



## The Role of Higher Education for Sustainable Development Goals: Experiences from Mahidol University, Thailand

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### Article Info

**Received:**

23 May 2023

**Accepted:**

27 October 2023

**Published:**

15 November 2023

**DOI:**

10.14710/jsp.2023.20716

*Presented in the 9<sup>th</sup>  
International Workshop  
on UI GreenMetric World  
University Rankings  
(IWGM 2023)*

**Abstract.** Higher education is one of the significant stakeholder to play an important role in fostering sustainable development goals. Mahidol University is a comprehensive university in Thailand, which strives to be a leader on sustainability in responding to the United Nation 2030 agenda for sustainable development goals. Therefore, Mahidol University sustainability strategy, which consists of 4 key areas as a framework including 1) research and innovation for sustainability 2) education for sustainability 3) community and social engagement for sustainability 4) operations for sustainability was established. The implementation of Mahidol University sustainability strategy demonstrates many successful activity programs, which can be a robust model to other university.

**Keyword:**

Mahidol University, Higher Education, Sustainable Development Goals, Sustainability Strategy

### 1. Introduction

In September 2015, the 17 sustainable development goals (17 SDGs) have adopted and globally launched by United Nation [1], [2]. The concept of 17 SDGs with 169 targets is recognized as a blueprint for global development in order to resolve economic, environment, and social issues [3], [4]. Higher education institute is an important stakeholder for driving local sustainable development [5]. Therefore, the implementation of sustainability policy based on the concept of 17 SDGs into HEI must be focused.

Mahidol University has its origins in the establishment of Siriraj Hospital in 1888 by His Majesty King Chulalongkorn (Rama V), and the hospital's medical school is the oldest institution of higher learning in Thailand, granting its first medical degree in 1893. Later becoming the University of Medical Sciences in 1943, Mahidol University was renamed with

great honor in 1969 by H.M. King Bhumibol Adulyadej , after his Royal Father, H.R.H Prince Mahidol of Songkla. Mahidol University has since developed into one of the most prestigious universities in Thailand. MU has 3 campuses in the Bangkok metropolitan area: the large suburban campus at Salaya in nearby Nakhon Pathom province, where is the main campus of Mahidol University, and 2 city campuses in Bangkok Noi and Phayathai in the Bangkok area, in addition to a downtown high-rise office site for the College of Management. There are also provincial campuses in Kanchanaburi (west of Thailand), Nakhon Sawan (north of Thailand) and Amnaj Charoen (north-eastern of Thailand) provinces.

This paper aims to present the best practice of sustainability implementation at Mahidol University. 4 Areas including education, research, operation, and community engagement for sustainability implementation have been conducted as target of the university strategy. The existing policy and background data were gathered and summarized by the official divisions of Mahidol University.

## 2. Mahidol University Sustainability Strategy

Mahidol University as a leading institution of higher education in Thailand that produces quality graduates in various of fields for society in order to create and develop Thailand to progress on par with those of other countries with the key aspiration of being “Wisdom of the Land”. Therefore, Mahidol University Sustainability Strategy was created under the concept of Sufficiency Economy Philosophy according to the 17 Sustainable Development Goals (17 SDGs) by the United Nations, with 4 objectives;

1. MU will educate and shape our staff and students with sustainability mindsets to transform into change agents for sustainable society.
2. MU will address local and global challenges, tackle complex sustainability issues and promote sustainability actions in all research activities.
3. MU will embed continuous improvement of a sustainability operations.
4. MU will embrace a culture of well-being and sustainability throughout the campuses and promote inclusive society. By building a strong, stable and sustainable foundation through the Mahidol University Sustainability Strategy, the University is ready to drive change in all sectors of the University through 4 key areas, which are 1) research and innovation for sustainability 2) education for sustainability 3) community and social engagement for sustainability 4) operation for sustainability, as described in the figure 1.

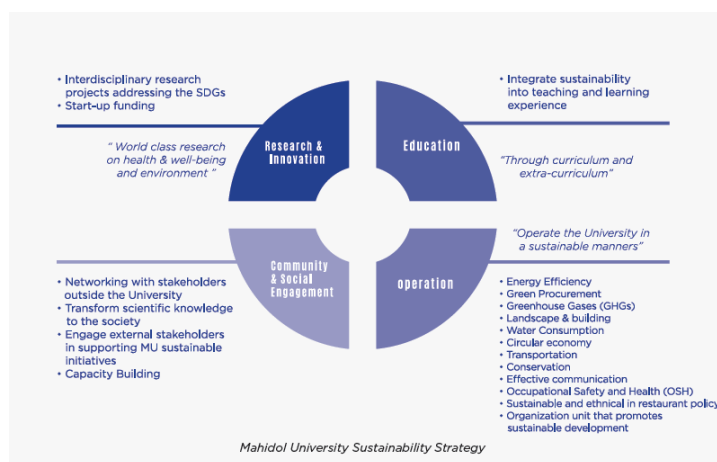


Figure 1. Mahidol University Sustainability Strategy

### 3. Research for Sustainability

Mahidol University recognizes the importance of sustainable development for the future. Therefore, it encourages everyone to lend a hand and create a sustainable society through research and academic work. In 2021, There were a total of 4,232 publications (according to the Scopus database), 2,581 of which relate to Sustainable Development Goals (SDGs). 85% of the publications are related to Sustainable Development Goal 3 (SDG3): Good Health and Well-being, and about 15% are related to other SDGs. Mahidol University has a large number of faculties/institutes/centers related to medicine, public health, and health sciences, such as the Faculty of Medicine, the Faculty of Dentistry, the Faculty of Medical Technology, the Faculty of Nursing, the Faculty of Pharmacy, the Faculty of Physical Therapy, the Faculty of Public Health, the Faculty of Tropical Medicine, and the ASEAN Institute for Health Development. As a result, the university can produce a large number of medical and public health personnel each year, as well as a significant number of educational and research accomplishments in medicine, public health, and health sciences. Despite such achievements, the University never stops working on other disciplines such as science, technology, engineering, and mathematics, as well as arts, humanities, and social sciences. This is evident from the fact that the number of research grants and projects available for these disciplines is comparable to that for the health sciences.

In 2021, the University received more than 907 million baht of research funding from 850 research projects. 378 are in the subject areas of sciences, technology, engineering, and mathematics; 447 are in the subject areas of medicine, public health, and health sciences; and 571 are in the subject areas of arts, humanities, and social sciences (some research projects are consistent with more than one subject area).

Mahidol University invests in its research studies to breed innovation and solutions to modern world issues. From 2019 to 2021, the University had more than 1,126 research projects registered for intellectual property rights, including Patents, International Patents, Petty Patents, Copyrights, Trademarks, and Trade Secrets. In fiscal year 2021, the University benefited from intellectual property usage totaling over 31 million baht (31,794,197 baht).

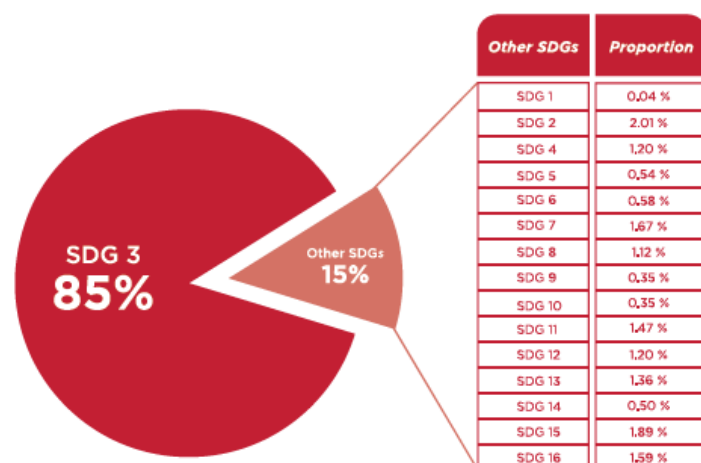


Figure 2. Proportion of Mahidol University Publication related to each SDGs

#### 4. Education for Sustainability

Mahidol University has been using the AUN-QA criteria as a tool to improve the quality of education at a curriculum level. Also, its policy requires all courses of the University to be assessed for curriculum-level quality of education according to the AUN-QA criteria of Mahidol University (MU AUN-QA Assessment). From 2017 to 2021, a total of 254 courses have been assessed.

Currently, the University offers 45 internationally certified courses, 27 of which are AUN-QA-certified, and 18 are certified by other international standards (three courses are certified with 2 international standards: AUN-QA and other standards). The courses can be categorized as follows: 24 bachelor’s degree programs, 16 master’s degree programs, and 5 doctoral programs (3 programs are certified with more than one international quality accreditation).

The University has developed online lessons in the form of SPOCs (Small Private Open Courses) and MOOCs (Massive Open Online Courses) under the Thai MOOC and “Mahidol University Extension (MUx)” projects to accommodate learning styles both within and outside of the classroom. Moreover, it has created an open learning resource that meets the students’ needs (as a Global Open Access Learning-University) from which they can learn anytime and anywhere via the implementation of educational technologies and the e-learning system. The e-learning system and online teaching materials were developed through the Learning Management System (LMS). MOOCs provide courses from various faculties/disciplines for students, staff, and the general public, enabling them to learn by themselves digitally without charge. This is to promote lifelong learning according to Sustainable Development Goal 4 (SDG4: Quality Education).

<i>International Education Standards</i>	<i>Bachelor Degrees</i>	<i>Master Degrees</i>	<i>Doctoral Degrees</i>	<i>Total</i>
1. Association to Advance Collegiate Schools of Business: AACSB	4	3	2	9
2. Asia-Pacific Academic Consortium for Public Health: APACPH	-	1*	-	1
3. ASEAN University Network Quality Assurance: AUN-QA	13	11	3	27
4. Institute and Faculty of Actuaries: IFoA	1	-	-	1
5. International Society for Prosthetics and Orthotics: ISPO	3	-	-	3
6. Music Quality Enhancement: MusiQuE	1	2	-	3
7. United Nations World Tourism Organization: UNWTO,TedQual	1*	-	-	1
8. World Federation For Medical Education: WFME	2	-	-	2
9. World Federation of Occupational Therapists: WFOT	1*	-	-	1

*Note: \* That course is also certified to AUN-QA standards.*

Figure 3. Internationally Certified Courses of Mahidol University.

#### 5. Community and Social Engagement for Sustainability

Mahidol University is determinedly connected with place and people, playing a significant role in driving economic, social and cultural movement. The University aims to change lives through education, people empowerment and opportunities for communities and nation. Our approach to community engagement is to expose our facilities and skills to communities, and develop partnerships that not only improve the life quality but improve the learning for our students. We use our University to provide consultancy services, internships, placements and work experience, and develop continued professional opportunities for local businesses. Our organization on education engagement includes the

MUSC (Mahidol University Science) Centre of Excellence in STEM Education which is the cooperative center of Science Technology Engineering and Mathematics Education (STEM) Education by integrating multidisciplinary sciences and research knowledge to delimit the technology disruption, emphasizing on school students.

Mahidol University promotes the importance of volunteering in enhancing life quality of communities as well as community-based and employer-led learning and curriculum engagement. For example, The Institute of Human Rights and Peace Studies Establishment Project has continually carried out activities to promote peace in the southern provinces under the “Southern Border Peace Center” project and cooperated with government agencies as well as scholars, politicians, civil society, religious leaders, and those affected by the prolonged unrest and violent groups. The project provided a safe space for community consultations and discussions and established communication channels between the state and society, allowing relevant parties to participate in the problem-solving process.

## **6. Operation for Sustainability**

Mahidol University realizes the importance and urgency of climate change that affects the environment and human beings. This Net Zero Emission Policy is set to be a part of the climate change effects reduction, and to drive the sustainable development goal SDG 13: Climate Action – Urgent operation to handle climate change and its effects by gathering resources to support developing countries in climate change adaptation and low-carbon development [6]. This should be implemented in conjunction with the integration of disaster risk reduction measures on sustainable natural resource management, human security, and with the national development strategies. Moreover, keeping the global temperature from rising above 2 degrees Celsius necessitates increased political will, investment, technology, and immediate cooperation.

“9 to Zero” is therefore Mahidol University’s plan to reduce greenhouse gas emissions within the university to zero within 9 years or by 2030 in line with the effort to achieve zero greenhouse gas emissions. The greenhouse gas reduction target, in comparison with the expected amount of business-as-usual greenhouse gas emissions of the nation, is divided into 3 phases:

- Reduce greenhouse gas emissions by 65% by 2024
- Reduce greenhouse gas emissions by 85% by 2027
- Reduce greenhouse gas emissions by 100% by 2030



Figure 4. 9 to Zero Policy with 9 Principles Guide for Action.

## 7. Conclusion

Mahidol University strives to be “a leader on sustainability” in responding to the United Nations 2030 Agenda for Sustainable Development. We have been developing our academic activities, research, and people for sustainable community through our passion of “Mahidol for Sustainable Future”. Beyond creating knowledgeable society, Mahidol University further concerns for sustainable development by contributing economic, social and environmental dimensions leading to efficient use of resources, social equity and improved quality of life of faculty, staff, students and the surrounding communities.

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