

THE EFFECTIVENESS OF IMPLEMENTATION MECHANISMS FOR WASTE MANAGEMENT STRATEGIC OBJECTIVES IN ITALY

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The working paper present from a pragmatic perspective, the main levers by which the Italian authorities were able to successfully implement of modern waste management systems as a result of the necessity to compliance with respective communitarian acquis.

In the beginning essential details are given of the legislative framework that has established the major waste management principles and strategic objectives. Then are considered the mechanisms by which they were implemented forecasted targets, putting a special emphasis on specifying concrete results reached in order to demonstrate the solutions and instruments effectiveness which the central, regional and local authorities have resorted to ensure achievement of objectives and standards on waste management.

Keywords: waste management, economic instruments, implementation strategy, effectiveness

JEL Classification: H23, H31, Q53, Q58

Italian waste management legislation

Waste management is covered in Italian law by Legislative Decree no. 22 of 5 February 1997. Through this legislation three major European Directives have been transposed into national legislative framework: the European Directive 75/442/EEC on waste and waste management, the European Directive 91/689/EC on hazardous waste and the European Directive 94/62/EC on packaging and packaging waste.

Adoption of the decree allowed the implementation of integrated waste management in accordance with the principles and objectives contained in the European Strategy on Waste, which has involved a general reforming of the Italian waste management system. Clean technologies were promoted for waste treatment and disposal and specific voluntary agreements between local authorities and waste operators in order to provide viable opportunities for recycling and a modern infrastructure necessary for urban waste recovery and disposal was created.

Regulations established by Legislative Decree no. 22/1997 have configured the urban waste management system based on prevention of their generation and energy recovery from waste treatment, vision shared by the national and local waste management plans too. At the same time the decree established measures to encourage the construction of waste incinerators for significant reduction of municipal waste quantities disposed of by landfilling; the incinerators were equipped with advanced systems for energy recovery has priority for funding.

To stimulate the waste prevention and recovery of household waste, Legislative Decree no. 152/2006, which repealed the Decree of 1997, governs a series of tax incentives that encourage voluntary agreements as instruments of particular importance for waste management hierarchy of waste treatment and disposal solutions.

Legislative Decree no. 152 of 3 April 2006, entered into force on 29 April 2006, repealed the previous Decree of 1997, including all the principles, objectives and previous estimates on waste management and introducing a number of significant changes on the vision of mechanisms and methods by which the new European waste management standards can meet.

From 1 January 2007 the decree canceled waste management tax based on the area housing and initiated a new tax calculated according to the polluter pays principle. The new way for tax calculation is based on the PAYT and takes into account first, the amount of waste generated by a household and, on the other hand, the quality of waste management services provided by the municipality. PAYT²²⁸ or "pay-as-you-throw" is a collection system for urban solid waste in which households are charged according to the amount of waste that we produce. The method allows encouraging recycling and decreasing waste recoverable quantities generated. The fee is levied depending on the number of bags or containers emptied by the operator who collect the waste.

According to the decree, the budget for sanitation activities and urban waste collection should be covered progressively to 100% of tax revenue collected from waste producers for delivered services. Thus municipalities were encouraged to develop mechanisms and methods throughout more strictly revenue and expenditure for urban waste management were accounted.

228 Smith, Paul G.; Scott, John G., Dictionary of Water and Waste Management – Second Edition, IWA Publishing, 2005.

Decree 152 of 2006 also sets interim evolution targets for urban waste selective collection systems at local level. By the end of 2006 the implementation rate of selective collection had to be 35%, to reach 45% by the end of 2008, with a maximum of 65% until 31 December 2012.

Waste management implementation strategy in Italy

For the implementation of strategic waste management objectives and under the provisions of paragraph 1 of Article 5 of European Directive 31/99/EC on waste disposal, Italy has developed a National Strategy which aims to reduce the amount of biodegradable waste disposed of by landfill. The strategy states which are the subcategories and types of waste that falls within the biodegradable category, setting specific goals and targets for reducing them, in accordance with Decree 36 of 2003 on waste disposal. The document describes some tools and measures that must be adopted to meet with summary presentation of the results obtained in 2002 in this area.

Taking into account the regulations of the decree on waste disposal, the strategy presents like a necessary requirement the regional authorities obligation to formulate a coherent strategy for reducing biodegradable waste quantities disposal.

National strategy for reducing biodegradable waste landfilled set²²⁹ that up on 27 March 2008 to reach a quantity of biodegradable waste generated less than 173 kg/capita/year. Threshold for 2011 was 115 kg/capita/year, and until 27 March 2018 should not exceed 81 kg/capita/year biodegradable waste generated. In the strategy are presented several instruments and measures that will help attain the objectives, for example:

- using economic instruments to discourage landfill as a form of final waste disposal;
- source selective collection for organic waste from urban waste composition, for waste wood and textiles;
- bio-mechanical treatment of waste;
- waste incineration in special facilities with energy recovery;
- establishment of landfill banning for certain categories of waste.

In Article 5 of the decree has provided a special requirement that within one year after the entry into force all the regions of Italy to develop and approve programs for the reduction of biodegradable waste disposed of by landfill. These programs had related with regional plans for waste management, previously established under Article 22 of Legislative Decree 22 of 1997.

Effectiveness of strategic objectives implementation mechanisms

Following the occurrence of Decree no. 22 of 1997 the Italian authorities have resorted to using a large variety of instruments to implement the waste management objectives. Under the "polluter pays" principle there are a number of economic instruments like environmental taxes or contributions that waste producers are required to pay to finance the management of waste resulted from its activities. These are established for producers of packaging, batteries, used oils etc.

During the 90's were established in Italy consortia with specific tasks for the management of certain categories of special waste. Consortium for Polyethylene Products Recycling was organized under Article 48 of Decree no. 22 of 1997. Article 47 of the same decree was a basis for organization and operation of Consortium for Used Oils Management. Article 9 of Law no. 475 of 9 November 1988 was established Consortium for Batteries Recycling. All these organizations operate as non-profit associations, being established on public-private partnership model with the mission to ensure the waste collection, recovery, recycling and disposal in a maximum security environment and human health conditions.

By Legislative Decree no. 152 of 3 April 2006 were systematically encouraged and promoted voluntary agreements, which have taken a great scale in recent years by the positive effects recorded at national and regional level and throughout the number and role of actors involved: the Ministry of Environment and Spatial Planning, local authorities, specialized operators etc.

Since 1996 the Italian authorities have introduced the regional tax on waste landfilling, with the specific purpose²³⁰ to fight and possibly reduce traditional waste disposal systems and to encourage the prevention, recovery and recycling. Beneficiaries are the landfills facilities administrators or waste incinerators operators which are not equipped with recover energy performing systems.

Law no. 549 of 28 December 1995 for waste landfill fee regulation establishes a tax rate calculated according to household waste weight. For each of the three waste categories set out by law we have minimum and maximum limits (see Table no. 1). In 1996, the first year after the tax was introduced, the fee charged to the minimum threshold, it is valid if the regional authority has not previously utilized the tax on waste disposal.

229 According to data available on the official site of the Italian Ministry for Environment and Marine Territory, www.minambiente.it.

230 Lارايا, R.; Paina, A.; Zatti, A, The application of the landfill tax in Italy, Superior Institute for Environmental Protection and Research, 2005.

Table no. 1. Tax limits for waste disposal in Italy,
by main waste categories

Waste category	Minimum limit	Maximum limit
Industrial waste produced by minig, construction and extractive industry	1,03 €/tone	10,33 €/tone
Another industrial waste	5,16 €/tone	10,33 €/tone
Another waste categories (biodegradable waste, special waste etc.)	10,33 €/tone	25,82 €/tone
Incinerated waste without energy recovery; waste resulted after recycling, recovery and composting process; sludge and wastewater	20% of tax level	

Source: Superior Institute for Environmental Protection and Research,
www.apat.gov.it.

Under the law, the revenue collected from charging can be used by local authorities for funding of environmental projects such as those aimed at waste prevention, encourage materials recycling and energy recovery from waste treatment, rehabilitation and upgrading of waste landfills sites or for funding regional agencies for environmental protection and establishment and maintenance of new protected areas and natural reserves.

Law no. 549 of 1995 provides that the regional authorities are free to determine the mechanism coordinates for waste disposal tax implementing. At regional level administrations can establish the tax level and the destination of the funds collected and may also determine which categories of waste are subject for taxation. There were cases in which some regions of Italy are covered by legislation important increases of the tax amount if it doesn't meet targets relating to selective collection implementation rates, established by Decree no. 22 of 1997.

Law no. 475 of 9 November 1988 was introduced nationally compulsory for green purchasing payments for certain goods; i.e. for a battery of 55 amperes-hour fee was € 0.83. Italian authorities sought to encourage waste collection and recycling by companies involving in a collection / recovery system for waste generated after the end of life goods witch they produced.

Consortia played the main role in this system because they were the direct beneficiaries of taxes levied. In 2005 the Consortium for Batteries Recycling spent € 24.6 million for waste recycling. The amount was recovered in the proportion of 56% from green tax collected for the purchase batteries and up to 44% from funds collected from waste batteries valuation.

Between 1992 and 2002 during the early perception of green taxes, has been increased by up to 38% of the batteries collected quantities. Thus, for example in 2003²³¹ were collected 183,422 tones of waste batteries of which have recovered 8,600 tones of polypropylene and have neutralized 30 million liters of sulfuric acid. The system has proven to be extremely efficient in economic terms. Annually over 15 million waste batteries and accumulators are collected, recovered and recycled in Italy.

Introduced for the first time by Decree no. 141 of 1998 and then governed by Legislative Decree no. 36 of 13 January 2003, landfill banning for certain categories of waste has to encourage use of alternative and clean methods for waste treatment and disposal.

It prohibited the landfill of waste liquids, the explosive and/or combustible waste, corrosive substances, waste from medical activities, waste generated in the production of pesticides, substances resulting from research activities, whose effect on the environment and human health can not be estimated etc. After 16 July 2003 the ban came into force for used tires, and from 1 January 2007 has been prohibited landfill of waste with caloric value greater than 13,000 kJ/kg.

Failure to apply the landfill banning regional authorities applies administrative sanctions under Article 51 of Decree no. 22 of 1997 and Article 16 of Decree no. 36 of 2003. Whole system monitoring was the responsibility of Regional Agencies for Environmental Protection, which has reduced the amount of biodegradable waste landfill by complementary measures adopted and some projects managed.

Selective collection of urban waste came into force in 1997, with the emergence of the Legislative Decree no. 22 of 5 February 1997. Until 2006 when legislative framework for selective collection implementation was modified by Legislative Decree no. 152 of 3 April 2006 have been positive developments for selective collection rate at regional and national level (see Table no. 2).

231 Waste Report 2004 – Vol. 1. Municipal Waste, Superior Institute for Environmental Protection and Research, 2004.

Table no. 2. Selective collection rates evolution
for urban waste in Italian regions

Region	2002	2003	2004	2005
North	28,6	30,6	33,5	35,5
Centre	12,8	14,6	17,1	18,3
South	4,7	6,3	7,7	8,1
Italy	17,4	19,2	21,5	22,7

Source: Superior Institute for Environmental Protection and Research, www.apat.gov.it.

Decree of 2006 was regulated the waste paper and cardboard, glass, plastic, metal, household waste, waste from parks and gardens, waste electrical and electronic equipment, waste wood, textiles and batteries used. By implementing the selective collection has followed to reduce quantities of annual waste generated quantities and encourage recoverable materials recycling, interim targets²³² for the implementation rate of selective collection being established: 35% until 31 December 2006, 45% until 31 December 2008 and 65% by the 31 December 2012. Currently in Italy over 600 municipalities runs projects aimed at implementation of selective collection systems for household waste.

National Consortium of Packaging Waste Management has implemented since 1998 a coherent system for monitoring the package recycling activities with the purpose to achieve the goals set by European Directive 62/94/EC on packaging and packaging waste management. The system is organized and operates through the activities carried out by six specific organizations representing six categories of waste materials: aluminum, glass, paper, plastic, steel and wood, the main materials used in Italy in the manufacturing of packaging.

Packaging producers are members in consortia, but the system is part of most companies involved in the life cycle of each material categories. Thus the National Consortium of Packaging Waste Management coordinates the work of six consortiums made across Italy: Consortium for Recycling Steel, Aluminum Packaging Consortium, Consortium for the Cellulose based package Recycling, Consortium for Recovery and Recycling of Wood packaging, Consortium for the Plastic Recovery and Glass Packaging Consortium.

Collection and recycling of packaging waste are subject to different agreements between the Consortium and the Italian Association of Municipalities. The purpose of these agreements is to encourage the implementation of selective collection of waste materials recovered at the local level. Agreement was first signed in 1998, but the 2004 deadline was extended due to the need of achieving the objectives set by the new European Directive 12/2004/EC on packaging and packaging waste. Recycling of packaging waste has positive developments, proving the effectiveness of the system created in Italy. In 2005 they were collected about 6.7 million tones of packaging, i.e. 58.6% of total packaging waste market.

Since 1997 in Italy began a broad campaign to promote and encourage all administrative levels for recycled products purchases. Legislative Decree no. 22 of 5 February 1997 introduced a series of measures to promote the use of goods and products made from recycled materials. Their attempts in this way a good recycled products market development and thus reduce the quantities of waste material generated annually. Ministerial Decree no. 203 of 8 May 2003 amended and supplemented prior to the reconfiguration of the active involvement of producers and the public sector. Is settled and the necessary measures to ensure that regional level to guarantee a minimum rate of use of products from recycled materials by 30%.

Through the active involvement of all decision-makers and a integrated thinking on waste management systems Italy has make a significant contribution to achieving the objectives established throughout a coherent series of mechanisms and economic instruments that have demonstrated its major effectiveness for short, medium and long term.

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3. Effectiveness of packaging waste management systems in selected countries: an EEA pilot study – Italy, European Environment Agency, 2005;
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6. Superior Institute for Environmental Protection and Research, www.apat.gov.it.

²³² Effectiveness of packaging waste management systems in selected countries: an EEA pilot study – Italy, European Environment Agency, 2005.