

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



SUSTAINABILITY REPORT
TAMKANG UNIVERSITY

2020 RESPONSIBLE CONSUMPTION & PRODUCTION





RESPONSIBLE CONSUMPTION AND PRODUCTION

Operational measures

TKU meets the detailed indicators 12.2.1 to 12.2.8 to implement responsible consumption and production, the university starts with waste reduction at the source, green procurement, resource recovery, and hazard prevention:

1. Waste Reduction at the Source: the way individuals consume formulates the world's progression. Therefore, TKU does not provide plastic bags and disposable straws. Faculties and students are encouraged to not take out food and bring their own environmentally friendly meals (cups) to enjoy discounts. The promotion of low-carbon bento (stainless steel lunch boxes), etc., are based on the perspective of waste reduction, and guide faculty and staff to develop an environmentally friendly consumption model.
2. Green Procurement: implement pre-purchase evaluation (first use idle products from other units to replace new purchases), and prioritize purchasing products that have less impact on the environment when purchasing. Including recyclable, low-pollution, and resource-saving products, especially with the "environmental (energy-saving) mark" as the prerequisite principle, indirectly encourages the production of green products.

3. Resource Recovery: complying with Taiwan's waste disposal law and regulations, and implement various resource recovery according to the ISO14001 standard. Including paper, iron, and aluminum cans, PET bottles, waste batteries, toner cartridges, and food waste, etc., to reduce the amount of garbage entering the incinerator.
4. Hazard Prevention: TKU sets up an environmental safety center to properly manage the harmful substances produced by the campus due to teaching and experiments. It is carried out based on the ISO45001 occupational safety and health standards (promoted since 2012 to date), including the installation of fume hoods to prevent personnel from being exposed to harmful gas hazards, business waste and liquid waste have exclusive treatment and removal procedures to ensure personnel health and environmental safety.

Ethical sourcing policy

1. The university signs a contract with a catering manufacturer and the content of the contract requires the manufacturer to supply various foods and ingredients in compliance with the "Food Safety and Hygiene Management Law," "Institutional Hygiene Law," "Agricultural Product Production and Verification Management Law," and other relevant regulations by selecting qualified food and ingredients for meals. Miscellaneous foods with incomplete packaging and unqualified inspections are strictly prohibited, and preferentially the use of local high-quality agricultural products that are promoted by the central agricultural authority in the traceability system and prohibit the use of genetically modified fresh food materials and their primary processed products.

2. In July 2001, the Executive Yuan promulgated the "Organization Green Procurement Program," which stipulated the "Key Points for the Performance Evaluation of Institutional Green Procurement." Although the university does not belong to the public universities regulated by this key point, it is still implemented by reference to support green procurement. In 2020, the Tamsui campus purchased green products with environmental protection labels as the main amount is NT\$3,971,940. From 2015 to 2019, TKU was awarded the "Green Procurement Outstanding Unit Award" by the Environmental Protection Bureau of the New Taipei City Government for five consecutive years.

Policy waste disposal – hazardous materials

1. The recycling, removal, and disposal of laboratory waste liquids in the university shall be handled accordingly to Article 28 of the "Waste Disposal Law." Entrusting a waste disposal company approved by the central competent authority (Resource Recovery Plant of the Environmental Resources Research and Management Center of National Cheng-Kung University). Wastes will be cleared and transported 1-2 times a year, and the waste transportation documents will be kept for inspection. Ensuring that the production, storage, and cleaning of campus laboratory waste are handled according to Taiwan's environmental protection, industrial safety, and transportation laws and regulations. The total weight of the clearance in 2020 is about 2 tons.

2. The university's business waste is mainly general waste, which is classified, stored, and removed according to the waste management and resource recovery procedures; partial wastes are hazardous business waste, biomedical waste from the university health care group prepared a plan for the disposal of industrial waste, and handled the disposal according to governmental regulations.

Policy waste disposal – landfill policy

The waste treatment of TKU is based on the waste disposal law of Taiwan and complies with the ISO14001 environmental management system standard. Formulating campus general waste disposal and resource recycling practices, including "Campus Resource Recycling Management Rules," "Implementation Points for Recycling Waste Classification and Recycling," and other regulations to implement various resource recycling tasks and reduce the amount of waste. Recycle resources and achieve the policy goals of pollution prevention and pollution emission reduction. The garbage classification is divided into:

1. General Waste: other than recyclable waste, such as carbon paper, wax paper, plastic glossy advertising paper, plastic-coated covers, outer envelopes, non-polluting waste, used toilet paper, etc.

2. Recyclable Waste:

(1) General Categories: iron cans, aluminum cans, glass bottles, PET bottles, plastic bottles, aluminum foil packages, batteries, small household appliances, lamps, etc.

(2) Paper: newspapers, books, magazines, paper cups, packaging cartons, and non-greasy waste paper, etc.

(3) Used Clothes (individuals should recycle clothes through recycling vehicles or used clothes recycling bins outside the university).

(4) Styrofoam: instant noodle boxes and shockproof Styrofoam cushioning materials, etc.

(5) Plastic Bags: clean plastic bags of various materials.

(6) Food Waste (cooked food waste should be placed in the kitchen waste recycling bin of each building; raw food waste should be placed in the food court kitchen waste bin or disposed of as general garbage).

Policy for minimization of plastic use

To meet the requirements of the government's environmental protection laws, while considering energy saving, carbon reduction, and a healthy diet, the university requires the welfare department (catering) manufacturers to restrict the use of disposable tableware. Plastic bags, disposable chopsticks, disposable spoons, and other products are not provided. Restaurants opened for eating-in do not provide disposable plastic straws and other regulations to reduce the use of plastic bags and plastic products. Through educational promotion and publicity such as "eating out but not taking out," "removing outdoor trash cans," and "no littering," reduces the amount of garbage generated on campus; activities including promotional posters, propaganda,

and encouraging self-prepared (meal box) instead of disposable (tableware) inspires faculty and students to reduce waste production. The food court has an environmentally-friendly grading price strategy for all kinds of foods sold: bringing tableware and eating utensils to enjoy the discount of NT\$3-5 for eating in. Individuals that do not bring tableware and wish to take-out will have to pay the most expensive cost, hoping to guide the faculty and staff to bring tableware.

Policy for minimization of disposable items

According to the sixth point of the regulations for borrowing meeting rooms on the Tamsui campus, if the borrowing unit requires meals in the meeting room, in response to the environmental protection policy, must order low-carbon lunch boxes provided by the university's manufacturers, and sort out food waste after finishing. According to the requirements of the ISO14001 environmental management system, if any units of the university use the meeting room to have a meal, units must order low-carbon lunch boxes with stainless steel boxes for meals from welfare manufacturers to reduce the use of disposable paper lunch boxes; welfare manufacturers make lunch boxes with customized and preferential prices, and can assist in the delivery of lunch boxes, reducing the inconvenience to the ordering unit; the university will charge the manufacturer's cleaning fee at a reduced rate according to the order quantity, creating a win-win situation. After 6 consecutive years, the order quantity of low-carbon lunches has been included in the tracking management of the university's environmental safety and health goals, the effect is remarkable, with more than 20,000 orders every year; however,

due to the impact of the COVID-19 pandemic in 2020, the annual cumulative order volume has fallen to 15,000.

Outsourced services and the supply chain

1. The university requires the food and beverage materials ordered by the catering manufacturer of the welfare department through the contract, food and environmental hygiene and safety of catering manufacturers must comply with the "Food Safety and Hygiene Management Law" of the Ministry of Health and Welfare, "Guidelines for Good Food Hygiene Practices," "Institute Hygiene Law," "Hygienic Management Measures for College Restaurant Kitchen Staff and Student Consumer Cooperatives," "Guidelines for Food Hygiene Management in Colleges and Universities of the Ministry of Education," "New Taipei City Food Safety and Hygiene Management Autonomous Regulations," and relevant provisions of the university's food hygiene management regulations. It is also necessary to log in to the campus food registration platform promoted by the Ministry of Education and provide information for inspection by the competent educational authority or the health authority.
2. The university's health and counseling committee have a dietary supervision team, which can supervise the manufacturer's diet, hygiene, food quality, etc. at any time. The committee puts forward suggestions for improvement in writing, and the manufacturer should make improvements within 3 days after receiving the written comments.

Outsourced suppliers and supply chain

To promote environmental sustainability and implement green procurement, TKU purchases software and hardware equipment, consumables, and construction engineering materials. Priority will be given to manufacturers that provide the five green label products including environmental protection labels, energy-saving labels, water-saving labels, green building materials labels, and carbon labels. Vendors that have not obtained the environmental protection related mark or certificate number may follow the ISO50001 college energy management manual specifications, the purchases, products, and equipment each unit utilize or purchases may have a significant impact on the energy performance of campus operations, thus, establishing evaluation standards, implementing standards for energy use, consumption, and efficiency during the life of the plan or expected operation is extremely important. Units must inform the supplier when purchasing, implement the environmental ecological economics of the product life cycle, and practice the consistency of the environmentally friendly concept.

Proportion of recycled waste

The waste treatment department of the university is based on the waste disposal law of Taiwan and complies with the ISO14001 environmental management system standard. Formulating campus general waste disposal and resource recycling practices, including "Campus Resource Recycling Management Rules," "Resources and Garbage Classification and Recycling Implementation Points,"

and other regulations. The recycling resources implemented on campus include PET bottles, iron, and aluminum cans, aluminum foil bags, paper, waste batteries, toner cartridges, optical discs, kitchen waste, fallen leaves compost, large discarded furniture, and laboratory waste, etc. These are all recycled through recycling pipelines to avoid sending them directly to the incinerator for disposal. The resource garbage collection points of each building and the garbage bags of the resource recycling bins of the outdoor garbage collection sites are provided by the Office of General Affairs, and the cleaning and transportation companies are entrusted to the university to carry the garbage within a fixed time. Before the waste is transported out of the campus, the total weight of each time is measured by a floor scale, and the monthly data is collected and sent back to the Environmental Safety Center; the recyclables are based on the total weight of the recyclables collected by the recycler when the recycling is handled. In 2020, the amount of waste generated by the university is 666,381 kg, of which recyclables account for 15.02% of the total waste.

Waste tracking

The waste treatment department of TKU is based on the waste disposal law of Taiwan and complies with the ISO14001 environmental management system standard. Formulating campus general waste disposal and resource recycling practices, including the "Campus Resource Recycling Management Rules," and "Resources and Garbage Classification and Recycling Implementation Points." Recyclables include: PET bottles, iron, and aluminum cans, aluminum foil bags, paper, waste batteries, toner cartridges, optical discs, and kitchen waste, fallen leaves compost, large-scale discarded furniture, such as laboratory waste liq-

uid, etc., are recycled through recycling pipes to avoid sending them directly to the incinerator for disposal. The resource garbage collection points of each building and the garbage bags of the resource recycling bins of the outdoor garbage collection sites are provided by the Office of General Affairs, and the cleaning and transportation companies are entrusted to the university to carry the garbage within a fixed time. Before the university waste is transported out of the campus, the total weight of each time is measured by a floor scale, and the monthly data is collected and sent back to the Environmental Safety Center; the recyclables are based on the total weight of the recyclables collected by the recycler when the recycling is handled.

Proportion of waste recycled

Recyclables include PET bottles, iron, and aluminum cans, aluminum foil bags, paper, waste batteries, toner cartridges, optical discs, and kitchen waste, compost of fallen leaves, large-scale discarded furniture, and laboratory waste liquid, etc., all regenerated through recycling channels to avoid sending directly to the incinerator for disposal.

The proportion of recyclable waste: 15.02%

Amount of waste generated: 666,381 (KG)

Amount of recycled waste: 100,106 (KG)

Amount of waste shipped to landfill: 0

Publication of a sustainability report

Since 2019, TKU has issued an overall school sustainability report every year, and in 2020, it will focus on SDG4: Quality Education, SDG6: Clean water and sanitation, SDG7: Affordable and clean energy, SDG8: Decent Work and Economic Growth, SDG11: Sustainable Cities and Communities, SDG12: Responsible Consumption and production, SDG17: Partnerships for the Goals; 7 sustainable development goals to issue independent reports. In June 2021, the other book of the TKU Social Responsibility and Sustainability Report will be published, revealing the university's sustainable practices on-campus environment, social practice participation, and school governance for public references.



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



SDG12：負責任的消費與生產

2015 至 2019 年連續 5 年獲得新北市頒發綠色採購績優單位獎座

2020 年綠色採購金額：397 萬 1,940 元

2020 年採用低碳便當數量：15,000

2020 年透過回收系統再利用垃圾量：約 50,104 公斤



負責任消費與生產的實際行動

為了落實負責任的消費及生產，本校從源頭減廢、綠色採購、資源回收及危害預防四個方面來著手：

1. 源頭減廢：每一次消費，都在為我們想要的世界投票！因此本校不提供塑膠袋及一次性吸管，鼓勵師生外食不外帶，自備環保餐（杯）具享受折價優惠，推廣低碳便當（不鏽鋼鐵盒）等，都是以減廢的觀點出發，引導教職員工生養成環境友善的消費模式。
2. 綠色採購：落實採購前評估（優先以其他單位閒置品取代新購），於採購時優先購買對環境衝擊較少之產品，包括可回收、低污染、省資源的產品，特別以「環保（節能）標章」為先決原則，間接鼓勵綠色產品之生產。
3. 資源回收：遵守我國廢棄物清理法法令，並依據 ISO14001 標準落實執行各項資源回收，包括紙張、鐵鋁罐、寶特瓶、廢電池、碳粉匣及廚餘等，減少進入焚化爐之垃圾量。
4. 危害預防：本校設置環安中心妥善管理校園因教學、實驗而產出之有害物質，並結合 ISO45001 職業安全衛生標準（自 2012 年推動迄今）進行，包括設置抽風櫃避免人員遭受有害氣體危害、事業廢棄物與廢液具備專屬處理及清除程序等，確保人員健康與環境安全。

採購政策

1. 本校與餐飲廠商簽訂契約，契約內容要求廠商供應各項食品、食材應符合「食品安全衛生管理法」、「學校衛生法」及「農產品生產及驗證管理法」等相關規定，選用合格之供餐食品及食材，不得使用包裝不完整及未經檢驗合格之雜牌食品，並優先採用中央農業主管機關所推動溯源制度之在地優良農業產品，以及禁止使用含基因改造生鮮食材及其初級加工品。
2. 2001 年 7 月行政院頒布「機關綠色採購方案」，訂定「機關綠色採購績效評核作業要點」，本校雖不屬於本要點規範之公立學校內，但仍據以參照執行以支持綠色採購。2020 年本校淡水校園採購以環保標章為主的綠色產品金額高達 397 萬 1,940 元，2015-2019 年連續 5 年獲得新北市政府環保局頒發「綠色採購績優單位獎」。

危險廢棄物處理

1. 本校實驗室廢液回收清運處理依據「廢棄物清理法」第 28 條規定辦理，委託經中央主管機關核可之清運廠商（國立成功大學環境資源研究中心資源回收廠）代為清運處理，每年清運 1-2 次，並保留廢棄物運送聯單紀錄存查，確保校園實驗室廢棄物產出、貯存、清理過程皆依我國環保、工安、運輸等相關法規辦理。2020 年清運總重量約 2 噸。
2. 本校事業廢棄物主要為一般事業廢棄物，依照本校廢棄物管理與資源回收程序書進行分類、貯存及清除；部分屬於有害事業廢棄物，來自於學校衛生保健組之生物醫療廢棄物，則製作事業廢棄物清理計畫書，依政府規定辦理清運處理。

垃圾填埋量

本校廢棄物處理係依據我國廢棄物清理法，並遵守 ISO14001 環境管理系統標準，制定校園一般廢棄物處理與資源回收之作法，包括「校園資源回收管理規則」、「資源垃圾分類回收實施要點」等法規，以落實各項資源回收工作，減少垃圾量，使資源循環再利用，達成污染防治及污染排放減量之政策目標。規定垃圾分類分為：

1. 一般垃圾：資源垃圾以外，如複寫紙、蠟紙、塑膠光面之廣告宣傳用紙、塑膠包覆之封面及外封套、無污染性廢棄物、使用過的衛生紙等。
2. 資源垃圾：
 - (1)一般類：鐵罐、鋁罐、玻璃瓶罐、寶特瓶、塑膠瓶、鋁箔包、電池、小家電、燈管類等。
 - (2)紙類：報紙、書籍、雜誌、紙杯、包裝紙盒及不含油漬廢紙等。
 - (3)舊衣類（應自行送資源回收車或校外合法設置舊衣回收筒）。
 - (4)保麗龍：泡麵盒及防震保麗龍緩衝材等。
 - (5)塑膠袋：清理乾淨之各類材質塑膠袋。
 - (6)廚餘（熟食廚餘應置於各樓館廚餘回收筒；生食廚餘置於美食廣場廚餘筒或以一般垃圾處理）。

減少塑料使用

為符合政府環保法令要求，同時兼顧節能減碳與飲食健康，本校要求福利部門（餐飲）廠商限制使用一次性餐具，不提供塑膠袋、免洗筷、免洗湯匙等製品，以及內用不提供一次性塑膠吸管等規定，以期降低塑膠袋與塑膠製品的使用。同時藉由「外食不外帶」、「移除戶外垃圾桶」、「垃圾不落地」等教育宣導，減少校園垃圾量產生；透過活動、海報等文宣向教職員生宣導，鼓勵以自備(餐盒)代替免洗(餐具)。美食廣場各式販售餐點訂有環保分級價策略：自備餐具承裝享有最優惠 3-5 元之折扣，其次為內用，如未自備餐具外帶則須付出最貴之成本，引導教職員工生自備餐具。

減少一次性物品使用

依據本校淡水校園會議室借用要點第 6 點規定，借用單位如於會議室內有用餐需求，應響應環保政策訂購校內廠商提供之低碳便當，並確實做好廚餘分類。根據 ISO14001 環境管理系統要求，本校各單位使用會議室如需用餐，應向福利廠商訂購以不鏽鋼盒盛裝飯菜之低碳便當，減少一次性紙餐盒之使用；福利廠商以客製化搭配優惠價格製作便當餐盒，並可協助收送便當，減低對訂購單位的不便；學校則依訂購數量酌減收取廠商清潔費，互創三贏的局面。在連續 6 年將低碳便當訂購量列入本校環保安全衛生目標的追蹤管考下，成效顯著，每年皆有 2 萬個以上的訂購量；惟 2020 年受 covid-19 疫情影響，全年累計訂購量下滑至 15,000 個。

外包服務相關政策

1. 本校透過契約書要求福利部門餐飲廠商所訂購之飲食材料，餐飲廠商食品及環境衛生安全須遵守衛生福利部「食品安全衛生管理法」、「食品良好衛生規範準則」、「學校衛生法」、「學校餐廳廚房員工消費合作社衛生管理辦法」、「教育部大專校院餐飲衛生管理工作指引」、「新北市食品安全衛生管理自治條例」相關規定及本校食品衛生管理規定，亦需登錄於教育部推動之校園食材登錄平台，並備資料供教育主管機關或衛生主管機關查驗。
2. 本校衛生暨輔導委員會下設有膳食督導小組，憑證隨時督導廠商膳食、衛生、食品品質等，並以書面提出改善意見，廠商應於收到書面意見 3 日內速予改善。

供應鏈相關政策

為提倡環境永續，落實綠色採購，本校針對軟硬體設備、耗材及建築工程材料等辦理採購時，以能提供環保標章、節能標章、省水標章、綠建材標章及碳標籤等 5 大綠色標章產品之廠商優先承作。若未取得環保類相關標章或證號者，可依據 ISO50001 本校能源管理手冊規範，各單位在採購時預期到可能對校園運作能源績效產生顯著影響的服務、產品與設備時，將建立和實施評估在計畫或預期操作生命期間的能源使用、消耗、效率標準，評估標準包含能源績效，並在採購時告知供應商，以落實產品生命週期之環境生態經濟學，實踐從搖籃到墳墓一貫的環境思維。

廢棄物再生

本校廢棄物處理係依據我國廢棄物清理法，以及遵守 ISO14001 環境管理系統標準，制定校園一般廢棄物處理與資源回收之作法，包括「校園資源回收管理規則」、「資源垃圾分類回收實施要點」等法規。校園實施回收的資源回收物包括：寶特瓶、鐵鋁罐、鋁箔包、紙張、廢電池、碳粉匣、光碟片及廚餘、落葉堆肥、大型廢棄傢俱及實驗室廢液等等，皆透過回收管道再生利用，避免直接送至焚化爐處理。各樓館資源垃圾回收點及室外垃圾集中場資源回收筒垃圾袋由總務處提供，委託清運廠商於固定時間內到校載運垃圾。本校垃圾於載運出校園前，經由地磅量測每次總重量後，統一彙整每個月資料回傳環安中心；資源回收物則以實際辦理回收時，回收商測量所收集之回收物重量加總而成。2020 年本校產生廢棄物量為 666381 公斤，其中可回收物佔垃圾總量比例為 15.02%。



追蹤與測量

本校廢棄物處理係依據我國廢棄物清理法，並遵守 ISO14001 環境管理系統標準，制定校園一般廢棄物處理與資源回收之作法，包括「校園資源回收管理規則」、「資源垃圾分類回收實施要點」。資源回收物包括：寶特瓶、鐵鋁罐、鋁箔包、紙張、廢電池、碳粉匣、光碟片及廚餘、落葉堆肥、大型廢棄傢俱即實驗室廢液等等，皆透過回收管道再生利用，避免直接送至焚化爐處理。各樓館資源垃圾回收點及室外垃圾集中場資源回收筒垃圾袋由總務處提供，委託清運廠商於固定時間內到校載運垃圾。本校垃圾於載運出校園前，經由地磅量測每次總重量後，統一彙整每個月資料回傳環安中心；資源回收物則以實際辦理回收時，回收商測量所收集之回收物重量加總而成。

廢棄物回收比例

資源回收物包括：寶特瓶、鐵鋁罐、鋁箔包、紙張、廢電池、碳粉匣、光碟片及廚餘、落葉堆肥、大型廢棄傢俱及實驗室廢液等等，皆透過回收管道再生利用，避免直接送至焚化爐處理。

可回收廢物比例：15.02%

產生的廢物量：666381(KG)

回收廢物量：100106(KG)

運往填埋場的廢物量：0

永續報告書

本校自 2019 年開始每年發布學校整體永續發展報告，並於 2020 年開始針對 SDG4: Quality Education、SDG6: Clean water and sanitation、SDG7: Affordable and clean energy、SDG8: Decent Work and Economic Growth、SDG11: Sustainable Cities and Communities、SDG12: Responsible Consumption and production、SDG17: Partnerships for the Goals 等 7 項永續發展目標發布獨立報告。2021 年 6 月另出版《2020 淡江大學社會責任與永續報告書》(2020 Tamkang University Social Responsibility and Sustainability Report)，揭露本校關於校園環境、社會實踐參與以及學校治理等永續作為，供社會大眾參考。



TAMKANG UNIVERSITY

No.151, Yingzhuan Rd.,
Tamsui Dist., New Taipei City 251301,
Taiwan (R.O.C.)
Tel:+886-2-2621-5656