

FROM LANDFILL MINING TO GLASS MINING AND LAGOON MINING IN SWEDEN

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Abstract

In 1994 the landfill mining concept was introduced in Sweden influenced from the USA where it had been practiced for decades and many conferences held. USA was visited and the first landfill mining manual was imported. During 90s several test excavations for research were carried out with the focus on separation of valuable materials for recovery as well as efforts were made to develop new machinery for landfill mining and material sorting. Sorting in three fractions was made and a test was also performed to backfill fractions and irrigates the material for biogas production creating a landfill bioreactor. The first ideas about the fine fraction reuse also appeared; this fraction might valuable metals and the first XRF testing was carried out to determine potential. The first international landfill mining seminar was held in Sweden and it was believed that there should be landfill mining boom. The reason of this opinion was that Sweden has 4 000-6 000 old landfills/dumps existing, in the Baltic Sea Region it makes 75 000 -100 000 and in whole EU up to 500 000. However, it didn't happened nevertheless at the end of the first decade of 21st century several international conferences and seminars were initiated in UK. Landfill mining was also introduced in Asia and the first landfill mining manual for use in Asia was written. The interest of landfill mining has increased significantly in the Baltic Sea Region and Belgium where in Flanders there exist about 2 000 old dumps that are a hinder for future land use exploitation. Many landfill mining PhD courses were held in cooperation of Baltic Sea Region countries, with students representing up to 17 nations. The Zero Waste approach started to be introduced in a daily manner and its importance for the circular economy was outlined. The concept Beyond the Zero Waste was introduced on ideas about construction of Bank Account landfill cells technique for potential saving of valuable soil fractions/sediments/sludge for future economy utilization. Opportunities for recovery of metals and nutrients from sea sediments and glass waste were conceptualized as glass mining, harbor/bay/lagoon mining. Still there are excavation and remediation projects carried out just for moving polluted masses from one place to another and no sorting is scheduled; ideas for future utilization and recovery are existing in present without applied use. Remediation in old manner creates risks for environment and economic resources are wasted. The Governmental tools for economic steering of real landfill mining projects need to be adjusted as stakeholders are interested in the concept. The paper gives a historical journey for introducing landfill mining in Sweden, the Baltic Sea Region and EU.

KEYWORDS

Landfill mining; Glass mining; Harbor mining; Lagoon mining; Circular Economy; Beyond the Zero Waste