

SEPARATE WASTE COLLECTION: CITIZENS' BEHAVIOUR AND SATISFACTION, POLICIES OF CITIES | YEARS 2017-2018

Decrease in waste production and increase in separate collection

 In 2017, the quantity of municipal waste collected is down compared to 2016. Separate waste collection grew to 55.5%, +3 percentage points on the previous year.

In 2018 it is estimated that 87.1% of households regularly carried out the separate collection of plastics (39.7% in 1998), 71.3% of aluminum (27.8%), 86.6% of paper (46.9%) and 85.9% of glass (52.6%).

-1.6%

Production of municipal waste compared to 2016

488.7 kg of municipal waste per inhabitant in 2017

+2.7%

Households that recycled plastic in 2018

+4.0%

Households served by the door-to-door waste collection service

A quarter of households declared themselves to be "very satisfied" of the "door to door" collection service.

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More than half of municipal waste collected separately

In 2017, municipal waste produced was 488.7 kg per inhabitant (-1.6% compared to 2016); the ratio of separate collection to total municipal waste reached 55.5% (+3.0 percentage points on the previous year).

The greatest quantities of municipal waste per capita were produced in the North-east (541.5 kg per inhabitant) and in the Centre (537.7). Waste production was lower in the North-west (475.3 kg per inhabitant), in the Islands (451.6) and in the South (435.7). While showing the highest level of municipal waste produced, the North-east reached the highest percentage of separate waste collection, equal to 68.3% (achieving the 65% target set by the regulations), an increase of 1.6 percentage points compared to 2016.

In the North-west the level of separate waste collection grew to 64.5%, + 2.2 percentage points on the previous year, very close to the target of 65%. The Centre, the South and the Islands (51.8%, 47.0% and 31.6%), although growing compared to 2016 (+3.2, +3.7 and +5.5 points) ranked far below.

The highest levels of municipal waste production were found in Emilia-Romagna (642.2 kg per inhabitant) and Toscana (600.0). Molise (377.0) and Basilicata (345.2), on the other hand, were the lowest-producing regions.

Separate waste collection: the North-east and Lombardia are the most virtuous regions

The separate collection of municipal waste grew in all regions, except for Friuli-Venezia Giulia (-1.6 percentage points) which, however, was one of the most virtuous regions: it exceeded in fact the goal of 65 % of separate waste collection. The autonomous province of Trento ranked the first with 74.6% of separate waste collection; followed by Veneto (73.6%), Lombardia (69.6%), the autonomous province of Bolzano (68.5) and Friuli-Venezia Giulia (65.5).



MUNICIPAL WASTE AND SEPARATE COLLECTION BY GEOGRAPHICAL AREA

Year 2017 (a)

	Municipal waste (tons)	Municipal waste (kg/inhabitant)	Separate waste collection (%)
North-west	7,652,827	475.3	64.5
North-east	6,307,665	541.5	68.3
Centre	6,483,729	537.7	51.8
South	6,120,841	435.7	47.0
Islands	3,022,598	451.6	31.6
Italy	29,587,660	488.7	55.5

(a) Source: Based on Ispra data

Less municipal waste and more separate waste collection in smaller municipalities

In metropolitan and suburban municipalities municipal waste amounted to 555.8 and 447.4 kg per inhabitant, respectively and the separate collection reached 40.9 and 62.2%. The larger the resident population, the higher shares of municipal waste per inhabitant and the lower percentages of separate collection.

Outside metropolitan areas, municipalities with less than 10 thousand inhabitants produced 443.5 kg of municipal waste per inhabitant and 61.6% of separate waste collection. In medium-sized municipalities (from 10,001 to 50,000 inhabitants) the two indicators showed 490.1 kg per inhabitant and 58.8%, respectively. Finally, in large municipalities (with 50,001 inhabitants and over) municipal waste reached 532.8 kg per inhabitant, while separate waste collection was 51.7%.

Just under half of municipal waste is recycled

By 2020, re-use and recycling of paper, metal, plastic and glass material of municipal waste must reach at least 50% in terms of weight. Based on recent Eurostat data on municipal waste recycling, Italy reached 47.7% in 2017, +1.8 percentage points on 2016.

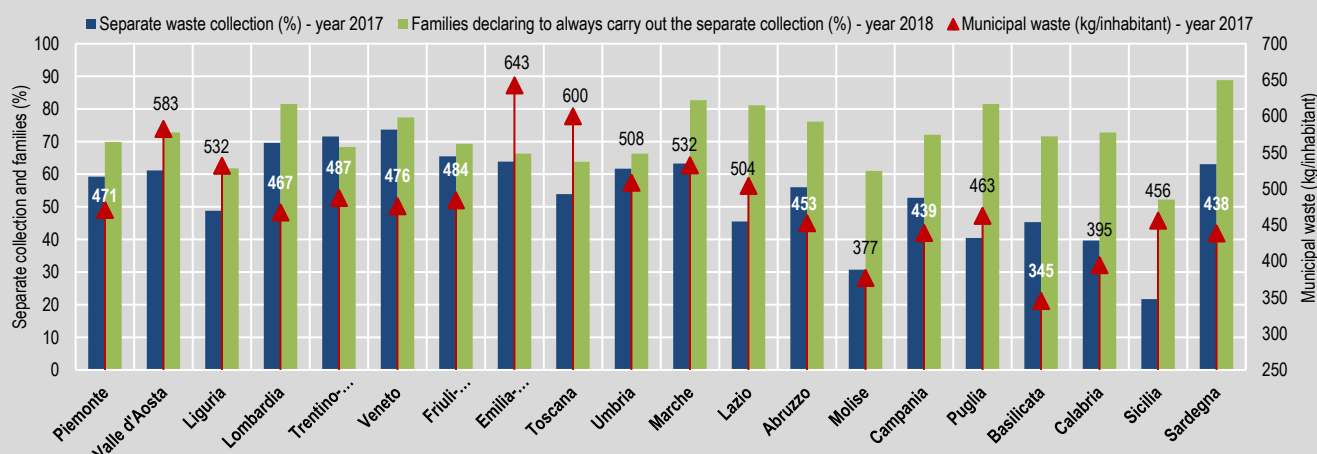
Difficulty in Lazio, good level in Sardegna

It is interesting to compare the production of per capita urban waste, the percentage of separate collection and the percentage of households declaring to carry out separate collection of paper, glass, aluminum and plastic (Minimum set of waste types for which European legislation requires sorting).

The regions with the lowest percentages of both separate waste collection and households claiming to sort waste were Sicilia and Molise. The latter produced a low amount of waste per capita.

Among larger regions, Lazio showed the highest share of households declaring to sort waste; nevertheless, the share of differentiated waste was low compared to the high amount of collected ones. Sardegna, on the other hand, was a virtuous region: besides a low production of municipal waste, it showed very high rates of separate waste collection and households sorting waste.

FIGURE 1. MUNICIPAL WASTE, SEPARATE COLLECTION (Year 2017) (a) AND HOUSEHOLDS DECLARING TO CARRY OUT SEPARATE WASTE COLLECTION (Year 2018)



(a) Source: Based on Ispra data

Households sorting waste on the increase

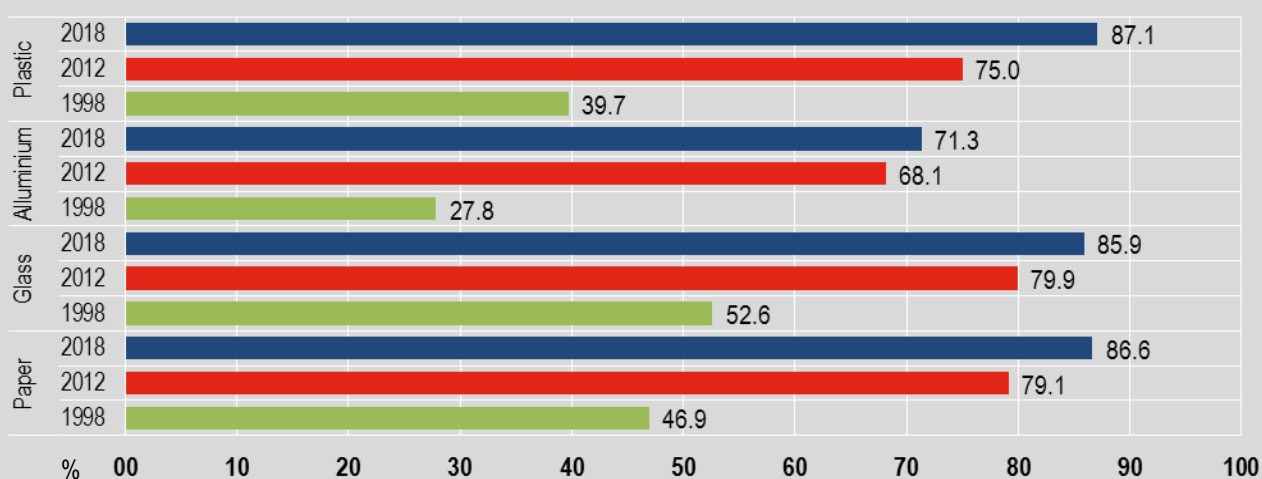
Istat started to survey households' behaviors and opinions on separate waste collection in 1998. Since then, significant increases have been observed in the percentage of households declaring that they "always" sort all types of waste considered, as a result of both regulatory measures and increasing environmental awareness. Between 2017 and 2018 significant steps forward were made in terms of waste sorting habits. Households who claimed to differentiate plastic waste grew from 85.0% in 2017 to 87.1% in 2018. Separate collection of glass containers, which was already more widespread than other types of waste, showed further increases: from 84.1% in 2017 to 85.9% in 2018. Paper showed a similar trend to that of glass: differentiated with continuity in 84.8% of cases in 2017, reached 86.6% in 2018. Separate collection of spent batteries remained substantially stable in 2018. In the North, the share of households that differentiated waste was higher than in other areas of the country. This gap, however, was reduced over time thanks to the progressive spread of the door-to-door collection service, implemented in many Italian municipalities (Table 2 attached).

Separate collection of paper, glass and plastic: South and Islands lagging behind

The percentage of households that constantly separate paper waste exceeded the national average in the North-west and North-east regions (91.6% and 90.4%, respectively in 2018) while in the Centre and the South it stabilised at 86.6% and 84.8%. In the Islands, despite the increase of over 5 percentage points, households that separate paper waste did not exceed 70% (64.6% in 2017). Glass, which has always been one of the most differentiated wastes, was collected constantly by 92.1% of households in the North-west, but only by 69.9% in the Islands. The same applies to aluminum and plastic. Although the gap persisted, the South and Islands areas showed a significant increase in households that always separate waste. In 2018 there was a significant increase in households that carry out the separate collection of organic waste: from a maximum of 87.6% in the North-west (80% the previous year), to 72.1% in the Islands (Table 2 attached) compared to 58.2% in 2017. This increase seemed to be due to the spread of door-to-door collection, which required the separation of organic waste.

FIGURE 2. HOUSEHOLDS THAT SEPARATE WASTE BY TYPE OF WASTE.

Years 2008-2018, percentage values



A quarter of households satisfied with the door-to-door collection service

According to statements, it is estimated that in 2018 approximately 66% of Italian households were served by the door-to-door waste collection service. On average, the level of service satisfaction was good: "very satisfied" 25.3% of households, which rose to 31% for residents in the North-west and 33.4% in the North-east. In other geographical areas, service satisfaction was much lower: 19.4% in the Centre, 17.7% in the South, 21.9% in the Islands.

In small centres satisfaction levels were higher: "very satisfied"; 30.7% of households living in municipalities with less than 2,000 residents compared to 18,2% of households residing in metropolitan municipalities.

The share of households "little or not at all satisfied" with the door-to-door service was stable compared to 2017, equal to 10.5% on a national average, but with extremely differentiated levels in the geographical areas (16% in the Centre, 13.3% in the South, 13% in the Islands, 8.3% in the North-east and 5.8% in the North-west (Table 4 in the Annex).

Cost of waste collection too high according to 7 out of 10 households

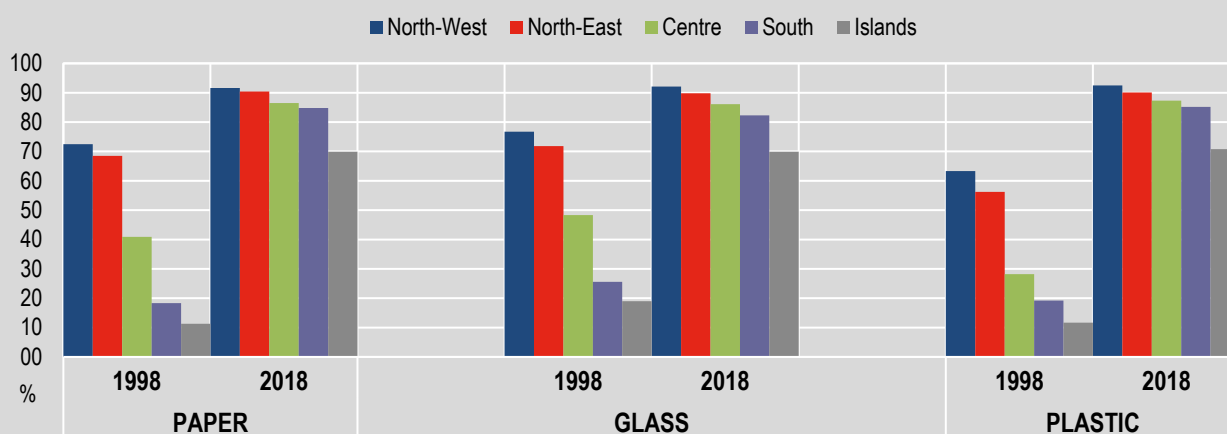
The share of households that consider the cost of waste high (68.2%) remained high and in line with the previous year, while 28.2% considered it adequate and only 0.7% considered it low.

The cost of the service was considered less satisfactory in areas where separate waste collection services were not yet widespread. Households residing in the Islands were the most dissatisfied (79.4% considered the cost high), those in the North-west the least critical (58.9% considered the cost high).

The cost evaluation changed according to the municipality size: in small municipalities (less than 2 thousand inhabitants), households perceived the cost of the collection service as adequate in 40.7% of cases (36.3% in 2017) while in larger municipalities this percentage was about 20 points lower, revealing a greater degree of dissatisfaction with this aspect.

The autonomous province of Bolzano was the geographical area with the highest number of satisfied households (66.4%), followed by the autonomous province of Trento (48.4%), Lombardia (43.3%) and Veneto (37.6%). In the South and Islands, the first region was Molise, which ranked seventh at the national level (31.8%), while Sicilia closed the list (14.4% against 28.2% of the national average) (Table 5 attached).

FIGURE 3. HOUSEHOLDS DECLARING TO SEPARATE WASTE BY TYPE OF WASTE AND GEOGRAPHICAL AREA. Years 1998, 2012, 2018, for 100 households in the same area



Tax relief, recycling guarantees and fines in order to enhance the door-to-door collection service

In 2018, households dissatisfied with the door-to-door waste collection service complained mainly about low frequency of waste collection (60.9%), smell of uncollected organic waste (42.4% of households) and the management of bags/containers for collection (35.3%).

Collection times and frequency are counted among the main problems mainly by residents in metropolitan municipalities (76.1% and 36.7%, respectively), while in municipalities with less than 2,000 inhabitants these aspects were indicated by a smaller share of households (60.8% and 13.2%).

The greatest skepticism about the usefulness of separate collection emerged among households residing in the southern regions (45.9% compared to 32.7% of the national average) (Table 6 attached).

In order to improve participation in separate collection, 84.9% of the households surveyed suggested the introduction of tax deductions or concessions, 72.5% more recycling guarantees, and 65% the introduction of sanctions/fines for those who do not separate waste. These shares grew in the South and Islands (particularly in Sicilia), that is where the separate waste collection service - both door to door and through bins or ecological stations - is still lagging behind (Table 7 attached).

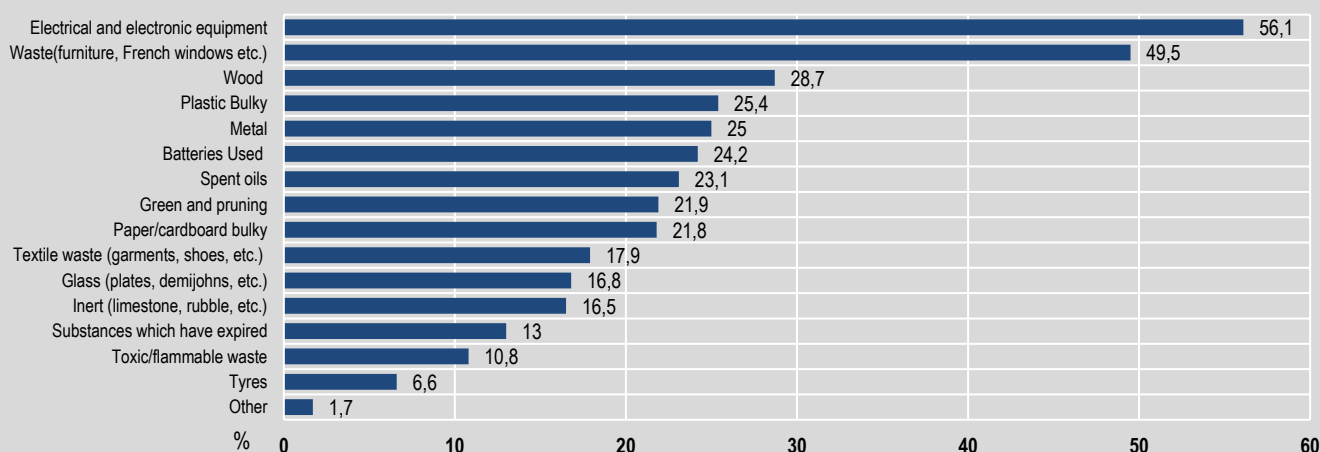
Half of the households use ecological stations

In 2018 the ecological stations, present in a heterogeneous way on the territory, were used by 49.2% of households residing in Italy, growing compared to 2017 (45.5%). The values are extremely differentiated at the territorial detail: 65.2% in the North-east, 57.1% in the North-west, 41.3% in the Centre, 25.1% in the South and 27.4% in the Islands.

The wastes most frequently delivered to ecological stations are electrical and electronic equipment (56.1%), bulky waste (49.5%) and wood (28.7%). Separate disposal of exhausted oils (+3.6%), used batteries (+3.3%) and wood (+3.1%) showed a slight increase compared to 2017 (Figure 4 and Tables 8 and 9 attached).

FIGURE 4. HOUSEHOLDS BY TYPE OF WASTE DELIVERED TO ECOLOGICAL STATIONS

Years 2018, for 100 households in the same area



Municipal policies on municipal waste: South and the Islands still lagging behind

Municipal authorities play an important role in the implementation of policies for the prevention, reduction and recycling of municipal waste and in services to promote its proper disposal.

In 2017, the analysis of the policies adopted by the 109 capital municipalities (for a total of 24) resulted in the classic North-Centre-South gradient. 36 cities implemented at least 16 out of 24 municipal waste policies, with a greater concentration in the North, including the municipalities of the metropolitan areas of Torino, Venezia, Bologna, as well as Padova (which counts more than 200 thousand inhabitants) and Rome. (Figure 5)

6 capital cities out of 10 adopted measures for quality public drinking water

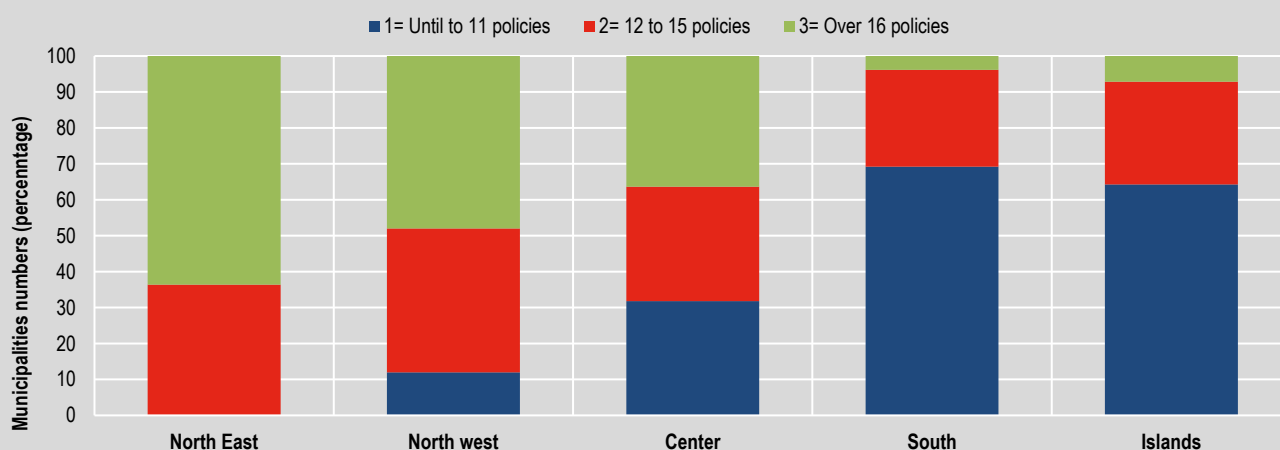
The most common policies for the prevention and reduction of municipal waste include initiatives to promote the supply of quality drinking water in public spaces. This policy was adopted by 57% of the capital cities.

The implementation of good practices in offices, schools and municipal nursery schools, such as the use of washable tableware in municipal canteens, the reduction of the use of paper, the availability of filtered water dispensers, can be observed in 55% of the capital cities.

54% of capital cities carried out awareness campaigns on prevention.

Another very important policy to prevent and reduce municipal waste is the elimination of food waste, carried out by 47% of capital cities.

FIGURE 5. PROVINCIAL OR METROPOLITAN CAPITAL CITIES BY NUMBER OF POLICIES IMPLEMENTED ON PREVENTION, REDUCTION, RECYCLING AND CORRECT DISPOSAL OF MUNICIPAL WASTE. Year 2017



Source: Istat, Urban environment survey

Second-hand markets, exchange and reuse points were widespread in 36% of provincial capitals, as well as discounts to non-domestic users implementing waste prevention, reduction and/or recycling policies.

Launched by 32% of the provincial capitals, the initiative of using biodegradable or washable crockery in festivals and temporary events is spreading more and more.

17% of municipalities entered into agreements with large retailers to reduce packaging and dematerialize advertising and communications to customers.

Finally, repair or preparation for reuse centres were still rare everywhere, active only in 14 provincial capitals.

Considering the total number of prevention and reduction policies adopted by each municipality, the best performances, among the 10 considered, were recorded in Torino, Venezia, Ferrara and Prato which implemented at least 8; followed by La Spezia, Monza, Cremona, Modena, Bologna, Forlì, Pistoia and Pesaro (7 initiatives). Another 28 provincial capitals implemented at least half (5 or 6 initiatives), while 12 did not even have one. (Figure 6)

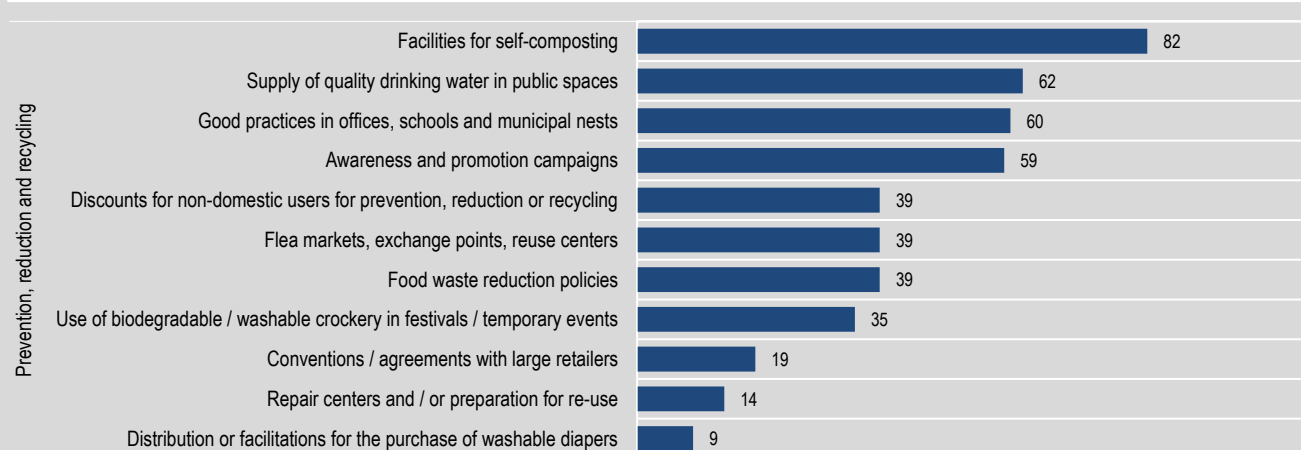
Two thirds of the capital municipalities adopted policies for home-composting

As regard recycling, many provincial capitals implemented home composting, with the aim of increasing direct involvement and environmental awareness. In practice, incentives were granted to domestic users who carried out home composting. Nearly 75% of the municipalities adopted this policy.

Users who chose to make compost did not give the traditional collection systems the organic fraction of their household waste, but used it for the self-production of natural fertilizers of high ecological quality, which they directly re-used.

69% of the municipalities decided to reduce municipal waste management fees as an incentive for domestic users to practice composting (7% also for non-domestic users); the free distribution of composter (43%) and the offer of composting courses (just over 7%) were among other incentives adopted.

FIGURE 6. PREVENTION, REDUCTION AND RECYCLING POLICIES ON MUNICIPAL WASTE IN THE PROVINCIAL OR METROPOLITAN CAPITAL CITIES. Year 2017, number of municipalities



Source: Istat, Urban environment survey

Policies for the correct disposal of waste spread throughout the territory

In 2017, municipalities implemented various initiatives to encourage the active collaboration of users for the proper disposal of waste (Figure 7).

Some of these initiatives were widespread in almost all capital cities, such as the collection of abandoned waste and the on-demand collection of bulky and other types of waste, implemented by over 97% of local administrations.

Recycling points were also very widespread, as well as the door-to-door collection service and the separate waste collection in schools implemented in over 94% of the capital cities.

86% of the municipal administrations carried out awareness campaigns on the importance of correct waste disposal.

The distribution of containers or bags for separate waste collection was carried out in 70% of cases. Mobile or mini recycling points were active in at least 50% of the capital cities, while Green waste collection days have been organized by 35% of the provincial capitals.

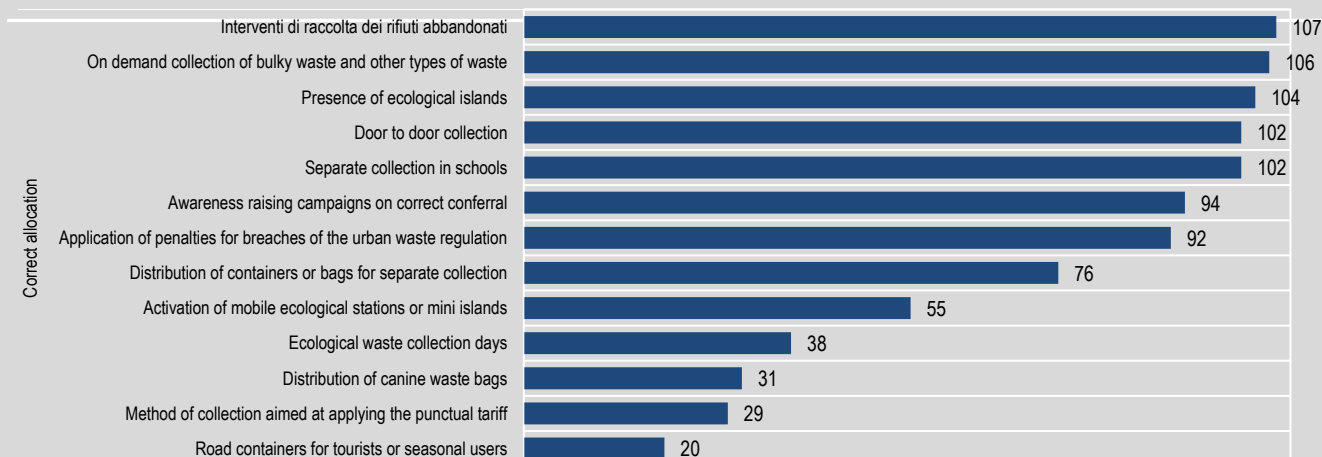
28% of the capital municipalities activated the service of distribution of bags for dog droppings.

The application of fee, based on the actual quantity of waste produced by users, was still little used (26.6% of the cities). In 2017, only 9 capital cities had adopted it, but punctual tariff is going to be a technological innovation that all administrations will have to adopt.

20% of the provincial capitals provided bins dedicated to tourists or seasonal users.

Finally, over 84% of the administrations provided penalties for infringements of the waste management regulation (all municipalities in the metropolitan area and those with more than 200,000 inhabitants).

FIGURE 7. POLICIES OF CORRECT DISPOSAL OF MUNICIPAL WASTE IN PROVINCIAL OR METROPOLITAN CAPITAL CITIES . Year 2017, number of municipalities



Source: Istat, Urban environment survey

18 local administrations collected paper, plastic and toner in all their offices

For a sustainable management of their premises, in 2017 all capital cities carried out separate waste collection for certain types of waste in at least one of the local units of the municipal administration.

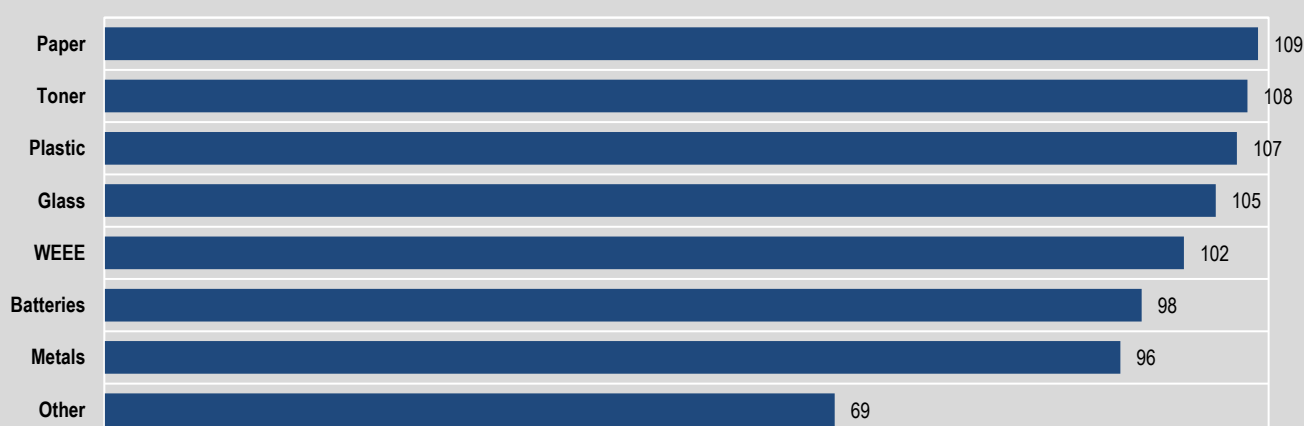
In all provincial capitals, separate collection of paper was carried out in at least one of their offices, 99% also collected toner and 98% plastic (Figure 8). The capital cities that collect paper, plastic and toner at the same time in all their local units are 18, while 43 are the ones that do it in over 80% of their offices.

18 capital cities collected paper, plastic and toner at the same time in all premises of the municipal administration (including Torino), while 43 do the same in over 80% of their offices, including Venezia and Bologna

96% of the capital cities implemented separate glass collection in at least one of their offices, over 94% collected electrical and electronic equipment (WEEE), 90% collected flat batteries and 88% metals.

All the provincial capitals with 65% or more of separate municipal waste collection, collected at least 5 types of waste among those considered in at least one of their offices and adopted at least 7 of the 11 waste disposal policies considered.

FIGURE 8. ECO-SUSTAINABLE MANAGEMENT IN THE PROVINCIAL OR METROPOLITAN CAPITAL MUNICIPALITIES: SEPARATE COLLECTION BY PRODUCT FRACTION IN AT LEAST ONE LOCAL UNIT OF THE MUNICIPAL ADMINISTRATION. Year 2017, number of municipalities



Source: Istat, Urban environment survey

Glossary

Self-composting: composting of the organic waste of its municipal waste, carried out by domestic and non-domestic users, for the purpose of on-site use of the material produced (legislative decree 152/2006 article 183 paragraph 1 letter e), amended by the law 28 December 2015, n. 221). Composting is an aerobic biological process which takes place using a technique whereby the natural process is controlled, accelerated and improved, gardening or for agronomic or floricultural purposes.

Collection Centre: it is a fenced and manned area, destined to the separate conferment of voluminous fractions, including inert materials such as building debris, materials from excavations and demolition of modest entity, bulky and durable goods destined to be conveyed to recovery and treatment plants, as well as individual fractions obtained exclusively from separate collection and which can be transferred directly by domestic users.

Compost: fertilizer obtained from composting through bio-oxidation and humification of organic waste. **Compostiera:** contenitore adatto ad accogliere la frazione organica dei rifiuti solidi urbani e a favorire il processo di decomposizione aerobica che la trasforma in compost.

Organic fraction: (otherwise called wet): it is formed by the FORSU (Organic Urban Solid Waste Fraction), ie food waste and other easily biodegradable organic waste collected in a differentiated way.

Bulky: these are large domestic accessories such as armchairs, sofas, furniture, mattresses, bed bases, etc. (provided they come from civilian homes). It is waste that, due to its nature or size, cannot be placed in bins.

Preparation for re-use: consists in the operations of control, cleaning, disassembly and repair through which products or components of products that have become waste are prepared so that they can be re-used without any other pre-treatment (article 183 paragraph 1 letter q) of legislative decree 152/2006);

Prevention: measures taken before a substance, material or product becomes waste that reduces: 1) the quantity of waste, including through re-use of products or the extension of their life cycle; 2) the negative impacts of waste produced on the environment and human health; 3) the content of dangerous substances in materials and products (article 183 paragraph 1 letter m) of Legislative Decree 152/2006);

Collection of urban waste: it represents the complex of undifferentiated and differentiated waste collected in the municipal area (Legislative Decree 152/2006).

Separate collection: the collection in which a waste stream is kept separate based on the type and nature of the waste in order to facilitate specific treatment (Article 183 letter p) of Legislative Decree 152/2006). For the purposes of calculating the amount of separate waste collected on the total urban waste produced, waste that meets certain requirements must be considered, that is, that it is classified as urban waste, pursuant to art. 184 of the legislative decree n. 152/2006, or as special waste similar to urban waste, pursuant to art. 198, paragraph 2, letter g); and that they are collected separately from other urban waste and grouped in fractions to be started as a priority to material recovery. The recent decree issued by the Ministry of the Environment on 26 May 2016, containing the guidelines for calculating the percentage of separate collection of urban waste, contains a list of waste fractions to be included in the calculation of separate waste collection, introducing the waste from removal operations conducted at civilian homes (CER 170107, 170904), road sweeping waste sent for recovery (CER 200303) and the entire amount of multi-material (or combined) collection before waste, resulting from joint collection more product fractions in a single container.

Door-to-door collection: collection system characterized by the use of containers or bags dedicated to the conferring users, which is carried out by means of delivery systems at the boundary of the user's boundary or at points identified by the manager, according to the methods and set times. On-call collection is not considered collection door-to-door.

WEEE: Waste Electrical and Electronic Equipment (Legislative Decree 151/2005).

Recycling or recycling: any recovery operation through which waste is treated to obtain products, materials or substances to be used for their original purpose or for other purposes. It includes the treatment of organic material but not energy recovery or reprocessing to obtain materials to be used as fuels or in filling operations (article 183 paragraph 1 letter u) of Legislative Decree 152/2006).

Assimilated special waste: non-hazardous waste from premises and places used for purposes other than domestic, assimilated to urban waste in terms of quality and quantity, pursuant to Article 198, paragraph 2, letter g) of Legislative Decree 152/2006.

Urban waste (domestic and similar waste produced by commercial and industrial activities as well as by institutions): a) household waste, even bulky waste, coming from rooms and places used for residential purposes; b) non-hazardous waste from premises and places used for purposes other than those referred to in letter a), similar to urban waste in terms of quality and quantity, pursuant to Article 198, paragraph 2, letter g); c) waste from street sweeping; d) waste of any kind or origin, lying on roads and public areas or on roads and

private areas, however, subject to public use or on sea and lake beaches and on the banks of water courses; e) vegetable waste from green areas, such as gardens, parks and cemetery areas; f) waste from exhumations and estimulations, as well as other waste from cemetery activities other than those referred to in letters b), c) and e) (legislative decree 152/2006 article 184 paragraph 2).

Refusal: any substance or object which the holder discards or intends or is required to discard (Article 183 letter a) of Legislative Decree 152/2006).

Reuse or reuse: any operation through which products or components that are not waste are re-used for the same purpose for which they were conceived (article 183 letter r) of Legislative Decree 152/2006);

Punctual tariff: tariff for the urban waste service accounted for based on the actual amount of waste produced by the individual users, pursuant to the decree of 20 April 2017, which provides criteria for the realization by the municipalities of precise measurement systems, aimed at application of the tariff commensurate with the service rendered.

Domestic and non-domestic users: domestic users are those relating to residential units used for residential purposes. All the others are non-domestic users, such as non-housing categories such as communities, commercial, industrial, professional activities and productive activities in general. This second category also includes special utilities such as, for example, the “Large Utilities”, ie non-domestic users characterized by locations whose waste production consists of fractions that can be recovered in large quantities.