COLLECTION, RECYCLING AND RECOVERY OF PAPER AND CARDBOARD

2003

9th Comieco Report

introduction by Piero Capodieci

July 2004

Comieco
Consorzio Nazionale Recupero e Riciclo degli Imballaggi a base Cellulosica

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VALUE

INTRODUCTION

We never stopped. Those who thought that, once the system would reach the minimum results set by the law, Comieco would have slowed down and stopped pressuring the Local Institutions and the citizens, are proved wrong by the 2003 data disclosed in this report, now at its 9th edition.

220,000 tons (+13.9%) more, including 46,000 the South (+20.8%): a significant increase that points out to greater citizen awareness of environmental issues in general, and of separate waste collection in particular.

I feel there is an almost symbolic coincidence between the increased rate of paper and board collection and the growth of separate waste collection in general. A coincidence that, however, provides good reason to think about the promoting role that packaging waste collection - and paper and board packaging waste collection in particular - had and still has in the Municipalities for the organization of separate waste collection, which is then obviously extended to include other kinds of domestic waste, even if these do not receive any subsidies.

Thus separate waste collection now concerns 21% of urban solid waste: while it is still far from 35%, and the effort and its outcomes are not yet homogeneous, I think we may say a widespread civil habit is now in place, which is not just the result of some idealist's imagination.

The South is also performing quite well and, although about 15 kg per inhabitant is still a low figure, it makes it worth thinking more generally about consumptions and distribution channels to better appreciate it.

Urban waste make-up in the South is thoroughly different compared to the Centre, and even more so compared to the North. Organic waste, for example, ranges from 40 to 60%, vs. an average 30% rate in the North.

This obviously means that the rest - the so-called dry waste - is included to a much lesser extent. There is no doubt, on the other hand, that food products in the South involve less packaging, and the unfortunate sharp difference between the 10 million newspaper readers in the North vs. approximately 4 million in the South has an impact on the quantity of paper collected separately.

And then, in order not to belittle the progress of the South, stuck to its stereotype, results should best be weighed in the light of the different consumption structure.

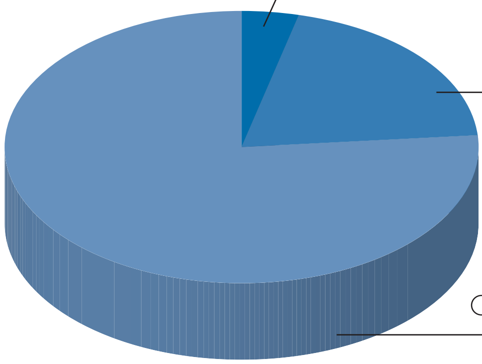
Upon the issuing of this report, the new Agreement between Anci and Conai for the next five-year period will have been signed, providing renewed certainties to all the actors that made the current success and will make the future one.

DEVELOPMENT

Before wishing you a profitable reading, I can only stress the outstanding work that we carried out, as well as our determination to do even better.

Piero Capodieci

(Chairman)



NOTE ON THE METHOD

Comieco executes specific agreements to provide economic support and to ensure that the paper and board waste collected separately by the service implemented in the Municipalities is recycled. During 2003, over 5,000 Italian Municipalities (covering approximately 80% of the Country's population) subject to agreements with the Consortium collected 1.35 million tons of paper and board: a huge quantity that requires, accordingly, continuous and timely monitoring. Hence the need to perform checks – about thirty audits were performed in 2003 on the parties handling the largest collection quantities, and a new set of checks, even more thorough, are scheduled for 2004 – as well as to implement a quality and environmental management system (in 2003 Comieco achieved the ISO 9001:2000 and ISO 14001:1996 certifications). These are strategic choices aimed at ensuring the optimal operation and the maximum transparency and reliability of a system that involves several actors in the paper supply chain (collectors, sorting plants, and recycling plants).

A survey was carried out to identify the paper and board waste share collected separately and uncontrolled by the Consortium and, in particular, to collect official data. More precisely, Comieco established contacts with the Provincial Waste Working Groups (Osservatori Provinciali Rifiuti, OPR) in view of data collection.

Only when no official data was available, did Comieco implement the method described below. Please note that, upon the completion of the survey, a total of 76.5% of the collection data comes from an official source, and party matches the data already available to Comieco; 19.8% refers to quantities that are directly managed by the Consortium (without any other official sources), and only 3.7% is based on estimated quantities.

Three groups of provinces are considered to estimate the quantities not managed by Comieco:

- group A, including the provinces where agreements with Comieco cover more than 85% of the inhabitants;
- group B, including the provinces where agreements with Comieco cover 51 to 85% of the inhabitants;
- group C, including the provinces where agreements with Comieco cover 20 to 50% of the inhabitants.

A direct survey is then carried out on Municipalities and service companies, aimed at finding how many of the Municipalities that are not subject to agreements have implemented a separate paper and board waste collection service. The survey concerns:

Group	% of inhabitants with agreements	% of inhabitants without agreements subject to checks on separate paper and board collection implementation
A	AB > 85%	minimum 25 %
B	51% < AB < 85%	minimum 50 %
C	20% < AB < 50%	minimum 75 %

Whenever Comieco directly obtains information and quantitative data on any implemented service from a surveyed Municipality, such figures are considered, thus increasing the share obtained from official sources. On the other hand, if no quantitative data is available, attempts are made to identify the rate of inhabitants that are not subject to agreements, but actively perform separate paper and board waste collection: for these, the same per-capita figure recorded for the inhabitants subject to agreements in the same province is assumed. The collection data is then calculated and added up to the data referring to the share managed by Comieco, so as to obtain an estimate of overall collection in the concerned territory.

Note: the paper and board waste collection data of the Puglia Region for the year 2002 was amended after a final analysis. This accounts for the difference compared to the figures published in the previous report.

RESULTS AND DEVELOPMENT OF SEPARATE WASTE COLLECTION AND PAPER & BOARD RECYCLING IN 2003

Carlo Montalbetti, General Manager of Comieco

1. NORTH, CENTRE AND SOUTH: A STEADY GROWTH

Data on separate paper and board waste collection in Italy in 2003, processed by Comieco, confirms the positive trend that has been under way for several years, but also provides surprising information. Overall, a 13.9% increase in collection was recorded compared to 2002, for a total of 220,696.43 tons more: 1,810,246.715 tons vs. 1,589,550.289 in the previous year (Table 1). In general terms, the most significant percent growth was recorded in the South (+20.8%); more moderate growth rates were observed, on the other hand, in the North and Centre (12.8% e 12.7% respectively).

Based on a Comieco estimate, while urban waste collection in the 2002-2003 period (Table 2) increased by 0.2%, from 29,979,100 tons to 30,037,803 tons, overall separate waste collection and separate paper and board waste collection both increased by 13.9%, the former from 5,543,200 to 6,311,390 tons, and the latter from 1,589,550 to 1,810,247 tons. The overall separate waste collection rate over total urban waste production grew from 18.5% to 21%. On the other hand, as shown in Figure 1, the rate of separate paper and board waste collection over total separate waste collection remained unchanged at 28.7%.

An analysis of individual regions highlights that the maximum percent increase was recorded in Umbria, from 16,451.137 tons in 2002 to 35,679.00 in 2003 (+116.9%), followed by Sardinia, from 3,271.914 tons in 2002 to 6,789.038 in the following year (+107.5%) and Sicily, which recorded a 68.8% increase over significant quantities (33,603.217 to 56,706.865 tons). A sharp increase was also recorded in Marche (+48.5%, from 25,843.41 tons to 38,376.506 tons) and Basilicata (+43.4%, from 4,935.754 to 7,076.610 tons).

Globally, in spite of a higher growth rate, the expected increase was not recorded in the South: Campania and Puglia, in particular, boast the best absolute data - 74,418.090 (+4.6%) and 74,238.150 tons (+9.9%), respectively - but while the former suffered from a severe crisis of its general waste collection system, the latter went through a transitional reorganization of the service in the areas of Foggia, Lecce, and Bari, which prevented further positive results.

In the North, Emilia Romagna is confirmed as the most "eco-virtuous" region, growing from 138,111.350 tons in 2002 to 170,323.533 tons in 2003 (+23.3%), followed by Piedmont, from 163,933.232 tons to 196,203.267 tons (+19.7%), and Veneto, from 177,055.160 tons to 210,160.500 tons (+18,7%). By absolute values, Lombardy still accounts for the largest share of paper and board waste collection in Italy (Figure 2): a 5.7% increase was recorded in the 2002-2003 period, but the collected quantities are outstanding (448,347.051 tons vs. 424,133.222 in 2002).

Finally, in the Centre, the leadership of Tuscany was confirmed, albeit also with a moderate percent increase (+2.1%), but with a global quantity of 212,306.964 tons (vs. 207,903.914 in 2002) - second best on a national scale.

The analysis by macro-areas (Figure 3) confirms the data recorded in the past few years: while the greatest percent increases occur in the South, the North still produces the largest quantities.

Thus far the 2003 analysis. As to 2004, forecasts point out to a quantity of 1,953,236 tons for the Country, broken down as follows: 1,229,800 in the North, 404,388 in the Centre, and 319,047 in the South (Figure 4).

2. SEPARATE PAPER AND BOARD WASTE COLLECTION IN MUNICIPALITIES SUBJECT TO AGREEMENTS

Within the framework of the Anci-CONAI Agreement, Comieco implements Agreements with Municipalities, Municipal Consortia, and service operators – if empowered by the Municipalities – by which an economic consideration is due for the separate paper and board waste collection service.

By December 31, 2003, Comieco had implemented a total of 586 agreements (Figure 5), covering 79% of the inhabitants (Table 3) and 66% of the Municipalities (Table 4). More precisely (Figure 6), the agreements totalled 225 in the North, 80 in the Centre, and 281 in the South, although such data does not reflect either the number of Municipalities subject to the agreements (from Figure 7, 70% in the North and Centre and 57% in the South), or of the inhabitants (from Figure 8, 76% in the North, 87% in the Centre, and 79% in the South).

Another significant figure for the analysis of separate waste collection trends in Italy is the Consortium's investment (Table 5). In 2003 Comieco invested a total of 56,369,637,04 EUR in the agreements, equal to 1.23 EUR per inhabitant involved.

Positive data is recorded for recovered paper in 2003[1], collected within the framework of the agreements (Table 6), equal to 1,361.939 tons or 75.2% of total collection (1,810.247 tons). As to the distinction between materials obtained from joint, separate, or integrated collection[2] (Table 7), out of a total national quantity of 1,361,938 tons, 771,027 tons (56,5%) come from joint collection, 527,383 tons (38.7%) from separate collection, and 63,528 (4.7%) from integrated collection. The total for the North is 817,977 tons, including 63.8% from joint collection, 28.5% from separate collection, and 7.8% from integrated collection. The materials managed under the agreements in the Centre amount to less than the total quantities for the North: a total of 303,055 tons, including 55.8% from joint collection and 44.2% from separate collection. Finally, the South collects 240,907 tons under the agreements, including 33.3% by joint collection and 66.7% by separate collection.

[1] Data available at February 28, 2004

[2] Joint collection: separate paper and board packaging and paper waste collection (packaging rate from 1% to 29%)
Separate collection: separate collection of paper and board packaging only (packaging rate higher than 95% and board rate higher than 70%)
Integrate collection: separate paper and board packaging and paper waste collection serving all kinds of users (packaging rate from 30% to 69% and board rate higher than 25%).

A detailed analysis by geographic areas (Figure 9) highlights that the quantities managed under agreements in the North amount to 69.6% (vs. 73% in the previous year), 82.6% in the Centre (vs. 76.6%), and as much as 89.6% in the South, with an increase close to 7% compared to the 82.8% rate stated in the previous Report. If, on the other hand, the incidence of separate paper and board waste collection managed under the agreements in 2003 over separate paper and board waste collection in the same year is analyzed, broken down by regions (Figure 10), Vallée d'Aoste stands out with 100% of the collection performed under the agreements, followed by Calabria, Puglia, Friuli Venezia Giulia, and Campania, all with 90%.

The per-capita collection data, broken down by North, Centre, and South, based on the inhabitants subject to the agreements (Table 8), reflects, to some extent, the detailed analysis by geographic areas. The national average for 2003, in fact, is 29.8 kg per inhabitant subject to agreements (vs. 28.7 last year), including 41.8 kg/inhabitant in the North (vs. 40.9 in 2002), 31.3 in the Centre (vs. 27.7 in 2002), and 14.6 in the South (vs. 13,5 in 2002).

The analysis of separate paper and board waste collection trends in the fifteen sample cities (Table 9) highlights a number of general events, as well as the impact of the awareness and promotional campaigns promoted by Comieco.

General events include, for example, the waste emergency in Campania, which is reflected in an 11.5% decrease of collection in 2003 compared to 2002 in Naples (where paper and board waste collection fell to 13,653 tons) and a 10.6% decrease in Salerno: in these cases, the cause was a transfer of separate waste collection operators and equipment towards the emergency collection of common urban waste.

From the quantitative viewpoint, Rome obviously stands out as the second best city after Milan (the main city of Lombardy collected 78,021 tons in 2003, with a 4.3% increase compared to 2002). The Capital collected almost 64,000 tons (+10.9%), but a qualitative improvement of the service was also recorded thanks to an agreement between Comieco and the municipal company AMA S.p.A., which resulted into an improved and more rational collection system. Excellent results were achieved through the awareness campaigns aimed at the citizens – also supported by Conai – and the introduction of new services and promotions (e.g. in municipal offices). Also very effective were the initiatives launched by Comieco in Palermo (here the Consortium granted an economic incentive aimed at promoting paper and board packaging waste collection), where paper and board collection grew from 4,874 tons in 2002 to 9,051 in 2003, with an 85.7% growth.

GROW

In general terms, the reorganization of separate waste collection, with an "approach" to the users through more widespread services, appears as one of the most effective tools, as confirmed by cities like L'Aquila (+28.2%) and Florence (+11.5%, or 26,920 in 2003). In Florence, in particular, the door-to-door collection system involving the shops in the historical centre and the waste-box collection service throughout the municipal territory were significantly enhanced.

A growth was also recorded in Bari (13,784 tons, +11.3%) and Terni (3,855 tons, with a 10.2% increase compared to 2002), the latter resulting, like in the above-mentioned cases, from an improvement of the service in terms of collection reach.

An outstanding growth of paper and board waste was also recorded in Imperia (+9.5%), but the city still seems to have a further development potential in terms of service quality and reach; the same is true for Brescia (12,140 tons in 2003, +2.7%), through an approved scheme for the enhancement of collection from small businesses.

A more "physiological" growth was observed in the cities where a high-quality collection service is already in place: like in Milan, a steady increase was recorded in Bologna (more than 6 thousand tons, +0.3%), Turin (+1.1%, 45,629 tons), and Verona (approximately 11 thousand tons, +2.2%).

The data for Bolzano remained unchanged, with about 5,600 tons collected.

As to the quality of separate waste collection, it should be noted that the accuracy of the Comieco survey on recovered paper quality is improving year after year: a total of 199.422 tons of material (vs. 77.474 last year) were analyzed with a total of 858 tests (vs. 517 last year), and unrelated materials turned out to amount to 3.4% (3.5% in 2002) (Table 10).

A total of 289 plants sort the paper and board received from the Municipalities subject to the agreements (Figure 11) (18 more compared to 2002): 141 in the North (vs. 142 in 2002), 54 in the Centre (vs. 48 in 2002), and 94 in the South (vs. 81 in 2002); 73 paper mills (Figure 12) are involved in recycling management (+4 compared to 2002).

A growing number of sorting plants have committed to accept the packaging produced by business and industrial users (Figure 13): these totalled 143 at December 31, 2003 (+6 compared to the previous year), mostly located in the North (71) and in the South (53), and only 19 in the Centre.

Finally, a few words about energy recovery. Until 2002, Comieco used to enter into special agreements with plants for incineration with energy recovery and with plants for the production of alternative fuels (waste-based fuel

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and dry fraction), providing for the payment by the Consortium of a consideration for the share of packaging contained in the recovered urban waste. Such agreements also provided for the plants to collect, for the economic consideration they received, some of the scraps resulting from paper and board sorting and recycling. In 2003, as in both previous years, Comieco organized a competition to grant its members – including paper mills and recovery plants – the right to provide their waste. Overall, then, the Consortium provided for 10,000 tons of waste produced by its members to be collected for recovery in 2003: such quantities added up to over 26,000 tons in the previous two-year period. The conclusion is that, thanks to Comieco, over 37,000 tons of waste were taken from the landfills and used for energy production from 2001 to 2003.

EVOLUTION

3. THE DEVELOPMENT OF THE RECOVERED-PAPER MARKET

The paper sector in the last two years suffered from a negative economic situation at a global level, albeit with differences between Countries. A weaker demand in major European and North-American markets affected consumptions significantly; the prices of raw materials, only partly supported by the high development rates of emerging Countries – China first and foremost – suffered a long-term slump.

The international recovered-paper markets were therefore also weak. While China's purchases in these markets characterized their trends most strongly in the past few years, their impact was uneven. The Asian markets, in fact, alternatively contributed to price rises and poor provisioning (albeit less dramatically than in other industrial sectors). The effects of such markets added up to the intrinsic volatility typical of the recovered-paper markets compared to new raw materials.

This resulted into significant price fluctuations, also in the Italian market, as shown in Figure 14. An analysis of prices for the main recovered-paper qualities in Italy in the 2002-2003 period shows, in fact, that these are less and less correlated with the prices of other raw materials, as well as that they are sometimes completely independent of economic conditions in the collection and consumption sectors. Typically, sharp rises were recorded in Italy in the price of recovered paper to be used for corrugated board at times of general stability of this sector.

The above is also affected by the persistence of significant differences between national markets in Europe, although their interconnection is becoming stronger.

In this scenario, the Italian situation developed in the past few years. Originally an outstanding net importer of recovered paper, our country is turning into a net exporter, in that it has sharply reduced the consumption-collection ratio thanks to the development of separate waste collection.

4. 78% OF PAPER AND BOARD PRODUCTS COLLECTED AND VALORIZED

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