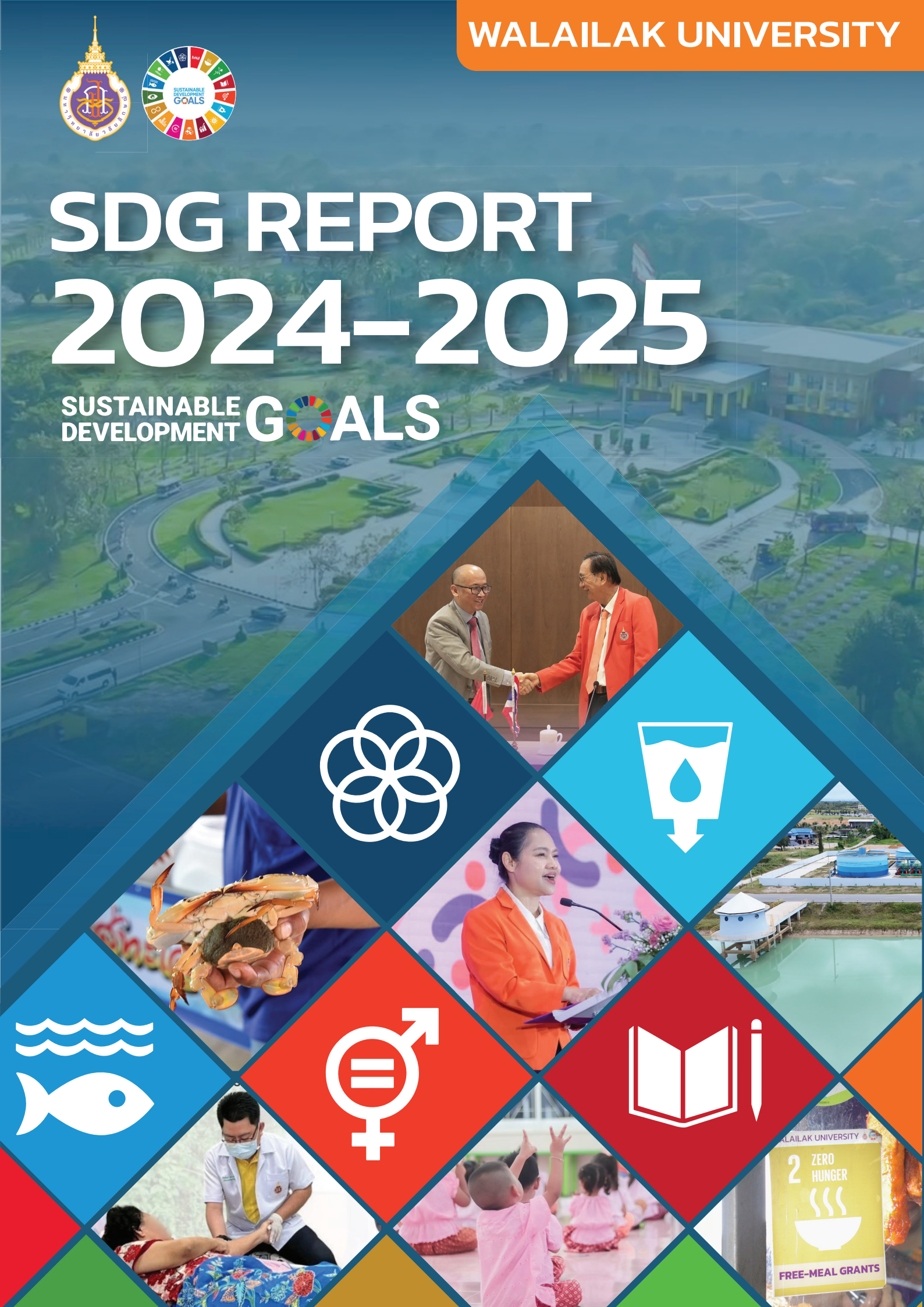
WALAILAK UNIVERSITY

SDG REPORT 2024–2025

SUSTAINABLE DEVELOPMENT GOALS



SDG 6 CLEAN WATER AND SANITATION

1. SUSTAINABLE WATER MANAGEMENT AND QUALITY ASSURANCE FOR PROVIDING FREE DRINKING WATER
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6 CLEAN WATER AND SANITATION

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

WU'S RESERVOIRS

- PRUK SACHON RESERVOIR
- MON TARA RESERVOIR
- CHALA NUSORN RESERVOIR

RAINWATER AND STORMWATER UTILIZATION

9,600 CUBIC METERS

OF TAP WATER PER DAY

SOURCED FROM RAINWATER AND STORMWATER COLLECTED IN CHALA NUSORN RESERVOIR

CAMPUS DRINKING WATER ACCESSIBILITY

OVER

140 FREE DRINKING WATER STATIONS

ACROSS THE CAMPUS

EXPANSION OF WATER-SAVING LANDSCAPES

AN ADDITIONAL

40,000

SQURE METERS

PERCENTAGE OF RECYCLED WATER UTILIZATION

100%

WATER QUALITY STANDARDS COMPLIANCE

WATER QUALITY TESTING

MEETS THE THAI INDYSTRIAL STANDARD (TIS) FOR TYPE 2 DRINKING WATER

WATER CONSCIOUS PLANTING

DROUGHT-TOLERANT PLANTS

CACTUS PALM COCONUT SALA

HYDROPONIC CROPS

SUSTAINABLE WATER MANAGEMENT AND QUALITY ASSURANCE FOR PROVIDING FREE DRINKING WATER

Walailak University (WU) operates a water supply system to provide clean and safe tap water for consumption within the campus. In 2024, this system sources raw water from Chala Nusorn Reservoir to produce tap water for consumption. This reservoir serves as a key resource for sustainable water management on campus with an area of 329,385 square meters and has a storage capacity of 4,940,775 cubic meters. Additionally, the raw water in this reservoir was sustainably collected from stormwater and rainwater.

The Chala Nusorn Water Supply Station treats this water with a capacity of 400 cubic meters per hour, using processes like pumping, treatment, and proper chemical dosing. Water quality is checked before distribution to ensure it is safe and clean for campus use.

From safe production, WU has installed over 140 free drinking water stations across campus for students, staff, and visitors. These stations use a 4-stage Reverse Osmosis (RO) filtration system with a precision of 0.0001 microns. This process removes contaminants, heavy metals, viruses, and other pathogens, providing clean and safe hot and cold drinking water.

Each dispenser has a capacity of 5 liters for cold water and 4 liters for hot water, with a daily production capacity of 190 liters. The cold-water temperature ranges from 4 to 12 degrees Celsius, while the hot water temperature ranges from 70 to 85 degrees Celsius. The energy consumption is 100W for cold water and 600W for hot water. Moreover, these water stations are monthly tested water quality to meet the Thai Industrial Standard (TIS) for Type 2 drinking water (non-packaged drinking water).

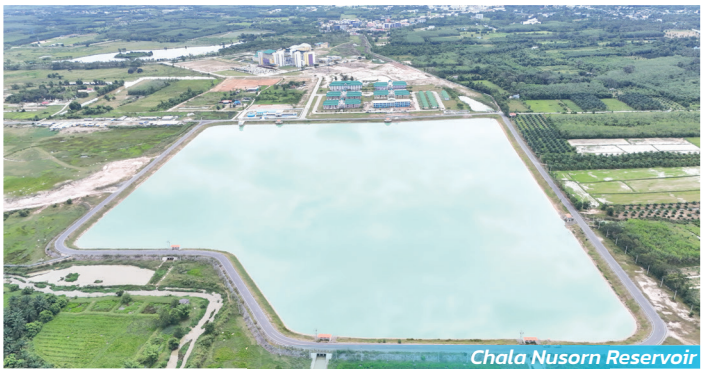
Many of these free water stations have been installed and are maintained frequently; the filters in the water dispensers are replaced every six months as per the schedule. Regular cleaning of the water dispensers is also carried out. These efforts are aimed at maintaining public health standards and ensuring that users can access clean, safe, and well-managed drinking water.

SUSTAINABLE WATER EXTRACTION ON CAMPUS WITH APPLICABLE TECHNOLOGIES

WU implements a sustainable water management system using applicable technologies to extract water from reservoirs for tap water production. It also operates an irrigation system and water gates designed to meet local community needs sustainably. Also, the university's water conservation areas play a crucial role in irrigation, flood mitigation, and providing raw water for tap water production, ensuring a stable year-round water supply. The main reservoirs include Pruk Sachon Reservoir, Mon Tara Reservoir, and Chala Nusorn Reservoir.


Mon Tara Reservoir


Pruk Sachon Reservoir

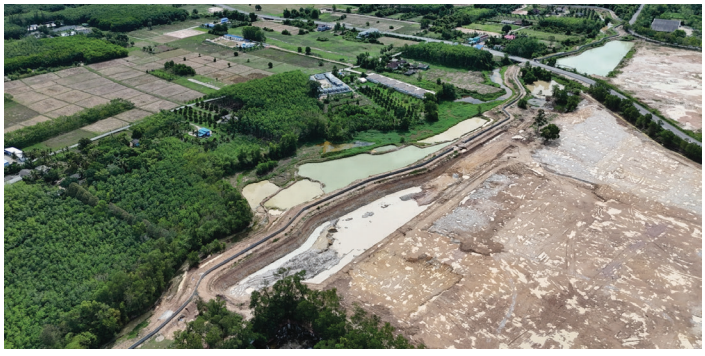

Chala Nusorn Reservoir

In 2024, the university produces 9,600 cubic meters of tap water per day from rainwater and stormwater collected in Chala Nusorn Reservoir. This amount is sufficient to meet campus needs without relying on natural water sources such as aquifers, lakes or rivers. The tap water production system employs a raw water pump with 400 mm pipes, a size that minimizes ecological impact, ensuring the production of clean and standard quality tap water for campus use

WU operates a comprehensive wastewater treatment facility that recycles treated water for various purposes. The process begins with a motorized mechanical screen to remove solid waste, followed by collecting in a pumping station and transferring to an aerated lagoon, where aerobic bacteria decompose organic matter. The water then undergoes further treatment in two facultative ponds with a retention time of about 11 days. After disinfection with ultraviolet (UV) light, it is stored in a wetland for at least 1.2 days before being released into natural water sources. To ensure safety and quality of treated water, Nile tilapias are raised in the water treated as a final quality check before reuse.

WU's sustainable water management technology extends to the use of the BOT CDT application, a mobile platform that enables real-time monitoring of water conditions such as reservoir levels, weather, and temperature. This information is crucial for effective water-use planning and decision-making, and also serves as a database for sustainable water extraction. By applying this technology, WU ensures sufficient water availability for all activities without disrupting the balance of the ecosystem.

Additionally, it has enhanced its water management infrastructure by installing three new water gates, constructing pumping stations, and implementing flood prevention projects. These initiatives help mitigate floods during the rainy season, store water for the dry season, and provide raw water for tap water production and drinking water supply, ensuring compliance with consumption standards.



A GREEN CAMPUS LEADING INNOVATIONS IN WATER CONSERVATION AND SUSTAINABLE AGRICULTURE

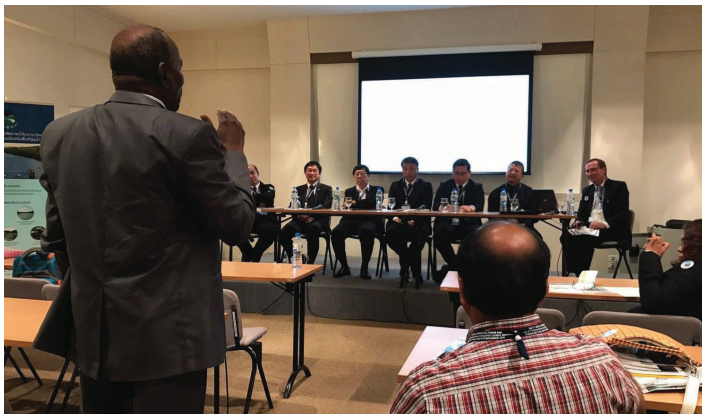
Water is an essential resource for humans, and with the current changes in climate, some areas are facing drought issues. For this reason, WU recognizes the importance of water conservation and has planted landscapes to minimize water usage. One such landscape is the Botanical Park, which spans 2,160,000 square meters where there is the Bota Cactus Dome, the largest cactus dome in southern Thailand. The dome houses a collection of cacti, drought-tolerant plants, and various succulents. Its primary objective is to serve as a repository and showcase for over 80 species of cacti, drought-resistant plants, and succulents. In addition to minimizing water usage landscapes, the dome, currently, remains a key educational resource, attracting numerous students, researchers and plant enthusiasts interested in drought-tolerant species.

In 2024, the university expanded its water-saving landscapes by an additional 448,000 square meters to cultivate aromatic coconut and cream coconut varieties, both drought-tolerant fruit crops, within the agricultural plots of the Center for Smart Farm. With this expansion, the total minimized water usage landscapes for drought-resistant fruit crop cultivation now stands at 1,844,800 square meters. These crops, including coconuts, salak, and oil palm, are easy to maintain and thrive in various soil types. The primary objectives of this initiative are to produce high-yield drought-resistant fruit crops, generate income for the university, provide hands-on agricultural training for students, serve as a learning center for farmers, and support faculty research activities.

Additionally, the university has designated areas for implementing soilless cultivation technologies and other water-saving techniques in plant production. This includes the hydroponic cultivation of approximately 2,000 vegetable plants per month. Hydroponic farming uses significantly less water compared to traditional soil-based agriculture, reducing irrigation water usage by 70% to 90%.

THE COLLABORATION ON WATER SECURITY TO SUPPORT OFF-CAMPUS WATER CONSERVATION

WU is actively collaborating on water security with external agencies at the local, regional, national, and global governments, and has been driving the development and enhancement of decision-support tools for the Subcommittee on Regional Water Resource Management in Southern Thailand. Partnerships have been established with networks to jointly formulate, integrate, and implement water resource management plans tailored to specific regions.



In 2024, the university supported practical water conservation initiatives off-campus by promoting decision-making tools for sub-district-level water resource management (agricultural water systems) in Southern Thailand. Using mobile applications and cloud computing technologies, the university provided modern water management tools for agricultural purposes to farmers and local communities. These tools aim to empower individuals to adapt to global and climate changes, monitor and address water shortages throughout the year, and ensure sufficient water allocation for agricultural use.

The objectives include conserving water, implementing sustainable water management, and increasing agricultural productivity through efficient water management practices tailored to local weather, soil conditions, crop types, and available resources. Proper irrigation management is emphasized to improve agricultural productivity per unit area while mitigating potential damages. The management process involves planning, operations, monitoring, evaluation, and plan adjustments to maximize water utilization, minimize costs, reduce conflicts among water users, and minimize environmental impacts.

Additionally, the university has continued its work on the "Living Weir Conservation Project" in the Na Mai Phai community of Nakhon Si Thammarat Province. This initiative is conducted in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), focusing on water security. The project involves cooperation with local communities, as well as local, regional, national, and global governments on water security. Ongoing efforts include improving and constructing additional living weirs to expand water conservation areas. These efforts have led to sustainable development in community water management, environmental conservation, and climate protection. The living weirs aid in water storage, reducing soil erosion and the intensity of water currents in streams. They also enhance biodiversity and serve as water sources for consumption and domestic use.