17 June 2026

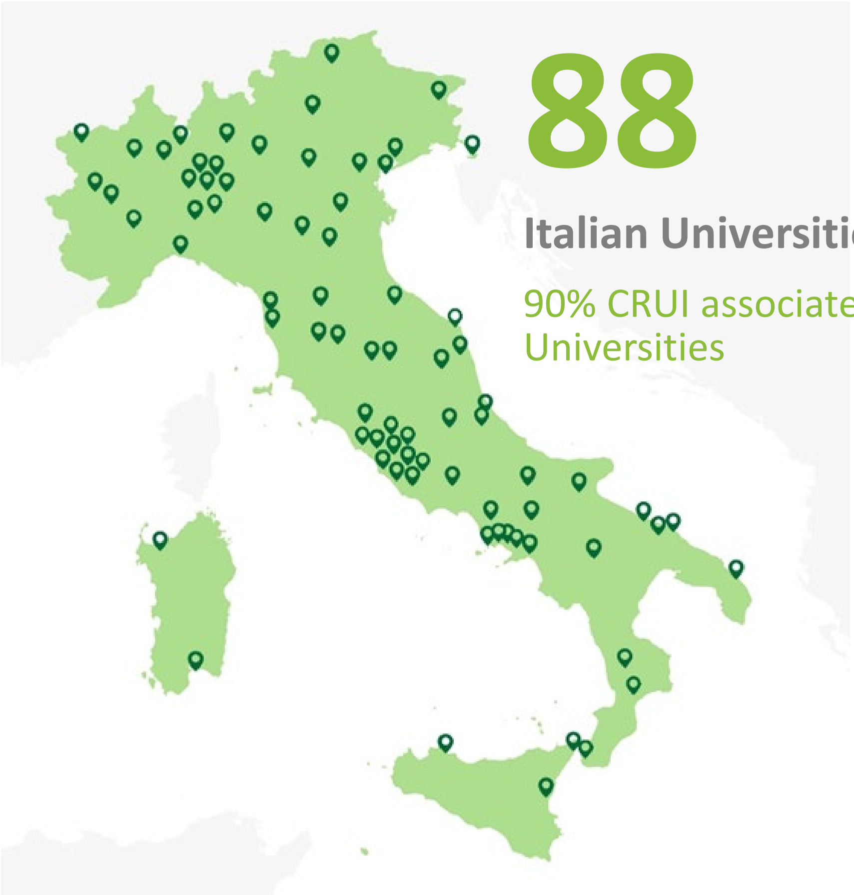
Word of Co-Host Organizations

Eleonora Perotto (Politecnico di Milano)

Coordinator of the Resources and Waste Working Group of the Italian Network of Universities for Sustainable Development (RUS)

Network of Universities for Sustainable Development

RUS NETWORK OF UNIVERSITIES FOR SUSTAINABLE DEVELOPMENT



88

Italian Universities

90% CRUI associated Universities

Officially established in 2016 by CRUI *the Italian Conference of Rectors* but active **since 2013** through bottom-up approach.

17 PARTNERSHIPS FOR THE GOALS

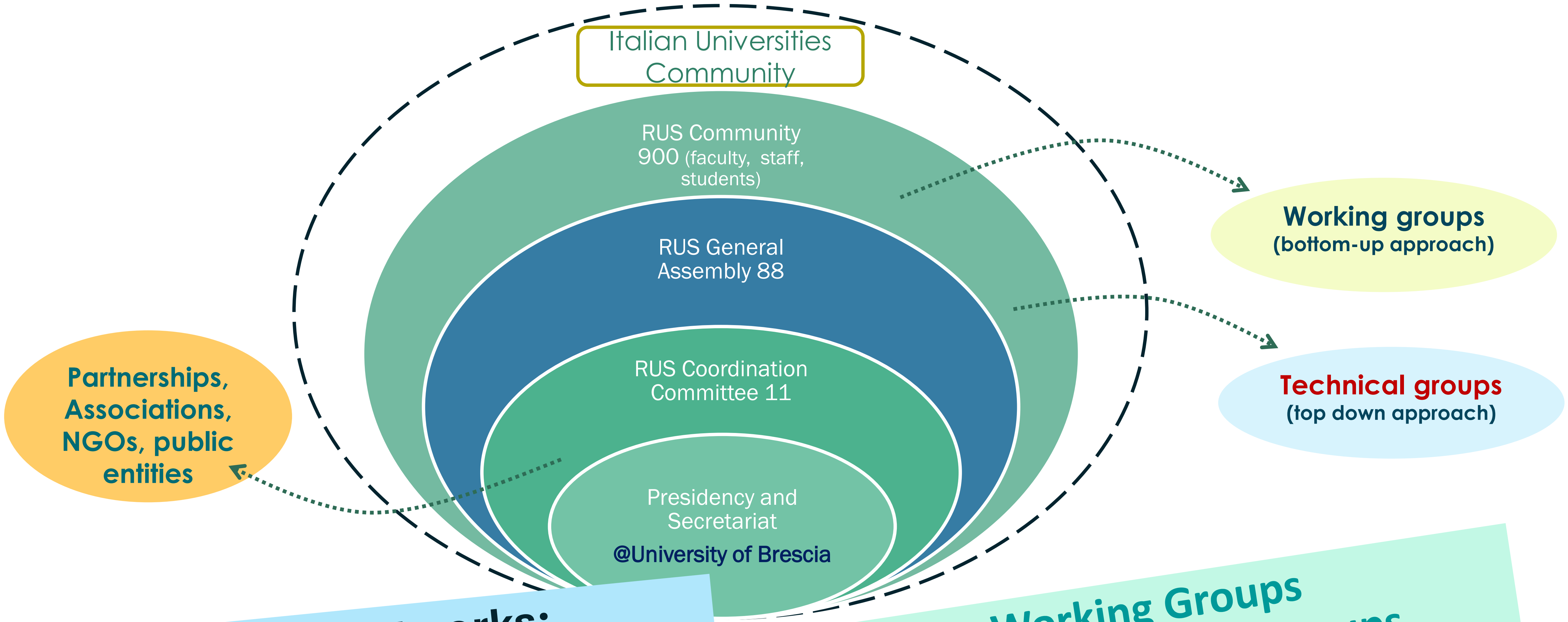
- Spreading the **culture and good practices of sustainability**
- Increasing the **positive impacts of individual members on society**
- **Promote the SDGs** – Sustainable Development Goals and contribute to their achievement
- Improve the **recognition and increase the value of the Italian experience at an international level**

First experience of information sharing and coordination among all Italian Universities committed to the topic of environmental sustainability and social responsibility.

Modif. Segreteria RUS (UniBS), 2025

RUS

NETWORK GOVERNANCE SCHEME



Regional Networks:
Abruzzo, Calabria, Campania, Emilia Romagna, Lazio, Lombardia, Piemonte, Puglia, Sicilia, Toscana, Veneto

Working Groups
Technical Working Groups

RUS

WORKING GROUPS

climate change	178 participants	since 2017	(74 Universities)
food	175 participants	since 2018	(75 Universities)
education	163 participants	since 2017	(72 Universities)
energy	158 participants	since 2016	(70 Universities)
inclusion and social justice	172 participants	since 2019	(78 Universities)
mobility	174 participants	since 2016	(76 Universities)
resources and waste	176 participants	since 2016	(74 Universities)
universities for industry	146 participants	since 2023	(71 Universities)

Who?
Coordinator…Co-coordinator…Vice-coordinator…
Operational contact
Universities representatives

When and Where?
Periodic meetings
In person / Online / Hybrid

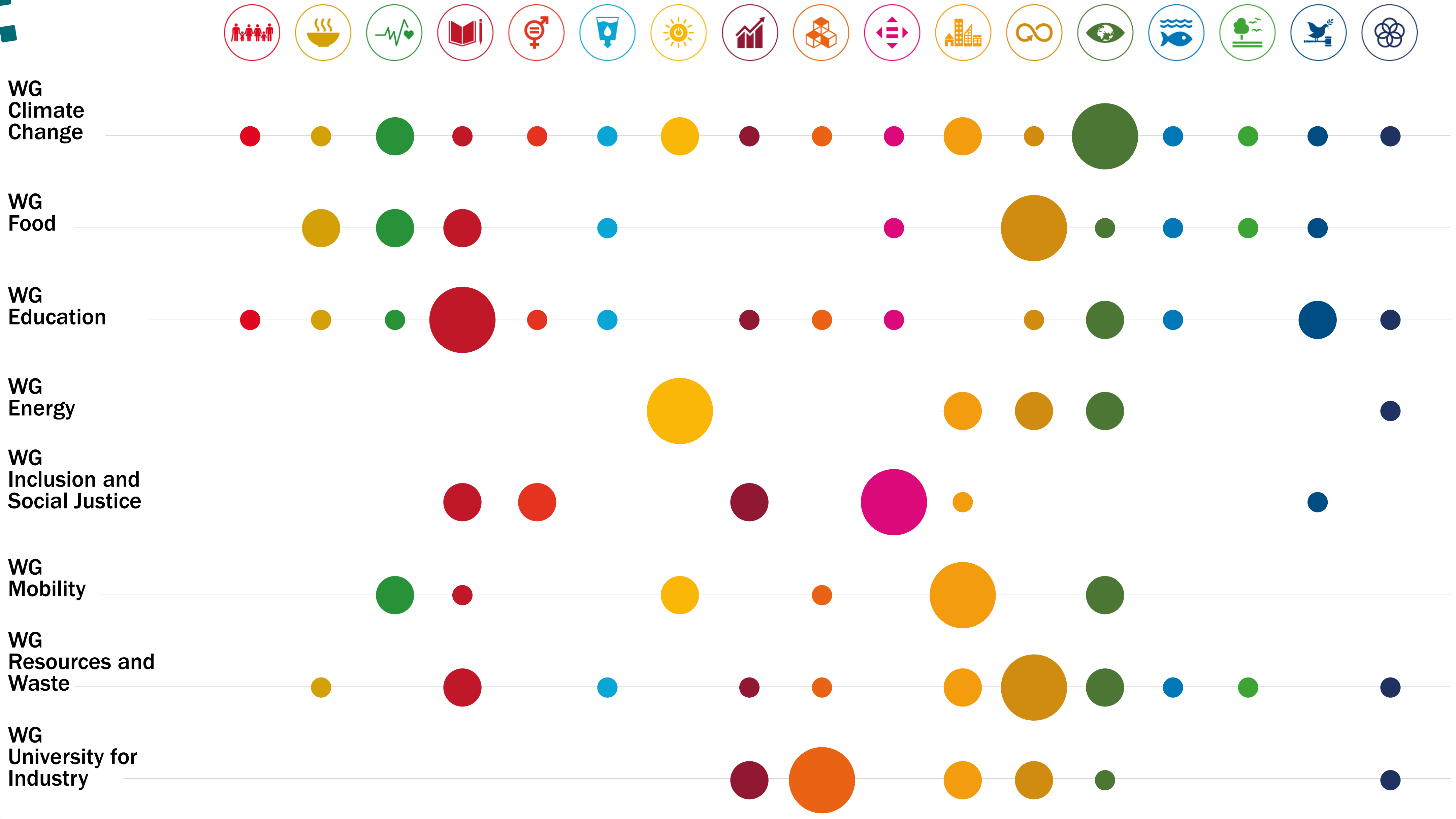
What?
Guidelines
Surveys
Best practices
Conferences and seminars
Training courses
Collaborations with associations and organizations
…

TECHNICAL WORKING GROUPS

Capacity Building and Best Practice	43 participants
Student Community	105 participants
Green Jobs Observatory	52 participants

RUS

PN:


WG Climate Change
WG Food
WG Education
WG Energy
WG Inclusion and Social Justice
WG Mobility
WG Resources and Waste
WG University for Industry

RUS ACTIVITY REPORT

https://reterus.it/en/sustainability-reports/

COMMUNICATION

[Website](#) [Youtube](#) [Facebook](#)

Contacts and information

Presidency and Organizing Secretariat 2025-2027

Università degli Studi di Brescia

Prof. Carmine Trecroci

rus@unibs.it – www.reterus.it

Resources and Waste Working Group?

R&W WG (1)

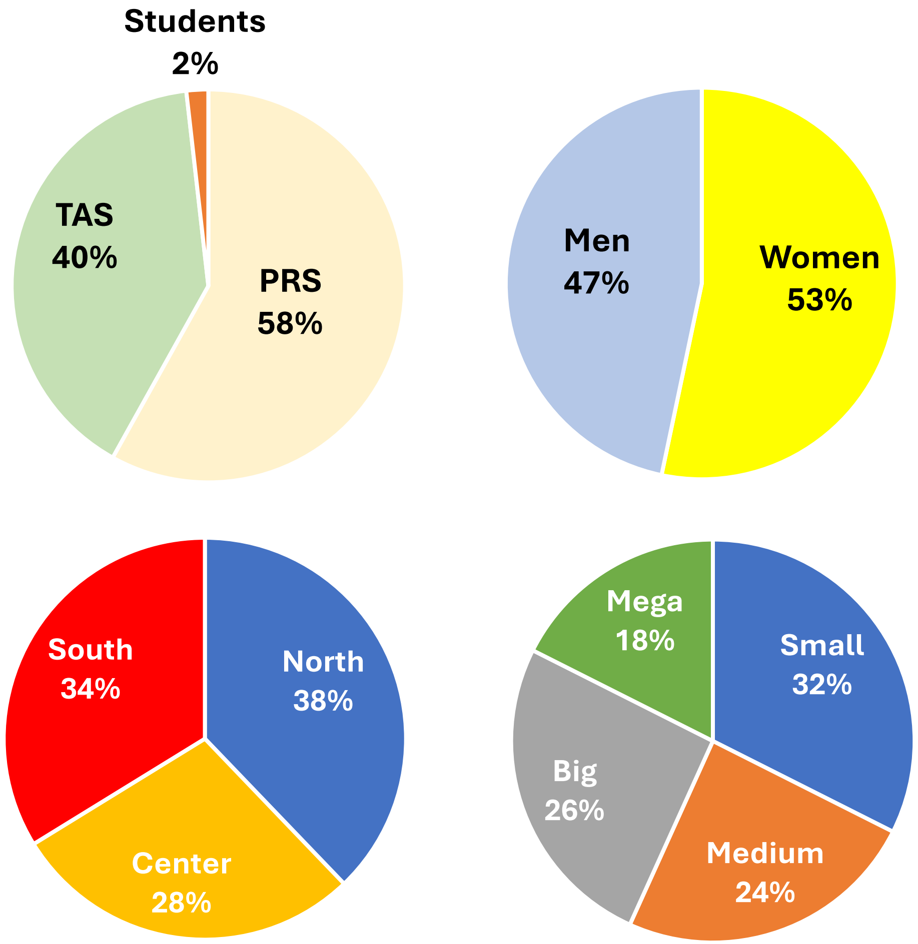
Coordinator: **Eleonora Perotto (third mandate)**

Vice-coordinator: -

Operational contact: -

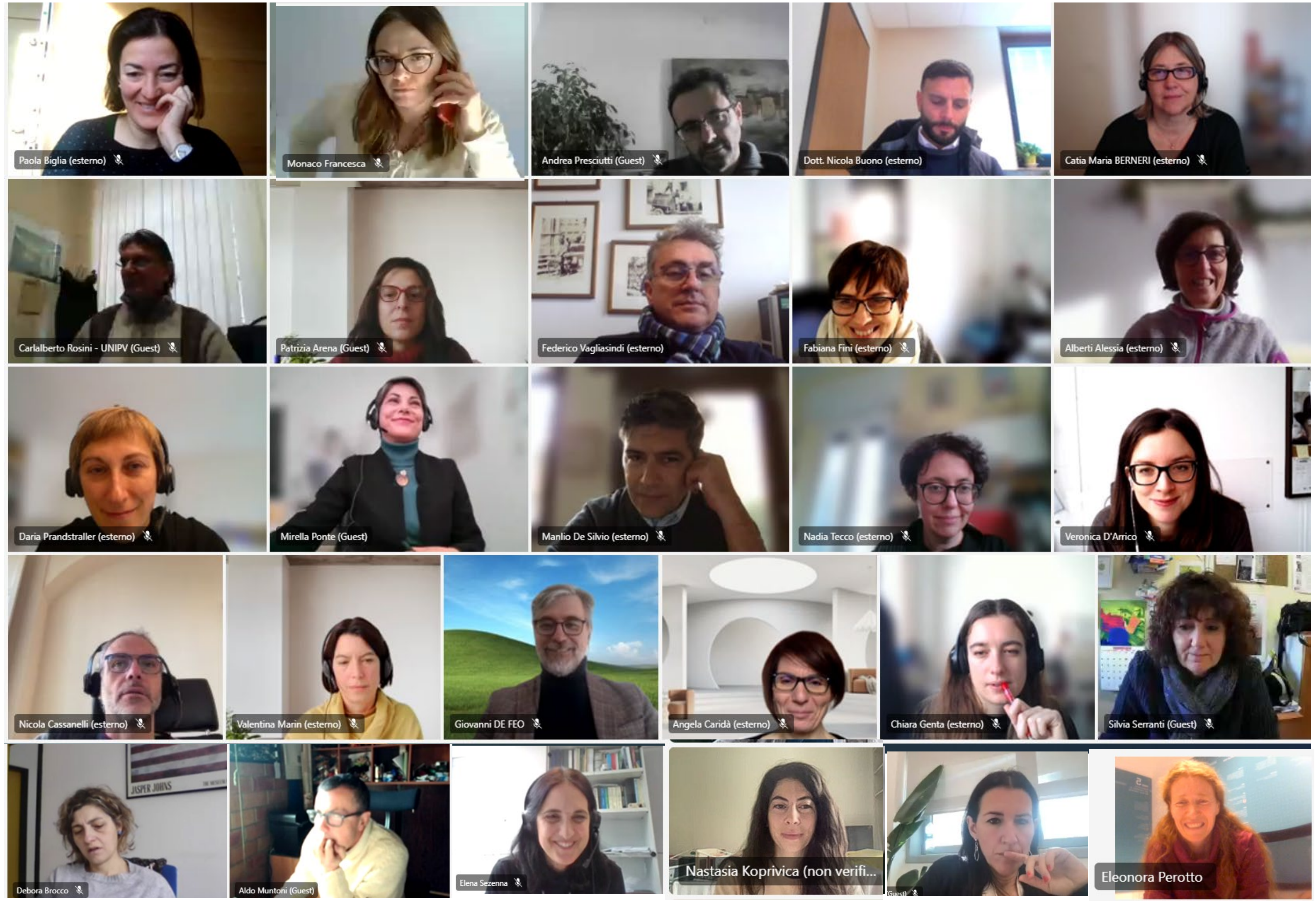
Number of Universities represented: **74**

Number of participants: **176 (plus the informal attendees)**



https://reterus.it/en/waste/

R&W WG (2) – Group of people



Group of people who collaborate to achieve one or more goals

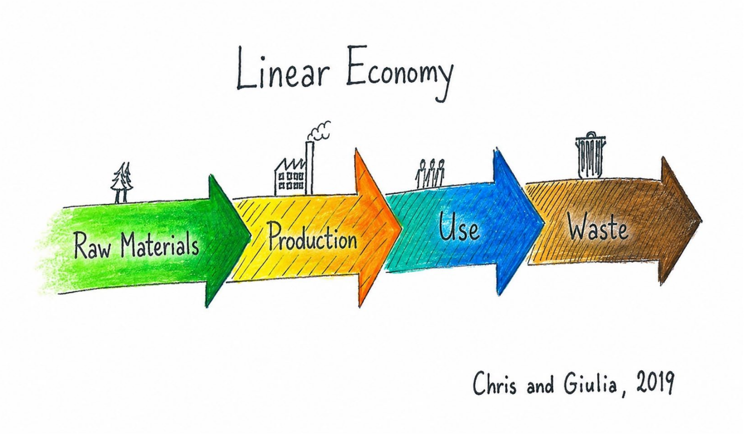
R&W WG (3)

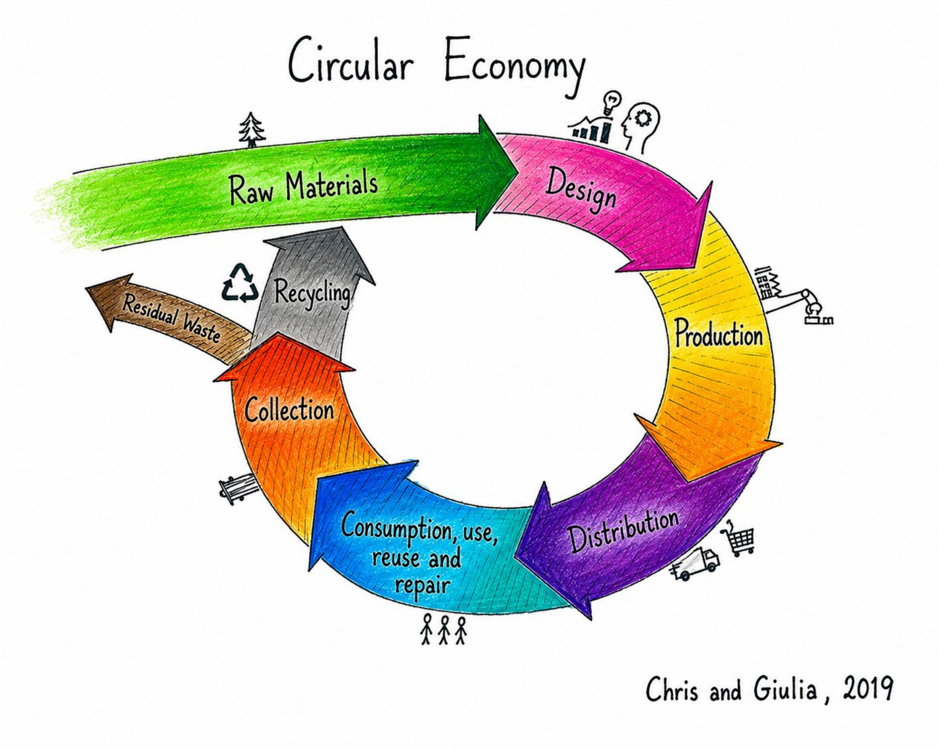
Waste WG

(from 2016 to 2019)

Resources and Waste WG

Magnificent CRUI Meetings





R&W WG (4)

Topics of interest and Goals

1) **Management methods** (collection, storage, transportation and disposal), **from a technical-regulatory perspective**, of all types of **waste** produced by universities (circular economy perspective).

2) Promotion of **practices aimed at raising awareness on proper waste management and guiding behaviors towards waste reduction at the source → resources management.**

1. Increase **collaboration** among Italian universities **for waste prevention and management.**
2. Implement processes to **monitor universities' performance in waste management activities within a circular economy perspective.**
3. **Make the WG a group capable of engaging in institutional dialogue** to adapt waste management regulations and **promote the circular economy**.
4. Launch projects aimed at **raising awareness** on **waste prevention and management issues** from a "**circular economy**" perspective.

Keywords

prevention
management
sharing
valorization
circularity

WG activities

- **«Institutionals»**
- **Related to the functioning of the subgroups**

R&W WG (5)

Reference framework

«Post-material» Lifestyle

«Stop using dangerous substances»

Digitalization

«Intensive» use of products

«Sharing product»

«Product Service Systems»

Circular economy: the 9R Framework

Circular economy	Strategies	
Smarter product use and manu-facture	R0 Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product
	R1 Rethink	Make product use more intensive (e.g. by sharing product)
	R2 Reduce	Increase efficiency in product manufacture or use by consu-ming fewer natural resources and materials
Extend lifespan of product and its parts	R3 Reuse	Reuse by another consumer of discarded product which is still in good condition and fulfils its original function
	R4 Repair	Repair and maintenance of defective product so it can be used with its original function
	R5 Refurbish	Restore an old product and bring it up to date
	R6 Remanufacture	Use parts of discarded product in a new product with the same function
	R7 Repurpose	Use discarded product or its parts in a new product with a different function
Useful application of mate-rials	R8 Recycle	Process materials to obtain the same (high grade) or lower (low grade) quality
	R9 Recover	Incineration of material with energy recovery

Increasing circularity

Linear economy

Responsible consumptions

Behavioral change!

https://www.sciencedirect.com/science/article/pii/S0921344917302835

[Kirkherr et al, 2017, adattato da Potting et al. 2017]

RUS risorse e rifiuti

R&W WG (6)

Field of application

Actions can be conducted at different levels:

1) direct actions on university offices, external spaces, laboratories, ..;
2) actions to be implemented in close collaboration with the university community (students above all);
3) actions and synergies to be initiated at the territorial level, in collaboration with local stakeholders;
4) actions and synergies to be implemented at the "university system" national level.

R&W WG (7) ➢ MAIN INSTITUTIONAL ACTIVITIES (2025-26):

1. participation in the RUS Coordination Committees;
2. interaction with the RUS Secretariat (*drafting of annual report, definition of working group application for mapping*);
3. **creation of surveys/calls to action and drafting of reports and publications** (*e.g. contribution to the 2025 "IdA" journal*);
4. **organization of initiatives and events to raise awareness and/or train, sharing experiences/best practices, and networking** on resource and waste management issues from a circular economy perspective, involving internal stakeholders—primarily students (*e.g., the RENTRI and DIGITAL FIR meeting series, EWWR initiatives, the 2025 Sardinia and 2026 SUM workshops, etc.)*;
5. **sponsorship/participation in initiatives organized by internal and external stakeholders** *(e.g. 2025 and 2026 Sardinia Summit, 2026 CRAWMA, meetings at Universities, ...)*;
6. **participation in committees, ministerial and non-ministerial working groups,** ... *(e.g. Publication of the book Waste and Health – CIRS – Interdisciplinary Committee on Waste and Health)*;
7. **Discussions with external stakeholders aimed at creating partnerships** with the implementation of projects/experiments/collaborations/... *(primarily **collaboration with CONAI** – training course organization, etc.) ... (→ **reference subgroup**)*;
8. **management of subgroups** (e.g., *sustainable graduation days, training course*)...

Interation with internal and external stakeholders

Involvement of the student community

Relationship with the TWGSC

RUS risorse e rifiuti

Why the R&W WG at the CRAWMA conference?

The conference:

- **fosters international collaboration and knowledge exchange between academia, industry, and policymakers, promoting the development of practical solutions and scalable technologies that can accelerate circular economy implementation at both regional and global levels;**
- **highlights cutting-edge scientific and technological developments that support the transition from linear to circular supply chains through improved recycling, recovery processes, and resource efficiency.**

The R&W Working Group aims to:

- **promote practices aimed at raising awareness of proper waste management**
- **increase collaboration with all types of stakeholders;**

→ promote behavioural change!

...for example, starting with proper separate waste collection for all types of waste (including WEEE → *urban mining-related issues)*.

Universities as Living Labs

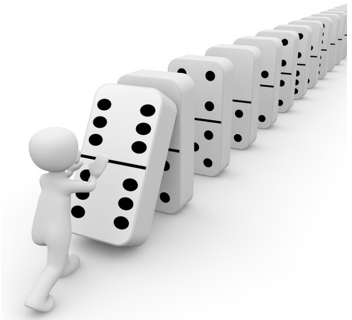
RUS risorse e rifiuti

UNIVERSITIES AS «LIVING LABS»

Universities → they offer the opportunity to **experiment with integrated approaches to resource and waste management as large, diverse communities, characterized by a variety of spaces, services and organizational practices** (teaching, research, office activities, facilities management, canteens, nurseries, sports centers, event organization, etc.).

Campuses = *living labs*, in which **structural measures** – such as dedicated infrastructure, internal regulations and monitoring systems – can be **combined with engagement and behavioral change actions**, with measurable environmental, educational and cultural impacts.

Universities = contexts in which <u>waste prevention and management policies</u>, and even before that, responsible consumption, can also become <u>tools for learning and participation</u>.



Students = Citizens

➢ACHIEVEMENTS OF THE WORKING GROUP: EXAMPLES

PUBLICATION OF THE R&W WG CONTRIBUTION ON INGEGNERIA DELL'AMBIENTE

IL COINVOLGIMENTO DEGLI STUDENTI NELLE POLITICHE UNIVERSITARIE DI GESTIONE E PREVENZIONE DEI RIFIUTI: EVIDENZE DAGLI ATENEI ITALIANI

Eleonora Perotto[1,*], Melissa Paris[1], Maria Cristina Lavagnolo[2], Giovanni De Feo[3], Elena Sezenna[4]

[1] Politecnico di Milano, Servizio Sostenibilità Ambientale, coordinamento gruppo RUS Risorse e Rifiuti
[2] Università degli Studi di Padova, Dipartimento di Ingegneria Civile, Edile e Ambientale
[3] Università degli Studi di Salerno, Dipartimento di Ingegneria Industriale
[4] Politecnico di Milano, Dipartimento di Ingegneria Civile e Ambientale

Comunicazione tecnico-scientifica

Sommario

A settembre 2025 è stata promossa una call to action rivolta alle università appartenenti al Gruppo di Lavoro Risorse e Rifiuti della Rete delle Università per lo Sviluppo Sostenibile (RUS), con l'obiettivo di raccogliere iniziative in materia di sostenibilità che prevedessero il coinvolgimento della popolazione studentesca.
Le esperienze raccolte sono state analizzate e presentate nel workshop "Efficiency of Waste Management Policies in Universities".
Le iniziative sono state esaminate mediante una classificazione qualitativa multidimensionale che ha consentito di confrontare categorie di intervento, ambiti di applicazione, livelli di azione, leve di policy e modalità di coinvolgimento degli studenti. I risultati evidenziano una forte ricorrenza di azioni di natura educativa, comunicativa ed esperienziale, quali swap party, progetti di upcycling, iniziative di contrasto allo spreco alimentare e attività di sensibilizzazione sulla gestione dei rifiuti.
Nel complesso, l'analisi mostra il ruolo centrale delle università nella promozione di pratiche orientate all'economia circolare e al consumo responsabile.
Al contempo, emerge come il coinvolgimento degli studenti avvenga prevalentemente attraverso iniziative di scala ridotta o sperimentale, mentre risultano meno frequenti forme strutturate di partecipazione ai processi decisionali e di governance universitaria.
In questo quadro, strumenti di coordinamento a livello di rete, come il Tavolo della Comunità Studentesca della RUS, rappresentano un contesto potenziale di sperimentazione di forme più strutturate di coinvolgimento studentesco.

Parole chiave: *campus sostenibili; politiche ambientali universitarie; coinvolgimento degli studenti; economia circolare; gestione rifiuti.*

STUDENT ENGAGEMENT IN UNIVERSITY WASTE MANAGEMENT AND PREVENTION POLICIES: EVIDENCE FROM ITALIAN UNIVERSITIES

Abstract

In September 2025, a call to action was launched among universities participating in the Resources and Waste Working Group of the Italian Network of Universities for Sustainable Development (RUS), with the aim of collecting sustainability initiatives explicitly involving students. The collected experiences were analyzed and presented within the workshop "Efficiency of Waste Management Policies in Universities" at the 20th International Symposium on Waste Management, Resource Recovery and Sustainable Landfilling. The initiatives were examined through a qualitative and multidimensional classification framework, allowing for the comparison of intervention categories, application domains, levels of action, policy instruments and modes of student engagement.
The results reveal a strong recurrence of educational, communicative and experiential actions, such as swap parties, upcycling projects, food waste reduction initiatives and activities aimed at raising awareness on waste management practices.
Overall, the analysis highlights the central role of universities in promoting practices oriented towards the circular economy and responsible consumption. At the same time, student engagement mainly takes place through small-scale or project-based initiatives, while structured forms of participation in decision-making and university governance remain less frequent. In this context, network-level coordination instruments, such as the RUS Technical Working Group of the Student Community, represent a potential setting for experimenting with more structured forms of student engagement.

Keywords: *sustainable university campuses, universities environmental policies, student engagement, circular economy, waste management.*

N. 4/2025

IdA

* Per contatti: piazza Leonardo da Vinci 32, 20133 Milano. Tel. 02.23999354. eleonora.perotto@polimi.it

Ricevuto il 25/01/2026; revisioni richieste il 27/01/2026; accettazione finale il 10/02/2026.

dx.doi.org/10.32024/ida.v12i4.630 Ingegneria dell'Ambiente Vol. 12 n. 4/2025 301

Student involvement in University waste management and prevention policies. Evidence from Italian Universities.

Authors: Eleonora Perotto - PoliMI, ESU; Melissa Paris - PoliMI, ESU; Maria Cristina Lavagnolo - UniPD, Dep. Civil, Building and Enviromental Eng.; Giovanni De Feo - UniSA, Dep. Industrial Eng.; Elena Sezenna - PoliMI, Dep. Civil and Enviromental Eng.

Data and information source: Call to Action 2025 RUS Universities

Multidimensional qualitative classification of initiatives (cf.r between 5 dimensions)

→ *The central role of Universities in promoting practices oriented towards the circular economy and conscious and responsible consumption has been confirmed, with* ***effects that extend beyond Campus boundaries.***

https://www.ingegneriadellambiente.net/ojs/index.php/ida/article/view/630

RUS risorse e rifiuti

Call to Action 2025 RUS Universities (2)

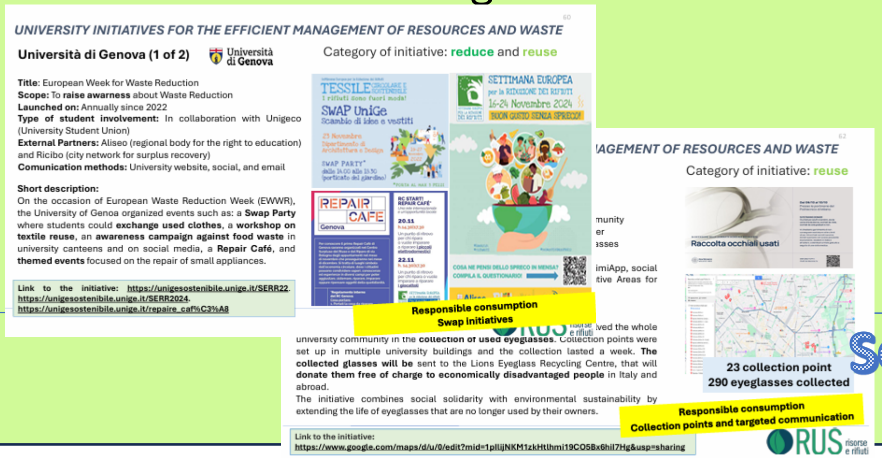
Types of initiatives - examples

1. Reduction of waste production

- Initiatives adopted during graduation days
- Initiatives aimed at reducing food waste

2. Reuse of goods for a responsible consumption

- Swap parties
- Repair and maintenance activities (focus EEE)
- Creation of collection points and sharing of materials, installations, prints, and prototypes made by students
- Collection of used glasses



3. Introduction of guidelines to improve waste collection systems

- Introduction or update of internal regulations and guidelines for proper waste separation
- Improvement of waste separation flows in specific University facilities, with simultaneous reorganization of collection points and adoption of dedicated signage
- Monitoring technologies
- Collection of special waste (e.g. Waste Electrical and Electronic Equipment)

4. Upcycling: from waste to product, transformation, and added value

- Creative transformation of waste materials (e.g., tires, inner tubes, and PVC banners) into fashion accessories (e.g., key rings, belts, and bags), including student-designed ones
- Workshops, seminars, and in-depth initiatives on specific materials

5. Clean-up: environmental education and active citizenship

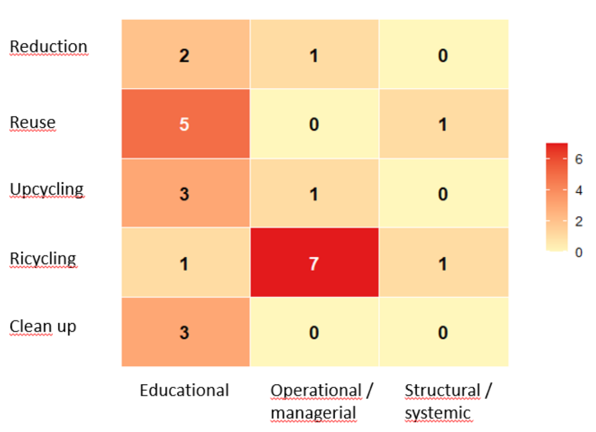
- Organization of waste collection days open to citizens as well

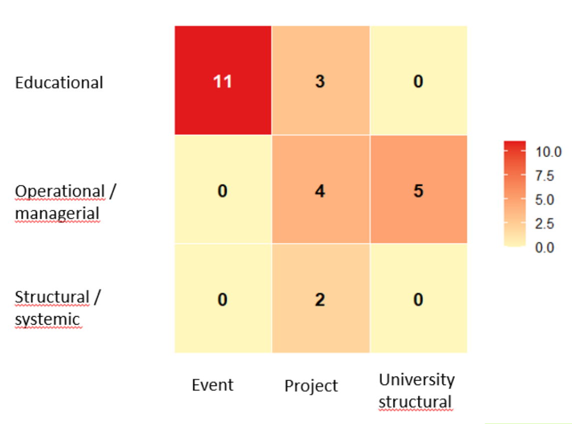
Separate waste collection = prerequisite for recycling

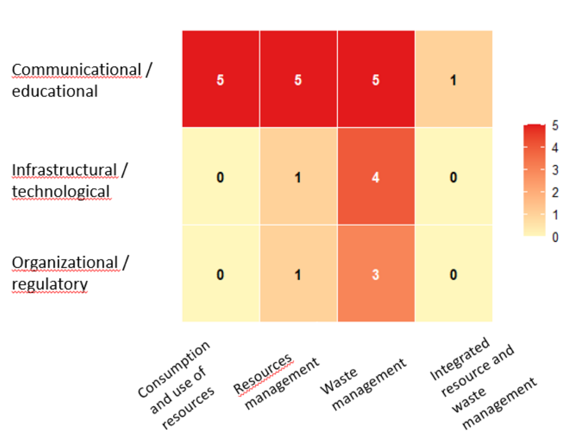
Urban Mining

RUS risorse e rifiuti

PUBLICATION OF THE R&W WG CONTRIBUTION ON INGEGNERIA DELL'AMBIENTE



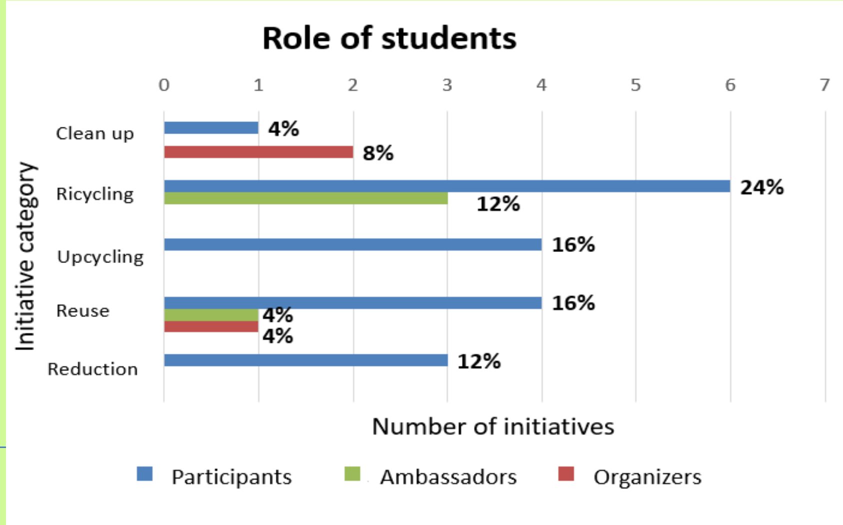




Dimensions

CONCLUSIONS

- ✓ Student involvement → primarily in educational, communicative and experiential initiatives, often on a limited or project-based scale; but… with the ability to *impact individual/collective consumption practices*.
- ✓ Structural and system measures → they remain mostly integrated into the ordinary management of the Universities.
- ✓ Role of students → more frequently participants or recipients of the initiatives, rather than actors involved in the design and governance processes or as ambassadors.



A challenge for University resource and waste management policies: strengthening the connection between participatory initiatives and structural measures, overcoming the contradiction between short-term educational initiatives and systemic interventions and instead enhancing their complementarity, always <u>in compliance with the regulations.</u>

➢ACHIEVEMENTS OF THE WORKING GROUP: EXAMPLES

21 May – Procida.

Workshop in collaboration with the Students Community TWG (SCTWG) and the involvement of CONAI on the topic of "Students and Separate Waste Collection“.

To explore the role of students in promoting waste prevention and management within Universities, with a **focus on separate waste collection**, also considering the implementation of **the RUS-CONAI Guidelines.**

→ Starting point: → **PUBLICATION OF THE R&W WG CONTRIBUTION ON INGEGNERIA DELL'AMBIENTE**

→ A **specific survey on the perception of waste management at the University** was produced and administered by RUS students for the occasion**;**

→ Multimedia materials (videos/presentations/...) created by students from some universities who responded to the call of the SCTWG.

Workshop organized within the **SUM - MULTIDISCIPLINARY SYMPOSIUM ON CIRCULAR ECONOMY AND URBAN MINING** and included in the **ASviS Program**.

https://reterus.it/2026-workshop-il-ruolo-degli-studenti-nelle-politiche-universitarie-di-prevenzione-dei-rifiuti/

SUM2026 9th MULTIDISCIPLINARY SYMPOSIUM ON CIRCULAR ECONOMY & URBAN MINING / 20-22 MAY 2026 / PROCIDA, Naples, Italy

IL RUOLO DEGLI STUDENTI NELLE POLITICHE UNIVERSITARIE DI PREVENZIONE DEI RIFIUTI E PROMOZIONE DELLA RACCOLTA DIFFERENZIATA

21 maggio 2026, ore 14.30 -- Procida, presso Palazzo D'Avalos

Programma

14.30-14.40 - Apertura lavori e moderazione
Maria Cristina Lavagnolo – Università degli Studi di Padova

14.40-14.50 - Gli esiti principali dell'indagine del GdL R&R sul coinvolgimento degli studenti nelle politiche universitarie di prevenzione e gestione dei rifiuti.
Eleonora Perotto – Politecnico di Milano

14.50-15.00 - Le linee guida RUS-CONAI: un primo bilancio e le possibili prospettive future
Maria Concetta Dragonetto – CONAI e **Pasquale Lepore – Officine Sostenibili**

15.00-15.10 - Le attività del TT Comunità studentesca in ambito prevenzione e gestione rifiuti
Elena Semenzin – Università Cà Foscari Venezia e **Chiara Genta – Politecnico di Torino**

15.10-16.00 - Lightning Talks "Il ruolo degli studenti nelle policy universitarie di prevenzione e gestione rifiuti". Coordinano gli interventi degli studenti delle università RUS: **Nastasija Koprivica – Università Ca Foscari Venezia e Zeno Dal Piaz – Università Bicocca**

Pausa

16.15-17.15 - Discussione
Modera **Giovanni De Feo – Università degli Studi di Salerno**

Interventi programmati:
- *Il ruolo degli studenti nel progetto CONAI-UNISA: Franco De Martino (Università degli Studi di Salerno)*
- *Il ruolo degli studenti nel progetto CONAI-UNIPI: Giulia Romano (Università degli Studi di Pisa)*
- *Le proposte di CONAI per ampliare la collaborazione con la comunità studentesca alla luce delle recenti esperienze in ambito universitario (Marta Giurato – CONAI)*

Interventi a cura del pubblico

17.15-17.30 - Conclusioni
Eleonora Perotto – Politecnico di Milano

Se sei interessato a seguire l'evento da remoto contatta: rus-risorserifiuti@polimi.it; eleonora.perotto@polimi.it

Per ulteriori informazioni inquadra il QR code:

RUS risorse e rifiuti In collaborazione con: RUS Comunità studentesca

Over 70 participants

RUS risorse e rifiuti

RUS-CONAI GUIDELINES

The *"Guidelines for separate waste collection and the collection of packaging waste and other municipal waste in Universities"* were drawn up to **provide useful information to ensure proper separation (separate waste collection) of municipal waste collected within Italian Universities.**

Result of the collaboration between the R&W WG and CONAI.

Published in July 2024

4 July, 2024
CONAI AWARD - RECYCLING MUNICIPALITIES→ BEST PRACTICE AWARD 2024: MUNICIPALITY OF FISCIANO, UNISA, RUS

Event at ECOMONDO 7 November, 2024

R&W WG Website: https://reterus.it/en/waste/
CONAI Website: https://www.conai.org/download-documenti/

RUS risorse e rifiuti

➢ACHIEVEMENTS OF THE WORKING GROUP: EXAMPLES

PARTICIPATION IN THE WORK OF THE INTERDISCIPLINARY COMMITTEE ON WASTE AND HEALTH (CIRS)

PUBLICATION OF THE REPORT IN FEBRUARY 2026 "WASTE AND HEALTH - MANAGEMENT CRITERIA, TECHNOLOGIES, AND IMPACTS"

The report is the result of seven years of work and the **contributions of over 200 experts.**

A synthesis of knowledge on waste management, technologies, potential impacts, and communication aspects, with the aim of providing **useful tools for informed and conscious choices.**

Several members of the R&W WG contributed to the draft:
Denis Bragagnolo (UniVE), Luisa Chiasserini (UniSI) – *also a member of the editorial committee*, Giovanni De Feo (UniSA), Maria Cristina Lavagnolo (UniPD), Lucia Pampanella (UniPG), Eleonora Perotto (PoliMI) – *also a member of the editorial committee*, and Daria Prandstraller (UniBO).

➢ACHIEVEMENTS OF THE WORKING GROUP: EXAMPLES

GUIDELINES FOR INDUSTRIAL SYMBIOSIS


ENEA
SUN Symbiosis Users Network

Gli standard tecnici per la simbiosi industriale

Una guida per gli standard volontari nell'ambito della simbiosi industriale

T. Beltrani, G. Bertanza, A. Betteo, C. Brondi, C. Buurstee, M. A. Butturi, C. Caelli, L. Cutaia, A. Degli Esposti, E. De Marco, R. Di Capua, R. Gamberini, C. Magrini, S. Marinelli, G. Mondello, E. Perotto, R. Salomone, S. Sbaffoni, A. Simboli, R. Taddeo, M. Vaccari, R. Vahidzadeh

2024

Consiglio Nazionale delle Ricerche

ENEA Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

POLITECNICO MILANO 1863

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA

UNIVERSITÀ DEGLI STUDI DI BRESCIA unibs.it

Ud'A

Università degli Studi di Messina

UNIMORE UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

NETWORKING MULTI-STAKEHOLDER APPROACH

Authors

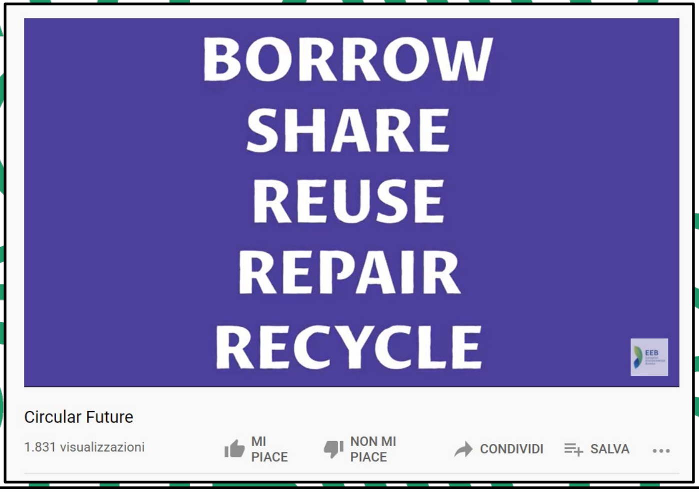
RUS risorse e rifiuti

https://www.campus-sostenibile.polimi.it/gli-standard-tecnici-per-la-simbiosi-industriale/

And… MUCH MORE…

IF YOU ARE CURIOUS, VISIT THE RUS WEBSITE

https://reterus.it/en/waste/



https://www.youtube.com/watch?v=FLVDZkXBDbc

https://www.youtube.com/watch?v=KH-qlwAGQNk

Coordinator

POLITECNICO MILANO 1863

Contacts and information

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eleonora.perotto@polimi.it; rus-risorserifiuti@polimi.it

https://reterus.it/risorse-e-rifiuti/

The measure of intelligence is the ability to change when necessary.

(A. Einstein)