

Management of municipal solid wastes in Italy

by Grazia Leonzio^a and N.J. Themelis^b

^a University of L'Aquila – DIIIIE, Via Giovanni Gronchi 18 - ZI di Pile, 67100 L'Aquila – Italy.

grazia.leonzio@graduate.univaq.it; ^b Earth Engineering Center, Columbia University, New York

The E.U. Framework Directive of 2008 draws a clear strategy for waste management, which places prevention as a priority, followed by reuse and recovery of materials and energy. Specific objectives are fixed by European legislation [1]. Italy has set a reduction target of municipal solid wastes and special non-hazardous wastes per unit of population by 5% in 2020 compared to 2010, while has also fully implemented the European target for recovery of materials by 2020 and is preparing to adapt the target of recycling [2].

Wastes production in Italy is equal to 170 million tons in 2010 [3] and shows a slight increase compared to 2009. This includes wastes called “special” (divided into hazardous and non hazardous); the municipal solid wastes constitute about one fifth of the total. In 2010, the special wastes amounted to around 138 million tons, of which about 130 Mt are non-hazardous wastes from construction and demolition, industries and waste treatment processes.

The generation of municipal solid wastes (MSW) has decreased from 32 Mt, in 2010, to 31.4 Mt in 2011. Landfill disposal is the most prevalent type of management used and in 2011 it amounted to 42% (approximately 13 Mt) of the MSW stream; about 38% of municipal solid wastes (12 Mt) was sent to recovery of materials, while 17% (about 5.2 Mt) was subjected to thermal treatment.

With regard to the results achieved by various Italian regions in the management of municipal solid wastes the view is rather heterogeneous. Only three regions of northern Italy (Veneto, Trentino Alto Adige, Piemonte) reached levels close to the goals of recycling and recovery of materials, while in the South/Islands only Sardegna has a very positive result. The path of improvement of the regions towards the E.U. objectives is similar: recycling rates in some regions between 20% and 25% in 2000 were increased to between 50% and 60% in 2011. Regarding the regions in the South/Islands there was a rapid progress for materials recovery, in particular for Campania since 2008.

The widespread use of thermal treatment (WTE) with or without energy recovery, seems a prevalent characteristic of the northern regions (Lombardia, Friuli Venezia Giulia and Emilia Romagna) with the highest levels of use of this form of management. In contrast, in regions such as Valle d'Aosta, Liguria, Umbria and Abruzzo, there are not any WTE plants.

The Italian regions can be divided in three homogeneous groups, in term of performance and method of management. Group 1 includes Piemonte, Lombardia, Trentino Alto Adige, Veneto, Friuli Venezia Giulia,

Emilia Romagna, and Sardegna, who have achieved high levels of recovery of materials/energy recovery by making use of heat treatment, and low rates of landfill disposal. The MSW generated in this group in 2012 was 13.4 million tons [3]. Group 2, consisting of Valle d'Aosta, Toscana, Marche, and Campania, has high levels of recovery of materials and, also, high levels of landfill disposal. The WTE contributes little to the management of municipal solid waste, in comparison to the regions of group 1. The MSW generated was 5.7 million tons in 2012 [3]. Finally, group 3 includes Liguria, Umbria, Lazio, Abruzzo, Molise, Puglia, Basilicata, Calabria, and Sicilia; the levels of material recovery are very low, while the use of landfilling is massive (e.g., 90% in Sicily). Also, group 3 has the lowest levels of composting and WTE. The generated municipal solid waste in group 3, in 2012 was 10.8 million tons [3].

Figure 1 is based on data provided to the authors by Ms. Monica Coppi of Aspen Institute-Italia (4). It shows the means of MSW management in each Italian region and their level of attaining sustainable waste management, as measured by the least amount of land used for landfilling. Lombardia is the most advanced region, followed by Friuli and Veneto.

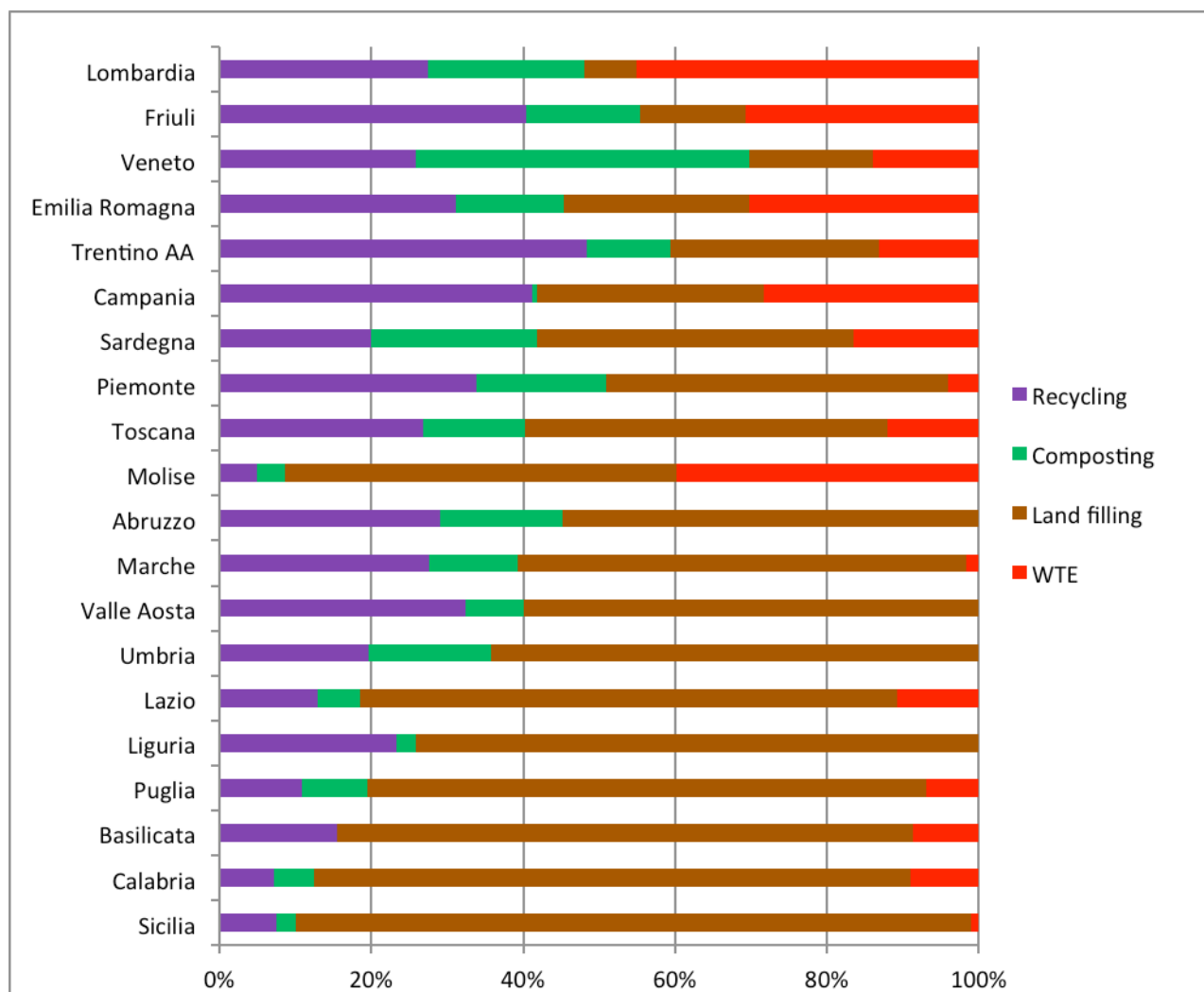


Figure 1 Management of Municipal Solid Waste in the Italian regions, 2011

[Source of data: ref 4; graph by Fei Li, EEC, Columbia University]

REFERENCES

- [1] Art. 11 of the Waste Framework Directive
- [2] Art. 182 of [GRAZIA SPELL THIS OUT: DgLS n. 152 of 3 April 2006 Environmental regulations
- [3] Institute for the Protection and Environmental Research
- [4] Source: REF-E elaboration, ISPRA spell ISPRA out