

POLITECNICO DI MILANO

VC&T fab





## Strategic programme

### CAMPUS SOSTENIBILE - ENVIRONMENT

Within the 'Environment' line of action, the Campus Sostenibile project aims to improve the management of resources and waste, encouraging practices such as reuse, recycling and waste separation. These activities can be broadly divided into resource management and waste management.

### Resource management

The various activities carried out in order to enhance the resource management at Politecnico can be classified in 5 main groups:



Key actions in the area of sustainable resource management include:

- **Cingomma project:** The project consists in **collecting inner tubes and tyres** from different areas of the University (identifiable through an interactive map), which are used to make belts and other items (by an external partner) and then sold through Politecnico Official Merchandise channel. The experimental project also aims to help **disseminate the principles of the circular economy**, raising awareness among Politecnico community and the general public on the increasingly important issue of waste prevention. Politecnico makes some of its spaces available to enable the **implementation**



**of experimental projects for the collection, reuse and recycling of materials.** The University has also launched a **new Green Collection** as part of its merchandising activities to help promote a culture of sustainability. The creations made by Cingomma as part of this initiative, for example certain models of belts, are available in the Official Merchandise catalogue of Politecnico.

- Offer catering services in the University with a low environmental impact, catering suppliers have proposed actions and projects to reduce “food waste”:
  - Use of hybrid material for cups in vending machines
  - Use of one's own cup at vending machines
  - Use of compostable material instead of plastic in bars and self-service restaurants
  - Inclusion of the option to buy water in organic bottles
  - Compass box: sale of leftover food at a reduced price at the end of the day
  - Agreements with food bank to recover surplus food from canteens and catering services
- **Sustainable vending machines:** In 2020 Politecnico installed in its campuses new vending machines, adding the possibility to order a drink without the plastic cup, which is meant to allow the use of personal cup that can be washed and reused, instead of producing single use plastic waste.
- **Avanzimania:** Avanzimania is a collection of recipes, created by the University Sustainability Unit (Campus Life Division), to raise awareness about a particular type of “hidden” waste: our food leftovers. The recipes to combat food waste, all proposed solely by Politecnico community, are posted on the CSCS social channels, on the website and YouTube, via videos, stories and photos.
- Development of the “**NO PAPER**” project: digitisation and de-materialisation of administrative processes, both in the teaching context and in the areas of accounting, personnel management, research and, more generally, document management.
- Promoting the activities of the **PoliCiclo** University cycle workshop : Policiclo is an association of student volunteers who manage a cycle workshop within Politecnico di Milano, located at the Bovisa Candiani campus. Thanks to the new materials donated by the Sustainability Department, Policiclo will be able to continue to contribute to sustainable mobility and the enhancement of the circular economy by reusing and repairing what is already there.



## Waste management

Politecnico's aim is to improve efficiency in the waste management and collection system.

In order to achieve this result, the University has for some time been equipped with suitable infrastructures for the recycling of all types of waste produced, and has subsequently launched an intensive systematic awareness and information campaign.

- **Enhancement project:** Internal policies to raise awareness of recycling and to initiate, with specialised companies, the recycling of certain types of materials to make them useful again (e.g. paper, end-of-life equipment and metals such as iron, steel and aluminium).

- **Constant renewal, adaptation and integration of the infrastructure** for the collection of the four standard types of waste at the campuses (paper, plastic and aluminium, glass and general waste), adopting bilingual signs and container colours in accordance with UNI 11686.



- Presence of compactors/shredders in some refreshment areas (corner vending machines).
- Presence of Temporary Storage Facilities, organised in areas within the University, differentiated by size and by type of waste collected to accommodate different types of waste mainly from office, teaching, laboratory and research activities. Some waste (paper, plastic/metal, glass/metal and general waste) is handled by the public collection service and delivered to the large-volume containers located in specific areas of the University (ecological islands) where bulky waste, WEEE and toners are also handled and collected. Other special waste from laboratory and research activities is handled in areas directly identified and managed by the individual production facilities (facility depots). Overall, Politecnico has 3 ecological islands and 57 facility depots.
- **Containers, Project PILE [batteries]:** 25 specific containers of batteries and accumulators have been placed in different buildings on the Campus (identifiable through an interactive map). A specially designed label has been placed on the containers to improve the recycling of batteries and accumulators. Collecting exhausted batteries is really important because it allows to recover a lot of valuable resources like metals and rare chemical substances.





- **Material containers for architecture models:** Experimentation with students' re-use of material used or left over from modelling activities in the architecture workshops.
- **Containers, Project ZeroZeroToner:** The project involves the total recycling of spent printer cartridges, which are completely converted into raw and secondary materials, and participation in the Print Releaf programme, which allows the University to take part in one of the global reforestation projects in operation.
- **Second Life Arredo Project:** An in-house reuse system for furniture that is no longer useful has made it possible to survey more than 1,200 items and relocate 33% of them, thus avoiding disposal. The furniture is mapped by defining its main properties (e.g. size, material, state of repair) and the mapping is forwarded to the facilities that can show their interest in reusing the material.
- **Umido Project:** At Politecnico, experimentation with the collection of the organic waste fraction, which until now was only present in the University's canteens and cafeterias, was introduced with the aim of promoting and increasing user awareness of separate waste collection. The experimental phase of the project consists of the placement of 26 proprietary containers, widely distributed throughout the two Milan campuses (9 at the Città Studi site and 17 at the Milan Bovisa site) which are easily identifiable and marked with special signs informing and educating users about proper disposal.

## Affiliations and partnerships

- **RUS** - Politecnico di Milano is an active member of the Rete delle Università per lo Sviluppo sostenibile (RUS, "Network of Universities for Sustainable Development"), a coordination initiative between Italian universities aimed at promoting sustainability in all university missions. Within this network, the University coordinates the "Resources and waste" Working Group. The WG R&W works on the management (collection, temporary storage, transport and treatment) of all types of waste produced by the universities, in implementation of legislative and technical standards. It collects and disseminates, also from the perspective of the "circular economy", practices aimed at raising awareness on the issue of proper waste management and to address behaviors to prevent waste production from its origin: from the non-use or limited/shared use of certain objects or substances to the virtuous management of goods and materials in order to extend their useful life as much as possible.
- **SUN** - The University's participation in national networks on the subject, such as the Italian Network of Industrial Symbiosis (SUN - Symbiosis Users Network), promoted by ENEA. It represents the first Italian network on industrial symbiosis and as of now has 39 partners, among which there are universities, political institutions, research bodies, private companies, technology networks and local authorities. The SUN network objective is to be the reference point at which Italian companies can look when choosing to apply industrial symbiosis. Together with ENEA and CNR, Politecnico di Milano coordinates the 4th WG "Accreditation and standard for industrial symbiosis", which aims at publishing a support manual for identifying useful standards in the different phases of implementing the industrial symbiosis process.
- **CIRS** - Participation in CIRS (Comitato Interdisciplinare Rifiuti e Salute - Interdisciplinary Committee on Waste and Health) with various representatives, some of them even holding coordinating functions. CIRS carries out intense activity splitting them in 9 different thematic groups: Prevention, Landfills, Thermal

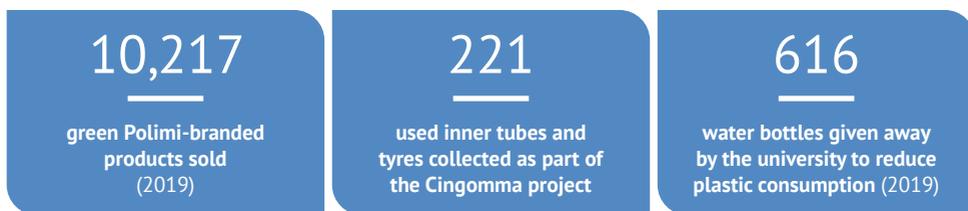


treatments, Reuse and recycling, Management of biomass from wastes, Special wastes, Environment and health, Communication, Territory and community: risks of not doing. Last May the first mid report was published and a webinar called "Strategies for an effective communication on waste management and health impacts", co-organized by Politecnico, was held.

- **MitE (Ministero della Transizione Ecologica – ex Ministero dell’Ambiente)** - Politecnico participated to the round table of the MiTe, representing the Resources and Waste Working Group of the RUS [Network of Universities for Sustainable Development] as coordinator of the WG. The round table was held to draft the document on "Minimum Environmental Criteria" for i) restaurant services through the installation of vending machines for food and water; ii) restaurant services; iii) services for the making and catering of sandwiches, iv) supply, installation and management of water houses and the distribution of Municipal water both indoors and outdoors.
- **Legambiente** - Politecnico di Milano cooperates with Legambiente, environmental association, on many projects, such as for the "Innovation prize" or the "Clean the world" initiative.

## Data

### Resource management



### Waste management

	2017	2018	2019	2020
Number of WIFs (Waste identification forms) managed annually	554	482	479	543
kg of batteries collected	556	691	296	1.132
EWCs managed annually	65	56	60	75

## Teaching and research

The self-mapping process of teaching activities at Politecnico di Milano identified 12 course units related to SDG12 objectives. The most represented School is the Industrial and Information Engineering one, delivering 5 courses, followed by the School of Design (4). This widespread dissemination serves as a validating proof of the heterogeneity of the possible approaches to the circular economy and, more broadly, to SDG12 objectives.

## Administrative units

The following administrative units are most closely and extensively engaged in pursuing this SDG:

- **Campus Life Division:** Multiple Units within this division are involved in the University commitment to SDG12: the Sustainability Unit organises internal and external dissemination initiatives and manages the experimental activities and projects related to circular economy; the Housing & Dining Unit is

active in making the university food and beverage supply as sustainable as possible (dining services with reduced waste, water dispenser, sustainable vending machines); the Community Life and Merchandising Unit manages the sale of green Polimi-branded merchandise.

- **Supplies & Facility Management Division:** with reference to resource and waste management, this Division manages waste collection at Politecnico and organizes testing of new waste collection initiatives (bike tires, organic waste, batteries) and circular economy interventions (reuse of office furniture).
- **Waste manager:** a fundamental role in achieving SDG 12 (and SDG 11) is also played by the waste manager. This figure is responsible for implementing all activities related to the management of University waste, with the exception of radioactive and asbestos-containing waste (and it does so in compliance with current legislation). In this regard, it is important to point out that, in 2019, the CRUI (Conference of Rectors of Italian universities), with the manifesto “Universities for sustainability, Sustainability is in the University” promotes the figure of the “resources and waste manager” at the University. This figure differs from the waste manager for a greater attention to the issues of circularity and the reuse of resources.

## Regulatory framework

The overarching regulatory framework concerning responsible consumption and production, as well as the themes of circular economy is contained in the 2015 Action Plan for the circular economy of the European Union, further redefined in 2020. In addition, another fundamental directive is the Single Use Plastics Directive, dedicated to reducing the incidence of certain plastic products on the environment.

Considering this context, Politecnico di Milano included the circular economy in the university’s Strategic Plan, as one of the great challenges on which Politecnico will focus in the coming years, alongside sustainability and climate change.

In order to implement the circular economy paradigm, Politecnico has issued a Waste Management Regulation, to clearly and univocally determine tasks and responsibilities in the tracking and disposal of all categories of waste produced within the University.

In addition, other internal directives relating to the circular economy, such as Second Life Arredo and the collection of reusable material for architectural models have been issued on campus and will be developed in the near future.