

SDG.6.3.1、6.3.2、6.4.1、6.4.2

1. The University has established a wastewater treatment plant and, in accordance with the Water Pollution Control Act, has submitted its Water Pollution Control Measures Plan for record to the Environmental Protection Bureau of Kaohsiung City Government.
2. In addition to conventional secondary biological treatment, the University's wastewater treatment plant incorporates tertiary treatment processes including screening, filtration, and ozone disinfection. The effluent quality meets regulatory standards and is primarily discharged into the campus reclaimed water system for lawn irrigation and ecological waterway replenishment. When excess discharge occurs, it is released into the First Drainage Channel of Qiaotou on the north side of the campus, which eventually flows into the Dianbao River.
3. Since its establishment, the University has set the goal of becoming a Green University, committed to pursuing sustainable development. All wastewater generated on campus is collected through a pipeline system and treated at the wastewater treatment plant. More than 80% of the treated water is directed into the reclaimed water system, primarily used for landscape irrigation and serving as the main replenishment source for the campus ecological waterways. The wastewater treatment plant records daily influent volume, effluent volume, and reclaimed water volume. In 2024, the reclaimed water recovery rate reached 90.78%.
4. For related outcomes, please refer to the Sustainability Report website: <https://ces.nuk.edu.tw/p/412-1011-5978.php?Lang=en>. The summary is as attached.

Attachment 1

▼ List of green buildings

Building	Date	Award
College of Humanities and Social Sciences Building	Oct. 2012	9 indicators of Gold Label Green Building
	2013	Participated in the Kaohsiung Green Building Award and won Public Building Award and Rainwater Storage Facilities and Reuse Award
Administration Building	Sept. 2014	9 indicators of Bronze Label Green Building
Second Student Dormitory	April 2016	Qualified Green Building Label for Dormitory
Student Activity Center	July 2022	Basic Type of Qualified Green Building Label
	Dec. 2022	Smart Building Label

5.1.3 Water Resource Management

Water resource treatment system

The main source of water for NUK comes from the tap water provided by District 7 of Taiwan Water Supply Company. The main source of water comes from the Gao-ping River, which is not significantly affected by the water intake.

Starting from 2010, the school cooperated with government agencies and implemented the Four-Saving Plan. Although the Plan ended in 2015, it has continued to implement water-saving measures and intended to reduce the annual water consumption by 2% compared with the previous year. It aims to review the annual water conservation goals, but in recent years, the weather has been hot, and water consumption increases year after year. Due to the pandemic in 2020-2021, online teaching was adopted. Since the faculty and students were not on campus, the consumption of water decreased significantly.



Reclaimed water system :

The water treated by the school sewage treatment plant meets the discharge water standard. Except for heavy rain, 100% is recycled and stored in the middle tank of the sewage treatment plant and used as the campus ecological water system, irrigation, and plants to use.



Rainwater recovery system :

The rainwater storage and reuse system set at the College of Humanities and Social Sciences is mainly to replenish the artificial lake nearby as an ecological water system.



Water-saving facilities :

Budgets are made year by year to replace the urinals and toilets of male and female toilets and the taps on each floor to water-saving equipment.



Specific improvement measures for water saving in toilets include the widespread installment of two-stage flushing toilets or water-saving toilets

▼ Statistics of water consumption

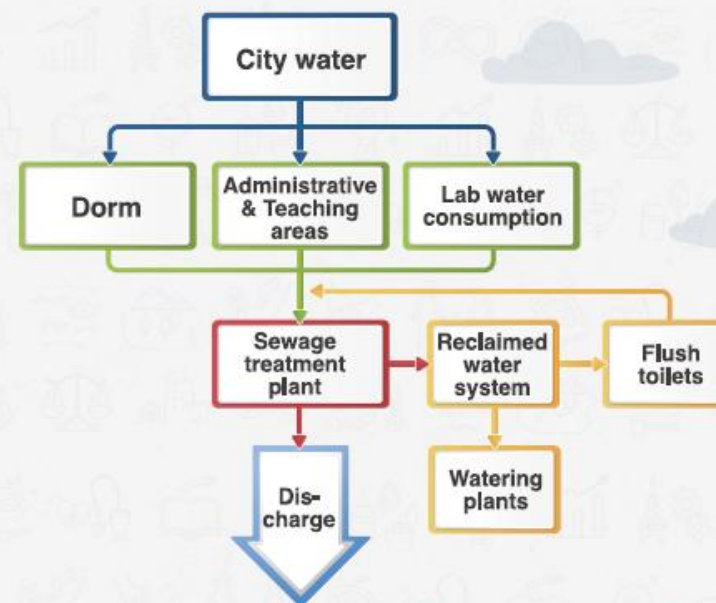
Year	Billing Interval	Meter unit	Water saving rate calculated	Water recovery volume	Water recovery PCT
2015	2014/11/19~2015/11/23	163,032	—	—	—
2016	2015/11/24~2016/11/22	188,022	-15.33%	117,309	62.39%
2017	2016/11/23~2017/11/21	176,309	6.23%	111,621	63.31%
2018	2017/11/22~2018/11/21	203,49	-15.42%	171,938	84.49%
2019	2018/11/22~2019/11/21	204,291	0.00%	179,294	87.76%
2020	2019/11/22~2020/11/21	152,389	25.41%	141,934	90.00%
2021	2020/11/22~2021/11/21	139,024	8.77%	128,551	92.47%
2022	2021/11/22~2022/11/21	182,021	-34.70%	172,489	94.76%
2023	2022/11/22~2023/11/21	161,823	11.10%	149,416	92.33%
2024	2023/11/22~2024/11/21	160,073	1.08%	147,735	90.78%

*Water conservation rate = (last year's tap water use - current year's water use) / last year's water use

[illegible]

▼ Chart of Water Consumption

*2: Total water consumption = total water withdrawal - total discharge



▲ Campus sewage treatment flow chart

NUK sewage sources include laboratory washing waste, dormitory and office sewage, which are collected through pipelines and sent to the sewage treatment plant for treatment. The reclaimed water is mainly used as supplementary water for grass sprinkler and ecological waterways. When there is excessive displaced water, it will be discharged to the drain on the north side of the campus and eventually into the Dian-bao River. The low removal rate in 2024 was due to the low influent concentration at the time of sampling, and the effluent concentration met the effluent standard.

Water quality standard	Removal rate
BOD	48%

Water quality standard	Removal rate
BOD	48%
COD	41%
SS	40%
<i>Escherichia coli</i>	99%

► List of removal rates of sewage treatment plant 2024

▼ Discharge water quality test data and discharge water volume

Test Item	2021	2022	2023	2024	Discharge standard
BOD(mg/l)	10.5	15.5	12.4	7.5	30
COD(mg/l)	39.9	58.1	48.7	29.5	100
SS(mg/l)	7.55	8.2	6.7	8.5	30
Escherichia coli(CFU/100mL)	23,988	33,900	58,250	164,000	▪
Grease(mg/l)	0.7	1	0.85	0.5	10
Water temperature(°C)	28.7	27.9	26.6	27.2	35
PH	7.6	7.7	7.7	7.6	6-9
Discharge volume(CMD)	9,813	14,818	22,100	14,959	▪

Drinking water

NKU has a total of 135 drinking fountains, and outsources regular monthly maintenance and regular replacement of filter materials, tank cleaning and disinfection. In accordance with the current drinking water laws and regulations, at least 1/8 of drinking fountains are inspected quarterly, i.e., 17 units, but the actual number inspected is 18 units. Water quality testing is based on the principle of sampling at least two drinking fountains in each building and once a quarter.

▼ Drinking Fountain Test Results

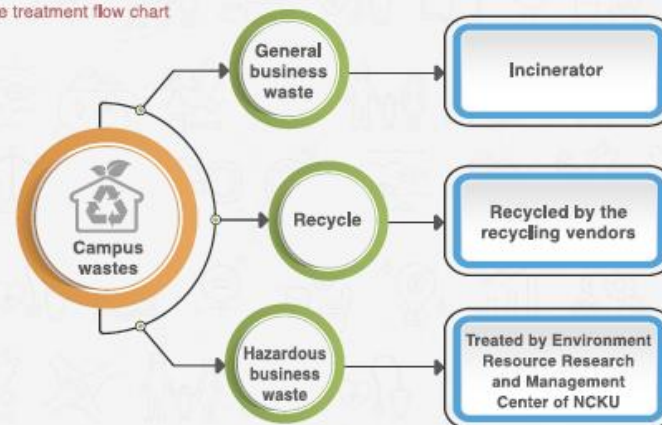
Test Item	2022	2023	2024	Standard
Escherichia coli(CFU/100mL)	<1	<1	<1	6

5.1.4 Waste Management

The University waste output can be roughly divided into general business waste and recyclables generated in the dormitories and offices, and hazardous business waste generated in the laboratories. General business waste is entrusted to the manufacturer to be transported to the incineration plant for incineration; the harmful industrial wastes are cleaned and transported by qualified cleaning and transportation companies to Resource Recovery Plant of Environmental Resources Research and Management Center, National Cheng Kung University for disposal. In 2024, the amount of recycled resources was 13.19 tons, and the total amount of general garbage was 302.21 tons, with a

total recycling ratio of 4.36%, which fell short of the target of 10%. The reason for this may be due to the increase in the amount of foreign garbage and the way in which the garbage is handled during certain periods of time, resulting in a decrease in the recycling ratio. The University will continue to strengthen its efforts to reduce the amount of foreign garbage, enhance the separation of garbage, and handle garbage during certain periods of time.

▼ Waste treatment flow chart



▼ List of general industrial waste disposal 2024

Hazardous waste			Non-hazardous waste		
Treatment	On-site	Off-site	Treatment	On-site	Off-site
Incineration (incl. recycling)	-	7.17	Incineration (incl. recycling)	-	289.02
Landfill	-	-	Landfill	-	-
Others	-	-	Others	-	13.19
Subtotal	-	7.17	Subtotal	-	302.21
total		7.17	total		302.21
Total waste			309.38		

Note: 1. Waste weights are in metric tons.
 2. "On-site" is within the physical boundaries or administrative control of NUK; "off-site" is outside NUK's physical boundaries or administrative control.
 3. All industrial wastes are sent to the entrusted manufacturer for disposal.
 4. NUK has no transfer during disposal.