than the other groups, along with the highest specific growth rate (2.05 ± 0.04%/day) compared with 1.41%/day for artificial feed and 1.80%/day for *Daphnia* alone. Survival was very high in almost all treatments (100% in B, C, and D; 90% in A), and water quality parameters (temperature 25–28°C, DO 5.1–6.4 ppm, pH 6.9–7.9, ammonia 0.008–0.013 ppm) remained within optimal ranges for freshwater culture, indicating that synbiotic feeding combined with *Sargassum* extract can enhance growth without compromising survival or water quality.

The study concludes that synbiotic feed enriched with Sargassum sp. is the most effective feeding strategy for improving growth, morphometry, and survival of Rainbow Celebes fish, followed by synbiotic + teak leaf extract, *Daphnia* alone, and artificial feed. The authors explain that synbiotic diets, which combine probiotics and prebiotics, improve digestion and nutrient absorption, while brown seaweed (*Sargassum sp.*) contributes additional protein, minerals, fibre, and bioactive

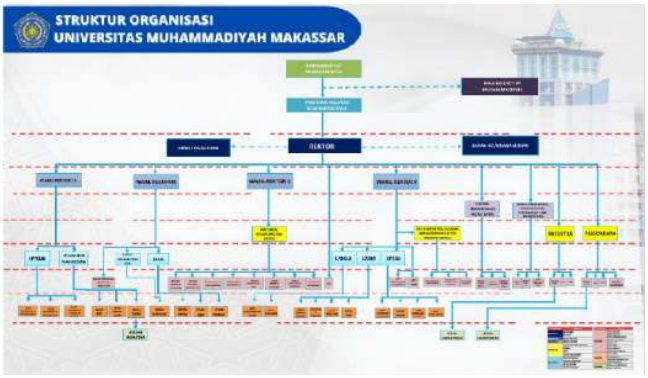
compounds that support tissue formation and growth. This approach not only supports captive breeding and conservation of an endangered endemic species, but also promotes more sustainable ornamental fish aquaculture, as natural and synbiotic feeds reduce waste and help maintain good water quality compared to artificial feed. The contributions of this research are closely aligned with **SDG 14: Life Below Water** and **SDG 15: Life on Land**, by supporting conservation-oriented culture of endemic freshwater biodiversity, and with **SDG 12: Responsible Consumption and Production**, through the development of more efficient, low-impact feeding strategies using locally available seaweed and plant extracts. By helping reduce pressure on wild populations and encouraging eco-friendly aquaculture practices, the study also indirectly contributes to **SDG 8: Decent Work and Economic Growth**, offering a pathway for sustainable ornamental fish production that benefits local communities while protecting native species.



PEACE, JUSTICE AND STRONG INSTITUTIONS

University Governance Measures

In supporting the achievement of Sustainable Development Goal (SDG) 16: Peace, Justice, and Strong Institutions, Universitas Muhammadiyah Makassar (Unismuh Makassar) demonstrates a strong commitment to establishing a system of university governance that is transparent, inclusive, and just. This commitment not only reflects the institution's moral responsibility as an Islamic higher education entity but also represents the university's vision to contribute to sustainable development rooted in the values of democracy, participation, and institutional integrity. The implementation of policies aligned with SDG 16.2 – University Governance Measures indicates that Unismuh Makassar is not solely focused on advancing education and research but is also actively engaged in creating an ethical, accountable governance system founded on principles of social justice.



One of the most tangible implementations of this commitment is reflected in the Elected Representation policy, through which Unismuh Makassar has developed a democratic and participatory leadership system across all organizational levels. Through this policy, lecturers, students, and administrative staff are given equal opportunities to actively participate in the election of faculty, departmental, and student organization leaders. The process is conducted transparently and accountably, with deliberation and participation serving as its fundamental principles. This leadership model not only embodies democratic values within the academic environment but also functions as a learning medium for political and social engagement among the academic community. Students, in particular, are trained to understand the importance of ethical leadership, public participation, and social responsibility. Consequently, every major decision made within the university

represents the collective aspirations of the entire campus community and reflects their shared interests.



In the context of student participation, Unismuh Makassar continues to strengthen the role of the Student Union and various student organizations such as the Ikatan Mahasiswa Muhammadiyah (IMM) and the Student Executive Board (BEM). These organizations serve not only as platforms for personal development and student advocacy but also as consultative bodies in the university's policymaking process. In numerous discussion forums and strategic meetings, student representatives are actively involved in providing input on academic policies, social initiatives, and community service programs. Through these engagements, students cultivate critical thinking, leadership competence, and a deep sense of social solidarity, while internalizing the values of tolerance, justice, and inclusivity consistent with the spirit of SDG 16.2.



The university's commitment to equitable governance is further demonstrated through the policy of Identify and Engage with Local Stakeholders, as outlined in the Policy and Cooperation Guide issued by the Rector of Unismuh Makassar. This guide serves as a strategic framework for the university to establish collaborative networks with diverse stakeholders at local, national, and international levels. The forms of collaboration include partnerships in education, research, and community engagement, aimed at strengthening the university's contribution to sustainable development. A concrete example of this initiative is the collaboration between the Faculty of Medicine and Health Sciences (FKIK) of Unismuh Makassar and the Association of Medical Doctors of Asia (AMDA), formalized through an agreement signed by Rector Dr. Ambo Asse and Shigeru Suganami, M.D., Ph.D., President of AMDA. This partnership broadens the

university's role in medical research, community empowerment, and international public health development. Such synergy stands as tangible evidence of Unismuh Makassar's position as a strategic actor in academic diplomacy and global sustainable development.

To strengthen accountable governance, Universitas Muhammadiyah Makassar (Unismuh Makassar) has implemented the Participatory Bodies for Stakeholder Engagement policy. The university has established various participatory bodies such as the University Senate, the Academic Advisory Council, and the Ethics and Academic Quality Committee, which serve as platforms for all stakeholders to contribute to strategic decision-making processes. The involvement of students, academic staff, alumni, and external partners—including local governments, industrial sectors, and civil society organizations—constitutes an integral part of the university's policymaking framework. These forums are held regularly and function as open consultation mechanisms to ensure that university policies are implemented transparently, inclusively, and with a focus on the welfare of the academic community.

The university's commitment to institutional integrity is further reinforced through the University Principles on Corruption and Bribery, which serve as an ethical code of conduct for all members of the academic community in fulfilling their professional responsibilities. This document strictly prohibits all forms of corruption, collusion, gratification, and abuse of authority at every level of academic and administrative activity. The implementation of this policy is closely monitored by the Internal Audit Unit and the University Ethics Committee, both of which are responsible for ensuring that all institutional processes adhere to ethical standards and prevailing regulations. Moreover, Unismuh Makassar has established a whistleblowing system that provides protection for individuals reporting ethical violations or acts of corruption. This policy forms a critical foundation for realizing clean and corruption-free governance, while also supporting the principles of good university governance as mandated by SDG 16.

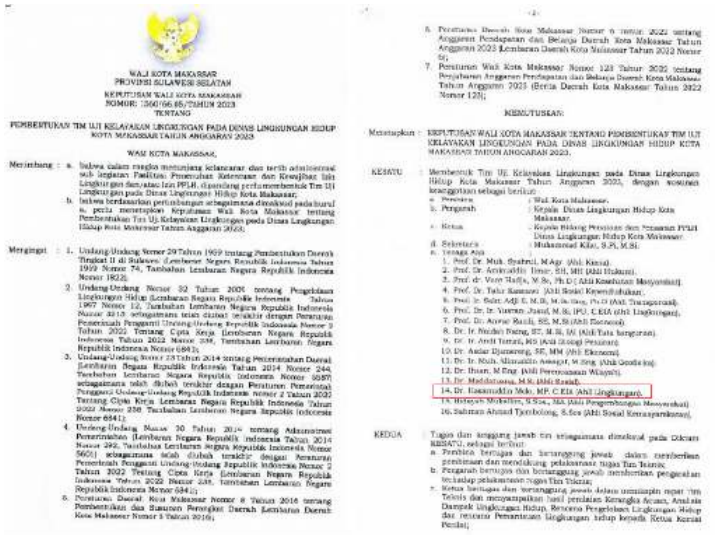
Meanwhile, academic freedom serves as a fundamental aspect of maintaining the autonomy of the university as a scholarly institution. Through the Academic Freedom Policy, Unismuh Makassar guarantees academic independence, scientific autonomy, and the right to express scholarly ideas for all lecturers and researchers. This policy refers to Law No. 12 of 2012 on Higher Education and Government

Regulation No. 30 of 1990, ensuring the protection of academic rights within the framework of national education law. In practice, the university provides opportunities for junior lecturers to develop their research capacity through the Beginner Research Program, while senior lecturers are required to produce advanced research oriented toward innovation and sustainability. This system promotes the establishment of a productive, competitive, and ethical academic environment that encourages scholarly excellence and collaboration.

In addition to safeguarding research freedom, the university enforces a transparent and professional teaching assignment system. Through the issuance of Permanent Lecturer Appointment Decrees and Teaching Assignment Letters by the Faculty of Teacher Training and Education (FKIP), Unismuh ensures that each lecturer maintains autonomy in designing curricula, developing teaching methodologies, and adapting pedagogical approaches to student needs. Consequently, the learning process at Unismuh Makassar is conducted in a manner free from political influence or external interference, grounded firmly in academic ethics and the Islamic values of *rahmatan lil 'alamin* a principle emphasizing mercy, justice, and universal benefit.

Working with government

Universitas Muhammadiyah Makassar (Unismuh Makassar) demonstrates a strong commitment to supporting the establishment of good governance through strategic partnerships with various governmental institutions. This commitment aligns with the implementation of Sustainable Development Goal (SDG) 16.3 – Working with Government, which emphasizes the importance of collaboration between higher education institutions and government bodies in building a transparent, participatory, and knowledge-based governance system. Through active engagement in policymaking, collaborative research, and capacity building for public officials, Unismuh Makassar directly contributes to strengthening public governance that is effective, equitable, and sustainable.



WALI KOTA MAKASSAR
PROVINSI SULAWESI SELATAN
KEPUTUSAN WALI KOTA MAKASSAR
NOMOR : 360/06.05/TAHUN 2023
TENTANG
PEMBENTUKAN TIM UJI KELAYAKAN LINGKUNGAN PADA DINAS LINGKUNGAN HIDUP KOTA MAKASSAR TAHUN ANGGARAN 2023

WALI KOTA MAKASSAR,

Menimbang : a. bahwa dalam rangka memantau kelancaran dan tertib administrasi serta lengkapnya Fasilitas Pemenuhan Ketentuan dan Kewajiban Izin Lingkungan dan Surat atau Izin PPLH, dipandang perlu membentuk Tim Uji Lingkungan pada Dinas Lingkungan Hidup Kota Makassar;
b. bahwa berdasarkan pertimbangan sebagaimana dimaksud pada huruf a, perlu menetapkan Keputusan Wali Kota Makassar tentang Pembentukan Tim Uji Kelayakan Lingkungan pada Dinas Lingkungan Hidup Kota Makassar Tahun Anggaran 2023;

Mengingat : 1. Undang-Undang Nomor 29 Tahun 1959 tentang Pembentukan Daerah Tingkat II di Sulawesi (Lembaran Negara Republik Indonesia Tahun 1959 Nomor 74, Tambahan Lembaran Negara Republik Indonesia Nomor 1822);
2. Undang-Undang Nomor 32 Tahun 2009 tentang Pengelolaan Lingkungan Hidup (Lembaran Negara Republik Indonesia Tahun 1997 Nomor 12, Tambahan Lembaran Negara Republik Indonesia Nomor 3215 sebagaimana telah diubah terakhir dengan Peraturan Pemerintah Pengganti Undang-Undang Republik Indonesia Nomor 2 Tahun 2022 Tentang Cipta Kerja (Lembaran Negara Republik Indonesia Tahun 2022 Nomor 238, Tambahan Lembaran Negara Republik Indonesia Nomor 6841);
3. Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 244, Tambahan Lembaran Negara Republik Indonesia Nomor 5587) sebagaimana telah diubah terakhir dengan Peraturan Pemerintah Pengganti Undang-Undang Republik Indonesia Nomor 2 Tahun 2022 Tentang Cipta Kerja (Lembaran Negara Republik Indonesia Tahun 2022 Nomor 238, Tambahan Lembaran Negara Republik Indonesia Nomor 6841);
4. Undang-Undang Nomor 30 Tahun 2014 tentang Administrasi Pemerintahan (Lembaran Negara Republik Indonesia Tahun 2014 Nomor 292, Tambahan Lembaran Negara Republik Indonesia Nomor 5601) sebagaimana telah diubah terakhir dengan Peraturan Pemerintah Pengganti Undang-Undang Republik Indonesia Nomor 2 Tahun 2022 Tentang Cipta Kerja (Lembaran Negara Republik Indonesia Tahun 2022 Nomor 238, Tambahan Lembaran Negara Republik Indonesia Nomor 6841);
5. Peraturan Daerah Kota Makassar Nomor 6 Tahun 2016 tentang Pembentukan dan Susunan Perangkat Daerah (Lembaran Daerah Kota Makassar Nomor 5 Tahun 2016);
6. Peraturan Daerah Kota Makassar Nomor 6 tahun 2022 tentang Anggaran Pendapatan dan Belanja Daerah Kota Makassar Tahun Anggaran 2023 (Lembaran Daerah Kota Makassar Tahun 2022 Nomor 5);
7. Peraturan Wali Kota Makassar Nomor 123 Tahun 2022 tentang Penjabaran Anggaran Pendapatan dan Belanja Daerah Kota Makassar Tahun Anggaran 2023 (Berita Daerah Kota Makassar Tahun 2022 Nomor 120);

MEMUTUSKAN:

Menetapkan : KEPUTUSAN WALI KOTA MAKASSAR TENTANG PEMBENTUKAN TIM UJI KELAYAKAN LINGKUNGAN PADA DINAS LINGKUNGAN HIDUP KOTA MAKASSAR TAHUN ANGGARAN 2023.

KESATU : Membentuk Tim Uji Kelayakan Lingkungan pada Dinas Lingkungan Hidup Kota Makassar Tahun Anggaran 2023, dengan susunan keanggotaan sebagai berikut:
a. Pengarah : Wali Kota Makassar.
b. Penguji : Kepala Dinas Lingkungan Hidup Kota Makassar.
c. Ketua : Kepala Bidang Pencegahan dan Pengawasan PPLH Dinas Lingkungan Hidup Kota Makassar.
d. Sekretaris : Muhammad Kifai, S.Pi, M.Si.
e. Tenaga Ahli :
1. Prof. Dr. Muh. Syafruddin, M.Agr. (Ahli Kimia).
2. Prof. Dr. Armayanthi Hanafi, SH, MH (Ahli Hukum).
3. Prof. dr. Veni Hadju, M.Sc, Ph.D (Ahli Kesehatan Masyarakat).
4. Prof. Dr. Tahir Kasnadi, (Ahli Sosial Kependidikan).
5. Prof. Ir. Sakti Adji S. M.Si, M.Sc.(Eng), Ph.D (Ahli Transportasi).
6. Prof. Dr. Ir. Nurnas Jamal, M.Si, IPU, CEIA (Ahli Lingkungan).
7. Prof. Dr. Anwar Ramli, SE, M.Si (Ahli Ekonomi).
8. Dr. Ir. Nasfan Baeng, ST, M.Si, IA (Ahli Tata lingkungan).
9. Dr. Ir. Andi Tenri, MS (Ahli Geologi Pesisir).
10. Dr. Andar Djamereng, SE, MM (Ahli Ekonomi).
11. Dr. Ir. Muh. Alimuddin Assagaf, M.Eng. (Ahli Geodesi).
12. Dr. Ihsan, M.Eng. (Ahli Perencanaan Wilayah).
13. Dr. Meldahanna, M.Si. (Ahli Kimia).
14. Dr. Rasmuddin Mdo, MP, CEIA (Ahli Lingkungan).
15. Hidayah Mokalitu, S.Sos., MA (Ahli Pengembangan Masyarakat).
16. Suharman Ahmad Tjambolang, S.Sos (Ahli Sosial Kemasyarakatan).

KEDUA : Tugas dan tanggung jawab tim sebagaimana dimaksud pada Diktum KESATU, sebagai berikut:
a. Pembina bertugas dan bertanggung jawab dalam memberikan pembinaan dan pendidikan pelaksanaan tugas Tim Teknis;
b. Pengarah bertugas dan bertanggung jawab memberikan pengarahan terhadap pelaksanaan tugas Tim Teknis;
c. Ketua bertugas dan bertanggung jawab dalam memimpin rapat Tim Teknis dan menyampaikan hasil penilaian Kerangka Acuan, Analisis Dampak Lingkungan Hidup, Rencana Pengelolaan Lingkungan Hidup dan rencana Pemantauan Lingkungan hidup kepada Ketua Komisi Penilai;

As a higher education institution oriented toward research and community service, Unismuh Makassar's faculty members actively provide expert advice to government institutions at both local and national levels. Through the Institute for Research, Development, and Community Service (LP3M), the university plays a key role in preparing strategic studies, evaluating public policies, and developing community-based programs. These activities employ an evidence-based policy approach, ensuring that every recommendation is both practically relevant and supportive of government accountability. This collaboration is manifested through the development of policy briefs, the organization of policy workshops, and the implementation of applied research that offers solutions to social, economic, and environmental challenges at the local level. The application of scientific approaches reinforces Unismuh Makassar's role as an intellectual partner of government, producing inclusive and community-oriented policy recommendations.



In addition to policy advising, Unismuh Makassar is actively involved in the policy and lawmakers outreach and education program, which aims to enhance the understanding and capacity of policymakers and public administrators regarding principles of good governance. Through seminars, training sessions, and public policy forums, the university serves as a facilitator of dialogue among academics, government officials, students, and civil society. The topics addressed include environmental governance, sustainable development, green energy policy, and natural resource management. These forums strengthen the university's role as a bridge between academia and

government practice, emphasizing the importance of cross-sectoral collaboration in developing socially just public policies. This participatory approach not only broadens knowledge access among stakeholders but also creates a democratic space for constructive dialogue and exchange of ideas.

Unismuh Makassar strategic role in supporting sustainable governance is further reflected in its participation in government-managed collaborative research programs. According to Indicator 16.3.3 – Participation in Government Research, the university is actively involved in the Forest Programme IV Sulawesi, a joint project between the Government of Indonesia and the Federal Republic of Germany, coordinated by the Ministry of Environment and Forestry (KLHK). This program focuses on sustainable forest management in Sulawesi using a community-based approach. Within this initiative, the LP3M Unismuh Makassar team, led by Dr. Arief Muhsin, plays an essential role in developing a social work plan in collaboration with the Watershed Management Agency (BPDAS) Karama. The plan includes research activities, conservation education, and community empowerment aimed at preserving forest ecosystems.

The university's involvement in this international program demonstrates its academic and institutional capacity to contribute to science-based policymaking with broad societal impact. Through such initiatives, Unismuh Makassar not only functions as a research institution but also as an agent of sustainable development, integrating social, economic, and ecological dimensions into its academic and community engagement activities. This collaborative approach strengthens the university's position as a strategic partner of government in efforts to protect the environment, enhance ecosystem resilience, and mitigate the impacts of climate change.

RESEARCH RELATED TO SDG 16

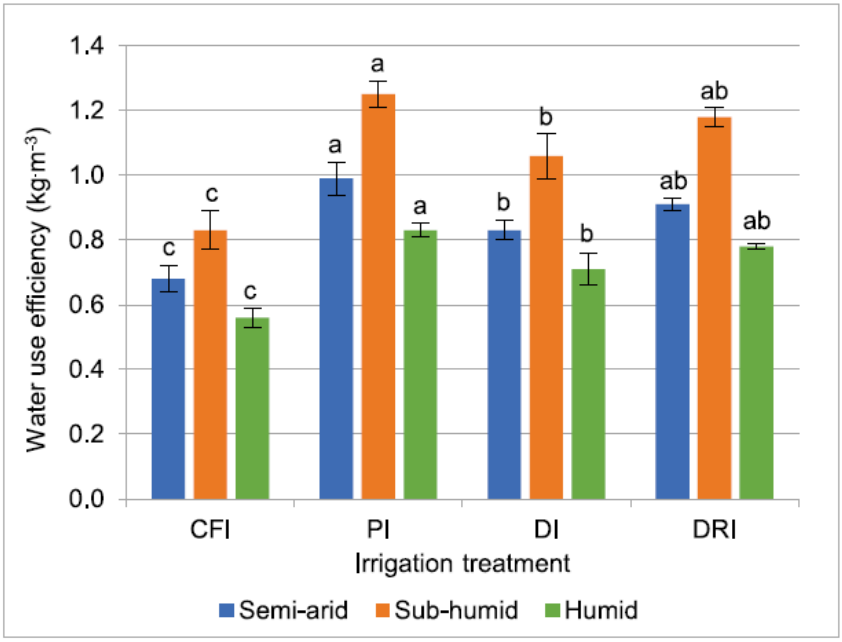
Universitas Muhammadiyah Makassar actively advances SDG 16: Peace, Justice and Strong Institutions through research that promotes rights protection, accountable governance, and evidence-based policy. Studies on irrigation governance in Iraq show how remote sensing and hydrological modelling can support transparent, conflict-sensitive water allocation. Work on equality-of-rights and accessibility policies to prevent sexual violence against students with disabilities strengthens campus regulations, task forces, and safe reporting systems for vulnerable groups. Research on community-based governance in Wakatobi's sustainable tourism, the Indonesian government's electric vehicle campaign, and policy networks for Indonesian migrant worker protection in Malaysia highlights the role of participatory decision-making, robust legal frameworks, and digital systems such as the One Channel System in building accountable public institutions. Complementary analyses of Islamic financial inclusion and the hijacking of state power over religious freedom further underline the importance of rule of law and impartial protection of fundamental rights. Together, these efforts enhance institutional capacity, justice, and inclusive governance in line with SDG 16.

Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq



Jumintono and his colleagues conducted a study titled "Comparative analysis of precision, deficit, and drip irrigation for water efficiency in Iraq." The research responds to the twin challenges of water scarcity and food insecurity under climate change by comparing three sustainable irrigation techniques—precision irrigation (PI), deficit irrigation (DI), and drip irrigation (DRI)—with conventional flood irrigation (CFI) across three agroecological zones (semi-arid, sub-humid, and humid). Using a randomised complete block design, the team tested wheat, maize, and rice, measuring plant height, leaf area index (LAI), biomass, grain yield, and water use efficiency (WUE). The results show that PI consistently produced the highest growth and yields,

increasing grain yield by 33% for wheat, 38% for maize, and 34% for rice compared to CFI, while DI and DRI also improved yields but to a lesser degree. Remote-sensing indices (NDVI, EVI) showed strong positive correlations with LAI, biomass, and yield, indicating their usefulness as non-destructive tools for monitoring crop status, and hydrological modelling using SWAT revealed that PI reduced evapotranspiration and surface runoff while increasing groundwater recharge relative to CFI.



The study's contributions align strongly with **SDG 2: Zero Hunger** and **SDG 6: Clean Water and Sanitation**, as it demonstrates that higher yields and food production can be achieved with significantly less water through smarter irrigation scheduling and technology. Across the three zones, PI increased WUE by 46–51% and, together with DI and DRI, reduced total water input by 20–30% compared to CFI, with DI achieving the greatest absolute water saving (30%). These findings show that farmers in water-scarce regions can produce more food per unit of water, supporting food security while easing pressure on rivers and aquifers. The work also supports **SDG 12: Responsible Consumption and Production** and **SDG 13: Climate Action** by promoting water-efficient, climate-resilient agriculture that reduces wasteful losses through evaporation and runoff, limits land degradation, and lowers the environmental footprint of irrigated cropping systems.

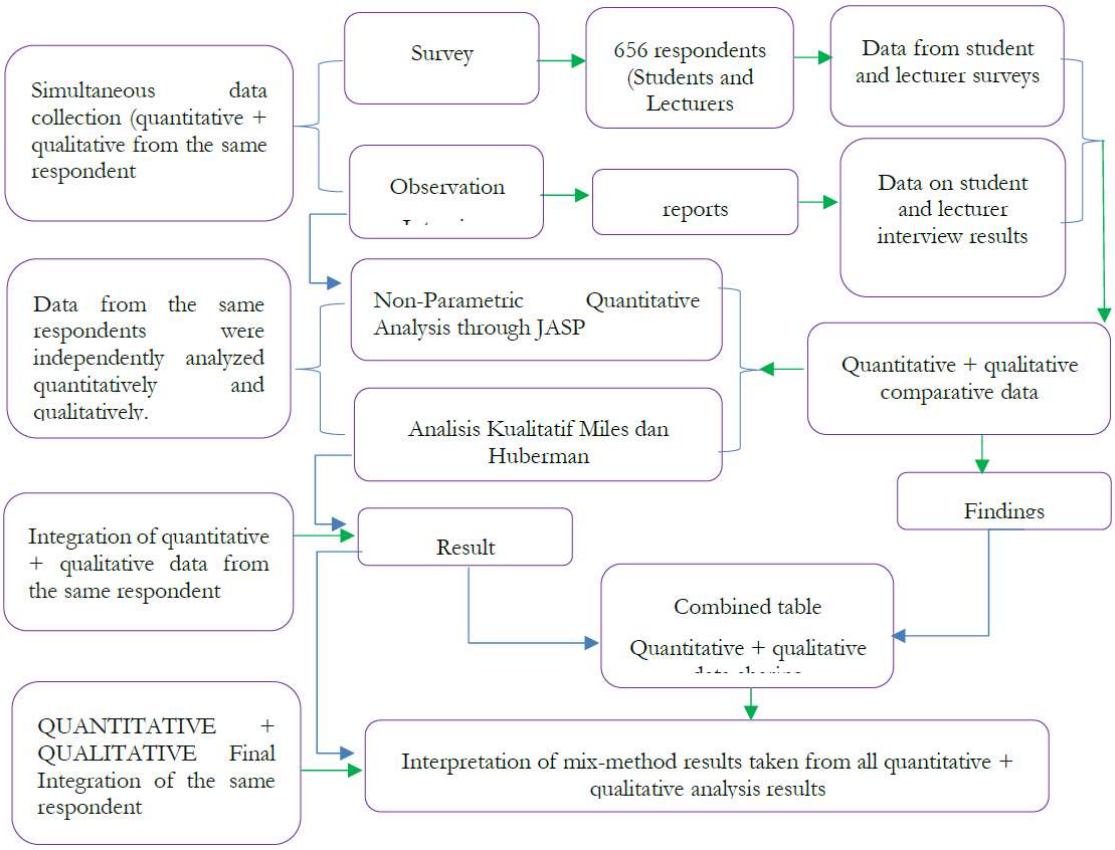
At the same time, the integration of remote sensing, hydrological modelling, and scenario-based evaluation speaks directly to **SDG 16: Peace, Justice and Strong Institutions**, because it provides a scientific, transparent basis for planning and governing water allocation in a way that is accountable and evidence-based. In highly water-stressed contexts like Iraq, such data-driven approaches can help governments design fairer, more predictable irrigation policies, reducing potential tensions over scarce water resources between regions, sectors, or farming communities. By recommending that PI be prioritised where feasible, DI and DRI promoted as effective alternatives, and remote-sensing and modelling tools embedded into irrigation management, the study offers a practical roadmap for institutions seeking to harmonise food security, water conservation, climate adaptation, and just water governance in line with SDG 2, 6, 12, 13, and 16.

Equality of Rights and Accessibility Policy Interventions as Prevention of Sexual Violence against Persons with Disabilities: A Mixed Method Study



Suardi and his colleagues conducted a mixed-method study titled “Equality of Rights and Accessibility Policy Interventions as Prevention of Sexual Violence against Persons with Disabilities: A Mixed Method Study.” The research addresses the vulnerability of students with disabilities to sexual violence in Indonesian universities and examines how structural interventions through equality-of-rights and accessibility policies can function as primary prevention. Using a concurrent embedded design, the team combined quantitative surveys of 677 respondents (569 students, 78 lecturers, 30 university leaders from six universities) with qualitative interviews, observations, and document review. Quantitative analysis with non-parametric statistics in JASP and qualitative analysis using Miles & Huberman’s framework revealed that sexual violence is present on campuses: 22.75% of respondents had seen sexual violence, 33.53% had heard of cases, and 3.87% of students reported direct experiences. The most prevalent form is sexist or degrading behaviour and speech toward women’s bodies and identities (reported by 62.48% of students), followed by online harassment,

coercion, and other acts that degrade or attack a person's body and reproductive function.



The study then evaluates policy-based prevention measures centred on equality of rights and campus accessibility for people with disabilities. Survey results show strong support among students, lecturers, and leaders for a comprehensive structural response: around 95% of respondents want universities to provide courses and seminars with a disability perspective, 92% support widely socialised reporting services or channels for students with disabilities, and 88% want formal prevention guidelines specific to disabilities. A majority also consider it important to have inter-unit coordination mechanisms (77%), appropriate accommodations (79%), ongoing anti-sexual violence socialisation (96%), and even sexual-violence ambassadors for disability issues (73%). Interviews with ethics councils, PHSV (Task Force for Prevention and Handling of Sexual Violence), legal experts, sociologists, and campus leaders highlight concrete practices already in place—such as disability-aware seminars, multiple reporting channels (web, phone, WhatsApp, QR/barcode), coordination with internal and external support services, and student–lecturer

“ambassadors” who create digital campaigns—while also noting gaps: disability topics are often sporadic, infrastructure remains uneven, and disability-focused policies are still emerging.

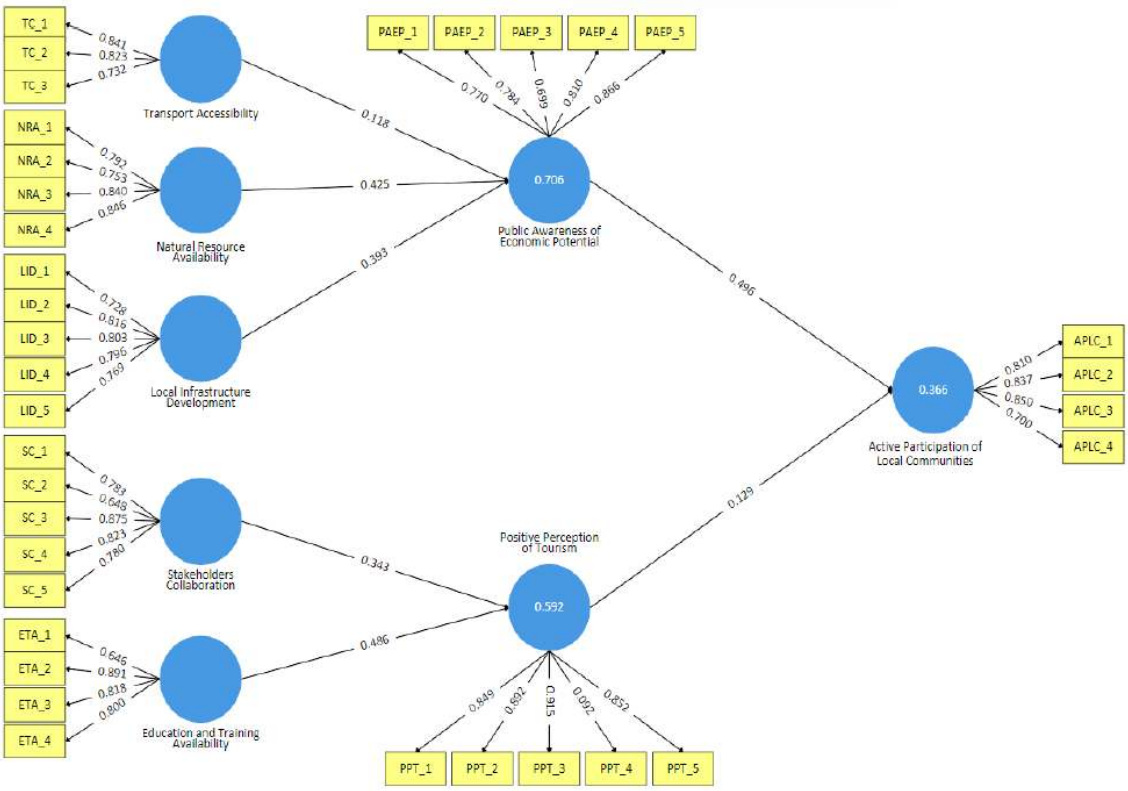
The contributions of this research align strongly with **SDG 5: Gender Equality**, **SDG 4: Quality Education**, **SDG 10: Reduced Inequalities**, and **SDG 16: Peace, Justice and Strong Institutions**. By centring women with disabilities, who face layered discrimination and heightened risk of sexual violence—the study advances SDG 5 targets on eliminating violence against women and ensuring equal rights and participation. Its focus on creating inclusive learning environments, disability-aware curricula, and safe reporting and support systems for all students supports SDG 4 on safe, inclusive, and effective learning environments. At the same time, the emphasis on equality of rights and accessibility for persons with disabilities directly addresses SDG 10 by tackling structural barriers and stigma that marginalise disabled students in higher education. Finally, the call for clear university regulations, coordinated task forces, transparent complaint mechanisms, and collaboration with external legal and protection agencies speaks to SDG 16, demonstrating how strong, responsive campus institutions can prevent violence, protect vulnerable groups, and uphold justice. Overall, the study positions disability-focused equality and accessibility policies as core structural tools for preventing sexual violence and building more just, inclusive universities.

The Level of Local Community Involvement in Sustainable Tourism Marketing of the World Coral Triangle in Wakatobi National Park, Indonesia



Lawelai and his colleagues conducted a study titled “The Level of Local Community Involvement in Sustainable Tourism Marketing of the World Coral Triangle in Wakatobi National Park, Indonesia.” The research examines how local communities on Wanci Island (Wakatobi) are involved in sustainable tourism marketing in one of the world’s key coral reef hotspots, and what factors encourage or hinder their active participation. Using a quantitative survey of 136 residents collected through online

and face-to-face questionnaires, the authors analysed community involvement with Partial Least Squares (PLS-SEM), focusing on seven latent variables: transport accessibility (TA), natural resource availability (NRA), local infrastructure development (LID), stakeholder collaboration (SC), education and training availability (ETA), public awareness of tourism's economic potential (PAEP), and active participation of local communities (APLC). The results show that natural resource availability and local infrastructure development significantly increase public awareness of tourism's economic potential, while stakeholder collaboration and education/training significantly strengthen positive perceptions of tourism. Public awareness of the economic potential of tourism, in turn, significantly increases active community participation in tourism marketing, whereas transport accessibility and positive perception of tourism do not have a significant direct effect on participation. The study concludes that raising economic awareness and improving local infrastructure, supported by stakeholder cooperation and targeted training, are key to engaging communities in sustainable tourism marketing around the World Coral Triangle in Wakatobi.



The contributions of this study align closely with **SDG 8: Decent Work and Economic Growth** and **SDG 14: Life Below Water**, as it positions sustainable marine tourism as a pathway to local income diversification while safeguarding Wakatobi's globally significant coral reef ecosystems. By showing that community participation rises when people clearly see the economic benefits of well-managed tourism and when infrastructure supports local businesses, the research provides an empirical basis for tourism policies that share value more fairly with coastal residents. At the same time, the focus on community-based, environmentally conscious marketing of marine tourism supports **SDG 12: Responsible Consumption and Production** and **SDG 11: Sustainable Cities and Communities**, encouraging tourism models that respect ecological limits, cultural identity, and local quality of life.

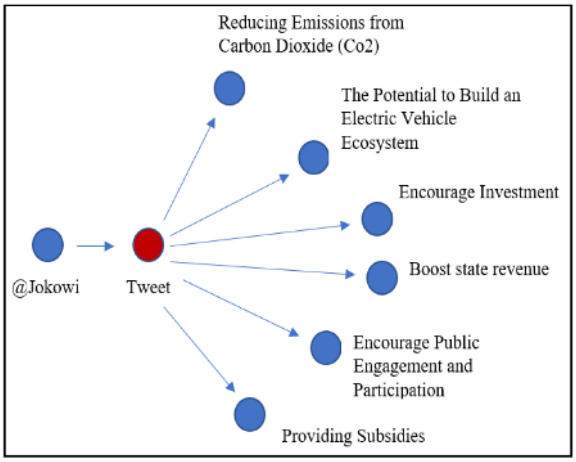
Furthermore, the study strongly reflects **SDG 17: Partnerships for the Goals** and also supports **SDG 16: Peace, Justice and Strong Institutions** through its emphasis on stakeholder collaboration, community voice, and evidence-based governance. The central role of stakeholder collaboration (SC) and education and training (ETA) shows that local government, tourism operators, NGOs, and community organisations must work together to design and implement tourism strategies, while the PLS-SEM model offers a transparent, data-driven basis for decision-making. By highlighting how inclusive, participatory governance and clear institutional roles can strengthen local involvement in marine tourism, the study demonstrates how Wakatobi's tourism development can be managed not only for economic gain and conservation, but also for more accountable, participatory, and just local institutions, in line with SDG 16 and SDG 17.

Indonesian Policy Campaign for Electric Vehicles to Tackle Climate Change: Maximizing Social Media



Lestaluhu and his colleagues conducted a study titled "Indonesian Policy Campaign for Electric Vehicles to Tackle Climate Change: Maximizing Social Media." The research analyses how the Indonesian government, particularly through the

official Twitter account @jokowi, uses social media to campaign for the adoption of electric vehicles (EVs) as part of a broader climate change mitigation strategy. Using a quantitative descriptive content analysis approach, the authors collected 1,897 tweets (1,126 tweets about “electric vehicles” and 771 about “climate change”) up to February 2023, captured using NCapture on Google Chrome and analysed in NVivo 12 Plus. Tweets were coded into themes, cases/attributes, and sentiment. The analysis shows that the government’s EV–climate campaign on Twitter centres on several dominant issues: reducing CO_2 emissions, building an electric vehicle ecosystem, attracting investment, increasing state revenue, encouraging public engagement and participation, and providing subsidies. These narratives frame EVs not only as a technological solution, but as part of a national strategy to build a domestic battery and EV industry based on Indonesia’s abundant nickel, cobalt, and copper reserves, while also emphasising public education and support for regulatory reforms that accelerate EV adoption.



The study also maps public response to this campaign on Twitter. Frequency analysis shows that 59.4% of public discussions focus on electric vehicles and 40.6% on climate change, indicating that the EV narrative is more prominent and a key entry point for engaging citizens in climate issues. Sentiment analysis reveals that public sentiment is predominantly moderately positive (44.4%), with smaller proportions of very positive, moderately negative, and very negative responses, suggesting that the campaign has generated a generally favourable, though not uncritical, reception. The authors argue that Twitter enables rapid, wide dissemination of EV–climate messages

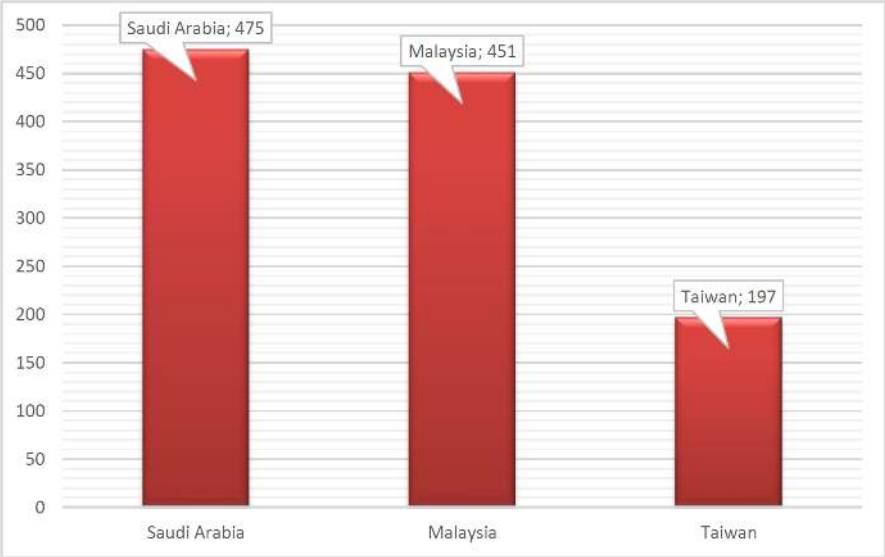
and can be effective if messages are clear, relevant, and supported by concrete policies, such as subsidies, charging infrastructure, and green finance. However, they also note limitations: character constraints, contested narratives, and the risk that campaigns relying on a single platform may be vulnerable to manipulation or may fail to reach all demographics, underscoring the need for multi-platform strategies and synergy with traditional media and civil society actors.

The contributions of this research align strongly with **SDG 13: Climate Action** and **SDG 11: Sustainable Cities and Communities**, as it positions EV promotion as a central component of efforts to reduce greenhouse gas emissions from transport and improve urban air quality. By highlighting Indonesia's mineral resource base and the potential to develop a national EV and battery industry, the paper also advances **SDG 9: Industry, Innovation and Infrastructure**, showing how industrial policy, investment, and infrastructure for charging networks can support a low-carbon transition. The focus on subsidies, public engagement, and behaviour change connects to **SDG 12: Responsible Consumption and Production**, encouraging a shift from fossil-fuel vehicles to cleaner mobility options. At the same time, the emphasis on transparent, data-driven communication, public participation in policy discourse, and coordination between government, industry, finance, and citizens reflects both **SDG 17: Partnerships for the Goals** and **SDG 16: Peace, Justice and Strong Institutions**. By using social media to open up climate and transport policy to public scrutiny and debate—while calling for coherent regulations, accountable implementation, and inclusive communication—the study illustrates how strong, responsive institutions and collaborative governance are essential to turning EV campaigns into real, just, and sustainable climate action.

Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network



Prianto and his colleagues conducted a study titled “Governance and Protection of Indonesian Migrant Workers in Malaysia: A Study on Policy and Innovation Network.” The research analyses how Indonesia and Malaysia govern and protect Indonesian migrant workers (IMWs) through interconnected institutions, regulations, and digital innovations. Using qualitative document analysis supported by NVivo 12 and bibliometric mapping with VOSviewer, the authors review academic literature, official statistics from BP2MI and the World Bank, and a wide range of legal and policy documents from both countries. The study shows that IMWs make up the largest group of foreign workers in Malaysia (about 1.67 million workers, or more than 48% of all Indonesian migrants abroad), concentrated in manufacturing, construction, plantations, agriculture, services, and domestic work. At the same time, Malaysia is among the top three destinations with the highest number of IMW complaints, with recurring issues such as unpaid wages, deportation, illegal recruitment, deception, human trafficking, unsafe working conditions, and lack of social protection. To address this, both governments have built a dense policy and institutional network involving ministries of labour, foreign affairs, human resources, BP2MI, immigration departments, embassies and consulates, joint task forces (JTF/JWG), and a comprehensive set of laws and regulations in Indonesia and Malaysia that regulate recruitment, working conditions, health, social security, and anti-trafficking.



The study highlights that protection of IMWs is increasingly organised through a policy network and collaborative governance approach, where national constitutions, labour laws, anti-trafficking regulations, social security schemes, and regional/local regulations interact to safeguard migrant workers before departure, during employment, and upon return. A key innovation emerging from bilateral cooperation is the One Channel System (OCS), an integrated digital platform that links Indonesia's SIAPKERJA system with Malaysia's Foreign Workers Centralised Management System (FWCMS) as the only official recruitment and supervision mechanism for IMWs. The OCS is designed to standardise recruitment, reduce costs and illegal levies, close loopholes exploited by unethical intermediaries and recalibration schemes (such as Malaysia's *Maid Online System*), improve monitoring of immigration and work permits, and strengthen access to consular services and complaint mechanisms. However, the authors find that implementation remains uneven and contested, with continued use of parallel systems, gaps in enforcement, and persistent vulnerabilities to exploitation, indicating that stronger political commitment, cross-border coordination, and oversight are needed to fully realise the protective potential of these innovations.

The contributions of this research align closely with **SDG 8: Decent Work and Economic Growth** and **SDG 10: Reduced Inequalities**, as it focuses on securing fair wages, safe working conditions, social security, and non-discriminatory treatment for

IMWs who occupy precarious positions in Malaysia's labour market. By mapping how Indonesian and Malaysian laws and institutions attempt to guarantee equal treatment before the law, prevent forced labour, and provide access to redress, the study also strongly supports **SDG 16: Peace, Justice and Strong Institutions**, showing that migrant protection depends on robust legal frameworks, accountable enforcement bodies, and accessible justice mechanisms. Furthermore, the emphasis on bilateral MoUs, joint task forces, and the OCS digital platform demonstrates how cross-border policy networks and technological innovation function as practical expressions of **SDG 17: Partnerships for the Goals**, enabling the two states to coordinate recruitment governance, combat trafficking, and reduce undocumented migration. By integrating governance, legal reform, and digital innovation, this research offers a model for more humane, rights-based governance of labour migration in line with the SDGs.

The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq



Hasan and her colleagues conducted a study titled "The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq." The research investigates how expanding access to Islamic financial services—such as Sharia-compliant bank credit and loans from Islamic financial institutions—contributes to economic development in two Muslim-majority countries with different levels of financial sector maturity, Indonesia and Iraq. Using panel data from 2000–2014, the authors construct an Islamic Financial Inclusion Index based on three core dimensions—accessibility, availability, and usability of Islamic banking—and relate it to GDP per capita growth, alongside other macroeconomic variables such as education, inflation, government consumption, trade openness, domestic credit to the private sector, rule of law, and regulatory quality. Methodologically, the study applies panel unit root and cross-sectional dependency tests (CIPS and Pesaran CD), Pedroni and Westerlund panel co-integration tests, and FMOLS (Fully Modified OLS)

estimators to identify both the long-run relationship between Islamic financial inclusion and economic growth and the strength and direction of the effects.

The empirical results show significant variation over time and between the two countries in GDP growth, inflation, the depth of domestic credit, and the expansion of Islamic finance, highlighting that context matters for how financial inclusion supports development. The co-integration tests indicate a long-term relationship between Islamic financial inclusion and economic development, especially in oil-exporting contexts, while the FMOLS estimates suggest that trade openness and domestic credit to the private sector consistently foster economic growth, whereas high government consumption tends to dampen it. In the sub-sample of oil-exporting countries, loans from Islamic financial institutions to the private sector have a positive and statistically significant impact on growth, underscoring the role of Sharia-compliant finance in channeling capital into productive activities. At the same time, the study emphasizes that regulatory quality, rule of law, and financial literacy remain critical enabling conditions: strengthening the regulatory environment, improving institutional quality, and expanding financial education are recommended to maximize the pro-growth impact of Islamic financial inclusion in Indonesia, Iraq, and similar economies.

The contribution of this study is strongly aligned with **SDG 8: Decent Work and Economic Growth**, as it demonstrates how inclusive Islamic finance can expand access to credit, support entrepreneurship, and enhance long-run GDP growth. By targeting the unbanked and low-income groups and highlighting Islamic finance as a tool to reduce barriers to formal financial services, the research supports **SDG 1: No Poverty** and **SDG 10: Reduced Inequalities**, showing how financial inclusion can narrow income gaps and improve economic security for vulnerable households. The use of domestic credit, trade openness, and institutional quality indicators connects the findings to **SDG 9: Industry, Innovation and Infrastructure**, reflecting how a more inclusive financial system underpins productive investment and structural transformation. Finally, by explicitly analysing rule of law and regulatory quality, and recommending stronger legal and supervisory frameworks for Islamic finance, the study advances **SDG 16: Peace, Justice and Strong Institutions**, underlining that

robust, transparent, and Sharia-compliant financial governance is essential for sustainable and equitable economic development.

Hijacking of State Power on Religious Freedom by Community Organizations in Indonesia



Prianto and his colleagues conducted a study titled “Hijacking of State Power on Religious Freedom by Community Organizations in Indonesia.” The article critically examines how, in post-Reform Indonesia, religious majority groups and their community organizations are able to “hijack” state power and shape policies in ways that undermine the constitutional guarantee of freedom of religion and belief. Using a discourse analysis method with a phenomenological approach, the authors analyse literature, media reports, and observations, processed through content and discourse analysis, to understand how state actors respond to religiously motivated violence and discrimination. Although the 1945 Constitution and human rights laws formally guarantee freedom of religion (Articles 28E, 28I, 29, and related provisions), the study shows that in practice the state often hides behind “neutrality” when the majority commits violence against minorities—such as church burnings, refusal to build houses of worship, harassment of Shia communities, and criminalisation under the Blasphemy Law. Drawing on Gramsci’s concept of hegemony and Althusser’s ideological and repressive state apparatuses, the authors argue that majority religious organizations use their ideological proximity to state elites to dictate policy, from discriminatory policing to restrictive local regulations, so that the state appears to belong to “a handful of social classes” rather than all citizens. Setara Institute data on violations by state actors (discriminatory policies, blasphemy accusations) and non-state actors (intolerance, hate speech, attacks, destruction of worship places) further illustrate systemic failures in guaranteeing religious freedom.

The study concludes that this co-optation of state power produces a climate of intolerance, discrimination, and insecurity for religious minorities and belief communities, despite strong normative guarantees in both national law and Islamic

teachings on freedom and tolerance. The authors emphasise the need for the state to act as a genuinely impartial guarantor and mediator, not as an extension of dominant groups: clarifying institutional authority in handling religious freedom issues; strengthening constitutional implementation rather than relying on joint decrees or fatwas; enforcing the law fairly against perpetrators of violence (including community organizations and complicit officials); and promoting interfaith dialogue, civic education, and human rights awareness at all levels of society. They recommend transparent and accountable policymaking, improved complaint mechanisms for victims, independent oversight institutions to monitor violations, and regular training on religious freedom for state officials so that religious diversity is treated as a national asset, not a security threat.

The contributions of this research align very closely with **SDG 16: Peace, Justice and Strong Institutions**, as it exposes how weak, bias-prone institutions and ambiguous legal frameworks allow religious freedom violations to persist, and calls for stronger rule of law, protection of fundamental rights, and accountable governance. By highlighting discrimination and violence against religious minorities, and the structural dominance of majority groups, the study also supports **SDG 10: Reduced Inequalities**, showing how unequal access to justice and protection deepens social exclusion. The emphasis on education, public awareness, and dialogue to reduce prejudice and build a culture of tolerance resonates with **SDG 4: Quality Education**, particularly targets on education for human rights and global citizenship, while the goal of harmonious, inclusive coexistence in religiously diverse communities connects to **SDG 11: Sustainable Cities and Communities**. Finally, the call for collaboration among government institutions, religious councils, civil society organizations, and independent oversight bodies reflects **SDG 17: Partnerships for the Goals**, underlining that safeguarding religious freedom in Indonesia requires coordinated, multi-stakeholder efforts anchored in human rights principles and Pancasila.

PARTNERSHIP FOR THE GOALS

Building Strong Partnerships with Government and NGOs for Advancing the SDGs

Universitas Muhammadiyah Makassar has demonstrated an active commitment to supporting the Sustainable Development Goals (SDGs) through strategic collaboration with both governmental bodies and non-governmental organizations. These partnerships are directed toward advancing policies, community programs, and research initiatives that contribute to sustainable social, environmental, and educational development. The university engages in dialogues, joint planning, and capacity-building activities with national and regional government agencies as well as NGOs to ensure that its academic and community programs align with public policy priorities and sustainability frameworks.



One notable example of this collaboration is the partnership between Unismuh Makassar and the Government of Gowa Regency. Through this initiative, the university's Department of Communication Studies established Timbuseng Village as a model community for participatory development and digital literacy enhancement. The project exemplifies how higher-education

institutions can play an active role in shaping and supporting local government initiatives while simultaneously strengthening community resilience and promoting the core values of the SDGs.

In this community-based program, Unismuh Makassar also provides education on sustainable social development, emphasizing digital inclusion, communication ethics, and the preservation of Bugis-Bollangi cultural heritage in Timbuseng Village. Students conduct field studies and community surveys to document social dynamics and local wisdom, contributing to knowledge transfer and participatory development. These efforts reflect the university's commitment to advancing the Sustainable Development Goals (SDGs), particularly in fostering partnerships between academia, local government, and society to promote inclusive and sustainable community empowerment.

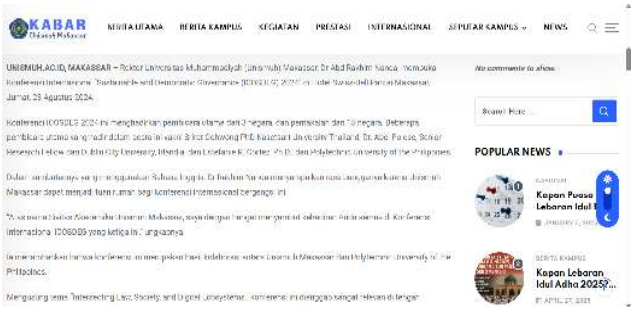
This activity represents a follow-up initiative stemming from the collaboration agreement between Universitas Muhammadiyah Makassar and the Government of Gowa Regency in the areas of education, research, and community service. Through this partnership, the Department of Communication Studies at the Faculty of Social and Political Sciences designated Timbuseng Village as a model community for implementing the university's *Tri Dharma Perguruan Tinggi*—teaching, research, and community engagement. As part of this initiative, lecturers and students from Unismuh Makassar actively assist in promoting local cultural and natural resources, improving digital literacy, and enhancing public communication skills among local leaders and residents.



Another collaboration collaboration between Universitas Muhammadiyah Makassar (Unismuh Makassar) and the government of Gowa Regency resulted in the release of a strategic policy review focused on strengthening the institutional frameworks of Village-Owned Enterprises (BUMDesa). The study involved 121 BUMDesa across 18 sub-districts and was conducted to inform the formulation of local regulation and to enhance economic independence at the village level. The research highlighted key challenges, including limited access to capital and inadequate governance, and provided actionable recommendations for improved management and resource utilisation. This initiative aligns with Sustainable Development Goals such as SDG 1 (No Poverty), SDG 8 (Decent Work & Economic Growth) and SDG 10 (Reduced Inequalities) through its focus on empowering rural economies and fostering inclusive institutional development.

Universitas Muhammadiyah Makassar actively promotes and participates in cross-sectoral dialogue on the Sustainable Development Goals (SDGs) through international conferences and academic collaborations that unite stakeholders from government, higher education, and civil society. A notable example is the *International Conference on Sustainability and Democratic Governance (ICOSDEG) 2024*, organized by the Faculty of Social and Political Sciences in collaboration with the Polytechnic University of the Philippines-CPSPA. Held in Makassar on 23–24 August 2024, the conference was officially opened by the Rector of Unismuh Makassar and attended by delegates from over fifteen countries. Distinguished speakers included Dr. Srirat Gohwong of Kasetsart University (Thailand), Dr. Abel Polese from Dublin City University (Ireland), and Dr. Estefanie R. Cortez of the Polytechnic University of the Philippines.

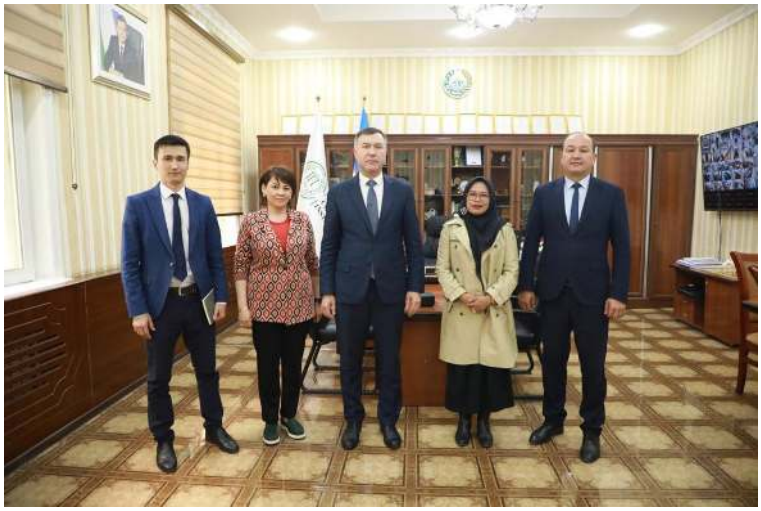




Participants also represented universities across Indonesia, including Universitas Diponegoro, Universitas Padjadjaran, Universitas Brawijaya, Universitas Riau, Universitas Pelita Harapan, and Universitas Ngurah Rai, alongside researchers and policymakers from Australia, Botswana, Hungary, India, Nigeria, Pakistan, New Zealand, and South Africa. These exchanges created a platform for dialogue between academia and government, emphasizing Unismuh's role as a catalyst for collaborative problem-solving around governance, sustainability, and digital transformation.

International Collaboration for SDGs

Universitas Muhammadiyah Makassar actively engages in international collaborations that contribute to the collection, analysis, and utilization of data related to the Sustainable Development Goals (SDGs). Through its partnerships with universities, research institutions, and global organizations, Unismuh Makassar fosters cross-border exchange of knowledge and methodologies for addressing key sustainability challenges. These collaborations enable joint studies, comparative data gathering, and the development of evidence-based strategies that strengthen institutional capacity in supporting SDG implementation. By integrating research efforts with international partners, the university not only enhances academic excellence but also contributes to global efforts in monitoring and achieving the SDGs across social, environmental, and economic dimensions.



One notable collaboration involved a joint research project between Universitas Muhammadiyah Makassar and the Samarkand State Institute of Foreign Languages in Uzbekistan, where educators from both institutions collected comparative data on the “Experiential Learning Cycle” and its application in metacognitive reading strategies. The research team gathered field-data across both campuses, carried out guest speaker seminars, and planned jointly for publication of results that would inform instructional design and curriculum development. This activity was done in two countries, Indonesia and Uzbekistan. This example underscores Unismuh Makassar’s active involvement in international data gathering and research collaborations.



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Eurasian Journal of Applied Linguistics

Exploring the Experiential Learning Cycle Application: Case study of University of Makassar and Samarkand State Institute of Foreign Language

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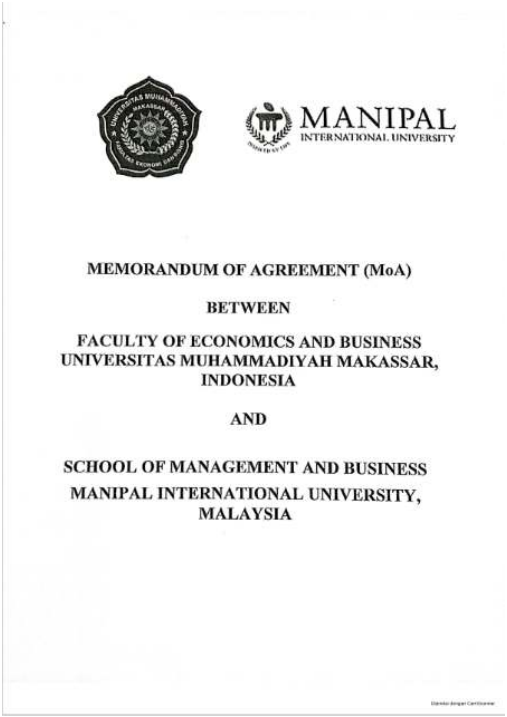
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Universitas Muhammadiyah Makassar consistently strengthens its role in advancing the Sustainable Development Goals (SDGs) through collaborative research and academic partnerships with international

universities. These collaborations serve as platforms for sharing knowledge, exchanging comparative experiences, and developing best practices on sustainability-related issues. By engaging in joint studies, seminars, and publication projects, Unismuh and its partner institutions collectively explore innovative approaches that address social, economic, and environmental challenges within diverse cultural and policy contexts.


MANIPAL
INTERNATIONAL UNIVERSITY

MEMORANDUM OF AGREEMENT (MoA)

BETWEEN

FACULTY OF ECONOMICS AND BUSINESS
UNIVERSITAS MUHAMMADIYAH MAKASSAR,
INDONESIA

AND

SCHOOL OF MANAGEMENT AND BUSINESS
MANIPAL INTERNATIONAL UNIVERSITY,
MALAYSIA

The collaborative research titled "Applying the UTAUT Model to ZIS Digital Payments: Insights from Southeast Asia", conducted by Universitas Muhammadiyah Makassar (Indonesia) and Manipal International University (Malaysia), illustrates how both nations share best practices in advancing sustainability-oriented financial inclusion through digital technology. Indonesia contributed contextual understanding of zakat, infaq, and sadaqah (ZIS) management challenges and the need for transparency in voluntary faith-based giving systems, while Malaysia provided its experience in institutionalized zakat management governed by legal frameworks. Through this comparative study, both universities explored how digital payment innovations can strengthen social equity, governance, and accountability in religious philanthropy.

Another collaboration is undertaken by the Faculty of Economics and Business at Universitas Muhammadiyah Makassar (Unismuh) in collaboration with Universiti Sains Islam Malaysia (USIM) highlights a key research-oriented and sustainability issue focus. The five-day activity brought together 10 lecturers and 25 students from Unismuh, who participated in research benchmarking, international community service, and intended research collaboration with USIM. Through the research partnership component, both institutions committed to joint data-gathering and comparative exploration of business, economic, and social models across

national contexts. This directly engages sustainability issues such as inclusive economic growth (SDG 8), cross-border knowledge sharing, and institutional capacity building for global citizenship—demonstrating Unismuh's proactive role in international collaboration for sustainability education and research.



Collaboration with NGOs

Student Volunteering Programs

Universitas In collaboration with the Kantor Urusan Agama Kecamatan Tamalate and SMK YPLP 1 PGRI Makassar, students from the Department of Public Administration at Universitas Muhammadiyah Makassar conducted a community outreach session on 1 October 2024, targeting young participants to raise awareness of the risks and consequences of child and early marriage. The initiative involved interactive group discussions, expert presentations from NGO, and participatory learning modules, emphasizing informed decision-making among adolescents and their families.



By converting academic resources and student internships into practical, preventive education outside the campus walls, the university addresses critical social-issues tied to SDG 5 (Gender Equality) and SDG 16 (Peace, Justice and Strong Institutions).



On 21 December 2024, the Badan Eksekutif Mahasiswa Universitas Muhammadiyah Makassar (BEM Unismuh) in collaboration with Perkumpulan Gerakan Kebangsaan Sulawesi Selatan (PGK Sulsel) organised a training program for “Youth Volunteers at Social Risk” focusing on the prevention and eradication of online gambling. The event featured academic, psychological, and regulatory-technology perspectives through speakers such as a university academic, a counselling psychologist and the Secretary of the Communications & Information Office of South Sulawesi. By equipping

young volunteers with awareness, regulatory literacy, and technological understanding, this initiative exemplifies how a higher education institution can engage actively with societal challenges and foster youth capacity in line with sustainability goals, particularly by promoting inclusive social stability and responsible digital citizenship.

Research Programs

The joint research titled *"Comparison of Indonesian–Malaysian Primary School Mathematics Book Content as Viewed from Critical Thinking Ability: A Study on Fraction Material"* represents a collaborative academic work between Universitas Muhammadiyah Makassar (Indonesia) and Malaysian Technological University (Malaysia). Both institutions jointly designed and analyzed the study to compare how mathematics textbooks from the two countries support the development of critical thinking skills among elementary students. Using qualitative content analysis, the researchers evaluated curriculum materials, examples, and exercises to assess the extent to which each system fosters higher-order thinking skills (HOTS).

This collaboration illustrates a meaningful exchange of educational best practices between Indonesia and Malaysia, aligning with SDG 4 (Quality Education) and SDG 17 (Partnerships for the Goals). Through comparative methodology and shared insights on curriculum design, both universities contributed to improving the understanding of how instructional materials can strengthen students' analytical and reasoning skills, offering practical implications for developing more inclusive and critical education systems in Southeast Asia.



LETTER OF COOPERATION
BETWEEN
UNIVERSITAS MUHAMMADIYAH MAKASSAR
AND
UNIVERSITI TEKNOLOGI MALAYSIA

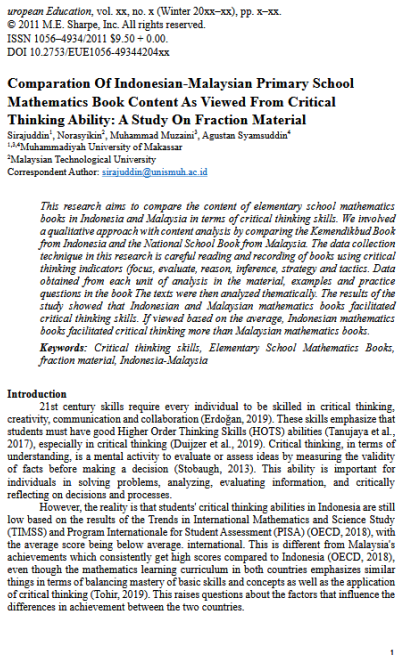
1. PURPOSE
The purpose of this Letter of Cooperation (LoC) is to foster academic partnership and cooperation between Universitas Muhammadiyah Makassar (UNISMUH) and Universiti Teknologi Malaysia (UTM).

2. POTENTIAL AREAS OF COOPERATION
Areas of future cooperation between UNISMUH and UTM may include, but are not limited to:
i. Student exchange;
ii. Staff exchange;
iii. Exchange of information and publications;
iv. Joint research activities and teaching programmes;
v. Joint student supervision; and
vi. Joint seminars/conferences.
Both institutions may enter into separate LoCs, as necessary, to facilitate the said collaborative activities.

3. FINANCIAL OBLIGATIONS
It is recognised that this LoC involves neither obligations nor transfer of financial resources. Under this LoC, collaborative activities will be undertaken within the limits of available resources of the respective institutions.

4. VALIDITY AND TERMINATION
This LoC comes into effect on the date of signing and will remain in effect for five (5) years from the date of signatures. It can be renewed by mutual consent of the institutions. Either institution may terminate this LoC without liability, for any reason and at any time, by giving a 30-day advance written notice to the other institution.

This LoC is intended to promote and facilitate collaborative activities for mutual benefits and shall not be construed as creating any legal obligations between the institutions.



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Comparation Of Indonesian-Malaysian Primary School Mathematics Book Content As Viewed From Critical Thinking Ability: A Study On Fraction Material

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This research aims to compare the content of elementary school mathematics books in Indonesia and Malaysia in terms of critical thinking skills. We involved a qualitative approach with content analysis by comparing the Kemendikbud Book from Indonesia and the National School Book from Malaysia. The data collection technique in this research is careful reading and recording of books using critical thinking indicators (focus, evaluate, reason, inference, strategy and tactics. Data obtained from each unit of analysis in the material, examples and practice questions in the book The texts were then analyzed thematically. The results of the study showed that Indonesian and Malaysian mathematics books facilitated critical thinking skills. If viewed based on the average, Indonesian mathematics books facilitated critical thinking more than Malaysian mathematics books.

Keywords: *Critical thinking skills, Elementary School Mathematics Books, fraction material, Indonesia-Malaysia*

Introduction

21st century skills require every individual to be skilled in critical thinking, creativity, communication and collaboration (Erdoğan, 2019). These skills emphasize that students must have good Higher Order Thinking Skills (HOTS) abilities (Tanujaya et al., 2017), especially in critical thinking (Duijzer et al., 2019). Critical thinking, in terms of understanding, is a mental activity to evaluate or assess ideas by measuring the validity of facts before making a decision (Stobaugh, 2013). This ability is important for individuals in solving problems, analyzing, evaluating information, and critically reflecting on decisions and processes.

However, the reality is that students' critical thinking abilities in Indonesia are still low based on the results of the Trends in International Mathematics and Science Study (TIMSS) and Program Internationale for Student Assessment (PISA) (OECD, 2018), with the average score being below average. international. This is different from Malaysia's achievements which consistently get high scores compared to Indonesia (OECD, 2018), even though the mathematics learning curriculum in both countries emphasizes similar things in terms of balancing mastery of basic skills and concepts as well as the application of critical thinking (Tohir, 2019). This raises questions about the factors that influence the differences in achievement between the two countries.

Development of Educational Resources

This collaboration between Universitas Muhammadiyah Makassar, Indonesia, and the Faculty of Law, University “St. Kliment Ohridski”, Bitola, North Macedonia, resulted in the joint development of a book chapter titled *“Governing Migrant Workers Post-COVID-19 in Southeast Asia: Vulnerability, Mitigation and Transformative Agenda.”* Both institutions contributed to the conceptualization, research, and writing of the chapter, which explores how Southeast Asian countries governed and protected migrant workers amid and after the COVID-19 pandemic. By combining regional insights from Indonesia with European perspectives on migration governance, the collaboration provides a comparative understanding of vulnerabilities, policy responses, and frameworks such as the ASEAN Forum on Migrant Labour (AFML) and ASEAN Comprehensive Recovery Framework (ACRF). This joint academic effort not only advances scholarly discourse on sustainable migration management but also contributes directly to the goals of SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequalities) through evidence-based policy recommendations for inclusive post-pandemic recovery.





Chapter 7
Governing Migrant Workers Post-COVID-19 in Southeast Asia: Vulnerability, Mitigation and Transformative Agenda

Andi Luhur Prianto, Aqmal Reza Amri, and Goran Ilik

Abstract The vulnerability faced by migrant workers during the COVID-19 pandemic is one of the crucial issues to be discussed and opens the agenda for discussing the political economy. Hence, this paper aims to investigate the role of Southeast Asian countries in governing migrant workers in the Southeast Asian region during the COVID-19 pandemic and to analyse Southeast Asian countries' cooperation to consolidate transnational mitigation strategies to ensure the rights of migrant workers during the COVID-19 pandemic era. This article considers primary literature as well as secondary sources, such as news articles, reports from international organizations, and scientific studies. This article shows that in the early days of the pandemic, Southeast Asian countries were cut off and failed to build solidarity in the south. Each country only focuses on mitigation at the domestic level, so it is not regionally integrated. The efforts of ASEAN member countries to overcome the impact of the pandemic on migrant workers can only be seen at the end of 2020 with the convening of the 13th ASEAN Forum on Migrant Labor (AFML) and the presence of the ASEAN Comprehensive Recovery Framework (ACRF). The AFML and ACRF guidelines serve as guidelines and frameworks for transnational mitigation strategies for the recovery of conditions in the Southeast Asian region in the post-COVID era.

Keywords Migrant workers · Pandemic COVID-19 · Mitigation strategies · Southeast Asia

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Education for SDGs

Universitas Muhammadiyah Makassar demonstrates a strong institutional commitment to meaningful education around the Sustainable Development Goals (SDGs) by integrating sustainability principles across all faculties and programs. Each faculty includes courses that address sustainability-related themes, ensuring that every student, regardless of discipline, is exposed to knowledge and practices supporting global development goals.

All faculties have embedded SDG values—such as social justice, environmental stewardship, ethics, and social responsibility—into their curriculum. These values are reflected in a variety of courses including *Ilmu Alamiah Dasar* (Basic Natural Sciences), *Psikologi Pendidikan* (Educational Psychology), *Community Development*, and *Environmental Studies*. Through these courses, students develop both theoretical understanding and practical skills related to sustainability. Furthermore, students apply SDG principles through thematic *KKN* (Community Service Programs) and faculty-led community engagement activities, where they contribute directly to

sustainable social and environmental initiatives. These initiatives align the university's educational programs with global priorities, ensuring that students gain knowledge and skills that are relevant to addressing the world's most pressing challenges.

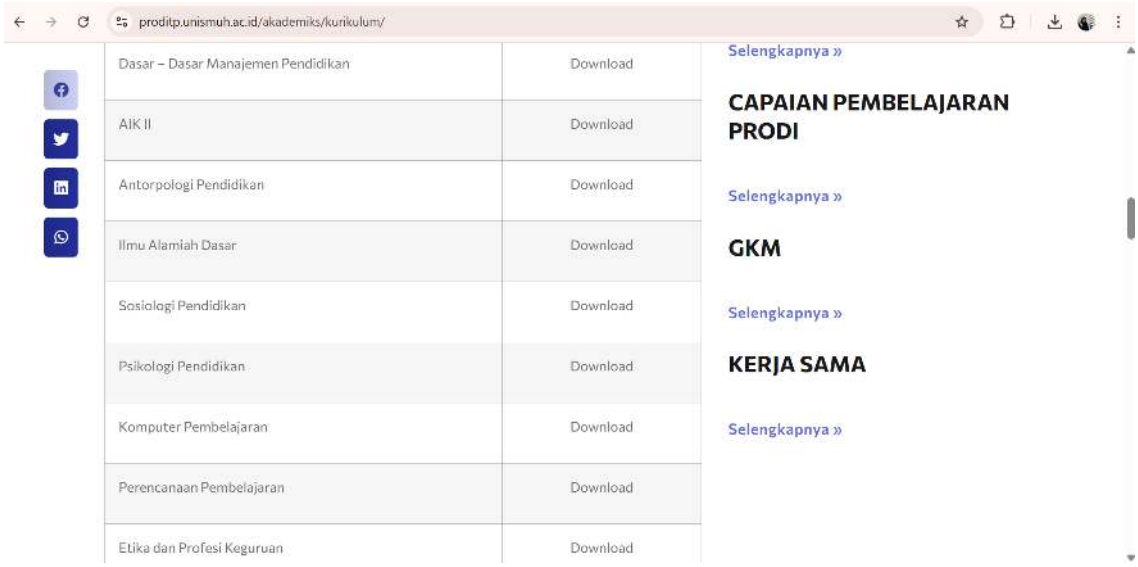


Figure 2. Example of curriculum applied in educational technology department
Source: https://proditp.unismuh.ac.id/akademiks/kurikulum/

Embedding the SDGs into courses that reflected in the Rector's Decree reflects Universitas Muhammadiyah Makassar's dedication to advancing not only SDG 4 (Quality Education) but also SDG 17 (Partnerships for the Goals), by collaborating with various stakeholders and embedding sustainability into the educational foundation of all faculties.

Courses related to Sustainability

Universitas Muhammadiyah Makassar has integrated education for sustainable development into its academic programs through several dedicated courses that explicitly address sustainability and the Sustainable Development Goals (SDGs). Across various faculties, sustainability themes are embedded both in compulsory and elective courses, reflecting the University's vision of producing graduates who are environmentally conscious, socially responsible, and ethically grounded.

A wide range of courses across disciplines directly relate to the SDGs

and promote sustainability-oriented learning outcomes. For instance, Rural Community Development, Issues and Policies in Poverty Alleviation, and Community Development emphasize social inclusion, poverty reduction, and community empowerment—aligning with SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities). Courses such as Sociology of Agriculture, Social Forestry, and Community Forestry Management integrate environmental and socio-economic perspectives to foster equitable access to natural resources (SDG 2 & 15). In the fields of architecture and urban planning, courses like Urban Architectural Design, Building and Area Revitalization, Land Use and Development Planning, Urban Sociology, and Urban Planning Studio train students to design sustainable cities, manage land use responsibly, and build flood-resilient infrastructures, contributing directly to SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action).

Course Title	Notes (Academic Description)
Rural Community Development	Focuses on rural community development to reduce poverty and enhance overall welfare.
Issues and Policies in Poverty Alleviation	Supports the formulation of effective policies to address poverty reduction.
Accounting for Zakat, Infaq, and Sadaqah	Emphasizes the management of charitable funds to alleviate poverty and reduce inequality.
Fundamentals of Socio-Cultural Studies	Examines social and cultural aspects to promote equality and social inclusion.
Community Development	Concentrates on local community empowerment to foster inclusion and poverty alleviation.
Basic Social and Cultural Sciences	Provides social and cultural understanding to support equality and inclusion.
Sociology of Agriculture	Explores the sociology of agriculture to promote equality and inclusion within the agricultural sector.
Sociology of Coastal Communities	Studies coastal community sociology to promote equality and empowerment in coastal areas.
Social Forestry	Focuses on social forestry to ensure equitable access to natural resources.
Community Forestry Management	Encourages community participation and inclusion in forest management to reduce inequality.
Fundamental Social and Cultural Sciences	Strengthens social and cultural understanding to mitigate inequality and promote social cohesion.
History of Architecture	Studies the historical evolution of architecture to support sustainable urban development.
Introduction to Architecture	Provides foundational architectural knowledge for well-planned and sustainable urban development.
Development of Islamic Architecture	Focuses on the history of Islamic architecture to integrate sustainability values in urban design.
Interior Space Design	Teaches efficient and comfortable interior design to support sustainable urban living.

Course Title	Notes (Academic Description)
Urban Architectural Design	Focuses on urban architectural design for planned and sustainable city development.
Site and Landscape Design	Teaches site planning and landscape design to support sustainable outdoor environments.
Building and Area Revitalization	Provides knowledge on urban revitalization for sustainable reuse of urban areas.
Introduction to Regional and Urban Planning	Offers foundational principles of regional and urban planning to support sustainable city management.
Housing and Settlement Systems	Studies housing systems to promote inclusive and sustainable human settlements.
Land Use and Development Planning	Examines land-use planning to ensure sustainable and organized land management.
Land Use Evaluation	Supports land-use planning for sustainable cities and communities.
Urban Politics	Analyzes urban political dynamics to create inclusive and sustainable cities.
Urban Sociology	Explores challenges and opportunities within urbanization for sustainable development.
Mapping and Presentation Studio	Develops mapping and presentation skills to support sustainable urban planning and development.
Concepts and Theories of Spatial Structure	Studies spatial theories to promote harmonious and sustainable urban spatial planning.
Urban Planning Studio	Focuses on urban planning to support sustainable and inclusive urban living.
Community Empowerment	Promotes community empowerment to build inclusive and sustainable communities.
Urban Drainage Planning	Focuses on drainage planning to support sustainable and flood-resilient cities.
Architectural Design Studio	Studies architectural design aimed at creating sustainable buildings and urban environments.

Figure 1. Examples of Courses related to sustainability
Source:https://docs.google.com/spreadsheets/d/1j1VjcgXJ3iCN45vGRi8SncWF3qH8gMoq/edit?usp=drive_link&ouid=111920101108365750935&rtpof=true&sd=true

From a total of 2,532 courses offered across all faculties, 338 courses are directly related to sustainability and the SDGs, while the remaining courses support sustainability issues indirectly through ethical, social, and professional dimensions of learning. These courses are listed on the official websites of each study program at Universitas Muhammadiyah Makassar, allowing public access to the curriculum information:

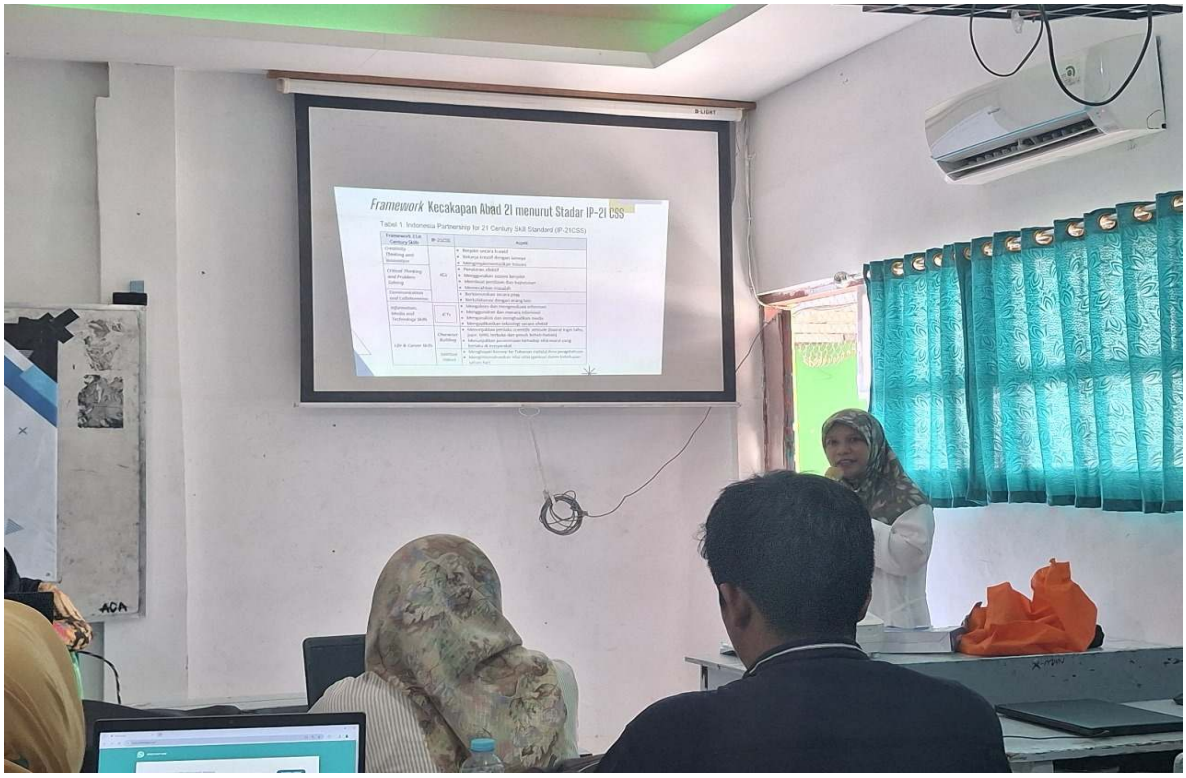
Medicine and Health Science *https://med.unismuh.ac.id/curriculum-structure/*
Forestry Department *https://kehutanan.unismuh.ac.id/courses/*
Water Resources Engineering Department
https://pengairan.unismuh.ac.id/akademiks/sebaran-mata-kuliah/
Physics Education Department *https://pend.fisika.unismuh.ac.id/kurikulum/*
Primary Education Department *https://pgsd.unismuh.ac.id/akademiks/sebaran-mata-kuliah/*
Biology Education Department *https://pendbiologi.unismuh.ac.id/kurikulum-mbkm/*
English Education Department *https://bg.fkip.unismuh.ac.id/curriculum-2023/*

Education SDGs for Wider Community

Universitas Muhammadiyah Makassar has demonstrated a strong institutional commitment to advancing education for the Sustainable Development Goals (SDGs) beyond its immediate academic population and into the wider community. Through structured outreach and capacity-building programs, the University extends its expertise to local residents, community groups, and practitioners who are often outside the formal student body.

SDGs Education for Alumni

Unismuh Makassar extended its educational mission into the wider community by organizing a focused workshop for teachers at SMA Muhammadiyah 9 Makassar, a school where many educators are proud alumni of the University. Conducted on 13 September 2024 by a team of lecturers and students, the programme aimed to enhance participants' pedagogical competence in developing teaching modules aligned with the *Kurikulum Merdeka*. The workshop emphasized the implementation of Problem-Based Learning (PBL) and Project-Based Learning (PjBL) methodologies. Sixteen participating teachers underwent a structured capacity-building process that included a pre-test, interview, module design training, and a post-test which showed measurable improvement in their understanding, from 56.56 percent to 71.76 percent. By engaging alumni educators as key beneficiaries, Unismuh not only reinforced its lifelong educational impact but also bridged academic knowledge with practical classroom innovation at the secondary-school level.



SDGs Education for Local Community

A team from the Faculty of Engineering at Unismuh Makassar undertook a community-engagement program titled “Supporting the Bacari Farmers’ Group in Tertiary Irrigation Planning in Palambarae Village, Gantarang District, Bulukumba Regency” in October 2023. The initiative brought together academic staff and engineering students to guide local farmers in developing planning documents for tertiary irrigation infrastructure. The goal was to enhance farm ers’ technical knowledge and empower them to participate meaningfully in irrigation construction, thereby strengthening food sovereignty, improving rural income, and supporting local water-management systems.



By directly engaging with a non-academic community group (farmers) and focusing on a vital infrastructure domain (irrigation), the program illustrates Unismuh Makassar's outreach commitment to SDGs, particularly SDG 2 (Zero Hunger) and SDG 6 (Clean Water and Sanitation). The activity provided structured education and capacity-building outside the university environment, demonstrating how the institution extends its educational mandate into the wider society.

Displaced people and refugees

Universitas Muhammadiyah Makassar's engagement with communities impacted by disasters illustrates its broader commitment to delivering education and support beyond the campus setting. In May 2024, the student body of the Faculty of Economics and Business ("Ikatan Mahasiswa Muhammadiyah FEB Unismuh") swiftly extended help to flood-victims in Siwa, Wajo, and not only distributed material aid but also collaborated with local stakeholders to provide post-flood technical guidance and planning assistance. This dual approach of relief and capacity-building demonstrates a responsive model of outreach education.



By facilitating empowerment through hands-on guidance in recovery and infrastructure planning for affected residents, Unismuh Makassar models how higher education institutions can contribute to SDGs via knowledge translation and community resilience. The activity strengthens local capacity to manage disaster recovery and aligns with SDG 17's principle of inclusive partnerships, where academia, society, and local authorities cooperate to deliver sustainable outcomes.

Through these courses, Unismuh Makassar ensures that sustainability education is not limited to theoretical understanding but extends to applied learning, research projects, and community-based service programs (PKM and KKN). This curriculum design aligns with the University's strategic orientation toward building an Integrated, Green, Islamic, and Futuristic (I-GIFt**)** institution, preparing students to become agents of sustainable change at local, national, and global levels.

RESEARCH RELATED TO SDG17

Impelementation of Kurikulum Merdeka (Freedom curriculum) in science learning: A case study in Sekolah Indonesia Kuala Lumpur, Malaysia



Nurdiyanti and her colleagues conducted a study titled “Implementation of Kurikulum Merdeka (Freedom Curriculum) in science learning: A case study in Sekolah Indonesia Kuala Lumpur, Malaysia.” The research examines how the *Kurikulum Merdeka* (KM), introduced by Indonesia’s Ministry of Education and Culture, is implemented in an overseas Indonesian school context, with a particular focus on science education. Using a mixed-methods design with an explanatory sequential approach, the authors first collected quantitative data from 14 teachers across different grade levels and subjects through questionnaires, and then conducted in-depth interviews with three science teachers (biology, physics, and chemistry) to explore the findings qualitatively. The results show that KM has not yet been fully institutionalised at Sekolah Indonesia Kuala Lumpur (SIKL): 71.4% of teachers have not developed a learning objectives flow and 64.3% do not yet use teaching modules, although most rely heavily on electronic teaching resources and all teachers report using digital learning materials. At the same time, 92.9% of teachers have participated in Projects to Strengthen the Profile of Pancasila Students (P5), even if some are not directly involved in module development, and many face challenges in understanding P5 concepts and assessments. Qualitative analysis reveals that science teachers do implement core KM principles—especially project-based learning (e.g., hydroponics projects), diagnostic assessments, use of animations and worksheets, attention to student diversity, and a facilitative teacher role—but they struggle with limited time for module development, high costs for project activities, difficulty generating creative ideas, heterogeneous student abilities, and constrained facilities and resources.

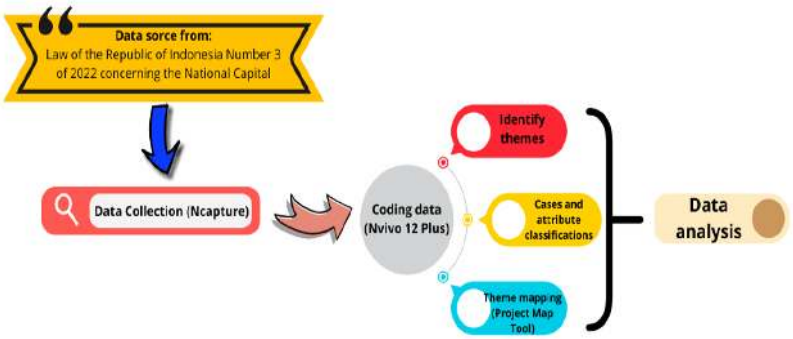
The contributions of this study are closely aligned with SDG 4: Quality Education, as it directly addresses how an innovative, competency-based curriculum is being translated into practice to foster critical thinking, creativity, collaboration, and inquiry in science learning. By documenting gaps in teacher readiness, learning objective formulation, module development, and P5 implementation, the study identifies concrete capacity-building needs—such as continuous professional development, mentorship, and institutional support—that are essential for delivering inclusive, high-quality education in a transnational school setting. The focus on student-centred, project-based learning that integrates real-world issues (including environmental themes and social concerns embedded in P5) also supports SDG 10: Reduced Inequalities, since Indonesian students abroad are given opportunities to experience the same transformative curriculum reforms as their peers in Indonesia, while navigating multicultural, cross-border contexts. Furthermore, the strong emphasis on digital learning resources and technology-enhanced instruction speaks to SDG 9: Industry, Innovation and Infrastructure, highlighting how digital platforms, animations, and online materials can expand access to engaging science education when supported by adequate infrastructure. Finally, by stressing the importance of coordinated support from the Indonesian Ministry of Education, school leadership, and teacher collaboration networks, the study advances SDG 17: Partnerships for the Goals, demonstrating that successful implementation of Kurikulum Merdekaespecially in international schools—depends on sustained multi-level partnerships, resource sharing, and systematic monitoring and evaluation.

Healthy city development: Indonesian government plans to build a new capital city



Razak and her colleagues conducted a study titled “Healthy city development: Indonesian government plans to build a new capital city.” The article examines

how the Indonesian government integrates the *healthy city* concept into the planning of the new national capital (IKN) in Kalimantan, in response to serious urban health problems such as air and noise pollution, limited clean water, and unequal access to health services in existing cities. Using a qualitative thematic analysis, the authors analyse official government regulations—especially Law No. 3 of 2022 on the National Capital—which they collect via NCapture and code in NVivo 12 Plus through theme identification, case and attribute classification, and thematic mapping. The findings show that the government explicitly refers to three main international frameworks: the WHO Healthy City model, the Cardiff healthy city strategy, and the Vancouver healthy city strategy. These references emphasise principles such as community participation, equity, a healthy physical environment, sustainable spatial planning, environmentally friendly transport, access to healthy food, mental and social well-being, and community empowerment. At the same time, the study identifies substantial challenges in translating these ideals into practice: persistent air pollution in Kalimantan (especially from forest and land fires), poor and inadequate infrastructure, unresolved land acquisition in the core IKN area, budget constraints and risks of non-transparent spending, and rapidly growing urbanisation, with Indonesia's urban population rising from 53.3% in 2015 to 56.4% in 2020.



To address these barriers, the authors propose adaptive and collaborative policy strategies. They argue that healthy city development in IKN must go beyond physical construction and integrate health and environmental considerations across all sectors—spatial planning, transport, waste management, urban greening, and social policy. This includes expanding green open spaces and public parks, promoting low-emission and

active transport, strengthening health infrastructure and universal health service coverage, and introducing renewable energy and climate-sensitive urban design. The study emphasises that limited state budget allocations require public–private partnerships and transparent financial governance, supported by strong auditing and anti-corruption mechanisms. Furthermore, the authors advocate a collaborative governance approach, involving central and local governments, the private sector, and civil society in joint planning, implementation, and monitoring of healthy city initiatives. Only through such multi-actor cooperation and continuous public participation, they argue, can IKN become a genuinely healthy, inclusive, and sustainable new capital rather than a new source of environmental and social risk.

The contributions of this study align closely with several Sustainable Development Goals (SDGs). By framing IKN as a test case for integrating health into urban planning, the article directly advances SDG 11: Sustainable Cities and Communities, particularly the creation of inclusive, safe, resilient, and sustainable human settlements that provide adequate services, green spaces, and liveable environments. Its strong focus on controlling air pollution, protecting ecosystems, and mitigating environmental damage from capital relocation relates to SDG 13: Climate Action and SDG 15: Life on Land, highlighting how forest fires, deforestation, and poor land management can undermine both climate and health objectives. The discussion of water, sanitation, and waste management links to SDG 6: Clean Water and Sanitation and SDG 12: Responsible Consumption and Production, stressing the need for efficient, low-impact resource use in the new capital. Finally, the insistence on transparent budgeting, strong institutional capacity, and cross-sector collaboration clearly supports SDG 16: Peace, Justice and Strong Institutions and SDG 17: Partnerships for the Goals, underlining that effective healthy city development depends on accountable governance and robust partnerships between government, private actors, and communities.

The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq



Hasan and her colleagues conducted a study titled “The Impact of Islamic Financial Inclusion on Economic Growth in Asia: Evidence from Indonesia and Iraq.” The research empirically examines how Islamic financial inclusion contributes to economic development in Indonesia and Iraq using panel data from 2000–2014. The authors construct an Islamic financial inclusion framework based on three core dimensions—accessibility, availability, and usability of Islamic financial services—and relate this to GDP per capita growth alongside key macroeconomic and institutional variables: education, inflation, government consumption, trade openness, domestic credit to the private sector, loans by Islamic financial institutions, rule of law, and regulatory quality. Methodologically, the study applies panel unit root tests (CIPS) and cross-sectional dependence tests, followed by Pedroni and Westerlund panel co-integration tests to establish the existence of long-run relationships. It then employs Fully Modified Ordinary Least Squares (FMOLS) estimators to assess how Islamic finance, domestic credit, and macro–institutional factors influence economic growth both for all countries and specifically for oil-exporting economies. The results indicate significant cross-country and inter-period variation in economic development and Islamic finance adoption, but overall provide evidence of a long-term co-integrating relationship between Islamic financial inclusion and economic development. Trade openness and domestic credit exert a positive and significant effect on growth, while government consumption and inflation tend to depress growth, and loans by Islamic financial institutions show mixed but more clearly positive effects in oil-exporting countries, signalling that a deeper Islamic financial sector can support growth when embedded in an enabling macroeconomic and regulatory environment.

The study's contributions are closely aligned with several Sustainable Development Goals (SDGs). By showing that expanded, Sharia-compliant access to savings, credit, and other financial services can integrate previously excluded households and firms into the formal financial system, the research directly supports SDG 1: No Poverty and SDG 10: Reduced Inequalities, positioning Islamic financial inclusion as a tool to narrow gaps in access to finance and opportunity. The positive role of domestic credit and Islamic loans in stimulating productive investment and output growth corresponds to SDG 8: Decent Work and Economic Growth, underlining that a more inclusive financial system can catalyse entrepreneurship, employment, and higher living standards. The emphasis on a supportive regulatory framework, strong rule of law, and high-quality regulation speaks to SDG 16: Peace, Justice and Strong Institutions, since credible legal and supervisory structures are shown to be essential for the safe expansion of Islamic finance. Furthermore, the authors stress the importance of financial education and literacy programmes to enhance public understanding and uptake of Islamic financial products, strengthening the link to SDG 4: Quality Education. Finally, because the paper explicitly targets policy makers in Indonesia, Iraq, and other Islamic economies and calls for coordinated strategies between governments, regulators, and financial institutions, it advances SDG 17: Partnerships for the Goals, framing Islamic financial inclusion as a collaborative pathway toward more sustainable, inclusive economic development.

Policy Design for Sustainable Development: A Bibliometric Study of Ecological Communications



Wedayanti and her colleagues conducted a study titled "Policy Design for Sustainable Development: A Bibliometric Study of Ecological

Communications." The article examines how global research on ecological communication and sustainable development has evolved in recent years and how this evolution can inform more adaptive environmental policy design. Using a bibliometric approach based on the Scopus database, the authors filtered publications containing the keywords *"ecological communication"* and *"sustainable development"* for the period 2018–2022, identifying 366 documents. These were analysed with VOSviewer using co-occurrence (All Keywords) analysis, allowing the construction of keyword networks that reveal how concepts are clustered and interrelated in the literature. The results show a marked increase in publications, from 50 documents in 2018 (with a slight dip in 2019) to peaks of 75, 101, and 92 documents in 2020, 2021, and 2022, respectively—evidence of growing global concern with ecological communication as a lever for sustainability transitions. Highly cited works in this corpus highlight themes such as machine learning for sustainable agricultural supply chains, UAV–WSN systems for precision agriculture, ICT frameworks for SDGs, ecological–economic models for fisheries, smart cities, and ecological intensification in agriculture and forestry, illustrating how technological innovation, environmental governance, and communication strategies increasingly converge in sustainability research.

The study further identifies key research topic clusters that connect ecological communication with broader sustainability agendas, including information and communication technology (ICT), economic and social impacts, conservation, and agriculture. These clusters indicate where ecological communication is already well developed and where research gaps remain. The authors argue that ecological communication is central not only to raising awareness but also to changing behaviour, supporting conservation, and shaping decision-making in domains such as sustainable agriculture, resource management, and climate policy. Building on the bibliometric findings, the paper outlines principles for policy design grounded in the evolution of this research field: systematically reviewing recent evidence; identifying critical issues (e.g., climate change, biodiversity loss, resource use); engaging experts and practitioners; and embedding practical communication approaches that use appropriate channels, targeted

messages, and audience analysis to increase public support and stakeholder participation. Cross-sector collaboration between government, business, civil society, and the public is presented as essential to translating ecological communication research into effective policies that can address complex environmental challenges and drive society toward sustainability.

The contributions of this study are strongly aligned with several Sustainable Development Goals (SDGs). By clarifying how ecological communication can inform policy responses to environmental degradation, climate risk, and resource overuse, the paper directly supports SDG 13: Climate Action and SDG 15: Life on Land, where effective communication is needed to mobilise behavioural change and support conservation measures. The emphasis on urban issues, smart cities, and environmental governance links the findings to SDG 11: Sustainable Cities and Communities, while the focus on sustainable agriculture, precision farming, and ecological intensification connects to SDG 2: Zero Hunger and SDG 12: Responsible Consumption and Production. The recurrent role of ICT and digital infrastructures in the most-cited studies relates closely to SDG 9: Industry, Innovation and Infrastructure, demonstrating how digital tools can support monitoring, awareness campaigns, and participatory decision-making. Finally, the call for cross-sector collaboration, stakeholder engagement, and participatory communication points to SDG 16: Peace, Justice and Strong Institutions and SDG 17: Partnerships for the Goals, underlining that robust institutions and multi-actor partnerships are prerequisites for designing and implementing communication-based policies that advance sustainable development.