



STATISTICAL ANALYSIS-EVALUATION OF WASTE LAND FROM THE ITALIAN POINT OF VIEW THE COLLECTION AND MANAGEMENT

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Abstract- The continuous environmental emergencies occurred in recent years, in many areas of our country, led to an increase in attention to the problem of collection and waste management. Waste management creates situations that are particularly critical because, despite the current efforts towards the recovery and recycling, the main thrust always is the one of the landfill.

Only today, in Italy, due to the occurrence of emergence of the waste, environmental issues reached a certain evidence. Internationally, however, it came to the environment for a long time and in particular the concept of Sustainable Development assumed major importance. For present and future generations, Environmental protection is fundamental to the quality of life. The challenge is to combine a sustainable long-term protection of the environment with the demands of continuing economic growth.

The present study, using data from the survey, "Environmental data in the cities", by ISTAT, provides a framework on the "collection and management of municipal waste" in Italy in recent years and may be an useful tool to assess efficiency and effectiveness of policies implemented to achieve the objectives dictated by law, to protect the environment.

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Introduction

The environmental emergency that has occurred in recent years, in various areas of our country, has led to increased attention to the problem of collection and waste management. European legislation regulates all aspects of the so-called waste cycle.

The last European directive was issued, in November 2008 and Member States have until 12 December 2010 to implement it. The European Directive also defines the order of priorities to be followed in regard to the prevention and waste management (prevention, reuse, recycling, recovery, disposal). The answer to the problem of waste can be judged positively if so follow these directions. Information are critical because they represent a very important tool in facilitating the actions of the Administration for proper local planning, to provide more services to citizens and strengthen collaboration with local institutions, administrators and technicians.

This paper provides an overview of the "collection and management of municipal waste". The data used are derived from Istat, "Environmental data in the cities," which involved statistical organizations operating in

the area. The data available from 2000 to 2008 are for the 111 Italian municipalities provincial capital.

Ratings on the collection of municipal solid waste

Since 2000 the trend in average municipal waste, of 111 municipalities was a slight increase until 2006 and declined slightly in the last two. In 2007 the total amount of municipal waste collected amounted to 622.8 kg / resident. The contraction in 2008 recording a decrease of 1, 1% (Fig. 1).

In 2008 the provincial capitals of Central Italy showed larger quantities of municipal waste collected (660.4 kg/inhabitant). In the reporting year, 35 provincial residents (among those examined) had collected a quantity of waste/inhabitant greater than the national average. The highest amount was collected in the municipality of Olbia (1049.3 kg / inhabitant).

For the towns of Olbia follow Rimini (881.3 kg /inhabitant), Massa (845.9), Forli (841.8).

Conversely, the least amount has been collected in the municipality of

Villacidro (367.0 kg / inhabitant), followed by Belluno (398.3) and power (432.1).

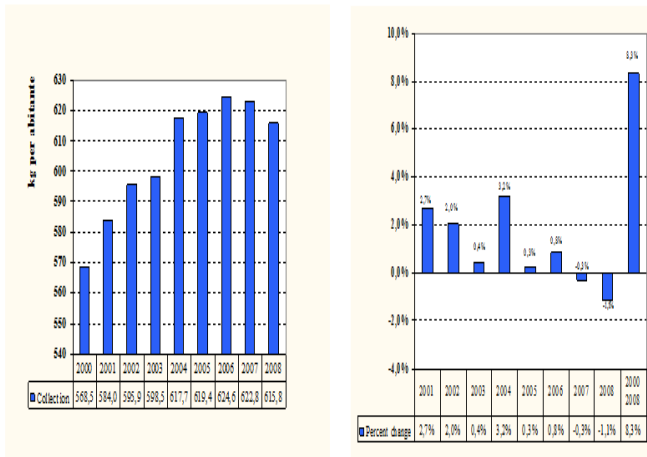


Fig.1- Collection of municipal waste (kg / resident) and annual percentage changes for all the provincial capitals - Years 2000-2008 - Source: ISTAT

Recycling Of Municipal Solid Waste

Between 2000 and 2008, the separate collection of municipal waste has registered a growth of 14.5 percentage points from 14% in 2000 to 28.5% in 2008 (Fig. 2).

In the same period, the total amount of municipal waste collected has pointed out an increase of 47.3 kg / inhabitant (from 568.5 kg / inhabitant in 615.8 kg / resident) corresponding to a growth of about 8 percentage points (Fig.4). Overall levels of recycling are on a national scale, still low compared to the objectives set by national legislation. The Leg. 22/97 fixed, Article 205, paragraph 1, the following collection targets to be achieved: "a) 35% by December 31, 2006, b) at least 45% by 31 December 2008, c) at least 65% by December 31, 2012. The Law of 27 December 2006, no 296 has been subsequently introduced in Article 1, paragraph 1108, even higher goals. Nationally, the percentage of separate collection of municipal waste in 2008 is significantly lower than the target of 45% provided for in Article 205 of Legislative Decree no. 152/2006 before December 31, 2008, is the target of 50%, introduced December 27, 2006 by law, to be achieved by 31 December 2009.

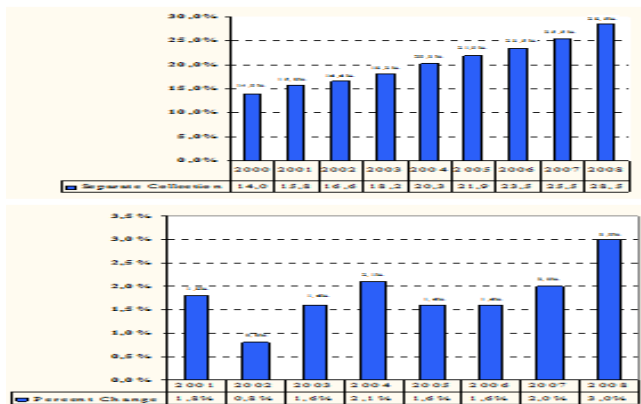


Fig.2- Separate collection of municipal waste (percentages) and annual percentage changes in the provincial capitals - Years 2000-2008 - Source: ISTAT

Control and Monitoring of Municipal Solid Waste

Data analysis, management of municipal waste in the period 2000-2007 in all the provincial capitals, shows a positive trend (Figure 3).

In 2000, 94.8 kg / inhabitant of municipal waste Have Been undertaken in plants for the recovery, 77.2 kg / inhabitant was incinerated and 23.2 kg / inhabitant Were recovered for composting facilities. In 2006, the amount of municipal waste sent for recovery, 125.1 kg / inhabitant, incineration are 100.4 kg / inhabitant and composting, and 35.8 kg / inhabitant. In 2007, solid waste Were recovered 132.6 kg / inhabitant was incinerated 102.1 kg / inhabitant and have started composting at 36.8 kg / inhabitant. In 2007, the provincial capitals, Compared with 2000, registering a growth rate equal to 58.7% for compost, 39.9% and 32.3% respectively for the recovery and incineration. Compared to 2000, the provincial capitals, have smaller Launched Quantities of municipal waste to landfill (-9.2 percentage points). Further Quantities Were shipped to +4.6% recovery plants.

In 2007 in the towns of Northern Italy, the methods of management which is used to a greater extent for municipal waste recovery (186.3 kg / inhabitant) and incineration (183.9 kg / inhabitant). In these municipalities are run in the landfill 181.2 kg / inhabitant of municipal waste collected, while 68.4 kg / inhabitant is treated in composting plants. In the year under review, for the provinces of Central and Southern Italy, the landfill is the predominant target of municipal waste. In the provincial capitals of the South end up in landfill 442.6 kg / inhabitant of municipal waste collected for recovery plants arrive about 65 kg / inhabitant, 61.6 kg / inhabitant. The waste sent to landfill decreased everywhere, while increasing those sent for recycling and composting. With regard to incineration, we found decreases in the North and Center. Lombardy is the region of the North, for which there is on average the best waste management in the provincial capitals. The worst management is recorded in Liguria, where about 80% of municipal waste disposed of in landfill. Lazio is placed last among the regions of the Centre. Finally, the regions of the South, the better situation is found in Basilicata and Sardinia, the worst record in the Molise.

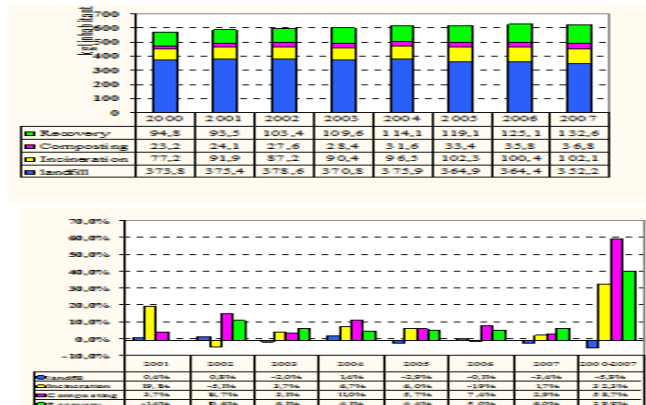


Fig.3- Management of municipal waste (kg/resident) and annual percentage changes for all the provincial capitals - Years 2000-2007 - Source: ISTAT

Conclusions

The management of municipal solid waste Creates That Are Particularly critical situations. the main orientation is always to the landfill. The use of the landfill is only a short-term solution to the problem of waste. The natural depletion of landfill sites, will result in two additional problems to the environment-Securing of the sites are sold out and finding

new areas.

Only today, in Italy, due to the occurrence of the emergency waste, environmental issues have reached a certain relevance. At international level, however, comes to the environment for a long time and has assumed great importance in particular the concept of Sustainable Development.

Environmental protection is essential to the quality of life for present and future generations. The challenge is to combine environmental protection with the need for continuing economic growth.

In recent years the current system of waste management has been significantly modified, acknowledging the many legislative changes introduced by the European community. At the national level, the entry into force of Legislative Decree no. April 3, 2006, No 152 "Regulations on the environment", changes the entire legal system. The fourth section of this Decree regulates the whole issue related to waste management and remediation of contaminated sites and replaces the previous Legislative Decree No. 5 February 1997 22, also known as the Ronchi Decree. The new legislation updates the Decree on the management of municipal solid waste, also indicating the penalties for missed targets. The higher the percentage of separate collection of municipal solid waste will be less environmental impact.

The Leg. April 3, 2006, No 152 states, in Article 205, paragraph 1:

"Must be ensured collection of municipal waste shall be the following percentages:

- a) at least 35% by December 31, 2006;
- b) at least 40% by December 31, 2008;
- c) at least 65% by December 31, 2012. "

As the waste management activity in the public interest, it was necessary to proceed with the establishment of Optimal Territorial Areas called "ATO". The purpose of the "ATO" is to operate according to criteria of cost, efficiency and effectiveness. It follows that every local authority to obligatorily transfer any competence in the field of waste in order to better service management. Between 2000 and 2008 the percentage of separate collection of municipal waste has registered a growth of 14.5 percentage points. This percentage is still below the minimum targets indicate by European legislation. The separate collection of municipal waste can improve the environment. An effective and efficient waste management brings advantages in terms of environmental safeguards for ecosystems, both in terms of resources. You start to recycle and make use of what is thrown in the past, rather than using new resources. This has implications from the point of view of employment, it becomes necessary to employ new work units.

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