Differences between waste compositional analysis and management system from European and Mediterranean Area as well as from Central Asia

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Abstract

Municipal solid waste (MSW) management systems are becoming more complex in many countries with the move from landfill-based to resource recovery-based solutions, following the setting of international and national targets, to divert waste from landfill and to increase recycling and recovery rates. The total amount of municipal solid waste has been continuously increasing for the last 30 years and the problem of the disposal or management of those wastes are more difficult in small islands due to the limited space. In 2008 (Eurostat, 2011), the total waste generation in the EU-27 was up to 2.62 billion t. Studies at the national or centralized level (Bogner et al., 1993; Daskalopoulos et al., 1998; Mazzanti and Zoboli, 2008) or the analysis of time series of a single region (Chung, 2010) discover general correlations, such as the interface between MSW and gross domestic product (Bogner et al., 1993; Daskalopoulos et al., 1998) and could be interesting at a high political level. Word bang report (2012) focuses on waste generation (projection for 2025) indicated that in all Regions we will have a continual waste amounts.

The per capital waste production varies from 0.77 Kg/day for SAR (South Asia Region) to 2.1 Kg/day for OECD (Organisation for Economic Co-operation and Development, region). At the same time the SAR population on 2025 is estimated to be 734 million (426 million on 2012) with the urban waste generation on 2025 to be 0.77 Kg/day than 0.45 Kg/day on 2012. On the other hand, OECD region produced 2.2 Kg/day in 2012 with total population to 729 million while in 2025 the population is estimated to be up to 842 million. Waste compositional analysis is a technique (Zorpas et al., 2015) used to evaluate and estimate in detail the nature, scale and origin of any kind of waste and more specific for house hold waste. Through these household and local attitudes, social behaviour as well as socio-demographics is determined (WRAP, 2008; Zorpas and Lasaridi, 2013). Waste compositions, as well as the classifications used to collect data on waste composition in MSW vary widely in different regions and countries (IPCC, 2006; Zorpas and Lasaridi, 2013), as well as they are influenced by many factors, such as level of economic development, ethical issues, urban planning, cultural norms, geographical location, energy sources, and climate existing waste management systems, strategic planning, zero waste approach, prevention activities, treatment technologies (Lebersorger and Beigl 2011; Zorpas et al., 2015).

This paper is dealing with differences between compositional analysis that arise from several areas from the Mediterranean Area (Cyprus, Greece, Italy, Romania, Bulgaria) and Central Asia (Kazakhstan) as well as the reasons that those variations exist.

Key words: compositional analysis, municipal solid waste, circular economy, word bang report

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