

SPECIAL WASTE IN EUROPE AND IN ITALY

SPECIAL WASTE PRODUCTION AND DISPOSAL DATA POINT TO A SCENARIO WITH MANY DIFFERENCES AMONG EUROPEAN COUNTRIES. THE ENDORSEMENT OF A CIRCULAR ECONOMY SETS RECOVERY TARGETS ONLY FOR SOME FRACTIONS. A BETTER DEFINITION OF BY-PRODUCTS AND END-OF-WASTE MATERIALS IS NEEDED.

On 2 December 2015, the European Commission presented the new package of measures to promote a circular economy. It consists of a European Action Plan including actions, strategies, and proposals for legally binding measures to be adopted according to a precise schedule, and four new proposals for directive which modify the European rules concerning waste management. The measures cover the entire cycle: from raw material extraction to product design, from production to distribution, from consumption to re-use and recycling. The proposed actions will contribute to “closing the loop” of the product life cycle through greater recycling and re-use, and will benefit both the environment and the economy.

The new proposals for directive were sent to the EU Council and Parliament for approval. They envisage amending up to six European directives, including the Waste Framework Directive (2008/98/EC), as well as those on Landfills (1999/31/EC) and on Waste electrical and electronic equipment (2012/19/EU). The main targets of the proposals for directive (the so-called “waste package”) can thus be summarized:

- a target of recycling 60% of municipal waste by 2025 and 65% by 2030
- a target of recycling 65% waste from packaging by 2025 (the minimum target for plastics is 55%) and 75% by 2030 (with distinctions depending on the materials)
- a binding target of reducing landfilled municipal waste to maximum 10% of total municipal waste production by 2030
- prohibition of landfilling waste obtained from separate waste collection
- stronger collaboration among Member States to improve waste management
- simpler and improved definitions and terminology relating to waste and harmonization of calculation methods for recycling rates
- minimum criteria of an extended producer responsibility scheme

- modifying the norms concerning by-products and end-of-waste materials
- improving prevention measures, particularly concerning food waste.

Both the EP Environment Committee and the European Council examined the new proposals for directive; the Committee completed the review on 24 January 2017 and approved the proposals with a number of amendments, which set more ambitious targets indeed. The approval by the EP Environment Committee is an important step towards an ambitious reform of the European waste policy, which is finally able to transform waste into a resource, thus creating, at the same time, both economic and occupational growth. In fact, according to estimates of the EU Commission, by reaching the targets approved by the EP Committee it would be possible to create 580,000 jobs by 2030, with € 72bn annual savings for EU businesses as a result of greater resource efficiency and a consequent reduction of imported raw material.

In particular, the EP Environment Committee set higher recycling targets, excluding product re-use, compared to those proposed by the European Commission in December 2015.

Recycled municipal waste should increase from 65% to 70% by 2030 and packaging waste from 75% to 80%. By the same deadline, landfilled waste should not be higher than 5%; food waste production and marine litter should also be reduced by 30% by 2025 and 50% by 2030 in comparison with 2014 data.

The amendments concern not only setting higher recycling targets and a drastic reduction of landfilling, but they also include economic support measures to achieve these objectives, promoting industrial symbiosis practices, prevention targets for extended producer responsibility schemes, and promoting the use of biodegradable plastics.

The proposal presented by the Environment Committee was approved at first reading on 14 March 2017. Meanwhile, the European Council is working on the joint position of the



governments of the Member States which is expected to be ready by June 2017. Subsequently, the texts by the Commission, the Council, and the Parliament will be discussed to get to the final draft of the new directives. The debate will not be easy, in that the EU Council would tend to reduce the recycling targets of both municipal and individual materials of packaging waste compared to the targets proposed by the European Commission on 2 December 2015.

In fact, the latest draft proposed at the European Council would include the following proposals of recycling targets: 55% instead of 60% by 2025 and 60% instead of 65% by 2030 for municipal waste; the final targets for packaging waste would be confirmed (80% overall recycling by 2030), but there would be reductions for wood (30% instead of 75%), plastics (50% instead of 55%), and aluminium (50% instead of 85%).

Special waste production and management in Europe

The context illustrated above and the actions being undertaken at a European level to promote a circular economy do not involve special waste, except for some specific waste flows that fall under the directives mentioned earlier and concern batteries and accumulators, Weee, end-of-life vehicles. Moreover, for these important waste flows there is no proposal to increase the recycling/re-use preparation targets, but only to harmonize definitions and calculation methods of the established targets. The same applies to construction and demolition waste, i.e. one of the major flows of special waste in quantitative terms, for which the 70% recycling target by 2020 has been confirmed.

It is worth highlighting that a better definition and identification of the criteria employed to qualify by-products and end-of-waste material as indicated in the “waste package” may actually enhance the development of a circular economy with regard to special waste too. However, the European Commission does not intend to take action on non-municipal waste, because this is strictly linked to the economy of individual Member States. These are entrusted with the task of implementing prevention policies and making sure this material is used as a resource. The end-of-waste criteria themselves must be identified and guaranteed by Member States, along with the identification of by-products.



What about the position of Italy with regard to special waste production and management? Comparisons with the rest of Europe can only be made with reference to Eurostat 2012 data, which are the more updated for the moment. The overall production of hazardous and non-hazardous waste (i.e. the sum of waste produced by all Nace activities and households) shows that in 2012 the EU-28 produced about 2.5bn tons of waste, of which 96% non-hazardous (amounting to 2.4bn tons) and 4% hazardous (amounting to 99.8m tons). The biggest waste producer was Germany, with 368m tons, followed by France (344.7m tons), Romania (267m tons) and the United Kingdom (241.1m tons). Large quantities

(greater than 100m tons) were also registered in Poland (163.4m tons), in Italy (162.8m tons), in Bulgaria (161.3m tons), in Sweden (156.3m tons), in the Netherlands (123.6m tons) and in Spain (118.6m tons).

Germany was also the biggest producer of hazardous waste with almost 22m tons, followed by Bulgaria (13.4m tons), France (11.3m tons) and Italy (9.5m tons).

As regards waste management, the 2012 data show that 42.3% of all waste managed in the 28 Member States was landfilled, 6% was destined for land treatment/disposal in water environment, and 1.6% was incinerated, whereas

45.7% and 4.4% were destined for materials recovery and energy recovery respectively. With regard to landfilling, the percentages ranged from below 10% in the Netherlands (3.3%) and in Belgium (7.6%) to 98.6% in Bulgaria. Relatively moderate percentage levels (below 20%) were registered in Slovenia (12.6%), Italy (17.7%), Germany (18%), Denmark (19%), and the Czech Republic (19.9%). A clear distinction can be made between the old Member States, where on average landfilled waste amounted to 30.8% of treated waste, and the new ones, where the average percentage of landfilling amounted to 70.9% of the total amount managed. A completely different situation was registered with regard to the more “virtuous” forms of waste management, i.e. materials recovery including backfilling. These accounted for 27.1% in the newly acceded Member States and 53.2% in the EU-15. In particular, the percentages of materials recovery (including backfilling) ranged from 1.1% in Bulgaria to 80.3% in Slovenia. It is worth highlighting that Italy registered the best performance among the EU-15 countries with 75.9% of materials recovery, followed by Belgium with 73.2%, Germany with 69.2%, and Luxemburg with 64.3%. Rate differences were much more moderate with regard to incineration. Up to 17 Member States show percentages below 0.5%, whereas in the 11 remaining States the highest percentage was registered in Belgium with 8.1%. Italy scored 4.5%, followed by the United Kingdom (3.3%), Germany (3.1%), and France (2.3%). Against this background, Italy’s special waste management system stands out as quite efficient and well in line with the best performances among the European countries, particularly with regard to recycling and materials recovery.

Special waste production and management in Italy

The brief outline presented below is based on the information gathered in the *Special Waste Report 2016* by Ispra, based on data referring to 2014. In 2014, special waste production amounted to 130.5m tons, including special waste from mechanical biological treatment of municipal waste, equal to approximately 8.3m tons. Between 2013 and 2014, a considerable increase in the total production of special waste was registered, approximately 5%, equal to

more than 6.1m tons and largely made of non-hazardous special waste. In fact, this registered an increase of more than 6.1m tons in quantitative terms (+5.3%). On the other hand, the production of hazardous special waste remained stable (+0.3%, i.e. nearly 24,000 tons). The general figures take into account both the amounts found in analyzing databases of environmental declaration forms (called Mud in Italy) and the amounts estimated by Ispra by means of specific methodologies applied to the production industries that are partially or totally exempt from the Mud declaration. The analysis of waste production data by economic activity highlights that the construction and demolition industry had the lion’s share in the overall production of non-hazardous special waste in 2014, with 42.3% which is equal to almost 51.5m tons. Waste treatment and recovery activities follow (27.2%) along with manufacturing (19.2%), accounting for almost 33.1m tons, which include the quantities resulting from mechanical biological treatment of municipal waste, and 23.4m tons respectively. Altogether, all the remaining activities accounted for 11.3% of the overall production of non-hazardous waste (more than 13.7m tons) (*figure 1*). As regards hazardous waste, the manufacturing industry accounted for the

largest amount, i.e. 39%, which is equal to almost 3.4m tons. Waste treatment and recovery activities scored 29.9% as they produced approximately 2.6m tons hazardous waste. The service, trade and transport industries scored 20.7%, with more than 1.8m tons, of which approximately 1.1m tons of end-of-life vehicles (*figure 2*). Looking at the main types of special waste produced in 2014, the data show that waste resulting from construction and demolition operations accounted for 39.1%, including land obtained from reclamation operations with approximately 51m tons. Wastes under Chapter 19 of the European list of waste accounted for approximately 31%. These include above all waste produced by waste treatment and waste water treatment plants along with water purification plants, which show a considerable increase in comparison with 2013 (+11%), amounting to almost 4m tons. Approximately 7% of wastes produced were the result of thermal processes (Chapter 10), 5.1% were wastes not otherwise specified in the list (Chapter 16), 3.7% were derived from shaping and physical and mechanical surface treatment of metals and plastics (Chapter 12), which amounted to, respectively, more than 9m tons, approximately 6.6m tons, and almost 4.9m tons. Petroleum refining processes, inorganic and organic

FIG. 1
NON-HAZARDOUS SPECIAL WASTE
Percentage of the total production of special non-hazardous waste in Italy by economic activity, year 2014.

Source: Ispra

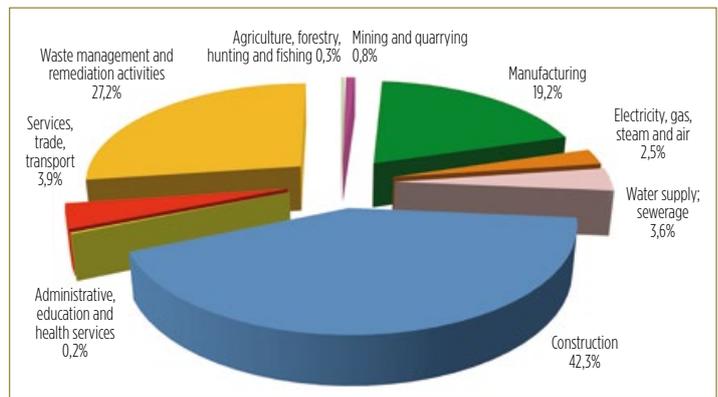
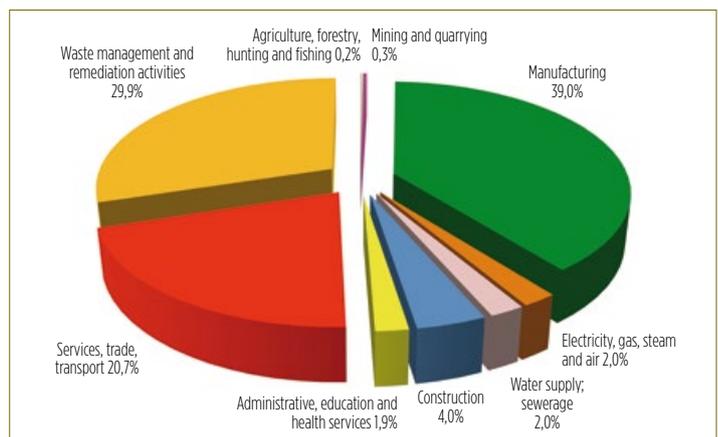


FIG. 2
HAZARDOUS SPECIAL WASTE
Percentage of the total production of special hazardous waste in Italy by economic activity, year 2014.

Source: Ispra



chemical processes (Chapters 05, 06, 07) produced 2.5m tons (2%).

With regard to hazardous waste, 26.6% waste production in 2014 resulted from waste treatment processes and 20.1% from wastes under Chapter 16, including, inter alia, end-of-life vehicles (1.1m tons), hazardous Weee, batteries and accumulators. Wastes resulting from petroleum refining, organic and inorganic chemical processes accounted for 14% altogether, amounting to more than 1.2m tons.

As for waste management, in 2014 the various forms of waste management received 133.8m tons special waste in total. Non-hazardous waste accounted for 94%, i.e. approximately 125.4m tons, and hazardous waste accounted for the remaining 6% (8.3m tons). Materials recovery was the predominant type of management, receiving 83.4m tons of waste (62.4% of the entire amount managed), 20m tons of waste (15%) were treated in physiochemical, biological and reprocessing plants, whereas approximately 11.4m tons were landfilled (8.5%). Overall, 15.4m tons were classed as “accumulation of material” (item R13 of the relevant decree) and “preliminary storage” (item D15 of the relevant decree), amounting to, respectively, 10.6% and 0.9%. The remaining minimal quantities of special waste were involved in energy recovery (1.6%) and incineration (1%).

The data also include the quantities of special wastes imported and exported to be sent to the different management forms. In 2014, 3.2m tons of waste were exported to foreign countries and mainly consisted of non-hazardous wastes, amounting to 2.3m tons, whereas the remaining 919,000 tons were hazardous wastes. On the other hand, approximately 6.2m tons were imported in our country and these almost exclusively consisted of non-hazardous wastes. In fact, imported hazardous wastes accounted for just above 166,000 tons.

Analyzing the data concerning only non-hazardous special waste management (figure 3) it is clear that materials recovery was the predominant management form, amounting to 81.6m tons (73.2% of all non-hazardous wastes managed); inorganic substance recycling/recovery was the main form of recovery, equal to 57.2% of total recovery in the form of materials, which treated approximately 46.7m tons; metal recovery accounted for approximately 16m tons, while 2m tons of non-hazardous special wastes were

FIG. 3
NON-HAZARDOUS
SPECIAL WASTE
MANAGEMENT

Special non-hazardous waste management in Italy, year 2014.

Source: Ispra

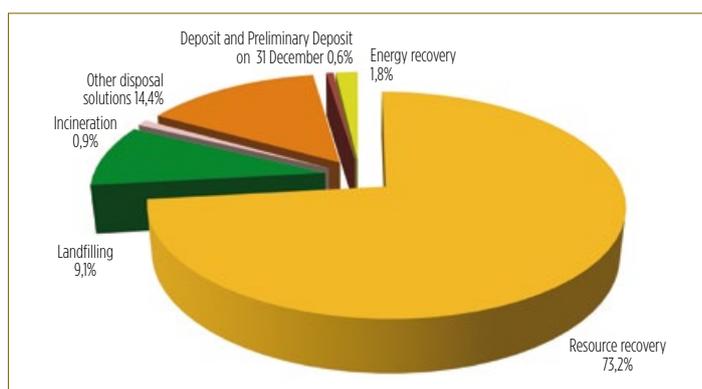
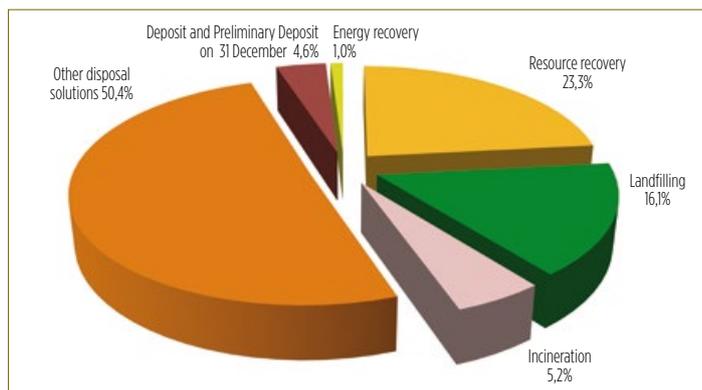


FIG. 7
HAZARDOUS
SPECIAL WASTE
MANAGEMENT

Special hazardous waste management in Italy, year 2014.

Source: Ispra



used as a source of energy in production plants (1.8%).

The quantities sent to physiochemical, biological treatment and reprocessing plants amounted to 16m tons; finally, landfilling concerned 10.1m tons of non-hazardous special wastes (9.1% of the total amount managed).

The data concerning hazardous waste management show that the largest quantities, amounting to approximately 4m tons, were sent to physiochemical, biological treatment and reprocessing plants, accounting for 50.4% of the total amount managed. The predominant management form was the physiochemical treatment, which affected approximately 3.3m tons. Considerable quantities of waste were also landfilled, amounting to approximately 1.3m tons, while 407m tons were incinerated (5.2%). 23.3% of hazardous wastes were recovered in the form of materials, amounting to 1.8m tons; the most common recovery operation was “recycling/recovery of metal or metal compounds”, approximately 535,000 tons (29.2% of the total recovered); 348,000 tons of hazardous wastes were recovered for inorganic substances; finally, energy recovery accounted for 76,000 tons (1%). For inert waste from construction and demolition, the European rules set a recycling target of 70% by 2020, to be calculated according to the methods

indicated in Decision 2011/753/EU. Italy already reached this target and went beyond it in 2014. In fact, more than 28.5m tons of construction and demolition waste were recovered in the form of materials, reaching a recycling rate of 74.3% of produced waste. The situation is different if another important flow of hazardous waste is considered, i.e. end-of-life vehicles. In 2014, the re-use and recycling rate of this kind of waste amounted to 83% of the vehicle’s average weight, above the 80% target set by Legislative Decree 209/2003 for 2016. Total recovery, including energy recovery, was nearly 85% of the vehicle’s average weight, which was in line with the 2006 target, but definitely far from the 95% target set by the norms and to be reached by 1 January 2015. This situation was due to the insignificant quantities of energy-recovered waste, i.e. only 16,000 tons in 2014.

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