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In 2015, we all committed to achieving the United Nations “2030 Agenda for Sustainable Development” and its 17 Sustainable Development Goals (SDGs). The National Taiwan University in particular, is uniquely positioned within the free and open global community to aid in the effort of achieving the SDGs by contributing our solutions to ending poverty, fighting inequality and building a peaceful, just and sustainable society.

From democratizing information and educational opportunities across all society, to facilitating Indigenous and international knowledge exchange, the National Taiwan University goes beyond instruction, research, and policy-shaping alone. Instead, we aim to foster mindsets that embrace innovation and sustainability among our students, faculty, researchers, and the public. The decisions that our leaders of tomorrow will make, are influenced by the mindsets we cultivate today.

The National Taiwan University plays a crucial role in transitioning both local and global communities to our shared sustainable future. We recognize the exceptional duty we have to society to lead progress towards achieving the SDGs, and to those young minds who will in fact lead the way. Our commitment to do so is demonstrated in the National Taiwan University culture and the values with which we conduct our academic activities, research, and other endeavors.

The following report is an overview of the National Taiwan University’s contributions to achieving the SDGs. While not limited to the activities listed, this report includes many poignant examples that aim to convey the level of engagement that our faculty and students operate within. In many cases, the successes found in this report are the result of long-term collaborations between local communities, global partners, and an impassioned public with whom we freely progress toward our sustainable future together.
Since 2000, national anti-poverty programs in Taiwan have been designed with the aim of increasing low-income family participation in savings matching. In 2018, the Taiwan “Children’s Future Education and Development Accounts” Act was passed and encourages disadvantaged families to save for their children’s future education by creating publicly subsided saving accounts. NTU also takes social responsibility to ensure NTU students from disadvantaged low-income and immigrant households have access to resources with various university anti-poverty programs. These programs, such as the NTU Hope Project, were launched to help disadvantaged students academically via active and collaborative learning groups, as well as tutoring tailored to students’ needs.

University anti-poverty programs

◆ To shoulder NTU’s social responsibility, NTU launched the “Hope Project” in 2015 for disadvantaged students from low-income households and immigrant households. NTU also created a Support Group and assigned tutors and teaching assistants to supervise students who are a part of the Hope Project. To help these students cope with academic difficulties, NTU provides individual academic counseling and group tutoring tailored to students’ needs. Since academic improvements in multiple subjects may be necessary for students, NTU provides subject-specific classes such as Computer Programming and English. Students from diverse backgrounds can study together to develop new skills, and can participate in active learning and collaborative learning with international student study groups.

Community anti-poverty programs

◆ Since 2000, the idea of building assets for low-income households has been adopted as a key element in designing anti-poverty programs in Taiwan. The “Taipei Family Development Account”, was piloted in Taipei as Taiwan’s first assets-based program for low-income families which provides matched savings. Later expanding throughout Taiwan, thousands of low-income families have since improved their economic conditions as a result of participating in the savings matching program. Through incremental policy innovations, asset-building programs implemented for low-income families have been shaping the terms of local policy debates, fostering local experiences influential in program design, and building supportive coalitions to support policy ideas. On June 6, 2018, the Taiwan “Children’s Future Education and Development Accounts” (CFEDA) Act was passed. The legislation is expected to provide matched savings for every child born into low-income families for the next 18 years and beyond. The policy encourages disadvantaged families to save for their children’s future education by creating publicly subsided saving accounts.
NTU provides low-income students, lower-middle-income students, and students whose families are in hardship with monthly living allowances of $4,000NT for use at campus stores and restaurants. To combat hunger related to local agricultural production, NTU provides local farmers with agricultural research results at local workshops with internationally renowned specialists who instruct farmers on disease detection and control techniques. NTU graduate-level and undergraduate-level students from agriculture programs also take courses that teach sustainability concepts including hunger mitigation.

Student hunger

◆ Living allowance meal project: NTU provides $4,000NT per month to low-income students, lower-middle-income students, and students whose families are in hardship, which can be spent at NTU campus stores and restaurants. In 2018, NTU provided 374 disadvantaged students with approximately $7,473,000NT in living allowance.

National hunger

◆ To provide agricultural researchers and local farmers with disease detection and control techniques for strawberry anthracnose disease, Dr. Seiju Ishikawa (Professor, Hosei University, Japan) and Dr. Natalie A. Peres (Professor, University of Florida, USA) were invited to share their experiences in two workshops held at the Miaoli District Agricultural Research and Extension Station, and the Department of Plant Pathology and Microbiology, National Taiwan University, respectively.
NTU has many global partners in collaborative research on public health policy, superfund studies, agro-biomedical science in food and health; and is a member of global consortiums, associations, and alliances of universities and research centers for global public health. NTU has MOUs with local hospitals and international universities for overseas internships and research, as well as MOUs with the Taiwan Ministry of Education’s Public Health and Sustainable Environment Innovation and Research Center and Changhua communities, Changhua County, and Lienchiang County. In addition, NTU Health Center collaborates with NTU Hospital as a member of the NTU Hospital Family Doctor Integrated Delivery System, and the Star–Moon Network; and holds annual lectures on AIDS prevention, and a weekly low-cost gynecology clinic for sexual and reproductive healthcare consultation for NTU faculty and students.

Health Impact

Global Collaborations

- Participation in Japan’s Institute for Global Health Policy Research (iGHP), agreement for a Double Degree Program Between National Taiwan University and Kyoto University for Implementation of a Program between National Taiwan University College of Public Health and Kyoto University School of Public Health. The Population Health Research Center signed a Memorandum of Understanding with Texas A&M University Superfund Research Center and Japan’s Chiba University.
- Agreement on the Establishment and Management of a Joint Degree Program in Agro-Biomedical Science in Food and Health among University of Bordeaux, University of Tsukuba, and National Taiwan University.
- NTU is member of the Consortium of Universities for Global Health (CUGH), the Asia-Pacific Academic Consortium for Public Health (APACPH), the Association of Schools and Programs of Public Health (ASPH), the Association of Pacific Rim Universities (APRU), and the M8 Alliance of Academic Health Centers, Universities and National Academies.
- The College of Public Health signed a Memorandum of Understanding with the Pingtung Christian Hospital and provides internship opportunities in African countries.
- Memorandum of Understanding with Osaka University’s Graduate School of Human Sciences/School of Human Sciences.

Local Collaborations

- The College of Public Health signed a Memorandum of Understanding between the Taiwan Ministry of Education’s Public Health and Sustainable Environment Innovation and Research Center and the Changhua communities; Changhua County; and Lienchiang County.
- In addition, NTU Health Center collaborates with NTU Hospital to provide better healthcare and well-being outcomes. Since 1997, NTU Health Center has been a member of the NTU Hospital Family Doctor Integrated Delivery System. In 2019, NTU Health Center also joined the Star–Moon Network of NTU Hospital, which promotes bi-directional referral and information exchange of patients. NTU also collaborates with other health institutions on various research projects.

Provide Students Access To Free Sexual And Reproductive Health-care Services

- NTU Health Center holds lectures on AIDS prevention every year. The lectures are recorded and made available on their website for those who can’t join. NTU Health Center has a gynecology clinic every week for sexual and reproductive health-care consultation. The medical fee is $50 NTD under the Taiwanese National Health Insurance scheme for NTU faculty and students.
NTU democratizes educational opportunities and facilitates knowledge exchange with 2,600 lecture videos on the NTU SPEECH website, over 200 OpenCourseWare on the NTU OCW website, 56 high-quality MOOCs on Coursera, and over 15 million views on the NTU OCW website. NTU continues to provide open educational resources to the public for self-learning and life-long learning cultivation. The NTU Computer and Information Networking Center (CINC) offers a series of foundational informatics courses, and forthcoming advanced informatics courses and high performance computing (HPC) courses open to anyone seeking to update their technology skills. Additionally, NTU CINC also hosts a Knowledge Archive Network, an open access digital archive for sharing videos and teaching materials, and publishes a current technology newsletter.

**Lifelong learning opportunities**

- National Taiwan University has made great effort to provide open educational resources for NTU students and the public, to cultivate self-learning and life-long learning in society. NTU has provided over 2,600 lecture videos on the NTU SPEECH website, over 200 OpenCourseWare on the NTU OCW website, and 56 high-quality MOOCs on Coursera. Moreover, the NTU OCW website has attracted over 15 million viewers, democratized educational opportunities, and further facilitates knowledge exchange.

- The NTU Computer and Information Networking Center (CINC) offers a series of informatics courses. Applied informatics courses focus on teaching foundational concepts and skills. In addition to foundation courses, the NTU CINC plans to offer advanced informatics courses and high performance computing (HPC) courses. The topic of courses include word processing, multimedia animation, web design, video imaging, program design, operating systems, database management, statistical software, information networks, and more. Enrollment in the above courses is not limited to NTU students and staff, but is open to anyone seeking to update their technology skills. In 2018, NTU CINC offered 87 courses to 2,291 enrolled students. In addition to applied informatics courses, NTU CINC also provides an online course platform, the Knowledge Archive Network, which is a digital archive platform for sharing videos and teaching materials, with free access. In 2018, more than 400 courses and 300 instructional files were stored on this platform. Besides offering on-site and online course, NTU CINC also publishes a CINC newsletters. The newsletter is a knowledge sharing tool for anyone who wants to understanding the scope of NTU CINC and stay current on information about technology.
NTU takes Taiwan's Gender Equality Education Act seriously and will not treat any prospective students differently on the basis of their gender, gender traits, gender identity, or sexual orientation. In 2018, NTU students are among the prestigious “Taiwan Outstanding Women in Science Award”, also known as Taiwan's Nobel Prize for Women. The male to female student ratio at NTU is 3:2.

**National Taiwan University study completion rate**

- Taiwan's Gender Equality Education Act states that “Educational institutions conducting recruitment or giving approvals for admission are not permitted to treat any prospective student differently on the basis of their gender, gender traits, gender identity, or sexual orientation.” [https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=H0080067](https://law.moj.gov.tw/ENG/LawClass/LawAll.aspx?pcode=H0080067)
- According to the 2018 NTU Annual Report, the ratio of male/female students at NTU is 3:2. Number of male and female students, sorted by college, 2018)

**First generation women**

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**Proportion of women in senior positions**

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**Admissions gender mix**

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**Overall research performance**

- **Scholarly Output**: 23
- **Views Count**: 4,958
- **Citation Count**: 1,519
- **Field-Weighted Citation Impact**: 16.28

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Using certified shipping and treatment agencies, real-time water quality monitors, and regular water quality testing, NTU takes care to ensure that NTU laboratory waste does not enter the public water system or the sanitary sewer system. NTU water dispensers can be found throughout the campus and are bacteriologically monitored to maintain hygienic standards. NTU also provides educational opportunities for local communities to learn about good water management when its researchers conduct local studies such as those on community-led river conservation.

Water usage and care

- The general waste water discharged from NTU is included in the Taipei City sanitary sewer system. In the case of highly pollutant waste liquids produced by NTU laboratories, these are shipped under supervision to qualified facilities for final treatment and do not enter the public water system, or even the sanitary sewer system. Therefore, the public water system is not affected by the polluted liquids produced by NTU.
- In addition, NTU buildings with many chemical laboratories are equipped with real-time water quality monitors. Water samples are also collected annually and examined by qualified third-party testing agencies to ensure water quality meets standards.
- NTU provides water dispensers in classrooms, laboratories, conference rooms, student dormitories, and gymnasiaums. According to the NTU "Drinking Water Management Act" and the "Operation and Maintenance of Water Supply System" regulation, one-eighth of NTU water dispensers are bacteriologically monitored over a period of 3 months to evaluate their hygienic status. In 2018, 384 water dispensers were legally inspected. In 2019, 294 water dispensers were tested.

Water in the community

- An NTU representative published an original research paper investigating the evolution of community-led river conservation, with a focus on the Balien River Conservation Guard (BRCG). The investigation used a qualitative method to retrieve related literature such as research reports, community events, local chronicles, and newspapers. Additionally, fieldwork and in-depth interviews were conducted from March through April 2015. Two workshops, participants of which including selected 11 interviewees from 34 BRCG members and 3 officers, were also held to discuss how community actors affect the coalition of river conservation actions in the Sanzhi District of New Taipei City Government. This investigation provided educational opportunities for local communities to learn about good water management.
Since 2007, NTU has upgraded campus building energy efficiency systems and continues to work on energy efficiency projects. NTU has 18 “Green Building Label” buildings that meet the Taiwan government’s energy efficiency criteria in design, reusable energy, and electricity management systems. The NTU Library has successfully reduced its electricity consumption based on a 5-year monitoring plan. In 2018, NTU offered a course on the human environment where students explored the correlation between NTU course schedules and power consumption to consider university energy saving schemes. NTU faculty participate in multi-year SDG projects for the Taiwan Ministry of Science and Technology, Taiwan Council of Agriculture, and the Taiwan Center for Sustainability Science.

University measures

- Starting in 2007, NTU has been upgrading and tracking 25 buildings’ energy efficiency. Among the 25 buildings, 17 have completed the upgrades and 8 are currently working on energy efficiency projects, including new air conditioning installations, T5 and emergency lighting system maintenance and brightness testing, and geothermal heat pump and fume hood upgrades. After monitoring the electricity consumption for more than five years, the NTU Library has successfully cut back on electricity wastage.
- New buildings have to acquire a “Green Building Label” issued by the Taiwan government, meeting the criteria for energy efficiency through the use of exterior energy-efficient designs, energy-efficient air conditioning, energy-efficient lighting, reusable energy, and electricity management systems. NTU has 18 buildings that have acquired a “Green Building Labels”, reaching a total of 179,585 square meters.
- Since school curriculum can be taken into account for differences in electricity consumption at different times, thus allowing for a reduction in the power consumption of classes; NTU offered a course on the human environment that was offered in the 2nd semester of the 2018 academic year. In this course students are guided in a study titled, “Take Electricity Consumption of NTU Buildings into Consideration for Course Arrangement”, to explore the correlation between NTU curriculum and power consumption, and to consider energy saving in future courses.

Energy and the community

NTU faculty participate in SDG issues through the execution of projects, participation in activities, and publication of original research papers.

- 2013–2018 APEC Multi-Year Project (M SCE 02 2013A)–“Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain” research projects
- 2019 “Reducing Food Loss & Waste (FLW) for Addressing Interlinked Challenges of Food Security and Climate Change in APEC Member Economies” research project
- 2016–2018 Taiwan Ministry of Science and Technology “Metric, Models and Foresight for European Sustainable Food and Nutrition Security” research projects
- 2015–2018 Taiwan Council of Agriculture “Enhance the International Cooperation with APEC on the Technology of Reducing Food Losses and Industry Development” research projects
- 2016–2018 Taiwan Ministry of Science and Technology “An Integrated Study of the Water – Energy – Food Nexus and a Decision Support System for Sustainable Urbanization in Taiwan” cross-domain integration projects
- 2011–2018 Taiwan Council of Agriculture “Assessment of GHG Emission Baseline and Reduction Impact on the Sector of Agriculture and Forestry in Taiwan” research projects
- 2018–2020 Taiwan Academia Sinica’s Center for Sustainability Science “An Economy-Wide Impact Assessment of Paris Agreement on Taiwan’s Environmental Governance and Renewable Energy Development Strategies Towards a Low-Carbon Society” research projects
NTU pays all staff and faculty at minimum a living wage according to the Taiwan Labor Standards Act and the university wage scales. NTU is committed to ensuring that gender pay gaps are eliminated, in a society with zero tolerance for forced labor, modern slavery, human trafficking, and child labor.

- **Inward investment / economic impact**
  - Academic staff: 2499.7
  - Employees: 8045.7

- **Employment placement**
  - Students with work placements for more than a month: 10252
  - Students: 27253.89

- **Employment security**
  - Employees on contracts of over 24 months: 3724.4
  - Employees: 8045.7

- **Overall research performance**
  - Scholarly Output: 84
  - Views Count: 3,145
  - Citation Count: 739
  - Field-Weighted Citation Impact: 1.14
NTU currently owns 4 spin-offs while 10 companies are currently capitalizing on NTU-originated intellectual property.

Spin-offs
◆ There are 4 spin-offs with institutional ownership, and 10 companies set-up to capitalize on intellectual property that has originated from NTU.

Industry income from industry
◆ Total NTU Returns on Research & Development is $10.2 billion NT.

The number of academic staff is 2499.7.

Overall research performance
Scholarly Output 61
Views Count 1,571
Citation Count 428
Field-Weighted Citation Impact 1.19
Overall research performance
Scholarly Output 33
Views Count 753
Citation Count 80
Field-Weighted Citation Impact 0.37

NTU takes measures to mitigate discrimination and to assist disadvantaged students such as with NTU’s: Hope Plan, Special Talent Plan, Individual Application Plan, Star Plan, as well as select admission quotas for Indigenous students and student athletes. NTU also has several policies in place to foster safe workplace environments, and to deter sexual assault, sexual harassment, and bullying on campus. Services for disabled students include scholarships for comprehensive care during schooling and financial aid for academic support.

Measures against discrimination
Assistance to disadvantaged students are as follows:
◆ “Hope Plan” enrolls students from economically disadvantaged families (low-income and low-middle-income households), and socially resources and environmentally disadvantaged families (special circumstances and children of new residents)
◆ “Special Talent Plan” selects those students with special talents in a single subject (or professional and technical field) and who may not gain admission to our school through the general entrance examination.
◆ "Individual Application Plan“ admits extra enrollments, including government-supported medical students, students who are outlying islands residents or Indigenous peoples, and government-supported medical students who are outlying islands residents or Indigenous peoples.
◆ “Star Plan" cares for students in rural areas, and provides extra enrollments for indigenous peoples.
◆ Special examinations for students with mental and physical disabilities are handled by the Committee for the Physical and Mental Disabilities.
◆ Examination admission distribution is provided by the Examination Admission Distribution Committee to provide extra points for overseas students, Indigenous peoples, Mongolian and Tibetan students, children of expatriates, and veterans.
◆ Special admissions for excellent student athletes, children of expatriates, students with four skills and two vocational skills, overseas Chinese students, and foreign students are available.

Anti-discrimination and anti-harassment policies are as follows:
Policy created
◆ 2006 National Taiwan University Sexual Harassment Prevention Statements
◆ 2004 National Taiwan University Campus Sexual Assault, Harassment or Bullying Statements
◆ 2006 National Taiwan University Gender Discrimination in the Workplace Statements
Policy reviewed
◆ 2017 National Taiwan University Sexual Harassment Prevention Statements
◆ 2019 National Taiwan University Campus Sexual Assault, Harassment or Bullying Statements
◆ 2019 National Taiwan University Gender Discrimination in the Workplace Statements

Services for the disabled are as follows:
◆ Financial aid for academic support, including tutoring services and class assistance (note taking, live captioning, personal assistants, etc.)
◆ Scholarship for comprehensive care, including making good use of learning resources (tutoring, career counseling, etc.)
◆ Evaluate and report special needs to the NTU Special Education Students Diagnosis and Placement Counseling Committee for funding, resources, and services.
◆ Develop an Individual Support Program (ISP) for each student with a team consisting of department directors, advisors, students, parents, counselors, and special education professionals.
The NTU Museums are a free and open-to-the-public network of 10 galleries and exhibition halls among various campus locations that house specimens, literature, and cultural artifacts from NTU’s recent past. NTU faculty, students, and visitors are encouraged to walk and bike on campus, while vehicle traffic use is restricted on campus. The NTU campus and its green spaces are easily accessible as NTU is near subway and bus public transportation stations as well as public use city bicycle stations.

**Arts and heritage**

- NTU founded “NTU Museums”, integrating a tremendous wealth of specimen, literature, and cultural pieces dated from 1928, for general public access. The NTU Museums currently include the NTU History Gallery, the Museum of Anthropology, the Geo-Specimen Cottage, the Heritage Hall of Physics, the Insect Museum, the Agricultural Exhibition Hall, the Herbarium, the Museum of Zoology, the Archives, and the Museum of Medical Humanities. Among these museums, the NTU History Gallery, the Museum of Anthropology, the Insect Museum, and the Museum of Medical Humanities are housed in nationally recognized historical monuments, while the NTU Agricultural Exhibition Hall is located in a nationally recognized historical building. Access to all museums is admission free and open to the general public.

- NTU has accumulated a wealth of specimen, literature, and cultural artifacts for nearly a century since its founding in 1928. The NTU collections, are among the finest and most comprehensive in Taiwan, and are housed in various departments and units on campus for both research and educational purposes. NTU Museums was inaugurated on November 15, 2007 (organized and coordinated by the NTU Library) to integrate resources and give the general public more access to the NTU collections. It currently includes the NTU History Gallery, the Museum of Anthropology, the Geo-Specimen Cottage, the Heritage Hall of Physics, the Insect Museum, the Agricultural Exhibition Hall, the Herbarium, the Museum of Zoology, the Archives, and the Museum of Medical Humanities, all of which are admission free and open to the general public. In 2018, NTU Museums attracted 103,194 visitors.

**Sustainable practices**

- The NTU campus is close to two Taiwan Mass Rapid Transit (MRT) subway and bus stations. There are public bicycles around the campus to facilitate the transfer between on-campus and off-campus public transportation. NTU also provides inter-campus transportation for faculty, staff, and students between the main campus and the NTU medical campus. NTU encourages its faculty, staff, and students to use public transportation to commute. NTU also has a policy in place to reduce motor vehicle traffic inside campus through the restricted use of parking spaces.

- NTU has a people-oriented transportation policy on-campus. Pedestrians and bicycles have the right-of-way on on-campus roadways. NTU encourages its faculty, staff, and students to walk or use bicycles on-campus, and to use public transportation to reduce on-campus parking space requirements. NTU faculty and students have priority to use NTU’s green space for their on-campus activities. NTU green spaces are accessible by foot and emergency vehicles only.
NTU prioritizes green procurement of products and services according to Taiwan’s Environmental Protection Agency. NTU restaurants use environmentally friendly tableware, have banned plastic straws and melamine tableware, and require payment for plastic bags. NTU student clubs also promote plastic reduction on campus through projects and initiatives such as the “Better-cup rental system” and the “Unpacked store” which promote tableware borrowing. Recycled waste on NTU is nearly one-quarter of total waste, while NTU laboratory produced wastes are processed and registered via an online application system.

Operations

◆ The Taiwan Environmental Protection Agency has promoted a green procurement policy since 2002, and NTU is obliged to buy products with less impact on the environment. Since 2011, NTU gives priority to purchasing the products or services provided by welfare institutions, groups with disabilities, or sheltered workshops according to the rules of “People with Disabilities Rights Protection Act”.

◆ NTU requires online application for the disposal of all types of laboratory waste resulting from experiments and tests. When specific wastes accumulate to an appropriate amount, transportation for disposal shipment will be scheduled. NTU applicants will be notified of the collection time and designated location for waste collection and shipment.

◆ Since 2006, NTU restaurants have provided environmentally friendly tableware for customers. The use of disposable tableware was restricted in 2008. If disposable tableware and plastic bags are needed, customers must pay $1 NT for each plastic bag. In addition, since July 2019, disposable plastic straws and melamine tableware are not provided.

◆ The NTU Roots & Shoots, one of the student clubs in our university, has been promoting tableware borrowing services on campus for many years, encouraging teachers and students to borrow tableware. In 2018, they will further promote the “Unpacked Store” project, so that the unpacked business model will be implemented on campus. In 2018, a group of NTU students launched a “Better- Cup Rental System” to reduce the use of disposable cups. On NTU campus plastic reduction is a common and natural way of life.

Percentage of waste recycled (2018)
NTU aims to reduce electricity, oil, water, and paper consumption annually. Using a payment and reward electricity fee sharing scheme, NTU has decreased its annual electricity consumption and continues to use low-carbon electricity. NTU has also decreased its annual water consumption. Working collaboratively with University of California San Diego, NTU will offer a pilot course modeled after renowned Professor Veerabhadran Ramanathan’s “Bending the Curve: Climate Change Solutions” course on scalable solutions for carbon neutrality and climate stability.

Low carbon energy use

◆ NTU reduces annual electricity, oil, water, and paper consumption, with the aim of negative consumption in line with the “Four Savings Project”. Using 2007 as the base year, the overall savings goal in electricity, water, and oil consumption was 10% each by 2015.

◆ Since 1998, NTU has implemented an electricity fee sharing scheme. Since 2012, NTU requires payments for excess power consumption, and rewards power savings that exceed standards. From 2017 to 208, NTU electricity consumption has decreased by 2,257,662 degrees, or 1.7%. NTU uses approximately 139,372 GJ of low-carbon electricity since the proportion of regeneration, pumped storage, and nuclear power generation in Taiwan is was 28.9%.

◆ NTU has continuously updated its water pipes and tracked monthly water consumption resulting in decreased water consumption. In 2018, NTU water consumption was 1,795,018 m³, a decrease of 1.34% from the previous year.

Environmental Education including Disaster Planning

◆ An NTU pilot course will be offered and is based on the model course, Bending the Curve: Climate Change Solutions course, designed and produced by a University of California (UC) education team including: Prof Veerabhadran Ramanathan of UC San Diego who is the leading academician of climate change and also the award winner of the 2018 Tang Prize. The model course focuses on scalable solutions for carbon neutrality and climate stability, and adopts climate change mitigation policies, technologies, governance and actions that California, the UC system, and cities around the world have adopted as living laboratories and challenges students to identify locally and globally scalable solutions. The model course also adopts the Ten Scalable Solutions as determined by fifty faculty from the 10-campus UC system under the UC’s Carbon Neutrality Initiative. This NTU pilot course on climate change solutions provides the tools to NTU undergraduate students for exploring practical, scalable solutions. NTU will collaborate with the UC to introduce this model course to the NTU campus as the first teaching partnership outside of California (USA). This NTU pilot course will introduce the Bending the Curve course to NTU students and connect the model course with the Taiwan local and regional experience.
The NTU Committee of Fishery Extension coordinate fishery and aquaculture education, and assists fishery organizations with new fishery techniques and management. The NTU Research Center for Future Earth supports aquatic ecosystems by hosting international workshops on topics such as climate change and anthropogenic environmental signals in coral. NTU is sensitive to its waste water disposal, ensures laboratory waste water does not affect the public water system, and monitors its water quality closely.

Supporting aquatic ecosystems through education

◆ NTU promotes water conservation education through inter-collegiate mini-courses or co-teaching methods, combined with a living lab approach. NTU representatives conducted a project that is currently in implementation since 2016 titled, "The Climate Adaptation Teaching Alliance Program (Northern Region)" for the Taiwan Ministry of Education. NTU Prof. Ching-pin Tung is the principal investigator who is an expert in the water resources field, while the co-principal investigator is also an NTU professor and an expert in the field of biodiversity. The project has cultivated climate change academic specialists in the fields of water resources, disasters, energy supply and industry, agricultural production, and biodiversity.

◆ The NTU Committee of Fishery Extension, (CFE) was established in 1986 by the approval of the Taiwan Ministry of Education. The purpose of CFE is to coordinate fishery and aquaculture education, research and extension on fishery or aquaculture technology; and to assist fishery organizations in obtaining new techniques and management in the field of fishery. CFE is comprised of 4 Professors, 1 Secretary, and 1 Administrative Staff. The professors make efforts to support CFE assignments.

Supporting aquatic ecosystems through action

◆ NTU Research Center for Future Earth organized "Workshop on Understanding the Pan-Pacific Anthropocene" on October 27, 2018. Session topics include Biodiversity. Dr. Yusuke Yokoyama (Atmosphere and Ocean Research Institute, The University of Tokyo) presented "Climate change and anthropogenic environmental signals captured in high-resolution coral skeletal geochemistry."

Water sensitive waste disposal

◆ The general waste water discharged from NTU is included in the Taipei City public sanitary sewer system. The highly pollutant waste liquids produced by NTU laboratories are shipped under supervision to qualified facilities for final treatment and do not enter the public water system or even the sanitary sewer system. Therefore, the public water system is not affected by polluted liquids produced by NTU.

◆ In addition, NTU buildings with many chemical laboratories are equipped with real-time water quality monitors. Water samples are collected annually and examined by qualified third-party testing agencies to ensure water quality meets standards.
NTU supports and organizes conservation and sustainable land-use events and works directly through research projects to maintain ecosystems and their biodiversity under threat. On campus, the NTU Campus Planning Office has protected “green spaces” from construction encroachment, and has encouraged all departments to conduct 3D-greening of their buildings. NTU is sensitive to its general waste and waste water disposal, and ensures laboratory wastes of all types do not affect the public sanitary sewer system or water system. NTU also monitors its water quality closely and annually tests to ensure water samples are within regulation.

Supporting land ecosystems through education
- NTU supports and organizes events aimed to promote conservation and sustainable utilization of the land, including forests and wildland; and work directly to maintain and extend ecosystems and their biodiversity especially ecosystems under threat

Supporting land ecosystems through action
- Based on a long-term campus planning and development strategy, NTU has designated several green areas, woods and lakes as permanent green spaces on campus. Through the deliberation of the NTU Campus Planning Office, NTU green space will not be reduced when new construction on campus is planned. NTU also has a policy to maintain campus conservation and to sustain the campus’ ecological environment. NTU encourages all departments to carry out three-dimensional greening of their buildings and facilities to achieve the goal of a sustainable campus.

Land sensitive waste disposal
- NTU Regulations for the Storage, Clearance, and Disposal of Laboratory Waste require an online application for the disposal of all types of laboratory wastes resulting from experiments and tests. When specific wastes accumulate to an appropriate amount, the transportation for shipment is scheduled, and applicants are notified of the collection time to designated location for collection and shipment.
- The general waste water discharged from NTU is included in the Taipei City public sanitary sewer system. Highly pollutant waste liquids produced by NTU laboratories are shipped under supervision to qualified facilities for final treatment and do not enter the public water system or even the sanitary sewer system. Therefore, the water system is not affected by polluted liquids produced by NTU. In addition, NTU buildings with many chemical laboratories are equipped with real-time water quality monitors. Water samples are collected annually and examined by qualified third-party testing agencies to ensure water quality meets standards.
The NTU University Affairs Meeting is the governing body of the university. Representatives at the meeting are elected faculty, researchers, teaching assistants, staff, representatives, and students. The NTU College of Law's Policy and Law Center for Environmental Sustainability is deeply involved in Taiwan's environmental legal system, collaborating with international institutions and scholars to address the latest environmental issues both globally and in Taiwan.

**Governance**

- NTU's University Affairs Meeting is the supreme governing body of the university. Articles 36 and 37 of the NTU Organizational Regulations stipulate that representatives of faculty, researchers, teaching assistants, staff, messengers/custodians, and students at the University Affairs Meeting are elected through voting.

**Participation in local, regional and national government (and others)**

- Since its inception in 2009, the NTU Policy and Law Center for Environmental Sustainability College of Law (PLES) has entered its tenth year. PLES has been deeply involved in the establishment of Taiwan's environmental legal system. PLES reflects on and reviews Taiwan's environmental legal system's practices, and cooperates with international institutions and scholars to address the latest international environmental issues. During these ten years, PLES provides an open and secure deliberative platform with the latest environmental information that is used by all parties to freely discuss environmental issues.

**Number of total graduates from law and enforcement related courses**

<table>
<thead>
<tr>
<th>ISCED Level</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISCED 8 (Doctoral level) from law and enforcement related courses</td>
<td>7</td>
</tr>
<tr>
<td>ISCED 7 (Master's level) from law and enforcement related courses</td>
<td>166</td>
</tr>
<tr>
<td>ISCED 6 (Bachelor level) from law and enforcement related courses</td>
<td>950</td>
</tr>
<tr>
<td>total graduates from law and enforcement related courses</td>
<td>1,123</td>
</tr>
</tbody>
</table>
Relationships with NGOs, Regional and National Governments

- Prof. Minn-Tsong Lin and Prof. Yu-Pin Lin are steering committee members and the principal representative members of the Belmont Forum. The Belmont forum is an international organization that aims to amplify research capacity in sustainability science and to promote SDGs. Belmont Forum Steering Committee Member Principal, Minn-Tsong Lin (Department of Physics, Distinguished Professor), Principal’s Representative, Yu-Pin Lin (Department of Bioenvironmental Systems Engineering, Distinguished Professor).

- The Taiwan Executive Yuan’s National Council for Sustainable Development committee members include NTU faculty: Prof. Lucy Sun Hwang (Institute of Food Science and Technology); Prof. Tien-pen Hsu (Institute of Civil Engineering); Prof. Jiun-chuan Lin (Department of Geography).

- NTU College of Public Health faculty, Dr. Shu-Sen Chang is consulted by Taiwan Ministry of Health and Welfare and the Taiwan Council of Agriculture regarding Taiwan’s national policy to ban paraquat for pesticide-induced suicide mitigation which was cited by the World Health Organization in its World Health Statistics 2017 report; the Taiwan Office of Energy and Carbon Reduction and the Taiwan Ministry of Science and Technology, for which NTU faculty help to coordinate the different ministries and agencies involved in projects as committee members;

- and various Taipei City government and New Taipei City government councils and committees for environmental protection and sustainable development.

- NTU Department of Political Science faculty, Prof. Tze-Luen Lin, has served as Deputy Executive Director of the Taiwan Executive Yuan (Premier’s Office), Office of Energy and Carbon Reduction since 2016. Within the administration, he leads planning and implementation of renewable energy targets and carbon reduction efforts, helping to coordinate the different ministries and agencies involved.
Taiwan Ministry of Science and Technology Department of Natural Sciences and Sustainable Development’s Review Committee includes NTU faculty: Prof. Tsang-Jung Chang (Department of Bioenvironmental Systems Engineering), Prof. Chung-Che Chou (Department of Civil Engineering), Prof. Yu-Chen Ou (Department of Civil Engineering), Prof. Tsun-Jen Cheng (College of Public Health), Prof. Sue-Ching Jou (Department of Geography).

Taipei City Government Department of Environmental Protection’s Sustainable Development Council committee members include NTU faculty: Deputy Executive Manager, Prof. Chang-Chan Chan who is Dean of both the College of Public Health; and the Institute of Environmental and Occupational Health Sciences.

Taipei City Government Department of Environmental Protection’s Sustainable Development Council committee members include NTU faculty: Prof. Hwong-Wen Ma (Graduate Institute of Environmental Engineering); Prof. Ling-Ling Lee (Institute of Ecology and Evolutionary Biology); Prof. Jiing-Yun You (Department of Civil Engineering); Prof. Yen Feng (Department of Social Work) New Taipei City Government’s Department of Environmental Protection, and the Sustainable Development Council of New Taipei City.

In 2018, NTU College of Public Health faculty, Dr. Shu-Sen Chang, was commissioned by the New Taipei City Government’s Department of Public Health to complete a report evaluating the trends in suicide and self-harm (SDG indicator 4.3.2: suicide mortality rate) in New Taipei city to inform the city’s prevention strategies.

Prof. Hwong-Wen Ma (Graduate Institute of Environmental Engineering, Professor), Prof. Ling-Ling Lee (Institute of Ecology and Evolutionary Biology, Professor), Prof. Jiing-Yun You (Department of Civil Engineering, Associate Professor), Prof. Yen Feng (Department of Social Work, Professor) were the members of Sustainable Development Council of New Taipei City.