

SUSTAINABLE STABILIZATION OF LANDFILLS – ENVIRONMENTAL REVITALIZATION AND RESOURCES POTENTIAL

*Juris Burlakovs*¹
*Mait Kriipsalu*²
*Zane Vincevica-Gaile*¹
*Maris Klavins*¹

¹⁾ *Department of Environmental Science, University of Latvia, Latvia*

²⁾ *Chair of Rural Building and Water Management, Estonian University of Life Sciences, Estonia*

Abstract

Vast amount of resources is lost in dumps and landfills worldwide from historical times. We may call these resources as urban ores that in perspective would partially diminish the need for raw material and be redefined as a storage of reserves. Disposed resources become reserves when we have economic, environmental and technological justification and proven estimates. Dominant amount in ‘lost heaps’ is a waste fine fraction that can be altered to serve as a functional construction material in landfills. Interaction of trace elements with organic counterpart and environment *per se* determines important properties such as bioavailability, leaching and extraction potential that are priorities in our research. The aim is to find sustainable recovery potential for resources exploiting fine fraction (rejected) material of landfilled (dumped) waste and the objectives are as follows: 1) to estimate recovery perspectives as a secondary resource for reuse as functional construction material and study the constituents for recovery; 2) to investigate bioavailability of remnant pollutants in landfill fine fraction with the focus on remediation performance as well as interaction among the trace constituents and humic substances; 3) to provide scientifically argued recommendations for land recovery and ecosystem revitalization in landfills in the perspective of circular economy. First studies revealed the potential of lost resources in various domains of sustainable reuse through the landfill mining approach. This study is supported by the project No.1.1.1.2/VIAA/3/19/531 ‘Innovative technologies for stabilization of landfills – diminishing environmental impact and resources potential in frames of circular economy’.

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