DAY 1 / MONDAY MAY 21

DAILY PROGRAMME

Updated on 03/05/2018

MONDAY MAY 21
MORNING

OPENING SESSION / 9:00-10:40
Chair / *Presidente:* Raffaello Cossu (IT)

WELCOME ADDRESSES / *SALUTI DI BENVENUTO*

9:00-10:00 *Raffaello Cossu, University of Padova (IT)*
Paolo Russo, Italian Parliament (IT)
Daniele Belotti, Italian Parliament (IT)
Raffaele Cattaneo, Regional Governament of Lombardia (IT)
Hongtao Wang, Tsinghua University (CN)

INTRODUCTORY LECTURE / *RELAZIONE INTRODUTTIVA*

10:00-10:20 *Marco Frey (IT)*
Agenda 2030 and circular economy: the role of firms

10:00-10:40 *Floriana La Marca*
EIT RawMaterials: an European initiative driving challenges in the raw material sector

10:40-11:20 Coffee Break

SESSION A1 / 11:20-13:00
STRATEGIES & POLICIES I
Chair / *Presidente:*

C. Battistoni, S. Barbero (IT)
The holistic diagnosis as a method to support urban mining actions: the case study of the European project retrace for Piedmont region (Italy)

S. Daskal, O. Ayalon, M. Shechter (IL)
The role of regulation in closing the municipal solid waste loop

L. Fraccascia, I. Giannoccaro, V. Albino (IT)
Business models for industrial symbiosis: a taxonomy

S. Petters, K. Mauthner (AT)
How to build a World in Carbon Balance

13:00 - 15:00 Lunch break

MONDAY MAY 21
MORNING

SESSION B1 / 11:20-13:00
CHINA MEETS ITALY
Chair / *Presidente*:

D. Yue, M.C. Lavagnolo (CN)
Application of Circular Economy in Italy and China

L. Zhang, D. Yue, W. Zhang, H. Bai, Y. Ji (CN)
Life cycle assessment of water recycling based on alternative leachate treatment systems

D. Yue (CN)
Technical and economical comparison between two landfill gas power generators

P. Jiang (CN)
How European companies enter China with cases

X. Fan (CN)
Overview of landfill remediation and storage waste treatment technology in China

H. Bai (CN)
Recovery of recyclable materials from leachate

L. Dong (CN)
Cooperation on industrial promotion in China

J. Zhang (CN)
Eco treatment and energy utilization of Municipal Solid Waste: practice and exploration of non-incineration treatment technology

SESSION C1 / 11:20-13:00
BIOREFINERY
Chair / *Presidente:*

M. Lasagni (IT)
Possible exploitation of existing biomass digester for the ad of bio-waste: the case of Arezzo

M. Cruz, E. Costa, M. F. Almeida, M. Alvim-Ferraz, J.M. Dias (PT)
Recovery of by-products from the olive oil production and the vegetable oil refining for biodiesel production

S. Pardilhó, R. Duarte, A. Costa, J.M. Dias (PT)
Characterization of Marine Macroalgae Waste Aiming the Production of Biofuels and Value Added Products – Preliminary Studies

F. Demichelis, E. Vasini, S. Fiore (IT)
Design and sustainability assessment of biorefinery systems

Z. Tang, T. Huhe, H. Guo, H. Yin, M. Liu, Y. Chen (CN)
Agricultural Residues to Energy in Guangdong Province: Generation, Spatial Distribution and Energy Potential

13:00 - 15:00 Lunch break

SESSION D1 / 11:20-13:00

CONSTRUCTION & DEMOLITION WASTE

Chair / *Presidente:*

G. Bonifazi, R. Palmieri, S. Serranti, G.Hermant, H. Bréquel (IT)
Automatic recognition of different materials from construction and demolition waste by hyperspectral imaging

G. Bedeković, B. Kovačević Zelić, I. Sobota (HR)
Construction and demolition (C&D) waste management in Croatia with recycling overview

M. Ojan (DE)
Valorization of materials and resources: a concrete approach

M.C. Lavagnolo, F. Faleschini, R. Malesani, A. Pivato, C. Pellegrino (IT)
C&D Characteristics & recovery

SESSIONE E1 / 11:20-13:00 / ITALIAN SESSION

CARATTERIZZAZIONE E RICIRCOLO DEI MATERIALI

Chair / *Presidente:*

G. Bonifazi, R. Palmieri, S. Serranti, G.Hermant, H. Bréquel (IT)
Caratterizzazione dei prodotti risultanti dal recupero di scarti da demolizione mediante tecniche di analisi di immagine iperspettrale

G. Bonifazi, G. Capobianco, R. Palmieri, S. Serranti (IT)
La caratterizzazione delle schede elettroniche degli smartphone mediante micro-fluorescenza ai raggi X

C. Ferrara, L. Rapido, G. De Feo (IT)
Applicazione della LCA ad un impianto di riciclo della carta: l'effetto della fonte di approvvigionamento energetico

G. Dolci, F. Poma, A. Catenacci, M. Grosso, F. Malpei (IT)
Valutazione dell'utilizzo di sacchetti in carta per la raccolta del rifiuto organico

A. Lazzari, A. Martina (IT)
Eurosintex, la plastica seconda vita come esempio di economia circolare

13:00 - 15:00 Lunch break

MONDAY MAY 21
AFTERNOON

SESSION A2 / 15:00-16:40
STRATEGIES & POLICIES II

Chair / *Presidente:*

B. Kovačević Zelić, G. Bedeković (HR)
Harmonization of mineral raw materials and waste management policies at a national level

J. Gutberlet, S. Carenzo (CA)
Waste pickers at the heart of the circular economy: a perspective from the global south

G. Grause (JP)
Resource control by introducing an environmental currency

E. Malavasi, B. Toniolo (IT)
The recent evolution of by-products regulation

16:40 - 17:20 Coffee break and Poster discussion

SESSION A3 / 17:20-19:00
COUNTRY REPORT - CHALLANGES & PERFORMANCE OF RECYCLING STRATEGIES

Chair / *Presidente:*

J. Margeta (HR)
Circular economy and septage management on the islands in Croatia

A. Asthana, S. Mukherjee (UK)
Challenges in establishing waste-to-energy projects in developing countries with a case study from India

A. Lewandowska, D. Szymańska (PL)
Selective collection and municipal waste recycling in Poland in the context of city ecologization

S. Lee (UK)
A Comparison of the Recycling Performance of English Local Authorities

R. Lopes, R. Santos, N. Videira, P. Antunes, C. Pássaro, S. Ângelo (PT)
Collaborative vision for a circular economy in packaging and food & beverages sectors: a roadmap for Portugal

SESSION B2 / 15:00-16:40

EDUCATION

Chair / *Presidente:*

P.C. Berardi, M.L. Lopes, J.M. Dias (PT)
Circular Economy in Higher Education: Fundamental Contents Towards Effective Training

L.S. dos Muchangos, P. Vaughter (JP)
Are gender perspectives included in waste education programs? A systematic literature review

F. Bernocchi, M. Mucci (IT)
Waste travel 360°

I. De Benedictis, M. Musella (IT)
The perception of reuse: How to do educate at the Circular Economy?

16:40 - 17:20 Coffee break and Poster discussion

SESSION B3 / 17:20-19:00

PLASTIC RECYCLING

Chair / *Presidente:*

M. Calero, M-Á. Martín-Lara, V. Godoy, L. Quesada, D. Martínez, F. Peula, J.M. Soto (ES)
Characterization of plastic materials presented in mixed municipal solid waste. Preliminar study for their mechanical recycling

A. Özkan, K. Cebeci Topbaş, Z. Günkaya, E. Yapıcı, H. Akgün, M. Banar (TR)
Waste plastic type selection to produce carbon nanotube by using electre III methodology

Z. Günkaya, M. Taş, A. Özkan, M. Banar (TR)
Thermal insulation material production from waste LDPE packages

A. Özkan, E. Yapıcı, Z. Günkaya, H. Akgün, K. C. Topbaş, M. Banar (TR)
Pyrolysis of waste C/LDPE in the presence of waste clay and zeolite

A. Özkan, H. Akgün, Z. Günkaya, E. Yapıcı, K. C. Topbaş, M. Banar (TR)
Effect of different additive materials on waste LDPE pyrolysis

MONDAY MAY 21
AFTERNOON

SESSION C2 / 15:00-16:40
SEWAGE SLUDGE
Chair / *Presidente:*

K. Shih, H. Yan, L. Kong (HK)
Quantitative x-ray diffraction analysis for assisting phosphorus recovery from urban waste stream

Š. Václavková, M. Šyc, M. Pohořelý, J. Moško, K. Svoboda, M. Punčochář (CZ)
Municipal sewage sludge as a locally important nutrient mine

V. Singh, H.C. Phuleria, M.K. Chandel (IN)
Characterization of sewage sludge from moving bed biofilm reactor (MBBR) sewage treatment plant for it's agricultural application

A. Hornung, N. Jäger, J. Neumann, A. Apfelbacher, R. Daschner (DE)
Sustainable utilization of municipal sewage sludge into synthetic fuels

16:40 - 17:20 Coffee break and Poster discussion

SESSION C3 / 17:20-19:00
FOOD & ORGANIC WASTE
Chair / *Presidente:*

F. Girotto, M.C. Lavagnolo, R. Cossu (IT)
Bio-energy and bio-materials production through a sustainable food waste management

F. Di Maria, O. Ayalon, S. Daskal (IL)
Different Approaches for Bio-Waste Management by Anaerobic Digestion: An Italian and Israeli Comparison

J. Kannengiesser, C. Kuhn, T. Mrukwia, D. Stanojkovski, J. Jager, L. Schebek (DE)
Extraction of carboxylic acids from liquid waste phase as platform for different bio-based products

M.C. Lavagnolo, F. Ruggero, A. Chiumenti (IT)
Bioplastic bags composting

SESSION D2 / NeWs / 15:00-16:40 / ITALIAN SESSION

MIGLIORARE L'USO DELLE RISORSE NELLA FILIERA DELLE COSTRUZIONI ATTRAVERSO LA CIRCULAR ECONOMY

Chairs / *Presidenti:* Laura Cutaia, Maria Cristina Lavagnolo, Stefano Cicerani (IT)

Il settore delle costruzioni e l'intera filiera ad esso correlata, che rappresenta un motore trainante per l'economia Italiana, è responsabile di un consumo massiccio di risorse, notevoli emissioni di CO2 e della produzione di ingenti quantitativi di rifiuti lungo l'intero ciclo di vita dei prodotti. Ad oggi i tassi di riciclo e sostituzione delle materie prime vergini con prodotti riciclati sono ancora molto bassi e la gran parte della domanda interna di aggregati viene soddisfatta quasi esclusivamente con aggregati naturali. Ampi dunque sono i margini di miglioramento e i benefici attesi da un uso più efficiente delle risorse e dalla transizione verso l'economia circolare con il conseguente riposizionamento competitivo dell'intero settore e delle imprese della filiera. I rifiuti da Costruzione e Demolizione, dati gli elevati quantitativi prodotti e gli stringenti obiettivi fissati dalle direttive europee, rappresentano un flusso prioritario su cui indirizzare azioni volte a valorizzarne il recupero e le interconnessioni con le filiere di utilizzo delle risorse secondarie. Obiettivo della sessione è affrontare le problematiche ancora aperte, le opportunità per le imprese e gli operatori del settore, il ruolo della comunità scientifica e della pubblica amministrazione nell'avviare e sostenere politiche ed approcci per la transizione verso l'economia circolare.

Relazioni Introduttive:

F. Peres: End of Waste: lo stop del Consiglio di Stato

A. Luciano: Analisi dei flussi di risorse e potenzialità di recupero dei materiali nella filiera

S. Cicerani: I provvedimenti di Roma Capitale per la promozione della filiera del recupero dei rifiuti inerti

S. Grandi: I lavori del "Laboratorio Materie Prime" per una strategia mineraria nazionale

S. Saporetti - intervento in videoconferenza: Il GPP come strumento per l'economia circolare

D. Vignani: Fabbisogni informativi nel framework delle policy internazionali, nazionali e locali

N. Antonias: Il sistema degli appalti ed il sistema di gestione dei cantieri di Italferr per la sostenibilità

C. Savoia, S. Persi Paoli: Il punto di vista dell'amministrazione e i provvedimenti del Comune di Bologna

A. Bonoli: Caratterizzazione e qualificazione dei materiali recuperati da rifiuti da C&D

F. Cioffi: Il sistema delle norme di qualificazione degli aggregati riciclati

I. Poroli: La demolizione selettiva per il recupero dei rifiuti da C&D

MONDAY MAY 21
AFTERNOON

SESSION D3 / NeWs / 17:20-19:00
CIRCULAR ECONOMY READINESS

Chairs / *Presidenti:* R. Dunk, C. Fletcher (UK)

The linear economy, which follows a take-make-use-dispose model, has been the dominant paradigm underpinning continued economic growth. While it has delivered, for many, huge improvements to living standards and wealth, it has also caused deep social inequality, depletion of natural resources and environmental degradation. The circular economy has been positioned as a promising alternative. Central to the vision of the circular economy is the ambition to tackle two of the main negative effects of a linear model: waste and excessive extraction of primary resources. It is here, where the waste industry can play an integral part, for example by following the waste hierarchy to recirculate materials into society and advancing urban mining to reclaim previously lost materials. While momentum is building towards the adoption of circular economy models, it is estimated that the current global economy is still only 9% circular, with previous schemes to include circular thinking into waste management having varied success. Barriers that have been identified by these attempts include reluctance to invest in untested technology, lock-in of ineffective processes, poor data availability and competing local priorities. Going forward, it is therefore important to overcome these barriers and learn from the mistakes of the past.
This workshop will introduce and explore the concept of "Circular Economy Readiness". Circular Economy Readiness is based on a similar concept within the power sector, Carbon Capture Readiness, which aims to prepare the energy sector for the future implementation of Carbon Capture and Storage (CCS). For example, it is a legal requirement within the EU for new combustion plants to conduct feasibility assessments and make provisions such that CCS technology can be retrofitted and utilised in the future. This allows the immediate need for additional capacity to be met whilst addressing the risks of lock-in. This is comparable to barriers that affect progressive waste management, where the immediate need for increased sanitary disposal may be viewed as more pressing than the need for fully circular waste management practices. This workshop explores how the concept of 'Readiness' could be adapted to help the waste management industry contribute to the transition towards a fully circular economy. It will also create a forum for ideas on how it can be interpreted and implemented in different waste management systems taking into account local priorities, infrastructure and customs.

Introductory lectures:

R.M. Dunk, C. Fletcher (GB)
Introducing the concept of Circular Economy Readiness

Agenda:

Introductory presentation / Interactive workshop: activities to scope out the concept of 'Circular Economy Readiness / Activity feedback and discussion / Conclusion

SESSION E2 / 15:00-16:40 / ITALIAN SESSION

SPECIFICHE PROBLEMATICHE TECNICHE E CASE STUDIES

Chair / *Presidente:*

B. Orrico (IT)
La questione ecoballe in Campania

L. Campadello, A. Accili, N. Vincenti (IT)
Aumentare il recupero di materiali critici dai RAEE. La sperimentazione italiana di ECODOM: dalla raccolta al trattamento innovativo

G. Mancini, R. Cossu, A. Luciano, P. Viotti, D. Fino (IT)
Caratterizzazione del percolato da discarica di fluff attraverso test lisimetrici a grande scala

M. Lasagni (IT)
Possibile utilizzo di un digestore esistente alimentato a biomasse per trattare la frazione organica dei rifiuti: Il caso di studio di Arezzo

16:40 - 17:20 Pausa caffè e discussione Poster

SESSION E3 / 17:20-19:00 / ITALIAN SESSION

CIRCULAR ECONOMY E SOCIETA'

Chair / *Presidente:*

F. Rossi (IT)
Progettazione circolare per la sostenibilità

A. Bonoli (IT)
L'impegno dell'Università di Bologna nella promozione dell'Economia Circolare

E. Perotto, D. Prandstraller (IT)
La gestione rifiuti presso gli Atenei aderenti alla Rete delle Università per lo Sviluppo Sostenibile: insieme verso l'Economia circolare

I. De Benedictis, M. Musella (IT)
La propensione al riciclo: come sensibilizzare i giovani verso un'economia circolare?

F. Bernocchi, M. Mucci (IT)
Waste Travel 360 un progetto di educazione ambientale per le scuole con l'utilizzo della tecnologia vr per accompagnare le giovani generazione nel mondo dell'economia circolare

L. Fraccascia, I. Giannoccaro, V. Albino (IT)
Modelli di business per la simbiosi industriale: una tassonomia

DAY 2 / TUESDAY
MAY 22

TUESDAY MAY 22
MORNING

SESSION A4 / 9:00-10:40
COUNTRY REPORT
Chair / *Presidente:*

A. Cesaro, A. Marra, F.P. Buonocore, R. Manzi, M. Bruno, V. Belgiorno (IT)
The recovery of Campania waste bales in a circular perspective

S.W. Hermanowicz, Y. Xiang, S. Xia (US)
Life Cycle Assessment of a municipal solid waste power plant in China

C. Maione, N. Aliakbarshirazi (US)
Power dynamics and conflict of interests in the waste sector: the case of Nairobi, Kenya

G. Ulloa, R. Cayumil, M. Sanchez (CL)
Urban mining in Chile: State of the art

10:40 - 11:20 Coffee break and Poster discussion

SESSION A5 / 11:20-13:00
PAPER RECYCLING
Chair / *Presidente:*

C. Geng, T. Ma, J. Liu, Y. Liu (CN)
Material and substance flow analysis for NewYield® calcium carbonate filler from pulp mill lime mud

C. Ferrara, L. Rapido, G. De Feo (IT)
LCA application to a paper recycling plant: the effects of energy supply source

G. De Feo, F. D'Argenio, C. Ferrara, A. Grosso (IT)
Assessment of environmental, social and economic benefits wasted in the unsorted residual msw in terms of paper and cardboard

13:00 - 15:00 Lunch break

SESSION B4 / 9:00-10:40

INDUSTRIAL WASTE

Chair / *Presidente:*

M. Hache, F. Bilek (DE)
Sequential Extraction - Determination of element mobility in process materials and mining residue

L. Biganzoli, L. Rigamonti, M. Grosso (IT)
Steel drums re-use in the circular economy: an LCA evaluation

R. Warrings (AT)
Iron and steel stock in Austria - Bottom up analysis

F. Gallo, D. Previtali (IT)
Viscolube - Mineral used oil re-refining: open technology platform for circular economy.

G. Mancini, R. Cossu, A. Luciano, P. Viotti, D. Fino (IT)
ASR landfill leachate characterization through batch and lysimetric tests

J. Bachér, J. Laatikainen-Luntama, H. Punkkinen, M. Nieminen, J. Laine-Ylijoki (FI)
Holistic approach for shredder residue treatment

10:40 - 11:10 Coffee break and Poster discussion

SESSION B5 / 11:20-13:00

WEEE MANAGEMENT STRATEGIES

Chair / *Presidente:*

G. Bonifazi, G. Capobianco, R. Palmieri, S. Serranti (IT)
A methodological approach for the characterization of printed circuit boards from smartphones by micro x-ray fluorescence

R. Brüning, J. Wolf (DE)
Lessons learned from the project RUN (ReUse Notebook)

R. Saludes, M. Galang, F.G. Ballesteros (PH)
Estimating WEEE gneration using Neural Networks and Adaptive Neuro-Fuzzy Inference System: A quantitative comparison

M.A. de Carvalho, K.E. Gomes, J.A. Soares Tenório, D.C. Romano Espinosa (BR)
Characterization of lead free printed circuit boards from obsolete computers through SEM-EDS

13:00 - 15:00 Lunch break

TUESDAY MAY 22
MORNING

SESSION C4 / NeWs / 9:00-10:40
THE PERSPECTIVE OF EUROPEAN REGIONS ON CIRCULAR ECONOMY

Chair / *Presidente:* Dario Sciunnach (IT)

Since the release of the Circular Economy Pack 1.0 'Closing the Loop' (December 2015) much work has been done by the European regions to analyze both the circular potential of the current economic dynamics, and the emerging barriers (social, regulatory, technical or financial) that hamper a broader or a fuller development of such potential.
In the session, some of the most relevant recent results obtained by the CircE project, in the framework of the Interreg Europe Program, will be presented by Regione Lombardia (Lead Partner in the project) and by its stakeholders.

Introductory lectures:

M.G. Pedrana (IT)
Policy integration to boost Circular Economy in Lombardy Region

D. Sciunnach
The CircE project within the Interreg Europe Program"

M. Colledani
The CircE tool: a methodology for the identification of cross-regional Circular Economy value chains and opportunities

A. Brescianini
Dispensa sociale - The challenge to connect food waste reduction and social commitment

B. Ferrari
Innovation strategies in the WEEE recycling sector through a multiregional cooperation

O. Maschi
Identification and characterization of recycled textile materials

16:40 - 17:20 Coffee break and Poster discussion

SESSION C5 / NeWs / 11:20-13:00

THE URBAN WINS PROJECT: A NEW WAY OF THINKING THE WASTE MANAGEMENT AND PREVENTION SYSTEMS

Chair / *Presidente:* Giulia Lucertini (IT)

The EU Waste Framework Directive has two key objectives: to prevent and reduce the negative impacts caused by the generation and management of waste and to improve resource efficiency. Talking about waste and resource efficiency, Circular Economy and Urban Metabolism are two terms that have been widely used in recent years. However, their links with cities strategy and management it is not so obvious.
UrbanWINS project aims overcame this gap through the development of planning processes and strategies able to link waste prevention and management with the policies of the cities and citizens perceptions. The project, through an innovative and collaborative process, implements in 8 European Pilot Cities several dimostrative actions.

Introductory lectures:

G. Lucertini (IT)
Urban metabolism and urban planning: Urban_Wins Project

F. Clarens (ES)
DPSIR and LCA as tools for assessing the WMS

D.J. Encarnacion (PT)
Applying the urban metabolism analyst model to Leiria municipality, Portugal

J. Prummel (NL)
Lead by example - Procurement as your own strategic instrument to implement circular economy

TUESDAY MAY 22
MORNING

SESSION D4 / 9:00-10:40
WASTE ARCHITECTURE

Chairs / *Presidenti:* E. Cossu, A. Artuso (IT)

A. Schievano (IT)
Microbioenergy - Bioenergy from biomass and distributed resources for a sustainable housing.

F. Zambetti (IT)
Reuse3 - The reuse desk in Franciacorta: a new model towards circularity, sharing an solidarity

K. Rogatka, A. Lewandowska (PL)
Upcycling of urban space - Case study from Poland

S. Antoniadis, R. Malesani, M.C. Lavagnolo, L. Stendardo (IT)
From dross-scape to spore-scape

S. Giorgi, M. Lavagna, A. Campioli (IT)
Circular economy and regeneration of building stock. Assessement tool for sustainable end-of-life scenario

J.R. Carreón (NL)
Measuring the circularity in the built environment

10:40 - 11:20 Coffee break and Poster discussion

SESSION D5 / NeWs / 11:20-13:00
MATERIAL REUSE AND EDUCATION I

Chair / *Presidente:* Ian Williams (UK)

There are many benefits when we reuse items – political, commercial, social, environmental and economic. But even though reuse is a highly preferred process within the waste hierarchy, barriers and questions remain. Reuse is dependent on goods being collected and made available to the next user; sufficiently high quality and durable goods need to be put onto the primary market initially. In-built obsolescence and price competitiveness can lead to products of lower quality and reduced lifespan, with lower potential for their eventual reuse. The variety of products on the market means that the diversion and preparation of products and components for re-use will remain a labour-intensive activity for the foreseeable future. Societal preferences, peer-pressure and the desire for image-orientated products can, in practice, inhibit reuse of some potentially reusable items (e.g. clothing, furniture, e-goods). Economic barriers impede reuse of technically reusable items – notably the low price of new goods, and a lack of developed markets for some used goods. There is debate concerning the relative potential benefits of purchasing a new, more efficient appliance and the benefits of reuse. Critics insist that reuse is just delaying time to disposal via landfill or incineration. But times are changing. In our private lives, reuse for economic and/or "feel-good" benefit is thriving. Businesses are recognizing that the benefits of reuse are real and realizable. The contribution of TSOs to the social economy is clearly massive and their contribution to reuse is huge and probably under-estimated. The political impetus for reuse is growing. The global population is rapidly increasing and key resources are becoming scarcer and more expensive to secure, prompting decision-makers to embrace circular economy concepts. We are starting to quantify the benefits of reuse in new ways that capture the attention of society. The Internet and novel, rapid delivery systems are transforming our ability to sell used goods easily and quickly. The barriers to reuse are coming down and the impetus to reuse more and better is increasing. This Conference will discuss all of these issues – and more – as we aim to make a significant contribution to the debate about how reuse can fit better into our social fabric and the global economy.

Introductory lectures:

R. Osterley, I. D. Williams (GB)
The benefits of reuse via charity shops

I.D. Williams, P.J. Shaw (GB)
Key principles for reuse

P.J. Shaw, I.D. Williams (GB)
Reuse in practice

I.D. Williams, L. Powell (GB)
Sustainable resource management in higher education institutions: shift your stuff

13:00 - 15:00 Lunch break

TUESDAY MAY 22
MORNING

SESSION E4 / NeWs / 9:00-10:40 / ITALIAN SESSION
LA TARIFFA PUNTUALE: STRUMENTO PER LO SVILUPPO DELLA CIRCULAR ECONOMY

Chair / *Presidente: Giovanni Montresori (IT)*

La sessione affronterà il quadro legislativo e regolamentare, le modalità applicative, le nuove modalità di raccolta e misurazione dei servizi. In particolare verranno discussi i seguenti argomenti:

- Il nuovo regolamento Ministeriale per la misurazione puntuale dei rifiuti: l'evoluzione del concetto PAYT dagli indirizzi europei alle legislazioni regionali
- Configurazione della Tariffa puntuale all'interno del metodo normalizzato in TARI e in Corrispettivo, nuovi aspetti Legislativi ed evoluzioni della normativa
- L'assimilazione dei rifiuti: tra giurisprudenza e nuovi indirizzi legislativi
- La misurazione puntuale dei rifiuti: le modalità applicative e il modello di regolamento Comunale per la gestione della Tariffa puntuale in ambito Tributo e Corrispettivo
- La determinazione del Piano Economico Finanziario tra normativa
- Benchmarking tecnico-economico in attesa della nuova Autorità di Regolazione
- La Gestione informatica della filiera del rifiuto: gli strumenti di gestione operativa, rilevazione e strumenti di iterazione con l'utenza
- Modelli applicativi di raccolta e tariffa puntuale nelle città italiane e nei comuni: gli effetti di riduzione dei rifiuti e di crescita della Raccolta Differenziata

Relatori confermati:

Giovanni Montresori, Labelab, Ravenna

Andrea Valentini, OPERATE, Osservatorio Nazionale Ambiente Misurazione e Tariffa Rifiuti

Mauro Sanzani, OPERATE, Osservatorio Nazionale Ambiente Misurazione e Tariffa Rifiuti

10:40 - 11:20 Coffee break and Poster discussion

SESSION E5 / NeWs / 11:20-13:00 / ITALIAN SESSION

WASTE ARCHITECTURE E GESTIONE SOSTENIBILE DEI RIFIUTI NELLO SPAZIO URBANO

Chairs / *Presidenti:* Anna Artuso, Elena Cossu (IT)

La sessione è dedicata agli aspetti architettonici e progettuali dei nuovi modelli di gestione rifiuti nello spazio urbano concepiti nell'ottica di superare definitivamente la criticità del sistema e trasformarlo in una reale opportunità per il territorio, sia sotto il profilo della riduzione delle tariffe (applicate dai gestori degli impianti e dei servizi) sia sotto l'aspetto della creazione di valore (sociale e ambientale) ed indotto.
Partendo da quelli che sono i principi ispiratori del nuovo approccio al riuso si parlerà di: raccolta pneumatica dei rifiuti come moderna opportunità di gestione sostenibile della raccolta differenziata nei diversi contesti urbani (centri storici, aree residenziali, aree industriali…) / ruolo dell'architettura nel perseguimento degli obiettivi di significativa riduzione dei rifiuti e inserimento programmatico del riuso all'interno dell'urban mining / nuovi modelli di centri del riuso, ecopoints, tip shops: organizzazione di nuovi spazi pubblici dedicati con combinazione delle diverse tipologie di strutture e di centri, possibili sinergie e figure coinvolte.

Letture introduttive:

A. Artuso, E. Cossu (IT)
Nuovi modelli di gestione dei rifiuti nello spazio urbano

F. Zambetti (IT)
RIUSO 3 - Banco del riuso in Franciacorta: verso un'economia solidale, circolare e di condivisione

E. Formato, G. Guida (IT)
Ripartire dai wastescape lungo le infrastrutture della mobilità. Per un progetto di rigenerazione della "Terra dei Fuochi".

13:00 - 15:00 Pausa pranzo

TUESDAY MAY 22
AFTERNOON

SESSION A6 / 15:00-16:40
COMBUSTION RESIDUES
Chair / *Presidente:*

J-F. Wagner, T.T.A. Egbe (DE)
Sewage sludge ash as cement replacement in concrete blocks

C. Pellegrino, F. Faleschini (IT)
Ash in combustion residues

F. Huber, J. Fellner (AT)
Quality criteria for the utilisation of MSWI bottom ash in Europe

B. Du, C. Geng, S. Yu, Y. Zhao, L. Xiao (CN)
MSWI fly ash vitrification with heavy metal seperation based on chlorination

G. Sappa, P. Viotti, S. Iacurto, F. Tatti (IT)
Ceramic tiles production by addition of MSWI BA: a case history in central Italy

16:40 - 17:20 Coffee break and Poster discussion

SESSION A7 / 17:20-19:00
LANDFILL MINING
Chair / *Presidente:*

R. Raga, R. Cossu (IT)
Characterization and potential emissions of the excavated waste from an old landfill

S. Masi (IT)
Characterization of fines fractions in old landfill minings

A. Zeiner, K. Münnich, K. Fricke (DE)
Landfill mining - Analysis of the resource potential of a bottom ash landfill

C. García López, A. Ni, J.C. Hernández Parrodi, B. Küppers, T. Pretz (DE)
Characterization of landfill mining material after ballistic separation to evaluate material and energy recovery

SESSION B6 / 15:00-16:40

RECOVERY OF METALS

Chair / *Presidente:*

B. Kopacek (AT)
Mobile hydrometallurgy to recover rare and precious metals from WEEE

P. Hennebert, M. Herbelin, N. Kanari, L. Filippov (FR)
Atempt of recovery of antimony from co-incinerated sorted brominated WEEE plastics by simple mineralurgy operations

L. Campadello, A. Accili, N. Vincenti (IT)
Increase the recovery of critical raw materials (crm) from WEEE. Ecodom italian trial: from innovative colection to innovative treatments

M.A. de Carvalho, L.M. de Andrade, D.C.R. Espinosa, J.A.S. Tenório (BR)
Study of the recovery of copper and silver of printed circuit boards from obsolete computers through one-step acid leaching

V. Innocenzi, I. Birloaga, I. De Michelis, B. Kopacek, F. Vegliò (IT)
Process development and scale up for the implementation of recycling treatments of weee: rees recovery from lab to industrial scale

16:40 - 17:20 Coffee break and Poster discussion

SESSION B7 / 17:20-19:00

RECOVERY OF WEEE - CASE STUDIES FROM DIFFERENT COUNTRIES

Chair / *Presidente:*

D. Ibanescu, S. Fiore, C. Teodosiu, D. Cailean (Gavrilescu), A. Ronco (IT)
Sustainability of e-waste management: an italian case study

P. Nowakowski (PL)
Investigating the reasons for storage of WEEE in households - a potential for exploration in urban mining

S. Sgarioto, B. Ferrari, S. Bonalume, D. Gotta (IT)
Recovery of Silicon and other materials from End-of-Life Photovoltaic Panels

L.H. Xavier, E.C. Giese, F.A. Freitas Lins (BR)
Urban mining and e-waste management in South America

H.F.F. do Nascimentoa, L.H. Xavier (BR)
Urban mining and circular economy: e-waste management in Rio de Janeiro City, Brazil

TUESDAY MAY 22
AFTERNOON

SESSION C6 / NeWs / 15:00-16:40
ANAEROBIC DIGESTION OF BIO-WASTE IN THE PERSPECTIVE OF THE CIRCULAR ECONOMY

Chairs / *Presidenti: Francesco Di Maria, University of Perugia; Maria Cristina Lavagnolo, University of Padova (IT)*

The EC indicated the anaerobic digestion (AD) as the most suitable process for the implementation of the circular economy in the treatment of the bio-waste. By the way, for several reasons, its implementation in this sector still remain quite limited. Nowadays the approaching to the end of the economic support period for many existing AD facilities exploiting biomasses could represent an important opportunity for increasing the use of AD in the bio-waste sector. In fact , there is a growing interest of the managers of these plants in finding alternative substrates, as the bio-waste, able to allow the viability of these facilities in the next future.
The goal is to discuss and give an informative description of the different technical, technological, economic, environmental aspect to be faced to grab this opportunity.
Furthermore, also other experiences related to other solutions, as the co-digestion of bio-waste with sludge, acidogenic fermentation of organics to produce renewable materials (e.g. bioplastics) could be presented and discuss.
The workshop context will contribute to deepen the knowledge about the role of AD in sustainable development and circular economy.

Introductory lectures:

F. Di Maria, M.C. Lavagnolo (IT)
Challenges and sustainability of anaerobic digestion plants

M. Lasagni (IT)
Interest of WM company in AD improvements: the case of AISA Impianti of Arezzo

O. Norouzi-Safsari (IR)
Improving AD performances via catalitic reactions

A. Maalouf (LB)
Challenges in DCs: toward a sustainable AD

10:40 - 11:20 Coffee break and Poster discussion

SESSION C7 / NeWs / 17:20-19:00

MANAGEMENT AND RECOVERY OF DIGESTATE FROM ANAEROBIC DIGESTION

Chair / *Presidente:* Alberto Pivato, University of Padova (IT)

The session is aimed at investigating the most sustainable techniques in order to valorize digestates from anaerobic digestion of both agro-industrial substrates and organic fraction of municipal solid waste. In particular, the land application of digestate as "organic fertilizer" and its potential role as substitute for marketable inorganic fertilizers, despite the origin of input substrates (waste or by-products) will be discussed.

When promoting the sustainability of digestate, its environmental quality should be addressed. Current law framework defines environmental quality requirements in terms of input substrates, chemical characterization and total loads. Chemical characterization alone, mainly associated with heavy metals concentrations, seems nowadays insufficient to justify a safe use of land applied digestate (especially when supporting the land use of digestate from the organic fraction of municipal solid waste). Therefore, also emerging contaminants concentrations should be considered.

In particular, it is important to provide insights about any combined effects of the chemicals occurring in the land-spread digestate, and to assess their effective bioavailability and/or environmental persistence within the various ecological compartments of application. This evaluation can involve the use of risk assessment procedures applied to the soil-plant system.

In the workshop, other management options could be presented and investigated: new technologies to extract concentrated nutrients streams, to be used as base for organic-mineral fertilizers production; influence of biochar addition on digestate quality; digestate use in landscape restoration; remediation of contaminated soils by digestate application.

The workshop context will contribute to establish a network of experts able to deepen the knowledge about the sustainability of digestate management alternatives and consequently foster the social acceptance of these techniques.

Introductory lectures:

Alberto Pivato (IT): Digestate management options within EU regulatory framework

Giovanni Beggio (IT): Statistical analysis of quality characterizations of digestates derived from separately collected OFMSW and agro-industrial feedstocks. Should the input feedstocks to Anaerobic Digestion determine the legal status of digestate?

Tiziano Bonato (IT): Considerations on the "COM(2016) 157 CO (CE)" amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009: relevant aspects related to chemical and physical characterization of digestate.

Andrea Schievano (IT): Nutrient recovery from digestate liquid fraction

13:00 - 15:00 Lunch break

TUESDAY MAY 22
AFTERNOON

SESSION D6 / NeWs / 15:00-16:40
MATERIAL REUSE AND EDUCATION II
Chair / *Presidente:* Ian Williams (UK)

Introductory lecture:

C. Cole, A. Gnanapragasam, T. Cooper (GB)
Closing the loop: insights into the role of partnerships in facilitating reuse in the UK

P.J. Shaw (GB)
Reuse in context: Shirt

16:40 - 17:20 Coffee break and Poster discussion

SESSION D7 / NeWs / 17:20-19:00
MATERIAL REUSE AND EDUCATION III
Chair / *Presidente:* Ian Williams (UK)

Introductory lecture:

I. Williams, P. Shaw (GB)
Reuse in context: delivering the waste hierarchy

SESSION E6 / 15:00-16:40 / ITALIAN SESSION

STRATEGIE DI URBANMINING E CIRCULAR ECONOMY

Chair / *Presidente:*

L. Rigamonti, M. Giurato, S. Pantini (IT)
Rifiuti a base di gesso: valutazione LCA del sistema di gestione della Regione Lombardia

S. Giorgi, M. Lavagna, A. Campioli (IT)
Economia circolare e rigenerazione del patrimonio immobiliare. Strumenti di valutazione per scenari di fine vita sostenibili

C. Battistoni, S. Barbero (IT)
Il rilievo olistico come metodo per favorire azioni legate a Urban Mining: il caso studio del progetto europeo RETRACE per la Regione Piemonte (Italia)

A. Ambrogio, L. Ardito, L. Bosio, M. Blengetti (IT)
EATALY Obiettivo Rifiuti Zero

G. De Feo, F. D'Argenio, C. Ferrara, A. Grosso (IT)
Valutazione dei benefici ambientali, sociali ed economici persi nei rifiuti urbani indifferenziati in termini di carta e cartone

R. Cavallo, E. Rosio, L. Bosio, A. Pavan, F. Rasero, P. Marengo, L. Ardito, G. Fenocchio (IT)
La gestione sostenibile di grandi eventi sportivi

16:40 - 17:20 Coffee break and Poster discussion

SYMPOSIUM STRUCTURE / STRUTTURA DEL SIMPOSIO

Oral session NEWS - Networking Session

Monday 21st May morning	OPENING SESSION					
	A1. Strategies & Policies I	**B1.** China meets Italy	**C1.** Biorefinery	**D1.** Construction & Demolition Waste	italian session	**E1.** Caratterizzazione e ricircolo dei materiali
Monday 21st May afternoon	**A2.** Strategies & Policies II	**B2.** Education	**C2.** Sewage Sludge	**D2.** Migliorare l'uso delle risorse nella filiera delle costruzioni con la circular economy		**E2.** Specifiche problematiche tecniche e case studies
	A3. Country report - Challenges & performance of recycling strategies	**B3.** Plastic recycling	**C3.** Food & organic waste	**D3.** Circular economy readyness		**E3.** Circular Economy e società
Tuesday 22nd May morning	**A4.** Country report	**B4.** Industrial Waste	**C4.** CircE - The perspective of European regions on Circular Economy	**D4.** Waste Architecture		**E4.** La tariffa puntuale: strumento per lo sviluppo della circular economy
	A5. Paper recycling	**B5.** WEEE management strategies	**C5.** The Urban Wins Project	**D5.** Material reuse and education I		**E5.** Waste Architecture e gestione sostenibile dei rifiuti nello spazio urbano
Tuesday 22nd May afternoon	**A6.** Combustion residues	**B6.** Recovery of metals	**C6.** Anaerobic digestion of bio-waste in the perspective of the circular economy	**D6.** Material reuse and education II		**E6.** Strategie di Urban Mining e Circular Economy
	A7. Landfill Mining	**B7.** Recovery of WEEE - Case studies from different countries	**C7.** Management and recovery of digestate from anaerobic digestion	**D7.** Material reuse and education III		
Wednesday 23rd May	TECHNICAL TOURS					

POSTER SESSIONS
SESSIONI POSTER

POSTER SESSIONS
SESSIONI POSTER

Poster presentations will be accessible to Symposium delegates at all times. Poster discussion will take place in the presence of authors on Monday and Tuesday from 10:40 to 11:20 and from 16:40 to 17:20.

Le presentazioni poster saranno sempre accessibili ai partecipanti al Simposio. La discussione dei poster avverrà alla presenza degli autori il lunedì e il martedì dalle 10:40 alle 11:20 e dalle 17:40 alle 18:00.

A01 / *K-Y. Chiang, B-F. Lin, C-H. Lu (TW)*
Characterization of Biooil Yield by Co-pyrolysis of Sewage Sludge and Fe/Mn Sludge Derived from Water Purification Process

A02 / *D. Papurello, F. Biasioli, M. Santarelli, S. Silvestri, L. Tomasi (IT)*
Real time monitoring of biogas trace compounds with a biochar reactor using a DIMS technique

A03 / *M. Calero, G. Blázquez, I. Iáñez-Rodríguez, M-A. Martín-Lara, J-A. Moreno-Ortega, A. Pérez, G. Tenorio (ES)*
Combination of hydrothermal treatment and biosorption for the full use of a waste from the olive industry

A04 / *S. Kalambura, E. Kolarec (HR)*
Public relations in cities and countyies for crisis in waste management sector

A05 / *O. Yavorovska (UA)*
Prediction of the dynamic of resource position factoration manufacturing of municipal solid wastes

A06 / *M. Calero, E. Rivas, C. Amor, G. Blázquez, A. Péreza, M. Á. Martín-Lara (ES)*
Recovery of interesting compounds from the slag of a IGCC plant

A07 / *A. do Nascimento Sousaa, J.F. Thomé Jucáb, B.L.M. de Oliveirac (BR)*
Estimate of the valuation of urban domestic waste deposited in the controlled landfill of the city of Teresina/Pi, Brazil

A08 / *D. Papurello, D. Bona, M. Santarelli, S. Silvestri (IT)*
Sofc exhausts fixation on chlorella vulgaris throuh a photobioreactor: study on affecting parameters

A09 / *E. Foschi, A. S. Pavlova, A. Bonoli (IT)*
Waste management in Italy and Russia: policy challenges and opportunities

A10 / *O. Yavorovska (UA)*
Assessment of the efficiency of solid household waste management system

A11 / *S. Sevastianov, V. Ocheretnyi (UA)*
Actuality of recycling of build waste in Ukraine

A12 / *M.A. Khalvati, A. Erdincler, F.E. Sayin (TR)*
Effect of Soil Microorganisms Interactions and Sewage Sludge Addition on Heavy Metals Phytoremediation in Mine Tailing

A13 / *A.B. Botelho Juniora, D.C.R. Espinosa, D. Dreisinger, J.A.S. Tenório (BR)*
Recovery of cobalt from sulphate medium solution using chelating resins

A14 / *A. Bonoli, E. Foschi, F. Lalli, D. Prandstraller, S. Zanni (IT)*
End of life scenario for universities' informatic equipment: reuse and recycling as educational tool for circular economy and urban mining

A15 / *E. Chiarenza, S. Fiore (IT)*
Assessment of anaerobic digestion of industrial wastes in a large municipal wastewater treatment plant in Italy

A16 / *V. Santucci, L. Sotera, S. Fiore (IT)*
Printed Circuit Boards from WEEE: a strategic source of critical raw materials

A17 / *M. Chiappero, F. Demichelis, S. Fiore, D. Frigon (IT)*
Investigation of pre-treatments for psychrophilic anaerobic digestion of waste activated sludge

TECHNICAL TOURS
VISITE TECNICHE

On Wednesday 23rd May two guided technical tours has been arranged:

- **Montello Spa**, approximately 15 km from Bergamo, a real scale plant leader in sorting, recovery and recycling of post-consumer plastic packaging as well as the treatment, recovery and recycling of organic waste.
- **Viscolube**, a re-refining facility located approximately 70 km from Bergamo. Viscolube Group is active in used lubricant oil regeneration to produce high quality regenerated base oil, group I+ and II+, and in industrial waste solvent recovery & valorization. It is alsothe Italian main player specialized in the industrial hazardous and non hazardous waste collection and treatment.

Places are limited and have been assigned on a first-come first-served basis. Participants who have not yet booked their place but would like to attend the technical tour should contact a member of staff at the Registration Desk as soon as possible.
Coaches provided by the organizers will leave from the Symposium venue at 9.00 am and will return at approximately 1.30 pm.

Mercoledì 23 maggio sono previste due visite tecniche guidate ai seguenti impianti:

- ***Montello Spa**, a circa 15 km da Bergamo, industria leader nel trattamento di selezione, recupero e riciclo di imballaggi in plastica post-consumo e nel trattamento, recupero e riciclo di rifiuti organici da raccolta differenziata.*
- ***Viscolube**, una importante raffineria situata a circa 70Km da Bergamo. Viscolube rigenera gli oli usati tramite il processo Revivoil, un processo sviluppato e brevettato da Viscolube in collaborazione con uno dei principali operatori mondiali nello sviluppo dei processi di raffinazione. Il processo Revivoil prevede un trattamento con idrogeno ad alta pressione per produrre oli a basso contenuto di zolfo e di insaturi e un ridotto contenuto di componenti aromatici. Questo processo si sviluppa in tre fasi: preflash, deasfaltazione termica e hydrofinihing.*

I posti sono limitati e sono stati assegnati strettamente in ordine di prenotazione. I partecipanti che non avessero ancora prenotato il proprio posto ma che volessero partecipare alla visita tecnica sono pregati di contattare lo staff presso il banco di registrazione il più presto possibile.
I bus forniti dagli organizzatori partiranno dalla sede del Simposio alle ore 9 e rientreranno entro le ore 13 circa.