

# Incorporating Enhanced Landfill Mining in EU waste law

## Abstract

The Enhanced Landfill Mining Research Consortium was set up in Flanders in 2008 to develop Enhanced Landfill Mining (ELFM),<sup>1</sup> which is a concept that supports the transition to Sustainable Materials Management (SMM).<sup>2,3</sup> In March 2014, the regional consortium was endorsed on a Union-wide scale and the European Enhanced Landfill Mining Consortium was formally established.<sup>4</sup> So far, 38 organisations (companies, research institutes, societal actors and governmental organizations) have become a member of the European consortium, including some strong European players.<sup>5</sup>

ELFM is defined as

*'the safe conditioning, excavation and integrated valorisation of (historic and/or future) landfilled waste streams as both materials and energy, using innovative transformation technologies (...).'*<sup>6</sup>

In other words, ELFM aims at the intentional storage of non-recyclable materials and energy resources to facilitate future recycling.<sup>7</sup> Amongst other projects, the REMO landfill site in Belgium has already put the concept into practice.<sup>8</sup> So far, the economic, as well as the materials engineering and other exact sciences aspects of ELFM have been subject to academic and media attention,<sup>9</sup> however the legal and regulatory perspective has not yet been included properly in the debate.<sup>10</sup> The presentation aims at closing this gap.

This presentation looks at ELFM in the light of SMM, and addresses the legal issues related to the introduction of the concept. It firstly describes the general idea behind SMM and the legal framework of ELFM, i.e. the Waste Framework Directive and the Landfill Directive,<sup>11</sup> whereupon the legal obstacles encountered will be put forward. Questions that arise in this regard relate to the legal

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<sup>1</sup> For the Consortium's website, see <http://www.elfm.eu/>. See also <https://ec.europa.eu/eip/raw-materials/en/content/european-enhanced-landfill-mining-consortium>.

<sup>2</sup> The Environment Council defines SMM as *'an integrated approach that seeks to reduce environmental impacts of materials use and conserve natural resources throughout the life-cycle, a prerequisite for a more resource-efficient Europe,'* in *Council conclusions on sustainable materials management and sustainable production and consumption: key contribution to a resource-efficient Europe*, 3061st ENVIRONMENT Council meeting, Doc. 17495/10, Brussels, 20 December 2010, [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/envir/118642.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/envir/118642.pdf).

<sup>3</sup> See for instance Peter Tom Jones, Daneel Geysen, Ans Rossy and Katrin Bienge, *Enhanced Landfill Mining (ELFM) and Enhanced Waste Management (EWM): essential components for the transition to Sustainable Materials Management (SMM)*, [http://www.elfm.eu/Uploads/ELFM/FILE\\_A12A0A3D-6A2E-43D3-8853-CCC647B29B2D.PDF](http://www.elfm.eu/Uploads/ELFM/FILE_A12A0A3D-6A2E-43D3-8853-CCC647B29B2D.PDF).

<sup>4</sup> See [http://www.impuls-communicatie.be/newsletters/elfm/EU\\_ELFM\\_Organisation\\_Management\\_Doc\\_FINAL.PDF](http://www.impuls-communicatie.be/newsletters/elfm/EU_ELFM_Organisation_Management_Doc_FINAL.PDF).

<sup>5</sup> e.g. the Flemish Public Waste Agency, Stena Metall from Sweden, the Dutch Deltares and RWTH Aachen from Germany.

<sup>6</sup> See <http://www.elfm.eu/en/ELFM.aspx>.

<sup>7</sup> Joakim Krook, Niclas Svensson and Mats Eklund, *Landfill mining: A critical review of two decades of research*, Waste Management 32, Elsevier, 2012, p. 517.

<sup>8</sup> See for instance this study concerning materials engineering aspects: Jeroen Spooren, et al., *Material recovery and upcycling within the ELFM concept of the REMO case*,

[http://www.elfm.eu/Uploads/ELFM/FILE\\_47321B67-3A9C-48CB-B9FC-CC74E75FDB30.PDF](http://www.elfm.eu/Uploads/ELFM/FILE_47321B67-3A9C-48CB-B9FC-CC74E75FDB30.PDF).

<sup>9</sup> See the section on publications <http://www.elfm.eu/en/ELFMPublications.aspx>.

<sup>10</sup> One of the goals of the European Enhanced Landfill Mining Consortium is to analyse *'national and EU Landfill and Waste/Materials Management legislation'* and develop *'policy guidelines for improved legislation frameworks.'* See EURELCO's *Organisation and management structure* on p.3 [http://www.impuls-communicatie.be/newsletters/elfm/EU\\_ELFM\\_Organisation\\_Management\\_Doc\\_FINAL.PDF](http://www.impuls-communicatie.be/newsletters/elfm/EU_ELFM_Organisation_Management_Doc_FINAL.PDF).

<sup>11</sup> Directive 2008/98 of 19 November 2008 on waste and repealing certain Directives, *OJ L* 312/3, 22 November 2008, and Directive 1999/31 of 26 April 1999 on the landfill of waste, *OJ L* 182/1, 16 July 1999 respectively.

similarities/difference between the landfilling and (separate) temporary storage of waste,<sup>12</sup> the relation between ELFM and recycling, and the waste hierarchy in general.<sup>13</sup>

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<sup>12</sup> See in this regard *inter alia* Peter Tom Jones, et al., *Enhanced Landfill Mining in view of multiple resource recovery: a critical review*, Journal of Cleaner Production, p. 9, [http://www.elfm.eu/Uploads/ELFM/FILE\\_88d8face-d7e5-4f4a-88c7-e3fa4af1c12d.pdf](http://www.elfm.eu/Uploads/ELFM/FILE_88d8face-d7e5-4f4a-88c7-e3fa4af1c12d.pdf).

<sup>13</sup> John Wante, *A European Legal Framework for Enhanced Waste Management*, 1st Int. Symposium on Enhanced Landfill Mining, 2010, [http://www.elfm.eu/Uploads/ELFM/FILE\\_AB00FDE1-02F5-4121-BC50-A374CE6254F4.PDF](http://www.elfm.eu/Uploads/ELFM/FILE_AB00FDE1-02F5-4121-BC50-A374CE6254F4.PDF).