## sardinia\_2019

17TH INTERNATIONAL WASTE MANAGEMENT AND LANDFILL SYMPOSIUM
30 SEPT - 04 OCT 2019 / FORTE VILLAGE / CAGLIARI / ITALY

## Workshop

## Sustainable waste management at Universities 3<sup>rd</sup> of October 2019

Eleonora Perotto, Politecnico di Milano – RUS WG Waste

Daria Prandstraller, Alma Mater Studiorum Università di Bologna – RUS WG Waste

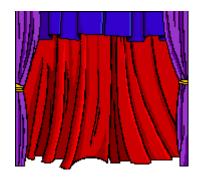




# Waste Working Group of Italian University Network for Sustainable Development - RUS









## Why a Network?

- ✓ Lack of culture regarding sustainability themes
- ✓ Lack of cooperation and sharing of best practices
- Universities impact on society is lower than its potential
- ✓ Let's promote the SDGs Sustainable Development Goals
- ✓ The Italian experience in this field is lower in comparison to that of other countries and has not yet reached international standards





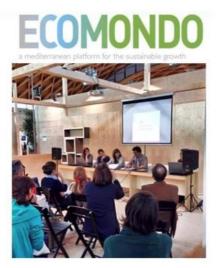
The Italian University Network for Sustainable Development, officially established in 2015 by CRUI (Conference of Italian University Rectors), currently includes **69** Universities (82% of CRUI associated universities)



www.reteateneisvilupposostenibile.it







#### STEPS OF THE PATH

- Idea draft at Ecomondo (November 2013)
- Establishment of a Promoting Committee with 7 Universities (March 2014)
- Proposal to every CRUI rector (July 2015)
- Definition of a Network Agreement in CRUI (July 2016)
- Establishment of an Organizing Committee in CRUI (September 2016)
- First RUS Assembly (July 2017)



## **Goals of the Network**

- ✓ **Spread culture** and **best practices** on Sustainability themes
- ✓ Increase the positive influence of Universities toward society
- ✓ Promote the SDGs Sustainable Development Goals defined in the UN's 2030 Agenda and contribute to their achievement
- ✓ Promote the value of Italian experience at an international level



### How does it work?

• 11 Universities represent the Executive

**Committee** (three-year term)

- Periodical Assemblies
- Thematic Workgroups
- Organization of the annual Assembly
- Agreements and Protocols

RUS Organizing Secretariat: rus@polito.it



https://asvis.it/

Partnership with ASVIS (the Italian Alliance for Sustainable Development) to achieve the **SDGs of the UN's 2030 Agenda.** 

RUS Activity Reports





**Downloadable from RUS website:** www.reteateneisvilupposostenibile.it





## The context is changing

#### **30 MAY 2019 - MANIFESTO CRUI 2019**

#### «From "The Universities for Sustainability" to "Sustainability in the Universities"»

"This document recognizes the fundamental role that Universities play in the implementation of the UN's 2030 Sustainable Development Goals.

In particular, the Manifesto suggests the realization of concrete actions, according to different lines of action".



https://www.crui.it/archivio-notizie/le-universit%C3%A0-per-la-sostenibilit%C3%A0-2.html

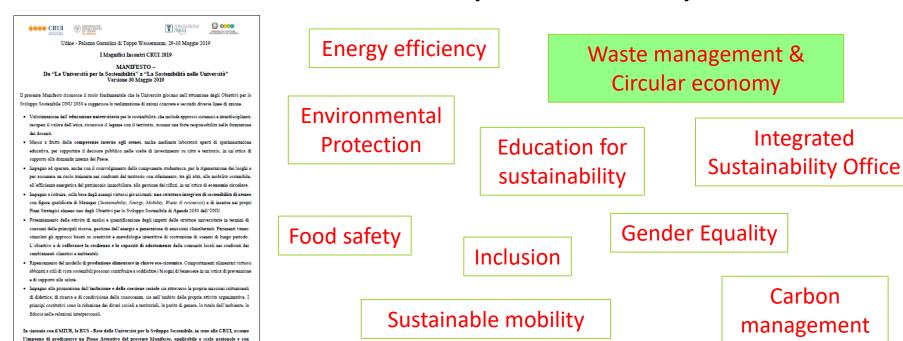


riferimento agli Obiettivi per lo Sviluppo Sostenibile di Agenda 2030.



#### **30 MAY 2019 - MANIFESTO CRUI 2019**

#### «From "The Universities for Sustainability" to "Sustainability in the Universities"»





## The Network currently consists of 6 working groups:

> Energy, since 2016

(43 Universities; 76 members)

> Mobility, since 2016

(62 Universities; 108 members)

> Waste, since 2016

(51 Universities; 107 members)

> Climate Change, since 2017

(42 Universities, 77 members)

> Education, since 2017

(42 Universities; 73 members)

> **Food,** since 2018

(46 Universities; 76 members)









#### **Main goals:**

- Increase the fields of collaboration among Italian Universities for waste management and promote circular economy
- Activate processes aimed at monitoring Universities performances in waste management
- Develop the working group as an entity able to interact with institutions to adjust the legislation inherent to waste management and circular economy inside Universities
- Raise awareness among University communities and population on the themes of waste management in a «circular economy» perspective



### Waste working group

#### **Themes**



1) Management methods (collection, storage, transport and delivery), from a technical-regulative point of view, of all the typologies of waste produced by Universities.



2) Variety of practices aimed at raising awareness on correct waste management and towards behaviours aimed to prevent the production of waste from the its source.





## «circular economy» perspective

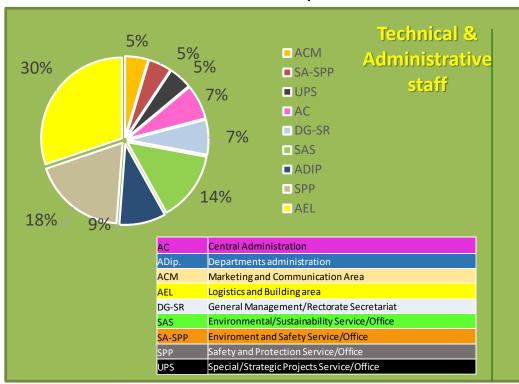


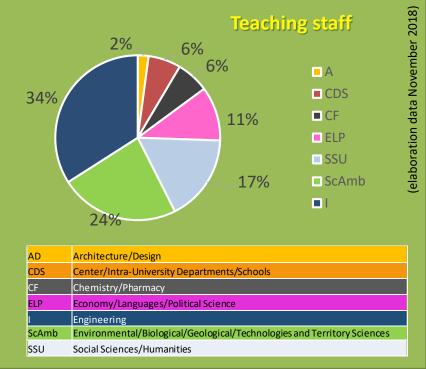


## **WG** Composition

#### Today

- 51 participating universities (compared to 69 RUS members)≈74%
- 107 members (48 Technical Administrative Staff + 59 teaching staff)







## **Structure** | Subgroups and themes of interest

Subgroup

## **Tecnical regulations**

N. Cassanelli (PoliTO), L. Troiano (UniMORE)



Subgroup

## **Circular Economy**

L. Badalucco (IUAV)

Sharing of good practices concerning waste management and definition of guidelines for LAB hazardous waste management

Good practices on urban waste prevention/reduction and strategies for circular economy



## Performed activities (2018)

- A first survey on waste management in RUS universities.
- A first exploratory call for good practices on waste prevention (circular economy subgroup).
- Coordination between universities for the implementation of **communication and awareness-raising events** ("waste collection" and "waste prevention"), also in collaboration with external stakeholders (eg. Legambiente)  $\rightarrow$  coordinated participation in the EU Waste Reduction Week and informal participation at 10<sup>th</sup> year celebrations of EWWR (citizen Parliament).
- Start of **networking activities** with organizations, institutions, consortia and legal experts to address the issue of "regulatory limits and responsibilities" for waste management in the University environment (current revision of the framework reference).
- Organization of the conference "Waste management in universities: towards a model of circular economy", at Ecomondo 2018 (Rimini).
- Participation in various conferences / seminars / initiatives for WWG activities.
- Drafting of **guidelines for the management of waste** produced by universities (technical-regulatory work subgroup).



→ Research on waste management in RUS Universities (29 Universities surveyed).

#### 9 sections with a total of 72 questions, divided in the following categories:

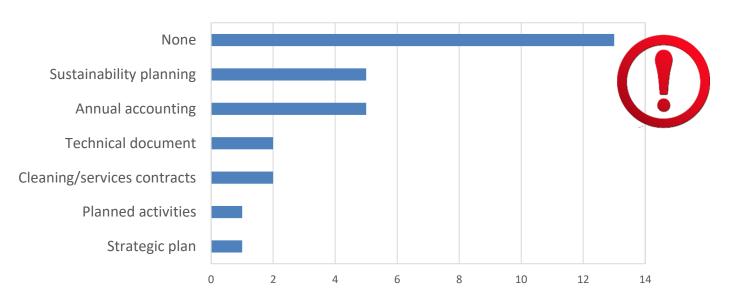
- Personal data: 4
- Declarations of intent for CE/waste reduction in the University strategic documents: 2
- Waste Management System: 7
- Public announcements, Contracts and Agreements: 4
- Methods, management and rate of Separated Collection: 5
- Urban Waste Management (RAU): 6
- Special Waste Management (RS): 17
- Communication / Training / Awareness raising actions: 20
- Management use / support tools Software: 2

## Results available on RUS website: https://drive.google.com/file/d/1MjiLhNs2W2Oz41laya6UfaRPGETU6WZE/view (in Italian)



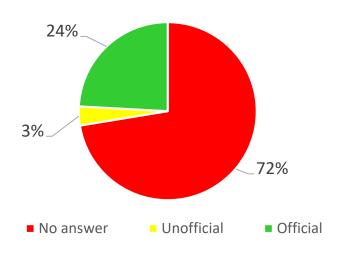
#### → Some results

Documents with references to waste reduction/circular economy

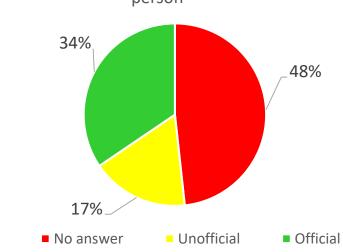




#### Appointment of the waste coordinator



## Appointment of the local waste contact person



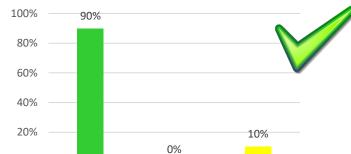


W&R Manager



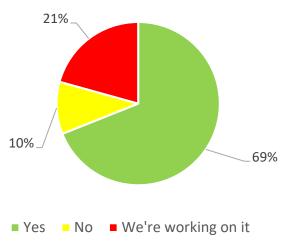
#### Separate waste collection





#### → Some results

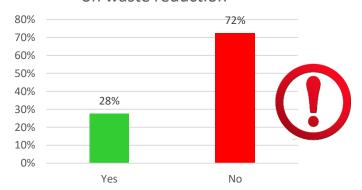
Presence of a waste management system







#### Initiatives to raise awareness on waste reduction



We're working

on it



Monitoring waste and BP concerning CE and sensitization



#### **Good Practices**

Inventory of best practice for waste management & prevention (Circular Economy perspective) - ongoing

#### Experience in the following fields:

- Sensitization and infrastructure for correct separate waste collection
- Experimentation of separate collection of specific types of waste in University public areas
- Green Public Procurement for vending machines (no plastic cups, organic foods,...)
- Recovery and reuse of material (Electrical and Electronic Equipment, furniture,...)
- Plastic waste reduction (tap water, fountains,...)



## Awareness-raising events (2018)



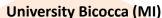
















## **Conferences (2018)**



## Waste Management in University: towards a Circular Economy Approach 6 november 2018 – Sala Ravezzi 1 – Hall Sud



Photo: courtesy of Ambiente Legale



Photo: courtesy Ambiente Legale



## **Current and future activities (2019)**

- Continuation of networking activities with stakeholders to address the issue of "regulatory limits and responsibilities" for waste management in the university environment → participation in work of the Interdisciplinary Waste and Health Committee (CIRS).
- Definition and promotion of agreement with Cobat on the recycling of University's WEEE (Waste Electrical and Electronic Equipment).
- Maintain coordination between universities for the implementation of communication and awareness-raising events → coordinated participation by EWWR (European Week for Waste Reduction).
- Mapping good practices for waste prevention (circular economy subgroup) → processing in progress.
- Drafting of a definitive document with guidelines on produced waste for the management of universities (technical-regulatory subgroup).
- Preparation of document for publication on mapping results and ready to be reviewed.
- Address the issue of "regulatory limits and responsibilities" in the management of waste in the university environment → The role of Waste and Resource Manager



## World Cleanup day (September 2019) Network participation to «Puliamo il mondo»







University of Parma





University of Bologna





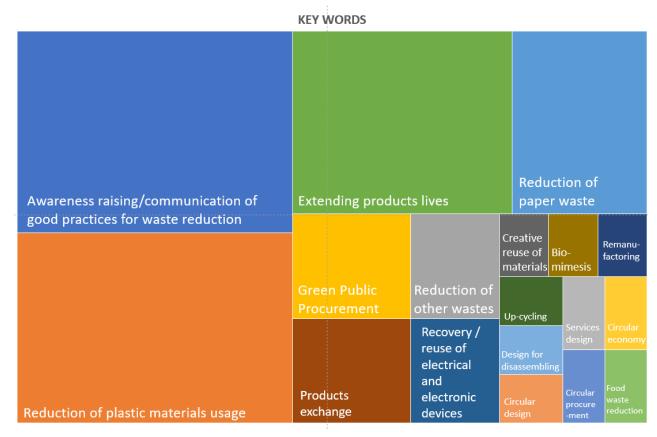
University of Cagliari



## **Survey Good Practice towards Circular Economy (2019)**

#### **Main themes**

- Reusable water bottles and water fountains
- Book-swapping
- Materials/components reuse
- Reduction of plastic materials usage
- Exchanges of goods, donations
- Vending machines
- WEEE
- Reduction of food waste
- Waste manager
- GPP
- Separate waste collection



**Stop single use plastic (2019)** 



Polytechnic University of Bari



Politecnico di Milano

PREVENTION/ **REDUCTION** 

**University of Turin** 



26

**PRECIOUS** 

University of Cà Foscari (Venice)



L. Badalucco



### **Good Practice survey (summer 2019)**

Participated construction of a meeting place using recovery materials



Computer refurbishing and donation to school and no profit association



University of Parma

Students objects exchange APP



University of Design IUAV Venice

New life to goods: used bicycle tires are transformed into handmade fashion accessories





Politecnico di Milano

L. Badalucco

University of Rome Tor Vergata





## The issue of "regulatory limits and responsibilities" in the management of waste in the university environment

### Universities like small towns

Classrooms, offices, libraries









Greenhouse, parks, gardens







## List of waste produced at University campuses

- Hazardous/not hazardous laboratory waste (teaching/research/medical assistance activities);
- Batteries, oils, gas tanks, lamps;
- Office & classroom waste (paper, plastic, cardboard, glass, metal)
- WEEE/bulky waste
- Organic waste (food from buildings, students and personnel snacks and lunches, cafes and canteens)
- Organic waste (garden waste)
- Construction and demolition waste



## Most popular activities that Universities carried out about waste

- 1. waste production monitoring and analysis (qualitative and quantitative)
- 2. creation of a strong interconnection between Procurement Department and Waste Management in order to close the loop of materials (i.e. actual Circular Economy)
- 3. community engagement and connection strategies (events, interviews, conferences, open days, flash mobs)



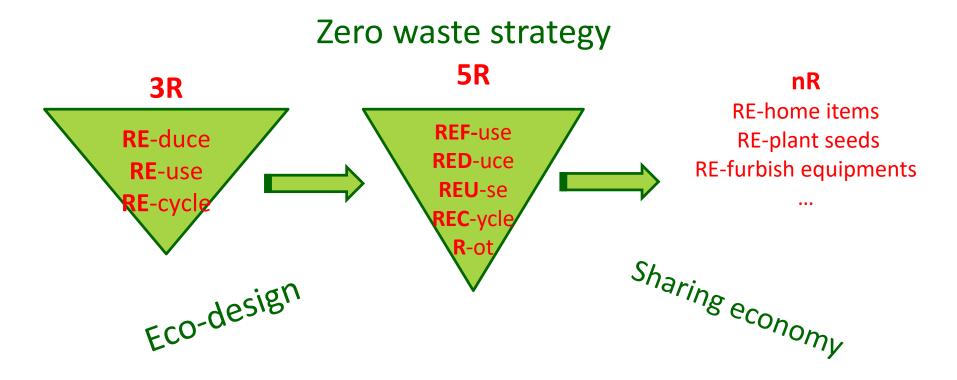
## 1. Waste production monitoring and characterisation (qualitative and quantitative)

- Define the problem is the first step for the solution
- Many proposed methods (e.g. PN1497 Canada)
- Representability of samples
- Information about hazardous waste usually available, problems with the classification by WEC/HP/ADR (Italy)



## Strategies and methods to close the loop

### Circular Economy vs Linear Economy





## Circular Economy or the Principle of Conservation of Mass



IV Century b.C. Parmenides

Nothing cames from nothing, and therefore nothing new

could be created.

Empedocles Nothing comes into being, nor do pass away.

III Century b.C. Epicurus

The totality of things was always such as it is now, and

always will be.

VIII Century a.C. Mikhail Lomonosov, Joseph Black, Hanry Cavenish

#### **Antoin Lavoisier**

Nothing is lost, nothing is created, everything is transformed.



Pictures: Wikipedia



## Examples of 3-5 R Strategy applied on Waste management<sup>34</sup>

- Hazardous/not hazardous laboratory waste (teaching/research/medical assistance activities)

  RED-REC
- Batteries, oils, gas tanks, lamps REC
- RAEE/bulky waste RED-REU-REC
- Office & classrooms waste (paper, plastic, cardboard, glass, metal) RED-REU-REC
- Organic waste (food from buildings, students and ROT personnel snack and lunches, coffees and canteens)
- Organic waste (garden waste) ROT
- Construction and demolition waste REU-REC



## 2. Interconnection between Procurement Department and Waste Management



Buy thinking not only of its use but also of the end life of a product in order to close the loop of materials (i.e. actual Circular Economy). How long will it last? Can I rent it instead of buying? Which kind of waste could it become at the end of its useful life? Could it be reused or recycled?



## Issue of "regulatory limits and responsibilities" in the management of waste in the university environment

#### STARTING POINT

The goods purchased by the universities, at the end of their useful life, are usually managed as waste  $\rightarrow$  linear economy

This happens because of:

- existence of consolidated and certain rules, even if sometimes with difficulty, for waste management;
- almost total absence of rules for the management of alternative forms of disposal of assets (e. g. donations ...).
- existence of a risk of incurring penalties both in the context of «normal» waste management, and with a view to applying virtuous practices aimed at encouraging the circular economy («unauthorized» waste management)

## Issue of "regulatory limits and responsibilities" in the management of waste in the university environment



#### **ARRIVAL POINT**

Identification, for a "Circular Economy" waste management, of:

- "structured" derogatory areas / new regulations and other instruments;
- schemes for shared good practices, aimed primarily at NOT producing waste.

Start a process of dialogue between stakeholders!



The role of Waste Manager ....or ... better





## From Waste Manager to Waste & Resource Manager (W&RM)

#### Areas of expertise:

- Technical-regulatory management of special waste (competences recognized by passing the exam by Waste Management Technical Manager, a test set up by the National Register of Environmental Managers).
- Monitoring of separated waste collection and interface with the municipal manager.
- Direct connection with the procurement / purchase office to ensure the application and development of Green Procurement (GPP).
- Development of Special Projects on waste PREVENTION and REDUCTION.

## Thanks for your attention!



The measurement of intelligence is given by the ability to change when necessary.



### **Contacts and information**

Eleonora Perotto - PoliMI

Daria Prandstraller - UniBO

rus.rifiuti.coordinatore@unibo.it

https://www.un. org/sustainabled evelopment/bethe-change/



Or...
if you prefer
...

"Be the change that you wish to see in the world"

Mahatma Gandhi

