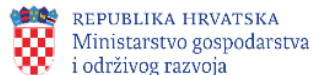


CERCLE series of CE in CDW capacity building trainings (6/6): Dubrovnik 30 June – 1 July 2022

**Circular Economy
Approaches in Solid
Waste
Management in
Croatia (CERCLE)**

*Reimbursable
Advisory Services
Agreement (RAS)
P173141*

Vladimir Kalinski, World Bank, Project Coordinator



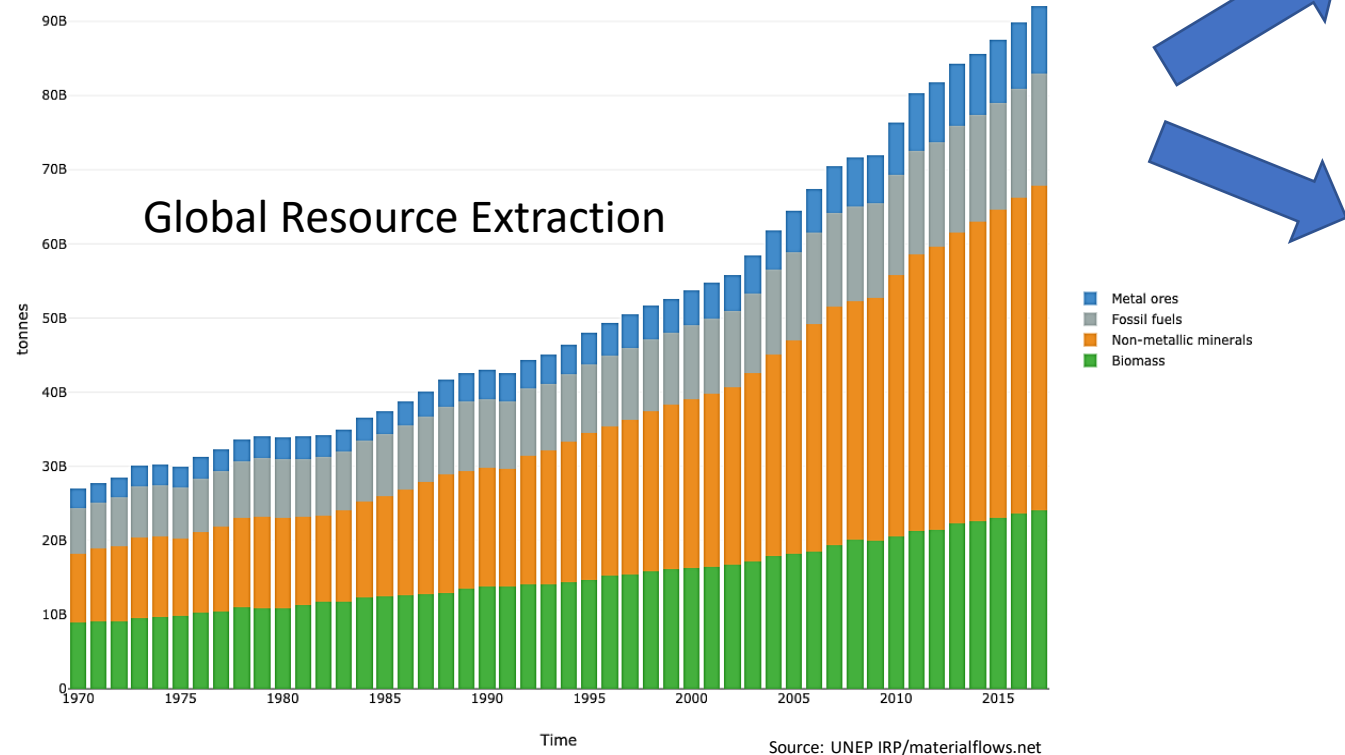
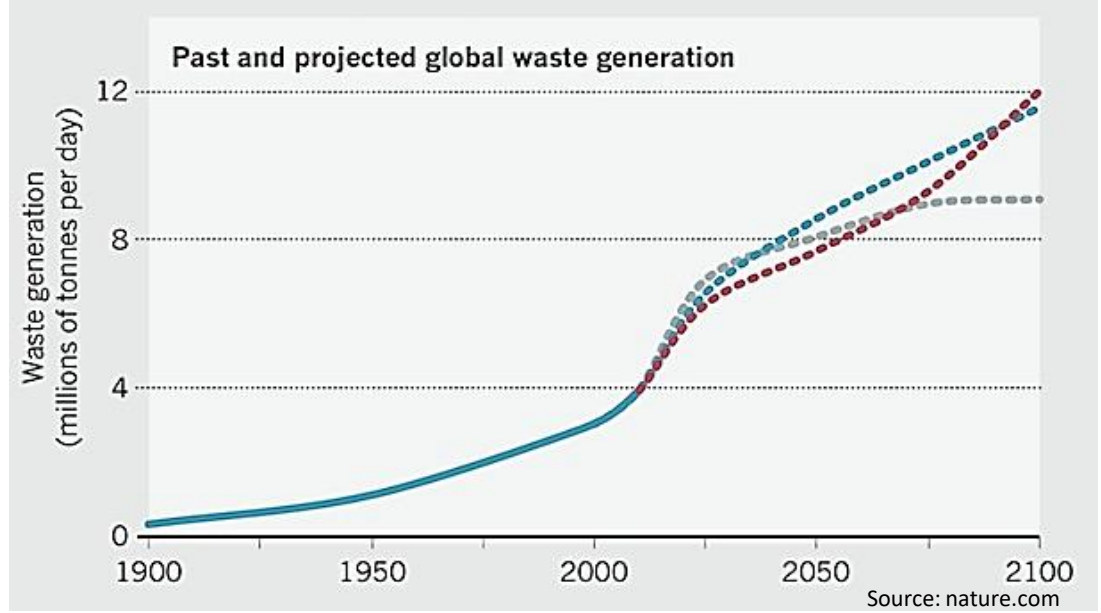
Europska unija
Zajedno do fondova EU



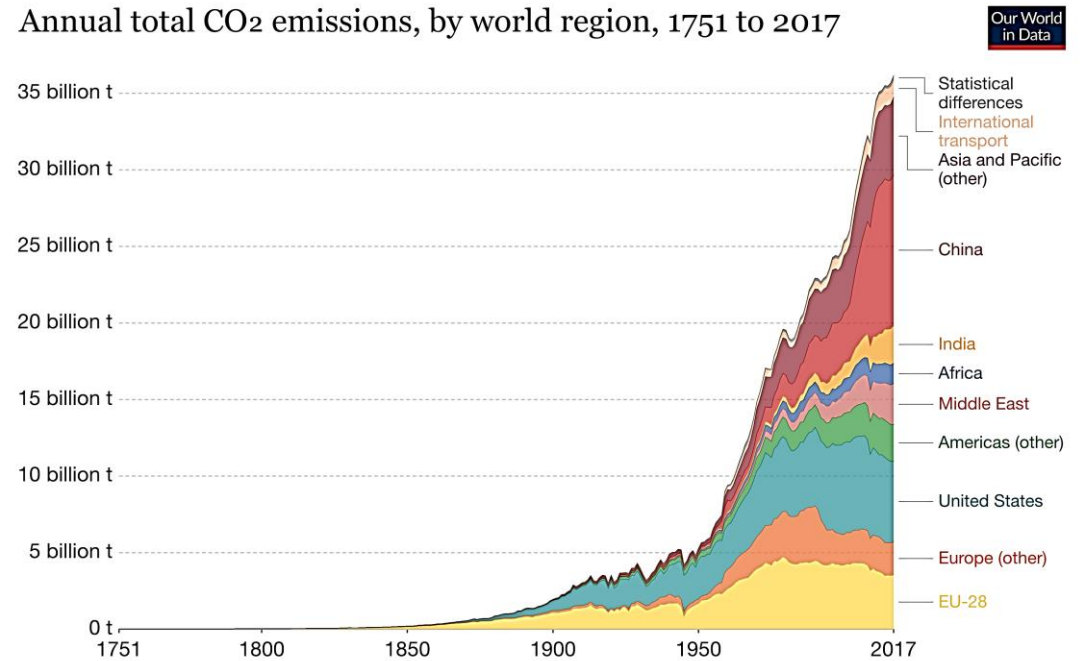
Project co-financed by the European Union from the Cohesion Fund

30 August, 2022

Linear Economy



Annual total CO₂ emissions, by world region, 1751 to 2017



Source: Carbon Dioxide Information Analysis Center (CDIAC); Global Carbon Project (GCP)
 Note: The difference between the global estimate and the sum of national totals is labeled "Statistical differences".
 OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

Circular Economy

- Multiple definitions (100+)
 - **Ellen MacArthur Foundation**
 - *“An economy that is restorative and regenerative by design”*
 - Design out waste and pollution
 - Keep products and materials in use
 - Regenerate natural systems
 - **European Commission**
 - *“In a circular economy, the value of products and materials is maintained for as long as possible, and waste and resource use are minimized.”*
- Although no consensus on the exact definition, the objectives are clear
 - Decouple economic growth from (raw) resource use
 - Decrease environmental impact of economic activity

Circularity *is simple*

- ✓ Limit your energy consumption,
- ✓ Don't use fossil fuel sources,
- ✓ Limit your carbon footprint,
- ✓ Don't use toxic materials, and
- ✓ Be cautious with scarce materials.

(Ellen MacArthur Foundation)

Circularity

Aluminum, chrome, vanadium, copper, zinc, tin and lead are heavily used in construction. Within the foreseeable future these resources will be exhausted, and these raw materials will only be available by reuse.

(Lessons in Circularity, de Architekten Cie, 2021, Amsterdam, The Netherlands)

Critical Raw Materials for the EU
(reported by the European Commission)

1	2											13	14	15	16	17	18	
H	Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og	
		La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		

 Listed as CRMs in 2011
 Listed as CRMs in 2014
 Listed as CRMs in 2017

Fluorspar CaF ₂	Natural Graphite	Baryte	Borate	Coking coal	Natural rubber	Phosphate rock	Magnesite
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Rizzo, A.; Goel, S.; Grilli, M.L.; Iglesias, R.; Jaworska, L.; Lapkovskis, V.; Novak, P.; Postolnyi, B.O.; Valerini, D. The Critical Raw Materials in Cutting Tools for Machining Applications: A Review. *Materials* 2020, 13, 1377. <https://doi.org/10.3390/ma13061377>

The aim of **circularity** is to protect sources of materials, energy, the existing situation, and the environment. (*Ibid*, Lessons in Circularity)



Anne P.M. Velenturf, Phil Purnell, 2021, Principles for a sustainable circular economy, Sustainable Production and Consumption, Volume 27, 1437-1457, ISSN 2352-5509, <https://doi.org/10.1016/j.spc.2021.02.018>.

Operationalizing Circular Economy: Improving Waste Management and Circularity in Croatia

Context

- Croatia is lagging in implementing EU directives in the waste sector
- The EU's *Circular Economy Package* with [CE Action Plan \(2015\)](#) and the [New Circular Economy Action Plan](#) in 2020, are one of the main building blocks of the [European Green Deal](#) and [Fit for 55 \(2021\)](#)

Objectives

To support Croatia towards delivering on its commitments to comply with EU directives in the waste sector, which were amended upon the adoption of the EU CE package.

Evolution of WB engagement in Waste Management Sector

- 2018: Financing Gap Analysis for Implementation of Waste Management Plan of Croatia
- 2019: Policy Note on Solid Waste Management in Croatia
- 2020: Preparation of the first **Circular Economy in Waste Management RAS** (signed 28 Sept 2020)

Key Challenges in Croatia's MSW sector:

1. Fragmentation of responsibility across many local and regional boundaries
2. Weak capacity for planning and implementation (especially in LGUs)
3. Higher levels of financing required for operational sustainability
4. Maximizing absorption of EU fund
5. Transition towards CE approaches – change of paradigm



Circular Economy Approaches in Solid Waste Management in Croatia (CERCLE)

Component 1: CE Diagnostic

Component 2: Capacity building



1.1. Croatia CE Diagnostic Analysis

- Policy landscape analysis
- Comparative analysis on resource circulation /Slovenia
- Assessment of key sectors with recommendations for the priority sector
- Metabolism analysis
- Levels for change
- International best practice in chosen focus sector
- Policy recommendations
- Capacity building programs

CE Diagnostic Study Report

1.2 Sectoral CE Action Plan

- Recommendation of measures to improve circularity and implementation instruments
- Recommendation of institutional strengthening and arrangements to implement the CE action plan

CE Action Plan for Construction & Demolition Waste (CDW)

1.3 NWMP & Implementation Decision Revision

- Recommendation on NWMP modifications
- Updated investment activities under the current OP and to inform new OP

Inputs to National Waste Management Plan & Implementation Decision Revision

2.1 National Stakeholder Engagement

- Stakeholder mapping
- CE Committee (CEC)
- TOR for the IT Communication & Collaboration Platform developed
- Media coverage

Communication Plan

2.2 National Capacity Building

- Trainings
- Webinars
- Study tour(s)

Summary of capacity building needs

FINAL REPORT

Next steps

- Development of a national **CE Action Plan for Construction & Demolition Waste**
- **Capacity building**
 - Study tours (Slovenia, Netherlands)
 - In person trainings (x6)
 - Webinars (x3)
- **Communication** activities / awareness rising

