

Circular Economy of Critical Raw Materials Applied to E Waste

*SUSTAIN E
INP GRENOBLE
June 17, 2025*

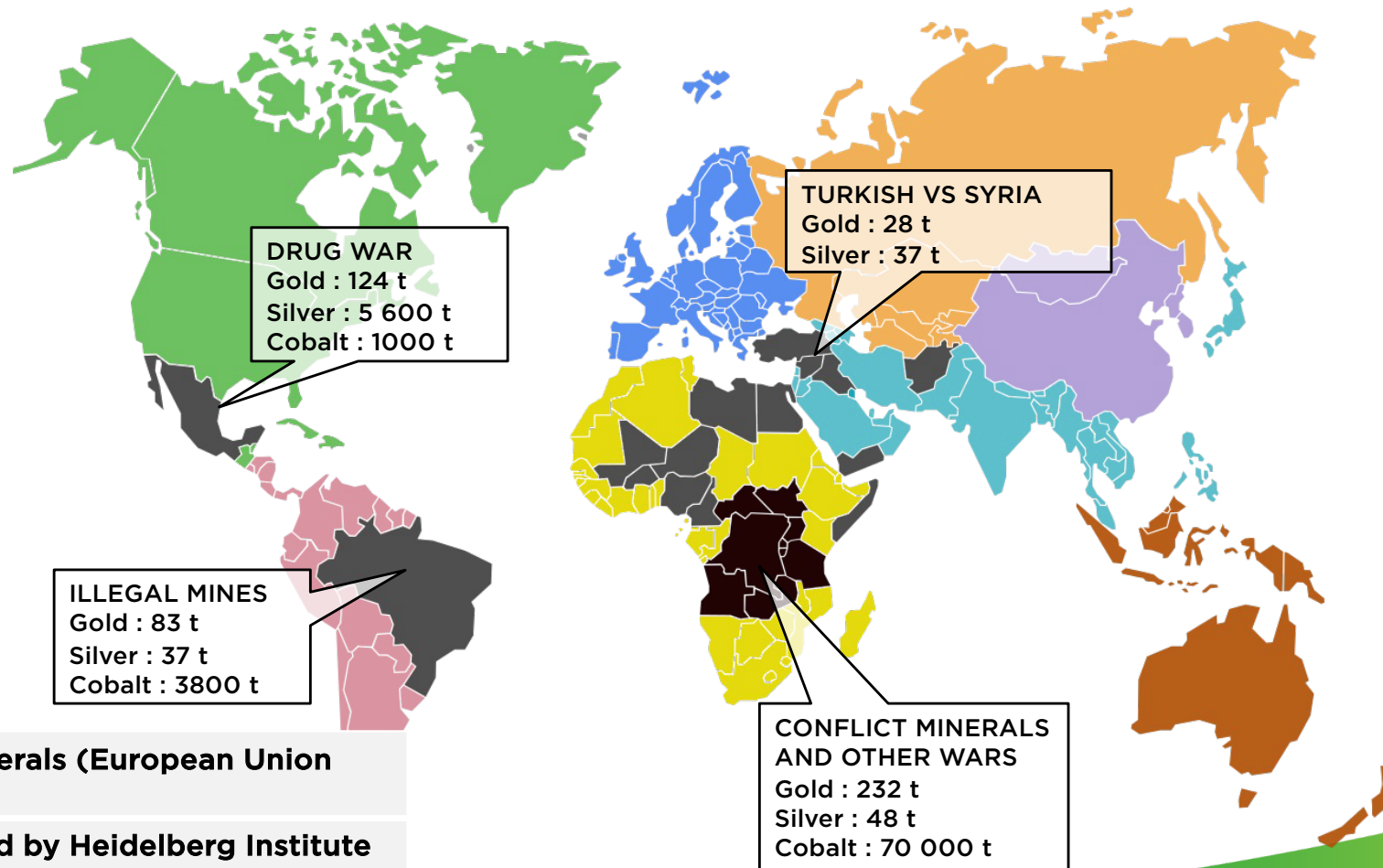
Serge Kimbel, Founder and CEO WeeeCycling



Map of Mine Extraction

Sources :

- USGS
- Thomson Reuters Financial Risk
- IIC Conflict barometer



Conflict minerals (European Union Regulation)

War reported by Heidelberg Institute for International Conflict Research



WEEECycling



History of Common understanding on Conflict minerals

79 Au gold	73 Ta tantalum
50 Sn tin	74 W tungsten



3TG

cassiterite (for tin), wolframite (for tungsten), coltan (for tantalum) and gold ore, which are extracted mainly from the eastern Congo, and passed through a variety of intermediaries before being purchased.



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Due Diligence establishment

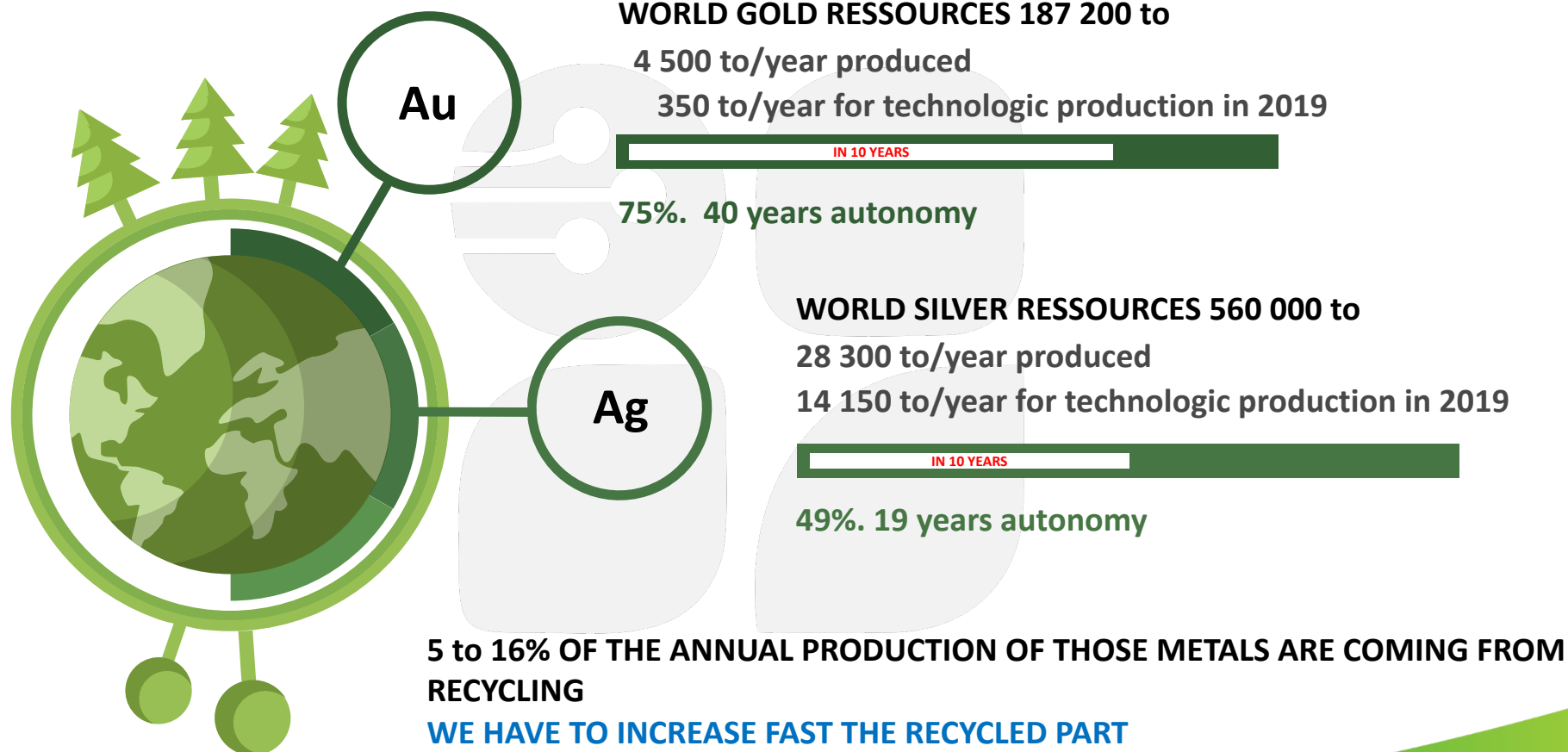
- 2010 : **Dodd-Frank Wall Street Reform and Consumer Protection Act**, has been signed by President Barack Obama
- 2016 The **OECD Due Diligence Guidance for Responsible Business Conduct** is an initiative for a sustainable management of the mineral supply chain from conflict areas
- **NPO : like Responsible Minerals Initiatives** following those guidance



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Nothing is eternal



Sources: WGC and Silver Institute

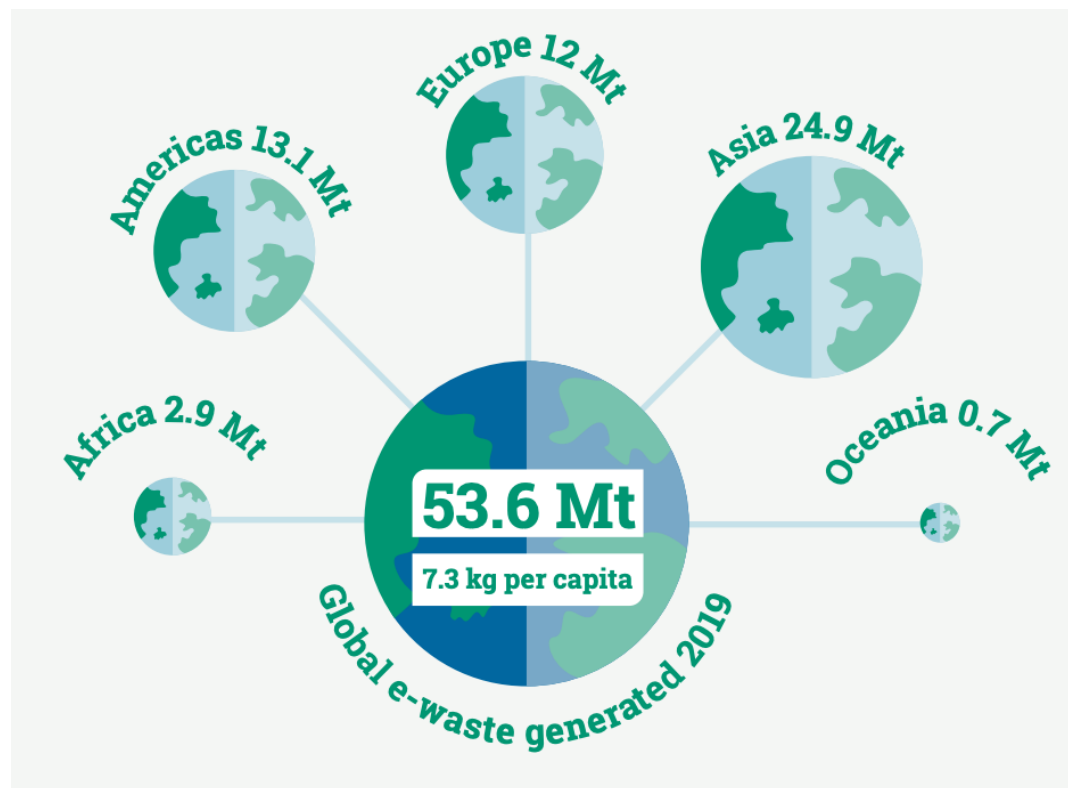


Circular Economy of CRM as a solution





Quantity of e-waste



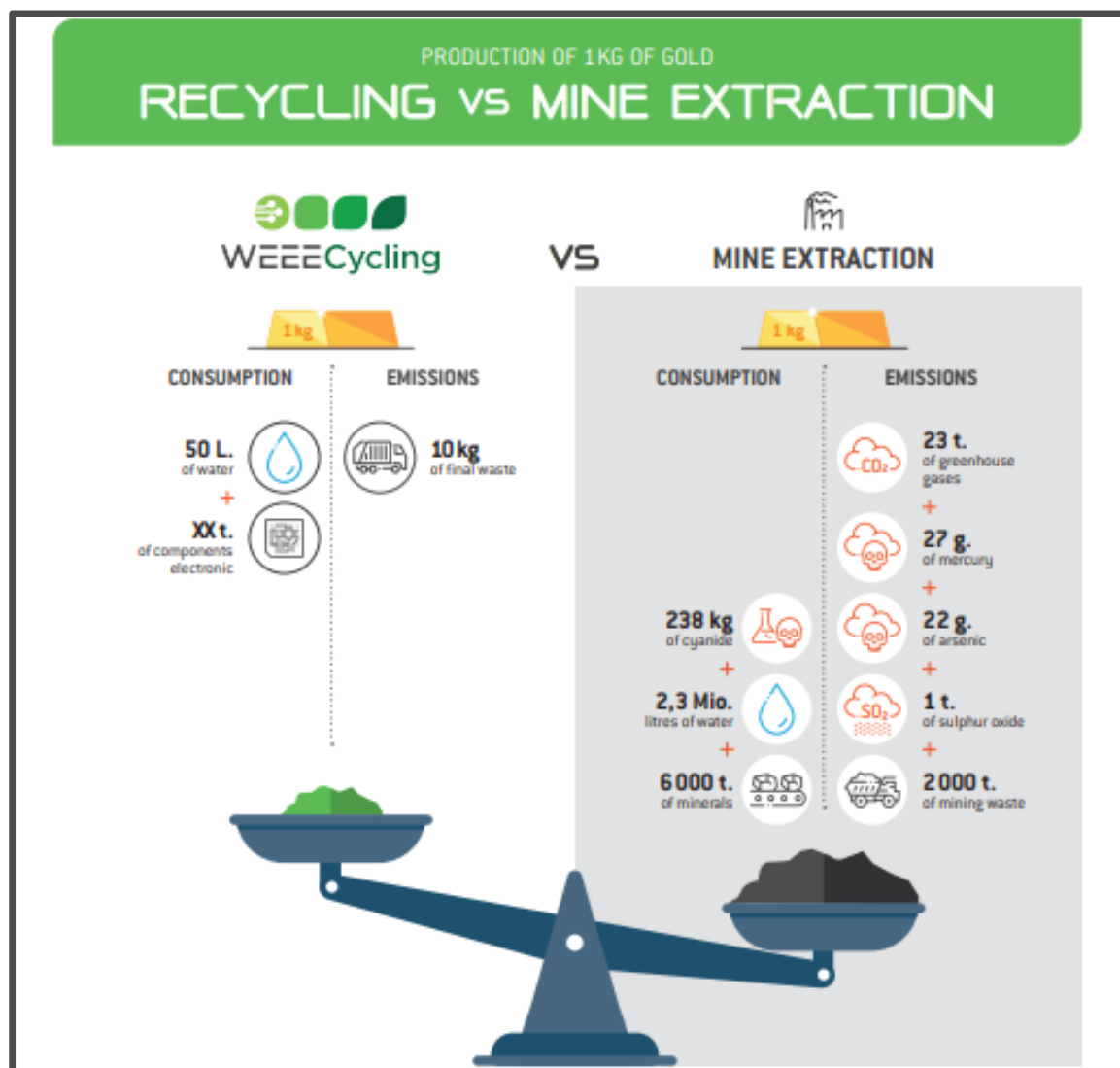
 **\$57 billion USD**

potential value of the analysed raw materials in e-waste in 2019

	kt	mill.USD		kt	mill.USD
Ag	1.2	579	In	0.2	17
Al	3046	6062	Ir	0.001	5
Au	0.2	9481	Os	0.01	108
Bi	0.1	1.3	Pd	0.1	3532
Co	13	1036	Pt	0.002	71
Cu	1808	10960	Rh	0.01	320
Fe	20466	24645	Ru	0.0003	3
Ge	0.01	0.4	Sb	76	644



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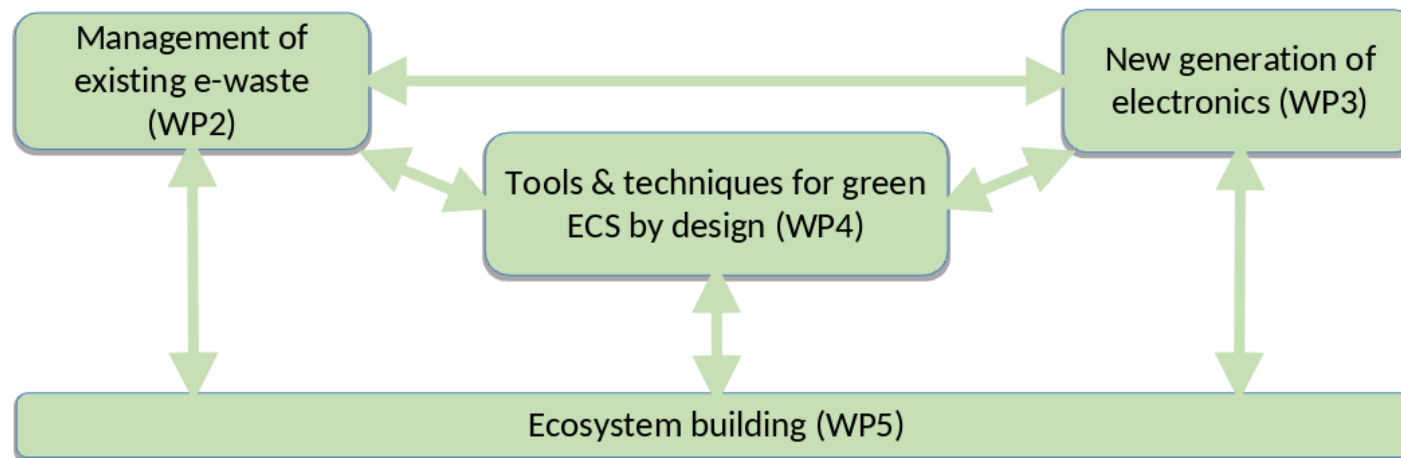




Produce responsible electronic equipments



EECONE Project





The 1st Ethical and Ecologic Metal

**Metal 100% from recycling,
0% from mines**



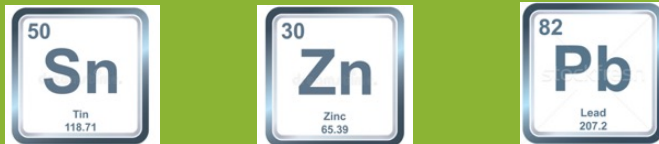
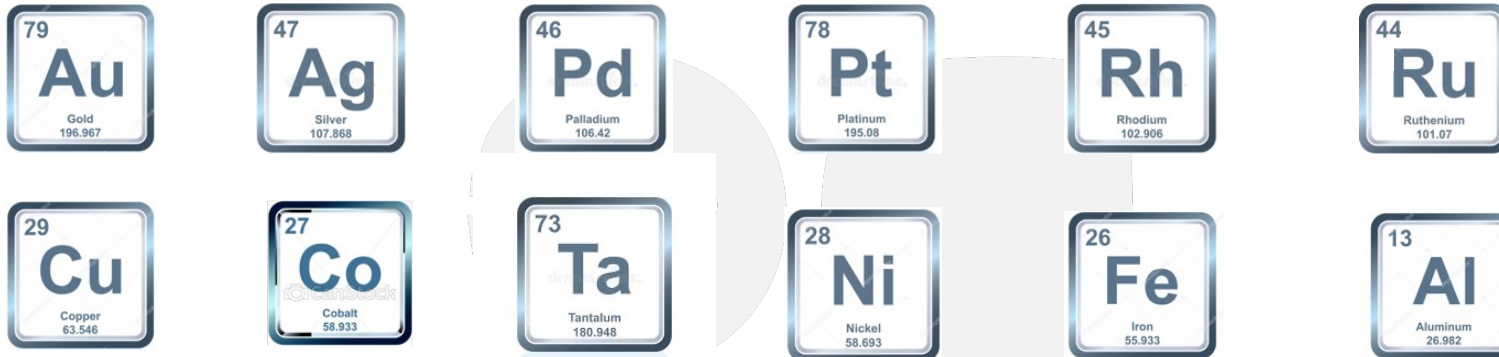
International Action



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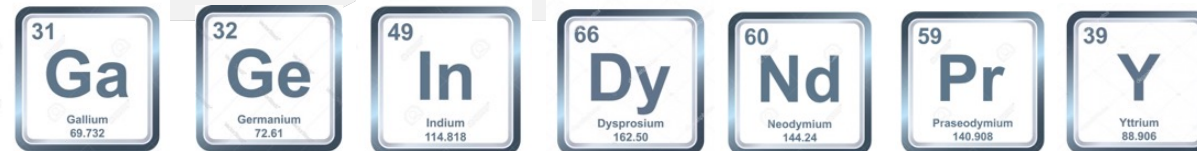


Main extracted and purified metals



METALLIC OXYDE

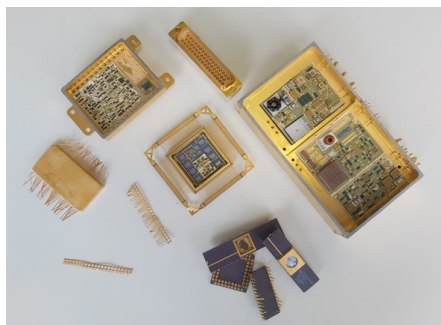
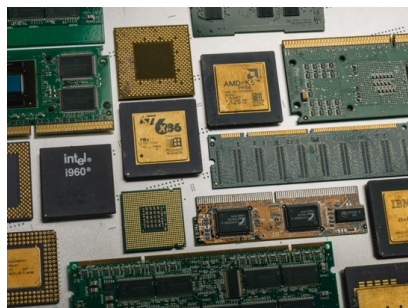
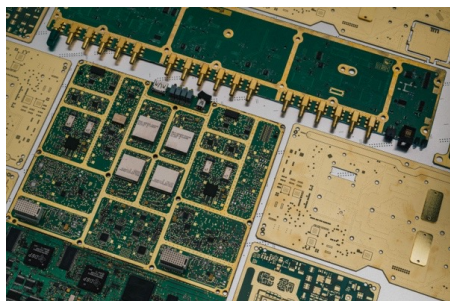
Research &
Development Pilot
Scale



WEEECycling



WEEE Recycling



Printed Circuit Boards

RAM/Processors

HDD

Drivers

Electronic components

Ag Plated Aluminium

Mobile Phones

...





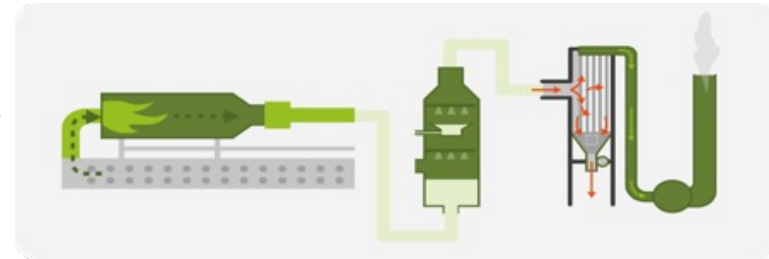
E-waste but not only

SOLIDS	LIQUIDS AND MUDDY
Falling production	Cyanide Baths
Cu Ag	Acid And Basic Baths
Fils d'accroche	Polishing Slurry
Dust	Solutions potassium
Scories	Strippers
Silver graphite	Filters
Filter and cartridges	Used Chemicals products
Industrial Catalysts	...
...	





Process treatment



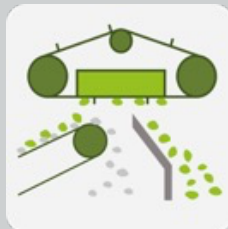
EXHAUST GAS TREATMENT



SCHREDDING



MECHANICAL
SEPARATION



THERMIC
TREATMENT



CHEMICAL
REFINING



ELECTRO CHEMICAL
REFINING

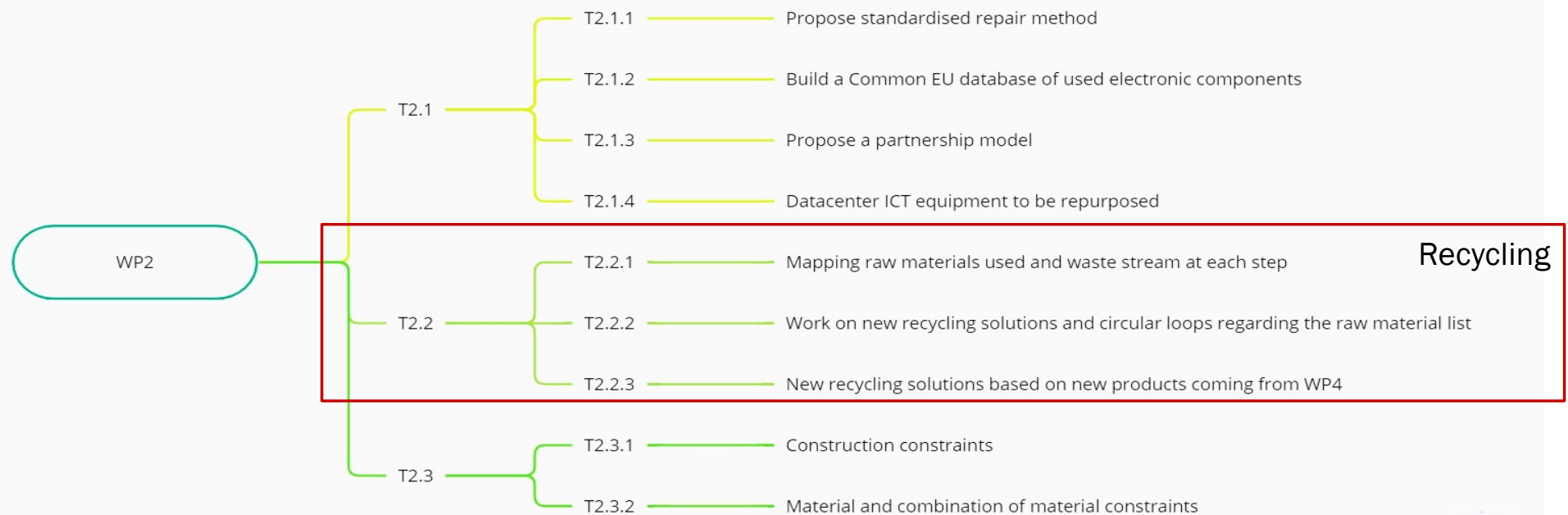


TRANSFORMATION



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Our job in EECONE Project





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