Waste to energy in cement plants in the Balkans: feasibility analysis

Context
Waste management performance still remains at a substandard level in the Balkans (Serbia, Bosnia and Herzegovina, Albania, Macedonia, Kosovo). Landfills and illegal dumpsites are the most common waste disposal methods, even though legislation is built on the prevention principle.

Using municipal solid waste (MSW) as an alternative fuel (AF) in the 10 cement plants of the region (co-processing) is a good alternative for current waste disposal. It serves both energy and material recovery of waste and has many other environmental benefits (lower carbon footprint, material efficiency, controlled emissions etc.). Economically, it lowers the cost of energy consumption in the plant and alleviates the need for heavy investments in waste incinerators in the community.

Only pre-treated (sorted & shredded) MSW is suitable for co-processing and is known as MSW-RDF.

Methods
Each of the 10 cases was evaluated according to the following scheme:

- Waste management plan
- Waste composition study
- Waste legislation

Results

Conclusions
- Waste hierarchy favors co-processing over landfilling
- Generally, there is an economic benefit of introducing MSW-RDF in the plant (difference in price of traditional fossil fuel and MSW-RDF of ~2 €/GJ)
- There is a good possibility of public-private partnership (PPP) for co-processing MSW
- It is recommended to consider investment in MSW-RDF if the total score is >7 (marked green) and perform detailed feasibility analysis

Acknowledgements
- We would like to thank all the plant Managers and Responsible Employees of public utility companies for taking part in the study and our Supervisors for guidance and engagement along the research.

Note: This designation is without prejudice to its legal position and status in the international community.