

# **SDG**



Responsible Consumption and Production



#### SDG 12.2.1 Ethical sourcing policy

#### 1. Green procurement requirements.

NCUE has been committed to promoting the procurement of green-designated items by government agencies. In 2024, NCUE procured a total of NTD\$18,779,783 in green and eco-labeled products (with NTD\$884.735 for bonus category items, as shown in Figure 1), meeting the targets for the year and each of the quarters. NCUE's compliance performance with relevant regulations is 100% compliant for the procurement of green-designated items, as shown in Table 1.

Please refer to appendices 12.2.1A– Scoring Method for Performance Evaluation of Annual Green Procurement in 2024 and 12.2.1B– Annual Statistical Form for Amounts of Green Procurement in 2024.

For more details, please refer to the following sites.

Green Lifestyle Information Platform: https://greenlifestyle.moenv.gov.tw/en Main

The Green Procurement Portal of the Center of Protection and Occupational Safety and Health: https://saftyweb.ncue.edu.tw/p/412-1010-3555.php?Lang=zh-tw

Table 1. Achievements of the "Government Agency Green Procurement Designated Procurement Items" at NCUE in 2024

NCUE's performance in the procurement of green-designated items by government agencies								
in 2024								
First Quarter	100%							
Second Quarter	100%							
Third Quarter	100%							
Fourth Quarter	100%							

	113年度「機關綠色採購指定採購項目達成度」								
指定項目統計 金額 「機關綠色採購項目達成度」得分=[A/(A+B+C+D)] x 85分									
第一類產品(A)	18,779,783.0	附表1所有項目採購環保標章產品總金額							
第二類產品(B)			05 0A						
第三類/其他產品(C)		18,779,783.0	85.0分						
非環保產品(D)		18,779,783.0 x85分=							

113年度「附件2所有項目採購情形」(最高加8分)								
附件2所有項目統計	金額	積極實施「加分項目」得分 =[(E+F+G)/(A)] x 100%x8分/3%						
49-169項之第一類產品(E)		143,674.0 附表2所有項目採購錄色產品總金額 x100%x8分/3%=						
49-169項之第二類產品(F)		_ 附表1所有項目採購環保標章產品總金額	2.0 <del>分</del>					
49-169項之第三類/其他產品(G)		- 18,779,783.0 x100%x8分/3%=						
填報人: 謝坤樹	審核			機關首				
填報人聯絡電話:04-(04)72	232105#5882#5882	民國114年7月23日編製						

Figure 1. Statistics on the Green Procurement Expenditure for 2024

- 2. Food procurement requirements for two canteens in the Jinde Campus and Baoshan Campus:
  - (1) NCUE adheres to two basic principles for food procurement:

- (a) Seasonal ingredients.
- (b) Preference is given to seasonal foods and local foods to reduce the carbon footprint, shorten food miles, and reduce energy consumption.
- (c) Mainly use domestically produced food ingredients compliant with "3 Labels 1 Q".
- (2) According to the three-tiered management system for campus food safety and hygiene practices, NCUE cooperates with the Ministry of Education during the Ministry's on-site guidance once every academic year; NCUE's catering management committee is responsible for coordination across different departments; and a dedicated nurse inspects hygiene practices in catering spaces once every week. To ensure food safety, NCUE encourages the canteens to do the following:
  - (a) Give preference to labeled or traceable foods, such as "Traceable Agricultural Products", Taiwan Fresh Pork "TFP", Total Quality Food "TQF", products meeting "Certified Agricultural Standards", and produce livestock, and aquaculture products with traceable QR codes; as shown in Figure 2 and Figure 3.



Figure 2. Label used on egg products



Figure 3. Picture caption: Labelled and traceable foods are preferred

- (b) to ensure food safety within NCUE's canteens by examining fresh vegetables and fruits according to the 'Criteria for Monitoring Pesticide Residue in Agricultural Products' issued by the Taiwan Food and Drug Administration, Ministry of Health and Welfare (as below): https://www.fda.gov.tw/TC/site.aspx?sid=2428&r=1485767145
- (c) to make sure vendors log in to the Ministry of Education's 'Filing Platform 2.0 for School Foods' every day to fully disclose relevant food information. https://fatraceschool.k12ea.gov.tw/frontend/

3. Preference is given to products and services from disability welfare institutions, organizations, or sheltered workshops.

In compliance with the 'Persons with Disabilities Rights Protection Act' and the 'Regulation for Obliged Purchasing Units / Institutions to Purchase the Products and Services Provided by Disabled Welfare Institutions, Organizations, or Sheltered Workshops', particularly promoting the employment of people with disabilities and the protection of vulnerable groups, NCUE has developed an 'Implementation Plan for Preferential Procurement of Products and Services from Disability Welfare Institutions, Organizations, or Sheltered Workshops'. The target is that for designated product and service items, those contracted or subcontracted by such institutions, organizations, or sheltered workshops should account for more than 5% of total annual procurements made by NCUE for the product and service items.

Given regional characteristics, the products and services (excluding plan development) currently covered are bento, meal boxes (single purchase of 20 or more boxes), and printing services (business cards, posters, books, and magazines) with fees of NTD\$10,000 or more in a single transaction. They should be listed on the preferential procurement platform. Only when no disability welfare institutions, organizations, or sheltered workshops are willing to contract, or their products or services are disqualified could NCUE contact general vendors.

Please refer to Annex 12.2.1C–Regulations for Priority Procurement of Eco-Products. The annual achievement rates of priority procurement at NCUE are shown in Table 2. For the 2024 priority achievement rate of procurement, please see Attachment 12.2.1D - 2024 2024 Priority Procurement Performance Statistics Summary.

Table 2. The annual achievement rate of priority procurement at NCUE

Year of implementation	Ratio of preferential procurement (%)
2022	8.42
2023	9.53
2024	14.39

Appendices (including supporting documents):

No.: 12.2.1A-Scoring Method for Performance Evaluation of Annual Green Procurement in 2024

12.2.1B-Annual Statistical Form for Amounts of Green Procurement in 2024

12.2.1C-Regulations for Priority Procurement of Eco-Products

12.2.1D - 2024 Priority Procurement Performance Statistics Summary

#### SDG 12.2.3 Policy waste disposal – hazardous materials

NCUE has developed 'Guidelines for Disposal of Laboratory Waste in the NCUE.' Waste effluent, chemicals, and empty containers from NCUE laboratories are removed twice a year. Biomedical wastes produced by infirmaries and laboratories are removed once a week, as indicated in Figure 1 and Figure 2.

Please refer to appendices 12.2.3A–Guidelines for Disposal of Laboratory Wastes in NCUE and 12.2.3B–Wastes Removed in 2024.

Please refer to the waste management website of the Center of Protection and Occupational Safety and Health: https://saftyweb.ncue.edu.tw/var/file/10/1010/img/1027/675906012.pdf



Figure 1. Removal of laboratory waste



Figure 2. Removal of biomedical waste produced by infirmaries and laboratories

Below is the weight of biomedical waste produced by university laboratories and infirmaries in 2024, as indicated in Table 1.

Table 1. Weight of biomedical waste produced by university laboratories and infirmaries in 2024

Month	1	2	3	4	5	6	7	8	9	10	11	12	Total
Metric tons	0.064	0.062	0.033	0.041	0.056	0.07	0.03	0.092	0.051	0.041	0.063	0.05	0.653

The weight of waste effluent, chemicals, and empty containers from NCUE laboratories was removed in 2024, as indicated in Table 2.

Table 2. Weight of laboratory waste, chemicals, and empty containers generated, collected, and transported at NCUE in 2024

Item	Metric tons
Waste effluent	3.45
General chemicals	0.131
Toxic chemicals	0.001
Unspecified chemicals	0.045
Empty containers of waste chemicals	0.565
Silicone	0.075
Total	4.267

Appendices (including supporting documents):

No.: 12.2.3A-Guidelines for Disposal of Laboratory Waste in NCUE

12.2.3B-Waste Removed in 2024

#### SDG 12.2.4 Policy waste disposal - landfill policy

NCUE has implemented garbage classification and sorting, as shown in Figure 1. NCUE requests the Cleaning Squad of the Changhua City Office to provide monthly statistics on the weight of general waste and recycled materials from NCUE. Recycled materials include the following categories: paper, plastic, glass, iron and aluminum cans, paper containers (meal boxes), PET bottles, and dry cells, as indicated in Table 1. Waste generated on campus for the past 3 years is shown in Figure 2.



Figure 1. Garbage sorting and recycling buckets in NCUE (paper containers, plastic, glass, iron and aluminum cans, beverage packs, paper, PET bottles, and compost)

Table 1. Weight of general waste and recyclable materials at NCUE in 2024

	Table 1. Weight of general waste and recyclable inaterials at 1400L in 2024								
2024	Jinde Campus		Baoshan Cam	Baoshan Campus		Subtotal of the two campuses			
	Non-recyclable wastes	Unit	Non-recyclable wastes	Unit	Recycled materials	Unit	Total	Unit	
Jan.	10,890	kg	5,150	kg	9,230	kg	25,270	kg	
Feb.	7,100	kg	2,080	kg	6,015	kg	15,195	kg	
Mar.	11,520	kg	6,106	kg	10,855	kg	28,481	kg	
Apr.	11,080	kg	5,210	kg	10,173	kg	26,463	kg	
May	12,020	kg	6,530	kg	8,755	kg	27,305	kg	
Jun.	12,870	kg	5,960	kg	10,625	kg	29,455	kg	
Jul.	8,080	kg	3,200	kg	5,662	kg	16,942	kg	
Aug.	8,070	kg	2,880	kg	5,597	kg	16,547	kg	
Sept.	10,440	kg	5,540	kg	9,585	kg	25,565	kg	
Oct.	9,430	kg	4,840	kg	8,850	kg	23,120	kg	
Nov.	11,510	kg	6,780	kg	9,350	kg	27,640	kg	
Dec.	11,760	kg	4,550	kg	12,475	kg	28,785	kg	
Total	124,770	kg	58,826	kg	107,172	kg	290,768	kg	

Recycled materials account for 36.86% of total waste.

The Changhua City Office annually administers incentive grants to schools within its jurisdiction that cooperate in promoting resource recycling. In 2024, the total incentive grant issued by the Changhua

City Office to the NCUE amounted to NT\$128,606, as shown in Table 2. Please refer to Attachment 12.2.4A - Official Document from the Changhua City Office.

Table 2. Incentive Grants Issued by the Changhua City Office to NCUE in 2024

School name	Recycled in 2024 (kg)	Annual rewards (NTD\$)		
National Changhua University of Education	107,172	128,606		

Annex 12.2.4A–Official Document of the Changhua City Office (including supplementary documentary evidence)

#### SDG 12.2.5 Policy for minimisation of plastic use

In compliance with the Ministry of Environment's regulation on the Restrictive Use of Shopping Plastic Bags, NCUE canteens do not provide plastic bags for purchased products. Please refer to Annex 12.2.5A—Restrictive Use of Shopping Plastic Bags: Scope, Implementation, and Dates, which stipulates 14 types of spaces where are prohibited to provide shopping plastic bags for free, as shown in Figure 1.





Figure 1. Posters Detailing the 14 Types of Locations Prohibited from Offering Free Plastic Shopping Bags.

For more details, please refer to the website for the regulation:

Ministry of Environment Laws and Regulations Retrieving System - Regulations on the Target, Implementation Method, and Implementation Date of Restricting the Use of Plastic Shopping Bags: https://oaout.moenv.gov.tw/law/LawContent.aspx?id=GL006482

Annex No.: 12.2.5A-Restrictive Use of Shopping Plastic Bags: Scope, Implementation, and Date

#### SDG 12.2.6 Policy for minimisation of disposable items

NCUE take relevant measures according to the "Parties Subject to and Means for Disposable Tableware Use Restrictions / Restrictions on the Use of Single-Use Plastic Straws, Applicable Entities, and Implementation Methods / Guidelines for the Reduced Use of Disposable Tableware and Packaged Drinking Water in Administrative Agencies and Schools" of the Ministry of Environment, including no single-use water cups or bottled water in meeting rooms and no disposable tableware in canteens. Please refer to appendices 12.2.6A—Restrictive Use of Disposable Tableware: Scope and Implementation, 12.2.6B—Restrictive Use of Disposable Plastic Straws: Scope and Implementation, and 12.2.6C—Guidelines for the Reduced Use of Disposable Tableware and Packaged Drinking Water in Administrative Agencies and Schools.

NCUE displayed posters (as shown in Figures 1 and 2) announcing the prohibition of providing disposable tableware of all materials and single-use plastic straws, along with posters detailing the guidance for reducing the use of disposable tableware and bottled water in government agencies and schools. At meetings held on the campus of NCUE, single-use cups of water or bottled water are not provided, as shown in Figure 3. Cafeterias on the campus of NCUE do not provide disposable tableware for dine-in use, as shown in Figure 4. Signage prohibiting the free provision of plastic shopping bags and the use of single-use plastic straws for dine-in customers is displayed at all stalls within the University's canteens/restaurants, as shown in Figure 5.



Figure 1. Posters to inform the public that no disposable tableware or disposable plastic straws will be provided



Figure 2. Poster on " Guidelines for the Reduced Use of Disposable Tableware and Packaged Water in Administrative Agencies and Schools."



Figure 3. No single-use water cups or bottled water in meeting rooms



Figure 4. No disposable tableware in canteens



Figure 5. Signage displayed at all food service outlets on campus indicating that plastic shopping bags are not provided free of charge and that single-use plastic straws are not available for dine-in customers

For more details, please refer to the website for the regulation:

- 1. Parties Subject to and Means for Disposable Tableware Use Restrictions: https://oaout.moenv.gov.tw/law/LawContent.aspx?id=GL006481#lawmenu
- 2. Restrictions on the Use of Single-Use Plastic Straws, Applicable Entities, and Implementation Methods: https://oaout.moenv.gov.tw/law/LawContent.aspx?id=GL007530#lawmenu
- 3. Guidelines for the Reduced Use of Disposable Tableware and Packaged Drinking Water in Administrative Agencies and Schools:
  - https://hwms.moenv.gov.tw/dispPageBox/getFile/Get.aspx?FileLocation=PJ-EPATW%5CFiles%5C&FileName=2650.pdf
- 4. Operation Manual for Reducing the Use of Disposable Tableware and Bottled Water in Government Agencies and Schools:
  - $https://hwms.moenv.gov.tw/dispPageBox/getFile/Get.aspx?FileLocation=PJ-EPATW\%5CFiles\%5\\ C\&FileName=2691.pdf$

#### Annex No.:

- 12.2.6A-Parties Subject to and Means for Disposable Tableware Use Restrictions
- 12.2.6B–Restrictive Use of Disposable Plastic Straws: Scope and Implementation
- 12.2.6C-Guidelines for the Reduced Use of Disposable Tableware and Packaged Drinking Water in Administrative Agencies and Schools

## SDG 12.2.7 Disposable policy: extensions to services

NCUE has outsourced service providers for cleaning, cafeteria, and security. All contract specifications for providers are executed in accordance with the regulations of the Environmental Protection Administration of the Executive Yuan and the legal requirements of NCUE, as shown in Figure 1. Disposable tableware and plastic shopping bags are not provided for dine-in use on the premises of NCUE's canteens and restaurants, as shown in Figures 2 and 3. All cleaning staff practice garbage sorting and resource recycling, as shown in Figure 4.



Figure 1. The canteen staff in NCUE all wear masks, net caps, and aprons when working



Figure 2. No disposable tableware in canteens



Figure 3. The faculty, staff, and students of NCUE all use reusable tableware when dining in



Figure 4. NCUE's cleaning staff fully implementing garbage sorting and resource recycling policies

## SDG 12.2.8 Minimisation policies extended to suppliers

NCUE has consistently encouraged all units to use reusable cups and tableware for various meetings, training sessions, and events. In alignment with the Ministry of Environment's " Guidelines for Government Agencies and Schools to Reduce the Use of Disposable Tableware and Bottled Water," NCUE actively minimizes the use of disposable tableware and bottled drinking water. In 2024, a total of 697 physical meetings, training sessions, and events were held. For catered meals, reusable containers were utilized by 2,824 participants, and 37,488 instances of avoiding bottled water and paper cups were recorded.

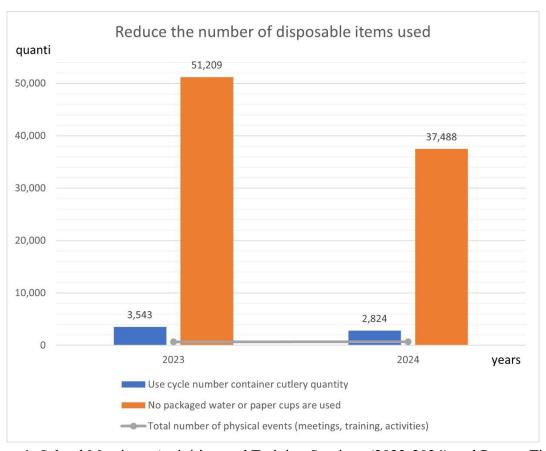


Figure 1. School Meetings, Activities, and Training Sessions (2023-2024) and Person-Times Avoiding Single-Use Items

# SDG 12.3.1 Waste tracking

In 2024, NCUE generated 36.86% of recyclable resource waste, while 63.14% were non-recyclable waste. All recyclable resources are recycled at a rate of 100%. Non-recyclable waste is all entrusted to the Changhua City Office for disposal. NCUE requests the Cleaning Squad of the Changhua City Office to provide monthly statistics on the weight of general waste and recycled materials from NCUE. Recycled materials include the following categories: paper, plastic, glass, iron and aluminum cans, paper containers (meal boxes), PET bottles, and dry cells, as shown in Table 1.

Table 1. Weight of general waste and recyclable waste at NCUE in 2024

2024	Jinde Campus		Baoshan Campus		Subtotal of t		Total	Unit
2024	Non-recyclable waste	Unit	Non-recyclable waste	Unit	Recycled materials	Unit	Total	Unit
Jan.	10,890	kg	5,150	kg	9,230	kg	25,270	kg
Feb.	7,100	kg	2,080	kg	6,015	kg	15,195	kg
Mar.	11,520	kg	6,106	kg	10,855	kg	28,481	kg
Apr.	11,080	kg	5,210	kg	10,173	kg	26,463	kg
May	12,020	kg	6,530	kg	8,755	kg	27,305	kg
Jun.	12,870	kg	5,960	kg	10,625	kg	29,455	kg
Jul.	8,080	kg	3,200	kg	5,662	kg	16,942	kg
Aug.	8,070	kg	2,880	kg	5,597	kg	16,547	kg
Sept.	10,440	kg	5,540	kg	9,585	kg	25,565	kg
Oct.	9,430	kg	4,840	kg	8,850	kg	23,120	kg
Nov.	11,510	kg	6,780	kg	9,350	kg	27,640	kg
Dec.	11,760	kg	4,550	kg	12,475	kg	28,785	kg
Total	124,770	kg	58,826	kg	107,172	kg	290,768	kg

Recycled materials account for 36.86% of total waste (or 63.14% of waste that is not recycled).

# SDG 12.3.2 Proportion of waste recycled

#### **Amount of waste generated**

Amount of waste generated: 290.768 metric tons in 2024.

# **Amount of waste recycled**

Amount of waste recycled: 107.172 metric tons in 2024.

#### Amount of waste sent to landfill

Amount of waste sent to landfill: 183.596 metric tons in 2024.

Please refer to the Table 1.

Table 1. Weight of Non-recyclable waste and recyclable waste at NCUE in 2024

2024	Jinde Campus		Baoshan Cam	Baoshan Campus		the two	Total	<b>T</b> T*4
2024	Non-recyclable waste	Unit	Non-recyclable waste	Unit	Recycled materials	Unit	Totai	Unit
Jan.	10,890	kg	5,150	kg	9,230	kg	25,270	kg
Feb.	7,100	kg	2,080	kg	6,015	kg	15,195	kg
Mar.	11,520	kg	6,106	kg	10,855	kg	28,481	kg
Apr.	11,080	kg	5,210	kg	10,173	kg	26,463	kg
May	12,020	kg	6,530	kg	8,755	kg	27,305	kg
Jun.	12,870	kg	5,960	kg	10,625	kg	29,455	kg
Jul.	8,080	kg	3,200	kg	5,662	kg	16,942	kg
Aug.	8,070	kg	2,880	kg	5,597	kg	16,547	kg
Sept.	10,440	kg	5,540	kg	9,585	kg	25,565	kg
Oct.	9,430	kg	4,840	kg	8,850	kg	23,120	kg
Nov.	11,510	kg	6,780	kg	9,350	kg	27,640	kg
Dec.	11,760	kg	4,550	kg	12,475	kg	28,785	kg
Total	124,770	kg	58,826	kg	107,172	kg	290,768	kg

The proportion of waste recycled: 36.86% in 2024.

#### SDG 12.4.1 Publication of a sustainability report

1. NCUE's THE Report by Year.

2021:

https://sdg.ncue.edu.tw/var/file/32/1032/img/257/110.11.5-Generel\_Report-V.1-final-111.1.18.pdf 2022:

https://sdg.ncue.edu.tw/var/file/32/1032/img/257/2022-allsdgs-reports.pdf

2023:

https://sdg.ncue.edu.tw/var/file/32/1032/img/1021/ReportALL.pdf

2024:

https://sdg.ncue.edu.tw/var/file/32/1032/img/1134/2024SDG ALL.pdf

2. On 29 September 2020, in the presence of members of the Occupational Safety and Health Committee, the President of NCUE signed the "Environment, Occupational Safety and Health Policy of National Changhua University of Education", as shown in Figure 1. It specifies the following: to build a sustainable and green university. All faculty, staff, and students at NCUE fully comply with the relevant laws and regulations, participate in educational programs, maintain campus security, prevent accidents, cherish the environmental resources, act on energy conservation and carbon reduction, and commit to pollution prevention and continuous improvement. As a member of the global village, everyone should fulfill their responsibilities to build an ecological campus free of accidents and pollution, as shown in Figure 2.

Please refer to annex 12.4.1A—Environment, Occupational Safety, and Health Policy, as well as the website of the Center of Environment, Occupational Safety and Health for posting laws, regulations, and rules applying to faculty and staff:

https://saftyweb.ncue.edu.tw/var/file/10/1010/img/1030/249454384.pdf







Figure 1. NCUE's President signing the 'Protection and Occupational Safety and Health Policy of National Changhua University of Education'

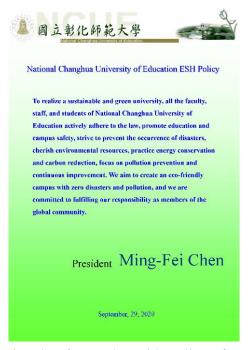


Figure 2. Environment, Occupational Safety and Health Policy of National Changhua University of Education

#### 3. Solar Photovoltaic Power Generation Rooftops

In response to relevant national policies, NCUE completed the addition of solar photovoltaic panels on the roof of each building of NCUE by the end of July 2022, with a total capacity of 2091.375 kWp for the Jinde Campus and 571.5 kWp for the Baoshan Campus, as shown in Table 1. In addition to reducing the net load of the buildings, in some scenarios (such as off-peak months) the buildings can be fully dependent on solar photovoltaic electricity. Given the reduced electricity current of the distribution lines, line loss can be reduced by about 3% and energy efficiency can be improved. Moreover, solar panels can block direct sunlight from the roof. According to research data, they can reduce the heat energy of direct sunlight on the roof by 38% and reduce the temperature of the roof by 2.8°C. With the building's improved overall temperature environment, air conditioning use can be reduced to improve energy efficiency. The planning and design drawings (partial) of the building's rooftop solar photovoltaic panels on the Jinde Campus and the Baoshan Campus in 2021-2022 are shown in Figure 3 and Figure 4. Please refer to Annex 12.4.1B—Rooftop Solar Photovoltaic Building Panels Planning and Drawings on the Jinde and the Baoshan Campuses.

NCUE is currently planning the construction of new rooftop and ground-mounted solar photovoltaic systems. It is anticipated that between 2025-2028, Jinde Campus will add 230 kWp of installed capacity, while Baoshan Campus will add 306 kWp of installed capacity. The planned design for the solar power generation systems is shown in Table 2.

Table 1. Installed solar photovoltaic capacity in each building of NCUE

Campus	Building	Expected capacity (kWp)	Total	Expected electricity production (kwh/year)	Total
	Qiau-si Building (Dept. of Mathematics)	69		196,875	
	Baisha Building (Main Administration Building)	191.625		147,656	
	Zhi-shan Building (Dept. of Special Education)	48		314,063	
	Ming-de Building (Dept. of Guidance and Counseling)	85.125		60,000	
	Teaching Building	92.25		80,156	
	Eighth Dormitory	189		120,469	
	Seventh Dormitory	181.5		249,375	2,714,531.25
Jinde	Sixth Dormitory	88.5	2091.375	226,875	
Campus	Hu-bin Building (Dept. of Rehabilitation Counseling)	123 kWp		110,625	kWh
	Library	133.5		153,750	
	General Building	103.875		166,875	
	Restaurant	146.625		144,375	
	Sheng-yang Building (Dept. of Geography)	99.375		265,313	
	Shiue-si Building (Dept. of Chinese)	36		-	
	Wang Jin-pyng Activity Center	160.65		-	
	Wang Jin-pyng Swimming Pool	239.4		124,219	
	Old Activity Center	103.5		-	
	Ninth Dormitory	99.75		125,625	
	Teaching Building No. 1	69.75		126,563	
	College of Engineering	139.5		174,375	
Baoshan Campus	Jing-shi Building (College of Management)	114.375	571. 5 kWp	142,969	714,375 kWh
	Li-xing Building (Dept. of Industrial Education and Technology)	148.125		185,156	

Table 2. Solar Photovoltaic Installation Capacity Planning for Campus Buildings (2025-2028)

Campus	Installation Location	Expected capacity (kWp)	total	Expected electricity production (kwh/year)
Jinde	College of Science Buildings I &	230 kWp	230 kWp	287,500
Campus	II	230 KW p	230 K W P	201,300
Baoshan	Covered Sports Court	306 kWp	306 kWp	382,500
Campus	Volleyball Court	204 kWp	204 kWp	255,000
	Tennis Court	228 kWp	228 kWp	285,000
School- wide		968 kWp	968 kWp	1,210,000



Figure 3. Planning and Design of Solar Photovoltaic Roofs of Buildings on the Jinde Campus



Figure 4. Planning and Design of Solar Photovoltaic Roofs of Buildings on the Baoshan Campus

4. NCUE held second-hand markets. Donated goods in 2022 exceeded 200 items, and proceeds exceeded NTD\$5,000 from sales. In 2023, the number of donated items reached nearly 100, with sales proceeds exceeding NTD\$7,000 from sales. In 2024, over 300 items were donated, generating sales revenue of more than NT\$23,000.

Please refer to Annex 12.4.1C-Second-Hand Markets.

5. NCUE organized the adoption of abandoned bicycles. Altogether, 30 bikes in 2020, and 31 bikes in 2021. Since the installation of YouBike stations at NCUE's school gate in 2022, the number of students riding their own bicycles has been decreasing. There are very few abandoned bicycles, so we have not conducted a reclaiming process. In 2023, the program resumed, and 46 bicycles were adopted. The abandoned bicycle adoption program is currently held once every two years, with the next event scheduled for October 2025.

Please refer to Annex 12.4.1D-Adoption of Abandoned Bicycles.

6. NCUE library runs a second-hand book donation platform. 316 books were donated in the 2022-2023 academic year, and 627 books were donated in the 2023-2024 academic year. 827 books were donated during the 2024-2025 academic year.

Please refer to Annex 12.4.1E–Claiming Second-hand Books.

7. NCUE's declaration of sustainability development. The president of NCUE signed a 'National Changhua University of Education Sustainable Development Commitment' in September 2022 and a 'Carbon Neutrality Declaration of National Changhua University of Education' in September 2025. Please refer to Annex 12.4.1F—Carbon Neutrality Declaration & Commitment to Sustainability Development.

Appendices (including supporting documents):

No.: 12.4.1A—Protection and Occupational Safety and Health Policy (latest version)

12.4.1B—Rooftop Solar Photovoltaic Building Panels Planning and Drawings in Jin-De and Bao-Shan.

Annex 12.4.1C-Second-Hand Markets

Annex 12.4.1D-Adoption of Abandoned Bicycles

Annex 12.4.1E—Claiming Library Second-Hand Books

Annex 12.4.1F–Carbon Neutrality Declaration & Commitment to Sustainability Development