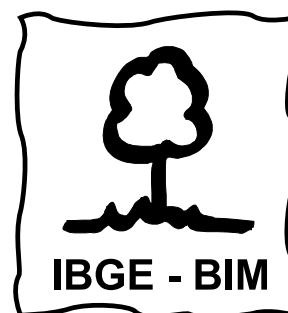


VOLUNTARY ACTIONS SUPPORTED BY  
LOCAL AUTHORITIES TO ENCOURAGE WASTE  
PREVENTION IN EUROPE





## **FOREWORD**

Is it possible to substantially reduce the amount of waste we produce?

The answer, of course, is yes, because our waste is not inevitable! Pilot experiments carried more or less all over the country and in Europe demonstrate that 'slimming down our dustbins' is a feasible aim. But what can we do in practice? What are the 'right' steps to take?

Information and increased awareness are essential to enable us, as far as we can, to play our part in reducing our waste. It's something that concerns all of us - households, administrations, companies, schools, storekeepers, the local authorities, etc. We can all act, depending on our activities and our responsibilities, be it at the source, when consumer goods are designed, when we make our purchases, when we use the goods we have purchased, etc.

However, although reducing the volume of waste remains a priority now more than ever, producing 'high quality' waste is another important aim. Waste will always be with us, but we can make the most of it to preserve our natural resources as well as possible. Sorting our waste, avoiding hazardous waste and making sure it is not mixed up with other waste, composting when we can, with the help of composting Masters, establishing specific channels for high-quality re-use and recycling, giving goods we no longer want a second lease of life, making it obligatory to return goods such as batteries, packaging, electric and electronic waste, drugs and many other items ... all these solutions are gradually being implemented. Using waste to generate energy is an option that must be applied carefully and sparingly. As for the disposal of waste in landfill sites, this should be reserved for final waste only, waste we can no longer do anything with.

I warmly welcome the publication of this work, which traces the steps taken by the IBGE, the Brussels Institute for the Management of the Environment, in the Brussels-Capital Region over many years, with a view to both preventing and managing waste. You see before you a mine of information that we need to make us responsible players in this field. The originality of this publication lies in the fact that it increases the knowledge and experience we have in Brussels by describing the action taken in various cities in Europe which are also faced with an ever-growing volume of waste.

Together, and with the support of this tool, we will pursue the challenge of waste management on a daily basis, ensuring respect both for the quality of our life and for our environment.

The Ministre for the Environment and Energy  
of the Brussels Capital-Region



## **PREFACE**

This report is a two-part summary.

First of all, it presents ideas and describes information, awareness and educational actions that were developed over a ten-year period in the field of waste prevention by the Environment Department of the Brussels Capital Region.

Joelle Van Bambeke, Deputy Division head at IBGE-BIM, explains the political philosophy that has gradually included the people's behaviour in households, in schools and in offices, in the way they deal with waste, products and resources. The aim is to make society change towards an economy based on recycling, eco-consumption and dematerialization.

Secondly, this report presents a catalogue of the main types of non-coercive actions carried out so far to prevent waste in European cities. This work was done by Sophie Marguliew, official representative of the Association of Cities and Regions for Recycling (ACRR). This work points out that most local and regional authorities today are involved in actions that, beyond ensuring the good organisation of waste and resource management, strive for a responsible citizenship, with a view to attaining sustainable development.

The publication of this two-part summary report is launching a process of exchange of information and experiences. You are cordially invited to participate, either through contacting IBGE-BIM or the ACRR.

Eric Schamp  
Deputy General Director

Jean-Pierre Hannequart  
General Director



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## **Part I**

# **INTRODUCTION : WASTE PREVENTION AND THE SCOPE OF THIS REPORT**





## 1. INTRODUCTION : WASTE PREVENTION AND THE SCOPE OF THIS REPORT

### 1.1. CONSTANT INCREASE OF THE GENERATION OF WASTE IN EUROPE

The total amount of waste produced annually in the European Union is currently close to 1.3 billion tonnes (if agricultural waste is included, 2.5 billion tonnes). This represents 3.5 to 7 tonnes per capita per year. This comprises waste produced by mines and quarries, industrial waste and waste from construction and demolition, and municipal waste, which accounts for 15 to 20% of this total figure. Consequently, municipal waste weighs in at nearly 500 kg per capita per year, generating a total of around 200 million tonnes per year<sup>1</sup>.

In the 1960s, waste production in Europe was approximately 200 kg per capita per year. Today it is close to 500 kg. Total production of waste in the OECD member countries increased by 10% between 1990 and 1995 and is expected to continue rising, despite a slight tendency in the decoupling of waste production from economic growth.

### 1.2. A GLOBAL ISSUE

The figures show, with few exceptions, exponential growth in all categories of waste and in particular in municipal waste. Above and beyond these trends, the challenge to take up is twofold:

- a) resource depletion;
- b) fair distribution of resources.

#### 1.2.1. THE HIDDEN SIDE OF WASTE: NATURAL RESOURCES

All waste produced in a city has a hidden side. The 500 kg of municipal waste produced every year on average by each European is the result of the consumption of 50 tonnes of material resources, 90% of which is immediately converted into waste<sup>2</sup>.

If, for example, we look at aluminium, we must remember that large quantities of earth must be moved to extract the bauxite necessary for its production. Then the bauxite is transported to be purified and processed into aluminium oxide, which is treated in a foundry and turned into aluminium bars. Next, it is often transported to another site where the bars

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<sup>1</sup> European Environment Agency, *Environmental Signals 2002 - Waste and material flows*, [http://reports.eea.eu.int/environmental\\_assessment\\_report\\_2002\\_9/en/signals2002-chap12.pdf](http://reports.eea.eu.int/environmental_assessment_report_2002_9/en/signals2002-chap12.pdf)

<sup>2</sup> American Association for the Advancement of Science, 2000, *Atlas of population and environment 2000*, chapter on Natural resources and waste, <http://www.ourplanet.com/aaas/pages/overview04.html>

are heated, rolled into sheets and, after being stored for a time, rolled again, flattened and transformed into cans. Consequently, for every 1 kg of usable aluminium, 5-6 kg of resources are consumed (or 5-6 kg of waste produced).

If we take into account the hidden side of a given product, a toothbrush would weigh nearly 2 kg; a watch, 20 kg; a cell phone, 75 kg<sup>3</sup>; a coffee machine, 300 kg; and a gold ring, 2,000 kg<sup>4</sup>. No doubt that a large share of natural resources is renewable and there are large deposits of non-renewable resources that have yet to be discovered. But it is also true that some resources are limited and that energy resources, oil in particular, may be depleted in a few decades. Some renewable resources, such as forests, fresh water, fertile soils, biodiversity, sea fish, pure air, etc. are showing worrisome signs of deterioration. This might point out that man has reached or exceeded the limits to the use of Earth resources.

Furthermore, it is important to see that current consumption of resources also produces pollution and nuisance that often go hand in hand with CO<sub>2</sub> emissions and the greenhouse effect. The processing of non-ferrous metals alone currently consumes more than 20% of the world's electricity consumption.

## 1.2.2 THE IMPACT OF LIFESTYLE AND SOCIAL INEQUITY

One of the most alarming aspects of our current lifestyle is illustrated by the ecological footprint, which is defined as *the land and water area that is required to support indefinitely the material standard of living of a given human population, using prevailing technology and including the elimination of all the waste produced*.

It is estimated that the ecological footprint of the average European is around 5 hectares, while a "fair" or sustainable footprint, able to ensure an equitable sharing among all the planet's inhabitants, is currently around 2 hectares. In other words, if the 6 billion inhabitants of the planet Earth lived and consumed like Europeans, we would need 3 planets to satisfy their needs<sup>5</sup>.

This means that the wealthiest 20% of the world's population consumes 85% of the resources, and generates 50% of the CO<sub>2</sub>, while the poorest 20% produces only 1.3% of the gross domestic product, and 3% of the CO<sub>2</sub>.

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<sup>3</sup> Federico A. et al, *Material input per Unit Service (MIPS) for the Italian mobile telephone network*, abstract, 13th Discussion Forum on Life Cycle Analysis, Environmental impact of telecommunication system and services, April 25, 2001, Swiss Federal Institute of Technology, Lausanne

<sup>4</sup> Simonen K., 1999, *Kultasormuksen ekologinen paino 2000 kiloa*, Kuluttaja-lehti 5/1999, in Motiva, Kuluttaja, *The World Game – every choice makes a difference*

<sup>5</sup> WWF, 2002, *Living Planet Report*, [http://www.panda.org/news\\_facts/publications/general/livingplanet/lpr02.cfm](http://www.panda.org/news_facts/publications/general/livingplanet/lpr02.cfm)



### 1.3. PREVENTION: ACTIONS NEEDED AT DIFFERENT STAGES


In fact municipal waste appears at the end of a chain of consumption, preceded by stages of manufacture and processing of raw materials. A real prevention strategy would consist of examining the entire chain and making sure that the use of resources and products is limited as far as possible. This approach is an essential complement to strategies aiming to develop a closed cycle via waste recycling, i.e. transforming waste into secondary raw materials.

The concept of waste prevention is not unambiguous. First of all, it can be understood in quantitative or qualitative terms. Quantitative prevention reduces the weight, the volume or the number of units of waste. Qualitative prevention is designed to reduce certain types of waste, within a mass of waste, deemed hazardous or posing particular problems. This report will pay particular attention to quantitative prevention of municipal waste, but reference will also be made to qualitative prevention.

Next, the concept of prevention may refer either to the waste production stage only (prevention at source) or to the final stage of landfill deposit, in which case the term “minimization” is often used. The field of waste recovery via recycling or energy recovery is certainly worthwhile, compared to pure and simple elimination. However, “the best waste is that which is not produced in the first place” and therefore particular attention and priority to prevention at source is fully justified. This report will strive to focus on prevention at source, while considering all actions that help to reduce the amount of waste to be collected and treated by the public authorities. Efforts to promote individual or community composting are therefore also included.

A number of distinctions may be made under the concept of “prevention at source”. Some might prefer the pure and simple elimination of waste instead of its partial reduction or decrease. For instance, one can purchase fruits in bulk rather than pre-packaged fruits, or mechanical wrist watches instead of those that run on batteries. Moreover, it is quite clear that municipal waste prevention tends to get close to the policy of “eco-products” or of the “decoupling» of economic growth from the consumption of resources. The emphasis may be placed on these aspects by giving top priority to eco-consumption. This concept refers to developing the consumption of services and products which respond to the basic needs and bring a better quality of life while minimising the use of natural resources and hazardous substances, as well as the emissions of waste and pollutants over the life-cycle so as not to jeopardise the needs of future generations.

Dematerialization, or the use of fewer resources to reach the same level of well being, is part and parcel of eco-consumption.



The pyramid of actions that will be discussed in this report is as follows (from the base to the top):

ELIMINATION  
ENERGY RECOVERY  
RECYCLING  
REUSE OF PRODUCTS  
REDUCTION OF WASTE  
AVOIDANCE OF WASTE  
ECO-CONSUMPTION/DEMATERIALIZATION

A good prevention policy should include, of course, both coercive or constraining measures and incentive and educational measures.

The approach of this report is basically limited to VOLUNTARY ACTIONS TO PROMOTE CHANGES IN BEHAVIOUR OF THE POPULATION, in households, in schools, offices, etc. because these places are undeniably a field where any regional and local authorities can act.



## **Part II**

# **IBGE - BIM IN THE BRUSSELS CAPITAL REGION**



## 2. IBGE-BIM IN THE BRUSSELS CAPITAL REGION

### 2.1. CONTEXT AND ACTIONS

Today, every Brussels inhabitant, regardless of age, produces an average of 360 kg of waste every year, equal to 1 kg per person everyday. This does not include all the waste produced by other sources, such as offices, shops, etc. Altogether, municipal waste amounts to around 500 kg per year per capita.

Since it was created in 1989, the Brussels Capital Region has successfully drawn up 3 waste prevention and management plans. Each plan emphasizes, in the first instance, waste prevention at source and reuse, and then waste treatment for purposes of reuse, recycling and other forms of recovery, and, lastly, elimination in a way that does not harm the environment.

**The first plan (1992 - 1997)** launched region-wide actions for **waste management**: selective collection and the setting up of sorting and recycling centres. Prevention at source schemes were insignificant at this time.

**The second plan (1998 - 2002)** went further than the first in the area of recycling, and introduced producers' responsibility, but above all emphasized **waste prevention** and the promotion of individual composting. Many recommendations were tabled and a 1.12 million-euro budget was provided for prevention actions. This initiative is fully justified in light of the fact that, as shown in the public enquiry on the 2nd waste plan, many people called for broader prevention actions.

In **the third plan (2003 - 2007)**, prevention action advanced amid the broader perspective of sustainable development.

Prevention logically leads the waste policy to single out products generating waste at source and even further upstream in the lifecycle, to natural resources. That in turn leads to the observation that certain resources are limited and to the need for a strategic approach covering the entire lifecycle.

All these approaches - waste prevention at source; control over means of production, consumption and rational use; resource management in a closed loop - can be grouped together under the policy term of **dematerialization**. Dematerialization seeks to attain the same level of economic development or well being, but by consuming fewer natural resources and less energy. In that perspective, the 3rd plan focused on two priority targets: households and offices.

By focusing on a dematerialization policy, the Region will be combining waste policy with policy on products and resources, thereby contributing to the decoupling of growth in waste production from economic growth.

One means of dematerialization that has the merit of meeting both economic and social environmental objectives is reuse. The plan seeks to promote the reuse and repair of products and attaches a great deal of importance to the role of the social economy in this field.

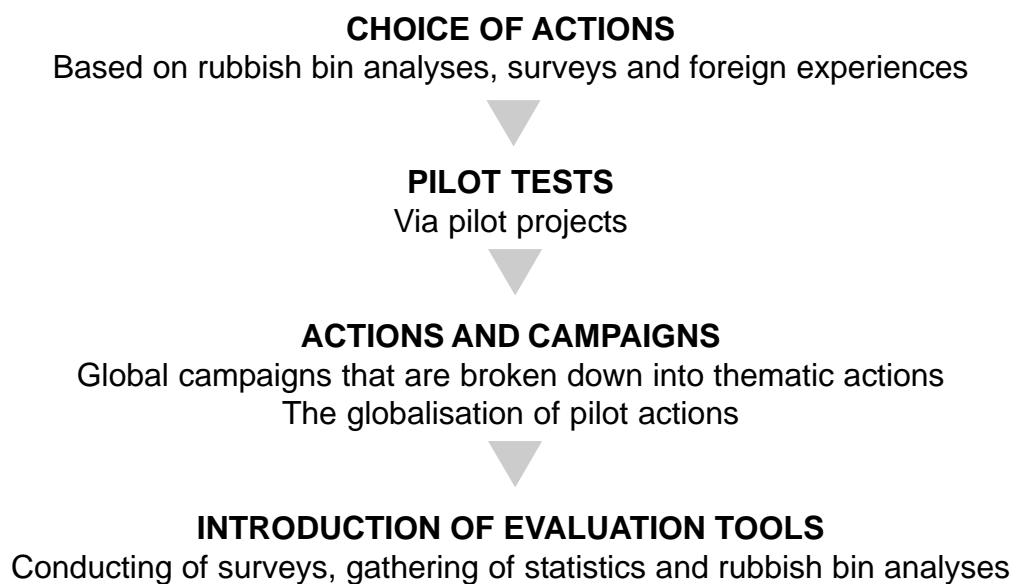
**The Brussels Institute for Management of the Environment (IBGE-BIM)** is the environmental watchdog of the Brussels Capital Region. Its tasks include the setting out of the waste plans and the application of policy, including the waste prevention policy.

## 2.2. THE METHODS

The waste plans set forth objectives and priority actions, which are expressed as recommendations that resemble more guidelines than precise implementing methodology.

For example, in applying the waste plans, IBGE-BIM has adopted a methodology based on broad expertise that is continually enriched by calls for projects and periodic evaluations.

This methodology takes the following form:



Based on the plan's recommendations and objectives, actions are fine-tuned in keeping with the following considerations:

- Priority streams, in accordance with rubbish bin analyses;
- Theoretical prevention potential;
  - . In accordance with behaviour surveys;
  - . In accordance with results of known experiences.

For each of the target audiences, i.e. households, schools and companies, the results of rubbish bin analyses and surveys are presented in an introduction to each section of this report.

In some cases, pilot experiences were conducted to validate the relevance of the actions envisaged. IBGE-BIM then addresses calls for projects to local interested parties, both public and private. These calls for projects define the field of action of a given experience and at the same time appeal to the creativity of locals in order to develop original tools, approaches or actions.

This is how many actions described in this report grew out of the results of pilot projects:

- The installation of drinking fountains in schools;
- The promotion of lunchboxes and flask in schools;
- The promotion of ecological teaching material;
- The promotion of dematerialization in offices;
- The promotion of individual composting;
- The promotion of neighbourhood composting;
- Cooperation with the town centre managers and neighbourhood merchants' associations;

The following pilot projects have reached their limits and will no longer be promoted by the Region:

- Vermicomposting;
- Composting in schools;
- School snacks for children.

The pilot projects have also enabled us to measure the prevention potential in accordance with the human and financial means invested. The section covering evaluations of actions in households, in 2.3.9, explains this topic.

## 2.3. ACTIONS CONDUCTED IN HOUSEHOLDS

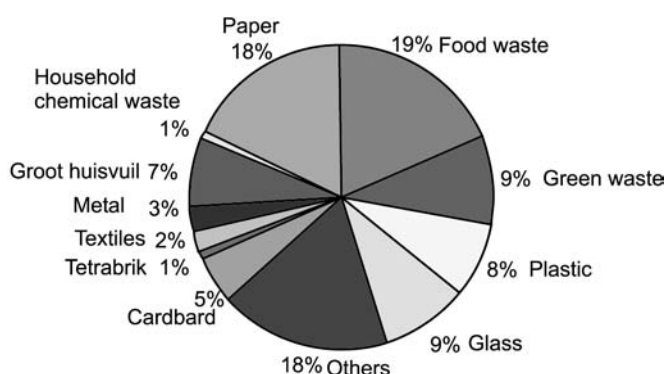
### 2.3.1. THE HOUSEHOLD WASTE PREVENTION SITUATION AND OBJECTIVES IN BRUSSELS

The Brussels Capital Region has around 1 million inhabitants and 475,000 households.

**Household waste production in 1999 amounted to 343 506 tonnes, or 360 kg per inhabitant. (These figures only cover household waste, not municipal waste, which includes wastes other than household waste.)**

Household waste ingredients, which are susceptible to prevention actions, were analyzed as follows in 1999.

*Composition of household waste in Brussels (% of weight - 1999)*



The conclusions drawn concerning **the prevention potential** were as follows:

- Grocery bags accounted for 1% of household waste, around 3 kg per inhabitant per year, or 3,300 tonnes in all.
- Food waste (partially eaten or outdated food) was quantified at 7.5% of household waste, or a total of 14,200 tonnes of avoidable waste.
- Unsolicited advertising (flyers, etc.) amounted to 10,000 tonnes per year.
- 3,000 tonnes/year of miscellaneous items (curios, crockery, books, toys, etc.) deemed reusable by people involved in the social economy was lumped together and discarded with household waste.
- Nearly 5,000 tonnes of textiles, clothing, reusable leather items as is or as rags was also found in general household waste.

Consequently, there is an estimated prevention potential of more than 25,000 tonnes per year from these streams alone, which are a recurring focus of actions in the Brussels Region.



In order to pursue this potential with Brussels households that are genuinely willing to change their behaviour, a survey conducted in 2000, 2001 and 2003 by Sonecom indicated a number of actions that people would be willing to carry out:

«Which behaviour would you personally be willing to adopt?»	2000	2001	2003
No longer use disposable grocery bags	66%	71%	87%
Refuse unsolicited advertising (flyers, etc.)	48%	57%	61%

In response to these results, IBGE-BIM decided to act on these particular waste streams, bearing in mind that there is also a need for raising awareness of general notions such as waste and excess packaging.

### 2.3.2. ENCOURAGING REFLECTION ON NEEDS AND LIFESTYLE

Our different lifestyles have a varying impact on the environment as well as on the conservation of resources and waste production.

One way of taking up prevention is to inform households, making them aware of the impact of their daily choices and of the limits of consumption. If everybody consumed like a European, we would need 3 planets to meet our needs. Alas, we only have one planet Earth.

We can also draw the attention of the population to these global observations by describing tools such as **the calculation of the ecological footprint**. In Brussels, this calculation was done for the inhabitants in 2003. Starting in March 2004, a questionnaire was distributed, in printed form and on IBGE-BIM's Web site, so that each inhabitant could calculate his footprint. A question on the amount of waste produced was also included.

Another means of raising awareness on this subject is to point out the artificial nature of certain advertising and fashions, or to compare a number of consumption scenarios that meet a given need, indicating their costs and effectiveness as well as their environmental impact. The aim is to evoke the question, «What do I really need?»

That was one of the themes of **the exhibition Au rayon de l'inutile et du gaspillage (The useless and the wasteful)**, organized by IBGE-BIM in 2003 and presented alongside the exhibition organized by the Association of Cities and Regions for Recycling (ACRR) «La terre, mode d'emploi» (Planet Earth, a user's manual), as part of a European project entitled «Planète à vivre ... ou à jeter?» (Is our planet for sustaining life or to be thrown away?)



This exhibition illustrates for the consumer our over-consumption and the most outlandish and absurd gadgets and products that in advertising are presented as indispensable. Distorting mirrors draw the attention of the public to their limitless desires that far exceed their needs; display cases present objects that are real aberrations of daily consumption: toothpaste packaged in single doses; individually-packaged mineral water ice cubes, and a revolving battery-powered lollipop holder.



The exhibition also presents three alternative consumption scenarios involving 3 products that, according to the advertising, meet our needs:

- Sandwich lunches, denouncing the so-called «lunchables» and excessive packaging;
- Floor cleaners, denouncing disposable towelettes and so-called hygiene products;
- Battery-powered toys, denouncing disposable batteries.

### 2.3.3. REDUCING WASTE AT PURCHASE

Apart from encouraging people to think, a further aim is to promote and help consumers to identify eco-products and eco-services.

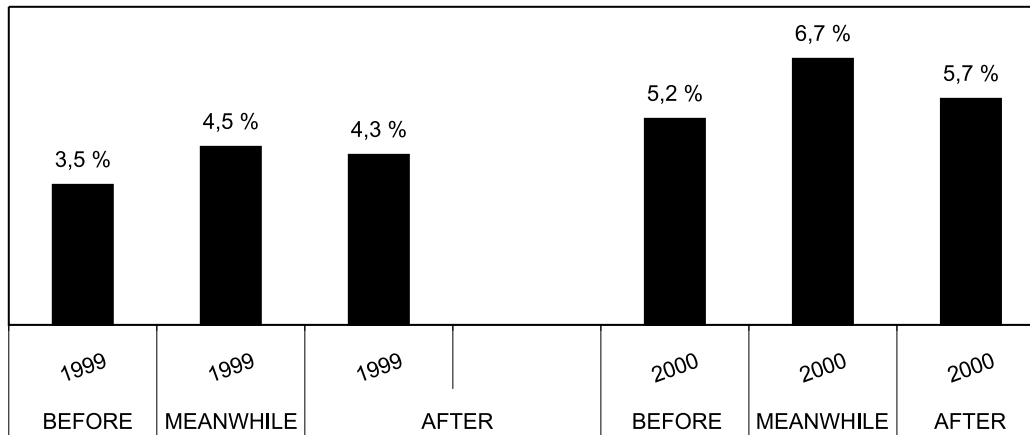
#### **2.3.3.1. Promoting alternatives to disposable grocery bags**

Disposable grocery bags make up only 1% of household waste but they are a real unjustified waste and a source of pollution. Fifty-four percent of Brussels inhabitants believe they are very harmful to the environment (Sonecom, 2003). In addition, they have an impact on resources, marine life, etc.

In order to promote alternatives to disposable bags, communication actions were organized in 1999 and 2000 and were repeated in 2004.

These actions were media-based (radio announcements) and in the field actions, e.g. folders were distributed by activists at points of sale, support was provided by the stores in the form of «shoppers' points» and free reusable bags and/or other low-price reusable bags were handed out. One large chain store, Super GB, cooperated extensively throughout the action and a comparison was made among the chain's stores. The results are described below.

% of households using reusable bags  
COMPARISON OF IBGE-BIM ACTIONS IN 1999-2000 IN 2 SUPER GB IN BRUSSELS



Between the first campaign and the end of the action in 2000, the percentage of households using reusable bags advanced by more than 2% in the GB Supers, a relative increase of 63%. These results came out of the GB analyses were confirmed by the behaviour surveys conducted in the Region.

Disposable bags are also a problem in small shops. The Region therefore implemented actions via a number of calls for ideas sent out to local associations and merchants' groups.

As a result, three local projects were put together:

- In 2000, the non-profit association «Art'chi» launched an action entitled «je n'ai pas toujours besoin d'un sac jetable» (I don't always need a disposable bag) involving 69 merchants who rewarded their customers who refrained from using disposable bags by giving them a free bookmark autographed by famous Brussels personalities.
- Also in 2000, the non-profit association «Cellule de développement de Helmet» (Helmet development unit) sent out an information folder to the neighbourhood's merchants on prevention and reusable paper bags.
- In 1999, the non-profit «Revitaliser le quartier commerçants d'Ixelles Centre Flagey» (Revitalize Centre Flagey, Ixelle's shopping district) carried out, with the help of the municipality, a project with 140 merchants who undertook, in a charter, to promote alternatives. They distributed free-of-charge reusable bags manufactured for that purpose.

While all these initiatives led to interesting results, peoples' behaviour changes little and slowly, as shown in the results of a population survey (Sonecom):

	1999	2000	2001	2003
% of households never using disposable bags	18.6 %	20.4%	22.1%	20%

It should be noted that in 2003, while the number of households never using disposable bags fell slightly, the number of households still using them also fell, from 61% in 1999 to 56% in 2000 and 52% in 2003.



Seeing the limits of sensibilization actions that have been led, the Region initiated at the end of 2003 a debate on the introduction of a tax on disposable plastic bags. This resulted in 2004 in a voluntary engagement of the distribution sector (FEDIS) to reduce, by 20 to 25% in weight, the use of disposable bags. Since then the Region and FEDIS collaborates on communication actions.



### **2.3.3.2. Identifying «waste-free» products**

The surveys show that nearly 60% of the population believes that ecological products are difficult to identify and nearly 80% believe that stores should have an eco-products section. In response, the Brussels Region developed a number of actions in partnership with the consumers' associations and the stores.

#### **2.3.3.2.1. Mentioning brand names and working with consumers' associations**

The aim of the Observatoire Bruxellois pour la Consommation Durable (a partnership between IBGE-BIM and CRIOC - The Centre de Recherche et d'Information des Organisations de Consommateurs) is to gather **objective information** about responsible consumption. This information, based on extensive research and the **unmasking of products** (ingredients and weight of the content and packaging, price, recyclability, harmfulness, etc.) also includes the naming of brand names. Revealing brand names is a very tangible way of going about it and it meets the demands of the population. The consumer who is well informed is better able to alter his behaviour.

The OBCD conducted research between 1999 and 2003 on the following themes: logos, laundry soap, general purpose detergents, chlorine products, drain cosmetics, batteries and rechargers, multi-purpose detergents, chlorine products, drain clearers, oven cleaners, pesticides, snacks, light bulbs, toilet products, towelettes, gadgets and excess packaging.

This research led, in the area of laundry soaps for example, to the mentioning of brand names, assigning them a gold, silver or bronze ecological medal.

A campaign was conducted starting at the end of 1999. More than 300,000 copies of a brochure and a folder were handed out, in particular in large supermarkets, and via an insert in the consumers' magazine, Test-Achat. This campaign was also active during the international consumers' day events - 30,000 samples of concentrated laundry soap were handed out, accompanied by a postcard that committed people sent back. According to an OBCD survey, 1/3 of the questioned people changed their buying habits as a result. If we extrapolate that result to the entire Brussels Region, 3.6% of the Brussels households changed their behaviour, which means that 32 tonnes per year of packaging could be saved in the Brussels Region, accompanied by further benefits in the area of resource conservation and waste discharges in water.

Looking at the supermarket sector, Delhaize doubled its sales of its own brand of ecological laundry powder, which was awarded a gold ecological medal in the brochure, just after the distribution of the folder in the Delhaize stores in November and December 1999.

The essential technical information is available on the Observatoire's Web site on [www.observ.be](http://www.observ.be)

#### 2.3.3.2. Actions in stores

Once a product has been identified as producing less waste, that information may be transmitted to the consumers. The best place to do that is in the stores, which calls for close cooperation with the supermarkets.

- **Labelling in the stores** of concentrated and refillable products was tested in cooperation with the large supermarket chain, Carrefour. Identification cards were posted on the shelves alongside products that meet the requirements, i.e. refillable liquid soap containers, concentrated soaps and detergents, rechargeable batteries, etc. and were backed by an awareness campaign consisting of radio announcements and folders. An evaluation based on sales figures was carried out, comparing the same period in 2000 and 2001. Unfortunately, while the sales figures of the products concerned increased between 2000 and 2001, no particular impact of the campaign was detected. It should be noted that this labelling was also used in promotions for ecological teaching material (see 2.4).

- **Loyalty cards** rewarding shoppers who buy low-waste products was tested during the campaign entitled Mini-Déchet. The campaign was held in 12 shopping districts in 2000, thanks to an initiative by the non-profit group Revitaliser les quartiers commerçants (Revitalizing shopping districts), supported by IBGE-BIM. The aim was to encourage shoppers to buy low-waste products so as to introduce a long-term behaviour change in consumers. Some 250 stores introduced the loyalty card.

The loyalty card is valid at all participating stores. A number of shopping choices, such as the use of a reusable bag, a reusable bread bag, purchase of products with a green label, etc., are rewarded with a stamp on the holder's card. Twenty stamps enables the holder to enter a tombola, with a weekly drawing. Many gifts can be won for buying low-waste products. In the stores, labels highlight products whose packaging is reduced. So far, 720 fully-stamped loyalty cards have been received, each bearing 20 stamps. It can therefore be estimated that at least 14,400 purchases with a positive impact on waste have been made.

#### 2.3.3.3. Identifying products without hazardous waste

While hazardous waste accounts for only 1% of household waste, and in spite of selective waste collection for certain items, 80% of hazardous waste is still thrown into the general rubbish bin and is then incinerated. These items include batteries, paints, inks, pesticides and some detergents and cleaning products.

### 2.3.3.3.1. Alternatives to disposable batteries

There are good alternatives to disposable batteries. One alternative is to buy products that do not require batteries, i.e. toys, watches, scales and calculators, and then to use rechargeable batteries where necessary.

A campaign called Sans pile, c'est mieux pour l'environnement (It's better for the environment without batteries) was held in 2001. It included the distribution of 5,000 brochures, a radio announcement, posters, contacts with the press and events in the stores during which nearly 7,000 people were contacted. The campaign was seen by 25% of Brussels inhabitants and, in this first phase of awareness, raised their awareness more about the dangers of batteries than changes in buying habits.

The campaign helped to make people realize that they can live without batteries (31% of people questioned prior to the campaign agreed and 48% agreed after the campaign). Lastly, 37% of the people questioned prior to the campaign and 47% after agreed to use fewer batteries.



In 2002, this campaign was revived and focused on battery-free watches. A campaign entitled Et si votre prochaine montre était aussi élégante sur vous que pour l'environnement (Next time, why not choose a watch that is as elegant for the environment as on your wrist?) was carried out in cooperation with jewellers. It was reasonably successful, but participation of jewellers was low. Some 2,400 folders were distributed during on-site events.

### 2.3.3.3.2. A gesture for a clean planet



On the occasion of the 2004 consumers' day, on 15 March, the Brussels Region promoted alternatives to products producing hazardous waste and, in particular, cleaning products. The action was designed to be light-hearted and included photographers taking pictures of people holding the alternative product of their choice, thereby symbolizing their commitment to make a gesture for a clean planet, with specific information and a contest for those who signed up. On IBGE-BIM's Web site, where individuals could send their photos to friends on an e-card, 889 photos were distributed to other people, reaching an estimated total of 2,000 people.

This action was also a technical one, based on OBCD research (see 2.3.3.2.1.) and included involvement of the sectors concerned and the public authorities. Lastly, a mini-poster with the title, 15 mars, journée internationale des consommateurs - un bon jour pour changer ses habitudes d'achat (15 March, international consumers' day, a good day to change your shopping habits), with the subtitle Nettoyage de printemps sans danger, sans polluer (Safe, pollution-free spring cleaning), described 6 consumption scenarios with ecological alternatives to hazardous products. Some 10,000 copies were distributed.

## 2.3.4. LESS PAPER WASTE THANKS TO THE ANTI-ADVERTISING STICKER



One of the priority recommendations on ways of preventing waste is to focus on paper. The flow of unsolicited advertising in mailboxes is huge in the Brussels Region, amounting to 12,400 tonnes per year. Surveys have shown that nearly 50% of Brussels inhabitants say they have been invaded by such advertising.



Starting with the introduction of the 2nd waste plan, a mailbox sticker was made, with legal backing from the legislature, indicating that the resident does not wish to receive unsolicited advertising. The related actions included the distribution of this sticker with an explanatory folder in April 1999, related articles in the press, a television announcement in April 1999 and January 2000, a broad media campaign in November 2000 and a smaller-scale reminder campaign in 2003.

Following are the results of the mailbox sticker campaign:

	Oct 1998	Oct 1999	June 2000	Oct 2000	June 2001	Oct 2001	Oct 2002	Oct 2003
<b>Percentage of mailboxes</b>								
Pilot neighbourhood	2.4%	6.2%	-	20%	-	-	-	-
Region (post office data)	-	-	6.7%	-	11%	-	13%	13.3%
<b>Surveys</b>								
Region	5%*	17%**	-	17%**	-	19%**	-	19%

\* Source: survey of distribution companies

\*\* Source: surveys by Sonecom in 1999, 2000 and 2001, results weighted in accordance with the population profile.

In terms of the amount of waste prevented, we can estimate that a fall in the tonnage was attained based on the number of households that affixed the sticker to their mailbox (51,500 households, or 11%). Sixty-seven percent of them refused free newspapers and advertising, 29% only refused advertising and 3% only refused free newspapers (Sonecom 2001). The total waste prevented was therefore 1,800 tonnes per year.

### 2.3.5. LESS FOOD WASTE

As mentioned in 2.3.1., an analysis of household rubbish bins showed that 14,200 tonnes of food (60% food waste and scraps, 40% outdated food) are thrown into the general rubbish bin, and accounts for 7.5% of the total weight.

This particular stream has substantial prevention potential, but it is also a delicate matter to broach during awareness campaigns because the solutions are found on the shopping list, the management of one's refrigerator and, above all, good food habits. Before any action is taken, a full understanding of the situation must first be achieved.

In 2003, Sonecom conducted a behaviour survey designed to analyse food waste. By compiling responses to a series of questions on what kind of food people throw away, a waste index was set up. This index shows that:

- 21% of households do not waste food;
- 52% of households waste food moderately (1 to 3 categories of food wasted);
- 27% of households waste a lot of food (4 categories and more of food wasted).

A particularly high level of waste, 47%, was observed among students. Moreover, households with children waste more than those without.



In 2004, IBGE-BIM initiated a rubbish bin analysis, conducted by the RDC-Environment consultancy, with the aim of fine-tuning the notion of food waste and to answer the question, Who wastes what? The initial results reinforce the notion that the problem is large-scale. For example, the day after the New Year holidays, food waste reached 19% in the general rubbish bin and 16% in medium and low income households.

Pending the final results, which will help us to organize better tools and campaigns, IBGE-BIM is taking advantage of all opportunities to make people aware and to inform households of the problem. It is doing so via the newsletter *Ma ville, notre planète* (My city, our planet) (2.3.8.), by calculating the ecological footprint (2.3.2.), by means of the exhibition entitled *Au rayon de l'inutile et du gaspillage* (2.3.2.) and by presentations at local events.



## 2.3.6. PROMOTING REUSE

In today's disposable society, it is essential we take up the challenge of promoting reuse. Some 3,000 tonnes of objects and nearly 5,000 tonnes of textiles, all reusable, end up every year in the rubbish pile, not to mention all the large items, such as old furniture, that are thrown away.

Reuse is a means to prevent items from becoming waste. Many economic operators are involved in reuse activities. These include the social economy, which plays an interesting role in the Brussels Region. By carrying out collections, reuse or the dismantling of objects with a view to recycling, social actions can be funded, such as training and reinvolvement in the job circuit for long-term unemployed, or cooperation projects with southern countries. That is why a number of actions have been planned in this sector, e.g. an information campaign for the services offered by the social economy, awareness of inhabitants concerning second hand purchases, support for a household appliance repair shop (washing machines, dryers, microwaves, etc.), and financial support for the reuse of second hand goods.

### **2.3.6.1. Repair in order to reuse**

The non-profit association, Les Petits Riens, has an on-the-job training shop where second hand household appliances are repaired.



In 2002, Les Petits Riens obtained assistance from the Region to set up a repair shop for large appliances so that they could be reused. Four people were hired in the shop, whose work was guaranteed for 6 months.

In 2003, 2,681 electrical and electronic appliances were collected, weighing a total of 125.5 tonnes. Fifty-seven percent of these items were not recoverable and were sent to RECUPEL, a non-profit association that recycles electrical and electronic equipment. The repair workshop started up in January 2003 and repaired in 1 year 429 machines that were originally bound for the rubbish heap. In all, 729 machines were repaired by the training shop.



### 2.3.6.2. Donating and selling second hand goods

Since the start of the 1990s, the Region has been supporting **the social economy** in the collection of second hand textiles and leather goods, by going door-to-door, organizing collection centres or at the request of donors.



Since 2003, five associations have been subsidized by the Region for their work in the recovery of second hand goods of all kinds. These are Terre, Les Petits Riens, Oxfam -Solidarité, La Poudrière-Emmaüs and L'armée du Salut. All these non-profit groups collect used goods for use, at request by phone.

In 2003, these 5 associations collected 4,297 tonnes of used items, mainly textiles. Seventy percent of these goods were reused, 15% recycled and the rest was disposed of as waste.

But the support of leading groups must be accompanied by publicity in order to encourage people to donate and buy second hand goods.

In 1999, an exhibition entitled le matériel électrique a plus d'une vie (electrical equipment has more than one life) was held in Brussels. It presented opportunities for the reuse, repair and recycling of this type of equipment.

At the same time, a small-scale campaign including a radio announcement and a folder, *La seconde main, c'est plus malin* (Second hand is a better plan), were produced. Some 10,000 copies of the folder were distributed.

Subsequently, in order to promote reuse, the Brussels Region sought **to improve the image of second hand goods**, because this image has a big influence on the quality of the donations and the purchase of second hand goods.

In 2002 and 2003, IBGE-BIM organized a new campaign under the slogan *donner ou revendre, la première idée avant de jeter* (donate or resell it before you discard it) by means of posters and radio announcements.



The second hand image is of big concern to those active in this area. In 2003, the Region backed a project aimed at professionalizing an existing structure, the Les Petits Riens stores, by carrying out repairs and decoration as well as staff training. The end goal was to improve sales and improve the reception of donors, i.e. collecting better quality goods in order to reduce rejects, and in general rejuvenate the image of Les Petits Riens. The results were encouraging. A satisfaction survey with the customers showed that they 85% of them had an overall positive perception of the stores. In addition, between 2002 and 2003 there was a 5% rise in the sale of furniture, thanks to an attractive display of furniture and newly-repaired appliances.

### **2.3.7. PROMOTING DECENTRALIZED COMPOSTING**

More than 30% of Brussels residences have a garden. The annual analysis of household rubbish bins in Brussels shows that organic waste amounts to 25% to 30% of all household waste. This organic portion is as high as 36% in homes with a garden. But nearly all of this waste, amounting to between 90 and 110 kg per inhabitant per year on average, can be recovered in the form of compost.

There are several techniques for recovering organic waste from kitchens and gardens: decentralized composting (individual or collective) and centralized composting (large-scale). The Brussels Region is promoting both approaches.

Decentralized composting is not prevention strictly speaking. In fact it is home recycling but it involves waste that will no longer be handled by the local authorities, owing to a lack of transport and treatment facilities, and is therefore considered a result of prevention at source.

#### **2.3.7.1. Composting experts and their activities**

More than 60% of Brussels inhabitants say they are familiar with composting, an age-old practice. They know about the general principle of composting, i.e. the decomposing of organic waste, but not enough is known about the technical and practical aspects to obtain good, odourless compost.

That is why **a network of trained volunteer composting experts** was set up to provide specific technical advice.

IBGE-BIM, in partnership with the municipalities, organizes free training. In exchange, the newly-trained composting experts donate their time to persuade their families, friends and neighbours to begin composting. IBGE-BIM has entrusted two non-profit groups, Comité Jean Pain and Bon...jour sourire, with the task of providing the training.

The first composting experts were qualified at the start of 2000. At the beginning of 2004, they numbered 256.

The role of the Region is to make the population aware of composting and introduce composting experts. The role of the municipality is to coordinate the teams of composting experts in each municipality, suggest events that they could organize and to make available to them a municipal centre to demonstrate composting techniques. Each municipality has one or more such demonstration sites. The municipal authorities are therefore a key partner in this network. The demonstration sites are open to Brussels inhabitants to show them what composting is and how to overcome their prejudices. The composting experts' schedule of attendance at the sites varies from one municipality to another, but in general they are on hand 1 to 4 times per month.

To give the composting experts a high profile, a newsletter on related topics is issued quarterly, called Action Compost. A relay office, called Inter-Compost, was set up in 2001 to coordinate and stimulate the network. Inter-Compost is coordinated by Inter-Environnement Bruxelles (the French-speaking federation of environmental associations in Brussels), with the cooperation of BRAL (the Dutch-speaking federation) and the Comité Jean Pain.

The actions of the composting experts is varied and includes manning the demonstration sites and information stands during marches, at second hand markets and other events, promoting composting in schools, coordinating sponsorships of collective composting projects, evening information sessions, participating in regional actions, such as environmental festivals, opening garden events, information actions in stores selling tools and material for composting, etc.

Every year, the composting experts invite Brussels inhabitants to their gardens to talk about composting. The event is called «**Week-end découverte: le compost sous toutes ses formes**».

In 2000, 14 composting experts opened their gardens to 300 visitors.

In 2001, 36 composting experts opened their gardens to more than 1,000 visitors.

In 2002, 49 sites received nearly 700 visitors.

In 2003, 23 sites received 700 visitors.



According to the surveys carried out during these week-ends, more than half of the visitors did not compost prior to their visit. After their visit, 90% of them said they would be willing to start making compost.

This result illustrates the fact that those people who would like to start composting often lack the technical and practical information to do so. Moreover, certain apprehensions, concerning bad odours, vermin, work, the time required, etc., dissipated once people saw how a real composting operation works.



The surveys of the population showed that in 2001, 26% of the population had already heard about the composting experts and in 2003, the percentage was 40%.

Today, of the 256 trained composting experts, some 30% are still genuinely active in promoting composting beyond the local level - either they are involved in personal initiatives, or they regularly respond to appeals sent out by the municipality or by IBGE-BIM.

Some initiatives by the composting experts have had multiple repercussions. The non-profit Jeunes Schaerbeekoïses au travail (Schaerbeek youth at work), at the initiative of a composting expert and with the support of the Region, took advantage of a gardening training scheme for young people to teach them about composting. These gardeners will then be able to pass on that information to the owners of the gardens where they work.

### **2.3.7.2. Promoting home composting**



In addition to the network of composting experts, the Region has also set up a range of tools to promote individual composting:

- Information **brochures and folders**, such as Compostez, la nature fait le reste (Make compost, nature will do the rest), of which more than 33,000 copies were sent out; Composter, une idée de génie ! (Compost, an ingenious idea!), of which 25,000 copies were distributed; and information signboards.
- Information **campaigns** on the radio, TV and written press.
- Awareness actions were initiated locally and backed by the Region in the Helmet neighbourhood of the Schaerbeek municipality.

Moreover, since 2002 IBGE-BIM has offered short training courses to the population, consisting of an evening session on theoretical topics and practical visits to a compost demonstration site.

Some 329 people were trained in 2002 and 200 more in 2003, in 8 sessions each year.

A survey with the 329 people who were trained in 2002 showed that:

- 53% did not make compost before the training;
- 91% of them did indeed start composting after the training.

After all these actions, a number of surveys assessed the results and the impact on the population.

According to several surveys carried out with Brussels households, (Dimarso 2000 and Sonocom 2000 and 2001), 6% to 15% of households questioned (27,600 to 69,000 households) said they composted their organic waste.

Furthermore, when the 32% of the population that produces garden waste were asked, «What do you do with your garden trash?», the following figures were collected:

	Always/often	Sometimes	Never
I compost at home or in the community	28%	10%	62%
Selective collection and other input	43%	15%	42%
It goes in the general rubbish bag	18%	13%	69%
Other (gardener disposes of it, it is burned, etc.)	3%	1%	96%

These figures show how decentralized composting and the collection of organic waste for centralized composting are complementary in the Brussels Region.

### **2.3.7.3. Vermicomposting**

Seventy percent of Brussels inhabitants do not have a garden, but some of these people would nevertheless like to make compost. Vermicomposting (composting using worms) can be done on a balcony or in a basement. While the Region does not seek to promote large-scale vermicomposting, it has backed pilot projects using this technique.

One of these projects involved an apartment complex in the Ixelles municipality of Brussels. The non-profit association Inter-Environnement Bruxelles sent out an eco-team to offer information and training on vermicomposting. Several families in the apartment complex started vermicomposting, which reduced the volume of rubbish and highlighted some technical problems in vermicomposting, the main one being escaping worms. Subsequently, several volunteer households and schools tested a vermicomposting technique using bins.

Based on these experiences, a number of tools were developed for those who wanted to get involved, such as the manufacture of vermicomposting bins, supply of worms and written material on vermicomposting techniques.

Of the households that do composting, 3.3% say they make vermicompost in their home.

### **2.3.7.4. Community composting**



As early as 1999, IBGE-BIM gave backing to pilot projects for collective and community composting.

The first project supported community composting and made it accessible to local inhabitants of the Tillens-Rosendael neighbourhood in the Uccle municipality. Some 40 participants made 4,800 tonnes of compost per year, which generated new and positive relations among the neighbours involved in the project.

In 2000, a project set up for the non-profit Citoyens contre l'incinération (Citizens against incineration) in the Forest municipality, carried out collective composting for the Cité Mesidor, comprising a 3-building complex of 160 apartments and a garden complex with 280 houses. The project made available to the inhabitants a small composting site at the base of the buildings and it was announced in the association's newsletter. Around 50 inhabitants took part in the initial meetings and in the visits to similar projects. Among those interested, 22 inhabitants of the houses with a garden bought a composting bin. Two years later, the project is still up and running. The compost bins are still in use, there are now some 20 inhabitants of the buildings who make compost and 6 new family-size compost bins have been sold to inhabitants of the houses. Thanks to this project, the neighbourhood's social cohesion was reinforced, especially among the house dwellers.

Another project set up by the non-profit Soleil du Nord (Northern sun) involved a building in Schaerbeek comprising around 300 apartments and 1000 inhabitants, in a difficult neighbourhood where in the past waste management was practically non-existent and unregulated. The project consisted of providing collective composting bins to the building's inhabitants where they would deposit their organic waste with the daily supervision of a team from PTP (Programme de Transition Professionnelle) managed by Soleil du Nord. The project was announced by flyers placed in mailboxes and posters displayed in the building. Only around 15 inhabitants took part in the two presentation and demonstration meetings. Of them, it appeared that 5 to 10 of them made use of the composting bins. The participation was very low in relation to the potential. The reasons were that it was difficult to get in touch with the public, the neighbourhood was a difficult one (composting was regarded as an additional and rather useless inconvenience, on top of the usual preoccupations) and there were problems of insecurity and isolation in an apartment building with a mixed population. After 3 years, the composting bins were still being used by the same original group of inhabitants.

In 2003, the Region was planning to back other community composting initiatives, but the projects were difficult to put together, and adequate sites were difficult to find.

### 2.3.8. INFORMATION AND AWARENESS TOOLS



**Moins de déchets!**  
**Minder afval!**

The public at large has difficulty understanding the notions of preventing and minimizing waste. In an attempt to make these notions more accessible, a slogan, moins de déchets (reduced waste), with a simple, eloquent logo (a small trash can held between the fingers of a large hand) was designed.

In addition, a number of awareness and information tools were developed to support the aforementioned actions.

### **2.3.8.1. A quarterly newsletter**

Under the application of the 2nd waste plan, IBGE-BIM created a newsletter entitled *Le minimum déchets, on y arrivera* (A minimum of waste - we'll get there). At that time, the newsletter focused exclusively on waste problems.

Very soon, it emerged that waste was only one problem among many. The topics of natural resources and equity were also added and soon sustainable consumption was a major issue in the newsletter.

The aim was to meet the expectations of the public at large, who were interested in a wide range of subjects and were preoccupied by environmentally-friendly shopping, organic products, fair trade, etc. They were also interested in the regional authorities, the idea of gradually combining thematic policies, and in particular the area of awareness, amid a concern for consistency and effectiveness.



Then a new newsletter was born: *Ma ville ... notre planète* (My city, our planet).

This new title emerged from the global observation that there was a need for specific environmental gestures that people could make in their homes. The column headings are practical in nature: *ma ville en parle* (IBGE-BIM-related environmental news), *éco-action* (proposed actions open for participation), *éco-budget* (comparisons of more or less ecological consumption scenarios, with financial advantages), *éco-shopping* (ecological shopping guidelines), *éco-logis* (advice on ecological behaviour in the home), *vos questions* (readers questions), *côté enseignants* (teachers corner) and *le coin des enfants* (kids corner).



This free, quarterly newsletter had some 12,000 subscribers at the start of 2004. A reader's survey revealed that 64% have changed their behaviour after reading the newsletter and 87% say they are convinced that they can act individually to improve the environment.

### **2.3.8.2. The brochure *Achetez malin pour jeter moins* and its thematic folders**

In order to give shape to the notion of prevention, a series of 10 practical suggestions were drawn up and published in a brochure entitled **10 conseils pratiques pour éviter la prolifération des déchets** (Ten practical suggestions to avoid the proliferation of waste):

- «Just say no to disposable grocery bags»;



- «Deposits, an environmentally-friendly solution»;
- «Let's stop waste paper and unsolicited advertising»;
- «Reusable packaging does exist»;
- «Excess packaging is also a form of waste»;
- «Tap water is healthy»;
- «Stop using single-use products, long live durable products»;
- «Batteries? The less you use, the better»;
- «Concentrated cleaning products benefit the environment»;
- «And of course, our first reflex should be to stop waste».



An initial **general campaign** was launched in March 1999, during which the brochure «10 conseils» was widely distributed by campaign staff and, subsequently, on request (30,000 copies so far).

Since then, campaigns have been thematic and based on the «10 conseils pratiques pour arrêter la prolifération des déchets». The idea of the thematic campaigns is quite effective and revolves around the notion that the public should not be drowned in advice, but rather simple, specific tools should be developed one by one by broad media campaigns.

### **2.3.8.3. [www.poubelle.org](http://www.poubelle.org)**

This Web site was created by Réseau Idée, thanks to the financial support from the Region in connection with a call for ideas. It is designed like a virtual store, around the humorous principle that one buys products and can have the packaging waste delivered to someone else. Behind the humour, very real information is available, along with advice on how to avoid packaging waste.

The Web site went online in September 2000. Since then, the number of visitors has increased a little every year. They numbered 3,210 on average per month in 2002 and 3,250 per month in 2004.

### **2.3.8.4. *Community organizers***

The Region's 2nd waste plan called for the development of community organizers. As a result of a call for tenders, a communications agency was selected and set up a 6-person team. This team was trained and worked in the field from October 1999 and mid-2002.



The team's work consisted of providing advice that was put together by IBGE-BIM, in addition to related publications encouraging people to avoid waste, to compost and to sort their rubbish. The team of organizers was given **the name Eco-Guides**.

One of the tasks of the Eco-guides was to organize recurring general awareness events for the population. The target audiences of these events were households, schools and local retail shops. This network helped each member of the population to come up with an individual response. The local contacts also facilitated a specific response to each demand.

The strategy of local action consists of working at two levels of awareness: a general, one-shot level and, second, a deeper and recurring level. The objectives were:

- To make the Eco-guides effective in their contacts via their regular presence at a given site.
- To reach out to a varied audience, in particular disadvantaged families and populations, without leaving anyone out; an aware population is not necessarily one that takes action.
- To multiply the local contact points (doctors' offices, local retail shops, etc.) via information on «Reduced waste».

The Eco-guides organized attractive events in heavily frequented places **throughout the Region**, including at fairs, large public events, shopping centres and galleries, educational associations and farms, schools, local stores, professionals, public parks, department stores and markets.

Actions were regularly organized in a **pilot neighbourhood in the municipality of Watermael-Boitsfort** (mid-1999 to mid-2000) in an attempt to reach out to the inhabitants via repeated and insightful activities. The target audiences were not only the inhabitants in the broad sense, but as well associations and the medical profession.

Starting in mid-2000, a similar awareness project was held involving **shopping districts**, using the same target audience. The aim was to go to a small shopping district on a regular basis to talk to locals and involve as many local entities as possible, such as schools, inhabitants, associations, liberal professions and merchants. Each action took place over a one-month period and ended on a weekend. During the Moins de déchets events the Eco-guides welcomed locals and offered them advice and tips on how to reduce waste. These actions were also designed to reach out to a diversified target, from the socio-economic standpoint to people with a varying degree of sensitivity to waste issues. At the end of 2001 and the beginning of 2002, 8 districts distributed over Belgium were the focus of these events.

During both the shopping district and other events held in associations and schools, the Eco-guides had the task of talking to the diverse public, which included people living on subsistence payments (CPAS), literacy classes, women's employment associations, special classes for the deaf and dumb, neighbourhood youth clubs, recent arrivals and socially disadvantaged people and immigrants.

In all, in three years and after three of the aforementioned events, the Eco-guides led a total of **1,000 actions**, distributed over **970 different venues**, thereby reaching out to **nearly 95,000 people**.

The visited **121 schools** in the Region and carried out 287 actions with classes, involving a total of **8,600 pupils**, from kindergarten to secondary school.

According to the survey that Sonecom conducted in September 2001, **15%** of Brussels inhabitants **know** of the Eco-guides and **4%** say they have **met** them.

### **2.3.9. EVALUATION**

While it is relatively easy to count the number of tools used or the number of participants in an event, it is very difficult to obtain global results brought about by changes in behaviour rather than by other factors, such as economic growth, etc.

Therefore, the objectives of the waste plans may be broken down into three categories:

- Conventional quantitative targets, in terms of the weight of waste;
- Qualitative objectives, in terms of changes in behaviour;
- Educational objectives in terms of the number of persons informed about waste-related issues.

Throughout the document, every action is presented along with its specific results. In this way, we are gathering either global results or results for the Region, in order to show the potential of certain actions and, above all, the way potential varies in keeping with the human and financial investment made.

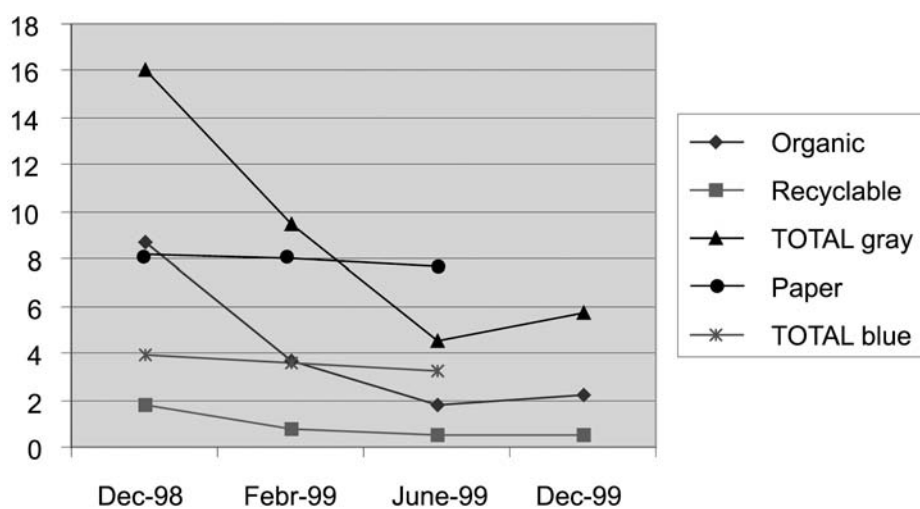
#### **2.3.9.1. The pilot projects**

Different call for projects were launched to identify and quantify possible waste prevention actions. These pilot actions generated some interesting results, for example, at the scale of families or a neighbourhood, but the human and financial means required are expensive, ranging from 12,500 euros for 4 families to 20,000 euros for 470 families (one-half of which are aware of the issues), and 279,000 euros for 9,500 inhabitants. At that price, it would take 40,000,000 euros to reduce waste, by weight, by less 10% in Brussels. However, the plan's annual budget for raising awareness about household waste prevention, including composting and reuse, amounted to no more than 425,000 euros in 2003.

### 2.3.9.1.1. Four pilot families

In 1998, a project led by Inter-Environnement Bruxelles, in cooperation with the Ligue des Familles and the Réseau Eco-Consommation, concerned the evolution of behaviour of 4 pilot families living in Berchem-Ste-Agathe, who took part in evening information sessions on waste prevention and composting. These 4 volunteer families were given extensive awareness input and managed to reduce their overall waste by 58% and gray bag content by 65% in one year, thanks to composting, better recycling and prevention gestures at source, e.g. keeping an eye on water taps, large packaging, packaging with deposit, etc. Prevention was also improved in the yellow rubbish bag (paper), where a 34% reduction was achieved, and the blue bag (packaging), which was reduced by 15%.

*Evolution in the weight of collected waste (average)*



### 2.3.9.1.2. One pilot apartment building

In 1999, Inter-Environnement Bruxelles carried out a project involving a building of 25 apartments in the municipality of Ixelles. An eco-team informed the households in the apartment building about the issues. The results show a radical fall in the grey bag, of up to **44%**, mainly thanks to composting of organic material (vermicomposting).

### 2.3.9.1.3. One pilot neighbourhood

- The Eco-guides conducted in-depth actions during a one-year period in a pilot neighbourhood, Watermael-Boitsfort, from October 1999 to September 2000. In order to gauge their impact on the neighbourhood, IBGE-BIM compared the impact of the different actions on this pilot neighbourhood with results relating to the Region as a whole from the regional eco-behaviour survey by Sonecom in 2001

	Pilot neighbourhood	Regional average
% of the population that had heard of waste reduction actions	81%	57%
Newsletter subscribers	12%	5.4%
% of the population having met an Eco-guide	14%	4%
<b>OVERALL ECO-BEHAVIOUR</b>		
Low	9.1%	30%
Medium	44.2%	57.3%
High	<b>46.6%</b>	<b>16.4%</b>

In 2001, we observed a global eco-behaviour that was much higher in Watermael-Boitsfort than the Regional average. Watermael-Boitsfort was in first place of all Brussels municipalities, which highlights the impact of repeated actions focusing on the community.

- In 2001, the non-profit group Eco-Action carried out community awareness actions in an entire neighbourhood (a total of 470 houses), Woluwe-St-Lambert. When we weighed rubbish bins, we saw a difference between inhabitants who were informed of the issues during the project, i.e. those who had extensive contact with the events organizers, and those with low awareness, who did not have contact with event leaders. Looking at the evolution of the weight of the grey bag of these households, we observed that the informed households produced 10% less waste than the uninformed households, during the three months of the awareness campaign. This would appear to be due to a large extent to composting and input of garden waste (grass cuttings, etc).

### **2.3.9.2. One-off assessments and the waste barometer**

One-off evaluations of the various actions, and of some key behaviour patterns, are the basis of the barometer, which shows how, via the inclusion of prevention gestures, it is indeed possible to attain an overall reduction in the amount of waste produced.

This barometer covers household waste in Brussels and includes the aim of making people aware that waste prevention is not only a matter of weight. Behind waste production there are choices concerning consumption, market trends, sustainable lifestyles and an equitable sharing of resources. Based on the importance of consumption choices, the barometer's indicators are designed to be specific and eloquent and to tie in with actions that every individual can carry out. Behaviour, translated into an amount of preventable waste, goes along way to explaining how people managed to attain the figure of 10% preventable waste, by weight. The barometer comprises 13 indicators, 9 of which concern waste reduction.

Table : Evolution of indicators included in the waste barometer

9 indicators		Where do we stand ?						source
		12/98	12/99	12/00	12/01	12/02	12/03	
Raising awareness	Number of subscribers to the newsletter «le minimum déchets, on y arrivera »	0	5900	10800	10500	10900	11900	IBGE-BIM
	Households aware of the impact of there purchases on the environment	-	45%	50%	54%	/	45%	Sonecom survey
Prevention at source	Households having affixed the anti-publicity stickers on their mailbox	5.5%	17%	17%	19%	/	19%	Sonecom survey
	Households buying concentrated laundry soap		23.6%	33.6%	26.3%	/	29%	Sonecom survey
	Households preferring to pay a deposit on bottles of mineral water	11.5%	12%	18.7%	/	/	/	GFK consumers' panel Sonecom survey
		/	8%	7.6%	/	/	4.4%	
	Households never using disposable grocery bags	-	18.6%	20.4%	20.8%	/	19.5%	Sonecom survey
Reuse	Quantities (kg/inhab) of textiles collected for reuse	2.3	2.7	2.5	2	2.1	1.9	Non-profit Terre et Les Petits Riens
Composting	Number of households that do composting at home	-	-	6.5%	/	/	/	Dimarso survey Sonecom survey
		/	/	10.1%	12.2%	/	12.3%	
	Number of volunteer composting experts trained or in training	0	144	174	234	234	241	IBGE-BIM

### **2.3.9.3. Opinion surveys and the eco-behaviour indicator**

In order to change people's behaviour, they must first be informed and made aware, usually via communication actions.

The extent to which the prevention campaigns are known has varied over time, from 47% in Brussels in 2000, it rose to 57% in 2001 and then fell to 54% in 2003. The scope of the campaigns was less extensive in 2003 (the year of the public enquiry), which indicates a need for recurring prevention messages.

In 2003, IBGE-BIM asked the Brussels inhabitants if they had the impression that they were producing less waste than 5 years before (Sonecom, 2003). In answer to that question, 48.7% said they had the impression that they were producing less waste. They indicated the gestures they believed would lead to less waste, starting with the most effective:

Gestures	%
Sorting waste	90.5%
Preventing food waste	85%
Preferring to reuse	83%
Prefer repair	73.5%
Buying products with less packaging	68%
Buying products with an eco-label	57%
Preferring to rent	47%
Affixing an anti-advertising sticker	27%
Other gestures	3%

Here we see, once again, that many people think that sorting waste means less waste.

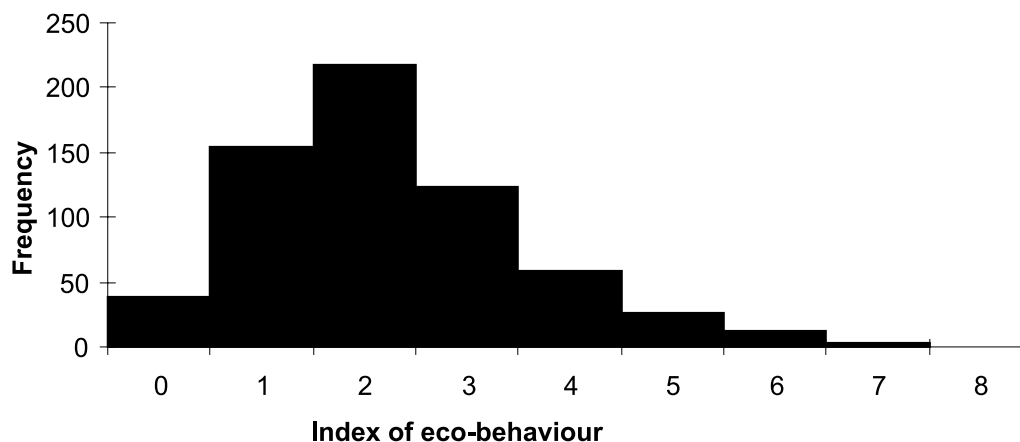
Moreover, IBGE-BIM sought to set up a «reduced waste» eco-behaviour indicator in order to see, via a single figure, the Brussels population's degree of prevention action and its evolution over time.

This indicator was set up based on the 9 «reduced waste» indicators of the waste barometer:

- Subscribers to the newsletter Ma Ville, notre planète;
- Households aware of the impact of their purchases on the environment;
- Households stating they had affixed the anti-unsolicited advertising sticker on their mailbox;
- Households buying concentrated laundry soaps;
- Households promoting deposits on mineral water bottles;
- Households never using disposable grocery bags;
- Households participating in the collection of used textiles;
- Households that make compost from their waste;
- Households that know the composting experts.

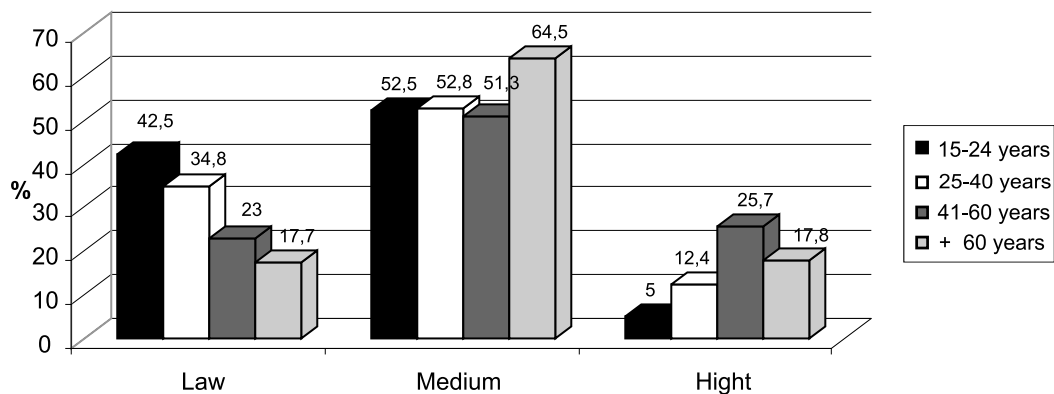
On a scale from 0 to 9, the average of the index for the Brussels population was 2.15  
 The index was grouped into classes:

- 29% of the population has a low level of eco-behaviour (0 - 1 gesture);
- 55% has a medium level eco-behaviour (1.5 to 3 gestures);
- 16% has a high eco-behaviour level (3.5 to 9 gestures).



This indicator was also analyzed on the basis of the households' socio-economic profile. This analysis was interesting. Few people make no «reduced waste» gestures, the majority makes 2, some more. The impact of age was interesting as well: young people are not very environmentally-minded, while the 41 to 60 group is more conscientious. Professional status also played a role: working class people and homemakers generally have a low eco-behaviour. The liberal professions in general have a higher eco-behaviour level, as do academics. Lastly, single-family dwellings had the highest level of eco-behaviour and the lowest level was found in apartment buildings. This indicator was set up for the first time in 2000 and remained stable in 2001 and 2003.

**Eco-behaviour according to age**





#### **2.3.9.4. Globally speaking**

Prevention attained by means of changes in behaviour is possible. The results of projects demonstrate this; if the means are sufficient, prevention is effective.

Globally, at the scale of the Region, it is more difficult to measure accurately the effects of prevention independently from other effects, e.g. growth.

The figures from Bruxelles-Propreté, the agency entrusted with collecting household waste in the Brussels Region, are as follows:

Collections by Bruxelles-Propreté (household and related waste) - in 1 000 tonnes					
	1998	1999	2000	2001	2002
General rubbish	409	397	395	389	385
Total, including selective collections	466	475	480	477	469

The amount of general rubbish collected has fallen every year mainly thanks to the increase in selective collecting (paper, packaging, garden trash, textiles, large items and hazardous waste).

Our observations of the evolution in the total quantity of household and related waste have indicated an increase until 2000, followed by a slight fall. However, since these figures include related waste from liberal professions, schools, etc., which may vary depending on the contract with Bruxelles-Propreté, the share attributable to real prevention is therefore difficult to ascertain.

In only a few years, since mid-1998, of «reduced waste» information and awareness campaigns, many encouraging results have been achieved. «Reduced waste» behaviour has progressed by several percentage points and awareness of the population has risen, too. But, on the subject of behaviour changes, attaining the goals is gradual and requires time and recurring events. It turned out that most of the targets set in the 2nd waste plan for the year 2002 were too ambitious and had to be put off several years. Recurring events and reminders are thus necessary, until a clear movement of consumers is perceived that accelerates the trend towards responsible consumption.

It should be noted that prevention, even in small quantities, has a fundamental impact when one thinks of the resources that are saved.

## 2.4. ACTIONS CONDUCTED IN SCHOOLS

### 2.4.1. THE WASTE SITUATION AND OBJECTIVES IN BRUSSELS SCHOOLS

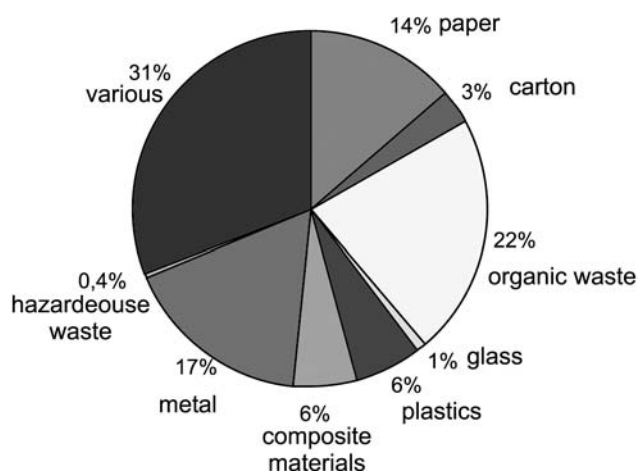
The Brussels Region has some 656 primary and secondary schools attended by 203,700 pupils, of which 170,815 go to French-speaking schools and 32,885 to Dutch-speaking schools. Universities have not yet been involved in actions, except in the capacity of an enterprise.

Number of pupils (2001-2002 data)	Pre-school	Primary	Secondary
French-speaking	33,494	68,201	69,120
Dutch-speaking	8,840	12,281	11,769

Numb. of schools	Pre-school	Primary	Pre-school + Primary	Secondary	Special ed.	Total
French-speaking	25	31	219	111	51	437
Dutch-speaking	47	12	107	41	12	219

The amount of waste produced by schools is estimated at 10,000 tonnes per year. It is difficult to specify a typical breakdown of waste, as it depends on the individual school, i.e. the pupils' age, whether or not the school has a kitchen, the organization of artistic activities, etc. A study of the average composition of school waste was conducted at some 20 schools and showed that cardboard waste accounts for around 17% and drinks bottles, around 30%. A systematic analysis of rubbish bins at primary schools has been underway and will conclude at the end of June 2004. It involves 30 primary schools, monitored over a 6-month period, and chosen according to their characteristics, such as whether or not the school has a canteen, water fountains, etc..

*Composition of waste in 20 pilot schools (% in weight) (Coren)*



This analysis shows the prevention potential from streams of paper and cardboard, organics and packaging (plastics and composites).

On the subject of paper streams, a survey carried out at the end of 2003 indicated that a school photocopies up to 100,000 pages per year and that recycled paper is practically unknown in Brussels schools. In both schools and offices, paper waste is a priority target for actions.



Furthermore, although sorting is not a topic of this report, it is not a customary practice in Brussels schools. While nearly all schools have containers for paper and cardboard waste and for packaging waste, few schools manage them correctly. However, it is not advisable to talk to schools about prevention until the sorting problem is resolved. Improving the quality of sorting is therefore a prerequisite, or at least an indispensable element, for prevention awareness. For that reason, some tools presented here include both waste prevention and management.

It was only recently, under the 3<sup>rd</sup> waste plan, that actions, which until then focused on primary schools, were expanded to include pre-school and secondary schools.

The 3<sup>rd</sup> waste plan contains quantified goals for the target schools, which was not the case in the 2 preceding plans.

These objectives are:

- a 10% reduction in paper, by weight;
- a 30% reduction in packaging, by weight.

The objectives of the school actions obviously depend on the potential resulting from the waste analysis and on the potential of people's behaviour, both pupils and teachers. The aim is to identify how far the children and teachers are willing to go and what their needs are.

In 1999, a roundtable session of teachers came up with some initial ideas, such as the need to elaborate ready-made educational tools.

In addition, a 2002 survey carried out by IBGE-BIM with 657 young people aged 12 to 25 showed that:

- The gestures they are willing to make are, in descending order:
  - Use rechargeable batteries (95%);
  - Use recycled paper (78%);

- Drink tap water (74%);
- Buy second-hand clothing (24%).
- The source of information they prefer are specialized class presentations led by community organizers.

A 2002 survey conducted by IBGE-BIM with 257 education professionals showed that:

- Education on sustainable consumption can be incorporated at all levels of education, from pre-school (93% said yes) to university (70% said yes), with, however, more open-mindedness in primary schools (96% said yes) ;
- The kind of tools that teachers wished to have are, above all, ready-made tools;
- The source of information that education professionals want is, first and foremost, meetings with experts in the field.

Another survey carried out in 2002 by le CEE-UCL (300 teachers and 60 headmasters) indicated their potential to incorporate two key types of behaviour:

- The use of recycled paper in schools:
  - 63% of school administrations agrees
  - 37% do not agree, because of the perception that recycled paper is of low quality and is higher priced.
- The use of canteens or flasks in schools
  - 23% of school administrations and 30% of teachers agree
  - 70% disagree due to problems of hygiene and leaking flasks.

Lastly, in schools, the aim is not only to gauge waste prevention potential, it is also to educate the citizens of tomorrow. Young people must be made aware at an early age of the environmental issues and must be taught to make the right decisions. Education in environmental matters must be initiated in the schools.

## **2.4.2. PROMOTING RECYCLED PAPER AND OTHER ENVIRONMENTALLY-FRIENDLY SUPPLIES**

As we have seen, paper is a major target for actions in schools. Children go to school equipped with writing material that their parents buy at the start of the school year. That is an opportunity to act and make both parents and children more aware of their actions.

### ***2.4.2.1. Starting the year on an environmental footing***

Under the 1998-2002 waste plan, IBGE-BIM met with representatives of large chain stores in order to come up with joint actions. The idea of promoting school supplies that are more environmentally-friendly, and that were tested prior to the pilot project, was warmly welcomed by the chain stores, provided it were carried out all over Belgium. Starting in July 1999, the campaign entitled *Je suis en classe verte toute l'année* was conducted in Belgium's three regions in cooperation with the large chain stores and the French-speaking community. Four campaigns were organized, at the start of the school year in 2000, 2001, 2002 and 2003.

The crux of the advice offered during these campaigns concerned waste prevention (both qualitative and quantitative), but these events also offered an opportunity to put forward the health and financial gain arguments. The goal was, in practice, to promote felt-tip markers, glues and correcting liquids that contain no harmful solvents, recycled paper, flasks and lunchboxes, pencils without varnish or heavy metals, etc.



The campaign revolved around two ideas:

- Increase the supply of material in stores;
- Increase the demand for this material in schools and homes



In order to increase demand, primary schools were invited to pass out folders giving 12 practical tips on purchases and were asked to take up the topic with their pupils, accompanied by teaching instructions. The teachers were asked to incorporate the recommendations expressed by the campaign's mascot, RYC, into the list of school supplies. In 2001, an appeal for support for the campaign was made to the municipalities. Since one out of two pupils falls under the authority of the municipalities, their involvement in providing guidelines to the school teachers and headmasters, as well as in supplying directly the pupils with class material that complies with the recommendations, helps to create an image of consistency in the mind of the public.

In order to increase supply, the Regions at first sought the cooperation of the large chain stores and, later, co-ops and the independent shops. The aim was to ensure that the recommended products would be on the shelves and that the campaign would have a high-profile via the publicity brochures and in the stores at the end of the summer break (end of August to beginning of September).

The public's familiarity with the campaign increased from 39% of persons questioned in 2000 to 48% in 2003 (Sonecom survey).

In 2002 :

- 50% of primary pupils received the brochure from their school. According to a survey conducted in September 2002, it is estimated that 40% of the brochures were passed out at the end of the school year, at the same time as the list of school material for the following year, that 20% of these pupils discussed it with their teacher during class time and that 19% of the teachers of schools having ordered the teaching tools changed the list of material that they give to their pupils.

- 2000 teachers ordered the teaching material;
- 3 pilot municipalities backed the campaign;
- 5 large chain stores and nearly 80 independent stores came forward as partners;
- The supply of environmentally-friendly products increased and even doubled in certain places;
- The stores are pleased because the products are selling. The sale of the recommended school supplies increased sharply, by up to 25% in certain products.

But in 2003, despite the still considerable support, participation of schools appeared to stagnate. From an exceptional participation the first year, during which 60,000 brochures were distributed by the schools in 2000, reaching 78% of primary pupils in Brussels, participation fell to 28,000 brochures in 2003, around 36% of the target audience. Participation of stores appeared to have lost steam. Many of them failed to participate, the visibility of the mascot RYC in the participating stores was unsatisfactory and some stores did not have a full range of products, e.g. no notebooks made of recycled paper.

Moreover, this campaign came up against a big hurdle. It is difficult to translate RYC's recommendations into concrete advice on purchases. The products that met the criteria mentioned in the brochure were not easy to identify, owing to unclear or absent labelling, wording that was too technical for the general public and misleading indications on the packaging.

In light of these problems, starting in 2004, IBGE-BIM intends to work more closely with the schools and their suppliers, in particular on recycled paper, which is practically inexistent in the Brussels schools.

#### **2.4.2.2. Promoting recycled paper**

While promoting recycled paper is not prevention *per se*, the aim is to demonstrate to children the benefits of sorting waste, of conserving resources and *coming full circle*. The educational aspect of promoting recycled paper is highly important.

In practice, the promotion of recycled paper was for a long time confined to educational events in class, with the organization of workshops where children made recycled paper.

Although that activity raised the children's awareness, it did not encourage teachers and school administrations to change the list of required school material and purchases of paper.

The aforementioned campaign helped to improve the list of required school materials, but with a low rate of success so far.

The decision concerning purchase of school paper may depend on the municipal authorities, as it is the case for half of the schools. Consequently, the actions to be taken should tie in with the *greening of public procurement* (see point 2.5.2.2.).

## 2.4.3. PREVENTING PACKAGING WASTE

### 2.4.3.1. Less bottles to throw away with a water fountain



Disposable bottles account for around 30% of a school's waste. This figure is as high as 50% in certain schools, not to mention containers that are thrown away half-full, thus contributing to food waste as well. The objective of *throwing away fewer bottles* is now a big priority.

As part of the calls for *reduced waste* projects, the municipality of the City of Brussels proposed that one of its schools be equipped with water fountains in order to reduce the number of bottles thrown away. The fountains are connected directly to the water supply and dispense cheap, quality drinking water to pupils. The result was a 50% reduction in drinks bottles thrown away by the school.

In order to meet the demand that the above project generated, to reduce the number of bottles thrown away and provide better access to water for Brussels pupils, the Brussels Capital Region and IBGE-BIM launched in March 2002 a campaign to install water fountains in the Brussels primary schools.

In 2 years, 121 schools were selected following a call for applications and 180 water fountains have been installed.

	French-speaking	Dutch-speaking	Total
Numb. of schools–2002	41	19	60
Numb. of schools–2003	44	17	61
Total	85	36	121

Support actions were also carried out, for example, to analyze the water, provide teaching support and supply awareness tools. In that way, a system for monitoring the amounts of waste of each *relay* class highlighted a **43% fall in waste**. However, these figures should be weighted because they do not reflect the behaviour of the entire school, which was less conscientious than the relay class. Moreover, the specific fall in waste is only half attributable to the use of water fountains, the remaining being due to the promotion of other gestures, such as allowing children to drink from the water tap in the classroom or using flasks or small refillable water bottles.

### **2.4.3.2. Flasks and lunchboxes mean less packaging waste**



A pilot project carried out in 1999 showed that 64% of packaging waste was made up of Tetrabrik, or cans dispensed by a vending machine, and 15% of plastic film and aluminium foil.

In response to this problem, one can:

- Encourage schools to change their rules and eliminate the vending machine, ban aluminium foil, require the use of lunchboxes, etc.
- Promote changes in the children's behaviour by giving them flasks and lunchboxes.

IBGE-BIM therefore decided to make attractive flasks and lunchboxes that display a waste prevention message. Since 1999, 13,500 lunchboxes and 2,000 flasks have been distributed to children via projects supported by IBGE-BIM or by associations commissioned by IBGE-BIM (see 2.4.5.).

Evaluations of this type of action were done under the Medere 2002/2003 project, which found that:

- The use of flasks or other reusable bottles prior to the action was an exception in nearly all the schools: 9.5% of pupils used them.
- In the 6 schools that carried out a specific action for drinks packaging, the use of flasks increase on average by 44.5% (the variation was between 10 and 80%).

The main hurdle was convincing parents. That is why the schools that wanted to make a marked change required the use of flasks and either gave the pupils a IBGE-BIM flask or bought flasks for all the pupils, or introduced school rules to require the use of flasks. In these schools there was also a sharp drop in the use of tetrabrik cartons and drinks cans of, on average, 45%. It should be noted that the generalized use of flasks was accompanied by other actions, such as the use of water carafes, reusable cups, the installation of water-tap fountains and the use of bottles with deposit.

In these same schools, the use of reusable cups rose from 22% to 51%.

The use of lunchboxes spread very quickly from the start, but aluminium foil and plastic film wrapper are still widely used.

The projects brought about a more generalized use of lunchboxes. In the 10 schools where a project was carried out and monitored in 2002 and 2003, the results were as follows:

- The percentage of pupils using a lunchbox rose from 72% to 89%;
- At the same time, the use of aluminium fell from 34% to 8%;
- The use of plastic film fell from 14% to 5%.

Consequently, there was a sharp drop in the amount of waste produced.



## 2.4.4. PREVENTING PAPER WASTE

Paper accounts for between 15% and 20% of school waste. However, a lot of paper finds its way to pupils' homes at the end of the school year and is not included in the school's waste. Therefore, it also is important to analyze the paper stream for consumption of schools.

IBGE-BIM got interested in acting on this issue only recently and objectives were included in the 3<sup>rd</sup> waste plan.

Initial awareness actions, including mini-audits, were conducted under projects put together by IBGE-BIM or by associations commissioned by it (see 2.4.5).

In 2002-2003, the following took place:

- Prior to any prevention action, 5 schools each produced an average of 100,000 photocopies every year;
- After simple messages were disseminated, such as using both sides of a sheet of paper, recovery of paper used only on one side, these amounts were sharply reduced by between 35% and 65% per school.

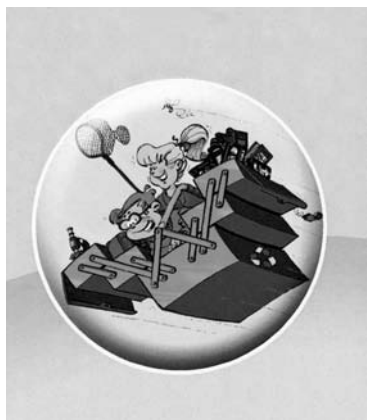
Since 2003, IBGE-BIM has been backing a pilot project to set up an environmental management scheme in 2 Brussels schools (a primary and a secondary school), focusing on actions and an analysis of the initial situation as well as on paper streams. The lessons from this project and other studies on paper streams in schools will help to fine-tune a more comprehensive action.

## 2.4.5. THE TOOLS

### 2.4.5.1. For schools and teachers

#### 2.4.5.1.1. Environmental education and a MEDERE call for projects

Since 1999, IBGE-BIM has been giving financial support to 2 environmental education associations (a French-speaking one, Réseau Idée, and a Dutch-speaking one, NMe-Link), with the following objectives:



- Developing an information centre for environmental education aimed at teaching professionals;
- Launching an annual call for projects under the theme *En route pour une école en développement durable* (On the road to sustainable developed schools), as part of the MEDERE project – *Mon école dortote l'éducation relative à l'environnement* (My school pampers environmental education).

The aim of the call for projects under the theme *En route pour une école en développement durable*, which was

proposed to primary schools starting in the 1999-2000 school year, is to persuade teachers that projects on an environmental theme are available to everybody. The call concerns all environmental topics, including waste prevention.

The call for projects also provides financial support to schools. An annual budget of 31,000 euros is shared by the schools that develop the projects (for the purchase of teaching or technical material), and the associations specializing in environmental education (that handle events and/or the teaching support for the schools, in keeping with the project's theme).

The work of the 2 associations, NME-link and Réseau-Idée, that were commissioned by the Region to manage the campaign, consists of designing the campaign, handling its publicity vis-à-vis teachers, judging the projects sent in, helping the teachers draw up and implement the projects, connecting projects received to the teachers and evaluating the projects and the campaign's arrangements so as to ensure everything runs smoothly.

Since 2001, the call for projects, apart from the aim of encouraging more schools to take up environmental issues, has a further aim of orienting projects towards practical results that improve the environment in Brussels. For purposes of guiding the projects and gauging the impact on the environment, questionnaires were drawn up, one on waste, which are distributed at the start and the end of projects.

From 1999 to 2003, 180 projects were carried out. In all, 26,000 pupils were involved in a project around an environmental theme.

The many teaching tools and initiatives on waste accounted for most of the waste projects and totalled 75 waste projects in 5 years, or 42% of projects approved.

The results of some of these projects, in terms of the prevention of paper and packaging waste, are described in points 2.4.3. and 2.4.4.

#### 2.4.5.1.2. Creation and dissemination of teaching tools on waste management and prevention

The initial calls for waste projects concerning schools were an opportunity to adapt the theme of "reduced waste" to the realities and peculiarities of the schools.

This phase of study was a time to define the messages for the teachers and to bring together a number of ready-made teaching tools, mainly for use with primary school pupils, who are more receptive and an easier audience for the teacher.

The tools were finalized and their dissemination began in December 1999 and ran until December 2001. They were grouped according to their function.

##### • **The teacher training tools**

Every school has 2 to 3 teachers' workshops during the school year. These workshops usually take place from 9 a.m. to 1 p.m., during which only teachers take part and the pupils do not attend school. Depending on who the organizer is, the schools are more or less free to choose their own themes. The training that IBGE-BIM offers for these workshops is divided into two parts – the first part is devoted to waste management and the second, to waste prevention. These workshops attract a large audience and take up

very practical and specific problems in each school, which leads to greater awareness and interest on the part of the teachers and an outline of what action should be taken. The format of the teachers' workshop is flexible. Schools can receive training during the school-teachers' meetings as well. The only requirement is that a minimum of two hours must be set aside.

#### • Teachers' information tools



Several information packs have been put together to support teacher training. These are:

- Brochures on *waste prevention, waste management and experiences & useful addresses*.
- A brochure *an ecological start to the school year*.
- A brochure *collective snacks*.

Furthermore, teachers have access to news via the newsletter *Ma ville, notre planète* (see 2.3.8.1.). Each issue provides information for teachers through an in-depth article on initiatives in schools dealing with waste and a half-page is reserved for children.. Nearly 400 teachers subscribe to the newsletter.

Teachers may also get information from IBGE-BIM's Web site, where an "Education" page was designed for IBGE-BIM's new site, and where teachers can be quickly informed of all of IBGE-BIM's initiatives that tie in with schools and the environment.

Lastly, Since 2003, IBGE-BIM has been developing information tools for environmental education in general, including a school calendar indicating environmental events and a binder *vivre l'environnement à l'école*, presenting all the available teaching tools.

#### • Events in class and tools for children

In support of teachers who wish to develop waste prevention actions at school, IBGE-BIM has created a series of practical tools for children, consisting of a set of playing cards entitled *9 families of prevention*, a game/test book called *battling the army of waste*, a lunchbox, a flask, a videocassette called *ras la poubelle* (the briming rubbish bin), a slide show illustrating waste prevention involving children and a movie entitled *Lise, le roi et Tartinou* (Lise, the king and Tartinou) that was recorded on a videocassette in order to meet the schools' massive demand at the lowest cost.

The practical tools are provided to the children via specific projects dealing with waste management and prevention. A total of 13,443 lunchboxes, for example, were handed out.



Community events were also offered to the schools to support the teachers' efforts.

Between 1999 and 2002, the Eco-guides (see 2.3.8.4.) created specific events for pre-school children (the sorting of life-size rubbish bins), primary pupils (the incinerator game) and secondary students (the Pictionary game of prevention). These events were proposed

to the schools and were adapted to meet extracurricular requirements, as part of public events or activities and events held at educational farms, in associations dealing with children, etc.

In all **121 schools** were visited in the Region and 287 events were held with classes, involving a total of **8 600 pupils**, from pre-school to secondary school.

## 2.4.6. EVALUATION

Since 1999, educational actions have gradually produced environmental results.

Thematic and one-off evaluations were submitted on the quantification by weight or percentage of waste prevented and were compared with the descriptions of the various actions conducted.

The following table shows the number of schools and pupils involved in the waste prevention projects in 2003.

	Start of the school year 2003			Water fountains 2003			Medere: waste projects 2002-2003		
	French	Dutch	Brussels	Fr.	Du.	Brus.	Fr.	Du.	Brus.
<b>Numb. schools</b>	88	15	103	44	17	61	10	15	25
<b>Numb. pupils</b>	25 807	2092	27899	19 099	2 578	21 677	2371	2521	4891

More generally, surveys with primary schools revealed the percentage of schools involved in waste prevention projects. A 2002 survey by CEE-UCL, involving 300 teachers and 60 headmasters, containing questions on green policies in school, revealed the following:

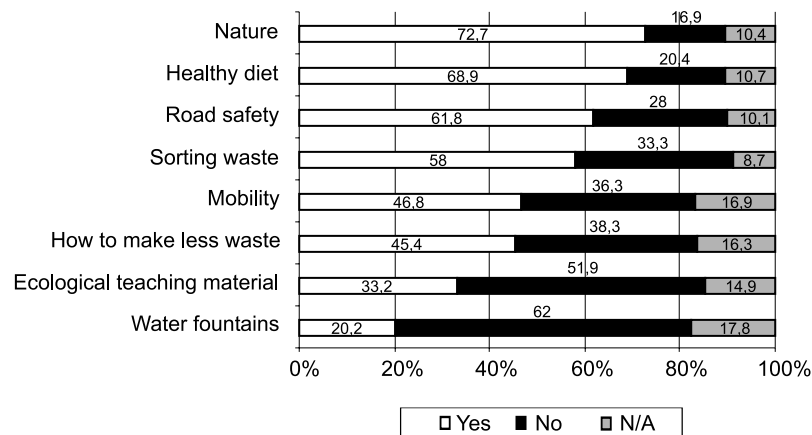
	% of school administrations concerned	% of teachers concerned
Sorting of waste	90%	89%
Composting	10%	6%
Prevention	74%	57%
Ecological school material	20%	11%

In order to fine-tune these results, another survey was carried out in 2004 by RDC-Environment, with 212 schools. The survey identified the prevention measures taken in each school and described by the directors:

	Lunchboxes	Drinks packaging	Water fountains	Awareness	Others
Schools	39%	55%	39%	15%	16%
Pupils	36%	48%	42%	15%	13%

Overall, 72% of pupils were involved in at least one prevention measure, although no single measure involved more than 50% of pupils.

It is often said that parents can be educated by educating the children. In order to examine this idea, a survey was conducted by Sonecom on parents' eco-behaviour in 2003. They were asked, "As far as you know, have your children benefited in the last 2 years from information/projects on ....?"



An additional survey was done by Réseau Idée in 2004 with 350 parents whose children were involved in a Medere project. The survey shows the real impact of an environmental project on the pupils.

	yes
Were you aware that your child took part in environmental project at school?	67%
Have you noticed a change in behaviour in your child?	75%
Did your child mention the project's message at home?	56%
If so, did the message bring about a change in behaviour in your home?	67%

In conclusion, while no overall effect on waste has so far been measured (the waste analyses were underway at the start of 2004), the one-off results and the concrete and encouraging results from the surveys show that there is at least a huge waste prevention potential in the schools, as well as educational potential for the pupils and their parents.

## 2.5. VOLUNTARY ACTIONS IN COMPANIES

### 2.5.1. SITUATION AND OBJECTIVES

In 2001, the primary, secondary and tertiary sectors accounted for respectively 0.1%, 11% and 88.9%, of employment in the Brussels Region. The sectors of public administration, real estate/rental/services to companies, retail/repairs, as well as financial activities accounted for 54% of employment in the Region. The Brussels Region has a large tertiary sector, a significant portion of which is the public service, which accounts for 16% of the Region's employees (BRES 2003).

The tertiary sector has been the focus of specific voluntary actions, in particular office-related activities.

IBGE-BIM estimates office waste at around 100,000 tonnes per year, equal to some 380 kg of waste per employee, of which 35% to 40% is paper and cardboard, usually disposed of in the selective bin for paper. Ademe (France), in a publication on the *high environmental quality of buildings* mentions a sorting rate of 71%, which would lead one to think that offices do not sort all their paper and cardboard correctly.

Waste paper streams from offices have a high level of potential.



A restricted study on the dematerialization potential of paper in offices was conducted in 2002. For that study, 231 persons from 10 administrative organizations, in the public and private sectors and NGOs, were audited by RDC-Environnement. This experience showed that the potential to reduce paper consumption was between 10% and 30%, achievable merely by changing people's behaviour in how they use office equipment. A majority of the employees monitored were unaware of the tools available to reduce waste and did not make use of the functions enabling them

to limit the number of pages printed, for example:

- Printing 2 pages per sheet of paper: 10% of people questioned used this function, but after the test the figure rose to nearly 80%;
- Printing or photocopying on both sides: on average, only 25% of people questioned systematically used this function;
- Printing in draft quality: 15% of people questioned use this function.

The rate of reduction in the use of paper would be greater than 30% if an integrated approach included the following:

- . Training and awareness-raising;
- . Introduction of new equipment, such as multi-function photocopiers;
- . Optimum internal management of document streams throughout the company.

If we conduct a rough extrapolation to the entire office sector in Brussels, the potential reduction in paper for the Region would be between 1,900 and 5,700 tonnes of paper per year. The potential reduction of ink cartridges and toners is between 26,500 and 79,200 ink or toner cartridges per year.



The results of this restricted study were incorporated as targets in the 3<sup>rd</sup> waste plan, which calls for a 10% to 30% reduction in paper consumption, and a 5% reduction in energy consumption in offices. While in the tertiary sector, which includes public service, paper streams are a primary focus of actions, IBGE-BIM has also conducted actions on public procurement. The public authorities consume a great deal and in Belgium more than 14% of the GDP is generated by public procurement. In the Brussels Region, public administrations account for 16% of all Brussels employees. However, this category does not include a range of institutions, such as the postal services, telecommunications, transport and others, which are also subject to public procurement rules.

Waste prevention issues and, more broadly, eco-consumption, should be part of the promotion of ecological public procurement.

The 3<sup>rd</sup> waste plan calls for the introduction of environmental criteria in all public procurement.

Consequently, this section on companies, while not exhaustive, presents the essential voluntary actions focusing on offices, although other sectors are also the target of specific waste prevention actions, e.g. hospital and construction waste.

## 2.5.2. SPECIFIC WASTE ACTIONS

### **2.5.2.1. The eco-consumption circular and waste management in regional public administrations**

The first waste plan (1992) already intended to give priority to offices in Brussels and emphasized the drafting of a code of good conduct for public administrations.

IBGE-BIM then drew up a ministerial circular for *eco-consumption and waste management in regional public administrations*, which was published in the *Moniteur Belge* in 1993.



The circular called for:

- The promotion of eco-consumption, in particular the use of recycled paper;
- A limit on waste production;
- The sorting of waste.

There were 11 regional administrations involved, a total of 3,500 employees, in addition to 9 municipal administrations that took part on a voluntary basis.

In 1994, this initiative was expanded to include all bodies carrying out office activities (see 2.5.2.3.).

### **2.5.2.2. Public procurement**

IBGE-BIM is developing a number of actions on public procurement, which are included in each waste plan.

The initial actions were undertaken in connection with the aforementioned circular and the waste management and eco-consumption charter. They were then pursued as part of the charter and the *eco-dynamic company* quality label (see below).

In parallel, IBGE-BIM is currently preparing more specific actions in order to *green* public procurement in Brussels and expects to begin its first phase soon, which will include a definition of criteria for the specifications of a wide range of products and related measures on how to incorporate these criteria into efforts to raise the awareness of buyers.

### **2.5.2.3. The eco-consumption and office waste management charter**

In order to generalize the aforementioned *eco-consumption and waste management in regional public administrations* circular to all entities with office activities, IBGE-BIM put together the *eco-consumption and office waste management charter* in 1994. This initiative mobilized 240 companies and entities, employing a total of 30,000 to 40,000 people. The charter is based on the same principles as the circular.



In an attempt to help companies, a range of tools were developed and disseminated:

- A cardboard rubbish bin for paper sorting;
- "Let's recycle" posters;
- "Think about it" paper waste prevention posters;
- Guidelines for managing office waste;
- Thematic training breakfasts.

At the end of 1998, 8 ECO-IRIS office prizes were awarded to the best achievements in the management and prevention of waste.

In practice, the results in 1998 were as follows:

- 52% of participating companies used recycled paper;
- 75% conducted paper waste prevention actions. Several examples achieved reductions ranging from 20% to 35%.

In 1999, the *office* charter, as it came to be known, gave rise to a charter bringing together all sectors of activity – the charter, accompanied by the *eco-dynamic company* label (see 2.5.3).

#### **2.5.2.4. Dematerialisation in offices and eco-office technologies**

More than 240,000 tonnes of printer paper are consumed every year in Belgium. The new technologies – Internet and e-mail – could have brought about a decrease in paper consumption. People used to talk about *paperless offices*.

But quite the opposite happened. These advanced technologies, while extremely fast, did not bring with them new work attitudes. Information and training work is therefore needed to make better use of the virtual potential of office technology.

That is the ambition of the waste plan that, after a pilot phase, described in 2.5.1., was transformed into the action, *To print or not to print*, launched at the start of 2004 by IBGE-BIM.



The action called *To print or not to print* consisted of optimizing the use of office equipment. Every company can act in different areas, for example:

- A preference for ecological office equipment (multi-functional devices, “both-sides” printers, software, etc.);
- Promote, via training, the rational individual use of information and communication technologies (printing 2 pages per sheet, on-screen corrections, turning computers off correctly, etc.);
- Introduce changes in internal organization (files, classifications, pay slips, order sheets, etc.).

In terms of waste, paper is the primary target, which has an impact on office consumables, such as ink cartridges and toners for photocopiers, as well as waste in the form of old computers and printers.

In practice, this broad action will take place over several years. In 2004, IBGE-BIM launched the movement based on a 2-level approach.

The first level of action is global, with an initial stage of information and awareness for all Brussels companies involved in office activities. At the start of March 2004, these companies received by mail information about the action and invited them to order the tool kit to help them get started. The kit will change in keeping with the needs expressed by the participating companies.

A total of 108 organizations expressed their interest in participating in the project at this stage.

One incisive action, but restricted to 25 organizations, is aimed at improving knowledge about dematerialization potential, based on the entity's activity profile or a specific service. For that purpose, extensive support is offered as well as series of mini-audits, support and evaluations.

This action has only just begun and the only available results so far are those from the restricted study mentioned in 2.5.1 (RDC-Environnement, 2001) and those from the actions on this theme by the *eco-dynamic companies* (see 2.5.3).

These results show that:

- The promotion of simple gestures, such as printing on both sides of a sheet of paper, printing 2 pages per sheet, making corrections on screen and digital filing has helped many entities to reduce paper consumption by up to 30%.
- Organizational changes can also lead to savings: 365,000 sheets of paper are saved per year if the night and day staffs in a hotel refrain from printing the reports they are required to give each other. In an insurance company, a number of measures, such as the dissemination of rates by e-mail and the sending of annual report only on request, helped to reduce the number of copies printed by 33% in 3 years, while the clientele increased by 24%. The annual savings is 2,300 sheets of paper per employee.
- In relation to buying policy, the use of a multi-function photocopier, accompanied by training, enabled the headquarters of a big company to reduce by as much as 20% its consumption of paper. In that way, nearly 5,000 sheets of paper per employee were saved.

Depending on the size of the company and the level of measures, the cases cited achieved savings of between 800 euros to more than 15,000 euros.

### **2.5.3. AN EXAMPLE OF INTEGRATED ACTION: THE ECO-DYNAMIC COMPANY LABEL**

In 1998, a consultation of all the members of the *office waste charter* revealed that many wished to see a more global approach, based on the creation of an environmental management system, featuring the problem of waste along with other environmental issues.

This is how the charter and the eco-dynamic company label were proposed as early as May 1999 to private and public companies in the Brussels Region. The eco-dynamic company charter has since then integrated the eco-consumption charter.

At the start of 2004, there were 148 company candidates for the label, at 181 different sites, totalling 55,000 employees, around 9% of all workers in the Brussels Region. Since 2000, 77 labels have been awarded and renewed for the first 18 companies that received it (the label is awarded for a 3-year period).



Candidates for the label come from all sectors: commercial activities (computers, telecommunications, architecture, sales of electrical and electronic devices, hotel and catering and banks & insurance); industrial activities (graphic arts companies, construction, production and sorting of waste); and administrative activities (federal ministries, municipal administrations, autonomous public bodies, schools, trade federations, non-profit associations, etc.).

The eco-dynamic company programme is the focus of regular promotional activities for private and public enterprises that feature free support measures for candidates, provided by specialists. In order to help companies conform to the label's criteria, in the area of waste and elsewhere, the eco-dynamic company programme organizes training and individual monitoring of candidates, thereby contributing to the holding of waste audits in these companies.

Waste, along with energy and water, is one environmental field that concerns all companies. In this field, the criteria for awarding the label cover:

- Management practices;
- Technology choices;
- And behaviour,

which helps to promote first and foremost quantitative and qualitative waste prevention.

In practice, this means:

- Limiting consumption of raw materials;
- Limiting waste production at source;
- Reducing production of hazardous waste;
- Proper management of produced waste.

These criteria involved, at the start, a monitoring of the consumption of material and products that generate waste, as well as a monitoring of the different waste streams. The final objective is to attain effective prevention, both qualitative and quantitative, and progress in sorting waste.

In the eco-dynamic companies, sorting practices are more prevalent than the quantified monitoring of purchases (i.e. consumption) and waste production, which is more difficult to do in a small or medium sized company with office activities. Sorting practices are also more prevalent than an ecological purchasing policy, where environmental choices are sometimes included but are not systematic or formalized.

There is a variety of examples of prevention in the eco-dynamic companies. Some, in the area of packaging are, palettes with deposit, bottles with deposit, reusable plastic bags, reusable packing boxes, refillable casks, etc.

IBGE-BIM has drawn up, via an agreement with the Institut Eco-Conseil, a computer tool with examples of beneficial economic returns flowing from environmental management actions. The quantified examples mentioned of the expected financial savings, thanks to dematerialization actions in paper streams, resulted from the use of that tool.

#### 2.5.4. EVALUATION

Evaluations of each specific action are presented with a comparison of the descriptions of the actions.

The amounts of waste mentioned in the introduction are amounts estimated by means of mathematical models, and not real measured amounts. Consequently, at regional scale, the effects of the different actions cannot be precisely established.



That is why in the 3<sup>rd</sup> waste plan, the objectives, in terms of dematerialization, relate to each individual company. The generalization of a mini-audit tool for the *To print or not to print* action will contribute to an evaluation of this topic.

In parallel, behaviour surveys can be conducted. An initial survey done in 2003 by Sonecom provides preliminary indications on the behaviour of office workers:

At work, during office activities, do you...?	Always/often	Never
Sort waste paper	68%	19%
Limit printing of documents	36%	30%
Print on both sides	34%	36%
Photocopy on both sides	35%	30%
Correct on the screen instead of on paper	58%	20%

While these results appear to confirm that the sorting of paper is a more prevalent practice than eco-consumption in offices, the absolute figures should be taken with a grain of salt as they concern the declarations of only 300 persons.

By way of comparison, according to the figures from the refuse collection company, *Agence Bruxelles-Propreté*, only 40% of their commercial contracts include the collection of sorted paper and cardboard. Unquestionably, there is still a lot of work to be done in this area.

In evaluating the prevention actions *per se*, we should refer to the evolution of these behaviour figures over time, to which we should add the company-by-company results from actions carried out.

## 2.6. THE OUTLOOK

IBGE-BIM now has around 12 years' experience in waste prevention actions.

These actions, initiated somewhat apprehensively under the 1<sup>st</sup> waste plan, focused mainly on sorting. They were stepped up in the 2<sup>nd</sup> waste plan and took on a broader dimension in the 3<sup>rd</sup> waste plan.

This outlook grew out of a reflection that went beyond waste prevention in the strictest sense (prevention by weight) and shifted to over-consumption, limiting resources and achieving equity between the North and the South.

All this requires new avenues for action, and, for example, pointing the finger at the advertising and fashion industries. Therefore we need to educate, starting at a young age, about advertising and our real needs. The aim is also to dematerialize and meet the same need just as effectively by consuming fewer resources and producing less waste.

Encouraging people to think about their needs and about the way they meet their needs is a new challenge that will have an impact on limiting waste and, further upstream, on the conservation of resources.

These challenges are huge and require time and means.

In 10 years, awareness of environmental issues, and in particular waste, has moved in the right direction. But the move from awareness to action has not been in step – people are aware and informed, but they do not act, or do so insufficiently.

There are also challenges in relation to communication strategies. That is why the exchange and sharing of experiences are so important.



## **Part III**

# **WASTE PREVENTION ACTIONS OF EUROPEAN CITIES AND REGIONS**





### **3. WASTE PREVENTION ACTIONS OF EUROPEAN CITIES AND REGIONS**

#### **3.1. WHAT CAN EUROPEAN CITIES AND REGIONS DO FOR WASTE PREVENTION ?**

##### **3.1.1. CHANGING EU WASTE POLICY FOCUS: FROM WASTE TO RESOURCES**

Local and regional authorities are in charge of implementing waste management policies. Their role has changed drastically to follow the change of approach in the European waste policy. Its focus moved from the end-of-pipe management of waste to the sustainable management of natural resources. Indeed, to tackle the growing waste production the EU Waste Policy has set mandatory recycling targets and more and more stringent standards for waste management.

##### **3.1.2. MUNICIPALITIES NOW NEED TO ADDRESS CONSUMPTION AND PRODUCTION PATTERNS**

To achieve EU objectives, local and regional authorities have to adapt their waste management practices. The focus is redirected from treating non-separated waste to collecting separate fractions of waste destined to recycling. Improving the quality of the separation is fundamental to achieve higher rates of recycling and cost-effectiveness. The participation of citizens is absolutely necessary in this view. Yet, recycling alone doesn't appear sufficient to stop the growth in waste production. At the end of the product and waste chain, municipalities actually manage the consequences of our current production and consumption patterns. Therefore their focus moves to the origin of waste too: the consumption act. Waste prevention implies considering not only consumption behaviours, but also lifestyles.

Obviously, municipalities cannot take up this challenge all alone. However their role in the development of a sustainable management of natural resources must be emphasised. As the closest actors to citizens, local and regional authorities have major assets since :

- they are key actors of dialogue with citizens and can be a main driver of cultural evolution,
- they can influence on the legal, economic and voluntary instruments for the management of resource and waste,
- they can be a go-between between all actors of the production and consumption chain at the local level: consumers, industry, NGO's and social economy enterprises.

### 3.1.3. OPPORTUNITIES OF ACTIONS FOR LOCAL AND REGIONAL AUTHORITIES

Local and regional authorities have a particularly wide range of action as far as voluntary approaches are concerned, and more specifically on the demand side. Despite different political and cultural contexts, similar approaches can be found in different cities and regions throughout Europe. The initiatives described herein are clustered according to the objective of the change pursued:

- raising awareness on the impact of lifestyles
- supporting changes in lifestyles
- encouraging changes in consumption behaviour
- promoting different waste management practices

#### **3.1.3.1. Raising awareness on the impact of lifestyles**

Lifestyles are the results of individual choices, but have collective consequences, notably the growing production of waste and the degradation of the environment.

Lifestyles determine to a high level the consumption of a number of goods that are not directly related to the fulfilment of essential needs (food, shelter, housing, water and sanitation, health care). A large amount of consumption in Western countries is dedicated to pleasure, leisure, comfort, entertainment and the expression of one's standing in society. Leisure, education, clothing, personal care and home & interior stuff are also responsible for one third of our dustbin waste<sup>1</sup>.

Without intervening in private choices, it seems legitimate that LRA question the real needs on which consumption is based and that they highlight the fact that different lifestyles are possible with various impacts on the environment.

It is first of all a matter of providing information about the limits of economic growth, the advisability of consuming certain resources over others given their limited or unlimited supply, renewable versus non-renewable, polluting or not, and about the possibilities of achieving the same standard of living and well-being by consuming less material and/or energy resources.

Actions may take on the following form:

1. the ecological footprint illustrates the impacts of individual behaviours on the global environment
2. involving citizens in political choices and their implementation
3. increasing public awareness with high profile actions

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<sup>1</sup> SITA *Environmental Trust, Rubbish – or Resources*, Green Futures Special Feature, July/August 2002.

### **3.1.3.2. Supporting change in lifestyles**

Raising awareness on the impacts of lifestyles on the production of waste and the consumption of natural resources is one thing. However, promoting change in the direction of more sustainable lifestyles implies a profound rethinking of the most common daily choices and represents a cultural challenge to the urban society.

LRA are often confronted with strong reluctance to change in this domain. On the other hand, changing lifestyles may not only contribute to the protection of the global environment but also to the improvement of the local social welfare. Increasing social interactions, developing personal skills and creativity can contribute to decrease distress and loneliness, unemployment, and probably violence and crime.

To support individuals in changing their lifestyles and behaviours, municipalities may:

4. question consumers' needs and promote immaterial consumption
5. promote the replacement of products by services
6. discussing the potential of ICT for dematerialization
7. educate children to be future responsible consumers

### **3.1.3.3. Encouraging changes in consumption behaviour**

With increasing information on environmental issues, citizens demonstrate a growing environmental awareness. Yet only a very limited number of consumers actually purchase environmentally-friendly products.

The difficulties to consume sustainable goods and services may be due to the fact that:

- Sustainable products are usually less sold, and thus more expensive than the non-sustainable alternatives.
- It requires more efforts to purchase sustainable products than to buy their unsustainable equivalents. Consumers often lack the signposts to help them find more sustainable products<sup>2</sup>.
- The image of sustainable goods and services is unfavourable compared to unsustainable products and services. For many consumers, sustainability or ecology refers to problems, limitations, scantiness and thrift, conflicting with their perception of quality of life.
- Information about the sustainability of products does not meet the specific needs of the trend-followers.

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<sup>2</sup> MacCain Erickson, *Pulse Study*, in European Association of Communication Agencies, World Federation of Advertisers, United Nations Environment Programme, *Industry as a partner for sustainable development Advertising*, 2002

The difficulties to adopt a sustainable behaviour may be due to the fact that:

- Many consumers lack practical perspectives for sustainable patterns of action; they need clear leadership from government, industry and media<sup>3</sup>
- Changing daily behaviour often costs a lot of effort.
- Most consumers have not internalised sustainability into their thinking.
- Primary aspects of the 'quality of life' for most consumers are health, freedom of choice, safety, luxury and comfort. Environment is secondary.

In addition, business, especially SMEs, often lack incentives to supply sustainable goods. And governments are short of incentives to stimulate sustainable behaviour.

On the other hand, a Danish survey (May 2002) highlighted that consumers lack environmental labelling and environmental information to navigate through their purchasing decisions.

#### Consumers:

- 59% of men and 68% of women say they are willing to prioritise environmental considerations when purchasing electronics if the products were labeled with environmental information,
- 50% have no clear view of the environmental impacts of PCs or radio/television equipment. About 1 out of 3 think there was no environmental impact at all in the production, use or disposal of electronics (!),
- 33% would pay more for a product less environmentally harmful,
- 58% receive their information from the shops.

#### Retailers:

- more than 50% do not know what environmental impacts have electronic equipment they sell. They think that there is no consumer demand for environmentally friendly electronic products<sup>4</sup>.

Consumers may be ready to change their behaviour. But they certainly need support to consciously orientate their choice towards more environmentally-friendly products and to create a demand large enough to prompt producers to adapt their product offer.

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<sup>3</sup> *ibid*

<sup>4</sup> Danish Environmental Protection Agency <http://www.mst.dk/homepage/>



Eco-labels are useful tools to support consumers in identifying and buying sustainable products. Though they exist in many Members States and at the Community level, they still are not well-known and not present on many products. The Community eco-label could be interesting for consumers because it is the same in all countries. A growing number of products are awarded with the EU Flower, such as shoes, toilet paper or mattresses. Yet this label still suffers from a lack of visibility. LRA can contribute to the development of a market for eco-labeled products through:

- Preferring such products in public purchasing;
- Informing consumers and encouraging them to use their market power, “to vote with money”, for supporting a demand for eco-labeled products.

Local and regional authorities attempt to support consumers in choosing products and favouring positive behaviour by:

8. promoting environmentally-friendly products in shops
9. rewarding sustainable consumption choices
10. monitoring progress toward a sustainable consumption behaviour
11. educating to consume wisely
12. promoting repair and reuse
13. leading by example: green public purchasing

#### ***3.1.3.4. Promoting different waste management practices***

When a consumer doesn't want to use a product anymore, this product becomes a waste. Yet its life may not be finished yet. Extending products' life and finding useful outlet for materials obtained from products at the end of their life are alternatives that contribute to reduce the final amount of waste to be tackled by LRA. Nowadays, most public authorities have set up selective collection schemes for specific waste streams and they conduct extensive information campaigns to support them. In doing this, LRA come closer to both consumers and companies. This creates an opportunity to bring the private sector to adapt the design of their products and develop more environmentally-friendly alternatives. It is also a means for LRA to influence the supply of recycled products.

LRA may adopt different approaches:

14. encouraging home composting of organic waste for households
15. supporting repair and recycling enterprises with social objectives (social economy enterprises)
16. reducing companies' demand for virgin raw material through increasing waste prevention and recycling
17. finding outlets for companies' recycled products and materials.

## 3.2. DIRECTORY OF MUNICIPAL AND REGIONAL GOOD PRACTICES TO PROMOTE SUSTAINABLE CONSUMPTION, WASTE PREVENTION AND RECYCLING

The following part presents a series of initiatives developed by local and regional authorities to encourage eco-consumption, waste prevention and recycling. These initiatives have been developed in various European countries, where the political and cultural contexts are different. Despite these differences, similar approaches have been found and clustered according to the objective pursued.

This collection of good practices aims to provide a «think tank» where waste management experts and political representatives of local and regional authorities may pick up some inspiration and food for thought.

### 3.2.1. RAISING AWARENESS ON THE IMPACTS OF LIFESTYLES

#### 3.2.1.1. The ecological footprint illustrates the impacts of individual behaviours on the global environment

Despite a growing environmental awareness, people in industrialized countries have difficulties in realizing that they have a personal responsibility in the degradation of the environment at the local and at the global level. LRA have a very important educative role in helping their citizens to understand the links between their individual behaviours and the global and local environmental problems.

The **Ecological Footprint** is a very useful indicator in this purpose. This method helps institutions to understand both their present situation and the implications of their policy choices. The Ecological Footprint translates complex scientific information into relatively simple terms. It allows to grasp the relationship between human consumption and the natural environment, and to link the global to the local perspective.

The Netherlands, the Trier Region in Germany, Toronto, the Isle of Wright, Wales, Finland, Sweden have pioneered the method. London has realised in 2002 a very detailed calculation of its Ecological Footprint. This study is the starting point for developing London sustainability policies.

The project “De Mondiale Voetafdruk” carried out with several Dutch municipalities illustrates the use of the Ecological Footprint as an important communication tool for the public authorities. Many other institutions are using the Ecological Footprint at the national, regional or local level.

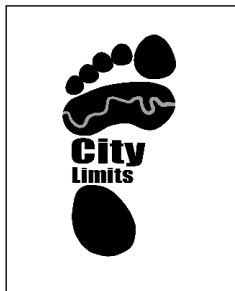


**Good practice:**

- London: measuring the impact of the city on the environment
- Dutch cities: benchmarking

3.2.1.1.1. London: measuring the impact of the city on the environment

The City Limits Report was launched on 10 September 2002 by the Mayor of London. It reveals that each Londoner has an ecological footprint of 6.63 global hectares (gha). That is more than three times their fair share of the Earth’s resources. The biggest contributors to Londoners’ ecological footprints are materials and wastes, and food. Energy, transport and water are relatively low contributors. Paper and plastics are the biggest hitters in the footprint related to materials and wastes. For example Londoners consume 94 million litres of mineral water every year. This alone gives rise to 2,260 tonnes of plastic waste.



London is the first major city in the UK to measure its resource consumption and footprint in such detail. The City Limits Report sets out all the consumption and waste patterns of Londoners which contribute to their footprint and suggests possible scenarios for reducing impact in the future.

It shows that if Londoners continued their current behaviour, household waste would grow at 3% each year. By 2020, households would generate 5,672,000 tonnes compared to the 3,400,000 tonnes in 2000. Even if a defined target recycling rate was achieved, this would result in the disposal of 3,628,000 tonnes - more than what was landfilled in 2000. Even if higher recycling rates were feasible, the findings suggest to set more waste reduction as another policy target. Food transport, electricity and passenger transport are also examined in future scenarios.

Ken Livingstone, the Mayor of London, says

*“I warmly welcome this initiative which will be an important contribution to the work of the Greater London Authority. Analysing resource flows and setting out London’s ecological footprint will provide a crucial baseline context for the development of my strategies. This is ground-breaking work and I am happy that the GLA is contributing to the study. My vision is for London to become an exemplary sustainable world city. Ecological footprinting is a vital tool that we can use to measure our progress towards achieving a sustainable future”.*

The City Limits initiative has been launched in September 2002. The dedicated web site allows downloading the full report of the study and the data files. It also includes an interactive lifestyle tool.

More information

<http://www.london.gov.uk/GLA>

<http://www.citylimitslondon.com>

**3.2.1.1.2. Dutch cities: benchmarking**

«De Mondiale Voetafdruk» project (the World Footprint) was developed in 8 Dutch cities in 2000 and 2001. This project funded by the national and some provincial authorities helped those cities to organise touring exhibitions, to develop a web site, to distribute handouts and folders, to organise discussion meetings, and to open debates in special evening meetings or in schools. The automatic footprint calculator available on the web site also allowed the organisers to compile data's and compare the average footprints registered from various cities.

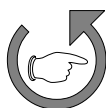
Those events gave the impulse to other initiatives developed by municipalities, NGO's as well as companies. The Nationale Jongerenraad voor Milieu en Ontwikkeling (National Youth Council For Environment and Development) for instance, started a positive bet with Politicians on the reduction of their respective ecological footprints.

More information

<http://www.voetenbank.nl/home.htm>

**3.2.1.2. Involving citizens in political choices and their implementation**

Policy plans at the local level directly affect citizens' life. The main challenge for local decision-makers is to ease the access of citizens to the policy decision-making process of their cities. Many local and regional authorities consult their constituencies on their draft policy plans. Milton-Keynes' consultation process shows how the citizens can gradually get more involved in the preparation of waste management plans. This also demonstrates the importance of the organizations from the civil society, with environmental purpose or not, as a relay of citizens' opinions. The Flanders Region in Belgium has well-understood this and involves intermediaries such as consumers associations, as a relay in discussions with citizens.



**Good practice:**

- Milton-Keynes: stakeholders and children expressed their views
- Flanders Region: intermediaries to exchange information with citizens
- Gembloux, Oupeye and Havelange in Walloon Region: involving citizens in their waste prevention plan



### 3.2.1.2.1. Stakeholders and children expressed their views in Milton-Keynes

- First round of consultation

In September 1998, Milton-Keynes Council had to start a process of consultation on a new Waste Strategy. This new Waste Strategy was necessary since the Council had recently become responsible for both collecting and disposing of waste. The UK government recommended to integrate the management of waste into a global strategy that would form part of the Local Agenda 21 (the local integrated strategy for sustainability). In the process of setting up integrated strategies, and notably LA 21, consulting the citizens and stakeholder groups is an essential element.

This first consultation period lasted for almost 1 year. The first Waste Strategy for Milton-Keynes was published in July 1999 and addressed the period 2000-2010. However, a review process became necessary as early as 2001 due to new national targets, new quality indicators for waste services, the beginning of new contracts, the results of a comprehensive waste audit in Milton-Keynes showing alarming trends, and the likelihood of an increase of waste-related obligations.

- Consultation process of large stakeholders

A consultation draft was sent to a list of stakeholders and consultees in January 2002 and was open to comments until the end of March. In February, a conference with 3 short workshops was organized. The participants in the workshops looked at the short-term actions, the long-term actions and the main aspects of short- and long-term actions. The full results are published on the Internet or available on hard copy under request; they are also summarized in an annex to the final waste strategy.

- Results of the consultation

The consultation showed a strong support for the short term actions proposed in the draft, in particular for waste minimization. Many participants even felt that it should be strengthened. Weekly recycling, introduction of a kerbside composting scheme, and increased education were also advocated. The concept of “zero waste” was raised during the consultation and became the motto of the strategy, now a Zero Waste strategy. For long-term actions, respondents were more uneasy. They had various opinions on how residual waste should be treated once recycling and composting have been maximized. Residents expressed their concerns for health and safety impacts of thermal treatments and felt that they lack information on the impacts of the technologies available. The issues of dumping of tires and recycling in flats were also a matter of concern.

- Childrens' views on waste management

This type of consultation process mainly reaches experts, the big players of society, while individual citizens have little room to express themselves. In an attempt to counter-balance this a children's initiative called 'Commonwealth Common waste' was initiated. In July 2002, schoolchildren held a “Pupils Commonwealth Heads of Government” meeting to look at issues of waste, and how it is handled in the different parts of the Commonwealth.

They have requested that their conclusions from the day be included as part of the consultation. This initiative clearly contributed to raise children's awareness on the waste management issues not only in their city, or in their country. It also enlarged their view and gave a global perspective to the problem. Notably, their conclusions show that they have realized the discrepancies in lifestyle of rich and poor nations, and how this influences the respective waste production.

#### More information

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<http://www.mkweb.co.uk/waste>

#### 3.2.1.2. 2. Intermediaries help the Flanders Region to exchange information with citizens

Consumer and enterprises organisations, environmental organisation and public organisations may serve as intermediaries to relay the message on sustainable consumption and waste prevention. STIP, the information centre on the prevention of waste set up by the Flemish region in Belgium, directly target these groups of actors with three objectives:

- disseminating information
- networking
- giving feedback to policy-makers.

STIP disseminates information on reusable and environmentally friendly products through its two newsletters, its website, and its helpdesk. It also makes available a guide for public procurements.

STIP organises study days and workshops for the members of the different intermediary organisations (i.e. consumers, enterprises, etc.) on defined themes, such as reusable nappies, eco-efficiency, environmentally-friendly events, etc.

STIP also carries out pilot projects directly with consumer organisations, with the view to disseminate the results to consumers in the end.

For instance, the use of reusable cups is actively promoted to public organisations (such as hospitals or schools), to organisers of public events and in tourist areas; and reusable beverage containers are offered at the seaside.

Consumer organisations are particularly interested and demand activities and practical information.

STIP has also prepared a database compiling initiatives of waste prevention actions. The objective is to allow networking between all waste prevention actors. These activities are very popular: there are on the average 2,400 subscribers to at least one of the newsletters,

100 participants to each conference, fully booked workshops (25 persons) and 1,100 visitors a month on the website and 230 questions put to the helpdesk per year.

More information

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3.2.1.2.3. Gembloux, Oupeye and Havelange in the Walloon Region involve their citizens in their waste prevention plan

Following a regional decree from 1991, all Walloon cities must pay an additional fee to the Region when they produce more than a certain quantity of waste. This maximum weight decreases every year while the fee increases: this is a strong motivation to actively work on waste prevention. Several municipalities of the Walloon Region in Belgium have thus implemented prevention plans with great success and effective results. Some have been supported in this effort by an experienced regional association, "Espace Environnement".

• Gembloux invites inhabitants to sign a commitment form

In Gembloux, the prevention plan adopted in 2002 aims to:

- reduce waste quantities, to become the Walloon municipality "which produces least household waste, separated or not";
- reduce pollution (littering, unauthorised burning);
- slow down the cost increase for households by offering less impacts on the environment;
- make households pay on the basis of the polluter pays principle;
- lead by example from the public sector.

A coordination group follows the implementation of the prevention plan, involving the Mayor for the Environment, the municipal Department for the Environment, a representative from the organisation grouping several municipalities and in charge of waste management, and representatives from the association Espace-Environnement.

The implementation of the plan is down through:

- the reduction of packaging waste,
- the reduction of waste from municipal services,
- the promotion of domestic composting,
- the development of educative programmes in schools,
- the development of local partnerships.

To ensure the success of the prevention plan, the municipality strongly relies on the involvement of citizens. For the launching of the plan, it carried out a four-month awareness-raising campaign. Citizens participated with different degree of involvement. The most motivated ones met in the awareness-raising group, to discuss and improve the existing actions and make new proposals. Other may volunteer to start composting at home. They are invited to formalise this "participation in the municipal project for

waste prevention” by filling in a form with their name and address. This approach enables the municipality to identify the most motivated citizens who will later act as intermediaries for the waste prevention actions. In signing this form, citizens can express their support to the local policy.

• Oupeye’s success factors for the impressive reduction in waste production

The municipality of Oupeye has been the first Walloon municipality to implement a waste prevention plan in 1997. Consequently, the waste prevention decreased by 61% between July and September 1999 in comparison with the same period in 1998.

The municipality indicated, in a recent ADEME report<sup>5</sup>, that its 9 factors of success were the following:

- To avoid any ambiguity about the concept of prevention: first eco-consumption, then reuse, then separation, and finally waste disposal.
- To make everyone feel concerned: municipal administration, households, companies, associations, schools. For each target group, “intermediary groups” have been created to relay the actions and raise awareness within their group.
- To communicate around local actions: conferences, actions in small groups, in neighbourhood, etc.
- Lead by example and maintain communication efforts to always suggest alternatives to citizens.
- To consider financial incentives to trigger change (fees as well as subsidies to encourage good behaviour)
- To accompany any important change with a large information campaign.
- To allocate appropriate means to achieve its objectives: the prevention budget should be considered as an investment. The yearly prevention budget in Oupeye was 25,000 euros/year in 1997 and 1998. In 1999, a special advisor has been hired to manage the waste prevention plan.
- To develop monitoring tools and take sufficient time to achieve the objectives.
- To propose appropriate regulations with the aim to generalize prevention behaviour.

• Havelange’s citizens make proposals for waste prevention

The municipality of Havelange decided to really tackle waste prevention at source and as such, chose not to subscribe to the Belgian Green Dot system. In 1998, to draft the waste prevention plan, the municipality asked the association “Espace Environnement” to carry out a waste audit. Following a large information campaign the city organized meetings with the population and local associations, and set up four working groups: Schools, Awareness-raising, Retailers, and Composting guide. In the end of the year, a reduction of 10 kg per inhabitant has already been achieved. One year later, the waste production decreased by 53%. For the two years 1998 and 1999, the operation cost 50,000 euros - but the savings on waste management costs are estimated to 37,500 euros for 1999 only.

In March 2001, the waste production per inhabitant was estimated to be 142 kg. Key success factors were certainly the strong consultation process accompanying the drafting

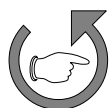
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<sup>5</sup> Genty B., *Prévention de la production des déchets – exemples de politiques locales menées en Europe*, ADEME Editions, Angers 2004.

of the prevention plan (for instance, consumers accepted to use reusable boxes to buy fresh products such as ham and cheese because it was their idea); the paying garbage bag; and the ability to suggest real alternatives<sup>6</sup>.

### **3.2.1.3. Increasing public awareness with high profile actions**

Exhibitions or movies are generally associated with art, beauty and culture. Using such popular and universal instruments is an attractive means to present difficult, unpopular issues such as waste. It is not rare to see exhibitions displaying art work made from refuse. However, some municipalities such as Torino and Charleroi are going much further and develop temporary or permanent exhibits with a strong educational purpose. The Province of Bergamo chose to disseminate its message through movies.



#### **Good practice:**

- Torino: exhibition to change perception of refuse as waste into refuse as resource
- “Charleroi clean and without waste» : one month of awareness raising on prevention
- Province of Bergamo: competition between local authorities and films on waste prevention

#### **3.2.1.3.1. Torino: exhibition to change perception of refuse as waste into refuse as resource**

The municipality of Torino has created a permanent exhibition entitled “**R come... refuti**” (*R for ... refuse*). The exhibition targets pupils in primary and secondary schools. It focuses on the waste issue in the city of Torino. It further aims at changing children’s attitude towards refuse and to consider refuse as a resource rather than as a waste. During the week, guided tours are organised for classes. On Sundays, the exhibition is open to families.

The mascot of the exhibition is named “R” and leads children through attractive, interactive and ludic displays presenting various waste and resource issues. For instance, children can lift bags containing either unsorted waste, or different types of sorted waste. They can quickly grasp the interest of sorting waste: the bags with sorted waste are much lighter. They symbolically represent how waste sorting can reduce the pressure of waste on the environment. The different collection systems and waste treatment facilities existing in Torino are presented. The interest of recycling as a means to provide secondary materials and to save resources is highlighted through concrete examples such as a reduced installation demonstrating the PET sorting and shredding process. A section is dedicated to the prevention of packaging waste. Children can also do their shopping in a mini-

<sup>6</sup> Genty B., *Prévention de la production des déchets – exemples de politiques locales menées en Europe*, ADEME Editions, Angers 2004.

supermarket, to try and choose products that produce less waste. The visit of the exhibition is complemented with practical activities for children based on the reuse of waste.

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3.2.1.3.2. “Charleroi clean and without waste» : one month of awareness raising on prevention

Fortified with the success of 2002, the Mayor of the Environment, Cleanliness and Urban Ecology of Charleroi Municipal Council, M. Lucien Cariat, renewed the initiative in partnership with ICDI. This action, called “**Let’s sweep away our bad habits**”, lasted for one month. Plenty of activities were offered to the inhabitants:

- The exhibition “Immunditia” was presented in the Town Hall of Marcinelle to several thousands of onlookers, highlighting the beauty of these clothes “made from waste”.
- The exhibition “The Earth, a user’s guide”, lent by ACRR, welcomed almost 3,500 visitors. Completing the guided tours, ICDI organised a waste sorting workshop: making paper from drink packaging, game of the sorting house, discovery of material recycling cycles, etc.; as well as a waste prevention workshop: tap water “tasting”, game of the “wise shopping trolley”, etc. The exhibition was complemented with “lid-bin”, a game of questions and answers based on striking data about wastage of resources, the costs of water, waste management statistics in Charleroi, and so on.
- The conferences, combined with the opening at night of the 2 exhibitions have been quite successful. Experts came and commented on “Sustainable Development” following three directions: fair trade, global warming and household behaviour contributing to urban pollution. 250 people attended these conferences over 3 evenings.
- The special week-end at the Town Hall market square attracted plenty of families that attended a puppet show especially created “Le vœux du chevalier Immondo Pollu”. About 2,500 persons participated in the rally in addition to the many onlookers who walked through the various stands. It was possible to understand how waste were recycled, how to compost, to engrave on glass, to taste tap water, how to repair household electric goods, etc. Meanwhile, comedians were walking down the pedestrian streets and calling out to passers-by about the waste issue, by means of satirical playlets.

The action “buy wise, reduce waste” was reconducted during the month of waste prevention



in several large stores of the region. This operation consists in placing labels on products identified as generating less packaging waste. It is supported with direct explanations to customers in the store or at the cashier, and with the dissemination of an explanatory brochure. Following control phases, labels are removed and a survey conducted to assess whether customers understand the meaning of the label.

For this action, ICDI prevention team cooperates with a local ONG “Espace Environment” (see point 3.2.3.1.1. “Charleroi: partnership with supermarkets to label products generating less waste”). Very positive results, indeed, and of course, Charleroi’s struggle against waste continues. Many initiatives will prolong the impact of these meetings all the year long.

More information

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<http://www.icdi.org>

*3.2.1.3.3. Province of Bergamo: competition between local authorities and films on waste prevention<sup>7</sup>*

In the campaign on waste prevention 2000-2003, the Province of Bergamo targets all types of stakeholders: the general public, the local administrations, and the retailers.

For the general public, the Province of Bergamo realised 9 short comic films about the over-production of waste, and a short documentary on the role of prevention. They were made available to schools, public organisations and interested individuals. Three live television programmes were broadcasted on local channels to raise consumers’ awareness.

The Province also targets local authorities as an intermediary for the promotion of waste prevention. The Region published a charter and organised a competition – with financial price to win - for the best municipal initiatives of waste prevention; 12 local authorities were awarded. In addition, technical workshops were organised to promote a municipal waste tariff system which takes into account the quantity of waste produced and the type of users.

The latest initiatives of the province consist in monitoring the evolution of the production of waste in the region and in analysing the potential for waste reduction; in tendering for financing initiatives from public bodies and NGOs.

These initiatives were among the first concrete actions on waste prevention in Italy and it contributed to raise the issue on the agenda in the country.

More information

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<sup>7</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

## 3.2.2. SUPPORTING CHANGE IN LIFESTYLES

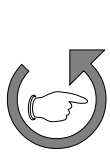
### **3.2.2.1. Questioning consumers' needs and promoting immaterial consumption**

In economic sciences, the quality of life is traditionally associated to material well-being and is directly related to economic development i.e. the production and consumption of material goods. But besides comfort and material well-being, quality of life may consist in:

- Civic quality of life: social activities and relationships within family, community and society
- Cultural depth and authenticity: participating in cultural life, learning skills and practicing creativity
- Spiritual and religious quality of life

Questioning our conception of the quality of life and which factors increase it is central to the debate on sustainable development<sup>8</sup>.

In Vienna, researchers and scientists are studying these aspects of our consumption patterns. The lifestyle of Vienna's inhabitants has severe impacts on the amount of waste produced. Therefore Vienna decided to encourage its citizens to change their lifestyle and to reduce their material consumption. Vienna promotes a new lifestyles, based on the consumption of immaterial goods or services, such as culture, leisure, well-being. The city of Nuremberg in Germany adopted a similar approach in relation to Christmas presents.



#### **Good practice:**

- Vienna : encouraging shift to immaterial consumption
- Nuremberg : waste-free city

#### **3.2.2.1.1. Vienna encourages a shift to immaterial consumption**

- **Waste increase calls for a strong preventive approach**

Waste reduction is the priority in Vienna. Since 2000, a budget of 3 million euros per year for a period of 10 years has been allocated to this approach. This political decision was taken on the basis of scientific studies.

Without successful waste prevention and recycling, total waste production would increase by 40% in weight, between 2000 and 2010. While in the best case, waste prevention could limit the waste increase to only 6% (35% of waste avoided). The studies demonstrated that instead of investing in new waste incinerators to tackle the increase in waste

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<sup>8</sup> UNEP, *Consumption opportunities – Strategies for change – A report for decision-makers*, Geneva 2001



production, prevention measures would be more financially profitable for the city. Therefore, the city decided to allocate half of the estimated costs of these new plants (25 million euros) to waste prevention actions over the next ten years. The objective is to assess the potential for waste reduction.

- Waste prevention adapted to target groups

Current product-oriented solutions in Europe often aim at reuse or continued use, or extension of useful life, as well as the removal of harmful substances prior to recovery or disposal. Vienna goes one step further and considers waste prevention in the broader perspective of lifestyles. Indeed, depending on their incomes, citizens will contribute differently to waste production or waste prevention. The Austrian population can be split into 2 groups, corresponding to 2 approaches of waste prevention:

- the 50% of Austrians who earn 80% of the money in the country (with 25% of Austrian earning 53% of the money),
- the other 50% earning the remaining 20%.

The lower incomes would better contribute through a **resource optimal consumption**. They need information on the products to choose the more ecologically- and economically-sound products. Such an approach covers for instance high-quality consumption, consumption of durable goods, high-quality and repair friendly-products, etc. It includes consumption of miniaturised or multi-purpose products.

- Immaterial consumption: a new lifestyle with individual and collective benefits

On the other hand, the richer should rather be encouraged to spend their money into services rather than into products, since a shift to **immaterial consumption** is only possible when basic needs have been satisfied.

Developing immaterial consumption corresponds to the adoption of a new lifestyle, mainly by those with a high income. It consists in increasing the demand for services in the field of culture, social matters, education and leisure. No material products are need for satisfying this demand. Thus, as the purchasing power within a region is constant, the increase in immaterial consumption automatically lowers the material consumption, the use of natural resources and the amount of waste produced. In the future, material consumption should only focus on satisfying essential needs.

Concerning entertainment, often spent watching TV, the city takes a more radical attitude and denounces the passivity and isolation resulting from such an activity. Thus, Vienna's inhabitants are encouraged to change from a passive entertainment consumption to an active and educative one. They are invited to seize the many opportunities offered in Vienna and to enjoy social and friendly activities such as concerts and theatres, or games to play at home.

- Immaterial consumption creates jobs

The promotion of services and culture should not only contribute to improving the ecological situation but also the individual and collective well-being of consumers as well as the number and quality of jobs provided.

According to the research of Vienna University, the demand for immaterial consumption can increase indefinitely, without damage to the environment or over-consumption of resources, but with clear benefits to the local economic and social situation. Indeed, since immaterial consumption mainly takes the form of social and cultural services, it can only be satisfied by local production and thus results in local job creations. Hence, contrary to material goods, cultural goods and services encourage common, shared and long term use of existing facilities (such as the many century old Vienna Opera) and are much more job intensive than goods manufacture.

### More information

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### 3.2.2.1.2. Nuremberg: waste-free city

#### • 99 waste-free gifts

Nuremberg, a German city of Northern Bavaria, counts about 500,000 inhabitants, with some 268,000 households. The City uses the example of Christmas gifts to promote dematerialisation.



For Christmas 1999, the city published a leaflet aiming to promote low-waste and low-pollution products. In this leaflet, the city encourages creativity in choosing the gifts and wrapping them. It also advises on how to choose the Christmas tree and decorations, and gives tips to reduce food wastage and promotes consumption of local products.

Different approaches are suggested for choosing presents:

- gifts with reduced environmental impacts, with a longer lifespan, such as battery-free watch, recycled letter paper, organic products e.g. wine,
- homemade presents such as personal cookbook, jam,
- services in the form of vouchers for drawing lessons, a visit to the hairdresser, a massage,
- useful gifts such as a telephone card, a public transport pass.

A list of 99 presents following these alternative approaches complements the brochure. They are very practical examples of what one can choose to dematerialise Christmas. Useful contact details are even provided for theatre, language courses, etc.

Also related to Christmas gifts, the City organises each year the market of the “long faces” in cooperation with the second-hand store “Mach mit”. There, citizens can put Christmas presents that they didn’t really want on auction; 10% of the benefits are donated for an ecological project.

- Permanent information to support waste prevention

This campaign is part of an overall waste prevention strategy which the city of Nuremberg has been developing since 1990. It has been the first German city to introduce its own local laws encouraging waste reduction. The waste management bye-law covers waste prevention and waste separation for recycling. The City Council controls its enforcement and business have the obligation to act in line with the law. A waste disposal fee system is designed to complement and reinforce these bye-laws. It gives a strong financial incentive to households and businesses to reduce and to separate their waste.

However, to increase acceptance of the different waste management measures, a strong information of citizens is essential. Information is also required to increase knowledge of the various alternatives for waste prevention and disposal. A pillar of this permanent information is the direct contact with citizens. With the infocar, citizens as well as businesses can benefit from mobile waste consultation. In 2001, the infocar has been present in the pedestrian precinct, in shopping centres and large housing estates, on meetings and celebrations, in schools and kindergartens, etc.

Brochures and leaflets are also regularly published on a number of topics, and in several languages to address the need of the multicultural population of Nuremberg.

More information

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<http://www.nuernberg.de/schluesel/referate/ref3.html>

<http://www.asn.nuernberg.de>

### **3.2.2.2. Promoting the replacement of products by services**

Replacing products by services may lead to a shift in consumption, based upon the notion that the provision of function is the key to consumer's satisfaction, not the product *per se*. This approach results in new ownership options such as renting or leasing and can lead to deep changes in consumption patterns. Consequently, the consumption of resources and the production of waste may be strongly reduced.

Some authors outline the benefits for the environment brought by such a transition. Below are some examples.

When compared with household washing, industrial laundering of workwear<sup>9</sup>:

- uses 52% less primary energy,
- uses 73% less water,
- uses 85% less detergent,
- emits 33% less CO<sub>2</sub>
- emits 36% less NOx.

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<sup>9</sup> Life-cycle assessment from the Öko-Institute quoted by the European Textile Services Association <http://www.etsa-europe.org/homefs.htm>

Music downloaded legally from the internet can have less than half the environmental impact of buying a pre-recorded CD. Below are 3 different means of purchasing 56 minutes of pre-recorded music and their material intensity<sup>10</sup>:

	Material used (kg)	Equivalent in producing aluminum drinks cans
Purchasing a CD online	1,31	5
Buying a CD in the high street	1,56	6
Downloading music online	0,67	< 3

Public authorities also provide many public services that represent alternatives to individual purchasing:

- Public libraries for books, music, toys, etc.
- Municipal services such as public transport

To increase the use of some products and reduce the overall number of products in use, LRA can promote the use of these municipal services.

Consumers need to be informed on the various possibilities and benefits of replacing products by services. Informed consumers will contribute to stimulating the development of a market for eco-efficient services. LRA can also directly stimulate the market through using services themselves, for instance by using an industrial laundering service for the municipal uniforms.

Confronted with high level of waste from disposable items, many cities have developed initiatives which aim to changing consumer behaviour and to increase the useful life of products through the “consumption” of services. For instance, the cities of Munich, Nuremberg, and the Marche and Catalonia Regions not only encourage the use of reusable products at public festivals, but also offer a cleaning service which ease the use of these durable products for consumers. Similarly, the City of Milton-Keynes and of Leuven offer to young parents to try and use washable nappies and the associated cleaning service.



#### Good practice:

- Munich: fighting the paper cup
- Nuremberg: lending reusable crockery for free to households
- Marche Region: leaving the choice between reusable or biodegradable tableware for festivals and fairs
- Catalonia: municipal renting and washing system
- Milton-Keynes: diaper cleaning service

<sup>10</sup> Wuppertal Institute, Digital Europe : virtual dematerialisation and factor X, March 2003 <http://www.digital-eu.org/publications/>

### 3.2.2.2.1. Munich: fighting the paper cup

- Banning disposable crockery

Munich, the capital city of the state of Bavaria, Germany, adopted a waste avoidance approach to address the problem of disposable tableware and its associated waste. As early as 1991, the local government banned the use of disposable paper plates, plastic cups, forks and knives at large-scale public events. They are replaced by reusable items for which consumers pay a deposit that they get back when they bring back the items. This significantly reduced the waste volume generated by events like the Oktoberfest, the Christmas market, Auer-Dult Faire and the Munich City Marathon.

In the Oktoberfest alone, the quantity of residual waste was divided by 20 in 9 years (from 11,000 tonnes in 1990 to 550 tonnes in 1999). The participation of all enterprises involved in the Oktoberfest in the introduction of reusable tableware strongly contributes to this success. This event is now based on a strong and well-accepted ecological concept and received the "Eco-Oscar" awarded by Federal Government of Germany in 1997.

- A crockery and dishwasher renting service for small events

For smaller-scale events, organisers may find expensive to buy enough reusable crockery. To overcome this issue, the City of Munich cooperates with the company MobielSpiel e.V. to rent reusable tableware as well as 2 mobile dishwashers at a moderate charge. They are suitable for 200 to 300 persons.

The benefits of using this service are manifold for the organisers:

- reduced costs for one-way crockery
- glass and porcelain look nicer
- no need to hand wash
- reduced costs for waste management
- avoidance of litter on the ground – looks nicer
- protection of the environment since waste is avoided.

This approach contributed to increase the acceptance and respect of the ban.

Yet legislative powers of cities are limited by federal law. Munich City couldn't ban the use of one-way drink packaging. Therefore it carried out 2 large-scale campaigns, in 1991 and 1992-1993, to promote returnable bottles for beverages. Since 1994, the City has been cooperating with retailers to strengthen the impact of the municipal campaigns. This cooperation led to the organisation of the Multi-Way System Weeks in 1998.

The waste avoidance strategy in Munich resulted in a sharp decrease in waste generation. This success is mainly due to a shift in the flow of materials from disposal towards reuse.

#### More information

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[http://www.awm.muenchen.de/gewerbe/i\\_gewerb.html](http://www.awm.muenchen.de/gewerbe/i_gewerb.html)

#### 3.2.2.2.2. Nuremberg: lending reusable crockery for free to households

The City of Nuremberg goes one step further in providing a service to encourage the use of reusable crockery: any inhabitants – including private households- can borrow for free plates, glass, knives, etc from the Red Cross. They only have to pay a deposit which they get back when returning the crockery. For larger quantities and open air celebrations, the City of Nuremberg makes available two fully equipped passenger car trailers that allows to transport the crockery and 1 dishwasher with all necessary connection. A beer tent set can also be rented. This service can be contracted at one of the recycling yards of the city. The use of reusable, returnable packaging and containers is compulsory for all events on public areas or in city organisations. Since 1992, reusable plastic cups with deposit are used in all urban outdoor swimming pools, the zoo and the fair centre, as well as in the stadium.

In complement, organisers are to separate their waste. They may be required to submit a waste management project before the event. They have to explain how they will prevent waste and collect separately the one which can not be avoided. The organisers of large-scale events receive the support of the waste advisors in this task.

About waste advisors in Nuremberg, see also point 3.2.4.2. *Reducing companies' demand for virgin raw materials.*

#### More information

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<http://www.asn.nuernberg.de>

#### 3.2.2.2.3. Marche Region: leaving the choice between reusable or biodegradable tableware for festivals and fairs<sup>11</sup>

In the Marche Region, there are a lot of local festival and fairs, characterised by the high consumption of one-way tableware and of packaging. In addition, such events produce large quantities of waste which are not separated and cannot be recycled. The initiative aims at encouraging the use of reusable tableware and of portable dishwashers, or of biodegradable tableware in public events. A system for selective collection (paper, plastic, glass, aluminium and organic waste) is set up to support the change. It can adapt to the expected participant flow and number of meals. It consists in a two-folded communication campaign directed:

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<sup>11</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

- on the one hand, at operators, festival organisers and workers, as well as at local authorities and at companies for waste collection and recovery service;
- on the other hand, at visitors.

The message is disseminated through posters, bills and info paper-mats, as well as mobile stations delivering direct information about waste management.

The operation is monitored by operators specialised in coordinating collection services for such events.

This project is supported financially by EU Structural Funds and its total budget is 143,575 euros.

#### More information

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#### 3.2.2.2.4. Catalonia: municipal renting and washing system<sup>12</sup>

In Catalonia, several municipalities also have reusable crockery (in plastics or glass) that they rent to organisers of events. In some cases, they leave to NGOs the care of managing the renting service and the washing of crockery. In other cases, the municipalities are themselves managing the full provision of service.

In general, the renting price is very cheap. Sometimes, the municipality only asks for a deposit which is refunded after deduction of the costs for broken items.



In such festivals, customers pay a deposit when they buy a drink and they get it back when they return the glass. The amount of the deposit covers more than the price of the glass. Indeed many customers go away with the glasses, because they are decorated with a slogan or a drawing. Among the municipalities applying this system, there are Sant Andreu (*Barcelona Sostenible*), Cardedeu, Girona, Molins de Rei, Sant Celoni, Sant Cugat del Vallés, Sant Vicenç dels Horts.

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<sup>12</sup> Source : Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

### 3.2.2.2.5. Milton-Keynes : diaper cleaning service



Over 10 million disposable nappies end up in Milton-Keynes landfills every year. They represent 6% of household waste in volume. The City Council has decided to address this stream by a promotion campaign for the use of reusable cotton nappies. This campaign was launched in 1999.

Such a product could face strong reluctance, as it is strongly connoted with old days and also with dirtiness. To overcome reluctance, Milton-Keynes City Council has edited a short guide “Keep Baby happy in a cotton nappy!” on its website in the form of “frequently asked questions”:

- explaining the various types of nappies and how to use them;
- demonstrating the financial benefits of reusable nappies: over 2,5 years, one can save about 360 euros when washing nappies at home;
- promoting the use of private washing services. They collect nappies at home and wash them. Using this service adds up to the costs but doesn't exceed those of disposable nappies;
- stressing the absence of chemical absorbers and the possibility to have organic cotton nappies.

Parents have the possibility to enjoy free demonstration and testing. From 2002 onwards, pregnant women have the possibility to pre-register with a washing service before going to hospital. When returning home, they can benefit from a reduced price for the service.

Similarly, the City of Munich subsidises the use of reusable diapers and diaper cleaning service. And the municipality of Leuven offers to young parents to try and use reusable nappies in the maternity ward. When they adopt the system (about 5 % of them), they receive a “birth subsidy” in the form of vouchers for reusable nappies and cleaning service worth 100 euros.

#### More information

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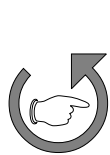
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### **3.2.2.3. Discussing the potential of Information and Communication Technologies (ICT) for dematerialization**

Another debate rages between experts: will ICT benefit the environment? There is nothing less straightforward. This deserves discussion not only between experts but also with the users. Indeed, many potential benefits might result from the proper use of the technologies. This is why it is also important for LRA to generate discussion and thoughts on how ICT could prompt a more sustainable consumption. In addition, LRA are directly involved in implementing changes. Municipal employees need to be educated on how to best use computers, printers and other electronic devices in order to minimize energy consumption and waste. The attempt of the Brussels Region in this matter presents an exhaustive illustration of what is possible to do. (see page 64)



#### **Good practice**

- Kolding: dematerialising municipal documents with ICT

#### **3.2.2.3.1. Dematerialising municipal documents with ICT**

The Danish City of Kolding is striving for reducing paper use thanks to a sound use of Information and Communication Technologies.

The general contracts for IT equipment (copiers, printers) secure that products with duplex function are available to all institutions. However, the use of this function is not monitored. Thus the Mayor has initiated additional efforts to reduce paper consumption in specific situations. Traditionally the documents for the meetings of the Town Council have been circulated on paper to a very large number of target persons: the Members of the Council and of the different Committees, the director of the municipality, the press and the information manager, the libraries, etc. Not all the recipients are interested in – or have time to read these documents, and most of them are absolutely useless and probably quickly end up in the paper bin.

Now, a Mayor's decree specifies that printed documents are only given to the standing Members of the relevant committees and the library. The other members of the Town Council and the Director of the Municipality receive them by e-mail and other interested parties can find them on the home page of the municipality.

This measure resulted in a significant decrease in paper consumption of the administration by about 10% in 2002. This corresponds to 1,800 kg of paper, 412 kg of which have been saved at the town hall. Still the potential for paper saving is high either by avoiding the distribution of unnecessary printed copies and / or by duplex copying.

Using e-mails and Internet not only reduce paper waste, it also increases work efficiency by reducing the need and time for copying and sending. It also ensures a much faster and larger communication to the press and the citizens in particular. However this approach also implies that the recipients behave environmentally consciously and print only the necessary documents.

#### More information

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#### **3.2.2.4. Educating children to be the future responsible consumers**

Children are citizens of tomorrow. Environmental education targeting children is increasingly developing, assuming that good habits taken during childhood remain in adulthood. Educating children to environmental protection contribute to raise environmental awareness of their parents and close relatives. In all European countries, municipalities closely interact with schools. A number of local authorities seize this opportunity to explain to children and teachers the environmental issues related to waste and to encourage waste avoidance and recycling. The examples of Hasselt and Charleroi in Belgium, of the Hampshire County in the UK, of Darmstadt in Germany and Bologna in Italy, illustrate how to involve schools and pupils in the sustainable management of resources. In Varese, the competition for waste prevention stimulates children creativity while drawing their attention to the issue. Since 1982, Pamplona have been teaching children how to compost.



#### **Good practice:**

- Hasselt: voluntary environmental agreements between the municipal administration and the schools
- Hampshire County: waste prevention in school curricula
- Province of Varese: school competition for waste prevention actions
- Landkreis Darmstadt-Dieburg: working group in schools
- Charleroi invites pupils to sign the Green Knight's Charter
- Bologne: yearly campaign for the environment at school
- Pamplona: education to composting since 1982

#### **3.2.2.4.1. Hasselt : voluntary environmental agreements between the municipal administration and the schools**

In the city of Hasselt, a large campaign for waste prevention at school has been carried out over 1998-1999 and 1999-2000. The objectives were threefold:

- to raise awareness of children, their parents and their teachers,

- to induce behaviour change,
- to reduce the amount of waste to be handled by the municipal services.

- Background

Hasselt is situated in the Flemish region in Belgium and has about 68,000 inhabitants and 59 schools.

The campaign was based on voluntary environmental agreements between the city government and schools. By concluding this agreement, schools committed to reduce their waste production. They could choose between 3 types of contracts: small, medium or large. Large contract involves the most important efforts and requires more support than the other ones. They were offered the choice between a wide range of supporting measures, such as composting containers and wormeries, drinking fountains, educational games about environment and waste, durable drink cups, composting experts lecturing in schools ... The municipal council committed to offer logistic support and a financial incentive. To further ensure support and cooperation from schools the initial campaign plan developed by the environmental service was discussed with the school boards and adapted following their remarks. A logo and a poster were created to make the project visually attractive and recognisable. The budget to carry out the activities agreed upon in school contracts represented about 55,000 euros per school year.

- Progress

The campaign targeted the 59 local schools, gathering 18,050 pupils. Each school has been contacted individually and received an extensive information package. The environmental department guided the schools at the beginning of the project. A first evaluation, in January, assessed to which extent the schools were complying with their agreements. This evaluation allowed to discuss their difficulties and to suggest solutions. At the end of the school year, a final evaluation was carried out through personal visits and "solid evidence" given by schools. A report published was for each school. The bench of aldermen decided, on the basis of these reports, whether the schools had complied with their environmental agreement or not.

Results were presented to the public in a closing ceremony. The schools were given the opportunity to present their results and explain their experiences. The mayor rewarded each of the successful schools with a financial price, according to their contract.

- Activities and behaviour change achieved

- Thrifty use of paper

Most schools used paper sparingly for financial and educational reasons. Before the project, teachers and administration regulated the use of paper. Pupils are now involved, since each classroom has now a container for paper waste, and they have realised that they should use both side of a sheet.

- Recycled paper

20 schools have introduced the use of recycled paper, and 11 only use such paper.

- Re-usable drinking cups

The introduction of re-usable cups faced difficulties. Financial reasons and doubts about the environmental benefit were the main obstacles. Eventually, participants acknowledged that large-size packaging is cheaper than individual one and that returnable bottles and drinks produce less waste in the long run.

- Lunch boxes

Secondary school students were the more reluctant to use lunch boxes, yet constant efforts of teachers and students' committees succeeded in convincing pupils.

- Drinking fountains

They contribute to avoid disposable packaging. The city council and the water company subsidised the investment. Children really found them cool and used them a lot.

- Composting at school

The project raised awareness on the important contribution that composting containers, wormeries and chicken have for reducing organic waste. The support of composting experts was crucial in the success of this measure.

- Organisation of environmentally-friendly events

Many schools adopted crockery instead of disposable cutlery and cup, despite the increased amount of work that it implied. Efforts for waste reduction were also maintained during school trips.

- School regulations

Waste reduction measures were included in the school regulations. The support of the city council to the project facilitated this inclusion. Parents have to sign the regulations: further to being informed, they express their agreement to the waste prevention approach.

- Waste saving recommendations for pupils and their parents

Many schools introduced an environmental column in their school paper, to inform parents and pupils about the environmental efforts carried out in the school, and about the regulations adopted. Most parents appreciated that the schools pay attention to environmental issues.

- Results

In the first year (1999-2000), 31 schools out of 59 participated. In total, the city awarded 28 schools, for a total amount of 20,000 euros. 3 schools gave up in the course of the project. 3 schools which signed the medium-contract and 1 school which signed the large contract didn't meet the conditions and only succeeded in the small contract.

The campaign reached 9,586 children. Their parents, grand-parents and day-care mothers also received the message through the school regulations, the logo, the posters and several environmental activities.

The schools didn't have to measure their waste reduction, to reduce their work load. However, they testified that that they achieve 50% waste reduction on the basis of the number of containers and waste bags produced.

- Evaluation

Schools appreciated the educational value of activities. The financial and personal support are good incentive for participation. The results achieved in awareness raising and behaviour change are satisfactory. Yet, in this form the project is quite labour-intensive. The environmental service of Hasselt decided to replace it under another, lighter form.

#### More information

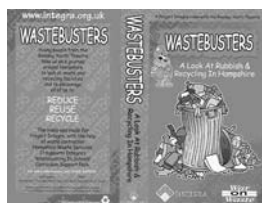
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#### 3.2.2.4.2. Hampshire County: waste prevention in school curricula

The Hampshire County Council launched a campaign “wastebusting in schools” in 1998, within the framework of the INTEGRA project, a project for integrated waste management promoting waste reduction, reuse and recycling.



An education pack was distributed to schools. Waste information and case studies made up the pack designed for pupils aged 8 to 14. It could also be used as a starter/stimulus for further work by older pupils. This activities-based pack presented environmental ideas with direct links to core and foundation curriculum subjects. Science, geography, maths and technology were identifiable in the various materials presented.

The pack has several sections with teachers’ notes, starter pupil activity sheets, information sheets and case study notes. Pupils’ skills would be improved through cross-curricular studies, environmental awareness, conducting successful enquiries, and fieldwork activities based on Hampshire’s waste management sites and study centres.

Most of Hampshire schools also received a 10-mn-video called «Wastebusters - a look at rubbish and recycling in Hampshire». It was made by Project Integra with the Romsey Youth Theatre, Hampshire Waste Services and Storyboard Films. Young actors and actresses from the Romsey Youth Theatre took the audience on a tour around waste and recycling sites in Hampshire, from a landfill site to a Materials Recovery Facility, quoting facts and figures about how everyone can reduce, reuse and recycle.

#### More information

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#### 3.2.2.4.3. Province of Varese: school competition for waste prevention actions<sup>13</sup>

The Province of Varese in Italy organises a competition for schools about waste prevention, in cooperation with the Education office of Varese, the centre of reference for environmental education (CREA Varese), and 5 local waste management companies.

School children between 6 and 18 are invited to compete in one of the 4 categories:

- “communicate”: to develop a communication campaign;
- “know”: to produce educational materials on the reduction of waste for schools;
- “plan”: to set up real minimisation actions at school, in municipal buildings or in a shop;
- “play”: to create a game on waste prevention.

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<sup>13</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

In October 2002, a workshop has been organised to introduce the issue of waste prevention to pupils. They had 6 months to prepare their project and there are twelve prizes of 2,500 euros to win. This 30,000 euros is provided by the Province of Varese and the 5 waste management companies.

#### More information

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#### 3.2.2.4.4. Landkreis Darmstadt-Dieburg: working group in schools<sup>14</sup>

The Darmstadt-Dieburg Landkreis (in the German Land of Hesse) introduced in 1992 a waste sorting scheme in schools, accompanied by a number of awareness actions, concerning waste and how to reduce it. These actions included *ad hoc* teaching material, theatre, information and awareness posters, etc. Questionnaires for gathering statistical data and other information were distributed, along with a prize for around 2,000 euros for the best suggestions on waste prevention.

The campaign, backed by an expert consultant, included recommendations such as:

- Setting up organic waste composting at schools
- Purchase and distribution of environmentally-friendly material, especially at the start of the school year.
- Organization of a waste-free breakfast
- Using reusable dishes

Since 1997, a working group on *ecological schools* has been bringing together interested people via exchanges of information and experience in this area. A number of teaching tools, including videos on waste prevention, have been prepared.

Moreover, between 1995 and 1997, 13% of schools managed to reduce their *waste budget* by 50%.

#### 3.2.2.4.5. Charleroi invites pupils to daily practice waste prevention

ICDI, the organization in charge of waste management for the region of Charleroi, in Belgium, set up a waste prevention department, in charge of raising awareness of the different identified target groups: children and young adults, householders and people striving for social and cultural integration.

Whereas the messages remain identical, their dissemination varies according to the group (games, translation into Turkish or Arabic, interactive activities, exhibitions, training of “eco-intermediaries”, etc).

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<sup>14</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire URBAL*, Malaga, 8 & 9 mai 2003.



Active, multi-purpose coordinators take turns in the field. Any awareness-raising action begins with conferring with local authorities in order to define the most appropriate approach. A meeting is organised at the beginning of the year, to define the time schedule. A second meeting engages the municipal authorities, and representatives of education, of the elderly, of trade, of social services, of local associations and possibly of immigrants' communities, etc. During this meeting, an action plan is drafted.

The Prevention team undertakes various activities in schools and adapts them to the age of children (from 4 to 20 years). For each *theoretical* activity introduced, a *practical* one allows the audience to validate their knowledge: visiting container parks, installing a composting site at school, etc.

It is important to be able to give the necessary impetus to change waste management behaviour in the entire school. ICDI proposes a meeting with teachers to discuss which activities to use to carry out a class or school project. The bursar, the kitchen and cleaning staff, may be trained to implement waste prevention in purchasing material. Whenever possible, the co-ordinators meet also representatives of the parents. Finally, assistance and advice is offered to schools on managing their waste.

ICDI welcomes children to specific events, such as exhibitions, weeks of cleanliness, etc. For these events, ICDI creates specific tools. For instance the *Green Knight's Charter* encourages children aged between 5 and 12 years to adopt an environmentally-friendly behaviour throughout the school year. Each month, 55,000 children discover an environmental theme, with a lexicon, a poster of advice and contests. Children can participate either individually, either through a school project.

#### More information

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#### 3.2.2.4.6. Bologna : yearly campaign for the environment at school<sup>15</sup>

In Bologna, Italy, a local project akin to Agenda 21, called *Scuolambiente*, was launched in 1993 in nearly 700 preparatory schools.

The various actions in this yearly campaign include:

- An analysis of waste in schools and household waste with the pupils;

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<sup>15</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

- Replacing disposable plates and dishes by reusable ones;
- The staging of plays such as “*The King of Waste*” for children aged 3 to 7 years in 1994 and 1995;
- The use of a laboratory van called “*Rifiuti...ma non troppo*” and an interactive exhibition made available mainly to schools;
- The design of a book, entitled “*The Tale of the Smelly Magician*” who transforms his castle surrounded by waste into a magnificent garden full of games made with recycled products.

#### 3.2.2.4.7. Pamplona: education to composting since 1982<sup>16</sup>

The pupils learn to build, with second-hand material, a garden with organic crops, to make compost and to avoid or reuse waste. On the basis of these pilot projects, a strategy has been set up to extend and replicate the activity to the whole area of Pamplona. This dissemination is supported with many exhibitions, pedagogic material such as books, videos, comics, and activities carried out by the “Mancomunidad de la Comarca de Pamplona”, which gathers the municipalities of Pamplona and Comarco.

### **3.2.3. ENCOURAGING CHANGE IN CONSUMPTION BEHAVIOUR**

#### ***3.2.3.1. Promoting environmentally-friendly products in shops***

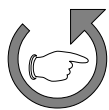
The offer for products with eco-labels is still limited in store shelves. A growing number of local and regional authorities are developing alternative information and marking systems for existing products that have reduced environmental impacts in terms of waste, in comparison to their neighbours in the shelves. Municipalities cooperate with local shops to make visible the identified products for consumers. The large media coverage for these actions encourages shops to participate. Such initiatives have the double advantage to act both on the demand side and on the offer side.

The association of municipalities in charge of waste management for the area of Charleroi (Belgium) is consolidating its prevention actions with the provision of practical information to consumers at the point of sale at certain times in the year. Stickers indicate products that generate less waste. This punctual initiative helps consumers to visualise the advice disseminated all the year long. Similarly, three European regions - the Sangone Valley (Italy), Sant’Andreu de Llavaneres (Spain), and the Communauté des communes du Pays de Sorgues et des Monts de Vaucluse (France) – have developed cooperation with local shops, hotels and restaurants, to modify both the offer of products and the consumption habits of consumers.

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<sup>16</sup> *Ibid*





### Good practice:

- Charleroi: partnership with supermarkets to label products generating less waste
- Meudon & Mérignac: labels with a three fold message
- Savigliano: eco-label for Re.Re. „Reduce and Recycle“
- Eindhoven: ecological purchasing
- Arzignano (I), Cornella & Baix Camp (E), Corse: promoting alternatives to shopping bags

#### 3.2.3.1.1. Charleroi: partnership with supermarkets to label products generating less waste

How can customers recognise products which produce less direct packaging waste when they are shopping? To support customers in choosing such products a large campaign has been carried out in 170 supermarkets in the region of Charleroi (Belgium). It is organised by the District waste management authority, ICDI, and a local environmental NGO, Espace Environnement.

The campaign consisted in:

- “Less waste” labels placed below each product generating less direct packaging waste, for 2 months maximum
- Information leaflets available at each supermarket checkout during one week (3 times a year)
- Broadcast of a message to inform consumers about the campaign (every 30 mn)
- Assessment of the impact on the sales of the concerned products
- Organisation of a “minimisation week” with shop windows displaying products generating less waste
- Supermarket visit with adult groups

Espace Environment is in charge of placing the labels. In complement, ICDI prevention team carries out surveys among customers after the labels have been removed, to check if they properly understood the meaning of the labels. Whenever possible, ICDI also displays complementary information posters and the ICDI prevention team meets customers in the shops to explain their objectives.

The labelling was decided upon by the campaign organisers in close cooperation with the supermarket managers and staff. Twice a month, its accuracy was checked. The campaign was also promoted in the different municipalities of the area.

The campaign was part of the waste minimisation strategy adopted by the «Brabant Wallon» Provincial Council district and the district of Charleroi for waste collection and management.

The success factor for the campaign was the close cooperation between the ICDI – the public authority responsible for waste management, Espace Environnement - a local environmental NGO, and the supermarkets' managers and staff. Such a cooperation is a useful complementary way to stimulate citizens' involvement in waste prevention.

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#### 3.2.3.1.2. Meudon & Mérignac: labels with a threefold message<sup>17</sup>

In France, the cities of Meudon and Mérignac got involved, alongside the Monoprix grocery stores and the *Agence nationale publique pour l'environnement et l'énergie* (ADEME), in product labelling schemes. More specifically, Monoprix transcribed onto the labels of its products a threefold message, illustrated by pictograms:

- "I choose (this product because its manufacturing has a lower impact)";
- "I use (this product in the best way to limit its environmental impact)";
- "I sort (this product or its packaging after use because recycling depends on my effort)".

#### 3.2.3.1.3. Savigliano: eco-label for Re.Re. „Reduce and Recycle“

The Re.Re. project has been carried out in parallel in four municipalities: Sant'Andreu de Llaveneres, Catalonia, the Communauté de Communes des Pays de Sorgues et des Monts de Vaucluse, Provence, and Savigliano and the Sangone Valley, Piedmont, between November 2002 and March 2004, with the financial support of the European Commission. Three environmental organisations - the Escola de Natura (Spain), the Centre Méditerranéen de l'Environnement (France) and E.R.I.C.A. s.c.r.l. (Italy) – coordinated the realisation of the project in their respective countries, in cooperation with local municipalities, consumer and trade associations, and shops. The approach consisted in informing and acting both on the offer side and on the demand side, with the objective to compare the results of a series of initiatives concerning the reduction of waste, the domestic composting and the selective waste collection in the three countries.

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<sup>17</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

- Methodology

The work started with a social and technical analysis of the situation. Then three informative campaigns were carried out. The first one was on waste reduction and targeted both customers and the shopkeepers, as well as hotel and restaurant managers. The latter were invited to participate in some meetings to discuss how they could help the environment and achieve practical solutions. The second campaign addressed domestic composting, with information sessions and tax reduction for those practicing. The ultimate campaign was on selective waste collection to remind all the rules. Finally the results have been presented to citizens and public administrators during three conventions in April 2004.

- Offer and demand of greener products

Following proposals made by managers of local shops, hotels and restaurant, during the meetings, an environmental quality label has been created and certified by public authorities. Many local shops signed an agreement proposed by the municipalities and the associations of consumers and trades.



They committed to introduce products with more environmentally-friendly packaging, without packaging or rechargeable. They agreed to follow the quality charter and received the Re.Re's Label "Reduce and Recycle" with the image of the green ant to place on their shop-windows. Hotels and restaurants did special efforts to have less one-use products. In parallel, consumers received information on the meaning of the quality label through general mailings, advertising posters and at information meetings. At these occasions, they received a reusable shopping bag and a leaflet with tips for shopping with less waste.

- Monitoring and results

As a result of the modification of product offer and consumption choices, complemented with the increasing practice of home composting, the production of waste started to decrease.

The total minimisation of waste for final removal in 2003, in comparison to 2002, represented 6% of the total production in Savigliano, 15% in Sangone Valley, 5% in Sant Andreu de Llavaneres and 13% in the Communauté des Communes du Pays de Sorgues. The total minimisation in 2003 amounted to 3,563.7 tonnes.

This project highlights that intensive information campaigns combined to practical actions on offer and demand of products can contribute to reduce waste generation.

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<http://www.envi.info>

#### 3.2.3.1.4. Eindhoven: ecological purchasing<sup>18</sup>

In the Netherlands, the city of Eindhoven also led in 1998 a big campaign for ecological purchasing. Four large shopping centres were selected and awareness actions were developed with all the available means, such as posters, brochures, newsletters, special labelling for certain products on store shelves, press statements, radio interviews, information stands, etc. A budget of 13,000 euros was allocated to the *Winkelen in een goed milieu* campaign, which in the end brought about long-term changes in behaviour in only 2% of cases.

#### 3.2.3.1.5. Promoting alternatives to plastic shopping bags

- Biodegradable shoppers in Arzignano<sup>19</sup>

The first step of the campaign consists in raising public awareness on the waste issue. Then, the administration approaches the retailers and offer them to sign an agreement. The retail organisations commit to use and distribute shopping bags made from materials biodegradable and renewables. In turn, their names are listed and published in the municipal newspaper. The initiative has been well received by the citizens in Arzignano and the retailers have bought and used 10,000 biodegradable shopping bags in 3 months.

#### More information

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Ambiente@comune.arzignano.vi.it

- Biodegradable or fabric bags in Spain<sup>20</sup>

In Spain, in Cornella (Barcelona) and in Baix Camp (Tarragona) biodegradable plastics bags are also promoted as alternative to plastics shopping bags. They can be used afterwards to collect the organic fraction of waste. In the municipalities of Molins de Rei, Castelbisbal, Santa Coloma de Gramenet and in the Barcelona district of San Andreu del Palomar, a campaign encouraged customers to use fabric shopping bags. The campaign has been carried out in cooperation with a network of retailers (see 3.2.3.3. "Monitoring progress towards sustainable consumption behaviours"). In La Coruña, fabric shopping bags are given for free. They bear the motto "Take me to go shopping! Without plastics!"

- Bringing an end to plastic bags in Corsica<sup>21</sup>

The *Assemblée de Corse* unanimously approved on 15 May 2003 a motion banning the use of disposable non-biodegradable plastic bags in stores. On 23 and 24 May, the large chain stores, such as Carrefour, Système U and Géant Casino, together with the Territorial

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<sup>18</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

<sup>19</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

<sup>20</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

<sup>21</sup> Comité 21



Authority of Corsica and the Corsican Office of the Environment, organized a consultation of consumers so that they could choose a replacement for plastic bags (shopping bags with a deposit, bags made of corn starch or paper bags). Some 30,448 votes were cast in the 8 participating stores. Shopping bags with a deposit (61% of votes) and paper bags (19%) were then made available in the stores. This result grew out of an action launched in 1999 by the Festival du Vent in Calvi.

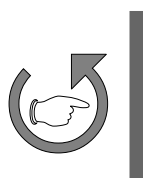
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### **3.2.3.2. Rewarding sustainable consumption choice**

Considering the barriers to the change in consumer's behaviour led the municipality of Rotterdam to set up the NU-Spaar project. It aims to support consumers in adopting a daily sustainable behaviour. Each choice for a clearly identified sustainable product or behaviour is rewarded with a sustainable bonus. This tends to create a virtuous circle. Increase the demand for sustainable products, promote sustainable citizens daily behaviour, stimulate waste separation and re-use, stimulate public transport and increase the supply of sustainable products by SMEs, here are the main objectives that the municipality of Rotterdam pursued by launching the NU-card.

Rotterdam is the second biggest city in the Netherlands, with 600,000 inhabitants and the world's largest harbour. It has ambitions to be a leading sustainable city. In May 2002, the Department of Environment, the municipal public transport organisation RET and the municipal waste company Roteb formed a partnership to launch the NU-card project. The project was sponsored by the European Commission ( LIFE ) and the Province of South Holland. It also benefited from the support of the co-operative Rabobank Rotterdam and Group and the development agency Barataria.



#### **Good practice:**

- Rotterdam: the NU card

#### **3.2.3.2.1. Rotterdam: the NU card**

##### **Instrument: the Sustainable Incentive Card**

The NU card is an incentive card for sustainable purchases of consumers. It is based on chip card technology. NU points are given to cardholders as a reward for specific actions and for purchases of specific sustainable goods and services. The points are redeemed for (other) environmentally beneficial products.

The card has two moments with a positive incentive for sustainable behaviour: saving the points with sustainable (purchasing) behaviour, and spending the points on sustainable goods and services.

- Savings List

The Savings List includes purchases of sustainable products (of interest for the private sector) and sustainable behaviour (of interest for the local government):

- Renewable energy, insulation materials, A-label equipment, High Yield heaters, etc.
- Eco-labelled products (like organic foods).
- Green financial products.
- Deliverance of separated waste fractions.

- Spending Lists

The Spending List contains sustainable goods and services that constitute an appealing reward, like:

- Public Transport and other forms of sustainable city transport (bike rental, car share).
- Eco-efficient products, primarily products with low energy intensity, including culture and education.
- Re-used products and repair services.

Thus the NU card gives a new stimulation to sustainable behaviour of consumers.

- Expected results

The Project NU is significant because it will be a powerful tool to:

- Motivate trend-followers to behave more sustainably.
- Increase the market shares of sustainable goods and services.
- Activate the public on specific sustainable and environmental issues, where authorities now often do not have an effective tool.

Where many instruments are situated on the supply side or at the information level, the Sustainable Incentive Card works on the demand side. The instrument actually changes daily behaviour and the demand for sustainable products.

- Assets of the NU card

The NU card is different to many other instruments in a fundamental way. It notably provide the following assets:

- Positive: NU is a positive instrument. Consumers get an incentive, not a penalty.
- Behaviour: Often it is expected that information will lead to a shift in attitudes, which will then lead to a change in behaviour. The NU card starts at the other end. An incentive is given to sustainable (purchasing) behaviour. The cardholders will be more open for information (to get more rewards). This will lead in time to internalisation of sustainability.
- Demand side driven: Where many instruments are situated on the supply side or at the information level, the NU card works on the demand side. NU stimulates the demand for sustainable products, rather than supplying more products.
- Marketing tool: the NU card is a marketing tool for sustainable consumption patterns.

More information

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info@nuspaarpas.nl - <http://www.NUspaarpas.nl>

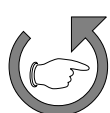
### **3.2.3.3. Monitoring progress towards sustainable consumption behaviours**

Several public authorities have launched pilot projects at a regional scale with the aim of supporting citizens in changing their consumption behaviour. These initiatives are based on one simple principle: making people to commit before their peers to realise certain actions and to regularly report on their progress. This approach helps people to fight against the feeling of loneliness and of helplessness that often results from isolated actions. It aims at helping consumers realise that each small action counts and that altogether, they have a real power for influencing the offer of products and services. In this view, the monitoring of actions is crucial.

This approach is extensively used by Ecolife, a Flemish non-profit organisation which started working at the beginning of the nineties. It organises campaigns with the support and in cooperation with cities, provinces, the Region and other local and regional actors. They aim to showing practical experiences and to supporting consumers in the development of step-by-step actions to achieve workable and measurable goals.

In the Province of Barcelona, not only are consumers invited to modify their behaviours, but shops are encouraged to change their offer. Monitoring of changes in behaviour occurs through surveys and objective counting among both groups of actors.

In cooperation with the Walloon Region, another non-profit organisation, Espace Environnement has involved a team of 30 households in making and monitoring during 12 weeks as many gestures as possible in favour of waste prevention. It is worth noting that in 2002, the Walloon Region set up the «consumers schools». These places aim to welcome those - and notably the more impoverished people - who seek to consume less, or differently, or better, and aim to manage as well as possible their budget and their daily life.



#### **Good practices**

- Flemish Region: Ecolife projects
- Barcelona: indicators of behaviour change in offer and demand
- Charleroi: the “Prevention Puzzle” project

#### **3.2.3.3.1. Flemish Region: Ecolife project**

##### **• Custom-tailored campaigns**

Ecolife is a Flemish non profit organisation which started working at the beginning of the nineties. It organises campaigns where people are encouraged to adapt their lifestyles and consumption patterns. These campaigns are developed with the support and in cooperation with cities, provinces, the Region and other local and regional actors.

With its unique experience and competence in developing and animating information campaigns, Ecolife has developed with partners from local and regional authorities various

programmes to help citizens and consumers to adopt more ecological lifestyles. Each campaign is adapted to the specific public and to their needs and interests.

They have thus developed campaigns for consumers, for students, for retailers, for people working in administrations or in small companies, for the building sector,... Campaigns address as well a waste production as electricity or water consumption, mobility, heating, construction or thermal isolation.

- Eco-teams for changing lifestyle

With those partners, Ecolife has launched the Eco-teams. Each team is composed of about 10 person which meet approximately 8 times. The topics of discussion can be selected among the following issues: waste, electricity or water consumption, mobility or domestic heating. The team chooses itself the date and frequency of meetings as well as the topic discussed. In 6 years, more than 250 eco-teams have been created. Each one is supported by a guide, one of the ten collaborators of Ecolife which participates to the firsts meeting and to three other thematic sessions. Each participant receives a workbook which provide background information and an extensive set of practical tips. The participation to these sessions is not free. Each participant has to pay about 18 euros. However, these are rapidly paid for themselves. The teams have calculated that in average, savings amount between 150 and 250 euros on each participant's invoices for electricity, water and waste during the stay with the eco-team.

- Measuring is Knowing

According to its experience, Ecolife estimates that a key success factor of its campaigns is the correct measure of the results achieved. In the eco-teams, each participating household is requested to measure regularly and to keep in a notebook the situation of the water or electricity meter, to estimate the volume of waste and the numbers of kilometres driven by car.

Various actions developed by Ecolife allows participants define beforehand measurable targets for changes and to quantify progress realised :

- the Ecoteams can estimate their savings in % (of electricity or water consumption, of heating expenditures on of waste production),
- the Ecoscore campaign, which use ecological footprint, allow people estimating the number of m<sup>2</sup> of Earth area they spare,
- participants to the Bet, a challenge between university students and the Belgian Minister of the Environment, calculate their savings in kg of CO<sub>2</sub>.

On the average, an "ecoteamer" reduces its waste from 1,47 kg per week to 1,0 kg (32%) at the end of the programme, electricity consumption is reduced from 26.8 kWh/week to 23.5 kWh/week (12.5%), and water consumption from 73 litres/day to 64 litres/day (12,5%).



- Ecoscore – save some hectares of the Planet !



In October 2001, 13 municipalities of the Kortrijk Region started the Ecoscore project. Among the 260.000 inhabitants of the Region, 116 households committed themselves to try during 100 days some initiatives they chose among the tips provided for actions around heating, hot water, food, kitchen, electricity, waste or mobility.

Each household were provided with calculation methods and data's allowing to assess the progress realised.

Calculation methods of the Ecoscore :

The Ecological Footprint allows people to estimate the surface area of Earth saved for various saving initiatives as the table below illustrates for various examples :

1 kWh	2,6 m <sup>2</sup>
1 L oil	8,9 m <sup>2</sup>
1 L petrol	11,6 m <sup>2</sup>
1 kg biologic beef	261,0 m <sup>2</sup>
1 kg fresh beans	9,7 m <sup>2</sup>
1 kg deep-frozen beans	14,5 m <sup>2</sup>
1 m <sup>3</sup> gas (40MJ/m <sup>3</sup> )	7,4 m <sup>2</sup>
1 kg white paper	20,8 m <sup>2</sup>
1 kg recycled paper	7,15 m <sup>2</sup>

This allows calculating that one day with one sticker against free advertising on the mailbox allows saving 2,26 m<sup>2</sup> or that one day without meat allows an economy of 5,8 m<sup>2</sup> per person or that replacing fruits from greenhouses with seasonal fruit reduces the ecological footprint by 8,99 m<sup>2</sup> per kg<sup>22</sup>.

At the end of the first project in Kortrijk, the participants succeeded to save an area equivalent to more than 100 football pitches. This represent an average 10% decrease compared to the start of the project and approximately 25% less than the average Flemish household. During the project, most tips applied addressed food, home heating en water consumption. The actions with the most significant results concerned food (29% of the total savings), heat (26%) en mobility (23%).

<sup>22</sup> <http://www.ecoscore.be/nl/tips>

- A rapidly spreading initiative

Participants are generally happy with the project. The application of easy to implement advices and the immediate evaluation of results contribute to determine objective oriented actions and to illustrate that each small actions count and that, together, they can make a difference: “*a journey of a thousand miles must begin with a single step*”.

At the end of the first project a new one has started with 78 participating households and a third initiative started in February 2003 in the province of the Flemish Brabant (250 households were expected to take part). The project is already extending in the Walloon region where projects were supposed to start in 2003.

More information

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<http://www.ecolife.be/home.asp>

3.2.3.3.2. Barcelona: indicators of behaviour change in offer and demand<sup>23</sup>

In 2001, Barcelona has been the first in Spain to develop a series of based on a well-defined methodology and an efficient method to assess the results. The pilot project started in three municipalities: Molins de Rei (20,198 inhabitants), Castelbisbal (8,967 inhabitants) and Santa Coloma de Gramenet (116,604 inhabitants). In 2002, a similar short experience has been conducted in Sant Andreu del Palomar, another district of Barcelona.

To assess the results, indicators were developed according to the objectives pursued. They were established for the offer side and the demand side, following the desired types of behaviours: suppression or avoidance of packaging, reduction of packaging, consumption of environmentally friendly products, environmentally friendly behaviours, assessment of the management of the campaign by consumers. Sub-indicators allow to refine this assessment and to distinguish the demand side and the offer side.

For instance, on the consumer side, the suppression or avoidance of packaging can be done through:

- using fabric shopping bags
- using reusable boxes (tupper-ware)
- avoiding to use punnets in expanded polystyrene
- avoiding to use plastic bags

And on the offer side, avoidance of packaging is measured by:

- substitution of PVC packaging
- avoidance of packaging in expanded polystyrene

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<sup>23</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

- increased offer of products in renewable packaging
- avoidance or limitation of the offer of free plastics bags
- perceived reduction in the demand for plastics bags

In addition, each sub-indicator may be used (or not) according to the different types of shops: restaurants, supermarkets, food store, clothes, grocery shops, chemist's shops, stationeries.

Results vary in the different municipalities. In those where selective collection already exists, the population has good knowledge of the waste issue and the campaign has been means to reinforce behaviours and strengthen good habits. The promotion campaign has been efficient and a large number of persons were aware of it. The level of acceptance was high as well, with 47 % of the population surveyed in Molins de Rei considering that the most efficient means to avoid environmental impacts of packaging is to consume less packaged products. Similarly, the demand for plastic bags has diminished.

#### More information

Programa de Minimización de Residuos del Programa Metropolitano de Gestión des residuos municipales de Barcelona (PMGM) of 1997  
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#### 3.2.3.3.3. Charleroi: the "Prevention Puzzle" project

In 2003-2004, the NGO Espace Environment from the region of Charleroi, in cooperation with the Walloon Region and the network "Eco-consommation", carried out "The Prevention Puzzle". This European project aims at involving a group of 30 households in a common effort to change their consumption behaviour, with positive effects for their own quality of life and for the environment.

It is based on the same principle as the one to quit smoking or to lose weight. Households commit to take action before a group of peers. They are asked to monitor their attempts. Each household sets a personal challenge regarding the final prevention score that they may achieve. They receive a number of tools to monitor their efforts in waste prevention: scales to weight their waste, thermometer to check the temperature of the fridge, water carafe, and a "calculator". On a daily basis, they must report in the "calculator" each gesture done (or not) to avoid waste; the maths are done every week.

Several activities are organised to support households in changing their behaviour, to provide them with background information and practical tips, and also to allow them exchange their experience:

- a launching meeting,
- the visit of the ACRR exhibition "The Earth, a user's guide" on the impacts of lifestyles on the consumption of natural resources,
- the visit of recycling parks and of a supermarket to better understand how to choose environmentally-friendly products.

The results are quite positive, both in terms of change of behaviour and in terms of appreciation by the households. Positive behaviours increase after the second week and until the ninth week. For instance, they start drinking tap water or buy biscuits in large packaging. After two months (the average attention span for any communication project) the interest decreases and people stop reporting all their gestures.

Households were very enthusiastic to have an opportunity to go even further in their waste prevention practices; indeed, they all volunteered and a large majority of them was already composting. They suggest to improve the system by allowing to record absolute waste avoidance – such as turning down plastic bags at the cash desk – or the decrease in volume of waste. This latter approach is all the more interesting that they are taxed on the number of bags they use. This project is also been carried out in Rennes (France), Brno (Czech Republic), Vienna (Austria) and Warsaw (Poland).

#### More information

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<http://www.espace-environnement.org/puzzle.htm>

#### **3.2.3.4. Educating to use wisely**

The way products are used also significantly contributes to the overall environmental impact of these products. When choosing them, it is thus also important to consider how it will be used. This is true when deciding to reuse a product instead of choosing one-way goods. It is also important for the consumption of energy or paper. Indeed the main impacts of the use phase for electronic appliances relate to the consumption of energy (electricity, gas). For detergents, impacts come from the nature of the products and the quantities used.

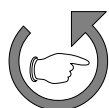
The detergent industry carries out an information campaign to educate consumers on how best to use their washing-machines and detergents in order to protect the environment<sup>24</sup>. Local authorities have also an important role in educating users. The municipality of Kolding has set a protocole for the cleaning employees to minimize the quantities of product used and to reduce environmental and health impacts of these products. In addition, the municipality only buy green cleaning products.

Developing information tools for the general public is essential to disseminate background information about environmental issues on the agenda, important events related to the environment and possibilities for citizens to be involved in protecting the environment at the local level. Even if most administrations run a website with some pages designed for the general public, paper remains a core means for the dissemination of information. Municipal *ad-hoc* brochures as well as regular newsletters are therefore part of the means

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<sup>24</sup> Wash-right campaign <http://www.washright.com>

used to implement the environmental awareness-raising strategies of local and regional authorities. It is worth noting the number of publications from European cities and regions with tips and advices on how to adopt eco-behaviour either when choosing products (reusable, avoiding toxics), when using them (saving water, paper) or when disposing of them (second-hand). To mention only a few, the Bas-Rhin Province, Hampshire County Council, the City of Malaga.



### Good practices

- Kolding: using cleaning agents sparingly
- Bas-Rhin: 67 gestures for the environment
- Hampshire County: « Trash Attack »
- Malaga : the 10 ecological commandments

#### 3.2.3.4.1. Kolding: using cleaning agents sparingly

The minimisation of environmental impacts of cleaning agents is of concern for Kolding, in Denmark. Criteria on components are set for purchasing products with a reduced ecotoxicity. In addition, the occupational health service centre has developed a method to minimise the consumption of these products by the central cleaning service unit.

The cleaning agent is mixed with water in the litre measure, according to the dosage instructions. A clean mop is attached to the telescope shaft and the mixed solution is poured onto the mop. After washing, the wet mop is replaced with a dry one that is used to dry the floor and wipe up the dirt. Then the procedure is repeated until the floor is clean. When one of the mops becomes too dirty or wet, it is put in a bag for later washing. An average work day results in 2 kg of dirty mops per cleaning worker. This procedure is very advantageous as it saves cleaning agent and water.

#### More information

Municipality of Kolding - Mr Per Bodker Andersen - Mayor  
City Hall - Aksetorv 1 - DK-6000 Kolding  
Tel. + 45 75 50 15 00, ext. 2000 - Fax + 45 79 30 20 02 -  
borgmesteren@kolding.dk <http://www.kolding.dk>

#### 3.2.3.4.2. Bas-Rhin: 67 gestures for the environment<sup>25</sup>

In France, the *Conseil Général du Bas-Rhin* conducted in 1991 a communication campaign comprising 67 environmental gestures, which included the following:

- "I take my old clothes to a charitable organization"
- "I avoid using disposable plates, cutlery and cups"
- "I prefer refillable products"
- "I go shopping with a basket"
- "I use razors with reloadable heads"

#### 3.2.3.4.3. Hampshire County: "Trash Attack"<sup>26</sup>

In Hampshire, in the UK, a Trash Attack guide was launched in 1997 as part of a global project to raise awareness about preventing and managing waste (the INTEGRA project). This guide offers suggestions on how to reduce waste everyday, and answers the following questions:

- How can I reduce advertising sent by the post?
- Why should I buy reusable products or products without packaging?
- How can I avoid waste at the office?

#### 3.2.3.4.4. Malaga: the 10 ecological commandments<sup>27</sup>

Under the "sustainable city" campaign, the City of Malaga, Spain, and the CIEDES Foundation published in 1996 a book of stories entitled "Sueños de Noctiluca" that includes the story, "Un mundo de color" (A World of Colour) that highlights 10 ecological commandments, several of which refer to waste prevention:

- Though shalt conserve energy at home by turning off lights
- Though shalt turn off thy tap to save water
- Though shalt produce less waste, where possible
- Though shalt use environmentally-friendly packaging
- Though shalt not use chemicals that harm water
- Though shalt limit thy use of plastic bags
- Though shalt save paper
- Though shalt use a car moderately
- Though shalt not throw waste out of doors
- Though shalt think globally and act locally, so that Malaga will always look its best.

#### More information

[www.ciesdes.es](http://www.ciesdes.es)

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<sup>25</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

<sup>26</sup> *Ibid*

<sup>27</sup> *Ibid*

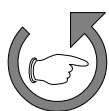
Many other cities have also developed and disseminated eco-behaviour guides, such as Helsinki in 2000.

### **3.2.3.5. Promoting repair and reuse**

In our consumer-oriented societies, a lot of products lose their appeal before their “natural” life expires. Extending their useful life through repairing and reusing them can highly contribute to save resources. This approach presents several advantages:

- it contributes to waste reduction,
- it maintains local craftsmanship,
- it allows access to products at lower cost.

Many cities promote the second-hand and repairing sectors as part of their waste prevention strategy. Munich in Germany and Vienna in Austria are forerunners in these fields.



#### **Good practices**

- Munich: guide, repairwork day and flea-markets
- Vienna: campaigns and Internet exchange platform
- Barcelona: collection of Champagne bottles

#### **3.2.3.5.1. Munich guide, repairwork day and flea-markets**



As early as 1994, the city of Munich, in partnership with the Federation of Nature Conservation, published and disseminated a comprehensive list of repair shops in the city. This initiative really answered a demand from the public: the first issue of the Repair Guide run out of supply in a few days only.

The concept of a “Repairwork-day” was launched in June 1997. Then, all inhabitants are invited to bring their broken household utensils and to have them repaired by local craftsmen (free of charge). A first assessment shown that two-third of the utensils could be restored by minor repairwork (and low cost). This means that most of the goods were really worth repairing. Consequently, the Repairwork-day is now organised each year.

Munich and 4 other German cities co-operated in 2001 to issue and disseminate some 60,000 Repairing Guides containing some 650 addresses. This experience demonstrates that consumers are more accessible for product-oriented waste avoidance tips than one might have expected. Repair shops and organisations such as trade organisations, craft and trade, support the initiative by providing a competent guidance service. Vienna, Salzburg and Helsinki have also published repair guides in the late 1990s.

- Developing the second-hand market

Building on the repairing idea, a Second-Hand Guide was published in Munich in 1998. It shows a variety of possibilities for buying second-hand: permanent, regular and irregular flea-markets, second-hand shops for various product groups, classified ads in newspapers, flea markets at municipal recycling centres...

The city itself is selling second-hand goods, through the Resale of Second-Hand Items Department. Over 9 months in 2001, the department sold 133,678 articles collected from the 12 municipal recycling centres and through selective collection of bulky items.

More information

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E-mail: awm@muenchen.de - <http://www.awm.muenchen.de>

### 3.2.3.5.2. Vienna: campaigns and Internet exchange platform

- Promoting repair, reuse and rent

In Vienna, promoting repair is part of a 3-fold campaign encouraging consumers to repair, reuse through second-hand goods, and rent instead of buying. The ultimate goal of Vienna is to prompt a shift in lifestyle, to change consumers' behaviours and attitudes to move towards a "repair society" where people keep their products until their life really expires.

Two Vienna's repair guides have been published in 1997 and 1998. The latest contains 850 entries for 13 craft industries as well as general repair tips for each industry. 75,000 brochures have been disseminated until the end of 2002. A new issue combining the 2 guides reviewed and complemented has been published in 2003.

A RepairNetWork Vienna was founded by 23 small repair shops and promoted by the Vienna Waste Management Department. The shops have to meet special requirements and they operate a telephone service hotline and forward repair orders to the member shops depending on their speciality.

A survey among 75 users of Vienna's guides (repair but also rental and second-hand) shows that the main source of information about this brochure is newspapers. The brochure is mainly used for Do It Yourself tools and household appliances. 13% of the respondents have more repair done now and 60% have recommended it to other people.

With this on-going campaign, Vienna aims at raising awareness of both consumers and enterprises that repair is an important aspect of waste reduction. It contributes to the protection of the environment, but also may have a positive effect on regional economy and the employment situation. The upkeep of goods can also shift jobs from the manufacturing to the service sector. This helps to decentralise jobs, increase the number of employees and promote the regional economy. Another positive aspect is that demand for qualified staff increases. In this respect the city opened a "Repair and Service Centre" where unemployed people can find a job. Vienna also runs a flea market.

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<sup>27</sup> *Ibid*



- An exchange platform for second-hand goods

In Vienna the concern for the promotion of the second-hand market turned into an Internet exchange platform for second-hand goods. The service was set up by the Municipal Department 22 (Environmental Protection) of Vienna, in collaboration with the Municipal Department 48 (Waste), in March 1999.

The exchange system is divided along four “markets”: second-hand goods, compost, teddy bears (toys) and information. The information market provides online versions of practical guides: repair guide, guide to renting facilities and waste disposal manual. The second-hand exchange is open to private users as well as to commercial operations, second-hand dealers and landscape gardeners. (<http://service.wien.gv.at/wab/>)

- Assessment of Vienna’s experience



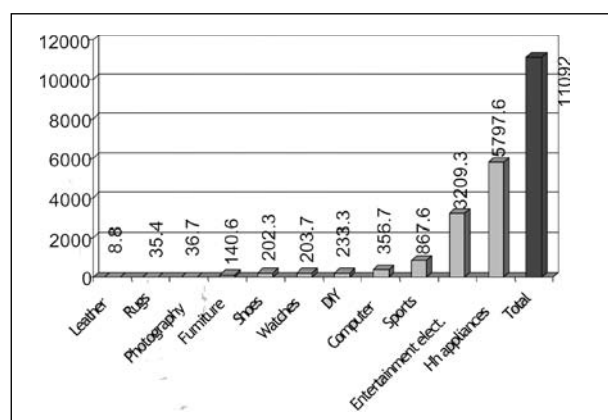
Electrical and electronic equipment constitutes a significant share of the market for repair and reuse. Indeed, Vienna “Repair and Service Centre” repairs every year electric devices to a total amount of some 400 tonnes. The municipal flea market sells about 450 tonnes of second-hand items a year. All in all this is a very significant contribution to waste reduction.

- Waste avoidance potential for Vienna

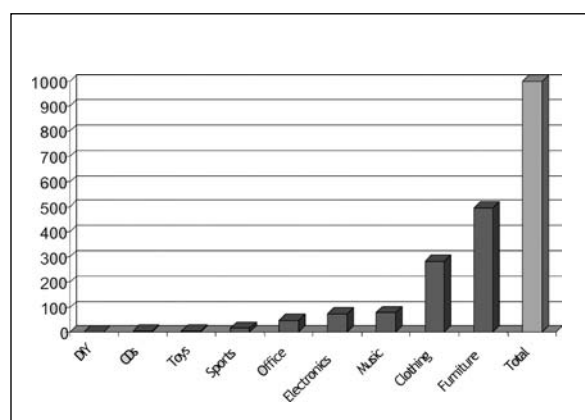
The potential contribution of the repair guide and of the second-hand market to waste prevention has been assessed. The calculations are based on the quantities of machines repaired, rented, sold as second-hand and on the average weight per product. This is then projected to all Vienna’s companies.

*Potential for waste avoidance*

*of the repair guide:*



*of second-hand market:*



More information

Vienna – Mr Peter Frybert – [fry@m48.magwien.gv.at](mailto:fry@m48.magwien.gv.at)

<http://www.magwien.gv.at/index/abfall.htm>

### 3.2.3.5.3. Barcelona: recovery of Champagne bottles<sup>28</sup>

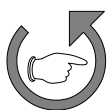
Several municipalities in Barcelona Metropolitan Area have set up a system of collection and reuse of Champagne bottles in 1996-1997. There are about 7 million bottles consumed each year in Catalonia, and 20 millions in the whole of Spain. Each citizen returning a bottle receives 0.03 Euros. A social economy enterprise contributes to the collection and washing of bottles, and receives 0.06 Euros per bottle. In 1997, more than 10,000 bottles were recovered.

### 3.2.3.6. Leading by example: green public purchasing

Public bodies are not only regulators, legislators or policy-makers. They are also consumers. Public purchases are estimated to represent some 14% of the EU's GDP (about 1,000 billion Euros per year). This significant share of consumption gives specific power to LRA: through their consumption choices, they can be a driver for market change. Public demand for green products may increase market shares for existing products and stimulate the offer for new "green" products.

To seize this opportunity while ensuring the free movement of goods and the respect of public procurement legislation, green public procurements are addressed at the EU level. An interpretative Communication of the European Commission clarifies how the current Community law offers numerous possibilities to public purchasers who wish to integrate environmental considerations into public procurement procedures. A handbook for public authorities has been published in August 2004.

Buying green is also an example of sustainable behaviour for citizens. A few pioneer cities have already realised that asking to their inhabitants to adopt an ecological consumer behaviour will only work if the city itself was consuming in an environmentally-friendly way. This is notably the case of Barcelona, in Spain and Kolding in Denmark.



#### **Good practices**

- Barcelona: a sustainable city consumes green
- Kolding: a forerunner in greening public procurements

#### 3.2.3.6.1. Barcelona: a sustainable city consumes green

Barcelona, the capital city of Catalonia, in Spain, employs 12,000 civil servants and owns some 1,000 work centres (administrations, schools, museums, etc.).

Barcelona aspires to be a sustainable city and the City Council develops a comprehensive

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<sup>28</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

policy in this view. All stakeholders have to make efforts to achieve sustainability and the municipality as well. Thus Barcelona City Council strives for a sustainable administration, which integrates the principles of sustainability in local government services, which is coherent with Agenda 21, which has reduced environmental impacts, which leads by example, which influences the market, and which optimises its financial resources. The approach to improve municipal environmental practices follows the consumption process: what to buy, how to use the products and what to do with the waste.

- 6 strategies for environmentalisation

- diagnosis and eco-audits

The 1997 environmental audit of Council buildings and Institute of Education was an essential starting point.

For instance the waste analysis pointed out the importance of paper and cardboard in the internal waste stream: paper is with about 90% the most important component of waste. At the same time, more than 40% of the annual expenses for office equipment are paper and paper products. It also revealed that, even though employees separate their paper waste, they throw away with them 30% of the paper clips purchased by the municipality. Changing employees' behaviour is thus as important as modifying purchasing practices.



It also revealed that, even though employees separate their paper waste, they throw away with them 30% of the paper clips purchased by the municipality. Changing employees' behaviour is thus as important as modifying purchasing practices.

- information and awareness

To inform and raise awareness of employees, a green office guide, containing practical tips and guidance, has been published. It was sent out to all civil servants. Other selective actions such as duplex copying stickers for copying machines, an information sheet about fair trade coffee, as well as training courses- and continuous actions as the green office webpage are providing updated information to all co-workers and end-users.

- regulations and decrees

The "Green Office Programme" is regulated in a Government measure on the "Environmentalisation of Local Government Services", which was adopted in 2001 by the City Council. Product related legislation on local level, such as institutional declarations on Fair Trade or the minimisation of chlorinated products, a decree on the use of recycled paper secure the political support for the development of the "Green Office Programme". As a consequence of the decree, for example, the consumption of recycled paper increased from less than 10% to over 50%.

- green purchasing in local government contracting

A basic pillar of the "Green Office Programme" is the inclusion of environmental criteria in tendering specifications. Environmental criteria are set for city cleaning and waste management; approval of computer equipment and consumable goods, approval of reams of paper, approval of office material and cleaning of buildings. Specifications may concern bidder or distributors (technical capacity, certification), products (eco-labels, specific definition, comparison), the overall service (conditions of service, management, characteristics of products or tools used). For instance a criterion concerns the minimisation of waste, packaging and its management.

Tenders are then weighted against these criteria through a matrix and contracts can be awarded depending on these environmental performances.

- Waste avoidance

Waste avoidance and minimisation, in particular paper waste, plays a significant role in the greening of municipal purchases. Waste minimisation and management by bidders are among the evaluation criteria. Waste prevention is also addressed through the choice of the products purchased and in the employees' behaviours. In addition to organising the selective collection of waste in local government offices, the use of recycled paper has been increased. Employees are encouraged to use more and more Internet to circulate the information and to avoid unnecessary printing. Purchases also include multi-purpose envelopes and polypropylene folders to avoid PVC ones.



- investment in local buildings

Another field of action are the investments in green electricity, substitution of light fittings and installation of water saving devices in local buildings. The monthly publication of basic indicators, such as the electricity production by solar collectors or CO<sub>2</sub>-saving, allows making the results visible.

More information

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C/ Torrent de l'Olla, 218-220, pl. 3a. - E-08012 Barcelona

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<http://www.bcn.es/agenda21/oficinaverda>

3.2.3.6.2. Kolding: a forerunner in greening public procurements

Kolding, the sixth largest town in Denmark, is a city strongly striving for greening its public purchases. It notably participates in a European project RELIEF and chairs the network BIG-Net, a network of cities working on Green procurement.

• A strong national policy for greening public procurements

The Municipality of Kolding benefits from a favourable national context acting as an incentive. Denmark has been pursuing a green public procurement policy within the framework of the "Action Plan for a Sustainable Public Procurement Strategy" since 1994.

The preparation of environmental guidelines has been a major activity of the Plan since 1996. In 2000, they cover about 50 different product areas. The environmental guideline

for public purchasers on purchasing of desks and tables is available in English on the website: <http://www.mst.dk/homepage/>

- Cooperation between national, regional and local governments

The national authorities closely cooperate with the local and regional public authorities in implementing the Action Plan. Their work led to the publication of a general manual for public purchases in 1995. On this basis, the further development of the Danish guidelines is now an on-going process.

1998 was a turning point in the Danish green procurement policy as the cooperation with LRA was formalised through a Green Framework Agreement. By this agreement, LRA commit to take into account environmental and energy aspects when purchasing. A co-ordination group was also set up to promote green public procurements to LRA. The group notably organises information campaigns and training programmes.

- Co-operation between municipal departments: the key of Kolding's success

The municipality of Kolding aims to include environmental considerations in its general procurement contracts. The main difficulties encountered in achieving this objective laid in the reliability of supply and the quality standard of the products. The development of trust between the city and its suppliers was the key for overcoming this barrier.

Another key element is the co-operation within different municipal departments. Indeed, the department responsible for purchases has no clue about environmental impacts of products or clean production issues. The consultation of the department for the environment is therefore crucial.

Public purchase of a large number of green products is certainly strongly influencing the development of markets for these goods. The experience of Kolding testifies that the price difference between traditional and environmental products was 15% while now it is only 5-6% and some green products are even cheaper.

In terms of consumption and environmental impacts, the way those environmentally friendly products are used by the municipal personal is equally important. In Kolding, the efforts towards eco-purchasing goes hand-in-hand with efforts towards eco-behaviours (see point 3.2.3.4.1. "Kolding: using cleaning agents sparingly).

More information

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<http://www.kolding.dk>

## 3.2.4. PROMOTING DIFFERENT WASTE MANAGEMENT PRACTICES

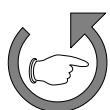
### **3.2.4.1. Encouraging home composting for organic waste of households**

Organic waste constitutes between 30 and 40 % of municipal solid waste in Europe. Treating it in an appropriate way contributes significantly to the sustainable management of resources. Compost can be used in agriculture and horticulture to maintain or restore the capacity of soils. In European urban areas, there are many examples of selective collection schemes for organic waste and collective treatment plants. Municipal compost can then be used for agricultural activities or private gardens.

An alternative to the selective collection of organic waste is to involve citizens in treating their waste. This may involve technical and financial support, in addition to information and education actions.

But home composting may seem more challenging in urban areas, where private garden are less frequent. Yet, it constitutes more and more a full element of municipal waste prevention strategies with many economic advantages. While the investment in material is minimum, the direct involvement of citizens in treating their waste significantly reduces the burden of collection and treatment for municipalities. Citizens can use their own compost to fertilise their private gardens or flower pots.

Many cities promote home composting, such as Porto and Milton-Keynes. In Italy, where local and regional authorities must address waste prevention, they can also reduce local taxes for those who compost. Within this context, the Regions of Veneto and Marche, and the Province of Bergamo are encouraging home composting in different ways. In Belgium, the 3 Regions support the “Masters of Composting” training programme. Volunteers are trained to composting for free and in turn commit to train their friends.



#### **Good practices**

- Milton-Keynes: subsidies and demonstration
- Bristol: pilot project
- Porto: hands-on experiment of composting: an essential education tool
- Martellago, Santa Giustina in Colle and the Veneto Region: reduction of taxes for citizens and municipalities
- Province of Bergamo: stopping the increase in waste generation thanks to composting
- Marche Region: home composting is more cost-effective than selective collections
- Haut-Rhin supports home composting with awareness raising campaign
- Antwerps : making use of social links to promote composting
- Arousa Island: home composting in individual houses
- Barcelona: public spaces for composting

#### 3.2.4.1.1. Milton-Keynes: subsidies and demonstration

Since 1997, residents of Milton-Keynes, in the UK, have been involved in home composting. They can buy home composting bins from the Council at close to cost price or make their own composting bin. A large information campaign has been carried out, mainly through the Council's "Messenger" magazine, two or three times a year, and permanently through the Council's internet site.

- Selling home composting bins

The composting bins are made from HDPE plastic produced in the Council's recycling factory. The Council buys these bins in bulk from the manufacturing company and distributes them in partnership with a garden centre. This garden centre stores the bins and exchanges them to residents for vouchers that they obtain from the Council against payment (about 17 euros).

- Demonstration garden

The campaign for home composting is also linked to wider sustainability issues and promoted alongside wildlife gardening and the need to reduce the use of peat. Indeed, a composting demonstration garden has been developed in an environmental education centre situated in the surroundings of the city. This centre is run by the Council as a combined nature reserve and field study centre. It was built using the Landfill Tax Credit Scheme funding. In this garden, the Recycling department organises free workshops all around the year to teach participants how to do their own compost.

- Results

Between 1997 and June 2003, 11,000 residents had bought home composting bins from the Council. Each participating household reduces its production of waste by approximately 100 kg each year.

#### More information

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<http://www.mkweb.co.uk/waste>

#### 3.2.4.1.2. Bristol: pilot project for home composting<sup>29</sup>

The city of Bristol also carried out a compost pilot experience in 1998. Some 32 percent of household waste, 8% of garden waste and 14% of kitchen waste was considered compostable.

In 1998-1999, 8,000 subsidized composting bins were sold in 130, 220 and 280 litre sizes, at a price of 18 euros each. The price of a standard garbage bin is around 60 euros. The

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<sup>29</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 May 2003.

promotion of individual composting was part of a broad information-awareness campaign (called Rubbish Revolution) during which nearly 50% of the population responded positively.

#### 3.2.4.1.3. Hands-on experiment of composting: an essential education tool in Porto

- Composting: a pillar of the waste management strategy in the Porto Region

The region of Porto is a pioneer for waste management in Portugal. LIPOR is the Inter-municipal Waste Treatment Service for the Porto Region. It is responsible for the management, treatment, and transforming of the solid household waste from 8 municipal boroughs. This area counts nearly 1 million inhabitants who produce about 480,000 tonnes of solid urban waste yearly.

LIPOR drafts and implements the waste management strategy for the Porto Region, entitled “ The Multiple Way”. This integrated strategy of transformation, treatment and elimination of solid urban waste, aims at minimising landfill deposits. The approach relies on the 4 R’s policy: Reduce, Reuse, Recycle, Recover. It translates into the transformation of waste through 3 processes: multi-material recycling, energy recovery and composting.

Composting is being implemented since the seventies in the Porto Region. In the second half of the eighties, the old composting plant was supplemented with a second composting line with a capacity of 250 tonnes/day and a maturation park. In 2003, a new composting plant started to be built to substitute the old one. At the new LIPOR Composting Plant, the organic component, which represents about 40% of all municipal solid waste, will be transformed, through a natural biological process and under strictly controlled conditions, into a natural organic corrective denominated compost.

The new Composting Centre becomes operative in 2004 and is able to receive and process 60,000 tons of organic waste per year, collected in the selective collection circuits. It guarantees the production of 20,000 tons of high-quality fertiliser per year. The new composting facility and collection schemes are complemented with a permanent information and education campaign on home composting.

- Home compost site – Horta da Formiga

To educate and sensitise the population on the necessity to reduce the amount of waste produced daily, LIPOR set up a home compost demonstration site named “Horta da Formiga”. The objective of this project is to promote school visits, seminars and programmes.

A pleasant area has been arranged next to the new composting centre. School children and other target groups can visit and learn about composting, its advantages and different uses. In addition, a biological garden is grown with vegetables, fruit trees and aromatic plants using the compost produced on the site.

Visitors enter the welcome room and attend a lecture on the demonstration site, before they start to follow the “circuit of composting”. It starts with the composting area, where



they can see 16 different types of composting bins. So they can choose what type is the most appropriate for them. Then come the maturation, screening and bagging of compost. Finally they walk through the vegetable garden, the orchard and the aromatic garden.

In addition to the visits, LIPOR promote free courses in organic agriculture for teachers and adults, to enhance the quality of life and health by respecting the ways of nature.

The home composting demonstration site is an essential tool for the education of the population as it provides hands-on experiment.

#### More information

LIPOR - Serviço Intermunicipalizado de Gestão de Resíduos do Grande Porto

Mrs Paula Mendes

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<http://www.lipor.pt>

#### 3.2.4.1.4. Martellago, Santa Giustina in Colle and the Veneto region Reduction of tax for citizens and municipalities

In Italy, a range of individual composting initiatives were held in the mid-1990s because it was discovered that the mass of organic waste mixed with municipal waste was 30-35% of the annual total of around 450 kg per person.

- Martellago and Santa Giustina in Colle: pilot experiences<sup>30</sup>

The cities of Martellago and Santa Giustina in Colle (in Lombardy) carried out pilot experiences based on the free distribution of compost bins 300, 400 and 600 litres in size, in addition to explanatory brochures, public debates and posters. A tax break is offered on the remaining portion of waste. As seen below, a significant level of participation has been achieved.

MUNICIPALITY	TAX BREAK	PERCENTAGE OF HOUSEHOLDS PARTICIPATING
Santa Giustina in Colle	33%	75%
Martellago	20%	45%

The remaining organic waste that required collection after the organization of the composting drive was reduced by 70% in Santa Giustina in Colle and by 53% in Martellago.

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<sup>30</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

Furthermore, it was estimated that an average family of 3-4 persons deposits around 1,300 kg of organic matter in their compost pile, of which 1,000 kg of garden waste and 300 kg of kitchen waste.

Moreover, the information campaign was estimated to cost 0.5 euro per inhabitant.

- Veneto Region: domestic composting to implement Italian obligation of waste prevention<sup>31</sup>

The Veneto Region promotes waste composting with the aim to reduce the final amount of waste that goes to landfill. The action consists in allowing a reduction of the eco-tax paid by municipalities when they achieve a reduction of quantities of waste landfilled thanks to home composting.

In a first step, the municipalities inform citizens through information campaigns and public meetings on how to compost waste at home. Citizens are then invited to sign an agreement with their local authority. In signing this document, they commit to practice home composting and in turn receive advantages and obligations. They notably receive promotional composting bins and a reduction on the municipal waste management collection and disposal taxes. The municipalities monitor the number of participating citizens as well as the percentage of selective collection and report to the regional waste observatory and to the Veneto region which will then apply the reduction of eco-tax for the local authorities.

This actions has resulted in reducing the quantities of waste disposal and the quantities of organic waste. The frequency of waste collection has decrease while the circuits for collection became more efficient. Consequently waste management costs decreased and the local authorities also gain reduction of the eco-tax.

#### More information

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#### 3.2.4.1.5. Province of Bergamo: stopping the increase in waste generation thanks to composting<sup>32</sup>

The Province of Bergamo has achieved the highest recycling rates in Italy in 1997 and 1998, and 48.3% of waste were collected selectively in 2002. Despite these very good results in recycling, the amount of waste to be collected and disposed of by municipalities constantly increases. To address the concern of local authorities, the Province has set up a technical board on prevention. This board has prepared an action plan to stop the increase in waste production.

The very good achievement of the Province are the result of a series of initiatives. The first burst of actions was developed between 1993 and 1998 and targeted citizens:

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<sup>31</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

<sup>32</sup> *Ibid*

- The promotion of home composting was a core element and has been carried out through courses for trainers, financial support from the municipalities to buy compost bins, and publication of a technical handbook.
- The Province trained a group of waste consultants – within the voluntary ecological guards of the Province of Bergamo - to raise consumers awareness by means of public meetings on waste prevention and courses on home composting.
- In complement, two practical guides on how to prevent waste at home and in the office have been published.

More information

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 Gloria.gelmi@provincia.bergamo.it

3.2.4.1.6. Marche Region: home composting is more cost-effective than selective collection<sup>33</sup>

In some suburban areas of the Marche Region, it is not economically effective to organise separate waste collection. There, the practice of home composting is an interesting alternative, which allows to reduce the amount of waste needing to be handled by local authorities. All the more that organic waste represents 25 to 40% of municipal solid waste and that each person produces an average 54.75 kg to 109.5 kg.

Home composting is promoted in 3 steps:

- identification of pilot areas and involvement of local authorities and families
- informing, providing a do-it-yourself composting kit, and training people through public meetings and practical and theoretical courses
- assisting families by phone and checking their composting results

A final assessment of data collected and of progress of the initiative is due to be published at the end of 2004.

The project is realised by the Regione Marche with the financial support of the Structural Funds (objective 2) and the Italian State. The total costs of the project amount to 355,680 euros.

More information

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<http://www.ambiente.marche.it/rifiuti/>

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<sup>33</sup> *ibid*

#### 3.2.4.1.7 Haut-Rhin supports home composting with awareness raising campaign<sup>34</sup>

In France, the *Conseil Général du Haut-Rhin* encouraged individual composting in 10,000 households. Starting in 1995, 200,000 copies of an explanatory brochure was sent out. Individual composting bins were assigned to schools participating in the “Clean Upper Rhine” initiative. In 1997, an exhibition on the subject was unveiled during an inter-regional fair of suppliers to public authorities. In 1998, a tri-national association was set up to promote individual composting in the wake of a seminar organized in Basle with the assistance of the *Conseil Général*. One of the tasks of this association is to handle exchanges of experience and the training of composting experts.

#### 3.2.4.1.8 Antwerp: making use of social links to promote composting<sup>35</sup>

- Developing a network of composting experts

In 1998, the Environment Department of the Belgian city of Antwerp, with the help of the Public Waste Agency of Flanders (OVAM), organized free courses in composting for the inhabitants, covering both theory and practice. At the end of the first year, nearly 75 people became “Composting Masters” and undertook to promote individual composting with the city’s inhabitants. In 1999, it was estimated that out of 70,000 inhabitants with their own garden, nearly 10,000 made compost. The members of the network of Composting Masters got together in specialized working groups. Advertising of the project took on several forms: awareness postcards, articles in local newspapers, evening debates, information stands and free telephone service.

In all of Flanders nearly 3,000 Composting Masters were registered at the end of 2001. This initiative is now carried out by the 3 Belgian regions (Flanders Region, Walloon Region and Brussels Region).

- Community composting sites

In addition to organizing composting experts, the city of Antwerp also set up community composting centres. In relatively disadvantaged neighbourhoods, compost collection sites were set up and, at the same time, green spaces were revitalized via a social initiative.

As of October 1999, three community composting sites were up and running, thanks to maximum financial assistance of 1,250 euros.

#### 3.2.4.1.9. Arousa Island: home composting in individual houses<sup>36</sup>

In Arousa Island (4.642 inhabitants on 7 km<sup>2</sup>), a pilot project has been developed in 2001 with the support of the LIFE programme. It was part of an ambitious programme for the reduction of packaging waste and for material recycling. The daily production of organic

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<sup>34</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

<sup>35</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

<sup>36</sup> *Ibid.*

matter all over the island amounted to 2,500 kg of which 1,500 kg was produced by the 600 individual houses. In a first phase, “Composting masters” have been trained with various methods of composting to select the most adequate approach. Once the model has been chosen, 600 composting bins were given to the 600 individual houses. The results have been quite positive and encouraging. No problem appeared for using the bins or the product of compost. Nowadays the municipality has taken over the experience and is pursuing it.

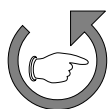
Different regions in Spain also promote home composting and publish leaflets or guides to provide citizens with technical information (Galicia, Mallorca, Barcelona).

#### 3.2.4.1.10. Barcelona dedicates public spaces to composting<sup>37</sup>

The municipality of Barcelona has made available various spaces in public parks to install composting bins where the households living in the neighbourhood can bring their organic waste. An information campaign invites people to use these sites and a municipal technician controls the evolution of the compost.

#### 3.2.4.2. Reducing companies’ demand for virgin raw materials

To reduce resource consumption in the production chain, companies should reduce their waste through active waste prevention and recycling. Municipalities can usefully support them. The main incentive for companies to participate is clearly financial savings. For municipalities, the amount of residual waste to be treated will be much lower, and recycling activities may well result in job creation. Cities may then use a set of regulatory, voluntary and communication instruments to increase waste prevention in companies.



##### **Good practices**

- Basel: waste audits and cooperation agreements with companies
- Munich and Nuremberg: waste counseling service for private households and businesses
- Helsinki : analysing the prevention potential of companies

#### 3.2.4.2.1. Basel: waste audits and cooperation agreements with companies

To foster waste avoidance, Basel voted a parliamentary resolution providing for the replacement of the local waste incineration plant by one with a reduced capacity (200,000 tonnes instead of an estimated needed capacity of 320,000 tonnes). Consequently strong measures were needed to effectively reduce the amount of residual waste to be incinerated.

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<sup>37</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.

Refuse disposal charges were introduced for the municipal solid waste (MSW) first in 1993. An increased number of neighbourhood containers to promote recycling were installed, different information and motivation campaigns took place. As a consequence of the consumer's pressure, the trade industry put in place a new packaging policy, reducing altogether the household waste by 40%.

Yet this was not enough. Indeed, more than 60% of the total MSW in Basel result from trade, administration and manufacture activities. A waste minimisation programme for trade and industry in the canton of Basel was then required. In 1997, a three-stage waste minimisation programme started. It was based on waste management audits followed by cooperation agreements between the public authorities and the companies and a final controlling assessment after the defined period.

To participate in the programme, 200 companies out of the 10,000 identified were selected according to criteria such as the annual amount of MSW, the waste tonnage in the recent years, and the overall recycling quota. The identification of those companies was simple because at that time already, each company delivering waste to the incineration plant, had to declare also the recycling efforts. The databases came from there.

Each company is visited individually. For each one, a specific coverage sheet was prepared to reduce the inspection time and the meeting was fixed by telephone. The audit on the site, in presence of the waste manager of the company, was useful to assess the current state of waste management, to record the collection logistics and to grasp the organisation of the company. On this basis, solutions to improve waste management were identified and agreed upon with companies. Such agreements were concluded with more than 80 companies - which produced about 50% of the commercial MSW.

The evaluation of the programme followed to assess the effectiveness of these measures by a second visit. The half of the agreements were completely accomplished, the rest only partly due to overestimation of the recycling potential; for some few units it was for reorganisation reasons. As a result, a reduction of the incinerated commercial waste by prevention and recycling of about 15% was observed. The team of advisors from the administration consisted of 2 persons only.

Between 1993 and 2000, these measures achieved a reduction from 117,000 tonnes to 89,000 tonnes of MSW to be incinerated.

#### More information

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### 3.2.4.2.2. Munich and Nuremberg: waste counselling service for private households and businesses

Munich and Nuremberg are two German cities which set up waste advice service for households. To intensify waste reduction, they have extended the service to businesses.

- Munich specialise consultants in industrial waste

In Munich, 6 municipal consultants specialised in industrial waste assist companies in handling and disposing of various kinds of waste. They operate a special telephone line, and visit directly companies for consultation. Information folders about new laws or tips are regularly published. They also organise special information sessions for companies.

- Information to increase acceptance and compliance

The "Waste Disposal System 2000" of Nuremberg aims at a comprehensive overall development of the waste disposal facilities, with a priority given to recycling. In 1990, the city introduced its own law to encourage waste reduction, consisting of a waste management bylaw and a waste disposal fee system.

The planners acknowledge that good information of the population about the various possibilities is a pre-requisite for the acceptance and the success of the waste disposal system. Therefore, as early as 1987, the city established a waste counselling service for private households, as well as for the industry, the trade, and the service companies.

Methods range from individual talks to lectures for groups. Public relations means, such as leaflets and posters, and the participation in events of all kinds allow an information transfer adapted to the target groups.

The service employs 12 waste advisors to inform the population. Since 1992, this team has been complemented with a team of honorary waste advisors.

- Service adapted to companies' needs

The counselling service dedicates 8 waste advisors out of the 12 employees to assist companies in their waste reduction strategy. Indeed, the 23,000 commercial companies have strong obligations under the 1990 bylaw. They must separate their waste for recycling and pay a fee according to the volume of waste produced. Most companies are small waste producers and their waste is collected through the same system as households. The 1,500 largest businesses have stronger obligations for waste separation. All businesses producing more than 50 tonnes of waste a year also have to produce a waste report and a waste reduction strategy for the following year.

Through the waste advice service, business enterprises and public organisations receive support in correctly handling waste for collection and recycling. Direct and individual contacts contribute to ensure that they fulfil their obligations regarding charges for waste removal. The advisors also assist commercial waste producers in producing the necessary disposal reports.

In addition, specific strategies have been developed to adapt to the differences of various business sectors. To achieve this, the city has worked with representatives of each sector: building and construction, motor trade, hotels and restaurants, carpenters, painters and varnishers, sport associations, hospitals and the City Council itself.

- **Results**

All in all, the use of the “carrot” and “stick” – the bylaw and the fee system - has proven to be useful, to encourage both waste reduction and the separation of recyclable materials. Waste production decreased by 15% between 1989 and 1994 (from 149,000 tonnes of waste to 127,000 tonnes). If business as usual continued, 200,000 tonnes of waste would have been produced in 1994 – thus the approach of Nuremberg may have achieved 37% of waste avoidance.

This success in waste avoidance mainly comes from the efforts of households. The results of companies are also quite good: companies’ recycling rates vary between 20% and 90%. Most of the companies separate cardboard, glass, metals and plastics, but only a few separate their canteen waste.

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<http://www.asn.nuernberg.de>

**3.2.4.2.3. Helsinki: analysing the prevention potential of companies**<sup>38</sup>

At the end of the 1990s, YTV, an organisation bringing together the Finnish cities of Espoo, Vantaa and Kauniainen, developed a network of companies involved in waste reduction. A model of good practices was put together with about twelve wholesale companies, whose waste data was incorporated into an assessment system. Next, an information campaign was carried out for the entire industry in cooperation with the representative associations of chain stores and shops. All the companies were invited to enter their waste data on an Internet form. In response, they received reports describing their prevention potential. Public administrations are included in a campaign of guidelines that are designed to be incorporated into public procurement procedures and *green* requirements for a range of products.

**3.2.4.3. Creating markets for recycled products and materials in partnership with the industry**

In view to promote and encourage sustainable consumption, LRA have considerable possibilities to influence the demand side for environmentally-friendly products, and more specifically for products with recycled contents. LRA can purchase recycled goods themselves by setting appropriate requirements in their public procurements. They can also encourage individual consumers as well as the private sector, to buy and use products

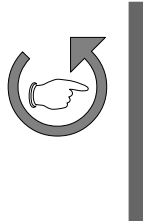
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<sup>38</sup> Hannequart, Betancourt, *Rapport introductif au Séminaire Urbal*, Malaga, 8 & 9 mai 2003.



with recycled contents. But they have also means to influence the supply side. In cooperating with industry, LRA can support both the demand and the offer sides, so their actions have a more significant and long-lasting effect on the creation of markets.

The Municipality of Kalundborg in Denmark and the City of London in the UK are two cities closely cooperating with the industry to develop markets for recycled products.



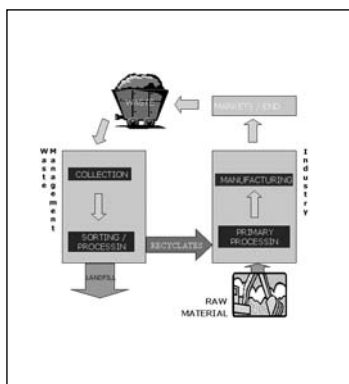
### Good practices

- LondonRemade: developing markets for recycled products
- Kalundborg: industrial symbiosis reduces resource consumption

#### 3.2.4.3.1. London Remade: developing markets for recycled products

##### • A multistakeholder partnership

Between 1997 and 2000, the London Waste Recycling Programme has been carried out to increase London recycling rates. Yet the increasing quantity of waste produced in London required to double the current recycling rate, i.e. to recycle an additional 250,000 tonnes of waste by 2003/2004. However, recycling produces materials which have to be brought back to the economic cycle. Therefore, a new programme started in 2000, the London Remade program, which rather focuses on the outlets of these materials. The programme receives a funding up to £5.4 million (about 7.7 million euros) from the London Development Agency.



The organisation London Remade works in close cooperation with the Greater London Authority. It is a partnership of organisations from the business sector, the local and regional governments, the waste management industry and the not-for-profit sector. Its objectives are threefold:

- to improve the efficiency of collection and sorting of recyclable materials;
- to encourage private investments in additional reprocessing capacity;
- to stimulate the demand for recycled products.

##### • Green procurement programme

Developing new markets for recycled products requires also encouraging organisations to ensure that their procurement policies promote the use of secondary raw materials. This programme of London Remade involves both the public and the private sectors. The objective is to ensure that the production of recycled goods is demand-led rather than supply-led and to secure commercially sustainable markets.

- The Mayor's Green Procurement Code



The key element of the programme, the *Mayor's Green Procurement Code*, was launched in June 2001 by London's Mayor. Over 360 organisations signed it up, including the vast majority of London's local authorities and the main UK's leading companies. When signing, organisations commit to greening their purchasing policies, with different levels of involvement possible, from simple information exchange with London Remade to commitment with target settings and progress assessment.

The ultimate goal of the Code is to deliver demonstrable improvements in purchasing materials and products manufactured from recycled materials.

- Creating connections between professionals

Consequently, a broad range of professionals are brought together: procurement personnel (clients), designers, manufacturers and retailers. To find outlets, recycled products need to have their profile raised to the potential clients. But new clients must also trust the products and the suppliers. This is why the London Remade green procurement programme creates links between the different actors with a range of services:

- Market research to highlight products with good potential,
- Showcase of recycled products and their suppliers,
- Product demonstrations and sound technical advice,
- London-wide marketing programme,
- Compilation of specific sheets for recycled products,
- Direct introductions for organisations seeking recycled products,
- Development of a website as a hub for information sources.

This approach leads to identify opportunities for new product development and to expand the markets for existing products.

- The Brokerage service

The brokerage service of London Remade is a pillar of the efficient work of the programme. A dedicated team of London Remade's staff provides this service for free to the Code's signatories. It helps the organisations to develop green procurement policies, to set targets, to obtain high quality recycled products at competitive prices and to assess their success.

- Showcase of processes

To showcase a range of processing and remanufacturing techniques and to promote £ technology transfer, four "Eco Industrial Sites" have been developed with private sector partners. They are material-specific and reprocess and remanufacture glass, paper, construction and demolition, and organic waste. They also provide training, visitor and educational facilities.

After two years, the programme has been able to raise the profile of recycled content products and assist suppliers of these products to find new markets for their goods. The next goal is to establish a centre of excellence that will showcase and demonstrate the commercial and environmental merits of buying recycled.

#### More information

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#### 3.2.4.3.2. Kalundborg: industrial symbiosis reduces resource consumption

In Kalundborg, small Danish city of 20,000 inhabitants, a network co-operation emerged between 6 processing companies, one waste handling company and the Municipality. The companies exploit each other's residual or by-products mutually on a commercial basis. So one company's waste becomes an important resource for other companies. Consequently, the consumption of resources is reduced, the pressure on the environment is lowered and companies also yield financial benefits. At the very beginning, in the sixties, the city of Kalundborg took the responsibility for building the first pipeline, with the financing of the oil refinery.

The by-products resulting from the companies' activities are mainly steam, heat, water, refinery gas, gypsum, ash, fertilising enzymes, sludge, waste water and other wastes (paper, rubble and concrete, garden refuse, biowaste, iron and metal, glass and bottles). All these waste are exchanged between companies.

- Gypsum

The Power Station established in Kalundborg has a desulphurisation plant removing sulphur dioxide (SO<sub>2</sub>) from the flue gas. During this chemical process, gypsum is produced. Each year, this amounts to 200,000 tonnes of gypsum. This gypsum is sold to a company manufacturing plasterboard products for the construction industry. It covers the majority of its consumption. This symbiosis significantly reduces the import of natural gypsum. In addition, power station gypsum is more uniform and purer than natural gypsum and thus more suited for the plasterboard production.

Another source of gypsum comes from the recycling station of Kalundborg. It contributes to a smaller scale to reduce resource consumption and the quantity of solid waste to be landfilled.

- Ashes

The power station also separate ashes from the smoke. This result in some 30,000 tonnes of fly ash every year.

Ash deriving from orimulsion firing is recycled in a plant in Great Britain. Nickel and vanadium are reclaimed from this ash. The ash is also recycled in the cement industry.

- Fertiliser

The production of enzymes is based on fermentation of raw materials such as potato flour and cornstarch. Some 150,000 m<sup>3</sup> of solid biomass and 90,000 m<sup>3</sup> of liquid biomass are left over and are inactivated and cleaned up. The end-product, NovoGro® contains nitrogen, phosphorus and lime. It is used as a fertiliser in about 20,000 hectares of farmlands. It substitutes the use of lime and part of commercial fertilisers.

- Conclusion

The benefits resulting from the exchange of resources between industrial companies – the so-called industrial symbiosis – are fourfold:

- the recycling of waste produced by companies
- the reduction of the consumption of resources:
  - 2.1 million m<sup>3</sup> of ground
  - 1.2 million m<sup>3</sup> of lake water,
  - 20,000 tonnes of oil,
  - 200,000 tonnes of natural gypsum.
- the reduction of the environmental strain
- the efficient use of energy.

Financial savings are also impressive:

- the overall investments in projects reached 90 million US\$ in 2002.
- annual savings are superior to 15 million US\$,
- total savings until 2002 amount to 200 million US\$.

The success factors of the experience of Kalundborg lie within the fact that the companies fit each other, they are located close to each other, and they are trusting each other.

More information

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#### **3.2.4.4. Developing partnership with the social economy sector**

The reparation of goods and the market for second-hand goods traditionally developed with a social dimension, in the so-called “social economy sector”. More and more European municipalities are now supporting these initiatives by developing partnership with repair and recycling enterprises combining social and economic objectives.

Social enterprises have emerged in Europe around World War II, organising the systematic collection of clothes and furniture. In the 70s and 80s environmentally conscious organisations contributed to their efforts, mostly on a small-size scale in the local community. Their activities focused on waste sorting, repair/reselling and material recovery. In the 90s repair and recycling activities started in addition to resale. Some enterprises started to get

organised. This was the consequence of a growing waste problem at local and regional levels, of the economic crisis and of the recognition of the social economy sector as a sector in its own right.

Social economy is acknowledged in the European Strategy for Employment (2002), despite variations in the definition of social economy enterprises in different countries. These enterprises are working at the market yet their competitiveness is influenced by their additional social objectives. Often, they favour the reintegration of groups at risk in the labour market, through training and employment. These groups of low or un-skilled people and long-term unemployed occupy two-third of the 40,000 jobs provided by the recycling social enterprises in Europe. This represents about 10% of employment in the waste management sector. They also facilitate access of low-income households to goods or services, with a guaranteed quality at lower cost. From an economic point of view, they provide proximity employment that cannot be delocalised.

Currently, social economy companies deal with 3 major waste streams:

- waste electrical and electronic equipment (WEEE),
- textile,
- bulky household goods.

In the repair and reuse sector, these enterprises protect the environment. They contribute to saving resources and closing the loop of materials : the useful life of goods is extended and WEEE are treated and recycled.

For Strasbourg in France, Torino in Italy, Offenbach in Germany and the Belgian Flemish Region supporting the development of this sector becomes one of the ways to implement sustainable urban development.



#### **Good practice:**

- Strasbourg: ENVIE - waste treatment service and social development
- Offenbach: GOAB - a municipal company with social objectives
- Torino: AMIAT TBD - social integration started with repairing refrigerators
- Flanders region subsidies municipalities to support WEEE recycling centers (*Kringloopcentra*)

#### **3.2.4.4.1. Strasbourg: ENVIE waste treatment service and social development** **Repairing WEEE contributes to social reintegration**

ENVIE Strasbourg started its activities of collecting, repairing and selling household appliances in 1984. It clearly stated its aim to encourage social and professional reintegration of those in distress: ENVIE stands for “*Entreprise Nouvelle Vers l’Insertion Economique*”, which means “*new undertakings towards economic integration*”. It was based on a partnership between Emmaus, social workers and a leading French distributor of domestic

appliances (DARTY). ENVIE offers a 2-year contract and training to low-qualified and unemployed people and sells second-hand goods with a 1-year guarantee.

In 1995, the Strasbourg Urban Community signed a service contract with «ENVIE 2E - Environnement et Emploi», a subsidiary of ENVIE. ENVIE 2E collects household appliances, dismantles them and removes hazardous fluids. This waste electrical and electronic equipment (WEEE) is collected from all municipal waste container parks and from domestic appliance retailers. Goods are either repaired or dismantled to reuse and recycle the materials that they contain. This latest activity has created 15 jobs for people in social and professional distress. Over 5 years, the amount of goods collected by ENVIE 2E had been multiplied by 6.



The public authority supports the development of ENVIE Strasbourg in at least three ways:

- Giving access to WEEE collected by the municipal services
- Funding from the City of Strasbourg's local plan for temporary employment (redistribution of European funding)
- Provision of workers by the municipal social services

• Results achieved in Strasbourg

By collecting and dismantling old domestic appliances such as fridges, ENVIE contributes to reducing the amount of CFCs and compressor oils that would be otherwise released in the environment. In 1996, after one year of functioning in Strasbourg, the amounts collected were estimated as follows:

- 200 kg of CFCs
- 1,500 kg of compressor oil
- 980 kg of condensers
- 1,600 kg of glass (out of TV screen for instance)
- 3,080 appliances were repaired for reuse

It seems that this systems also reduces illegal rubbish dumps.

This same year, ENVIE Strasbourg has employed 8 permanent staff and 20 transitional workers. More than 10 found a job after the termination of their contract with ENVIE.

• Replication at the national level

In 18 years since 1984, 30 similar enterprises have been created all over France. They now constitute the ENVIE network. The umbrella organisation ENVIE Développement coordinates the activities and strives for the adoption of common logistics in training, marketing and purchase in the local and autonomous ENVIE undertakings.

ENVIE network employs 750 persons: 200 with permanent jobs and 550 with temporary 2-year contracts. Since the foundation of the first ENVIE undertaking, 1,800 people have been trained all over France.

Each year, the group collects 300,000 electro-domestic goods (mainly white goods) and sells more than 6,000 second-hand goods in France, with an average price of 150 euros.

Following the example of Strasbourg, 9 other French municipalities have contracted ENVIE 2E for managing WEEE among which Rennes, Le Havre, Angers, Nantes.

- Perspectives

Building on the experience of ENVIE in Nantes, the enterprise is developing a pilot project for implementing the European Directive on recycling Waste Electronic and Electrical Equipment in cooperation with the body responsible for collecting the fees on new appliances and organising the treatment of old ones.

Social enterprises in waste management exist now in most European countries and some of them funded RREUSE, a network for exchange of experiences and cooperation in this sector.

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3.2.4.4.2. Offenbach: GOAB - social integration started with repairing refrigerators

Offenbach is a German city of 117,444 inhabitants located next to Frankfurt am Main, within the Rhein-Main-Region, a conurbation of altogether 1,600,000 inhabitants.

The unemployment issue in Offenbach is mainly related to :

- the decline of the industrial sector and a structural change to services,
- a high share of low-qualified and long-term unemployed people, with a big part of immigrants (42,1% of unemployed people in Offenbach are foreigners).

The foundation of the “*Gemeinnützige Offenbacher Ausbildungs- und Beschäftigungsgesellschaft GmbH (GOAB GmbH)*” in 1985, wanted to be a response to these problems. GOAB GmbH is a non-profit-institution whose aim is to promote education, qualification and employment of social disadvantaged (young and adult) or long-term unemployed people, in order to get them started (again) in the labour market.

GOAB GmbH is a subsidiary company of the Offenbach Commune, which employs :

- 70 persons as permanent staff,
- 75 trainees,
- 150 employees with fixed-term contract.

The turnover amounts to 10 million euros per year (State 2002).

- The GOAB Recycling Center

With its 81 employees, the GOAB Recycling Center is the biggest branch of the company. It has been existing since 1989, and specializing since 1992 in the recycling of electrical and electronic equipment. 70 employees are hired in the scope of fixed-term contracts. Most of them were long-term unemployed persons or receiving income support. The staff of the centre welcomes handicapped or mental ill persons as well.

The WEEE which are treated by GOAB come from municipality kerbside collection and recycling parks (65%) and from commercial estates - banks, universities, insurance



companies etc. (35%) GOAB only sorts and dismantles WEEE. Most of the appliances are manually dismantled, but to shred and sort refrigerators and freezers, for example, a specific technical system has been installed. Appliances which are repairable are given to a partner organisation in Frankfurt (Werkstatt Frankfurt e.V.), which has its own outlets for reusable appliances. About 5.000 tonnes of EEE are treated each year.

Aluminium, copper, scrap metal, sorted synthetic material etc. are sold to companies which can use them as secondary raw materials, or to scrap dealers. Other components are disposed of at an official approved rubbish dump or used for thermal recovery.

GOAB is financial self-sufficient on 50%, and the GOAB-Recycling-Centre is self-sufficient on roughly two-thirds. The other part is a mix of subsidies for projects or wages, coming from the European Social Funds, from the «Bundesanstalt für Arbeit», from public funds from the Federal Republic, the Länder, or the Municipality.

The Goab-Team developed a training and qualification program on its own : a certificate is granted to the trainees after their six-month training, which is acknowledged by the Chamber of Commerce and Industry, and they then get the job title of “Recycling-Worker”.

#### More information

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#### 3.2.4.4.3. Torino: a former municipal company with social objectives



By the end of 1996 the Ministry of Environment and the Ministry of Work, in cooperation with the National Association of Italian Municipalities (ANCI) and the Confederacy of Public Utilities (CISPEL), subscribed an agreement for the creation of 12 platforms, on national scale, for the recovery, treatment and recycling of long-lasting consumer goods according to the Ronchi decree prescriptions (Decree 22/1997). The agreement also provided for the creation of jobs for long-term unemployed people under the Social Useful Workers category (LSU).

In 1997 Amiat Spa, a joint-stock company, created a branch for the recovery and treatment of refrigerators. At the end of year 2000, 31 person were working in it and 29 were LSU. Thus, in the same year, Amiat Spa created Amiat TBD Srl with a capital of more than 1 million Euros. Amiat TBD absorbed the company branch created by Amiat Spa and the 29 workers already working there were hired by the new company.

In order to reduce the losses expected on the 2001-2003 business plan, a strategy of lowering the costs and increasing the revenues has been applied. The range of waste



collected has been extended from refrigerators only to all the type of WEEE. Prices for the treatment have been reduced with a resulting increase in the number of customers, in the amount of entering waste and in the geographic coverage for collection. Improvements in logistics, production and worker training also contributed to the general reduction of costs.

At present AMIAT-TBD collects all the type of WEEE listed in the Ronchi Decree 22/1997 and in the recent EEC Directive 96/2002 of 27/01/2003. The regional collection coverage passed from 36% in year 2000 to 63% in year 2003. Customers and sales of recycled raw material are constantly increasing. Waste collection passed from 850 tonnes in 2000 to 2,240 tonnes in 2002, and forecast reaches 3,000 tonnes for 2003.

Besides, AMIAT-TBD :

- Is a partner in a EEC research project on the treatment and exploitation of WEEE.
- Started a cooperation with the Polytechnic of Turin for the engineering of the recovery process of CD and CD Rom raw materials;
- Planned the transfer, by the end of 2003, of the industrial unit in a new plant with a production capacity 4 times higher and a higher level of automation of the production process;
- Has been pointed, from Archimede auditing company, as the potential WEEE collection and treatment pole of Vitalia Consortium that groups the waste collection companies of Torino, Genova, Firenze, Roma and Ancona.

#### More information

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#### 3.2.4.4.4. Flanders Region subsidies municipalities to support WEEE recycling centers (Kringloopcentra)<sup>39</sup>

In Belgium, the Flemish region concludes partnership agreement with Municipalities: against a regional subsidy of minimum 1 euro per inhabitant, municipalities commit to take action for waste prevention, reuse and recycling. One of these measures consist in concluding a partnership agreement between municipalities and *Kringloopcentra*, which are centres for the dismantling, repair and recycling of WEEE managed by social economy enterprises. There are now 40 *kringloopcentra* and 90 second-hand shops in Flanders. In 2001 they collected about 3.5 kg/inhabitants (more than 20,000 tonnes) of which 70% were reused. In addition, these centres created 1,300 full-time jobs.

#### More information

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<sup>39</sup> European Topic Centre on Waste and Material Flows (European Environment Agency)

