

A Waste Management Market Snapshot 2014-2019: A Global Analysis of Infrastructure Delivery Progress and The Closure of Dumpsites

A. Maalouf¹, A. Mavropoulos¹

¹Research Department, D-Waste, 141b Acharnon str., Athens 10446, Greece

Keywords: waste management market, global waste infrastructure, dumpsites closure, economic implications.

Presenting author email: amani.maalouf@gmail.com

Population growth, rapid urbanization, and accelerated globalization have resulted in a worldwide rise of waste generated. Worldwide, more than 2 billion tonnes (BT) of municipal solid waste (MSW) is produced annually, with predictions to reach 3.4 BT by 2050, especially in developing economies where the quantity of waste generated is anticipated to triple by 2050 (Kaza et al., 2018; Maalouf et al., 2019). Moreover, about 35-40% of waste generated worldwide are disposed in uncontrolled dumpsites, leaked to oceans and rivers or openly burnt posing an urgent issue affecting the quality of the environment, global health and sustainable development (D-Waste, 2014). Moreover, at least 26% of the MSW is not even collected on a regular basis. As such, the delivery of infrastructure for MSW is driven by increased concerted policy action in an effort to reduce uncontrolled disposal practices, which means that new safe waste disposal infrastructure is required, especially in the developing world.

Despite the fact that MSW infrastructure plays a central role in the implementation of Sustainability Development Goals (SDGs), till now, to the best of our knowledge, there has never been a measurable analysis of the progress in waste management infrastructure. This paper provides a comprehensive review of the major achievements, trends and challenges that characterize the solid waste management market for the period 2014-2019. The data were collected from annual reports, published sources, and supplemented with reported literature. The solid waste management market data for individual waste treatment processes was extracted from the AcuComm database (AcuComm, 2019), analyzing solid waste management investments worldwide and their progress. This database considers 156 countries worldwide and has more than 4,000 projects registered for the period 2014-2019. This dataset presents a reliable and representative indication of how fast waste infrastructure is delivered worldwide, as well as where and what type of infrastructure is delivered.

Results showed that the total investments implemented and prepared for the period 2014-2014 amounted to 220 billion US\$ with a total annual capacity of 780 million tonnes, considering all the waste streams. Figure 1 shows the geographical distribution of the budget.

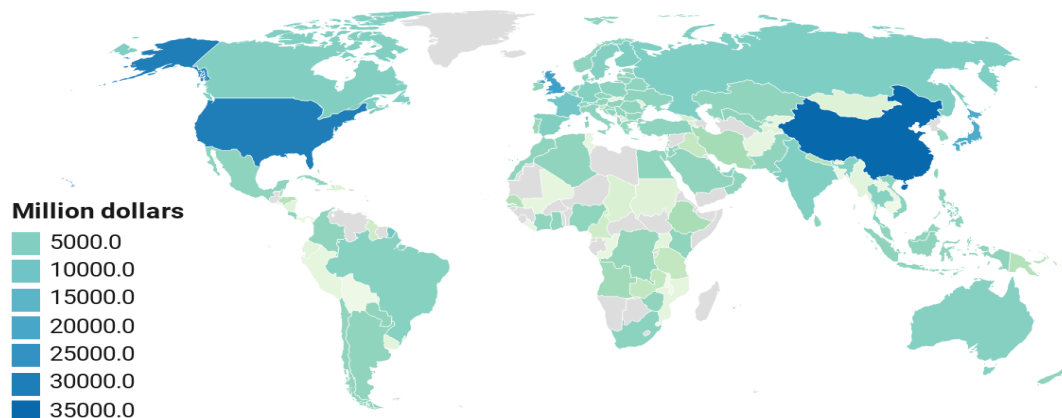


Figure 1. Total investment of solid waste projects for the period 2014-2019 by country (expressed in million dollars)

Table 1 presents the MSW projects for the period 2014-2019 in terms of total capacity. In total, 1764 MSW infrastructure projects (not including waste collection and recycling programs) were registered worldwide for the period 2014-2019.

Table 1: New MSW projects in different phases from the database of AcuComm for the period 2014 - 2019

| | Total projects 2014-2019 (million tonnes) | Average projects per year (million tonnes) | % share of the total MSW projects capacity |
|---------------------------------|--|---|---|
| New landfills | 62 | 10.3 | 15% |
| New recycling facilities | 42 | 7.0 | 10% |
| Rest of projects | 313 | 52.2 | 75% |
| <i>Total MSW projects</i> | <i>417</i> | <i>69.5</i> | |

Note that projects include different phases of preparation - implementation of a project from planning and feasibility till the operational phases.

About 60% (in terms of tonnage) of these projects are in a phase of implementation (signed contracts, set commencement dates or already operational) and 40% (in terms of tonnage) in a phase of preparation. MSW represents 52% of the total capacity of the new infrastructure projects. Moreover, results showed that the annual delivery of infrastructure relevant to MSW is almost 40 million tonnes or almost 2% of the global annual generation of MSW in 2016. About 60% of the new implemented infrastructure projects (in terms of capacity) are located in high to upper-middle income countries whereby 57% consists of new incineration plants.

China and USA represent 40% of the new capacity delivered for the period 2014-2019. However, when analysing the new investments on a per capita basis Denmark and UK can be categorized as high runners, while USA and China are middle runners. The authors conclude that with this rate of delivery and the corresponding geographical distribution, the uncontrolled disposal is expected to increase by 40% until 2030. The findings from this study highlight the emergency of implementing measures to avoid such a scenario.

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