





# SDGS Chiang Mai University

Chiang Mai University (CMU) has set its main operational direction towards achieving the Sustainable Development Goals: SDGs. By defining them as the organization's strategic objectives, it reflects the fact that CMU has become a leading university which values the community, both nationally and globally. The SDGs selected are also in compliance with the six strategic objectives of the university.



### INTRODUCTION

As the vision of Chiang Mai University is to be "A Leading University Committed to Social Responsibility and Sustainable Development", CMU has taken the 17 Sustainable Development Goals (SDGs) as an integral component of the proactive and mission-based strategies which are deemed as necessary towards achieving the university's six Strategic Objectives (SO).

**SO1 :** Energy and Environment Sustainable Development which complies with 3 SDGs, including SDG 7: Affordable and Clean Energy, increase accessibility to sustainable energy, SDG 11: Sustainable Cities and Communities, create cities and safe settlements, and SDG 13: Climate Action, stop global warming.

**SO2**: Food and Health Sustainable Development which complies with 2 SDGs, including SDG 2: Zero Hunger, eliminate starvation and establish food security, and SDG 3: Good Health and Well-being, promote health and well-being for all.

**SO3 :** Creative Lanna (Northern Thai) Sustainable Development which complies with 2 SDGs, including SDG 1 : No Poverty, eliminate poverty and SDG 11 : Sustainable Cities and Communities, create cities and safe settlements.

**SO4**: Education Sustainable Development which complies with 2 SDGs, including SDG 4 : Quality Education, promote learning opportunities and SDG 17 : Partnerships for the Goals, build collaboration agreements at the international level towards sustainable development

**SO5**: Innovation Management Sustainable Development which complies with SDG 9 : Industry, Innovation and Infrastructure, develop sustainable industries and innovation.

**SO6 :** Organization Management towards Excellence which complies with 2 SDGs, including SDG 1 : No poverty, eliminate poverty and SDG 11 : Sustainable Cities and Communities, create cities and safe settlements as per EdPEx/TQA assessment.



In addition to proactive and mission-based strategies, CMU also conducts activities that support all SDGs, including SDG 5 Gender Equality: Ensure equality for women and girls, SDG 6 Clean Water and Sanitation: Manage water sustainably for everyday use, SDG 8 Decent Work and Economic Growth: Promote economic growth, SDG 10 Reduced Inequality: Reduce inequality domestically and nationally, SDG 14 Life Below Water: Preserve and sustainably utilize marine resources, SDG 15 Life on Land: Foster the sustainable use of terrestrial ecosystems, SDG 16 Peace and Justice Strong Institutions: Promote peace and equal access to justice, and SDG 17 Partnerships for the Goals: Build collaboration agreements at the international level towards sustainable development. Images of the activities and operations have been included in this SDG Report. These images represent only a part of all activities and results that have been performed in order to achieve the sustainable development goals.





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#### 17 Sustainable Development Goals (SDGs)

SDG 1 No Poverty	: End poverty
SDG 2 Zero Hunger	: End starvation and establish food security
SDG 3 Good Health and Well-being	: Promote health and well-being for all
SDG 4 Quality Education	: Promote learning opportunities
SDG 5 Gender Equality	: Ensure equality for women and all genders
SDG 6 Clean Water and Sanitation	: Manage water sustainably for everyday use
SDG 7 Affordable and Clean Energy	: Increase accessibility to sustainable energy
SDG 8 Decent Work and Economic Growth	: Promote economic growth
SDG 9 Industry, Innovation, and Infrastructure	: Develop sustainable industries and innovation
SDG 10 Reduced Inequalities	: Reduce inequality domestically and nationally
SDG 11 Sustainable Cities and Communities	: Create cities and safe settlements
SDG 12 Responsible Consumption and Production	: Establish sustainable pattern of production and consumption
SDG 13 Climate Action	: Stop global warming
SDG 14 Life Below Water	: Preserve and sustainably utilize marine resources
SDG 15 Life on Land	: Foster the sustainable use of terrestrial ecosystems
SDG 16 Peace, Justice and Strong Institutions	: Promote peace and equal access to justice
SDG 17 Partnerships for the Goals	: Build collaboration agreements at the international level towards sustainable development

#### END POVERTY

NO Poverty

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Give a Consultation Suggesting Guidelines of Business Establishment to the Local Community to Eliminate Poverty and Reduce Educational Expenses During Covid-19 Pandemic









ประกาศมหาวิทยาลัยเชียงไหม่ เรื่อง มาตรการการลดการะค่าใช้จ่ายด้านการศึกษาของนักศึกษา ภาคการศึกษาที่ ๑ ปีการศึกษา ๒๕๖๙ เพื่อข่วยเหลือนักศึกษาที่ได้รับผลกระทบจากสถานการณ์การแหร่ระบาดของโรคติดเชื้อ ไวรัสโคโรนา ๒๐๑๙ (COVID-19)

ตามที่มหาวิทยาลัยเชียงใหม่ได้ออกประกาศมหาวิทยาลัยเชียงใหม่ เรื่อง ลดค่าธรรมเนียม การศึกษา และค่าบำรุงทอพัก ภาคการศึกษาที่ ๑ ปีการศึกษา ๒๕๖๙ ลงวันที่ ๒๘ มิถุนายน พ.ศ. ๒๕๖๙ นั้น เนื่องจากคณะรัฐมนตรีได้มีมติเมื่อวันที่ ๒๘ กรกฎาคม พ.ศ.๒๕๖๙ เห็นชอบมาตรการการลดภาระค่าไข้จ่าย ด้านการศึกษาของนิสิตนักศึกษาในสถาบันอุดมศึกษาภาครัฐและเอกชนของกระทรวงการอุดมศึกษา วิทยาศาสตร์ วิจัย และนวัตกรรม สำหรับนักศึกษาขาวไทยระดับปริญญาตรีและระดับบัณฑิตศึกษา ทุกหลักสูตร เนื่องจากสถานการณ์การแพร่ระบาดของโรคติดเชื้อไวรัลโคโรนา ๒๐๑๙ (COVID-19) ดังนั้น เพื่อให้มาตรการขอมมหาวิทยาลัยเซียงใหม่มีความสอดคล้องกับมติคณะรัฐมนตรีดังกล่าว

shorturl.asia/Q6GEy

#### REDUCE THE BURDEN OF EDUCATIONAL EXPENSES FOR STUDENTS STUDYING UNDER REGULAR CURRICULUM AND INTERNATIONAL CURRICULUM

According to the cabinet's resolution dated July 27, 2021, agreeing on measures to reduce the burden of educational expenses for students studying in both public and private higher education institutions under Ministry of Higher Education, Science, Research and Innovation, an announcement was made for Thai students studying in undergraduate and graduate levels of all of Chiang Mai University's programs on measures reducing the burden of educational expenses of students in the 1st semester of academic year 2021. To help students who affected by the COVID-19 pandemic, tuition fees, course enrollment fees, and university service registration fees will be calculated as follows: 1) 50% reduction for the portion that does not exceed the first 50.000 Baht 2) 30% reduction for the portion that exceeds 50,000 Baht but is no more than 100,000 Baht 3) 10% reduction for the portion that exceeds 100,000 Baht.

Moreover, Chiang Mai University has truly considered the financial difficulties of its students by opening a university scholarship application for all levels of students who faced financial problems for the 1<sup>st</sup> semester, academic year 2021.



https://www.agri.cmu.ac.th/2017/webs/info\_activity\_detail/21904

#### "SAFE STRAWBERRY PRODUCTION UNDER AUTOMATIC GREENHOUSE" TRAINING PROGRAM

The Faculty of Agriculture, Chiang Mai University, in partnership with Bank for Agriculture and Agricultural Cooperatives (BAAC) held a "Safe Strawberry Production under Automatic Greenhouse" Training Program that reduced temperatures with the use of evaporative cooling system so that groups of farmers of BAAC could increase their knowledge and improve their skills of strawberry planting with complete modern technology on October 15, 2020, at the Nakorn Lampang Room, Faculty of Agriculture, Chiang Mai University.









#### LOCAL STARTUPS

Science Park Promotion Agency (SPA), Ministry of Higher Education, Science, Research and Innovation, partnered with Science and Technology Park, Chiang Mai University (STeP), to hold a Local Startups Project under the Area-based Innovation for Community Programme of the fiscal year 2021 with the target group being leaders, community groups, community enterprises, farmer groups, and cooperatives for community businesses with concepts and a need for scientific knowledge, technology, and innovations for development and upgrading local community products to better their living.

#### DEBT DOCTOR CLINIC

Chiang Mai University, in partnership with the Bank of Thailand, created guidelines of financial solutions for Chiang Mai University personnel with the purpose of helping with personal financial management through the "Debt Doctor Clinic," which is a consultation provision about ways to solve financial problems with the help of experts from the Bank of Thailand (BOT). The clinic has been open every Friday since July, 2021. Those interested can visit it for a solution consultation directly at the Bank of Thailand.

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Share Kindness, Create Security for Health









#### shorturl.asia/ovRjk

#### FREE FOOD FOR CMU STUDENT PROJECT

Chiang Mai University partnered with the Chiang Mai University Student Union and the Chiang Mai University Alumni Association to hold a Free Food Project for Chiang Mai University Students who were affected by the COVID-19 pandemic. There were 12 restaurants at Chiang Mai University that joinied the project. The free food distribution was carried out from April - May, 2020.



#### PANTRY OF HAPPINESS – PANTRY OF SHARING

Chiang Mai University, in collaboration with Chiang Mai University Alumni and those with considerable faith in Chiang Mai Province, set up Pantry of Happiness - Pantry of Sharing to contribute dried food, water, consumer goods, and necessary items for living to those affected by the COVID-19 pandemic by stocking the pantry with necessary items and products.



https://www.cmu.ac.th/th/article/41f15d19-37b5-4335-ab42-12b3f31d09ad

#### FOOD SAFETY CMU: THE 3<sup>RD</sup> STAGE

Chiang Mai University aims to be a model for food safety, extending results to the civil society sector, and to upgrade OTOP and SME establishments following the government's policy of upgrading Chiang Mai to a food industrial city and a center of medicine. Innovations about health care and research—the original model regarding 3 areas of ingredient management: food seasoning, and promoting consumption—are brought into action by examining from restaurant operators to the sources of ingredients and providing training and knowledge to consumers so that every member of a community can become a part of building food security.

Furthermore, the Research Institute for Health Sciences, Chiang Mai University, held an event for food security group building to promote a complete production process and completely organic produce, free from pesticides. Farmers bring their organic produce to sell at the Chiang Mai University Food Center every Tuesday and Thursday.



#### PROMOTE HEALTH AND WELL-BEING FOR ALL



Promote Well-being of a Community with Medical Innovations











https://scfc.cmu.ac.th/

# THE PRINCESS SIRINDHORN IT FOUNDATION CRANIOFACIAL CENTER CHIANG MAI UNIVERSITY

Following Her Royal Highness Princess Maha Chakri Sirindhorn's thought, Her Royal Highness Princess Maha Chakri Sirindhorn's Personal Affairs Division has established a "Craniofacial Center" through a partnership between Chiang Mai University and the National Science and Technology Development Agency (NSTDA) to glorify the occasion of Her Royal Highness Princess Maha Chakri Sirindhorn's 65th birthday. This project aims to take care of impoverished patients and families with craniofacial deformities, so they can have access to treatments and good life quality. It also aims to develop cooperating networks of treatments and research with the Princess Sirindhorn Craniofacial Center, King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Faculty of Medicine, Chulalongkorn University. There have also been supports in technology and integrating cooperation across fields of study, namely the Faculty of Medicine, Faculty of Dentistry, Faculty of Associated Medical Sciences, Faculty of Engineering, and Information Technology Service Center.

#### MOBILE MEDICAL UNIT

Saundok Hospital Foundation, Faculty of Medicine, Chiang Mai University, Chiang Mai University Development Foundation, and Royal Conferred Dental Unit, Faculty of Dentistry, Chiang Mai University, with the cooperation of the Song Hospital director, dental teams, nurses, and dental assistants, as well as local village health volunteers and general volunteers, carried out a mobile medical unit providing medical treatments to monks, novices, and people around the community of Wang Fond Wittaya School, Buddhist Scripture School general education division, Song District, Phrae Province. The services included general health check, blood test, ear test, Chinese acupuncture treatments, eye glasses, dental work, and pharmaceutical work.







https://w2.med.cmu.ac.th/sdfoundation/news/sdfoundation-medical-mobility-supported/5625/





https://greenoffice.oou.cmu.ac.th/activity/9a9e2f0ed47cb686f461f259a0b0734a

#### ANTI-SMOKING, REDUCING GERMS, AND COVID-19 PREVENTION PROJECT

Office of the University, Chiang Mai University Office, held an Anti-smoking Campaign, Green Office Project, CMU, on August 3, 2021, to campaign against smoking for inner office pollution control with the following list of campaigns:

- 1. Non-smoking Campaign
- 2. Setting up signs of non-smoking areas
- 3. Turning off the engine when parking

Moreover, Professor Dr. Wipada Kunaviktikul, dean of the Faculty of Nursing, Chiang Mai University, and president of the National Alliance for Tobacco Free Thailand, Chiang Mai Province, presided the event "Antismoking, Reducing Germs, and COVID-19 Prevention Chiang Mai Province" on Friday May 22, 2020. There was a ceremony to present equipment and material for the World No Tobacco Day Campaign.

#### MENTAL HEALTH CONSULTATION SERVICE FOR CHIANG MAI UNIVERSITY STUDENTS (CMU MIND)

Student Development to Universality, Student Development Division of Chiang Mai University offered mental health consultation services for students of Chiang Mai University through Facebook CMU Mind. It is a mental health service providing for CMU students in 3 ways: 1) Article posts to encourage students and promote mental health knowledge, 2) Examining students' mental health through a mental power questionnaire and a survey in the CMU SIS system, and 3) Scheduling for a talk with a phycologist. Students can ask for the service by sending a facebook message to https://www. facebook.com/ CMUMind to set up an appointment or call 0979248000, Monday - Friday between 08.30-16.30 free of charge.



www.cmu.ac.th/th/article/731530de-6a0c-4c02-8604-e241a0a5b676

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#### PROMOTE LEARNING OPPORTUNITIES



Opening Learning Vision in Education to Communities Sustainably













#### https://www.cmu.ac.th/th/article/50c5bb89-eb0a-4d4f-9463-86eb1e1f69e7

## NATIONAL SCIENCE WEEK, REGIONAL LEVEL

The Faculty of Science, Chiang Mai University, hosted an event for National Science Week, Regional Level, of the year 2021 on August 18, 2021, and August 27-28, 2021, at the Faculty of Science, Chiang Mai University, online with some activities held onsite. The themes for the 2021 event were Science for SDGs, Science for everyone. There were activities, exhibitions honoring the royalty, science and technology exhibitions, and activities from departments and the research center.

This event aimed to support and open up opportunities for youths to show their skills and talents in science and technology to the public, so youth and public participation was encouraged. It was also a promotion of the realization of the importance of science and technology that are an important foundation of a country's development and a support for good cooperation among related units.

#### **CMU OPEN HOUSE ONLINE 2020**

Chiang Mai University held the CMU Open House Online, 2020, from November 14-15, 2020 via 2 channels as follows:

- 1. Zoom : Webinar Program
- 2. Facebook Live (https://www.facebook.com/cmuofficial)

To distribute information about the undergraduate curriculum both for Thai and international programs and to spread opportunities to interested students, teachers, guardians, and the general public. Those interested in undergraduate curriculum information and educational information from Chiang Mai University can access them conveniently and quickly.









# THE 3<sup>RD</sup> ADMINISTRATIVE LAW AND MEANS OF ADMINISTRATIVE TRIAL TRAINING

The Faculty of Law, Chiang Mai University, held **The 3**<sup>rd</sup> **Administrative Law and Means of Administrative Trial Training** with the purpose of creating standards in developing potential and increasing capability of federal officials and interested general public. The knowledge from the training can be used for the participants' work operation to catch up with modern changes. The training is divided into 2 curriculums which are 1) for those graduating from the curriculum with certification from C.AC. (Administrative Commission) and 2) certificate curriculum which is open for those with an educational background in law and do not have that certificate. The launch is from September 2021 to April 2022. There are classes every Saturday and Sunday.

#### THAI LANGUAGE LEARNING PROJECT FOR HIGHLAND STUDENTS AND COMMUNITIES FOLLOWING THE THOUGHTS OF HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN, HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN'S PERSONAL AFFAIRS DIVISION OF THE FISCAL YEAR 2020.

The Faculty of Education, Chiang Mai University held an event promoting a Thai Language Learning Project for highland students and communities which consisted of 15 teachers from 4 schools (Aum Toom School, Bang Yang Pao School, Pii Pan Nuea School, and Ban Na Gian School) and an activity for primary school students and secondary school students with a total of 224 people. The purpose was to promote knowledge of Thai language to highland students through a material making activity, recreational activity, and integrated learning activity—a mixture of language, art, and community—to improve communication skills of highland learners in the future at Ban Aum Toom School, Omkoi District, Chiang Mai Province, from February 25-26, 2020





https://academicser.edu.cmu.ac.th/news/1809-o6b4v0nu3hl0o1ljvxq3

#### ENSURE EQUALITY FOR WOMEN AND ALL GENDERS



Achieve Gender Equality, Develop Roles of Women for a True Equality

GENDER EQUALITY

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คณะวิศวกรรมศาสตร์/สาขาวิชาวิศวกรรมอุตสาทการ (โครงการ Women in Engineering) โครงการ TCAS รอบที่ 1 Portfolio คณะวิศวกรรมศาสตร์ มหาวิทยาลัยเชียงไหม่



shorturl.asia/d5MgB

#### WOMEN IN ENGINEERING PROGRAMME

With reference to 2021 data, it was found that students applying to the undergraduate program in the Faculty of Engineering, Chiang Mai University, had a ratio of 55:45 males to females. Therefore, the faculty launched a curriculum under the Women in Engineering Programme. Applicants must be women graduating from a general education division English-Math focus or equivalent with a grade point average from Mattayom 4-5 (5 semesters) of no less than 3.50. The applicants can submit their portfolio and essay that displays their intention of being a good engineer and demonstrates leadership skills in engineering. This programme accepts 10 successful female students per year.

#### (สำเนา)

ประกาศมหาวิทยาลัยเชียงใหม่ เรื่อง การแห่งกายและข้อปฏิบัติสำหรับผู้สำนังการศึกษาที่จะเข้าวับพระราชทามปริญญาบัตร ในที่อีพระราชทามปริญญาบัตร มหาวิทยาลัตเชียงใหม่ ครั้งที่ ๔๙ ฉบับที่ ๒

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ทรามประกาศมหาวิทยาลัยเชียงใหม่ เรื่อง การแค่งกายและข้อปฏิบัติสำหรับผู้ดำเร็จการศึกษาที่จะเข้ารับ ทระราชทานปริญญาบัตร ในที่อีกหรวาชทานปริญญาบัตร มหาวิทยาภัยชิเชียงใหม่ ครั้งที่ acc ครั้งที่ aco สุขาคม babb ให้กำหนดแนวปฏิบัติเกี่ยวกับการแต่งกายของผู้ที่จะเร้ารับพระราชทานปริญญาบัตร ครั้งที่ acc ทั้งในวัน มีก็ชื่อแและให้เกิดราชทานปริญญาบัตร การและเอียดแจ้งแก้ นั้น

สำหรับผู้สำเร็จการศึกษ<sup>ิ</sup>ทากระดับที่มีอัตถักษณ์ทางเทศหรือวิธีทางเทศที่แตกต่างจากเทศกำเนิด และประสงค์จะแต่งกายตามเทศสภาวะที่แสดงออกในปัจจุบัน เพื่อเข้ารับพระราชทานบริญญาปัตรของ มหาวิทยาอัยเชียงในป ให้สามารถร้องขอต่อมหาวิทยาลัยได้ โดย

๑. อื่นกำรังหร้ายหนเองที่คณะคามแบบท่อร่มกำขอทั่วไป ภายในวันที่ ๖ อันวาคม ๒๕๖๒ โดยให้ ผู้ปกครอง (ถ้ามี) องลายมือชื่อวับทราบด้วย และให้คณะกลั่นกรองในเบื้องดันเป็นรายกรณี โดยมีการสืบหา จัอเพีงจริงในเชิงประจักษ์ของผู้เสนอขอแต่ละรายว่า ได้ปฏิบัติคนหรือแสดงออกถึงอัตอักษณ์ทางเพศหรือวิถี ทางสุดที่แตกต่างจากแตกำเน็ต, เรื่อประกอบกำวันฉอยขณฑวิทยาลัย

 ได้คณะรวบรวมข้อมูลเสนอมหาวิทยาลัย ภายในวันที่ ๓ มกราคม ๒๕๖๓ เพื่อพิจารณาอนูญาค ต่อไป

คำวินิจฉัยของมหาวิทยาลัยตามข้อ ๒ ให้เป็นที่สิ้นสุด

๔. ผู้ที่จะเจ้ารับพระราชทามปริญญาบัตรที่มหาวิทยาลัยอนุญาพให้แต่งกายทามเพศสตาวะหรือวิถี ทางเทคที่แตกต่างจากเพศกำเนิด ต้องปฏิบัติสามคำแนะบำของอนุกรรมการฝ่ายพิธีการ โดยเฉพาะในส่วนที่ เรี่ยวกับการรักษาความปลอดภัย

จึงประกาศมาเพื่อทราบโดยทั่วกัน

ประกาศ ณ วันที่ 🤉 พฤศจิกายม พ.ศ. ๒๕๖๖๒ \_\_\_\_\_\_\_shrörturl.asia/std4U (ศาสตราจารตัดชิมิน ประเมาหรับในหน้ นับเพริด) อธิการบนั้นหาวิทยามีอะถึงอื่นไป

#### DRESSING ACCORDING TO ONE'S GENDER TO ATTEND CHIANG MAI UNIVERSITY GRADUATION CEREMONY TO RECEIVE A ROYAL BESTOWED DEGREE CERTIFICATE.

Chiang Mai University issued a university announcement on dressing according to one's gender to attend the Chiang Mai University Graduation Ceremony to receive a royal bestowed degree certificate, allowing graduates to dress according to their gender when attending the certificate ceremony in 2020. Those interested must submit a request to the university to receive permission to dress according to their gender if it is different from their gender assigned at birth because it is a sensitive matter and different from the university's traditional practice.







shorturl.asia/L4XKj

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#### WOMEN LEASING OUR CONNECTED WORLD (WOW) SEASON 2: ORDINARY WOMEN

The Public Policy Institute, Chiang Mai University, held an online exhibition activity about a survey of women concepts for all ages, reflecting women's feeling and perspectives on well-being under the COVID-19 spread, as well as adjustments, worries, and expectations of Thais. The exhibition included the Women Li(fe)brary Talk, an online data collection and interview of a sample group of 1,003 women on the pandemic situation in 2021 to reduce health and living risks and share these concepts with the government. 6 CLEAN WATER AND SANITATION

#### MANAGE WATER SUSTAINABLY FOR EVERYDAY USE



Creating Water Management, Preservation and Usage Plan for Communities Sustainably







https://www.uniserv.cmu.ac.th/news/100366/



#### **GROUNDWATER BANK**

University Academic Service Center: UNISERV CMU created an online video project called Groundwater Bank with cooperation from Muaeng Ngai Sub-district Municipality, Chiang Dao District, Chiang Mai Province, in video shooting site support. The purposes were to build knowledge in community drought solutions through knowledge resources and disseminate them through online media that is easily accessible by the people, to encourage and pass on the knowledge of groundwater bank installment that can be easily made in one community, and to prepare water shortage solutions for agriculture when in drought. The groundwater bank yields desirable and expected crops that sustainably generate income to communities. The project was carried out on June 5, 2020, at Muaeng Ngai Sub-district, Chiang Dao District, Chiang Mai Province.

#### 3-DIMENSIONAL GROUNDWATER FLOW MODEL

The Faculty of Science, Chiang Mai University, created a model of groundwater flow in 3 dimensions under unstable conditions by gathering data from groundwater basin areas found in Chiang Mai and Lamphun, which were all a crowded community zones with high water usage to assess the amount of groundwater storage and amount of rainfall added to the groundwater annually. There were studies from various fields with data on geology, hydrogeology, meteorology, land use, and water usage amount in the area of groundwater basins of Chiang Mai and Lamphun regarding drought and shortage of seasonal rain caused by climate change. This causes a continuous decrease of shallow groundwater, which is a signal suggesting an imbalance in the rates of water usage and natural water added.

The study found that a safe yield rate that does not rapidly decrease groundwater level was 51 million cubic meters.







shorturl.asia/6UTQM



https://eng.cmu.ac.th/?p=16857

#### WATER SAVING MEASURE

The Center for Promotion of Arts and Culture, Chiang Mai University, operates an environmental policy following Green Office Requirements of the Department of Environmental Quality Promotion (DEQP), Ministry of Natural Resources and Environment, by setting measures in energy and resource use of the center for the year 2021 and asking for cooperation from its personnel to help save energy and resources. It is considered a work responsibility as follows: 1) Water saving measures means economically using running water and regularly checking for any water leaks to reduce wasteful water loss. Leaving water running while washing one's face, brushing teeth, and applying hand soap is also discouraged, while turning off the tap securely every time when there is no water use is encouraged. 2) Maintenance measures refers to regularly checking for and fixing any equipment leaks. If there is a leak found, maintenance/notifying for maintenance is required immediately to reduce water loss, and it is recommended to use sanitary ware equipped with a water saving system.

#### INFORMATION SYSTEM FOR MONITORING, TRACKING, AND CHECKING THE AMOUNT AND QUALITY OF WATER

A research team at the Faculty of Engineering, Chiang Mai University, conducted research and developed an information system for monitoring, tracking, and checking the amount and quality of water with cooperation from local government agencies and representatives to introduce the system and to discuss and set up suitable locations for an establishment of the Quality and Quantity water stations (QQ) on the Ping River, Guang River, and Wang River. 20 Quality and Quantity water stations would be installed, and each station would be equipped with 2 systems of sub measure sending out real-time data. The 2 systems are 1) a water level measurement system checking for deep water level in streams and rainfall amount, and 2) an initial water quality measurement system measuring dissolved oxygen (DO), temperatures, electrical conductivity, and water pH, etc.

This system will send real-time data to be used for in-time disaster monitoring and notification as well as water management, including wastewater and floods. Moreover, there is a central data information system that supports development planning which can be accessed and used by local governments. It is a land use management network through which people and communities in the surrounding area are encouraged to realize sustainable natural water source use, and it is a development model for cross-community living. Water resource preservation is also being encouraged, so an image of pleasant city for tourism is later promoted.

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Conserve Environment and Create Energy from Nature to Develop Clean Energy Sustainably











#### CENTER OF CBG GENERATION, PRAJUAB KHIRI KHAN PROVINCE, "THE FIRST COMMERCIAL CENTER OF CMU"

CBG (Compressed Biomethane Gas) Generating System Model and Technology Center, Chiang Mai University, is a partnership between 3 organizations: Chiang Mai University, CPP Company Limited (Palm Oil Production Plants) at Bang Saphan Noi District, Prajuab Khiri Khan Province, and NGV Business Department of PTT Public Company Limited. It aims to produce fuel for vehicles substituting NGV fuel use. It is the first commercial production center of CMU run by the Energy Research and Development Institute - Nakornping under the income budget of Chiang Mai University. The center was established on September 19, 2019, and generates 6 tons of CBG gas per day and has sold no fewer than 100 tons to PTT Public Company Limited.



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#### SOLAR ROOFTOP PROJECT WITH CHIANG MAI UNIVERSITY

Chiang Mai University, in partnership with BCPG Public Company Limited, signed a partnership contract for a solar rooftop project. Chiang Mai University will be the buyer of electricity from BCPG, which is the investor, developer, installer, and manager of solar rooftop systems on the rooves of more than 150 buildings at Chiang Mai University, including energy storage systems with a minimum production capacity of 12 megawatts for 20 years.

Furthermore, Chiang Mai University has set a goal to be a smart university from producing and selling electricity from clean energy stations inside the university with blockchain technology for maximum efficiency. Besides bringing innovations to add value to solar rooftop installations on different buildings, buying and selling the building's electricity within the university without any excesses or remains—so, no waste—will create a circular economy which is a guideline for sustainable business development.





#### SOLAR POWER GENERATION SYSTEM FOR AIR HUMIDITY REDUCTION IN A COFFEE BEAN STORAGE ROOM

Northern Science Park, Chiang Mai Province, partnered with Institute of Scientific and Technological Research (TISTR) and the Faculty of Engineering, Chiang Mai University, in inventing a solar power system for air humidity reduction in a coffee bean storage room for a community enterprise group of village number 9, storing their Le Tor Gold coffee at Tah Song Yang District, Tak Province, on June 23, 2021.





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THINK OF ENERGY



#### **CMU CHARGING STATION**

Chiang Mai University established a solar cell charging station at the university, supporting both hybrid vehicles that consume electricity cooperatively with internal combustion engine plug-in hybrid (PHEV) and all electric cars using 100% electricity fuel. Charging time is about 30-40 minutes per charge for personal electric cars with no more than 5 seats. The car can go for more than 150 kilometers after charging. The station has been open for free charging service since 2018 and will be operating the service through EleXa Application of Electricity Generating Authority of Thailand on October 1, 2021, with a service rate of 6.50 Baht/kWh, so that everyone can have access to sustainable modern energy at an affordable price, and it also helps with 20% reduction of carbon dioxide emission.

The clean energy charging station is a technology and green energy innovation that will help drive Chiang Mai University forward to further the vision of being a green university reducing dependency of gasoline fuel and environmental impact and stepping forward to become CMU Smart City-clean Energy for sustainable development.





Sustainably Promoting Better Incomes and Creating Work Happiness











#### HIRING CMU PEOPLE PROJECT

Chiang Mai University received approval from the Ministry of Higher Education, Science, Research and Innovation to be the hiring unit of Hiring CMU People Project and hired 2,963 positions in the 2nd phase with a 3-month employment period from July to September 2020. There were personnel of the university and 333 projects of network associates bringing knowledge, technology, and innovation to generate learning, sharpen skills, and adjust the thinking process of those who received employment, so that new skills were generated from actual work operation yielding new thinking process and leading to different ways of work. For example:

- 1. Different academic skill development relating to community development
- 2. Local data resource to sustainably develop economy and environment following guidelines of the Local Data Resource Service of RSPG network.
- 3. Proficiency skill training for earning a living.
- 4. SME or Start-up entrepreneurship training.







#### WEBINAR PROVIDENT FUND KNOWLEDGE TRAINING

According to the establishment of a provident fund of the university starting from July 1, 2013, university staff are encouraged to save during their working period in order to have money for retirement. The university did this by paying a monthly contribution to the fund at a rate of 5% of staff salary and allowing the member to add 5-15% of their salary out of their own savings into the fund.

In 2020 Chiang Mai University operated training projects through a webinar that provided knowledge of the provident fund of Chiang Mai University by having speakers from Kasikorn Asset Management Company Limited provide provident fund knowledge and updates on economic and investment situations. There were 4 topics of knowledge training as follows:

- 1. What is provident fund and tax privilege?
- 2. Regulation of Chiang Mai University's fund under the registered K Master Pool Fund -provident fund.
- 3. Investment Policy.

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4. Member registration and information access.



# CHIANG MAI UNIVERSITY EMPLOYEE'S WELFARE

Chiang Mai University held a meeting and is in the process of considering offering benefits to personnel of Chiang Mai University divided into 3 main points which are:

1. Medical Treatment Financial Benefit (20,000): receiving medical treatment financial support, applying for extra health insurance, receiving money contributions in retirement age from social security fund through the employee welfare fund of Chiang Mai University.

2. Financial Support in case of leaving work: After working for 25 years and/or at the age of 55 years old, the employee welfare fund of Chiang Mai University will grant a higher rate of financial support benefits in the early retirement project.

3. Adjustment of Position Title of Personnel in Operation Field to "Operating Employee Position": Adjusting position titles of work to comply with actual types of work and benefit them when applying for practitioner positions in their fields of work. This affects the university employee's work-life progress.



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#### COOPERATIVE EDUCATION FAIR OF CHIANG MAI UNIVERSITY

The Office of Educational Quality Development, Chiang Mai University, held the 2nd Cooperative Education Fair, 2020, on February 12, 2020, at Sala Angkaew, Chiang Mai University, for students who were going to conduct their co-operative education in 2020. There were 500 attendees, professors, and business establishment representatives. It was an opportunity for students to meet entrepreneurs and build cooperation regarding cooperative education curriculum development between the representatives and faculties/colleges. There was also a stage for discussion of different perspectives to know more about reflecting results of co-operative education operation and knowledge exchange between the representatives, students, and professors.







Develop Research for Their Actual use and Drive Economy from a Fundamental Level to a National Level and an International Level

INDUSTRY, INNOVATION AND INFRASTRUCTURE

9









#### RESEARCH AND DEVELOPMENT UNIT CREATION STIMULUS PROJECT FOR ESTABLISHMENTS WITH READINESS AND CAPABILITY OF ESTABLISHING A RESEARCH AND DEVELOPMENT UNIT.

Science and Technology Park, Chiang Mai University, took the initiative to set up 10 business groups under a research and development unit creation stimulus project for business establishments. The ten business groups were:

- 1. Modern Motor Vehicle Industrial Group
- 2. Smart Electronic Industrial Group
- 3. Good Income Tourism and Health Tourism Industrial Group
- 4. Agriculture and Biotechnology Industrial Group
- 5. Food Processing Industrial Group
- 6. Industrial Robot Group
- 7. Aviation and Logistic Industrial Group
- 8. Biofuel and Bio-chemicals Industrial Group
- 9. Digital Industrial Group
- 10. Medical Hub Industrial Group



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The above-mentioned project is offered with experts visiting onsite, developing a blueprint of the research and development unit (R&D Blueprint), and supporting funds for establishments with capability and readiness of establishing a research and development unit. The consultation and R&D Blueprint development services are free of charge.

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#### TRANSLATIONALISING COMMERCIAL RESEARCH TO "ANG KAEW HOLDING COMPANY LIMITED"

Chiang Mai University supported the action of bringing 4 companies of Deep Tech Startup-1) Novem Innovation Company Limited, innovation of research and development of dental implant equipment; 2) Smile Migraine Company Limited, an AI platform for patients with migraines; 3) Logixed Company Limited, producing GpGo Board, a robotic set for youth learning; and 4) InnoEdge Gogo Company Limited, a designer of a platform assessing pain for elder patients with dementia—under the nurture of Science and Technology Park, Chiang Mai University, into "Ang Kaew Holding" for a venture capital raise to support the startups to use high-level technology to translationalise business value of more than 3,200 billion Baht within 3 years, creating 500 new job positions. This ensures graduates of related fields of study more job opportunities. It is an economic and social enhancement for the future. Recently the monitoring Northern Science Park has built a platform to build up Deep Tech Startup from research of Chiang Mai University. Professors, researchers, and students working on that research can hold shares of the established company to connect with an area innovation based economic drive which answers the university's mission to be a university of entrepreneurs and also answers the Chiang Mai startup city development plan, which is an important part of later regional and national upgrades.









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#### **UTD RF TECHNOLOGY**

The Faculty of Agriculture, Chiang Mai University, invented Uniform Thermal Distribution of Radio Frequency Technology (UTD RF) for insects and insect eggs in rice disinfection. This creates clean and safe food by using the technology to substitute chemicals through a principle of radio frequency generating from high pressure electricity passing through rice causing molecular vibration and accumulating energy of heat spreading rapidly and consistently within a short period of time. This allows the disinfection of a full cycle of insects and insect eggs in raw rice without any rice quality changes.

Furthermore, the project is a model in passing knowledge of technology for an actual industrial use by letting farmers bring their own rice for this technology trial free of charge with a quality guarantee through a UTD RF certified symbol and a complete innovative packaging design service from the park. This was the origin of the development of UTD RF technology into the "BIO-Q Machine", a UTD RF Insects Disinfector. It was installed and is used at an agricultural cooperative mill for GSB customer marketing.

UTD RF Technology is another interesting alternative technology for entrepreneurs especially small and medium enterprises (SMEs) which will add value to products and can truly add commercial value. Moreover, it is also a "guarantee symbol for rice safety" which is an alternative for consumers and will sustainably support and enhance Thai rice standard further.

#### A COMPLETE FOOD INNOVATION MODEL FACTORY, "THE BEGINNING OF A DREAM" FOR STARTUPS AND SMES

Science and Technology Park, Chiang Mai University, (CMU STeP) is a monitoring unit cooperatively operating with a network of universities in the northern region and has created a complete food innovation model factory to solve local food industrial problems. CMU STeP is also a bridge between the work of government universities and private and social sectors, with a mission to provide services and consultation in processed food production. Restaurant entrepreneurs in a food industrial business group can also rent equipment and machines for their businesses. CMU STeP also provides services in nutrient quality measurement and other lab analyses under the park's networks. Research translational for quality innovative product development with good standards is also a responsibility of CMU STeP through its complete services in a suitable amount of the private sector's capability. The service has been open to the public since February 2020.

Operation of the complete food innovation model factory is done in cooperation with 2 main groups, 80 SMes and 20 Startups, most of which are in the northern region. A strong point of the model factory is agricultural produce processing which is a food innovation leading to sustainable food industrial enhancement in the northern area in the future.



# **10** REDUCED INEQUALITIES **REDUCE INEQUALITY DOMESTICALLY** AND NATIONALLY

Create Opportunities and Reduce Inequality in Education and Society to Access Education Equally











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Finally, the Faculty has stepped into a new dimension of bringing research results to commercial use under the supervision of Science and Technology Park, Chiang Mai University. This is in line with the university's policy to encourage researchers to extend their research to become a Startup. As a result, a company has been set up to research and develop the NOVEM Dental Implant called NOVEM Innovation developed to connect to digital dental system. NOVEM dental implant system is licensed to be used in the government's Big Rock project by the Ministry of Science and Technology.

Thus, it can be concluded that this program can reduce inequality in treatment compared to the excellent treatment standard.

#### CONTINUING AND EXTENDING THE COMMERCIAL INNOVATION: NOVEM DENTAL IMPLANT INNOVATION PROJECT

The Center of Excellence in Implantology, Faculty of Dentistry, Chiang Mai University, researched dental implants and received the certification of ISO13485 and CE MarkCD standards from the European Union. His Majesty King Bhumibol Adulyadej named the first batch of implants, Fan Yim (smiling teeth), which helped 10,000 patients in a dental implant project in honor of His Majesty King Bhumibol Adulyadej to celebrate the auspicious occasion of His Majesty the King's 80th birthday in 2007.

The Faculty of Dentistry conducted research with PW Plus Co., Ltd., to develop another implant system which can be used in all cases to make treatment on par with the international leading implant system in order to pass the CE Mark standard as the second system. Consequently, His Majesty King Bhumibol Adulyadej declared a royal occasion for researchers to attend, and bestowed the name of the second-generation implant, Khao Aroi (delicious rice), to the Ministry of Public Health to treat 8,400 patients, the elderly and the underprivileged, who had problems wearing dentures in the dental implant project and provide 999 sets of royally bestowed dentures on the auspicious ceremony to celebrate the 7<sup>th</sup> Cycle Birthday Anniversary on December 5, 2011.

In addition, the faculty received a royal guidance titled Research, Practice, Development. In response to this royal initiative, The Center of Excellence in Implantology collaborated with PW Plus Co., Ltd., to research and develop small implant holders for removable dental implants. These dental implants are implanted without opening the gums so they can be used immediately. This project won the National Innovation award in 2015 and received gold and silver medals from the medical innovation group, as well as from the contest and show on the 46<sup>th</sup> International Exhibition of Inventions, Geneva.



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https://kruraktin.edu.cmu.ac.th/page/about-project

#### KRU (RAK) THIN PROJECT OF FACULTY OF EDUCATION, CHIANG MAI UNIVERSITY

Faculty of Education, Chiang Mai University, has been selected from the Equitable Education Fund (EEF) to be an institute for producing and developing teachers under the Kru (Rak) Thin project for the third year in elementary school curriculum to create educational opportunities and produce a new generation of teachers to meet the needs of around 2,000 community schools in remote areas to reduce educational inequality. This also aims to help the schools facing teacher shortages to create educational opportunities for local youth since teachers often ask to relocate. As a result, teachers are not sufficient for elementary school classes.



#### TUTORING PROJECT FOR STUDENTS WITH DISABILITIES

Disability Support Services of the Student Development Division has organized a tutoring project for students with disabilities for the second semester of the academic year 2020 to provide 59 students with disabilities an opportunity to review lessons before examinations with tutors who have knowledge and experience in particular courses to help the students understand more about the subject content. This also helps them to practice analytical and synthetic methods leading to a more thorough and clearer understanding including the continuity in developing learning skills and thinking processes. Students with disabilities will be able to maintain the same grades as general students, and it also encourages them to take responsibility for basic duties of living in society on their own. In addition, the project enhances the volunteer spirit for students at the university who help teach students with disabilities, which helps Chiang Mai University to be a truly collaborative learning university.

Furthermore, sign language interpretation services are also available for hearing impaired students during semester 1/21 via online system in accordance with measures to prevent the spread of COVID-19. This service aims to maintain teaching and learning standards for students with disabilities to access the learning content in classroom.



#### THAILAND INTERNATIONAL POSTGRADUATE PROGRAMME (TIPP)

Chiang Mai University promotes the policy of diplomacy by supporting scholarships under the TIPP program, which is the main mechanism in driving diplomatic policy in the form of Soft Diplomacy, which the Thai government uses as a tool to push foreign tactics to strengthen international relations. The goals are to promote the potential of Thai agencies/institutions in organizing international programs to be accepted at the international level and to promote Thailand to be the center for cooperation and for the development of human resources at the regional level in the branches that Thailand is ready. It also strengthens the connection and cooperation network in the Institutional Linkages between Thai and foreign agencies and educational institutions. Chiang Mai University students are allocated 51 scholarships for the year 2020-2021 under 6 programs: 1) Environmental Science, 2) Veterinary Public Health, 3) Nursing Science, 4) Public Policy, 5) Food Science and Technology, and 6) Social Science and Technology.





#### CREATE CITIES AND SAFE SETTLEMENTS



Create and Promote Society and Lanna Way of Life Towards Sustainability of the Community















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#### CREATIVE LANNA STRATEGY OF CHIANG MAI UNIVERSITY

Chiang Mai University, as the first educational institution in the northern region, has gathered the largest archive of knowledge of Lanna studies according to the 11th Chiang Mai University Education Development Plan, which established the strategy of Lanna studies focusing on research, Lanna wisdom in the past, and teaching and learning curriculum on Lanna studies with the cooperation of four faculties: the Faculty of Humanities, Faculty of Social Sciences, Faculty of Architecture, and Faculty of Fine Arts. This has resulted in a strategy called the Four Conners of Lanna, which refers to Lanna wisdom, Lanna knowledge, Lanna creative, and Lanna cultural landscape, aiming to preserve the culture, traditions, and Lanna way of life and to make Lanna culture come back to life again. Chiang Mai University has organized a cultural and creative space in the form of a cultural market at the Office of Arts and Culture, Promotion and the Art and Culture Center, Chiang Mai University, which will help drive the power of continuation and creativity that will bring about sustainability in the future of Chiang Mai University.

This effort can be seen by Lanna Traditional House Museum, CMU, which won the Museum Thailand Award 2020 in the category of outstanding social, art and cultural museum conservation and inheritance (2020) on September 17, 2020, at the C ASEAN Auditorium.



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#### THE CITY OF WELL-BEING AT CHIANG MAI UNIVERSITY

Chiang Mai University has started the CMU Smart City - Clean Energy. The university has been selected by the Office of Energy Conservation and Promotion Fund, Ministry of Energy, to be one of the 7 prototype organizations to support the design of smart city, and it has developed into a CMU Smart Campus. Chiang Mai University has brought outstanding developments in energy innovation and focused on continuous environmental protection to prepare the 12th Education Development Plan (2017 - 2021) with proactive strategies in innovation, environment, and energy, leading to the design of CMU Smart City - Clean Energy with the driving criteria being the development of urban forms and structures that are in line with the concept of smart city, the promotion of the conservation of energy and the environment, the promotion of the use of renewable energy, and the use of information technology and information to help manage resources in four forms as follows:



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- 1. Smart Energy
- 2. Smart Environment
- 3. Smart Mobility
- 4. Smart Community

This promotes the balance between nature, the beautiful environment, and advanced technology as the first educational institution of Lanna that has stepped into a prototype smart city or CMU Smart Campus.





# NEW ELECTRIC CARS USING CLEAN ENERGY

Chiang Mai University has established strategies based on proactive mission and environmental and energy innovation by using the Data Driven Management with proactive physical action and cultivation of consciousness among students and personnel, environmental management, and improvement of efficient energy management. The goal is to be a leader in creating sustainable green innovation technology management leading to a prototype smart city as a base for further use in city and countryside development.

Chiang Mai University has launched a new mass transit electric car system for students and personnel, showing realtime location of cars and seats via CMU Mobile Application, aiming for a prototype smart city with clean energy at Chiang Mai University's mass transit center by January 6, 2021.

At present, Chiang Mai University's mass transit system provides services with 40 vehicles driven by electric power, which mainly use clean energy. The size and dimensions of the cars are suitable for driving within the university. The battery system has been replaced with lithiumion phosphate for greater efficiency and longer service life, which can be used all day on a single charge using modern technology to increase service efficiency. มช. เปิดให้บริการรถไฟฟ้ารูปแบบใหม่ ลดปริมาณการปล่อยก๊าซเรือนกระจก มุ่งสู่เมืองต้นแบบอัจฉริยะ พลังงานสะอาด







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Cultivate Awareness in Resource Utilization and Environmental Conservation Through 3Rs (Reduce, Reuse, Recycle) and Zero Waste Practices









#### **BIOMASS ONE STOP SERVICE CENTER**

Chiang Mai University has established biomass management one stop service center to completely manage solid waste of the university's community with the idea of Zero Waste which is about reducing waste from its origin so that there is the least to-bedestroyed waste remain. Waste is also transformed to be energy that is brought back into use later. This creates awareness among the students and personnel including the public sector that waste management and energy transformation is practical under operation of Energy Research and Development Institute, Chiang Mai University (ERDI-CMU).

Chiang Mai University provides knowledge to the students and the personnel on waste separation by dividing waste into 6 types which are 1) general waste/wet waste (blue can) 2) recyclable waste/ salable waste/ dry waste (yellow bin) 3) organic waste or food waste, residue, fat, cooking oil (disposing in a canteen and food preparation room) 4) hazardous waste/ infectious waste (hazardous waste such as light bulbs and batteries must be disposed into a red bin while infectious waste from medical procedure is put into a red bag and handled by cleaning staff) 5) biomass waste (referred to green waste like grass clippings, branch clippings- will sent to the biomass center) 6) construction waste / foam (sent to municipality to be destroyed).

Furthermore, technology is brought in to add value and price to the waste for example waste segregation technology, biogas technology for co-digestion fermentation and compressed biomethane gas technology (CBG). This was done for the purpose of complete waste management. General waste will go through a single stage digestion fermentation for biogas production and later be used as fuel for power generation for university usage. Its quality is also improved for it to be fuel for CMU Transit Vans, servicing the students and personnel within the university's areas. Plastic waste is processed into a mixture of hot mix asphalt concrete production, paving blocks, and premix asphalt all of which are renewable energy from waste reflecting concrete benefits and results. It is a sustainable waste management and a practical model for all units to learn from.





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#### THAIS WITH NO E-WASTE

According to CMU Smart City Clean Energy Project, Chiang Mai University signed the MOU of the project called "Thai with No E-Waste" with Advanced Wireless Network Co.,Ltd expanding E-Waste disposal points across the university for a total of 18 points to help build awareness to CMU students and personnel. They can be aware of the dangers of electronic waste. This project creates networks of environmental protection, suitable waste collection and disposal that help reduce the amount of waste and pollutants and contamination of dangerous chemicals from electronic waste. Moreover, it helps decrease the amount of carbon dioxide, which complies with the SO strategy of an innovative, energy conscious, and environmental university. All of the project's E-Waste will be collected and permanently destroyed with the Zero Landfilled process.



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# CMU SH&E ยกระดับมาตรฐาน ความปลอดภัยห้องปฏิบัติการ พร้อมเป็นสถาบันแม่ข่ายภาคเหนือ

#### CENTER FOR SAFETY, OCCUPATIONAL, HEALTH AND ENVIRONMENT CHIANG MAI UNIVERSITY (CMU SH&E)

Chiang Mai University is aware of, is responsible for the safety of personnel working in a research laboratory, and aware of the local community's environmental conservation. Therefore, the university established CMU SH&E Center to be the main unit taking care of the 3 safety standards which are laboratory safety, Biological safety and Radiation safety. The center also supports technical knowledge and provides training for students, professors, personnel and researchers working in the field so that a clear management policy of one standard can be laid out. Presently Chiang Mai University receives support from National Research Council of Thailand or NRCT and is appointed as a monitoring institute operating "Monitoring University of Laboratory Safety Standard Project" to manage laboratory safety related to chemicals in the upper north area and "Regional Research Network Project for Laboratory Safety Standard (the northern area)". Hence, it is a laboratory safety model to other educational institutions, universities in the northern area, client universities, and interested agencies.

Chiang Mai University is ready for the enhancement of laboratory safety standards to be advanced and developed systematically with efficiency and ability to move forward being a motivation for long-term operation sustainably. This center provides accessibility to work safety and healthy for students and personnel.





3 CLIMATE ACTION

1



Handle Changes with Innovations Improving Quality of Life









#### 5 INNOVATIONS IMPROVING QUALITY OF LIFE DURING PM 2.5 CRISIS FOR CMU PEOPLE

Chiang Mai University realized the importance of the problem and is ready to be the main force working cooperatively to solve the problems of smog and PM 2.5. We have been progressively developing new innovations to handle the smog problem creatively in every dimension, so the academic team is appointed to support problem addressing. The team consists of experts and professors in various fields of expertise related to the following 5 air quality innovative machines:

- 1. Fire Management Decision Support System or FireD
- 2. Thai Air Quality

- 3. NTAQHI (Northern Thailand Air Quality Health Index
- 4. DUSTBOY small air dust particle measuring tool with air quality sensor system and pollution warning system.
- 5. Thermal Imaging UAV

The abovementioned innovations are centres for correct data, research studies, idea proposals, and innovative knowledge relaying. They bring development of equipment supporting agencies and people in tracking air quality, so they can cope with and monitor the problem.



https://www.cmu.ac.th/th/article/2dec8006-607f-4838-ad7b-3f6cd7062477

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#### CMU MODEL: THINK AND REDO TO PERMANENTLY STOP FOREST FIRE IN THE NORTHERN REGION

Chiang Mai University appointed a working team supporting the northern region's smog solution which is a combination of professors in different field of expertise providing correct information and conducting researches, proposing ideas, passing knowledge of innovations in solving the problem and driving "CMU Model" to become a practical smog solution model with an integrated operation from all sectors-government, private, and community. The team will do field work to understand causes of the problem and different needs in each area. CMU Model's concept focuses on 3 main types of problem solving which are:

> Response and Protection to reduce people's health impacts that starts from air quality measurement inside Chiang Mai University. There is a development of an application called the CMU mobile application to report PM 2.5 situations and locate a smog-free room with HEPA Filter PM 2.5 machines open to students and personnel to use.

- 2. Forest Fire Monitoring to reduce smoke amount done by installing a small dust information tracking and forest fire monitoring machine by using a low cost sensor system and Thermal Imaging UAVs.
- 3. Holistic Quality of Life and Economy Improvement helping people to live harmoniously with forests and aiming to improve every dimension such as economy, environment, public utilities, and knowledge enhancement for smog problem realization, so solutions can be paved out.

These 3 steps to the exit or solutions of forest fire and smog problems in the north permanently are implemented in the pilot area of Holistic Quality of Life and Economy Improvement , at Ban Pa Tung Ngam, Ping Kong Sub-district, Chiang Dao District, Chiang Mai Province, which is located in Sri Lanna National Park area.



CMU MODEL



https://acair.cmu.ac.th/?p=4119





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#### **CMU GREEN OFFICE**

Chiang Mai University has determined its vision of becoming a leading university with responsibility to the society and creating development to permanent excellence. The SO strategies of culture, environment, and energy are included, so the university strives to improve itself to be CMU Smart City Clean Energy by eliciting the participation of its personnel so that they can have awareness of the environment and energy. The operation of Green Office is then efficiently achieved following the evaluation criteria of the Green Office, which come in 6 indicators as follows:

- 1. Constant Improvement and Operation Policy
- 2. Communication and Awareness Cultivation
- 3. Resource and Energy Use
- 4. Waste Management
- 5. Surroundings and Safety
- 6. Eco-Friendly Procurement

Policies and a driving plan for the operation of the Green Office Project for the Office of the University, were appointed, so they can become an organization that uses resources wisely and creates the least environmental impacts. Consequently, it is already entered an indicator assessment of the Green Office Enhancement Project by the Department of Environmental Quality Promotion (DEQP) in 2021 and received the Excellent Level (G-Gold) of Green Office Award 2021. Participation between executives, office personnel and others having work related to environmental conservation inside that office are created, so that the office's interior environment is pleasant and support continuous and sustainable working following Chiang Mai University Educational Development Plan, phrase 12 (2017-2021).





# PRESERVE AND SUSTAINABLY UTILIZE MARINE RESOURCES



Create the Innovations to Conserve the Biodiversity for the Abundance of Marine Resources







#### CMU JOINTLY FINDS THE SOLUTIONS TO POISONOUS JELLYFISH

Chiang Mai University has applied the knowledge of epidemiology through the participatory approach and joint collaboration from all concerned parties in a multidisciplinary manner to determine the out-of-the-box operational strategies. The evidence-based data are also used to move forward the plans along with the potential of the University's academicians and specialists to create the knowledge which can be practically applied in the communities. These include a proper utilization of resources and local knowledge to solve the problems. Risk communication and learning lessons are undertaken in line with each step of problem-solving procedures due to the cases of casualties and deaths caused by poisonous jellyfish in the Thai water. Equipment and tools are accordingly invented to mitigate and prevent such injuries caused by jellyfish e.g. 1) the pole filled with vinegar, 2) the vacuum tape for collecting and sending the samples of jellyfish's poisons, and 3) the innovative anti-jellyfish net.



shorturl.asia/RVf7p

#### PRODUCT DEVELOPMENT OF RICE SEASONING FROM FISH

College of Maritime Studies and Management, Chiang Mai University, Samut Sakhon Province, launched the workshop titled in "Product Development of Rice Seasoning from Fish" as a part of the project implementations to explore the demand, build the networks and track down the evaluation of local communities and/or entrepreneurs in the 2020 fiscal year. Its ultimate objectives were to respond to the need of communities in Samut Sakhon Province and other surrounding areas and to create an innovation for the value-added sea products. At the same time, this workshop is targeted at disseminating the knowledge of fishery product processing, particularly fish, to produce a variety of fish-related products so as to generate the revenue and create the jobs for community enterprises and people in general.





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# THE THAI DUGONG AS THE WORLD'S NEW GENETIC DIVERSITY

The Faculty of Veterinary Medicine, Chiang Mai University, in conjunction with the Phuket Marine Biological Center, Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment, discovered "the genetic diversity of dugongs in Thailand and around the world". Based on the findings, one group of dugongs living along the Andaman Sea coasts of Thailand was distinct from other dugong populations in the world. In this regard, a total of 118 dugong tissue samples were collected between 2009 and 2019: 110 dugongs from the Andaman Sea and 8 dugongs from the Gulf of Thailand. Upon comparisons of their genotypes with other dugongs from other parts of the world, it was found that there are two groups of dugong populations in Thailand:

- 1. A unique group.
- 2. A second group, similar to other dugong populations living around the South China Sea along Malaysia, Indonesia, Japan, and Australia.

According to the study to determine genetic variation, the unique group has remained separate from the other group for around 1.2 million years.

Chiang Mai University has realized the importance and value of dugongs, which are critically endangered with a low number remaining. The results obtained through this research concerning the genetic diversity of dugong populations in Thailand can be further used as management guidelines for education with hope to conserve the dugong population and promote the equilibrium stock of marine resources in a sustainable way.

Chiang Mai University was also successful in assessing the age of dugongs using Molecular Biology Techniques to measure the length of telomeres or distinctive structures found at the ends of chromosomes and extract the DNA from dugongs for an analysis of their relative ages.



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#### FOSTER THE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS



Learn Together with the Communities to Develop the Areas and Conserve the Thai Plant Varieties

15 LIFE ON LAND









#### CMU MODEL TO CREATE A MODEL COMMUNITY FOR NATURE CONSERVATION



Chiang Mai University, in collaboration with the Department of National Parks, Wildlife and Plant Conservation, has developed the CMU Model as the knowledge model for further expansion to other areas and communities through the participatory management between communities. In this regard, the area of Ban Pa Tueng Ngam, Ping Kong Sub-district, Chiang Dao District, Chiang Mai, was used to pilot and model the implementation, whereby bamboo planting activities to increase forest areas, the construction of check dams, and other training activities for staffs, local people, and related communities were hosted. The aim is to further the development under the frameworks of area management in Ping Kong Sub-district, Chiang Dao District, Chiang Mai.

The CMU Model focuses on the participatory management for water, soil, and forest conservation, while promoting the agricultural practices and local products to create occupations, increase revenue, decrease burning activities, improve quality of life in communities, and sustainably address haze problems. All are undertaken to conserve and maintain the abundant natural resources that can benefit the communities in an effective way, both directly and indirectly. Additionally, these are expected to improve quality of life for people living together with the forest to maintain their traditional lifestyles and provide collaboration for nature conservation at the same time.



https://www.cmu.ac.th/th/article/f376f442-e9b5-4856-9d03-ae6d9962ab1d





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#### PROMOTING THE COMMUNITIES TO PLANT *MIANG*, OR FERMENTED ASSAM TEA LEAVES

Chiang Mai University has established the Research Center for Multidisciplinary Approaches to Miang (MAM) to conserve and promote folk wisdom concerning Miang on a global level, including sustainable use in line with the Sustainable Development Goals (SDGs) through the Project of "People-Forest-Miang-Lanna", regarded as integrated multidisciplinary research, collaboratively conducted by academicians from different faculties, including the Faculty of Agro-Industry, Faculty of Pharmacy, Faculty of Medicine, Faculty of Agriculture, Faculty of Social Sciences, Faculty of Economics, Faculty of Humanities, Faculty of Education, Faculty of Architecture, Faculty of Fine Arts, and other faculties along with relevant research institutes, Chiang Mai University. As a key concept, "People-Forest-Miang" was totally dependent on promoting sustainability. It was actually achieved through connecting knowledge of different domains through "Miang" as the center. The main areas targeted for study under this project were Mae Taeng District, Doi Saket District, and Mae On District of Chiang Mai Province, Mueang





District of Nan Province, and Mueang District of Phrae Province. It aimed to collect facts regarding the nature and knowledge of Miang to be shared with the world.

In addition, the Research Center for Multidisciplinary Approaches to Miang (MAM) has come up with creative ideas to process Miang as contemporary products, such as drinks, baked gods, and beauty products. "Pa Miang or Miang Forest" is also deemed as an effective barrier against PM 2.5. Indeed, the diversity of medicinal plants found in Pa Miang and the Miang Tree itself are certainly an indicator of natural abundance.

Accordingly, "Miang" is a valuable innovation and intellectual property which is beneficial for health and education while generating revenue and improving quality of life in communities, making "People-Forest-Miang" interdependent in a truly sustainable way.







#### NURSERY FOR LOCAL PLANTS

Doi Suthep Nature Center In Honor of His Majesty the King, Faculty of Science, Chiang Mai University, has built a "Nursery for Local Plants" as the learning center which includes:

- 1. Exhibition Hall
- 2. Seed Sample Storage Room
- 3. Equipment Storage Room
- 4. Preparation and Seeding Area
- 5. Young Plant Nursery Area

This nursery places itself as the center for education and collection of rare local plant seeds in the northern region. It also aims to serve as the center for research and production of young plants for forest rehabilitation around Doi Suthep areas.



# <image>

#### CHIANG MAI UNIVERSITY DISCOVERS FIVE NEW VARIETIES OF YLANG-YLANG

A team of researchers from Faculty of Science, Chiang Mai University, and independent researchers have discovered and published about five new varieties of Ylang-ylang (Annonaceae):

- 1. Tang Hu Klong Ngern (Orophea sichaikhanii Damth., Aongyong & Chaowasku) found in Ranong Province.
- 2. Krachao Khao Sok (Pseuduvaria khosokensis Yoosukkee & Chaowasku) found in Surat Thani Province.
- **3. Saed Thaksina** (Winitia thailandana Chaowasku & Aongyong) found in Surat Thani Province.
- **4. Burong Halabala** (Dasymaschalon halabalanum Jongsook & Chaowasku) found in Narathiwat Province.
- Karavek Kleep Riao (Artabotrys angustipetalus Photikwan & Chaowasku) found in Kanchanaburi Province.

All five of these varieties are rare and endangered. Proper conservation is urgently required for their further development as medicinal plants and flowering plants.



เสดทักษิณา shorturl.asia/tVRfI



#### PROMOTE PEACE AND EQUAL ACCESS TO JUSTICE



Provide Counselling Services, Suggestions, and Guidelines on Peacebuilding to Communities









#### THE RESEARCH PROJECT ON POTENTIAL AND READINESS OF LOCAL ADMINISTRATIVE ORGANIZATIONS IN PROMOTING THE OPERATION OF COMMUNITY JUSTICE CENTER

The Faculty of Law, Chiang Mai University, in collaboration with the Ministry of Justice, launched the Research Project on Potential and Readiness of Local Administrative Organizations in Promoting the Operation of Community Justice Center. This research was to investigate the potential and readiness of local administrative organizations toward the operation of their community justice centers or in the areas related to those centers in response to the needs or in accordance with the community contexts for reducing inequality and increasing access to the justice system in a sustainable manner.

#### ANTI-CORRUPTION

Chiang Mai University, under the supervision of Corporate Communication Center, has undertaken the Integrity and Transparency Assessment in three aspects—1) education management, 2) research, and 3) academic/health service-to promote the university with integrity and transparency regarding its management for sustainable development (university with morality). It is also to raise awareness among personnel and students concerning accountability for their roles and duties against corruption and to develop mechanisms and measures along with anticorruption standards to increase the confidence of outsiders and seek their coalition against corruption. The main goal is that the university is free from corruption pursuant to the Cabinet Resolution on the Integrity and Transparency Assessment (ITA) among the public agencies. It is also described as the proactive key strategy against corruption.



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#### LEGAL CONSULTATION CENTER

The Legal Community Project, or the Chiang Mai University Law Clinic, was founded by the Faculty of Law, Chiang Mai University, in 1994 and was later renamed the Legal Consultation Center in 2009. The main objectives were to educate and instill professional ethics in law students through a public service with free legal counseling to socially disadvantaged individuals and an academic service to the community in compliance with the university's commitment. This center has reached its new phase of implementation with financial support from international non-profit organizations, Bridges Across Borders. Its services include legal teaching for communities and an internship program for law students to fulfill the curriculum requirements. The program also prioritizes socially marginalized individuals or communities regarding legal counseling and community teaching. Both volunteer and intern students have played a significant role in providing such services under the close supervision of professors. These services include:

- 1. Providing free legal counseling services.
- 2. Disseminating legal knowledge to communities.





BUILD COLLABORATION AGREEMENTS AT THE INTERNATIONAL LEVEL TOWARDS SUSTAINABLE DEVELOPMENT



Build Collaboration Both at National and International Levels to Fulfill all Aspects of Sustainable Development











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#### THE 5<sup>™</sup> ENVIRONMENTASIA

The Environmental Science Research Center, Faculty of Science, Chiang Mai University, in association with Thai Society of Higher Education Institute on Environment (TSHE), hosted The 5th EnvironmentAsia International Conference on "Transboundary Environmental Nexus: From Local to Regional Perspectives," or The 5th EnvironmentAsia, from 13-15 June 2021 at The Empress Hotel, Chiang Mai. EnvironmentAsia was first launched in 2009 and has been held every two years.

The EnvironmentAsia was well attended with more than 300 lecturers, researchers, specialists, scholars, and students from higher education institutes and relevant agencies both at national and international levels. The event brought the collaboration of networks for research development and study on the environment at local, national, and global levels.

#### INTERNATIONAL DIALOGUE ON "SDGS AND THE ROLE OF UNIVERSITIES"

Marking the 55<sup>th</sup> Anniversary of Chiang Mai University Commencement, the international dialogue on "SDGs and the Role of Universities" was held at the University Academic Service Center (UNISERV CMU) on 31 January 2020. Scholars and specialists, both national and international, attentively discussed and shared their opinions. Along with this event, exhibitions and academic publications for social services were arranged by various organizations, such as Societal Engagement Chiang Mai University, PODD Center, AcAir CMU, Chiang Mai: City of Craft and Folk Arts and Chiang Mai World Heritage, CMU Craniofacial Center, Project of Strategies and Achievements against Health Hazards from Lethal Jellyfish in Thailand from 2008-2021, Project of Miraculous Instruments for Inquiring People Related to Sexual Abuse Cases, Project of Chiang Mai Education Reforms in Highland for Reducing Inequality and Building the Potential for Communities through Multidisciplinary Approaches, Project of Economic Forest Plantation against Haze in Mae Chaem District of Chiang Mai, Community Research Center for Omkoi Coffee, and Young Smart Farmer Project.

Such collaboration paved the way to the Sustainable Development Goals (SDGs).



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#### PROJECT OF FOREST, CLIMATE CHANGE MITIGATION AND ADAPTATION: HIGHER EDUCATION COOPERATION IN MEKONG REGION (FRAME)

Chiang Mai University was financially supported by the Erasmus Program under the Project of Forests, Climate Change, Mitigation, and Adaptation: Higher Education Cooperation in Mekong Region (FRAME), which was joint collaboration among 6 universities from the European Region (University of Helsinki and Czech University of Life Science Prague) and the South-East Asia Region (Savannakhet University, Lao PDR, Kasetsart University, and Chiang Mai University). This project was to build international cooperation between the developed and developing countries (European Union and Southeast Asian countries) and between the developing countries themselves (Lao PDR and Thailand).

This project aimed at building the potential for sustainable forest management and rehabilitation in Lao PDR and Thailand through the strengthened higher education on forestry along with development of education tools (including online learning). It put an emphasis on increasing employment opportunities for the graduates and developing curriculums in response to the needs of the country to achieve the goals in producing graduates with participative leadership and initiatives at the global level.



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#### CMU-KKU VOLUNTEER SPIRIT FOR LOCAL COMMUNITY DEVELOPMENT

Chiang Mai University and Khon Kaen University have jointly established a volunteer network among students of Chiang Mai University under the Project of CMU-KKU Volunteer Spirit for Local Community Development, regarded as an activity for social development and public services. Both universities are to take turn to host this activity annually with aims to promote the students' identities for social service in conformity with the university's motto. It will allow students to apply such knowledge for public services without expectation for returns and to learn to work together with the communities, organizations, and agencies in an integrated way. Chiang Mai University hosted an event this year, and it was well attended with a total of 80 students working together to construct a multipurpose building, improve the temple area, and make merit at Wat Pa Sutthiya Mongkol Temple, Wat Pa Daraphirom Temple, Tha Sop Sao Sub-district, Mae Tha District, Lamphun Province, on 10 October 2020.





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