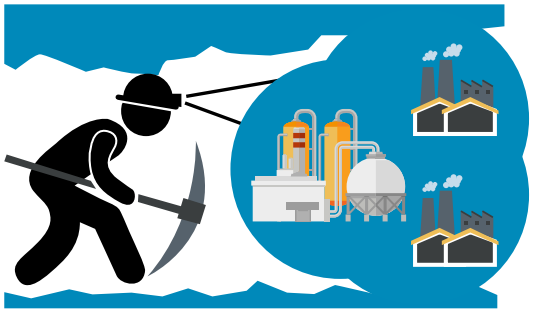
CASE WATCH 10 : CO-PRODUCT VALORISATION (MINERALS)

Use industrial inorganic residues as raw materials in minerals and cement industry.

Reduce primary resources by valorising secondary materials in another sector.



REUSING OUR MINERALS

KEY INSIGHTS

- value waste streams
- reduce mineral extraction
- reduce CO_2 emissions
- create new markets

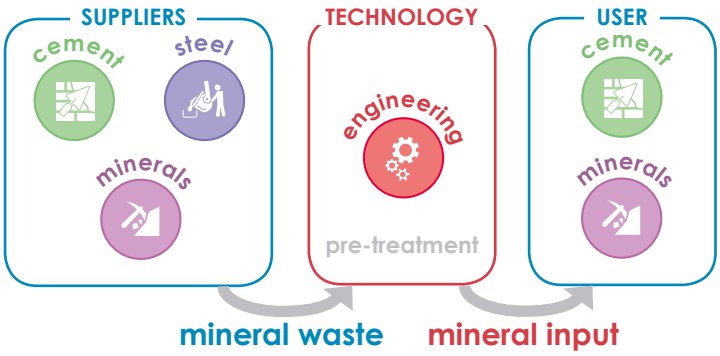


Figure 1: Synergy scheme [1]

CROSS-SECTOR COLLABORATION

Process industries have a high potential to better valorise mineral co-products.

Minerals and cement industries have a growing demand for innovative (secondary) materials.

Figure 2: Cross-sector potential [1,2,3,4]

SUSTAINABILITY IMPACT

Wins for industry
- for suppliers: 1-40 €/ton exchanged[5] depending on the pre-treatment level

Environmental gains
- primary mineral savings: 15-100% substitution[6,7]

Wins for society
- public health benefits due to emissions reduction
- improved business relations in regional clusters
- job creation and new skills development[1]

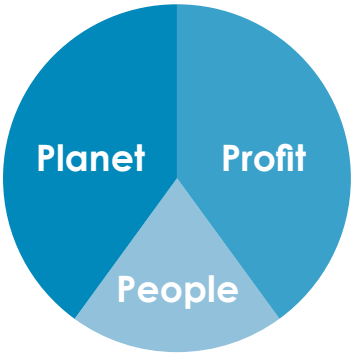


Figure 3: Sustainability [1]

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REFERENCES

1. H2020: EPOS project. 2015 – 19. https://www.spire2030.eu/epos

2. "Key facts & figures." CEMBUREAU The European Cement Association, 2016. [Online]. Available: https://cembureau.eu/cement-101/key-facts-figures/. [Accessed: 20-Feb-2019].

3. L. Hetherington and A. Bloodworth, "Industrial minerals production in Europe – current situation and future trends," British Geological Survey, 2009. [Online]. Available: https://core.ac.uk/download/pdf/61779.pdf. [Accessed: 20-Feb-2019].

4. "The Top Steel Producing Countries in Europe - WorldAtlas.com." [Online]. Available: https://www.worldatlas.com/articles/the-top-steel-producing-countries-in-europe.html. [Accessed: 20-Feb-2019].

5. Van Oss, H. "SLAG—IRON AND STEEL," U.S. Geological Survay Minerals, 2002. [Online]. Available: https://minerals.usgs.gov/minerals/pubs/commodity/iron_&_steel_slag/islagmyb02.pdf. [Accessed: 20-Feb-2019].

6. "Coprocessing," Gujarat Cleaner Production Centre, 2014. [Online]. Available: http://www.gcpcenvis.nic.in/PDF/Co-Processing.pdf. [Accessed: 20-Feb-2019].

7. J. M. Moreno-Maroto, B. González-Corrochano, J. Alonso-Azcárate, L. Rodríguez, and A. Acosta, "Manufacturing of lightweight aggregates with carbon fiber and mineral wastes," Cement and Concrete Composites, vol. 83, pp. 335–348, Oct. 2017.

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