



D1.2 Best Practices database in Circular Economy, Economic Instruments and Prevention Actions

WP1 Pilots planning and execution

ARS

Other

Public

Reviewers: HALANDRI, LEGAMBIENTE, ZAMUDIO

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File excels attached:

- D1.2 PAYT database def.xls
- D1.2 circular economy database def.xls
- D1.2 campaigns database def.xls

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ABBREVIATIONS AND ACRONYMS

EC	European Commission
W4T	WASTE4THINK Moving towards Life Cycle Thinking by integrating Advanced Waste Management Systems
DoA	Description of the Action
DtD	Door to Door
Dx.x	Deliverable x.x
Mxx	Month xx
PAYT	Pay As You Throw
RFID	Radio-Frequency IDentification
WEEE	Waste Electrical and Electronic Equipment
WP	Work Package

1. Introduction

PURPOSE

This document “Best Practices database in Circular Economy, Economic Instruments and Prevention Actions” collects, in accordance with the definitions and regulations in the Annex I of the Grant Agreement and the Consortium Agreement, the best initiatives found in the European Union related to circular economy actions, economic instruments used, focusing on PAYT, and prevention actions related to waste management.

This document is the text version of a database of circular economy Best Practices and New Business Models, economic instruments used to prevent the generation of waste as well as to foster correct sorting of waste and best practices in prevention and awareness campaigns. This database is also available as Excel spreadsheets (attached) that will be used by other partners to expand it and to be used in other tasks or deliverables.

This deliverable has a close relationship with many other tasks and deliverables foreseen by other WPs, in particular with:

- D2.9 and D2.10 Technical Documentation and Implementation of R4 *Circular Economy Planning Module*, due in M12 and M34 respectively. This deliverable will be the result of the actions foreseen in the Task 2.5 *Incentive System Planner to Foster Circular Economy*. This task aims to develop a module that gives public administration and enterprise managers the ability to retrieve circular economy possibilities in the pilots region. This tool will be composed of a Best Practices and New Business Models database, in which the contents of D1.2 on topic Circular Economy will be poured.
- D7.3 Best Practice Book (R18), due in M36. This will be a written handbook collecting the best practices on waste management detected and applied during the project. The aim is to compile and transfer the best waste management solutions tested in the four pilots. The main related task is 7.6 *Publications and events attendance*. This deliverable will have strong connections with D1.2 and in particular with the list of best practices about prevention and awareness campaigns and the foreseen viability evaluation for the implementation in the 4 pilots.

The present document is to be considered as an applicable document up to the final acceptance of all deliverables and reports. Any changes will be agreed by the Project Management Board, and included in a revised version of the present document.

2. Content and methodology

The database on best practices and this deliverable have been structured in three specific sections:

- PAYT (Pay as You Throw)
- Innovative business models to foster circular economy
- Best practices in prevention and awareness campaigns

For each section, as foreseen in the Description of actions (DoA), in M6 the data-base structure with the fields that the data-model will contain to store all the information has been defined and shared among the partners. For the Circular Economy section, we collaborated in particular with ACLIMA and for the section on Prevention and awareness campaigns with BCN.

The data-base fields differ substantially for each section, as can be noticed in the following chapters. In any case the description of the best practice and the explanation of why it has been chosen are common fields for all sections.

The aim of the fields' structure is to allow an easy transfer to an on-line tool and a user-friendly consultation.

A first long list of good practices has been drafted starting from the available documentation. From the long list, we tried to sum up a short list containing:

- about 10 best practices in PAYT
- at least 10 best practices in circular economy
- more than 10 best practices in Prevention and Awareness Campaigns

However, also the practices that have not been selected as “best” will be presented in the online database as good practices, in particular the best practices regarding Circular Economy will be included in the Circular Economy module and those regarding Prevention and Awareness Campaigns will be considered for the Best Practice book (D7.3).

The best practices selection criteria differ for each topic and will be dealt with specifically. Among these however, there are some common criteria adopted:

- High availability of information and particularly of quantitative data
- Periodic and structured monitoring put in place
- Referenced in one or more existing databases, reports or articles
- Award-winning prize or awards
- Suggested by experts interviewed
- Innovativeness of the practice though not yet widespread

In any case, the selection of best practices in this document depends also on its precise aim and is subjected to the discretionality of the authors and of the project partners involved, that can be considered themselves “experts” in the fields covered. They, according to their experience, have expressed their subjective judgment of the practices to be included.

For the purpose of this descriptive document, we chose to describe best practices through fact-sheets, which contain all the information and fields that will contain the on-line database.

The best practices factsheets have been reported: in Chapter 3 about PAYT (11 best practices), in Chapter 4 about Circular Economy (15 best practices) and in Chapter 5 about Prevention and Awareness Campaigns (15 best practices). Only Chapter 5 contains also the viability evaluation for the implementation of the best practices on prevention and awareness campaigns in the 4 pilots (Seveso, Halandri, Zamudio, and Cascais).

Chapter 6, at the end, contains some final comments on our work and suggestions on how to integrate the content of this deliverable with the others projected.

Some details about the main document sources consulted and the methodology used for expert interviews is presented as follows.

2.1 Main sources: database and reports

The identification of best practices began analysing the existing publications, databases and reports that already described the characteristics of each practice in detail. The documentation taken as a reference has some general characteristics: European or national level, detailed information content including data and figures, recent publication, publicly available.

The list of complete documentation and related web links is given in Annex 1 Annex 2.

The main databases, reports or documentation that have been consulted are:

PAYT

- Cross-analysis of 'Pay-As-You-Throw' schemes in selected EU municipalities, ACR+, 2016
- 10 percorsi europei virtuosi verso la tariffazione incentivante, ESPER, 2016
- Use of economic instruments and waste management performances, EU DG ENV, 2012
- Financing and Incentive Schemes for Municipal Waste Management - Case Studies, EUNOMIA, 2014
- Zero Waste Europe - Case Studies, 2014
- Pre-waste - Improve the effectiveness of waste prevention policies in EU Territories, INTERREG IVC Programme. Factsheets on good practices on waste prevention implemented at national, regional or local level in Europe

CIRCULAR ECONOMY

- Economia circolare: principi guida e casi studio, IEFE Bocconi, 2016
- Linee guida per strategie integrate di economia circolare a livello locale e regionale, Circular Europe Network, 2016
- Circular economy in Europe - Developing the knowledge base, EEA Report n. 2/2016
- Ellen MacArthur Foundation database
- Governments going circular, A global scan by De Groene Zaak, Dutch Sustainability Business Association, 2015

PREVENTION AND AWARENESS CAMPAIGNS

- Pre-waste - Improve the effectiveness of waste prevention policies in EU Territories, INTERREG IVC Programme. Factsheets on good practices on waste prevention implemented at national, regional or local level in Europe

- Evolution of (bio-) waste generation/prevention and (bio-) waste prevention indicators ENV.G.4/FRA/2008/0112, Final Report Annex 8, 2011
- Mini-waste Inventory of good practices regarding (bio-)waste minimization in Europe, 2010-2012
- GUIDE GREEN SOLUTIONS FOR WASTE FOR & FROM PUBLIC ADMINISTRATIONS, ZeroWaste, 2014
- LAWPreT project - International Waste Prevention Good Practices – DO4-2
- Low Cost - Zero Waste Municipality project 2007-2013 – Good practices on line data base
- R4R – Regions for Recycling - Good practices for selective collection and recycling, November 2016 (last update)

It can be pointed out that a lot of best practices books and reports have been written and are available on the web. Due to our limitation in the number of best practices to be described, the list of books and reports presented here is not exhaustive; the most relevant ones for our purpose have been chosen.

2.2 Interviews to experts

The methodology required the exchange of views with some experts in PAYT, circular economy and prevention and awareness campaign.

The experts to be interviewed have been firstly identified by scouting personal contacts of each partner working group: in this way a list of “primary experts” was completed. This list was further expanded by asking to the experts their selves the names and contacts of other people working on the same field or on the other fields. The same contribution has been required to the W4T Advisory Board members.

Other experts have been contacted, even if not directly known by W4Tpartners, as authors or reports, papers, presses on the database topics or particularly active in social networks (i.e. Twitter).

A final list of about 60 experts has been compiled and shared among the D2.1 working group.

In order to proceed in an efficient, practical and standard way, we decided to implement an on-line survey, through the open-source tool limesurvey¹. Experts were asked to indicate their main area of expertise among the three investigated.

Each expert could describe, by means of guided answers, from 1 to 10 good practices for each topic, describing them with some main characteristics (title, location, implementation period, etc.). Mandatory fields were only the name/title of the best practice and the information sources allowing us to go more in depth into the practice’s features. One of the most important question for us, even if not mandatory, was about the “Key elements of success”, in order to comprehend why that practice has been reported.

At the end of the questionnaire, we asked to the expert to list one or more relevant reports or databases describing best practices and to indicate other experts to be contacted by us for the same purpose.

¹ <https://www.limesurvey.org/>

The survey has been submitted via email to all the experts identified. The email contained a short description of W4T project, the scope of the survey, the web link to fill it and the information regarding protection of personal data. Furthermore, it was given to the experts the alternative choice to be interviewed instead of answering the questionnaire.

The surveys stayed open until the end of April 2017. During this period 16 complete answers have been collected and 2 interviews have been realized. Few experts decided to report on good practices by email.

In Annex 1, the list of experts that answered to the questionnaire or that have been interviewed is reported. We thank them for their contribution to this deliverable.

Surveys and interviews were conducted according to the ethical requirements defined in the Deliverables 9.1 and 9.2, providing the information required to personal data treatment and always requesting the permission of data disclosure.

The good practices reported by experts have been taken into consideration to complete the list of best practices and then filtered according to the criteria chosen for each topic of the database.

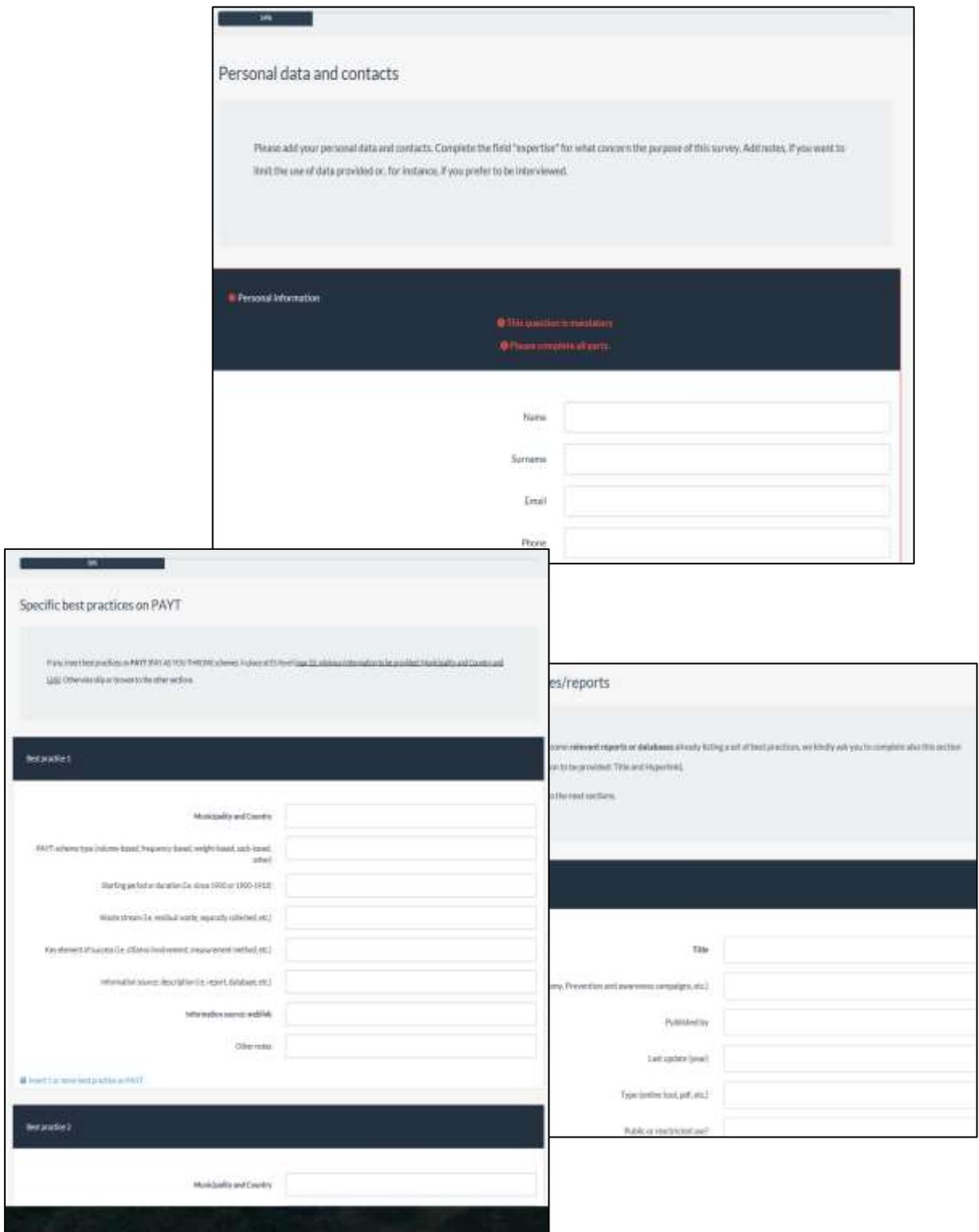


FIGURE 1 SNAPSHOTS OF THE ON-LINE SURVEY

3. Best practice in PAYT

PAYT (Pay-As-You-Throw) is a strategy that allows applying the Polluter Pays Principle for household waste through the implementation of a variable fee structure. PAYT scheme is applied at the top of the waste hierarchy, at the prevention level, because targets household waste at its very source and makes households responsible for the quantity of waste discarded and thus creates an incentive for increased recycling, composting, and ideally a reduction in waste generation.

PAYT has been in place across Europe for more than 25 years already. The policy now exists in a wide range of European countries in varying forms. Germany, the Netherlands, Belgium, Sweden, Austria and Finland have been experimenting with PAYT for the longest time. Most of these countries have included the Polluter Pays Principle in the Federal Law. The typical PAYT scheme applied is based on bag-volume and, in some cases, also on collection-frequency.

In the last decade, PAYT is also spreading in the South of Europe, thanks to the development of new radio-frequency technologies (RFID or transponder RFID) and of traceability systems that allow decreasing the tagged-bag and the overall waste management costs. For instance, in Germany, the UmweltBundestAmt (UBA) Agency recently estimates that in 2009 86 million of tags entered the market. In The Netherlands, in 2007 the 17,9% of Municipalities applied a variable fee scheme, in 2014 they went up to the 40%.

The integration of the Polluter Pays Principle (PPP), as described in the Waste Framework Directive (2008), into national legislation is seen as one of the main drivers for pilot PAYT projects in Europe. In fact, some governments decided to fix at national level specific objectives for municipalities on PAYT schemes (e.g.: Loi Grenelle I and II law in France in 2001, WIR/09/04 circular in Ireland in 2004). In France has been forecasted that in 2017 the spread of “Redevance Incitative” (the French PAYT) will reach 6 million of inhabitants (starting from 3,5 million in 2014).

Municipalities that want to implement a waste charging scheme with PAYT have the objective to ensure fairness when paying for waste management services and to reduce disposable waste. The polluter pays principle aims to charge citizens in a fair manner in accordance with the actual quantity of waste they generate and the corresponding service obtained for its management.

The implementation of PAYT requires:

- The measurement of the generated amount of waste and/or services obtained for it
- A mean to identify the waste generator
- The unit pricing for individual charging according to collected amount or services provided.

Waste charging schemes relying on PAYT have to split the overall waste tax into one fixed part, no-service dependent, and a variable part related to the service or more specifically to the amount of waste generated, and further differentiated fees for various additional services. A waste charging scheme should in any case ensure the full coverage of the waste management related costs and the fair allocation of these costs to the population as beneficiaries of the services. Possible components for a waste charging scheme are shown in the figure below.

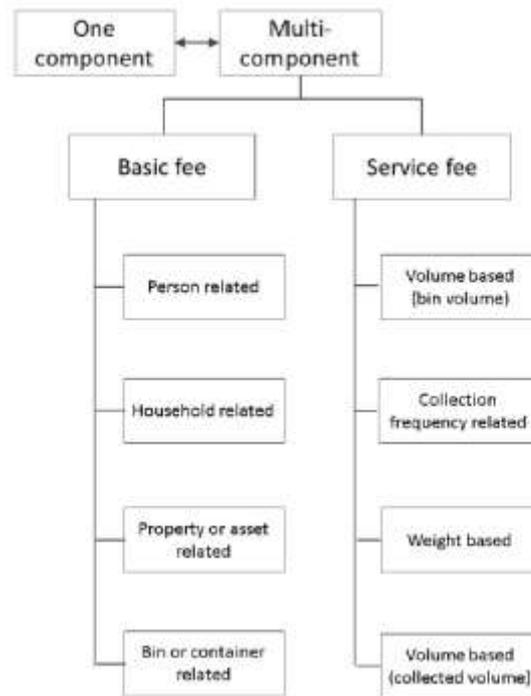


FIGURE 2 SUITABLE COMPONENTS FOR THE DESIGN OF A WASTE CHARGE (SOURCE: ARC+, MAY 2016)

The most common options for service related fee arrangements, applicable to different types of collection (door-to-door, bring banks, etc.), are shown in the figure below:

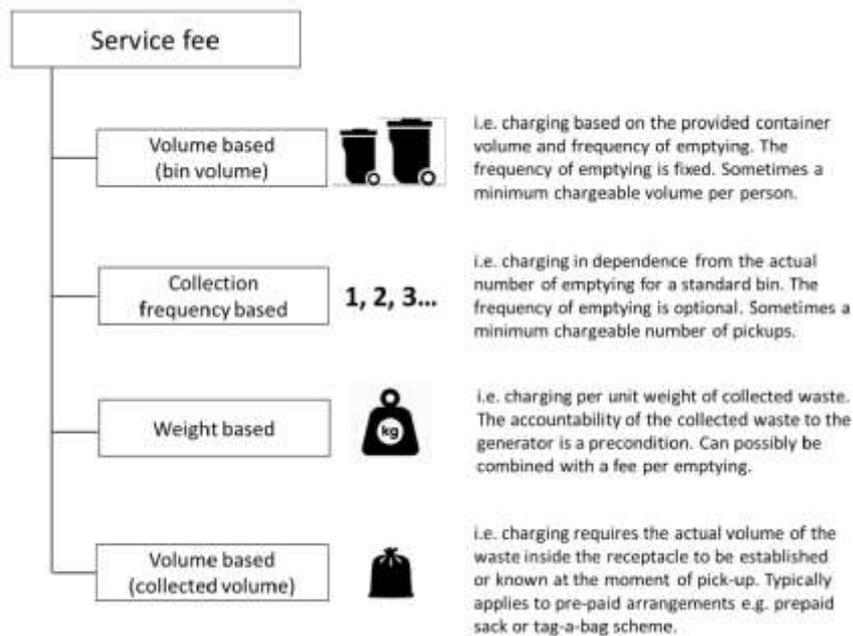


FIGURE 3 COMMON OPTIONS FOR SERVICE-RELATED FEE ARRANGEMENTS (SOURCE: ARC+, MAY 2016)

Experiences on PAYT show that, in general, good results can be obtained by its application in terms of: encouraging residual waste reduction (levels of residual waste can be reduced below 150 kg/cap/y and even below 100 kg/cap/y), increasing considerable recycling and (home) composting, reducing the abandonment of waste, facilitating behavioural-change of

citizens, municipalities and waste management companies in waste management issues, encouraging some industrial market segment to reduce the packaging production².

The systems can vary greatly in detail, coverage, objectives, time horizons, targets, indicators, monitoring systems, measures, and policy instruments and results. The instrument does, however, adapt well to local conditions and shows a high level of acceptance for stakeholders.

The success of implementing a PAYT scheme depends on some key elements:

- it requires a proactive municipality willing to expand collection services, educate users, and deal with a large amount of data;
- policy is an important step towards waste prevention but needs to be accompanied by a “puzzle” of different actions;
- stakeholders engagement provides a great potential to spread messages and make waste management systems more consistent with the Polluter Pays Principle: in this respect, a strong communication is key to spark a real behavioural change;
- analysis of data collected before and during the implementation (monitoring) are very important issues in order to decide the best scheme to apply and to make the initiative successful.

3.1 Methodology

As explained before, there are different experiences on PAYT all over the Europe, most of them are very successful. In order to select the most relevant ones, we decided to focus on types of charging systems applied in order to have a good representativeness in our database of main types of PAYT models.

In order to do this, the criteria used to identify best practices on PAYT have been the following:

- PAYT scheme on the basis of key parameters: collective or individual, frequency based, volume based, weight based
- Availability of technical and economic data and monitoring
- Representativeness of different city size (big, medium, low) in terms of inhabitants
- Diffusion in Europe
- Innovative elements in the model
- References and quotations in database, reports or papers on PAYT good practices
- Identification as best practice by interviewed experts
- Relevancy with the models that will be applied in W4T pilots, even if of minor importance

Some best practices on PAYT have been the subject of a W4T informative session on “Pay-as-you-throw” systems that has been held during the Green Week 2017, on 9th May at Deusto University in Bilbao. At the workshop a panel of experts, including Michele Giavini, spoke about PAYT most common methodologies and their spread in European countries. The workshop was available also in streaming (W4T You Tube channel,

² Source: Cross-analysis of ‘Pay-As-You-Throw’ schemes in selected EU municipalities, ACR+, 2016; 10 percorsi europei virtuosi verso la tariffazione incentivante, ESPER, 2016

<https://www.youtube.com/channel/UCrnsSq9sKgz8I0og07Pt4xA>) and it has been registered in Spanish and English to ease the comprehension by the broad public.

The presentations and recordings of the workshop are available in the Waste4Think web page.



GREEN WEEK 2017

WORKSHOP ON "PAY-AS-YOU-THROW"

Innovative economical tools in waste management

Venue*:
9th May 10-13h
Deusto University – Sala Garate
 Avenida de las Universidades, 24. Bilbao
Language: Spanish**

WASTE 4think

GREEN JOBS
 for a greener future

EU Green Week - 29 May - 2 June 2017
 #EUGreenWeek

PROGRAMME

Waste4Think. Presentation of the project. *Ainhoa Alonso. Project Coordinator and Head of DeustoTech Energy Unit.*

Economic instruments to promote responsible waste management in Spain. Waste taxes. *Ignasi Puig. Head of Waste Management projects. ENT.*

"Pay-as-you-Throw" What is it? Criteria, formulas, technologies and opportunities. *Michele Giavini. ARS Ambiente.*

Implementation of PAYT in Italy and different types of waste collection systems. *Michele Giavini. ARS Ambiente.*

Implementation of PAYT in Argentina: "Pay-as-you-Throw" with prepaid bag, participation tools, implementation process and results. *Joan Pujol. Argentina City Council Technician. Marta Vila. BCNecologia*

Question time and open discussion

[Registration](#)

**This session will be available via streaming. You will receive connection details by email once you have registered in the workshop.*

*** This session will be available in [Waste4Think YouTube channel](#) with English subtitles.*

DeustoTech **BCN ECOLOGIA** **Agència d'Ecologia Urbana de Barcelona** **ARS** **aclima**

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FIGURE 4 FLYER OF THE WORKSHOP ON PAYT

3.2 List of best practices

In the following table, the list of best practice on PAYT chosen. The datasheet about best practices are contained in Annex 3 and in the excel file attached to this document *D1.2 PAYT database def.xls*.

ID	Municipality / Area	Short description
PA.1	50 Municipalities of Priula Consortium/Contarina, Treviso Province (IT)	The PAYT system was introduced in 2000-2001 in 14 Municipalities and in 2009 in other municipalities. The fee for waste generation is splitted into two parts; one fixed and another one variable.
PA.2	Argentona, Catalunya (ES)	The PAYT scheme is called 'The Fair Tax' and is a payment system for waste generation according to the number of bags, applied on both residual waste and light packaging. It's in place since 2009 and was one of the first case studies in Europe.
PA.3	Region SIRCOM BRIVE-LA-GAILLARDE (FR)	Flexible scheme in which PAYT is implemented paying per volume, but allowing different kind of containers: post-paid bags, wheelie bins door to door, drop off collective containers, underground containers. all of the measuring the access and identifying the user.
PA.4	Parma Municipality (IT)	Parma implemented PAYT after starting with door to door collection in the whole city. It uses a UHF (Ultra High Frequency) RFID tag inserted in small 40 l bins (for most of the city) and in 50 l white bags (for the historical centre).
PA.5	Maastricht Municipality (NL)	Maastricht introduced the PAYT system in 2001. The municipality applies a fixed and a variable rate per household. The fixed rate pays for organisational costs, regional staffed facilities, collection and treatment.
PA.6	Bjuv Municipality (SE)	In 2000 the collection scheme has been introduced PAYT with RFID chips on containers on residual waste, bio-waste and recyclables. It has been applied a peculiar '2 bins - 8 compartments' scheme.
PA.7	Innsbruck Municipality (AT)	The PAYT system was introduced in 1995. Innsbruck applies a flat rate and a variable rate per household.
PA.8	Navigli Municipalities Consortium (IT)	Navigli Municipalities Consortium (22 municipalities in Milan Province) implemented PAYT immediately after the new waste framework law of 1997 pushed for its introduction. The waste charge is composed of 2 parts, a fixed one (30-35 % of the overall forecast tariff income) and a variable one (50-70% of the costs for collection and transportation).
PA.9	Ljubljana (SLO)	Around the year 2000 the PAYT was introduced for mixed municipal waste. The fee for bio-waste is charged according to bin size and emptying frequency and number of use of underground collection unit. A more common PAYT scheme is applied for residual waste.
PA.10	Berlin (DE)	Solid waste rate-pricing varies according to the containers' capacity and to the frequency of the collection (weekly or every two weeks). The rate-pricing calculation includes also the collection of bio-waste, depending on its quantity and on the



		frequency of the collection.
PA.11	Cassano Magnago (IT)	Cassano Magnago implemented PAYT in 2000 that started immediately with a high variable part (65% of the tax), mainly covered with the price of residual waste bags.

4. Best practice in Circular Economy

The circular economy auto-regenerates itself by definition: biological materials are intended to come back to the biosphere and technical materials are designed in order to be recycled and reuse, with the lowest leakages. Furthermore, circular economy by means of a specific eco-design aims: to be based on renewable energy sources, to avoid the use of chemicals with toxic potential, to minimize the waste production and discards.

The circular economy principles rose up in the sixties, starting by the “cradle-to-cradle” approach. Recently, thanks to the commitment of European Union and its communication COM(2014) 398 “Towards a circular economy: A zero waste programme for Europe”, the circular economy concept comes back more strongly in a more favourable strategic framework.

The European Commission on 2 December 2015 adopted the first proposal of the circular economy package, creating an important momentum to support governments in the transition towards circular economy. This package included 4 legislative proposals, still ongoing in the final definition, on waste, with long-term targets to reduce landfilling and increase recycling and reuse³.

Meanwhile, all over the world, a growing number of companies have started to develop and apply circular business models. These business models replace the traditional linear, “end-of-life” concept. Companies are now oriented towards restoration rather than destruction and they are shifting away from fossil fuels towards renewable energy. Manufacturers are stopping the use of toxic chemicals and aiming towards the elimination of waste through superior material, product and system design.

The transition towards a more circular economy brings great opportunities for Europe and its citizens. It delivers important energy savings and environmental benefits to companies and to the whole society. It boosts innovation and employment opportunities. It introduces new economic divisions and saves money at the same time. Research conducted by McKinsey on behalf of the Ellen MacArthur Foundation determined that the closing of economic loops can lead to a savings of 290 to 485 billion euros in the EU alone. Furthermore, the circular economy also offers indirect benefits to businesses: supply chains are better managed, companies become less sensitive to the price volatility of resources, and they build a longer and better relationship with their customers. In contrast to the current wasteful linear economy, the circular economy has a much smaller impact on the environment. The wider benefits of the circular economy also include lowering energy consumption and carbon dioxide emissions levels.

The main bottlenecks in the transition to the circular economy, identified by the Ellen MacArthur Foundation, are:

1. **Lack of awareness** Many businesses simply do not feel a sense of urgency to change to a circular business model. Or, they may want to make the transition but

³ As part of a new circular economy package, in December 2015 the Commission presented an action plan for the circular economy, as well as four legislative proposals amending the following legal acts: Waste Framework Directive; Landfilling Directive; Packaging Waste Directive; Directives on end-of-life vehicles, on batteries and accumulators and waste batteries and accumulators, and on waste electrical and electronic equipment (WEEE).

- they come across too much resistance from their international supply chain and trading partners.
2. **Availability of substitute materials** Many of the toxic or scarce materials that are used in the linear economy will have to be replaced with alternatives in a circular economy. These alternatives are not always easily available.
 3. **Linear lock-ins** In the linear economy, external costs, like environmental damage, are excluded from the business case. Also, the tax regime, in which labour is more heavily taxed than materials, presents a huge challenge for the circular economy. Because of this, there is an uneven playing field for companies that set up their business in a circular model. There are specific lock-ins of a more financial nature, such as a long-term revenue generation horizons, major upfront investments, limited access to funding and the short-term perspectives of many shareholders.
 4. **Hampering legislation** Examples of this include: the lack of recyclable (plastic) material standardisation, the low number of end-waste protocols for businesses, and the dearth of infrastructure for companies to ensure transparency on the product-level which is necessary for circular business (i.e. specifying the resources used to manufacture a particular product).

4.1 Methodology

A lot of enterprises are moving to offer products and services aimed to reach the circular economy principles. In that framework, due to the variety of sectors and outputs involved, it's very difficult to have common and objective criteria to define which of them can be identified as best practice.

In fact, a common and wide-spread methodology to do this nowadays doesn't exist. This is why, for building up our database on best practices in circular economy we decided to rely basically on the opinion of experts we've interviewed and on award and mentions received by the best practice promoter. We tried also to identify best practices for some main business sectors, in order to have a good representativeness of them. The same rationale was used for the waste types used as model's input.

More specifically, criteria used to select best practices were:

- business sector
- waste in input, trying to have a good representation
- Innovation of the product and maturity of the model
- Award received by the promoters
- Quotation in reports and database on circular economy
- Identification as best practice by interviewed experts
- Availability of data and information about the model the make replicability easier

As already said, in particular this part of our deliverable is committed to have a role in a wider data-base that will be defined in the *R4 Circular Economy Planning Module*. For this reason, our list of best practices will be extended during the project also with the collaboration of all the partners that will be invited to identify good and best practices to be collected in the full extended data-base.

The Circular Economy Module has been intended as a web-interface where user can select the best practices, according to some criteria (acting as filters), as: waste stream involved, product, geographical area, etc. In this way, we'd like to make known a good variety of

circular economy practices, linking subjects involved in the business model (as producers, designers, companies, etc.) and potential users.

4.2 List of best practices

In the following table, the list of best practice on PAYT chosen. The datasheet about best practices are contained in Annex 4 and in the excel file attached to this document *D1.2 circular economy database def.xls*.

ID	Name	Short description
CE.1	Lease a Jeans - Lease a Fleece	Lease model for organic cotton jeans or sweatshirt/hoodie.
CE.2	Econyl	Process to chemically recycle nylon that achieves the same quality of fibre as through virgin production.
CE.3	Saved From Landfill bags	New outlet to stop domestic flexible plastic waste going to landfill launching a range of bin liners made from 30% recycled flexible plastics.
CE.4	Cradle to Cradle carpets	Cradle to cradle approach for carpet textiles.
CE.5	Ceranex	From plant to shelf: waste flows from horticulture used as raw materials for the building industry.
CE.6	Quality Circular Polymers	Contributes closing the plastics loop. 'Quality Circular Polymers'
CE.7	Re-tek	Establishing a reverse supply chain for electronics (incentivized return business model).
CE.8	Zicla	Turn waste into new materials for industry and new products for the market.
CE.9	Fater Diaper Recycling Project	0% discarica - 100% riciclo. Turn baby diapers, hygienic pads and incontinence products to recycled raw material.
CE.10	Coca-cola Continuum and Infineo recycling	Pioneering recycled-PET joint venture.
CE.11	Autocraft Drivetrain Solutions	Remanufacturing services on a wide range of engines and components.
CE.12	ARP Suppliers	Retrieving toners from toner brokers.
CE.13	Lavazza compostable capsule	A compostable capsule espresso 100% Italian made of Mater-Bi.
CE.14	Enhanced Landfill Mining	"Closed circle" landfill mining operation.
CE.15	Carta Crusca	CartaCrusca, a new life for the bran. CartaCrusca is the first paper came from the bran no longer usable for human consumption.

5. Best practice in Prevention and Awareness Campaigns

The European Union's approach to waste management is based on the "waste hierarchy" which sets the following priority order when shaping waste policy and managing waste at the operational level: prevention, (preparing for) reuse, recycling, recovery and, as the least preferred option, disposal (which includes landfilling and incineration without energy recovery).



FIGURE 5 EUROPEAN WASTE HIERACHY

Everyone is responsible in producing waste: on average, each of the 500 million people living in the EU throws away around half a ton of household rubbish every year. This is on top of huge amounts of waste generated from activities such as manufacturing (360 million tons) and construction (900 million tons), while water supply and energy production generate another 95 million tons. Altogether, the European Union produces up to 3 billion tons of waste every year⁴.

In this frame, a lot of effort has to been focused on waste prevention. Good waste management begins with preventing waste being produced in the first place – after all, what is not produced does not have to be disposed of.

Waste prevention is becoming more and more important as the global population increases and we eat away at our finite supply of natural resources. Different tools can be used to encourage waste prevention. The most relevant are:

- eco-design, which focuses on environmental aspects during the conception and design phase of a product;
- improving manufacturing methods and influencing consumers so that they demand greener products and less packaging; and
- awareness-raising campaigns to educate the public and encourage consumers to demand goods that produce less waste and drive the creation of a more resource-efficient market.

Awareness campaigns play a very important role because they are primarily directed on stakeholders that can effectively act for prevention: citizens, schools, businesses, institutions, etc.

⁴ Source: <http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf>

5.1 Methodology

A lot of prevention and awareness campaigns have been put in place all over the Europe in the last years, with very different targets, actions, duration and location. Very different results have been achieved and they are not always measurable. In this chapter we try to focus on small number of best practices (15) that from our point of view are particularly meaningful for the aim of this deliverable.

Criteria used to select best practices on awareness campaigns have been:

- Meaningfulness on a specific target and on a specific waste fraction
- Availability of details and data on best practice
- Measurability of the results and a monitoring system put in place
- Rate of involvement of stakeholders targeted
- More than one mention on reports, database, press, documents
- Awards or acknowledgment received
- Identification as best practice by interviewed experts
- Case study, even if with minor relevance, is part of a more strategic action (for instance for an entire country or territory)
- Relevance and synergy with W4T actions and pilot's context

As previously mentioned, this is just a short subset of best practices : the Best Practice Book (D7.3) will contain a longer list of good practices on campaigns identified by us or interviewed experts, besides those implemented during the W4T project. Each partner will participate to the Best practice book, reporting specifically on particularly meaningful good practice developed in their country or in their network.

In particular, for this section of the database, it has been foreseen a general viability evaluation for the implementation in the 4 pilots. For this evaluation, partners representative for each pilot (institutions and communication responsible) have been involved, after the selection of the best practices, through a web-workshop, held in the middle of May. During the workshop the selected best practices, with their main characteristics, have been explained to the partners, in order to evaluate their interest on replicate them in their context. A simplified scheme to collect their opinion on practices has been used and also a general discussion took place. The results of this interaction have been reported in Section 0.

5.2 List of best practices

In the following table, the list of best practice on PAYT chosen. The datasheet about best practices are contained in Annex 5 and in the excel file attached to this document *D1.2 campaigns database def.xls*.

ID	Title of the case study	Short description
AC.1	The Real Nappy campaign	As a growing town popular with young families, Milton Keynes reduced pressure on local landfills by helping parents make the switch to reusable nappies, through a targeted local information campaign along with cash-back incentives.
AC.2	School Canteens Contest	Halmstad schools competition to increase awareness and reduce food waste in school canteens

AC.3	Packaging advisory	Members of Eco-Emballages are supported in their waste minimisation efforts by training and consulting services on efficient packaging design. They were helped also with assessment to redesign existing packaging strategies.
AC.4	Community composting in Pallars Sobirà (Catalonia)	Community Composting is a pioneering initiative in Catalonia that involves the management of the organic fraction of a village. It involves the cooperation of all residents as they become their own managers. The campaign is aimed specially for villages with less than 100 inhabitants.
AC.5	Roba amiga	Roba Amiga is a project of social rehabilitation, working on recovery of textile and reuse for people with fewer resources.
AC.6	Repaired better than new	The campaign promotes the good maintenance and repairing of devices, better than throw them and buy new ones, through workshops and free counseling to help people to fix them by themselves.
AC.7	RUSZ	Encourage the repair of electrical and electronic appliances with a guide and creation of repair centers.
AC.8	Sparkling Water from Public Fountains	Tap water of town waterworks from municipal dispenser. Town dwellers can get supplies of deputed drinking-water coming from the waterworks, avoiding the purchase of water bottles.
AC.9	No-advertisement sticker with legal backing in Brussels	Stop pub / stop reclame stickers to avoid waste of paper
AC.10	Accompanied paper waste prevention in schools in Brussels	Change behaviour of pupils and schools' employees in Brussels, through assistance on paper consumption reduction.
AC.11	Ecofeste Parma	Promotion of environmental friendly events, acting towards the waste prevention and reduction and separate collection. Certification through the "Ecofeste" brand.
AC.12	Love Food Hate Waste Campaign in North London	Awareness campaign to reduce food waste and promote measures that can achieve a real reduction in food waste amongst North London residents.
AC.13	Fund by carbon Tax on packaging	Carbon tax on packaging used to start a fund to help reduce waste and increase the rate of recycling in the country.
AC.14	Let's Clean Up Europe!	Clean-up initiative to fight against the littering. The primary causes of littering are unsustainable production and consumption patterns, poor waste management strategies and a lack of awareness of citizens.
AC.15	Halving waste to landfill	Voluntary agreement undertaken by construction companies to adopt good practices in waste reduction, recycling and the use of recycled and recovered materials.

5.3 General viability evaluation for the implementation in the 4 pilots

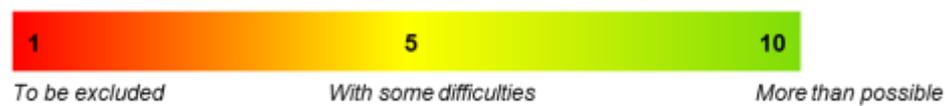
In order to evaluate the general viability for the implementation of awareness and prevention campaigns selected as best practices, we organized a web-workshop with the 4 pilots. The workshop took place on the 11st of May.

Before the workshop we sent some information about the best practices to the pilots, in order to give them the opportunity to and catch preliminary information about those campaigns.

During the workshop, through some slides (see Annex 6), we went through each campaign in order to comment them on line. Then we asked each pilot to evaluate the replicability of the best practices campaigns through the following questions:

1. Which is your level of interest (from 1 to 10) about the campaign, and why?
2. Are you particularly interested in:
 - a. Waste fraction
 - b. Target group
 - c. Objectives
 - d. Main message of the campaign
3. Replicability in the pilot area (from 1 to 10), and why?
4. If replicability is low, why? And how could be possible to make the campaign more replicable in your area?

Replicability



From the discussion held, some general conclusions can be drawn.

Campaigns promoted at national or regional level are not in general replicable at local level, because pilots have not the economic and organizational resources to manage them. This is in particular the case of AC.3 Packaging advisory, AC.13 Fund by carbon Tax on packaging, and AC.15 Halving waste to landfill.

In general, awareness campaign in schools, as AC.2 School Canteens Contest and AC.10 Accompanied paper waste prevention in schools, are already in place in most of the pilots, even if with different implementation levels.

Campaigns on littering, as AC.9 No-advertisement sticker with legal backing in Brussels and AC.14 Let's Clean Up Europe!, raised in general a high interest except for Cascais, where littering seems not to be an issue.

Waste (electronic, textiles, etc.) repairing and recycling initiatives, as AC.5 Roba amiga, AC.6 Repaired better than new and AC.7 RUSZ, even if absolutely interesting, seem to be not feasible because they require economic funds, personnel and organizational resources that pilots, and in particular municipalities, in general don't have.

Then, there are initiatives, as AC.1 The Real Nappy campaign, AC.11 Ecofeste Parma and AC.12 Love Food Hate Waste Campaign in North London that already have been or will be put in place in the framework of W4T actions. It's the case of: Ecoevents and reusable Nappies for Seveso and campaigns against food waste for Zamudio. In these cases, the replicability is very high.

Finally, campaigns on community composting, AC.4 Community composting in Pallars Sobirà, and on public fountains of sparkling water, AC.8 Sparkling Water from Public Fountains, could be replicable only under specific conditions or, for instance, in limited/pilot areas.

In general, the cultural background is substantial for the feasibility of some campaigns: for instance reusable nappies initiatives seem to be too much innovative for Zamudio and

Cascais; campaigns addressed to business (e.g. packaging companies, construction, etc.) don't raise interest if in the territorial context of the pilots those kinds of businesses are not widespread. About public water fountains, pilots generally prefer to raise the awareness of people on consuming tap water at home, that's quite unusual in citizen habits even if the public water quality is commonly high.

Further details can be found in the following table.

ID	Campaign title	Replicability in the pilot area				Comments
		Zamudio	Halandri	Cascais	Seveso	
AC. 1	The Real Nappy campaign	2	7	1	6	In the framework of W4T, a similar action in Seveso has been already put in place even without economic incentive. Halandri seems very interested in replicating this type of campaign. In Cascais and Zamudio the feasibility is very low for a lack of the necessary cultural background.
AC. 2	School Canteens Contest	6	7	3	6	Halandri, Zamudio and Seveso are generally interested on this campaign. The main difficulty in Seveso is the involvement of the company that's in charge of the school canteens service. In Cascais the campaign is not replicable because the schools management is not related at all with the municipality.
AC. 3	Packaging advisory	2	3	8	2	The interest and replicability of this campaign is in general very low except for Cascais. In fact in Portugal eco-design is quite spread and they already use a same logo to identify eco-designed product. The W4T eco-design game could be useful in the future to spread this type of knowledge towards all the pilots.
AC. 4	Community composting in Pallars Sobirà	5	4	5	2	This type of composting could be replicable only partially in pilot areas (e.g. parks), except for Seveso not interested at all. In fact in Seveso is already in place a structured home composting system.
AC. 5	Roba amiga	6	8	3	6	Halandri, Zamudio and Seveso already have in place similar systems for the textiles' collection and recovery. For Cascais, at the local level the replicability is very low.
AC. 6	Repaired better than new	4	8	4	4	Halandri is very interested to go more in depth in the topic and evaluate the feasibility of a similar campaign. For the other pilots the campaign is low replicable basically because of the difficult management at local level and the lack of funds to start it.

AC. 7	RUSZ	4	4	4	4	In general, the pilots seem to have not enough resources to start this type of initiative. Furthermore, in Italy there would be some difficulties because of some limits of the laws on waste and their accessibility into the market as secondary raw materials.
AC. 8	Sparkling Water from Public Fountains	3	10	3	10	Seveso has already in place this type of public fountains. Halandri is interested to install them in particular in public spaces to avoid the purchasing of bottled water. Zamudio and Cascais are not interested because they prefer to raise citizens' awareness on the use of tap water at home.
AC. 9	No-advertisement sticker with legal backing in Brussels	2	6	1	8	Seveso and Halandri are quite interested in put in place something similar. In particular, in Seveso there are individual initiatives that could be gathered in a common action towards paper advertisement. Zamudio is not interested; neither Cascais where the problem doesn't exist at all thanks to a national law that forbids paper unaddressed advertisement.
AC. 10	Accompanied paper waste prevention in schools in Brussels	8	10	7	6	This campaign seems to be easily replicable in all the pilots. In particular in many of them, some similar actions are already in place. Halandri has the higher interest, over all in promoting separate collection in schools.
AC. 11	Ecofeste Parma	8	6	7	10	In the framework of W4T, a similar action in Seveso has been already put in place even if without a specific brand for certificate events. The other pilots are also very interested in this initiative.
AC. 12	Love Food Hate Waste Campaign in North London	8	6	2	6	Campaigns on food waste are quite spread in Lombardy Region thanks to some regional initiatives: Seveso municipality could evaluate to join some of these actions with the help of associations as Legambiente. Halandri is very interested on the topic but for the moment it hasn't the possibility to replicate the campaign. In the W4T framework, Zamudio started some initiatives to fight food waste. For Cascais the replicability is very low because this topic has not been addressed yet at the national level.
AC. 13	Fund by carbon Tax on packaging	2	4	2	2	This is a campaign promoted at national level so, in general, the replicability is considered very low at local level.

AC. 14	Let's Clean Up Europe!	6	10	2	8	This type of campaign is in general very easy to replicate because is low time consuming and well organized at European level. Halandri and Zamudio could think about participation. Seveso already joins yearly a similar initiative: the Legambiente "Puliamo il mondo". Cascais is not interested at all because littering and illegal dumping are not an issue in that area.
AC. 15	Halving waste to landfill	2	5	2	2	This is a campaign promoted at national level so, in general, the replicability is considered very low at local level.

6. Further development and conclusion

This deliverable collects and describes some best practices in PAYT (Pay as You Throw) and incentive schemes, innovative business models to foster circular economy, prevention and awareness campaigns.

A good amount of good practices from all the Europe has been analysed and collected to choose the best ones. The methodology for choosing them has been explained in the previous sections and comprehended basically the review of existing report and databases and interviews to experts.

We want to stress on the fact that the selection of best practices in this document is strongly related with its aim and it is subjected to the discretionally of the authors and of the project partners involved, that can be considered themselves “experts” in the fields covered. They, according to their experience, have expressed their subjective judgment about the practices to be included. In the selection of best practices we collaborated with all the partnership, but particularly with AClima for the circular economy section and BCN for prevention and awareness campaigns.

While the database on PAYT is closed, the two databases on circular economy and prevention and awareness campaigns will be expanded during the project in the framework of other deliverables.

In particular, the section about circular economy has to be considered the text version of a real database of circular economy Best Practices and New Business Models (R4 *Circular Economy Planning Module*). This full database, enriched with other good practices, will be available on line by the end of the project, under the responsivity of AClima. The good practices analysed and not included in this document will be included in the wider database. The objective of the full work is the development of a module providing public administration and enterprise managers the ability to retrieve circular economy possibilities in the pilot regions.

The section about prevention and awareness campaign will be used to write the Deliverable D7.3 Best Practice Book that will be a written handbook collecting the best practices on waste management detected and applied during the project. It will be available at the end of the project under the responsibility of BCN. Also in this case, the good practice analysed and not included in this document could be gathered in the final one. This is why we assessed in Section 0 the viability evaluation of the chosen best practices for the implementation in the 4 pilots. The aim is to evaluate the best ideas and tips on how to implement them in different territories using the solutions developed in W4T project.

Annex 1. List of experts

In the following table, the experts (in alphabetical order) that accepted to be interviewed or to answer to the on-line questionnaire. Totally about 60 experts has been contacted and 19 of them answered. We thank them for their contribution to this deliverable.

Name and Surname	Company and role	Expertise
Albert Mateu	International Pneumatic waste collection association	PAYT, CE
Albina Ambrogio	Erica - Knowledge of case studies	CE
Andrea Pavan	Erica - Knowledge of case studies	CE, Campaigns
Davide Pavan	Member of PAYT Italia	PAYT
Eliana Farotto	CONAI	CE, campaigns
Enrico Di Nola	Erica - Knowledge of case studies	Prevention and awareness campaigns
Francesca Davoli	ENVI	Campaigns
Gaia Pretner	IEFE Bocconi	CE
Håkon Jentoft	Leading EU urban agenda working group for circular economy. Senior advisor and head of international relations at city of Oslo, waste management agency	circular economy, campaigns
Henrik Lystad	central position in national waste association, member of European groups	All
Ignasi Puig	ENT - Waste consultant (Spain)	PAYT
Lorenza Stupino	Erica - Knowledge of case studies	PAYT
Marco Ricci	Altereke - Waste consultant	PAYT
Mario Santi	Member of PAYT Italia	PAYT
Maurizio Bongioanni	ENVI	Campaigns
Pilar Chiva	Head of Waste Prevention Unit at ARC	Campaigns, PAYT, CE
Simona Faccioli	ReMadeInItaly	Circular Economy
Thomas Rem/Øivind Brevik	Manager inter municipal waste management sorting plant	Circular economy, campaigns
Umberto Gianolio	Erica - Knowledge of case studies	PAYT

Annex 2. List of report, database and other documents

In the following table, the list of report, database and other documents (in alphabetical order) that have been examined to choose the best practices listed in the present deliverable. Web links are effective on May 2017.

N	Title	Link	Topic(s)	Type
1	10 Percorsi Europei Virtuosi Verso la tariffazione incentivante, ESPER, 2016	http://esper.it/10-percorsi-europei-virtuosi-verso-la-tariffazione-incentivante/	PAYT	Report
2	A Comparative Study on Economic Instruments Promoting Waste Prevention, Final Report, EUNOMIA, 2011	http://www.eunomia.co.uk/reports-tools/a-comparative-study-on-economic-instruments-promoting-waste-prevention-2/	PAYT	Report
3	Agència de Residus de Catalunya, Web Catalogue	http://www.arc.cat/webarc/jsp/ccrproj/ca/cercarprojectes.jsf	Awareness and prevention campaigns	Online database
4	Assessment of separate collection schemes in the 28 capitals of the EU, Final Report, DG ENV, 2015	http://ec.europa.eu/environment/waste/studies/pdf/Separate%20collection_Final%20Report.pdf	PAYT	Report
5	Bilan Des Collectivités En Tarification Incitative Au 1er Janvier 2014, ADEME, 2014	http://www.ademe.fr/bilan-collectivites-tarification-incitative-1er-janvier-2014	PAYT	Report
6	BUYING GREEN A handbook on green public procurement - 3rd edition, European Commission, 2016	http://ec.europa.eu/environment/gpp/buying_handbook_en.htm	Circular Economy	Report
7	Ca suffit le gachis, website, waste prevention best practices in France	http://www.reduisonsnosdechets.fr/	Awareness and prevention campaigns	Website
8	Cases of implementing resource efficient policies by the EU industry Final report - November 28 th , 2014	http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/REPC%20final%20report%20IDEA%20Consult.pdf	Circular Economy	Report
9	CEBF, Circular Economy Business Forum	http://www.cebf.co.uk/case-studies.html	Circular Economy	Online database
10	Circle Economy	http://www.circle-economy.com/reports-insights/	Circular Economy	Online database
11	Circulaire Economie website	https://www.circulairebusinessmodellen.nl/cases/	Circular Economy	Website
12	Circular Business Models Part-1, IMSA, 2015	http://circular-future.eu/wp-content/uploads/2015/08/IMSA-Circular-Business-Models-April-2015-Part-1.pdf	Circular Economy	Report

13	Circular economy in Europe, EEA Report, 2016	http://www.eea.europa.eu/publications/circular-economy-in-europe	Circular Economy	Report
14	Circular Economy: Measuring Innovation In The Product Chain, PBL Netherlands, 2017	http://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2016-circular-economy-measuring-innovation-in-product-chains-2544.pdf	Circular Economy	Report
15	Connect - Collaboration for a circular economy	https://connect.innovateuk.org/web/collaborations-circular-economy/case-studies	Circular Economy	Online database
16	Connecting consumption with environmental impact: Waste prevention and Pay as You Throw, a collective case study in Sweden, Courtney A. Dahl, 2010	http://www.lumes.lu.se/sites/lumes.lu.se/files/dahl_courtney_thesis_2010.pdf	PAYT	Master Thesis
17	Cross-analysis of "Pay-As-You-Throw" schemes in selected EU municipalities, ACR+, 2016	http://www.acrplus.org/index.php/en/news/acr-news/723-payt-report-now-available	PAYT	Website
18	CSR Europe website Business Tools and Best practices	http://www.csreurope.org/searchsolutions?page=3&f[0]=im_field_solution_region%3A83	Circular Economy	Online database
19	Economia Circolare e Contarina Spa: La gestione virtuosa dei rifiuti, Contarina, 2016	http://www.forumrifiuti.it/files/forumrifiuti/docs/rasera_contarina.pdf	Circular Economy, PAYT	Presentation
20	Economia Circolare: principi guida e casi studio, Osservatorio sulla Circola Economy, IEFE Bocconi	http://www.assolombarda.it/servizi/ambiente/documenti/rapporto-geo-sulla-circular-economy	Circular Economy	Report
21	EEA Report , Prevention of hazardous waste in Europe - the status in 2015, 2016	http://www.eea.europa.eu//publications/waste-prevention-in-europe	Circular Economy	Report
22	EEA Report, Waste prevention in Europe — the status in 2014	http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015	Awareness and prevention campaigns	Report
23	Ellen Mac Arthur Foundation website	https://www.ellenmacarthurfoundation.org/publications https://www.ellenmacarthurfoundation.org/case-studies	Circular Economy	Website, factsheets
24	ENCORE REGIONS AND CIRCULAR ECONOMY Best case studies 2016, ENCORE Basque Country, 2016	https://www.irekia.euskadi.eus/uploads/attachments/8492/ENCORE_Regions_and_Circular_Economy_WEB.pdf?1474877920	Circular Economy	Report
25	European week for waste reduction website and awards	http://www.ewwr.eu/ http://www.ewwr.eu/docs/press/Press_File_EWWR_Awards_2015.pdf	Awareness and prevention campaigns	Website, report
26	Evolution Of (Bio-) Waste Generation/Prevention And (Bio-) Waste Prevention Indicators Final Report September 16th, 2011	http://ec.europa.eu/environment/waste/prevention/pdf/SR1008_FinalReport.pdf	Awareness and prevention campaigns	Report
27	Financing and Incentive Schemes for Municipal	http://ec.europa.eu/environment/waste/studies/pdf/fina	PAYT	Report



	Waste Management Case Studies Final Report, EUNOMIA, 2014	ncingmunicipalwaste_management.pdf		
28	FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies) database	http://www.eu-fusions.org/index.php/social-innovations/social-innovation-inventory	Awareness and prevention campaigns	Online database
29	Governments Going Circular - Global Scan Best Practices, De Groene	http://www.govsgocircular.com/	Circular Economy	Online database
30	GPP2020 - Procurement for a low-carbon economy, National reports on low carbon tenders, 2013-2017	http://www.gpp2020.eu/about-gpp-2020/downloads/	Circular Economy	Website
31	GROWTH WITHIN: A CIRCULAR ECONOMY VISION FOR A COMPETITIVE EUROPE, Ellen MacArthur Foundation McKinsey	https://www.mckinsey.de/files/growth_within_report_circular_economy_in_europe.pdf	Circular Economy	Report
32	Guide for the Implementation of Pay-As-You-Throw Systems for Municipal Waste, Agència de Residus de Catalunya	http://ent.cat/guia-per-a-la-implementacio-de-sistemes-de-pagament-per-generacio-de-residus-municipals-2/?lang=en	PAYT	Report
33	Guidelines on the preparation of food waste prevention programmes, DG ENV, 2011	http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf	Awareness and prevention campaigns	Report
34	Household Waste Collection, Factors and Variations, Lisa Dahlén, 2008	https://www.researchgate.net/publication/270577220_Household_Waste_Collection_Factors_and_Variations	PAYT	Doctoral Thesis
35	Il riciclo del vetro e i nuovi obiettivi europei per la circular economy, Assovetro, 2016	http://www.ilsole24ore.com/pdf2010/Editrice/ILSOLE24ORE/ILSOLE24ORE/Online/Oggetti_Correlati/Documenti/Notizie/2016/02/Dossier-Assovetro.pdf	Circular Economy	Report
36	Innovation seeds website	http://www.innovationseeds.eu/Policy-Library/Core-Articles/?tag=745	Circular Economy	Website
37	Innovations in Infrastructure: CASE STUDIES ON THE TRANSITION TO A CIRCULAR ECONOMY, WRAP, 2016	http://www.wrcplc.co.uk/Data/Sites/1/media/pdfs/articles/CaseStudiesDigitalowres.pdf	Circular Economy	Report
38	Inside Flows website	https://www.insideflows.org/#	Circular Economy	Online database
39	LAWPreT (Local Authorities Waste Prevention Training), Deliverable O4.2 Waste Prevention Guide, 2016	http://waste-prevention.gr/waste/wp-content/uploads/2015/08/Deliverable-O4-2_English_final.pdf	Awareness and prevention campaigns	Report
40	LAWPreT (Local Authorities Waste Prevention Training), Prevention Action Bank, 2016	http://waste-prevention.gr/waste/?page_id=75&ff=1&ffdo=form	Awareness and prevention campaigns	Online database
41	Layman's Report, "Development of Pay As You Throw Systems in Hellas, Estonia and Cyprus"	http://networking.zerowastepro.eu/82-development-of-pay-as-you-throw-systems-in-hellas-estonia-and-	PAYT	Report



		cyprus		
42	Linee guida per strategie integrate di economia circolare a livello locale e regionale, Circular Europe Network, 2016	http://www.circular-europe-network.eu/wp-content/uploads/2016/04/ACR_CEN_Guidelines_Italiano_LD.pdf	Circular Economy	Report
43	Map of Remanufacturing Business Model Landscape, European Remanufacturing Network, 2016	https://www.remanufacturing.eu/themes/business-models/	Circular Economy	Report
44	MATREC - business model	http://www.matrec.com/	Circular Economy	Online database
45	MINI-WASTE Inventory of good practices regarding (bio-) waste minimization in Europe	http://www.miniwaste.eu/mediastore/fckEditor/file/Mini_waste_good_practices_inventory.pdf	Awareness and prevention campaigns	Report
46	More from less —material resource efficiency in Europe Country profile, EEA Report, 2016	http://www.eea.europa.eu/publications/more-from-less/	Circular Economy	Report
47	Neat Streets, website, collection of projects	http://neatstreets.co	Awareness and prevention campaigns	Website, factsheets
48	NO WASTE website, best practices	www.nowastenet.eu	Awareness and prevention campaigns, Circular economy	Website
49	Otto buone pratiche italiane di economia circolare, AICA, 2016	http://www.envi.info/wp-content/uploads/2016/05/8-Buone-Pratiche-Italiane-di-Economia-Circolare.pdf	Circular Economy	Report
50	Pago por Generación (Pay-As-You-Throw): Principales Experiencias Europeas, MOBA, 2007	http://www.mobaise.com/descargas/pdf/Moba_Payt.pdf	PAYT	Presentation
51	Prevention des dechets website	http://preventiondechets.fne.asso.fr/fr/mener-des-actions-de-reduction-des-dechets/	Awareness and prevention campaigns	Website
52	PREWASTE best practices database	http://www.prewaste.eu/index.php?option=com_k2&view=item&layout=item&id=28&Itemid=54	Awareness and prevention campaigns, PAYT	Website, factsheets
53	R4R "Region for Recycling" website, good practices for selective collection and recycling	http://www.regions4recycling.eu/R4R_toolkit/R4R_good_practices	Awareness and prevention campaigns, PAYT	Website, factsheets
54	State of Green Business Report 2016, GreenBiz Group, 2016	https://www.greenbiz.com/report/state-green-business-report-2016	Circular Economy	Report
55	Study of Pay-by-use Systems for Maximising Waste Reduction Behaviour in Ireland, STRIVE Environmental Protection Agency Programme 2007-2013	http://www.epa.ie/researchandeducation/research/researchpublications/strivereports/strivereport84.html	PAYT	Report

56	Superuse website	https://www.superuse.org/	Circular Economy	Online database
57	Sustainable Business case studies: Innovation and inspiration in corporate sustainability, The Guardian Sustainable Businesses, 2014	http://anthesisgroup.com/wp-content/uploads/2014/10/Sustainable-Business-case-studies-2014.pdf	Circular Economy	Report
58	Le iniziative per la riduzione e l'ulteriore ottimizzazione dei servizi di raccolta con la tariffazione puntuale, A. Tornavacca, 2013	http://www.provincia.sp.it/flex/cm/pages/ServeAttachment.php/L/IT/D/9%252F1%252F2%252FD.431967810c6cc8a95171/P/BLOB%3AID%3D5742/E/pdf	PAYT	Presentation
59	The business opportunity of closed loop innovation, Kingfisher	http://www.kingfisher.com/sustainability/files/downloads/kingfisher_closed_loop_innovation.pdf#ref_closedloopinnovation	Circular Economy	Report
60	THE CIRCULAR ECONOMY - 10 innovative business solutions and how to go further, AmCham EU, 2016	http://www.amchameu.eu/publications/circular-economy-10-innovative-business-solutions-and-how-go-further	Circular Economy	Report
61	The Guardian website	https://www.theguardian.com/sustainable-business/series/sustainability-case-studies	Circular Economy	Website
62	The New Plastics Economy: Rethinking the future of plastics, Ellen Macarthur foundation, 2016	https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics	Circular Economy	Report
63	Use of economic instruments and waste management performances, Final Report, DG ENV, 2012	http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf	PAYT	Report
64	Waste collection: to charge or not to charge? Final Report, Eunomia, 2003	http://s3.amazonaws.com/zanran_storage/www.massbalance.org/ContentPages/1159112417.pdf	PAYT	Report
65	Zero Waste Solution, Guide green solutions for waste, for & from public administrations, May 2014	http://www.zerowastepro.eu/uploads/Green%20Solutions%20Guide%20ZEROWASTEPro.pdf	Awareness and prevention campaigns, Circular economy	Report
66	ZERO WASTE, Good practice database, 2009	www.med-zerowaste.eu/deliverables.html	Awareness and prevention campaigns, PAYT	Website, factsheets

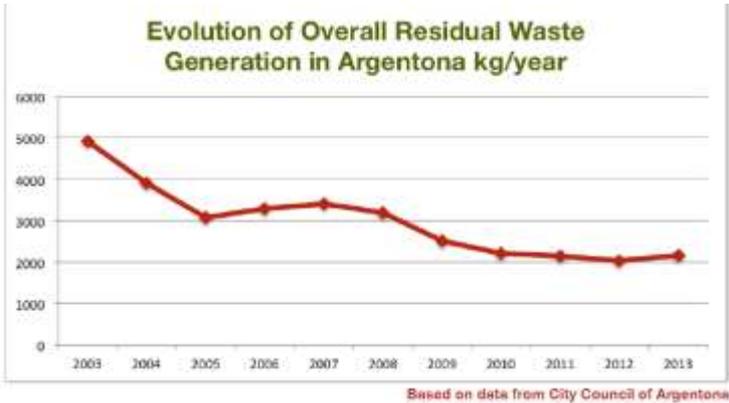
Annex 3. Best practices data-sheets in PAYT

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.1			
Municipality or Area	50 MUNICIPALITIES OF PRIULA CONSORTIUM/CONTARINA, TREVISO PROVINCE			
Basic data	<ul style="list-style-type: none"> - Country: Italy - Population: 554.000 - Starting period: since 2000-2001 in some municipalities and in 2009 in the others - Separate collection rate: 85,10% in 2016 - Residual waste: 55 kg/cap/y in 2016 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Very high level of separate collection rate reached - Improvement of the results and the objectives over the time (recycling 96,7% of its waste by 2022 and reduce the residual fraction to 10 kg/cap/y) - Extension of the case study in terms of population involved and duration over the time - Very strong communication campaign - Suggested by expert for the integration between collection scheme and measuring system 			
Description of the case study	<p>Contarina is 100% a public company (owned by the Priula Consortium and TrevisoTre), serves 50 municipalities and employees 645 people. Municipal solid waste is collected in five or six major waste-streams: non-recyclable dry, organics (food scraps), garden waste, paper and cardboard, glass, plastic, placed in special colour-coded bins that are readily available, free of charge and collected curb side. Curb side collection is supplemented by the EcoCentri (Eco-Centres). The PAYT system was introduced in 2000-2001 in 14 Municipalities and in 2009 in other municipalities. The fee for waste generation is splitted into two parts; one fixed and another one variable. The fixed part depends on the number of members living in the household whereas the variable portion is calculated according to two variables: one penalizes the number of times the non-recyclable dry waste bin is emptied; the other one is a bonus for those households doing home-composting which see a reduction of 30% on the variable fee.</p>			
Type(s) of collection linked to PAYT	<input type="checkbox"/> Bring Banks <input checked="" type="checkbox"/> Door to Door <input type="checkbox"/> Underground (containers & pneumatic) <input type="checkbox"/> Recycling yards <input type="checkbox"/> Mobile points <input type="checkbox"/> On demand			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
<input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input checked="" type="checkbox"/> Other recyclables	<i>Collective</i>	-	-	-
	<i>Individual</i>	<input checked="" type="checkbox"/> (bin) <input type="checkbox"/> (green waste bin)	-	-

<p>Details on PAYT</p>	<ul style="list-style-type: none"> - <i>Economic aspects:</i> For domestic users: <ul style="list-style-type: none"> - 60% fixed fee based on the number of household members (for domestic users). It can vary from € 85 (1 person) to € 97 (6 persons). - 40% variable fee based on the number of residual bin removals. Hypothetic cost for emptying a bin is € 14,63 (specific weight of 0,1130 kg/litre). - Fixed quota for garden waste (€ 9,95 for 120 liters volume, € 13,09 for 240 liters volume). Since 2014, the fee for garden waste is based also on the number of emptied bins. - - 30% for home composting For non-domestic user the fee is: <ul style="list-style-type: none"> - 55% fixed fee based on building surface and bins' volume - 45% variable fee based on the number of residual bin removals and volume of bins for recyclables. It can vary from € 13 for emptying (120 L volume) to € 111 (1000 L volume). - Fixed quota for garden waste. Since 2014, the fee for garden waste is based also on the number of emptied bins. - <i>Incentives scheme applied:</i> <ul style="list-style-type: none"> - Incentive of - 30% for home composting - Special fees for diapers disposal (households with 0-2 years old children or persons with specific needs): specific bin for diapers disposal and 50% discount for emptying the bin - Special fees for eco-events - <i>Feasibility in high rise buildings:</i> Yes, each domestic users has his own bins - <i>Degree of implementation of the model:</i> mature
<p>Communication campaigns</p>	<p>Intense communication activities where performed during PAYT introduction. Contarina has an internal staff dedicated to communication campaigns. Some tools: EcoGiornale, Ecosportelli, Ecolendar, Social (Facebook, twitter, YouTube, app), Web, Open Days, School Education.</p> 
<p>Results after implementation</p>	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> +40/+58%. Before PAYT, in 2000: from 27% in some municipalities to 45% in others. In 2016: 85,1% on average - <i>Residual waste:</i> -266 /-162 kg/cap/y. Before PAYT, in 2000: from 217 kg/cap/y in some municipalities to 321 kg/cap/y. In 2016: 55 kg/cap/y - The urban waste production decreased from 394-440 kg/cap/y in 2000 to 336-350 kg/cap/y in 2012.
<p>Diffusion</p>	<ul style="list-style-type: none"> - <i>In the reference Country:</i> The Contarina system started spreading recently - <i>In the EU:</i> limited diffusion
<p>National regulation supporting PAYT</p>	<p>Italian Waste Framework Law supported the fact that the waste tax must be linked to the generation of waste, since national decree 22/97. It also states that waste tax must be divided in a fixed and variable part.</p>
<p>Notes</p>	<ul style="list-style-type: none"> - A control system is in place with stickers for non-compliant disposal and environmental surveillance. - A full informative system has been put in place, which comprehends: navigation system for vehicles, geolocation of the fleet and of the users, digital cartography, creation of an unique database, where each user's data can be viewed together with their geographical position, the bins provided, the recorded number of collections and the applicable rates.
<p>Information source</p>	<p>Contarina staff, ESPER, Zero Waste Europe 2014</p>
<p>Link to the specific case study</p>	<p>http://greenexchange.se/wp-content/uploads/2016/07/CS4-CONTARINA-EN.pdf</p>
<p>Further information (contact, organization)</p>	<p>Contarina S.p.A. contarina@contarina.it info@zerowasteurope.eu</p>

PAYT BEST PRACTICE DATA-SHEET

ID	PA.2			
Municipality or Area	ARGENTONA, CATALUNYA			
Basic data	<ul style="list-style-type: none"> - Country: Spain - Population: 12.000 - Starting period: since 2009 - Separate collection rate: 63,9% in 2013, 82% in 2017 - Residual waste: 217 kg/cap/y in 2013 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Participation process with direct involvement of citizens - One of the first case studies in Europe 			
Description of the case study	The PAYT scheme is colloquially called 'The Fair Tax' and is a payment system for waste generation according to the number of bags, applied on both residual waste and light packaging. It's in place since 2009 and was one of the first case studies in Europe.			
Type(s) of collection linked to PAYT	<input type="checkbox"/> Bring banks <input checked="" type="checkbox"/> Door to Door <input type="checkbox"/> Underground (containers & pneumatic) <input type="checkbox"/> Recycling yards <input type="checkbox"/> Mobile points <input type="checkbox"/> On demand			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	-	-	-
□ Bio-waste				
☒ Other waste: light packaging	<i>Individual</i>	◆, ☒ (bag) □ (bin)	-	-
Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> Fixed part: €95/year Variable part: <ul style="list-style-type: none"> - Residual waste 0,65 €/bag 17 l, or 2,50 €/bag 65 l (0,0382 €/l) - Light packaging: 0,35 €/bag 35 l or 1,00 €/bag 100 l (0,01 €/l) - Food waste: variable between 43 €/25 l and 203 €/240 l - <i>Incentives scheme applied:</i> No - <i>Feasibility in high rise buildings:</i> Partly. Individual bags for each apartment. - <i>Degree of implementation of the model:</i> mature 			

<p>Communication campaigns</p>	<p>In the first trial period (4 months) an intense communication campaign was done to make sure that all citizens used the new standard bags. Public meetings, sensitization in schools. A participation process involved citizens actively.</p> 
<p>Results after implementation</p>	<ul style="list-style-type: none"> - <i>Separate collection rate</i>: After PAYT implementation in 2013, separate collection rate raised to 65,5% from the starting rate in 2009 of 63,9% (+1,6%). After implementing Door to door collection in the whole town (2017) it's 82%. - <i>Residual waste</i>: Before PAYT in 2009, 217 kg/cap/y, after PAYT in 2013: 217 kg/cap/y; -13,8%.  <p style="text-align: right; font-size: small;">Based on data from City Council of Argentona</p>
<p>Diffusion</p>	<ul style="list-style-type: none"> - <i>In the reference Country</i>: Very limited. Only pioneers and regional guidelines. - <i>In the EU</i>: About 50-100 municipalities in Italy, now increasing. Common in Switzerland.
<p>National regulation supporting PAYT</p>	<p>None</p>
<p>Notes</p>	<ul style="list-style-type: none"> - Irregular bags are not collected and an alert is left on the bag. - Video cameras to control the "emergency areas", accessible with keys, with large containers to supplement the door to door scheme. - PAYT was implemented with door to door only in the central part of the town, now expanded to all areas.
<p>Information source</p>	<p>Municipality of Argentona, BCN Ecologia, ENT, Zero Waste MED, ESPER</p>
<p>Link to the specific case study</p>	<p>http://www.med-zerowaste.eu/deliverables.html</p>
<p>Further information (contact, organization)</p>	<p>Municipality of Argentona www.argentona.cat http://argentona.cat/contacteu</p>

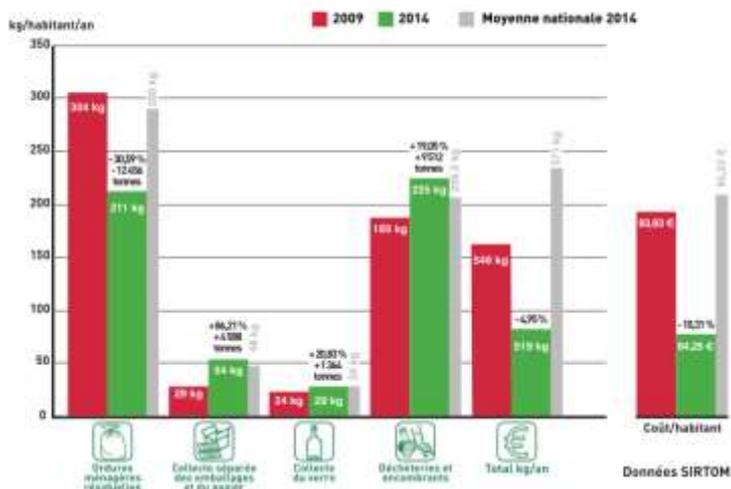
PAYT BEST PRACTICE DATA-SHEET

ID	PA.3			
Municipality or Area	REGION SIRCOM BRIVE-LA-GAILLARDE			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> France - <i>Population:</i> 55.000 Brive-la-gaillarde (region: 150.000) - <i>Starting period:</i> since 2013 - <i>Separate collection rate:</i> 59,3% in 2014 - <i>Residual waste:</i> 211 kg/cap/y in 2014 <div style="text-align: right;">  </div>			
Why it has been identified as a best practice	- Mixed and flexible system			
Description of the case study	SIRCOM Brive is a consortium of municipalities that implemented PAYT (in France called TIEOM - Taxe d'Enlèvement des Ordures Ménagères Incitative) since 2012, first region in France. It is based on a flexible scheme in which PAYT is implemented paying per volume, but allowing different kind of containers: post-paid bags, wheelie bins door to door, drop off collective containers, underground containers, all of the measuring the access and identifying the user.			
Type(s) of collection linked to PAYT	<input checked="" type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input checked="" type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	◆ (underground containers, bring banks)	-	-
<input type="checkbox"/> Bio-waste				
<input checked="" type="checkbox"/> Other waste	<i>Individual</i>	◆ (bags, bins)	-	-
Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> Fixed part: is decided annually and ranges between 55% and 80% of the total tax Variable part: priced at 0,0095 €/l Different containers are allowed: <ul style="list-style-type: none"> - wheelie bins = 120L, 180L, 240L, 360L or 770L - underground containers with chamber system = 50L or 100L - post-paid red bags = 30L, 50L or 100L - <i>Incentives scheme applied:</i> No - <i>Feasibility in high rise buildings:</i> Yes, due to the mixed system - <i>Degree of implementation of the model:</i> mature 			
Communication campaigns	Well managed website, intensive annual distribution of a minimum number of red bags in many delivery points in the city, possibility to check own production of waste on the website.			

Results after implementation

- *Separate collection rate*: After PAYT implementation in 2014, separate collection rate raised to 59,3% from the starting point of 44,3% in 2009 (+15%). Note that food waste collection is not applied yet.
- *Residual waste*: -93 kg/cap/y. Before PAYT in 2009, 304 kg/cap/y, after PAYT in 2014, 211 kg/cap/y.

Évolution des déchets entre 2009 et 2014



Diffusion

- *In the reference Country*: PAYT quite spread in France after the Law of 2009, but very limited case studies include the use of collective containers.
- *In the EU*: The use of collective / underground containers and PAYT is very rare in the EU.

National regulation supporting PAYT

Law 3rd August 2009 (Grenelle I) mandated municipalities to introduce PAYT by 2014.

Notes

- A whole year of transition (2012, "année blanche") was established before starting with PAYT in 2013.

Information source

Sirtom and Ademe website

Link to the specific case study

<http://www.sirtom-region-brive.net/tarification-incitative/cotisation>

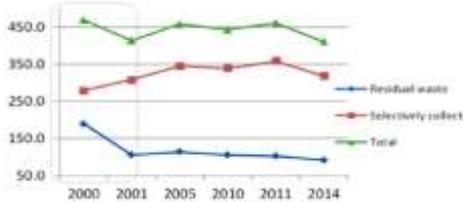
Further information (contact, organization)

www.sirtom.net , www.ademe.fr

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.4			
Municipality or Area	PARMA MUNICIPALITY			
Basic data	<ul style="list-style-type: none"> - Country: Italy - Population: 190.000 - Starting period: since 2015 - Separate collection rate: 72% in 2015 - Residual waste: 126 kg/cap/y in 2016 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - One of the first RFID technology - Good amount of data - Political commitment, involvement of civil society and a strategy based on minimising residual waste 			
Description of the case study	Parma implemented PAYT after starting with door to door collection in the whole city, so it's one of the most important case studies nationwide and at EU level. It uses a UHF (Ultra High Frequency) RFID tag inserted in small 40 l bins (for most of the city) and in 50 l white bags (for the historical centre).			
Type(s) of collection linked to PAYT	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <input type="checkbox"/> Bring banks <input checked="" type="checkbox"/> Door to Door <input type="checkbox"/> Underground (containers & pneumatic) <input type="checkbox"/> Recycling yards <input type="checkbox"/> Mobile points <input type="checkbox"/> On demand </div> <div style="flex: 2; text-align: center;"> </div> </div>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	-	-	-
<input type="checkbox"/> Bio-waste				
<input checked="" type="checkbox"/> Other waste	<i>Individual</i>	◆ (bags, bins)	-	-
Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> 1,40 € for each emptying of a 40 liters bin, € 4,20 for 120 liters bin. A minimum number of emptying (12-36 according to the household size) is included in the fixed part. For the area with bag collection (50 liters) the price is 0,70 €/bag. Containers 40-5.000 liters for commercial, with price variable between € 1,40 and € 120 - <i>Incentives scheme applied:</i> discount to families with new-borns - <i>Feasibility in high rise buildings:</i> Yes, with some weaknesses (each domestic user has his own small bin / bag to be set out on the collection day) - <i>Degree of implementation of the model:</i> advanced 			

Communication campaigns	<p>Leaflets delivered to each citizen and public events to explain about PAYT. In the picture: funeral organized to the last road container in 2014.</p> 
Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate</i>: After PAYT implementation in 2016, separate collection rate raised to 72% from the starting point of 55,1% in 2014; +16,9%. - <i>Residual waste</i>: Before PAYT in 2014, 240 kg/cap/y, after PAYT (in 2016) 126 kg/cap/y; -47,5%. 
Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country</i>: The system is spread in Italy in some best practices (e.g. Contarina). In many municipalities the UHF system is used just for monitoring, without PAYT. - <i>In the EU</i>: Not much. This system with small containers for residual waste is spread mostly in Italy.
National regulation supporting PAYT	<p>Italian Waste Framework Law supported the fact that the waste tax must be linked to the generation of waste, since national decree 22/97. It also states that waste tax must be divided in a fixed and variable part.</p>
Notes	<ul style="list-style-type: none"> - Littering accounts for 1 kg/cap/year. - After PAYT introduction, 80% of the residents experienced a reduction in waste tax.
Information source	<p>10 percorsi europei virtuosi -ESPER, Zero Waste Europe 2014</p>
Link to the specific case study	<p>http://comunivirtuosi.org/wp-content/uploads/2016/12/10-percorsi-virtuosi.pdf http://servizi.irenambiente.it/index.php/tari-parma/</p>
Further information (contact, organization)	<p>Comune di Parma www.comune.parma.it</p>

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.5			
Municipality or Area	MAASTRICHT MUNICIPALITY			
Basic data	<ul style="list-style-type: none"> - Country: The Netherlands - Population: 122.000 - Starting period: since 2001 - Separate collection rate: 75% in 2014, 72% in 2016 - Residual waste: 92 kg/cap/y in 2014 (door to door residual waste) 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Mentioned as case study in reports and databases - Strong commitment of the municipality (towards zero waste municipality in 2030) 			
Description of the case study	<p>Maastricht introduced the PAYT system in 2001. The municipality applies a fixed and a variable rate per household. The fixed rate pays for organisational costs, regional staffed facilities, collection and treatment. Maastricht introduced an integrated waste management system that combines Door-to-Door collection with Bring Banks (60 parks of 6-10 Underground Containers for recyclables collection) and Recycling Yards receiving up to 22 waste fractions, targeting mainly bulky waste, C&DW and green waste. The municipality collects household waste door to door in the communal bin bags. These bags are red and white. There are bags of 25 and 50 litres for sale. The bin bags are sold at various stores. A bag of 25 litres can be up to 3,5 kg and a bag of 50 litres of a maximum of 7,0 kg.</p>			
Type(s) of collection linked to PAYT	<input checked="" type="checkbox"/> Bring banks <input checked="" type="checkbox"/> Door to Door <input type="checkbox"/> Underground (containers & pneumatic) <input checked="" type="checkbox"/> Recycling yards <input type="checkbox"/> Mobile points <input type="checkbox"/> On demand			
Type of measurement		Volume based	Weight based	Frequency based
◆ Residual waste	Collective	<input checked="" type="checkbox"/> (recycling yards)	-	<input checked="" type="checkbox"/> (bring banks)

<input type="checkbox"/> Bio-waste <input checked="" type="checkbox"/> Other waste: packaging waste, glass, paper & cardboard <input checked="" type="checkbox"/> Other waste: textiles, HHV, bulky waste	<i>Individual</i>	◆ (bags) ❖ (bags)	-	-																																								
Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> The fixed rate is € 249/household/y in 2014. The variable charge is estimated (average) at € 40 (priced bags at € 0,71 /bag) and € 10 (use of RY). On average a household paid less than € 50 per year. The variable rate reflects the real cost of the bag and the processing of its content. In 2001 a priced bag cost €1 and in 2014 €0,71 due to decreased treatment costs for the residual waste (€ 142 in 2001 and € 64 in 2014). Fees in 2017: € 0,49 25 litres bag € 0,83 50 litres bag Disposals to bring banks could be charged at € 0,80 for bag Bulky waste collection not for free, € 20 / collection Max 2m³ (in 2014) In recycling yards (in 2014): Residual waste: € 1,5 / 50 litres bag - € 3 / 100 litres bag Bulky waste: Till 1/4m³: € 5 - 1/4 m³ 1/2 m³: € 10 - 1/2 m³ – 1 m³: € 20 - 1 m³ – 1.5 m³: € 30 - 1.5 m³ 2 m³: € 40 - <i>Incentives scheme applied:</i> none - <i>Feasibility in high rise buildings:</i> Yes, in high-rise buildings thanks to the bring banks - <i>Degree of implementation of the model:</i> mature 																																											
Communication campaigns	Municipality website, local press (few information on this topic)																																											
Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> before PAYT in 2000, 59,5%, after implementation of PAYT in 2014, 74,5%; +15%. - <i>Residual waste:</i> before PAYT in 2000, 190 kg/cap/y, after PAYT (in 2014) 92 kg/cap/y, referred only to door to door residual waste; -52%. <p style="text-align: center;">Evolution waste selectively collected (2014)</p>  <table border="1" data-bbox="1053 1355 1428 1579"> <thead> <tr> <th>Year</th> <th>RYs</th> <th>DD-BBs</th> <th>DD Resid.</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">Kg / cap / y</td> </tr> <tr> <td>2000</td> <td>161</td> <td>118</td> <td>190</td> <td>469</td> </tr> <tr> <td>2001</td> <td>124</td> <td>184</td> <td>105</td> <td>413</td> </tr> <tr> <td>2005</td> <td>149</td> <td>196</td> <td>113</td> <td>458</td> </tr> <tr> <td>2010</td> <td>132</td> <td>206</td> <td>105</td> <td>443</td> </tr> <tr> <td>2011</td> <td>152</td> <td>206</td> <td>102</td> <td>460</td> </tr> <tr> <td>2014</td> <td>112</td> <td>206</td> <td>92</td> <td>410</td> </tr> </tbody> </table>				Year	RYs	DD-BBs	DD Resid.	Total	Kg / cap / y					2000	161	118	190	469	2001	124	184	105	413	2005	149	196	113	458	2010	132	206	105	443	2011	152	206	102	460	2014	112	206	92	410
Year	RYs	DD-BBs	DD Resid.	Total																																								
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Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country:</i> in 2000, over 20% of 538 municipalities in the Netherlands applied a PAYT scheme, with these types: frequency (54 municipalities), volume (29), sack (20), weight (13), unspecified (10). - <i>In the EU:</i> Limited diffusion in EU (due to the PAYT applied to underground containers). 																																											
National regulation supporting PAYT	No. Only a national law about waste management (earliest 2000s) that raised the fee for landfill disposal as an incentive to reduce drastically residual waste.																																											
Notes	- Based on the good results achieved following the implementation of the DIFTAR system, the administration has set itself the goal of achieving 100 kg/cap/year by 2020 and 57 kg/cap/year by 2030.																																											

Information source	<ul style="list-style-type: none"> - 10 percorsi europei virtuosi -ESPER - Cross-analysis of 'Pay-As-You-Throw' schemes in selected EU municipalities - ACR+ 2016 - Website Municipality of Maastricht
Link to the specific case study	http://comunivirtuosi.org/wp-content/uploads/2016/12/10-percorsi-virtuosi.pdf https://www.gemeentemaastricht.nl/product/afval-van-huishoudens-inzameling/
Further information (contact, organization)	City of Maastricht Municipal service https://www.gemeentemaastricht.nl/english/post@maastricht.nl

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.6			
Municipality or Area	BJUV MUNICIPALITY			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> Sweden - <i>Population:</i> 13.700 - <i>Starting period:</i> since 2000 - <i>Separate collection rate:</i> 55% in 2007 - <i>Residual waste:</i> 123 kg/cap/y in 2007 			
Why it has been identified as a best practice	- Weight based PAYT applied also on recyclables with kerbside collection of 11 recyclables			
Description of the case study	<p>Bjuv is a small municipality with about 13.700 inhabitants in the north-western part of Skåne, in the south of Sweden. In 2000 the collection scheme was radically changed introducing PAYT with RFID chips on containers on residual waste, bio-waste and recyclables.</p> <p>It has been applied a peculiar '2 bins - 8 compartments' scheme.</p> <p>Bin 1 has two larger compartments for residual waste and food waste as well as two smaller compartments of hard plastic and coloured glass emptied every two weeks.</p> <p>Bin 2 has two larger compartments for magazines, paper packaging and two smaller compartments for metal packaging and colourless glass packaging, emptied normally every month.</p>			
				
Type(s) of collection linked to PAYT	<input type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
<input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input checked="" type="checkbox"/> Other waste: recyclables	<i>Collective</i>	-	-	-
	<i>Individual</i>	(not at the beginning) <input checked="" type="checkbox"/> (bins) <input type="checkbox"/> (bins) <input checked="" type="checkbox"/> (bins)	(only at the beginning) <input checked="" type="checkbox"/> (bins) <input type="checkbox"/> (bins) <input checked="" type="checkbox"/> (bins)	(different plans) <input checked="" type="checkbox"/> (bins) <input type="checkbox"/> (bins) <input checked="" type="checkbox"/> (bins)

<p>Details on PAYT</p>	<ul style="list-style-type: none"> - <i>Economic aspects:</i> The basic fee, paid by each individual family household, is an annual fee to cover the costs of operation of the recycling and treatment of waste left at the recycling centre. The fee also includes the collection and processing of bulky waste, hazardous waste and batteries as well as costs for customer service, waste planning, development and information. The variable fee refers to the cost of collection and treatment of household waste. The level of the variable fee determined by the subscriber's choice of container size, emptying interval. For households with a common vessel, only one of the household is charged variable rates. Total: € 253/year If the household doesn't opt in for kerbside recycling, will get only a 240 or 370l with residual waste and food waste. Price: € 332/year Additional container 190 l for residual waste every 2 weeks: € 190/year. Reduced prices, if home composting, and no food waste collection. - <i>Incentives scheme applied:</i> Recycling premium that varies from year to year depending on the amount of packaging and newspapers collected from residents and the market selling price. Recycling premium is deducted from the invoice once a year. Special Exemptions for Individuals unable to sort their waste due to illness or similar. - <i>Feasibility in high rise buildings:</i> Yes, variable volumes - <i>Degree of implementation of the model:</i> advanced
<p>Communication campaigns</p>	<p>Prior to the change to a weight-based collection fee, there were significant information campaigns. Due to political disquiet concerning the existence of the system, no further information has been provided for households thereafter. The households seem to manage the new system perfectly well following the initial information campaign.</p>
<p>Results after implementation</p>	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> before PAYT in 1999, 18,9%, after implementation of PAYT and kerbside in 2001, 44,5%; +25,6%. In 2007 separate collection was 55%. - <i>Residual waste:</i> before PAYT in 1999, 246 kg/cap/y, after implementation of PAYT and kerbside in 2001, 136 kg/cap/y; -44,7%. In 2007 residual waste production was 123 kg/cap/y.
<p>Diffusion</p>	<ul style="list-style-type: none"> - <i>In the reference Country:</i> PAYT covers 26 of the country's 290 municipalities. - <i>In the EU:</i> No, this system with 4-compartments bins is typical of Sweden.
<p>National regulation supporting PAYT</p>	<p>No. Only recycling targets and landfill bans.</p>
<p>Notes</p>	<p>- Flexible scheme allowing using recycling centres and not opting for kerbside collection of recyclables. Special trucks for the collection of 4-compartment bins.</p>
<p>Information source</p>	<ul style="list-style-type: none"> - 10 percorsi europei virtuosi –ESPER - NSR website
<p>Link to the specific case study</p>	<p>http://ec.europa.eu/environment/waste/studies/pdf/financingmunicipalwaste_management.pdf http://comunivirtuosi.org/wp-content/uploads/2016/12/10-percorsi-virtuosi.pdf</p>
<p>Further information (contact, organization)</p>	<p>Waste management company NSR AB www.nsr.se nsr@nsr.se</p>

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.7			
Municipality or Area	INNSBRUCK MUNICIPALITY			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> Austria - <i>Population:</i> 126.965 - <i>Starting period:</i> since 1995 - <i>Separate collection rate:</i> 67,3% in 2014 - <i>Residual waste:</i> 185,3 kg/cap/y in 2014 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Mentioned as relevant case study in reports and databases - Large city with PAYT implemented since many years, strong incentive in home-composting 			
Description of the case study	<p>The PAYT system was introduced in 1995. Innsbruck applies a flat rate and a variable rate per household. The variable part of the waste collection is applied to the DtD residual and bio-waste collection (volume-based fee mainly) and the RY (volume and weight-based) for different waste fractions. The fees are meant to cover the waste management costs, not to make profit.</p>			
Type(s) of collection linked to PAYT	<input type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste				
<input type="checkbox"/> Bio-waste	<i>Collective</i>	-	-	-
<input checked="" type="checkbox"/> Other waste: waste fractions in recycling yard	<i>Individual</i>	<input checked="" type="checkbox"/> (bins) <input type="checkbox"/> (bins)	<input checked="" type="checkbox"/> (in recycling yards)	-

<p>Details on PAYT</p>	<ul style="list-style-type: none"> - <i>Economic aspects:</i> <p>The fixed charge (30% of total fees to be paid) is calculated based on the number of housing units of > 6m² and amounts to € 0,225/housing unit/week. The variable part of the waste collection is applied to the DtD residual and bio-waste collection (volume-based fee mainly) and the RY (volume and weight-based) for different waste fractions. The variable part amounts to € 0.0344/L for residual waste and for bio-waste collection (from 4,13 for 120L bin to 34,4 for 1000L bin).</p> <p>The fees are calculated per litre for the residual waste and bio-waste, the smallest volume being 15L per inhabitant per week (for those applying home composting). A request can be made to lower the minimal volume for residual waste to 8L. Citizens can also use priced bags, € 3,05/60L bag (residual waste and bio-waste) with a price of 0,051/L (2016).</p> <p>The average fee paid by a family of 4 living in a single family house with 5 housing units producing 60L of residual waste and 30 L of bio-waste per week is € 231/year.</p> <p>Cost for disposal in recycling yard:</p> <p>Commercial waste: ¼ m³: € 16,30</p> <p>Bulky waste: ¼ m³: € 16,30</p> <p>Wood: ¼ m³: € 10,51</p> <p>C&DW: ¼ m³: € 16,30, € 10,50 (pure)</p> <p>Scrap metals: ¼ m³: € 10,51</p> <p>Mixed waste weighed: € 0,29/ kg</p> <p>Hazardous waste: varying € 0,31/kg–€ 1,57/kg</p> <p>Green waste: 1000 kg for free, as from 1.000 kg charge of € 45,2/ tonne.</p> - <i>Incentives scheme applied:</i> Citizens applying home composting can request a refund for half of the costs pertaining to the purchase of the compost equipment with a maximum of € 36,34. Some additional rules have been put in place related to the distance of the collection point to the road (more than 30 m = pay more 20%) or close to the road with self-put back (discount 20%). - <i>Feasibility in high rise buildings:</i> Yes, the city of Innsbruck has 50-100% multi-family houses. The use a bin for each building with different volume gives flexibility - <i>Degree of implementation of the model:</i> advanced
<p>Communication campaigns</p>	<p>Municipality website. A mobile “problem collection” takes place three times a year (spring, summer and autumn) from Monday to Saturday at 32 locations.</p> 
<p>Results after implementation</p>	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> before PAYT in 1995, 36,11%, after implementation of PAYT in 2014, 67,3%; +31,2%%. - <i>Residual waste:</i> before PAYT in 1995, 259,6 kg/cap/y, after implementation of PAYT in 2014, 185,3 kg/cap/y; -28,6%.
<p>Diffusion</p>	<ul style="list-style-type: none"> - <i>In the reference Country:</i> Volume base system is spread in Austria. - <i>In the EU:</i> Volume base system is spread in Germany, Austria, France.
<p>National regulation supporting PAYT</p>	<p>No. Only a national law about waste management (earliest 2000s) that raised the fee for landfill disposal as an incentive to reduce drastically residual waste.</p>
<p>Notes</p>	<ul style="list-style-type: none"> - Collective Bring Banks (141 collection points for recyclables collection), not used for PAYT
<p>Information source</p>	<ul style="list-style-type: none"> - Cross-analysis of ‘Pay-As-You-Throw’ schemes in selected EU municipalities - ACR+ 2016

Link to the specific case study	http://www.acrplus.org/index.php/en/virtual-library/viewdownload/11/2732
Further information (contact, organization)	Innsbruck Municipality https://www.innsbruck.gv.at/page.cfm?vpath=index&switchlocale=en_US

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.8			
Municipality or Area	NAVIGLI MUNICIPALITIES CONSORTIUM			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> Italy - <i>Population:</i> 120.000 - <i>Starting period:</i> since 1999 - <i>Separate collection rate:</i> 79,2% in 2016 - <i>Residual waste:</i> 113,9 kg/cap/y in 2014 			
Why it has been identified as a best practice	- PAYT implemented since 1999, first municipalities in Italy, with barcode applied on the bag			
Description of the case study	<p>Navigli Municipalities Consortium (22 municipalities in Milan Province) implemented PAYT immediately after the new waste framework law of 1997 pushed for its introduction. They develop a PAYT scheme, applicable at the 13 municipalities joining the consortium.</p> <p>The waste charge is composed of 2 parts, a fixed one and a variable one: the fixed quota (30-50 % of the overall forecast tariff income) for householders is assessed allowing on the basis of the width of the house, the number of people in the household and the type of dwelling; the variable quota (50-70% of the costs for collection and transportation) is assessed determining the number of bags used to deliver the residual waste to the cleansing service.</p> <p>They tried an innovative way of measuring individual residual waste bags, set out on the curb side, obliging citizens to attach a specific label with a bar code, the collected by the operator and read at office for the identification of the user. After 2015 they changed the system introducing the use of reduced volume bins (40 liters) for residual waste.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>			
Type(s) of collection linked to PAYT	<input type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	-	-	-
<input type="checkbox"/> Bio-waste				
<input checked="" type="checkbox"/> Other waste	<i>Individual</i>	◆ (bags)	-	-

Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> Variable part about 0,23 €/kg, established yearly. The weight of the bag is calculated using the average specific weight of bags collected in a truck, and its volume. - <i>Incentives scheme applied:</i> householders doing home composting are allowed a 20% reduction of the variable quota - <i>Feasibility in high rise buildings:</i> limited by the use of individual bag for each household - <i>Degree of implementation of the model:</i> advanced
Communication campaigns	<p>The population of the area was informed about PAYT one year before its effective application. Public meetings were organised in each municipality or borough and a free phone number was activated. In order to ensure adequate technical support and provide constant and consistent information to premises, the association operates an information point once a week in each municipality of the association. A specific communication campaign was aimed at the identification of "zero generators".</p> 
Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> before PAYT in 1996, 21% (12 municipalities), after implementation of PAYT in 2002, 57%; +36%. In 2016, 79,22% (22 municipalities). - <i>Residual waste:</i> before PAYT in 1996, 250 kg/cap/y (12 municipalities), after implementation of PAYT in 2002, 121 kg/cap/y (12 municipalities); -51%. In 2014 113,9 kg/cap/y in 2014 (20 municipalities).
Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country:</i> limited, now increasing - <i>In the EU:</i> limited
National regulation supporting PAYT	<p>Italian Waste Framework Law supported the fact that the waste tax must be linked to the generation of waste, since national decree 22/97. It also states that waste tax must be divided in a fixed and variable part.</p>
Notes	<ul style="list-style-type: none"> - PAYT is a tribute
Information source	<ul style="list-style-type: none"> - PAYT Italia Association - Waste collection: to charge or not to charge? A Final Report to IWM (EB), EUNOMIA, 2003 - Company Website
Link to the specific case study	<p>http://www.payt.it/wp-content/uploads/2017/03/Carlo-Ferr%C3%A9.pdf</p>
Further information (contact, organization)	<p>Consorzio dei Navigli http://www.consorzionavigli.it/</p>

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.9			
Municipality or Area	LJUBLJANA			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> Slovenia - <i>Population:</i> 288.307 - <i>Starting period:</i> since 2000, with full implementation in 2013 - <i>Separate collection rate:</i> 63% in 2014 - <i>Residual waste:</i> 155,03 kg/cap/y in 2014 			
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Political commitment, introduction of appropriate, infrastructure and equipment for the citizens' use, good management, clear setting of goals and targets and commitment to ever increasing Zero Waste goals - Waste management costs among the lowest in Europe - Very strong communication campaign 			
Description of the case study	<p>Around the year 2000 PAYT was introduced for mixed municipal waste. Starting from April 2013 it was introduced for door-to-door collection system and comingled door-to-door collection as follows:</p> <ul style="list-style-type: none"> - step 1: 50% collection frequency reduction and introduction of yellow lid bin for packaging waste; - step 2: 75% collection frequency reduction and introduction of blue lid bin for waste paper. <p>The fee for bio-waste is charged according to the bin size, emptying frequency and number of use of underground collection unit. On the other hand, the city has applied the more common PAYT scheme for residual waste, so that the costs of collecting source-separated paper/cardboard and comingled recyclables in a door-to-door system, are covered by the residual waste fees. The cards used for underground bins allow to record the number of garbage bags delivered, which determines the monthly household bill.</p>			
				
Type(s) of collection linked to PAYT	<input checked="" type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input checked="" type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
<input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input checked="" type="checkbox"/> Other waste	<i>Collective</i>	(in the city centre) <input checked="" type="checkbox"/> (bring banks) <input type="checkbox"/> (bring banks)	-	<input checked="" type="checkbox"/> (containers) <input type="checkbox"/> (containers)
	<i>Individual</i>	(in the external area) <input checked="" type="checkbox"/> (bins) <input type="checkbox"/> (bins)	-	-

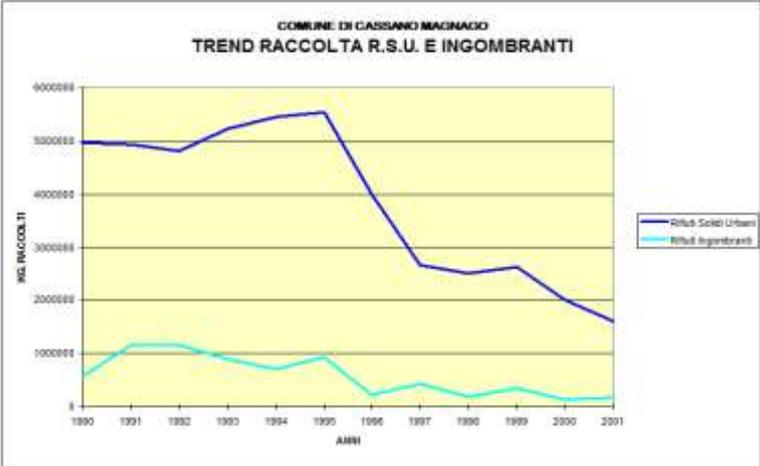
<p>Details on PAYT</p>	<ul style="list-style-type: none"> - <i>Economic aspects:</i> Payments of bio waste treatment depend on the size of containers for bio waste (80L container € 0,68; 120 liters container € 1,02; 240 liters container € 2,03) multiplied with the monthly frequency of emptying of the container. The fee for depositing bio-waste in underground collection units is charged by card (one disposal costs € 0,085), while for residual waste is € 1,425. The monthly cost of waste management for minimum ten entries (six times put the rest of the waste and the four waste BIO), together with the VAT amounts to € 8,89. Fees for separate waste collection are included in residual waste collection fees therefore customers do not pay additional or specific fees for collection of paper, packaging or glass. The yearly waste management cost for households was about € 95 in 2014. - <i>Incentives scheme applied:</i> separate waste collection pays off: in December 2014 Snaga issued a credit note to all households in the amount of the December invoice for waste management (due to a strongly increased share of separately collected waste and consequently a smaller share of waste disposed of in landfill). - <i>Feasibility in high rise buildings:</i> Yes, thanks to the bring banks and underground containers - <i>Degree of implementation of the model:</i> advanced
<p>Communication campaigns</p>	<p>Strong communication campaigns. As part of their strategy, Snaga organised a field trip for the media to see themselves that containers for residual waste were full of recyclables.</p> <p>In 2013 Snaga decided to move their key efforts away from awareness raising on separate collection. The company launched the campaign “Get used to reusing” which was later expanded to the national level in cooperation with the Chamber of Commerce.</p> <p>Since user satisfaction is based on quality of service and communication, Snaga manages three web pages and uses social media. One of those web pages (www.mojiodpadki.si) is addressed to their users, allowing them to have information on consumption and to communicate with the company. Users may set up a free SMS reminder on the waste collection schedule, monitor collection costs and update their services.</p> <div data-bbox="715 1288 1236 1751" data-label="Image"> </div> <p>Additionally, Snaga develops targeted and carefully designed promotion material and brochures, for example “More than guidance for waste management”, 2015 to clearly communicate waste collection system improvement progress information, explain roles of different stakeholders (citizens, Snaga, authorities) and provide guidance on how to prevent waste generation or reuse it. The brochure/campaign won the annual POMP award for the best achievements in the field of content marketing in Slovenia in the category of best design, and several other local awards.</p>

Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate</i>: before full implementation of PAYT in 2013, 55%, after implementation of PAYT in 2014, 63%; +8%. - <i>Residual waste</i>: before PAYT in 2011, 293,97 kg/cap/y, after implementation of PAYT in 2014, 155,03 kg/cap/y; -47%. - <i>Other results</i>: in ten years, the quantity of recovered materials increased from 16 kg per person in 2004 to 145 kg in 2014. By 2014, the average resident produced just 283 kg of waste, 61 % of which was recycled or composted. This means that the amount of waste being sent to landfill decreased by 59 % in ten years, and total waste generation decreased by 15%. This reduction is even more remarkable when considering that Ljubljana already generated relatively low amount of waste for European standards, being its generation of 2014 a 41% less than the EU average (481 kg per person).
Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country</i>: Snaga is the public company that provides waste management in 10 municipalities with similar schemes (380.287 residents). - <i>In the EU</i>: Limited diffusion in EU (due to the PAYT applied to underground containers).
National regulation supporting PAYT	None
Notes	<ul style="list-style-type: none"> - Ljubljana has been declared the European Green Capital for 2016 and is the first European capital on its way towards a Zero Waste society. - Ljubljana has committed to: increase separate collection to 78% by 2025, and to 80% by 2035, reduce yearly total waste generation to 280 kg per inhabitant, and reduce yearly residual waste to 60 kg by 2025 and 50 kg by 2035.
Information source	<ul style="list-style-type: none"> - SNAGA and Municipality website - Report Assessment of separate collection schemes in the 28 capitals of the EU, DG ENV
Link to the specific case study	http://ec.europa.eu/environment/waste/studies/pdf/Separate%20collection_Final%20Report.pdf http://www.greenljubljana.com/ http://www.greenljubljana.com/sites/www.zelenaljubljana.si/files/upload/files/resources/env-15-003_ljubljana_en-web.pdf http://www.municipalwasteeurope.eu/sites/default/files/SI%20Ljubljana%20Capital%20factsheet.pdf
Further information (contact, organization)	Snaga Javno podjetje d.o.o www.snaga.si

PAYT BEST PRACTICE DATA-SHEET				
ID	PA.10			
Municipality or Area	BERLIN			
Basic data	<ul style="list-style-type: none"> - <i>Country:</i> Germany - <i>Population:</i> 3.470.000 - <i>Starting period:</i> since 2001 - <i>Separate collection rate:</i> 40% in 2012 - <i>Residual waste:</i> 191,1 kg/cap/y in 2012 			
Why it has been identified as a best practice	- Largest city in Europe with PAYT implemented			
Description of the case study	<p>In Berlin, solid waste rate-pricing varies according to the containers' capacity and to the frequency of the collection (weekly or every two weeks). The rate-pricing calculation includes also the collection of bio-waste, depending on its quantity and on the frequency of the collection.</p> <div style="display: flex; justify-content: space-around;">   </div>			
Type(s) of collection linked to PAYT	<input type="checkbox"/> <i>Bring banks</i> <input checked="" type="checkbox"/> <i>Door to Door</i> <input type="checkbox"/> <i>Underground (containers & pneumatic)</i> <input type="checkbox"/> <i>Recycling yards</i> <input type="checkbox"/> <i>Mobile points</i> <input type="checkbox"/> <i>On demand</i>			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	-	-	-
<input type="checkbox"/> Bio-waste				
<input checked="" type="checkbox"/> Other waste	<i>Individual</i>	◆ (bins) □ (bins)	-	◆ (bins) □ (bins)
Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> Variable part based on the volume of the bin and the frequency. Residual waste weekly: range from € 55,38 / 60 liters to € 320,18 / 1.100 liters. The tariff is related to weekly emptying and halves in the case of 14-day collection. Bio-waste is priced roughly half of the collection of residual waste. Bins must be accessible by vehicles otherwise additional "comfort tariffs" are applied according to the distance and the steps. The tax is paid each trimester. - <i>Incentives scheme applied:</i> none - <i>Feasibility in high rise buildings:</i> Yes - <i>Degree of implementation of the model:</i> advanced 			
Communication campaigns	Yes, now the model is very well established since a long time (little information on this topic).			

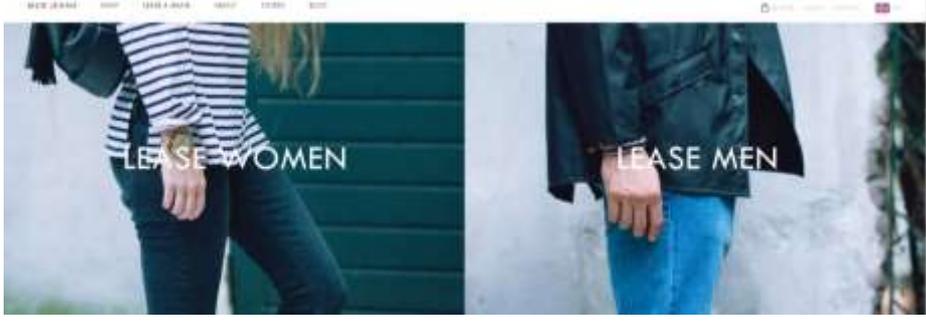
Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate</i>: before full implementation of PAYT in 1999, 10%, after implementation of PAYT in 2012, 40%; +30%. - <i>Residual waste</i>: after implementation of PAYT in 2012, 191,1 kg/cap/y
Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country</i>: very common in Germany. - <i>In the EU</i>: spread in France and Austria.
National regulation supporting PAYT	In Germany there is no federal obligation to adopt timely charging systems in accordance with the "Pay As You Throw" principle.
Notes	In January 2013, Berlin was one of the first German federal states to introduce a model waste separation strategy, with a single recycling bin for light packaging together with similar materials
Information source	<ul style="list-style-type: none"> - Company BSR website - Capital factsheet - EC study "Assessment of separate collection schemes in the 28 capitals of the EU" - 10 Percorsi Europei Virtuosi verso la tariffazione incentivante, Esper, 2016
Link to the specific case study	www.bsr.de
Further information (contact, organization)	BSR - Berliner Stadtreinigungsbetriebe www.bsr.de

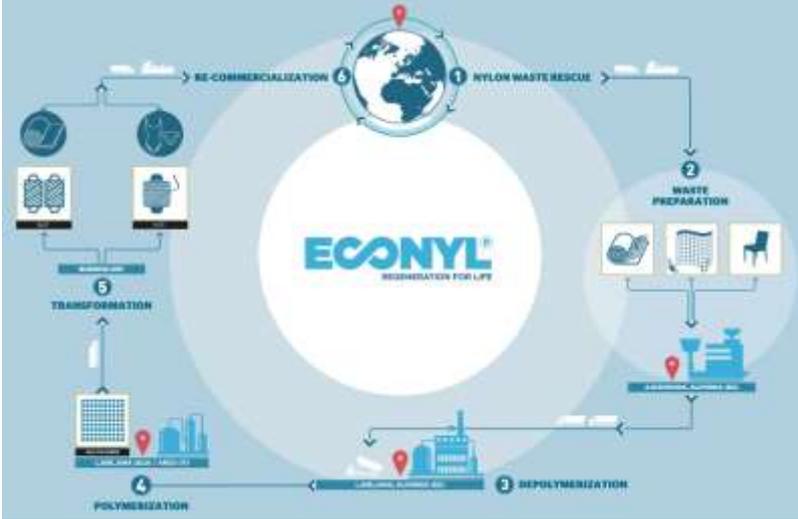
PAYT BEST PRACTICE DATA-SHEET				
ID	PA.11			
Municipality or Area	CASSANO MAGNAGO			
Basic data	<ul style="list-style-type: none"> - Country: Italy - Population: 21.622 - Starting period: since 2000 - Separate collection rate: 80,35% in 2015 - Residual waste: 58 kg/cap/y in 2015 			
Why it has been identified as a best practice	- Simple system and low tech since 2001			
Description of the case study	<p>Cassano Magnago implemented PAYT in 2000, one of the first municipalities in Italy, with a system based on prepaid bags. The peculiarity of this scheme is that it started immediately with a high variable part (65% of the tax), mainly covered with the price of residual waste bags (initially about € 1,50/bag 80 liters). Total waste reduced 15% after PAYT implementation.</p> <div style="display: flex; justify-content: space-around;">   </div>			
Type(s) of collection linked to PAYT	<input type="checkbox"/> Bring banks <input checked="" type="checkbox"/> Door to Door <input type="checkbox"/> Underground (containers & pneumatic) <input type="checkbox"/> Recycling yards <input type="checkbox"/> Mobile points <input type="checkbox"/> On demand			
Type of measurement		<i>Volume based</i>	<i>Weight based</i>	<i>Frequency based</i>
◆ Residual waste	<i>Collective</i>	-	-	-
□ Bio-waste				
☒ Other waste	<i>Individual</i>	◆ (bags)	-	-

Details on PAYT	<ul style="list-style-type: none"> - <i>Economic aspects:</i> At the beginning: € 1,50 / bag 80 liters plus 0,20 €/kg bulky waste delivered at the recycling yard and € 15,50 per service in case of kerbside collection of bulky waste. Bags are distributed through a vending machine in the Municipal Hall, accessible with a citizen card. A minimum set of bag is included in the fixed part of the tax, and additional bags retrieved are charged in the end of the year (so they are not actually "pre" paid). - <i>Incentives scheme applied:</i> none - <i>Feasibility in high rise buildings:</i> Yes, but individual residents use its own bags - <i>Degree of implementation of the model:</i> advanced 																																							
Communication campaigns	<p>Strong communication campaign that involved local environmental associations like Legambiente.</p>																																							
Results after implementation	<ul style="list-style-type: none"> - <i>Separate collection rate:</i> before full implementation of PAYT in 1999, 60%, after implementation of PAYT in 2000, 68%; +8%. Later on, in the following years, it reached 80%. - <i>Residual waste:</i> before implementation of PAYT in 1999, 125 kg/cap/y, after implementation of PAYT in 2001, 83 kg/cap/y. -33,6%. <div style="text-align: center;">  <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Estimated data from the 'TREND RACCOLTA R.S.U. E INGOMBRANTI' graph</caption> <thead> <tr> <th>Anno</th> <th>Rifiuti Solidi Urbani (MSE)</th> <th>Rifiuti Ingombranti (MSE)</th> </tr> </thead> <tbody> <tr><td>1990</td><td>500,000</td><td>100,000</td></tr> <tr><td>1991</td><td>490,000</td><td>120,000</td></tr> <tr><td>1992</td><td>480,000</td><td>110,000</td></tr> <tr><td>1993</td><td>520,000</td><td>100,000</td></tr> <tr><td>1994</td><td>550,000</td><td>90,000</td></tr> <tr><td>1995</td><td>580,000</td><td>100,000</td></tr> <tr><td>1996</td><td>280,000</td><td>50,000</td></tr> <tr><td>1997</td><td>260,000</td><td>60,000</td></tr> <tr><td>1998</td><td>260,000</td><td>50,000</td></tr> <tr><td>1999</td><td>270,000</td><td>60,000</td></tr> <tr><td>2000</td><td>200,000</td><td>50,000</td></tr> <tr><td>2001</td><td>150,000</td><td>40,000</td></tr> </tbody> </table> </div>	Anno	Rifiuti Solidi Urbani (MSE)	Rifiuti Ingombranti (MSE)	1990	500,000	100,000	1991	490,000	120,000	1992	480,000	110,000	1993	520,000	100,000	1994	550,000	90,000	1995	580,000	100,000	1996	280,000	50,000	1997	260,000	60,000	1998	260,000	50,000	1999	270,000	60,000	2000	200,000	50,000	2001	150,000	40,000
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Diffusion	<ul style="list-style-type: none"> - <i>In the reference Country:</i> Still limited, with increasing interest. - <i>In the EU:</i> Limited. 																																							
National regulation supporting PAYT	<p>Italian Waste Framework Law supported the fact that the waste tax must be linked to the generation of waste, since national decree 22/97. It also states that waste tax must be divided in a fixed and variable part.</p>																																							
Notes	<p>It's one of the first Italian municipalities to implement PAYT with bags.</p>																																							
Information source	<p>- Sieco Website</p>																																							
Link to the specific case study	<p>http://www.sieco.info/statistiche_comuni.php?cid=Cassano_Magnago#go</p>																																							
Further information (contact, organization)	<p>SIECO Cassano Magnago http://www.sieco.info</p>																																							

Annex 4. Best practices data-sheets in Circular Economy

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.1
Name	LEASE A JEANS - LEASE A FLEECE
Company	Mud Jeans
Sector	Textiles
Location	The Netherlands
Type	<input checked="" type="checkbox"/> Business Model <input type="checkbox"/> Case study <input type="checkbox"/> B2B <input checked="" type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Number of quotations - Replicability - Awards - Widespread
Description of the model	<p>Lease model for organic cotton jeans or sweatshirt/hoodie. The consumer can lease new cloths and after a year, or, when they are completely worn out, he can return them and switch to a new pair for an additional fee. The old ones will be recycled. The cotton use is all organic and BCI (Business Continuity Institute) and GOTS (Global Organic Textile Standard) certified.</p> <p style="text-align: center;">LEASE A JEANS FOR €7,50 A MONTH</p> <p style="text-align: center;"><small>Lease A Jeans until you're done wearing. We recycle those trashed ones. This is how it works.</small></p> <p style="text-align: center;"><small>Why wearing your jeans? With Lease A Jeans you always wear new, up-to-date jeans without owning them. Just wear them and after a year, or when the jeans are completely worn out, you can send them to us. You can switch to a new pair. We recycle the old ones.</small></p>
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input type="checkbox"/> Design <input type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input checked="" type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling <input type="checkbox"/> All the stages
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input checked="" type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bio-waste <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other

Waste or sub product input	Old cotton jeans 
New product output	Organic cotton jeans, sweatshirt/hoodie
Degree of implementation	<input type="checkbox"/> Early <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Mature
Period of implementation	Since 2013
Stakeholders involved	Consumers
Value Proposition	Increase sustainability, apply a new circular economy model optimising the end-of-life flow for clothing. Propose an innovative approach to offer guilt-free consumption.
Key partners	Circle Economy, B Corporation, DOEN Foundation's, Social Enterprise NL, Max Havelaar, MVO Nederland, Fair Wear Foundation, Dutch Circle Economy Foundation
Customer Relationships & channels	Stores and Online shop. Communication through: Television & online video, Blogs & online press, Magazines, Newspapers, Radio.
Economic added value (and effect on green jobs)	Stores all over the world and related jobs (not quantified).
Environmental benefits	Less raw material consumption, water usage reduction, CO2 emissions reduction, trash-free packaging, recycling.
Social benefits	Sensitization of citizens, social responsibility, fair factories
Awards, mentions	Sustainability Leadership Award 2015 (Sustainable Business Models), Peta Vegan Awards 2015
Information source	Ellen MacArthur Foundation, company website
Link to the specific case study	http://www.mudjeans.eu/ http://www.edie.net/news/16/-Lease-a-fleece--business-model-looks-to-become-latest-fashion-/
Further information (contact, organization)	Mudjeans Veluwezoom 32 1327AH, Almere The Netherlands info@mudjeans.eu

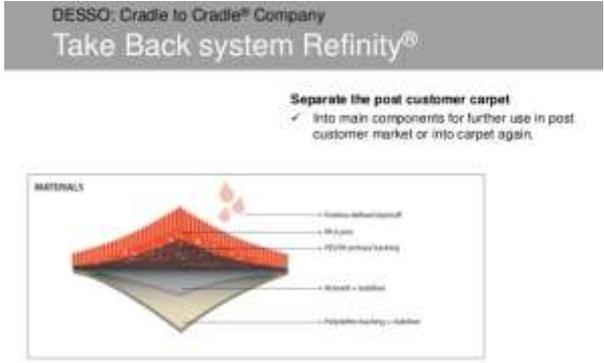
CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.2
Name	ECONYL
Company	Aquafil
Sector	Chemistry
Location	Italy
Type	<input checked="" type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Product innovation - Huge environmental benefits not only local but abroad - Well documented - Comprehensive sustainability approach
Description of the model	<p>Process to chemically recycle nylon that achieves the same quality of fibre as through virgin production. Aquafil is the inventor and producer of ECONYL®, a polyamide made from 100% recycled raw materials (post-consumer or pre-consumer waste).</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input checked="" type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bio-waste <input type="checkbox"/> Bulky waste <input checked="" type="checkbox"/> Other: pre-consumer waste, fishing net
Waste or sub product input	Fishing nets, carpets, clothing, rugs, and rigid textiles, pre-consumer waste (like oligomers, scraps and others generated from the production of Nylon 6)
New product output	Nylon (for carpets, textiles, etc.) <div style="display: flex; justify-content: space-around; margin-top: 10px;">   </div>

Degree of implementation	<input type="checkbox"/> <i>Early</i> <input checked="" type="checkbox"/> <i>Medium</i> <input type="checkbox"/> <i>Mature</i>
Period of implementation	Since 2011
Stakeholders involved	Institutions, customers, public and private associations, textile companies, interior design and architects.
Value Proposition	Sustainable chemistry: production of nylon yarn from waste materials, that can be regenerated an infinite number of times and produce new polymers with a quality and technical characteristics equivalent to product obtained from fossil materials. Reverse cycles, Enablers and favourable system conditions.
Key partners	Partnership with Outerknown (men's sportswear), VOLCOM (swimwear collection), Speedo USA (new "Take Back" program for swimwear industry). Collaboration between the ECONYL® plant in Ljubljana and Atlantis water park (for energy recovery). Partner of CE100 of Ellen Mac Arthur Foundation.
Customer Relationships & channels	Specific website for the product Econyl (communication towards different stakeholders: clients, consumers, children, etc.). The ECONYL brand can be found on various social media channels including: Twitter, Pinterest, YouTube, LinkedIn.
Economic added value (and effect on green jobs)	€ 25 million and 5 years have been spent in R&D for designing and building the depolymerisation plant.
Environmental benefits	High possibility of recycling, avoiding the use of fossil materials. The process reduces the environmental impact of nylon production by 50-80% compared with virgin production. Structuring an international waste collection network, with a reduction of the waste disposed to landfill. Each 10.000 ton of Carpolattame Econyl reducing of: 13,1 ton of waste, 70.000 barrels of oil, 54.000 tonCO ₂ emissions, 988.000 GJ saved.
Social benefits	Sensitizations of people in particular with regard to "The Healthy Seas, a Journey from Waste to Wear" campaigns. Education campaign for scholars (Green Week in Venice).
Awards, mentions	ECONYL yarn among the innovative materials presented by the Guardian Sustainable Business as emerging textile fibers for sustainable clothing. The ECONYL® Regeneration System was included among the 100 most promising innovations for accelerating the transition toward more sustainable industry by Sustainia. Aquafil was chosen as a sustainability model for Green Week organized by the province of Venice.
Information source	Ellen MacArthur Foundation, company website
Link to the specific case study	http://www.aquafil.com/ http://www.econyl.com/ https://www.ellenmacarthurfoundation.org/assets/downloads/publications/TCE_Report-2013.pdf
Further information (contact, organization)	Aquafil Via Linfano, 9 TN 38062 Arco, Phone: +39 0464 581111 info@aquafil.com

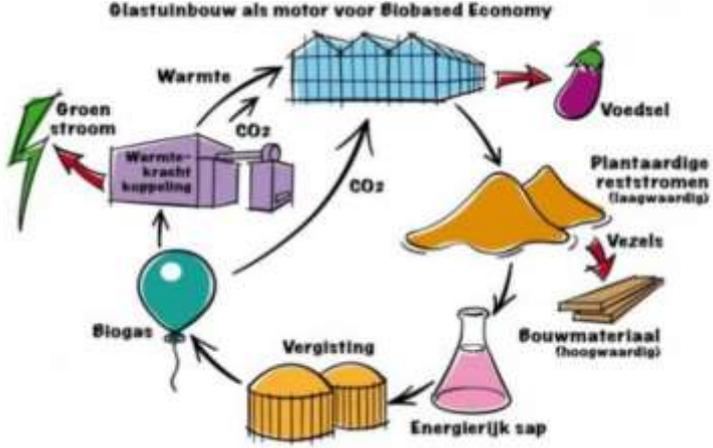
CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.3
Name	SAVED FROM LANDFILL BAGS
Company	CeDo
Sector	Chemistry
Location	United Kingdom
Type	<input type="checkbox"/> <i>Business Model</i> <input type="checkbox"/> <i>B2B</i> <input checked="" type="checkbox"/> <i>Case study</i> <input checked="" type="checkbox"/> <i>B2C</i>
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Recycling of previously unrecyclable and landfilled waste stream, - New dry cycling technology - Mentioned as a case study by The Guardian Sustainable Business
Description of the model	<p>New outlet to stop domestic flexible plastic waste going to landfill launching a range of bin liners made from 30% recycled flexible plastics. The product is made from material that is collected at kerbside in the UK, then recovered into pellets at a CeDo facility in Holland before being converted into bags at the company's plant in Telford. By using mixed plastics waste from landfill, CeDO offers retailers, local authorities and waste contractors a supply chain derived from UK households so plastics film is no longer non-recyclable waste. The bags are sold to leading supermarkets, the waste management and local authority sectors and cleaning and janitorial markets. Household Waste - Saved from Landfill CeDo has invested in proprietary "dry cycling" technology in order to separate and recycle this most difficult fraction of the household waste stream.</p> <p>The company's idea for a "closed-loop" system that involves consumer waste.</p> <p>While the product is initially made of 30% recycled material, the group has outlined plans to increase that to 90% within two years. Divert waste from landfill. Offer the lowest carbon refuse bag on the market.</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> <i>Raw materials</i> <input type="checkbox"/> <i>Consumption</i> <input checked="" type="checkbox"/> <i>Design</i> <input type="checkbox"/> <i>Collection</i> <input checked="" type="checkbox"/> <i>Production</i> <input checked="" type="checkbox"/> <i>Recycling</i> <input type="checkbox"/> <i>Distribution</i>
General waste fraction	<input type="checkbox"/> <i>All waste</i> <input type="checkbox"/> <i>Clothes and Textiles</i> <input type="checkbox"/> <i>Paper and cardboard</i> <input type="checkbox"/> <i>Residual waste</i> <input type="checkbox"/> <i>Glass</i> <input type="checkbox"/> <i>Bio-waste</i> <input type="checkbox"/> <i>Light packaging</i> <input type="checkbox"/> <i>All packaging</i> <input type="checkbox"/> <i>Food waste</i> <input type="checkbox"/> <i>Bulky waste</i> <input type="checkbox"/> <i>Goods and furniture</i> <input checked="" type="checkbox"/> <i>Other: Littering</i>
Waste or sub product input	Material collected at kerbside
New product output	Household plastic bags 
Degree of implementation	<input type="checkbox"/> <i>Early</i> <input checked="" type="checkbox"/> <i>Medium</i> <input type="checkbox"/> <i>Mature</i>

Period of implementation	Since 2013
Stakeholders involved	Retailers, local authorities and waste contractors, citizens.
Value Proposition	Saved From Landfill bags open an entirely new materials source for UK waste management and has created a sustainable supply chain from the 700.000 tons of domestic plastics film waste that ends up in UK landfill each year.
Key partners	Poly-Lina (range of food & freezer bags, food wraps, bin liners and refuse sacks), PACLAN (household disposables including food bags and wraps, bin liners, refuse sacks and cleaning products), Nappy Sacks (disposing of nappies), Pop-Ins (disposal of sanitary products).
Customer Relationships & channels	Widespread in the majority of Europe's largest supermarkets and discounter.
Economic added value (and effect on green jobs)	The process creates local jobs and adds value to the UK's recycling infrastructure. The business has a strong market share through its relationships with the majority of Europe's largest supermarkets and discounters, supplying both own-label and branded products. Household Waste - Saved from Landfill CeDo has invested in proprietary 'dry cycling' technology in order to separate and recycle this most difficult fraction of the household waste stream.
Environmental benefits	Avoid landfill (700.000 tons of domestic plastics film waste that ends up in UK landfill each year), less carbon emissions (the bags are made in the UK to ensure minimum carbon emissions in the supply chain), avoid the need of water (dry-recycling technology).
Social benefits	Sensitization of citizens, directly involved in waste collection.
Awards, mentions	Mentioned as a case study by The Guardian Sustainable Business
Information source	Guardian sustainable business, company web site
Link to the specific case study	http://www.cedo.com/refuse.html http://www.rutlandpartners.com/project-stories.html?id=cedo http://www.edie.net/61849/pr/Household-Waste---Saved-from-Landfill/25466 https://www.theguardian.com/sustainable-business/sustainability-case-studies-cedo-bin-bags-plastics-film
Further information (contact, organization)	CeDo Halesfield 11, Telford, Shropshire, TF7 4LZ, United Kingdom, Phone: +44 (0)1952 272727 http://www.cedo.com/contact-us

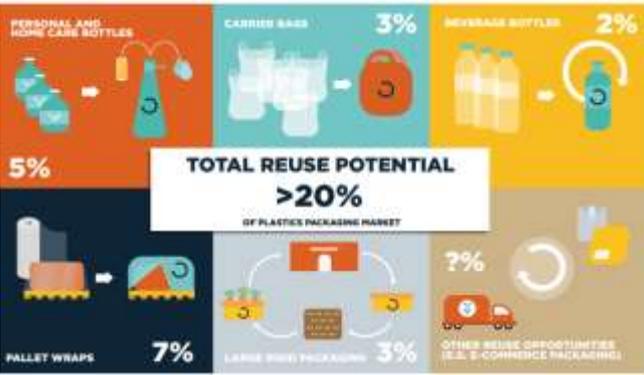
CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.4
Name	CRADLE TO CRADLE CARPETS
Company	Desso
Sector	Textiles
Location	The Netherlands
Type	<input checked="" type="checkbox"/> Business Model <input type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input checked="" type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Pioneer of the Cradle to Cradle (C2C) approach and C2C gold certification - Business model funded by EC's Competitiveness and Innovation Programme in 2010 - Connection with other circular economy best practice (Econyl) - Awarded and studied as business model in important business schools
Description of the model	<p>Cradle to cradle approach for carpet textiles. Desso, an international manufacturer of carpets, carpet tiles and playing fields, has been applying the cradle-to-cradle principle since 2008 by designing its products so that at their end of use they can be safely disassembled and recycled. Desso offers a full-service leasing option for its carpet tiles including installation, cleaning, maintenance and ultimately removal. To close the loop, Desso developed Take Back™ technology to receive used materials (withdraw carpet tiles at the end of their useful life) and recycle the materials and created products with the right purity that can be recycled at high levels (development of the Refinity® separation technique allowing to separate the yarn and other fibres from the backing, producing two main material streams which can be recycled). Materials that cannot be reused are recovered as secondary fuel in cement kilns.</p> <p>The company's idea for a "closed-loop" system that involves consumer waste.</p> <p>The diagram, titled 'Carpet Tile Technical Cycle', illustrates a circular process. It starts with 'Production' where raw materials (polyolefin backing fibre, other fractions like PE & yarn + other fibres, and road and roofing industry waste) are processed into a 'product'. The product goes through 'Usage' and becomes 'Waste Product'. This waste is then managed by 'Waste Management' (Desso), leading to 'First and second separation'. The separated materials are then recycled back into 'Production'. A note states: 'All non-recyclable fractions will be used as secondary fuel in the cement industry.'</p>
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input checked="" type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling

General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture	<input checked="" type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Post-consumer carpets <div style="text-align: right; margin-top: 10px;">  </div>	
New product output	New carpets	
Degree of implementation	<input type="checkbox"/> Early <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Mature	
Period of implementation	Since 2007	
Stakeholders involved	Consumers	
Value Proposition	Develop competitive products in a full sustainable way, facing with three global challenges: toxicity in materials; climate change; and resource scarcity. Becoming a service industry, relying on a leasing system. By 2020, used 75% defined recycled materials to produce carpet tiles. By 2020, more than 80% of all materials used in products are positively defined according to Cradle to Cradle® criteria.	
Key partners	Partnership with Aquafil (nylon recovered through this process is sent on to Aquafil, where it is recycled into ECONYL® yarn). Customers include ABN AMRO, Rabobank, AkzoNobel, Dutch Ministry of Safety & Justice, KPMG, PWC, Deloitte, Allianz, Canon, EDF, HSBC, Porsche, Procter & Gamble, SNCF, Nestlé, etc.	
Customer Relationships & channels	Articles and coverage (blogs on the Huffington Post and the World Economic Forum's Agenda website, coverage on broadsheet press in the UK) on topics related to the C2C/circular economy vision. Contribute knowledge at important venues: World Economic Forum, London Business School, University of Exeter Business School, Cranfield Management School and other world events focused on innovation, sustainability and the circular economy.	
Economic added value (and effect on green jobs)	After 2007, Desso European market share for carpet tiles grew from 15 to 23% and profit margins (normalised EBIT of the original carpet business) from 1 to 9%, with about half of this gain directly attributable to the introduction of C2C™ principles. Eliminating all toxic chemicals in its carpet tiles, its business benefited from an uptake in the aviation market, where carpet off gassing can affect passenger health and comfort.	
Environmental benefits	Dangerous chemical ingredients replaced, recycle and recycling. Renewable energy use. Water stewardship. Reduce emissions. Turn post-consumer carpet waste into new polymers saving waste. Over 50% of Desso's range of carpet tiles contains ECONYL® yarn (which is made from 100% regenerated nylon including post-consumer yarn waste). DESSO uses 100% renewable electricity (hydropower) in production locations in Waalwijk and Dendermonde.	
Social benefits	Improve citizens' health with chemicals free products. Increase the responsibility of the consumer that does not buy the product but only pay for its use: the Take Back™ programme offers customers an alternative to landfill.	

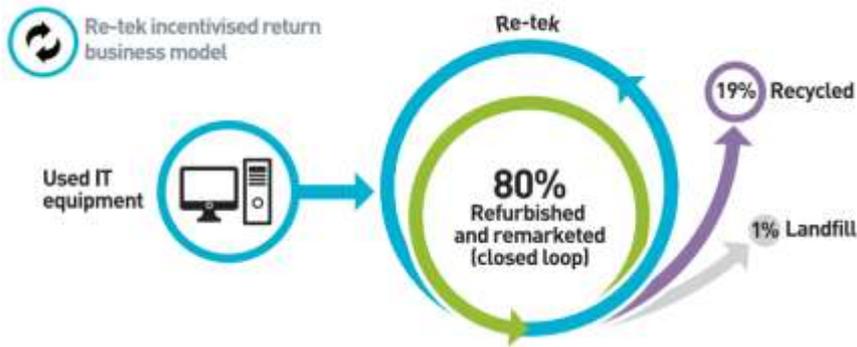
Awards, mentions	<p>Guardian Sustainable Business Award for Waste and Recycling in 2012. Big Tick Award for Sustainability from Business in the Community (BITC) 2013. IWA Resource Recovery Award 2015.</p> <p>Awarded a subsidy from the EU's LIFE programme to develop carpet products that can be recycled in a healthy closed loop system, based on Cradle to Cradle® principles. London Business School (1st in Europe) has been teaching the Desso Case study since 2011 (Desso – Taking the Sustainability Challenge) to MBAs and global executives. In November 2012 the University of Exeter Business School published a Case Study on how Desso has been rethinking its supply chain to drive its Cradle to Cradle® innovation platform. Cranfield Management School produced its Case Study on Desso's Cradle to Cradle® strategy in 2015.</p>
Information source	Company website, Ellen MacArthur Foundation, the guardian sustainable business, WRAP UK
Link to the specific case study	<p>http://www.desso.es/</p> <p>https://issuu.com/dessogroup/docs/gri_report_2015</p> <p>http://www.wrap.org.uk/sites/files/wrap/Collection%20of%20carpet%20tiles%20from%20businesses%20by%20reprocessor.pdf</p> <p>https://www.ellenmacarthurfoundation.org/case-studies/cradle-to-cradle-design-of-carpets</p>
Further information (contact, organization)	<p>Desso</p> <p>Taxandriaweg 15, 5142 PA Waalwijk, The Netherlands</p> <p>Phone: +31 (0)416 684 100</p> <p>http://www.desso.com/meta-navigatie/contact/</p>

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.5
Name	CERANEX
Company	Nova Lignum
Sector	Bio-waste
Location	The Netherlands
Type	<input type="checkbox"/> Business Model <input type="checkbox"/> B2B <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Reverse cycle - Innovative product - Awarded for innovation
Description of the model	<p>From plant to shelf. Waste flows from horticulture used as raw materials for the building industry. Nova Lignum makes sustainable roofing material exclusively from plant residues (aubergine fibres, roadside grass, and reed or pruning waste). The Ceranex product line combines the advantages of timber, fibre cement and plastic with this combination of properties: 100% recyclable (only natural raw materials), no oil-related or chemical additives, extremely long life, water stable (no shrinkage or expansion), weatherproof, rot-proof, easy to use and install.</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Plant residues
New product output	Roofing materials
	
Degree of implementation	<input checked="" type="checkbox"/> Early <input type="checkbox"/> Medium <input type="checkbox"/> Mature

Period of implementation	Since 2015
Stakeholders involved	Financing banks, construction industry, consumers.
Value Proposition	Launch of high quality bio-based material that meets high requirements in terms of water stability, longevity, safety, low maintenance, and it is recyclable and has no negative impact on people and the environment.
Key partners	Greenbrothers, Gaat onder Moxy.
Customer Relationships & channels	Website, press and release.
Economic added value (and effect on green jobs)	High potential to become a profitable business case (no more results: just entered the market)
Environmental benefits	Strictly natural products are used in this procedure, which can be described simply as fossilisation. Also very little energy is needed for the production, making the CO2 footprint extremely small. Extremely long life. 100% recyclable. Low CO footprint, very energy-efficient production process and recyclable. Fully recyclable for reuse: plant fibres are not burned or composted, but are laid down for the long term.
Social benefits	Effects on human health because of the safety of the product: no silica, acid environment resistant and non-corrosive on metals, extremely fire resistant.
Awards, mentions	<ul style="list-style-type: none"> - Awarded by HW Innovation Award 2013 (second prize 30.000 euro) - Awarded by Duurzame Innovator Pitch 2012 - Quoted by Biobased Economy Magazine
Information source	Company website
Link to the specific case study	http://www.novalignum.nl/ https://www.circulairebusinessmodellen.nl/bouwstenen/ http://www.greendeals.nl/gd116-nova-lignum/
Further information (contact, organization)	<p>Nova Lignum Hazeldonkse Zandweg 97^a, Zevenbergen, 4762 PA, NLD Phone: +31 167 792000 info@novalignum.nl</p>

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.6
Name	QUALITY CIRCULAR POLYMERS
Company	QCP – Quality Circular Polymers
Sector	Chemistry
Location	The Netherlands
Type	<input type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Innovative business model - Unique in the European market - Mentioned as a best practice by Ellen MacArthur Foundation
Description of the model	<p>Contributes closing the plastics loop. QCP stands for 'Quality Circular Polymers' and is a new company that will produce high quality materials (Polyethylene (PE) and Polypropylene (PP) compounds) for the plastics processing industry on the basis of used plastics originating from households and industry, through its own plastics factory.</p> <p>By combining the knowledge of the parties involved with investment in research and development, QCP is able to produce these materials in large quantities and with consistent quality. Examples of application: Crates & Boxes, Bottles & Cans, Automotive parts and E&E applications.</p> <p>QCP is based on the Chemelot Site, a strategic location (in the heart of the Netherlands- Belgium- Germany triangle and close to France) in terms of polymers research, development and production of Polymers. At the heart of Western Europe, QCP benefits both in terms of supply and demand from the high population density. In addition to that, QCP has easy access to rail, barge and road connections.</p> 
Circular Economy process stage	<input type="checkbox"/> Raw materials <input type="checkbox"/> Design <input type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input checked="" type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Polymers 
New product output	Polyethylene (PE) and Polypropylene (PP) compounds 
Degree of implementation	<input checked="" type="checkbox"/> Early <input type="checkbox"/> Medium <input type="checkbox"/> Mature

Period of implementation	Since 2016
Stakeholders involved	Polymers industry and research, consumers, industrial waste producers
Value Proposition	<ul style="list-style-type: none"> - Create a complete new value chain in the field of sustainable polymers. - Become the leading European supplier of circular polymer compounds, targeting prime markets and high-end applications. - Build the largest single integrated plant using leading technology in sorting and compounding. - Increase the capacity of plant, with a nameplate of 35.000 tonne, up to 50.000 tonne once the nameplate capacity is reached and then up to 100.000 tonne.
Key partners	QCP has engaged partnerships with specific strategic and regional interests. SUEZ Environment will enter downstream markets and close the circular loop. LIOF and Chemelot Ventures invest in a promising company with immediate volume, scale and critical mass for the region. The Province of Limburg, the Limburgs Energie Fonds, the Community of Sittard-Geleen and DSM Netherlands have contributed to the choice of the location. Chemelot Industrial Park will complete its portfolio with circular polymers, less dependent on oil and gas. Langen will construct the building at a strategic location. Rabobank is the financing party.
Customer Relationships & channels	Website, press, video and release. Participation at European Conference on Circular Economy.
Economic added value (and effect on green jobs)	The total investment of 75 million euro, of which 35 million euro for the first module (started production end of 2015). At full capacity the facility employs 100 people directly and 200 to 300 indirect jobs (construction etc.). The current first module of the plant created around 45 direct jobs.
Environmental benefits	<ul style="list-style-type: none"> - Strong contribution to the circular economy. - Improving the environmental footprint by saving energy and reducing global impacts: the impact of recycled polyolefin on global warming is only 10% compared to fossil based polyolefin; mechanical recycling of polyolefin reduces acidification and eutrophication with more than a factor 10 compared to fossil based polyolefin. - Reducing landfill and incineration. - Reducing the use of fossil based feedstock in the plastic industry: by using mechanically recycled polyolefin, the resource depletion reduces with a factor 20 compared to fossil based polyolefin.
Social benefits	<ul style="list-style-type: none"> - Responding to the needs of consumers and brand owners who increasingly call for sustainable products. - Sensitization of citizens.
Awards, mentions	Quoted by Ellen MacArthur Foundation
Information source	<ul style="list-style-type: none"> - Company web site - Report "The New Plastics Economy: Rethinking the future of plastics", World Economic Forum and Ellen MacArthur Foundation, 2016
Link to the specific case study	http://www.qcpolymers.com/ http://www.sita.nl/media/CO2prestatieladder/Pressinfo_of_the_QCP_plant.pdf https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics
Further information (contact, organization)	Huub Meessen (CEO), Marc Houtermans (COO), Raf Bemelmans (CSCO) Polymeerstraat 1, 6161 RE Geleen, The Netherlands info@qcpolymers.com

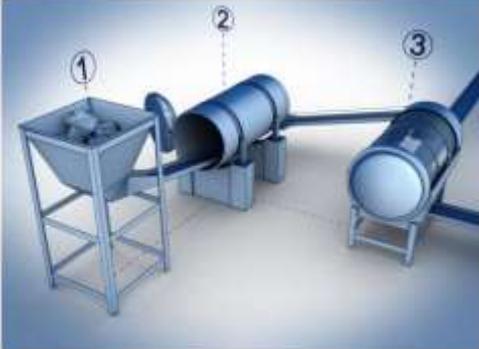
CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.7
Name	RE-TEK
Company	Re-Tek UK Ltd
Sector	Electronic and Electrical equipment
Location	UK
Type	<input checked="" type="checkbox"/> Business Model <input type="checkbox"/> Case study <input type="checkbox"/> B2B <input checked="" type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Very high number of quotations - Stability in the market - Innovative service
Description of the model	<p>Establishing a reverse supply chain for electronics (incentivized return business model). The firm repairs and refurbishes functional used IT products and sells them on to new owners, sharing the revenue with the previous owner. This includes laptops, PCs, flat screen monitors and hand held electronics. Only equipment which is non-functional or has no market value goes to conventional IT recycling partners. Re-tek sources most of its equipment from medium to large-sized businesses and public sector organisations such as the NHS, and they aim to re-market as much of the material received as possible. Approximately 80% of all equipment received is refurbished and re-marketed. Of the recycling output, the average resulting landfill is just 1%.</p> <p>Re-tek's core business includes: customised disposal solutions for IT, including buy-back and re-use of IT and communications equipment; Provision of spare parts to the maintenance and after sales market; and Excess Inventory Disposition of spare parts for large manufacturing OEMs of ICT equipment on a global basis. Services offered around the disposal and re-sale of IT equipment: safe destruction of data and media, solutions extending the lifecycle of older IT products through refurbishment, maintenance and spare parts.</p> 
Circular Economy process stage	<input type="checkbox"/> Raw materials <input type="checkbox"/> Design <input type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input checked="" type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input checked="" type="checkbox"/> Other: Electronic Waste
Waste or sub product input	E-waste (specially IT and electronic equipment)
New product output	IT regenerated products
Degree of implementation	<input type="checkbox"/> Early <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Mature

Period of implementation	Since 1996
Stakeholders involved	Medium to large-sized businesses, public sector organisations
Value Proposition	<ul style="list-style-type: none"> - IT and electronic equipment is kept in use for longer, maximising the life of the spare parts. - Provides a consistent supply of functional, used IT and electronics to meet demand and develop to new markets. - Provides a quality stream of materials for conventional recycling. - Contributes to a business's Corporate Social Responsibility values by enhancing their environmental credentials. - Creates demand for donation centres, diverting perfectly useable items from landfill or recycling centres and providing income for the organisation. - Contributes to the development of a circular economy, which will ultimately mean a stronger and more sustainable economy in Scotland.
Key partners	HP (certificate of partnership)
Customer Relationships & channels	Financial incentive for the consumers (directly involved) to return of their old equipment to the retailers.
Economic added value (and effect on green jobs)	32 employees and sales representatives in Europe, America and Asia. Investments in a BioMass boiler for gas generation in 2012 and Solar Panels for electricity generation in 2014. In 2017, for upgrading all lighting in our main processing facility to LED – projected to save another 15 KW per year of energy usage.
Environmental benefits	<ul style="list-style-type: none"> - Assets are diverted from energy hungry recycling processes that can't truly deliver zero landfill. - Heating and hot water is generated by a 60 kw Biomass boiler using pellets generated from sustainable, purpose built forests. - Most Electricity is generated from a 45 kw solar panel array, and some of electricity it's exported back to the national grid when the facility is closed. - The result is a 50 tonne reduction of CO2 emissions per annum on processing over 100.000 EEE items for re-use. - Minimizing (1% of the recycling output) waste to landfill. 19% goes to common recycling circle.
Social benefits	<p>Customers are participating in the circular economy and minimising the carbon impact of retiring their IT estate. Creating demand for donation centres, diverting perfectly useable items from landfill or recycling centres and providing income for the organisation.</p> <p>Re-tek also work closely with regional and international charities in a collaborative approach to identify business models that help recover more EEE for re-use. This has the added benefit of job creation and providing alternative income opportunities for the charity.</p>
Awards, mentions	<p>Mentioned as a case study by Zero Waste Scotland association and Ellen MacArthur Foundation (CE100).</p> <p>The company's systems and processes have also been recognised in Scotland, with Re-Tek a finalist on circular economy in the country's prestigious VIBES competition 2012.</p>
Information source	Company web site, ZeroWasteScotland
Link to the specific case study	http://www.re-tek.co.uk/ http://www.zerowastescotland.org.uk/content/re-tek#sthash.P20J0iiW.dpuf http://www.zerowastescotland.org.uk/sites/default/files/Retek_CaseStudy.PDF
Further information (contact, organization)	<p>Re-Tek UK Ltd. 21 St Thomas Street, Bristol, BS1 6JS http://www.re-tek.co.uk/contact-us/</p>

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.8
Name	ZICLA
Company	Zicla
Sector	Trade
Location	Spain
Type	<input checked="" type="checkbox"/> Business Model <input type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Awards and international recognition for environmental sustainability and design - Products spread worldwide
Description of the model	<p>Turn waste into new materials for industry and new products for the market.</p> <p>Technical and economic diagnosis of the potential for recovering waste; design of the processes to transform it into new materials and identification of industrial and business opportunities. Main products: zebra system (cycle lane separator, planter), vectorial system (modular platform for bus users), zipper system (cycle lane system formed by two high-visibility pieces with reflective strips).</p> 
Circular Economy process stage	<input type="checkbox"/> Raw materials <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input checked="" type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Recycled plastic, bulky waste, glass fibre waste, tyres, tetra bricks, etc.

New product output	Cycle lane separator, planter, modular platform, cycle lane system, others 
Degree of implementation	<input type="checkbox"/> Early <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Mature
Period of implementation	Since 2005
Stakeholders involved	Companies, industrial / service sectors, consumers
Value Proposition	<ul style="list-style-type: none"> - Using the market as the main driver for the 'recycling train'. - Develop, design, promote and sell quality recycled products, all of which are innovative, competitive and based on the concepts of a recycled product life cycle. - Achieve industry and urban development based on the circular economy and good use of the industrial fabric and local technologies.
Key partners	Design for all, Xarxa Compra Reciclat, Aclima, Cluster MAV (Cluster de Materials Avancats de Catalunya), ATSSA Safer roads save lives, Cicloplast.
Customer Relationships & channels	Blog, presence on socials and media, Sponsor of the National Bike Summit 2017, participation in no-profit associations.
Economic added value (and effect on green jobs)	10 people working in Zicla. In 2016, 47 recycled products are in the marketplace, and 53 municipalities across six countries are using Zicla products.
Environmental benefits	<ul style="list-style-type: none"> - Almost 1.000 tons of PVC waste from post-consumption and various industrial processes consumed in the period 2009-2015, preventing the emission of 1.830 tons of CO2 eq. into the atmosphere. - The products are 100% made from recycled plastic and are durable and totally recyclable (prevention of waste).
Social benefits	Products aimed to provide safer mobility (cyclist, pedestrian, etc.) and improve accessibility at bus stops.
Awards, mentions	<p>2017 - Zebra planter by Zicla has been selected as a Good Practice 2016 in the International Design for All Foundation Awards 2017.</p> <p>2014 - Participation in 16th European Forum on Eco-innovation and mentioned in the EU report "Waste potential! Towards circular economy in cities".</p> <p>2014 – Good practice in the category for products, services and environments already in use, selected for the International Design for All Awards.</p> <p>2013 – Award in the materials category for Greenrubber at the 7th Government of Catalonia Recycling Design Awards.</p> <p>2011 – Award in the product category for the Vectorial bus platform at the 6th Government of Catalonia Recycling Design Awards.</p> <p>2009 – Environmental Award in recognition of a track record in environmental protection and improvement. Government of Catalonia.</p> <p>2009 – First Prize for the cycle lane separator Zebra, designed by Curro Claret for Zicla, at the 2nd Government of Catalonia Recycling Design Awards.</p>
Information source	Company website

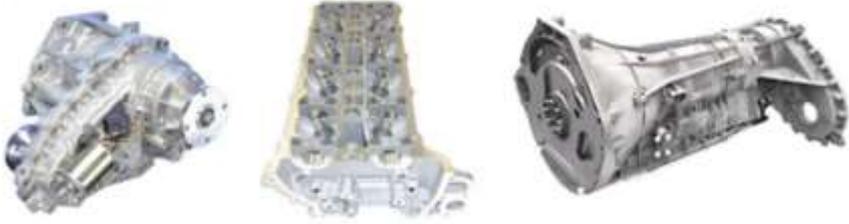
Link to the specific case study	http://www.zicla.com/ http://ec.europa.eu/environment/archives/ecoinnovation2014/1st_forum/pdf/ecoap-16th-report.pdf http://www.stadtentwicklung.berlin.de/internationales_eu/staedte_regionen/download/projekte/eurocities/10bca_barcelona_2014/1_Francesc_Aragall_DfA.pdf
Further information (contact, organization)	Zicla's Head Office c/ Ramon Turró 100-104, 4º-3ª 08005, Barcelona, T. +34 93 224 2731 info@zicla.com

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.9
Name	FATER DIAPER RECYCLING PROJECT
Company	Fater
Sector	Trade
Location	Italy
Type	<input checked="" type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Very high market potential - First example in Italian country - Award for sustainable company
Description of the model	<p>0% discarica - 100% riciclo. Turn baby diapers, hygienic pads and incontinence products to recycled raw material. Used diapers become urban furniture or other items of daily use such as cardboard for industrial packaging and fertilizers. The recycling tech-process, developed based on Fater's Italian patents, generates plastic granules and cellulosic organic matter of high quality completely sterilized thanks to the use of steam that eliminates all pathogens and bad odours. 1 ton of used products will produce 95 kg of plastic and 280 kg of cellulosic organic matter. Pampers manufacturer P&G has established Fater, a joint venture with AHP producer Angelini, to build a pilot plant capable of recycling 8.000 tons of disposable nappies each year.</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input type="checkbox"/> Design <input type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input checked="" type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Baby diapers, hygienic pads and incontinence products
New product output	Urban furniture, cardboard for industrial packaging, fertilizers
Degree of implementation	<input checked="" type="checkbox"/> Early <input type="checkbox"/> Medium <input type="checkbox"/> Mature
Period of implementation	Since 2015
Stakeholders involved	Consumers, municipalities, diapers market

Value Proposition	To increase the sustainability of their products, the firm has designed and implemented a technological process capable of recycling the used absorbent products of all brands. By using vapour under pressure, the products, collected separately, are opened, sterilized and their parts in plastic and cellulose are separated; thus, generating new secondary raw materials. For industrial volumes the process is at the experimentation stage.
Key partners	Pampers manufacturer P&G, a joint venture with AHP producer Angelini, Contarina. Collaboration with Legambiente
Customer Relationships & channels	Advertisement
Economic added value (and effect on green jobs)	Fater has 1.400 employers. The 4% of the revenue(911 million) are invested in R&D. The pilot project at full capacity could reach 400.000 potential users.
Environmental benefits	Expected results of the pilot plant: - New secondary raw material: a ton of used diapers recycled produces almost 150 kg of plastic to be used in new productions (urban furniture, objects, etc.) and more than 350 kg of cellulosic-organic matter to be used for the production of cardboard for industrial packaging or as fertilizer capable to restore nourishing substances to depleted soils. - Raw material recovered: 2.500 ton/year. - Elimination of waste in landfills for the project: -5.000 tons/year considering the recycling process up to the production of new secondary raw material; - 4.600 tons/year conservatively considering also waste arising from subsequent productions that would use the new secondary raw material. - Reduction of greenhouse gases: the diapers' end of "life" turn into carbon negative, in fact not only does it avoids all the greenhouse gas emissions generated by the separate collection but it even leads to a benefit of 17,7 kg of CO ₂ equivalents per ton. CO ₂ saved in the area where the system operates: 1.874 tons/year, equal to the CO ₂ captured annually by over 62.000 trees. - Air Quality: - 17 kg / year of particulate, - 270 kg /year of nitrogen oxides - 230 kg/year of carbon monoxide (compared to the incinerator solution). - Reduction of primary energy: 11.609 MJ/year equivalent to the average electrical consumption of more than 500 families. - Cubic meters of landfill saved for the specific project: 6.500 m ³ /year.
Social benefits	The specific separate collection of diapers subtracts volume and weight to the total residual waste fraction of individual families; for this separate collection, citizens pay a tax depending on the volume. The advantage of being able to choose the diaper with the best performance without compromises for their after-use, which, thanks to the recycling system, turns into an advantage. For municipalities: potential reduction in the costs of delivery to the recycling plant compared to the delivery cost to the landfill.
Awards, mentions	In 2009 Procter & Gamble awarded the Fater production plan with the gold flag award for being the best plant of the world, among P&G factories, for the protection of the health and safety of people and of the environment. Fater spa has been awarded the "green public procurement and sustainable projects" 2011 national prize promoted by the ministry of the economy and finances together with CONSIP and sponsored by the Ministry of the Environment. Fater spa ranked 1st in the rewords 2013 list of the most sustainable companies. In 2010 Fater won the EMAS AWARDS for Italian "Large Companies".
Information source	Company website, Legambiente website, Kyoto club website
Link to the specific case study	http://www.fatergroup.com/ https://www.legambiente.it/aziende/fater https://www.kyotoclub.org/docs/progettoriciclodelpannolino.pdf
Further information (contact, organization)	Fater Spa - Via Alessandro Volta, 10 - 65129 Pescara (IT) T. +39 085 3551111 http://www.fatergroup.com/it/contatti

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.10
Name	CONTINUUM AND INFINEO RECYCLING
Company	Coca Cola Enterprises
Sector	Food and beverage
Location	Great Britain, France
Type	<input checked="" type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Large impact on the market and on the public recycling model - Creation of joint ventures - Commitment to design a 100% made from plants PET bottle - Awarded by Green Business Awards and 2014 Sustainable Bio Awards - Quoted by Ellen MacArthur Foundation
Description of the model	<p>Pioneering recycled-PET joint venture. Coca-Cola Enterprises (CCE) and ECO Plastics studied a model that ensures the use of 30% recycled materials and 6% renewable. 100% of the bottles are recyclable and made in part of plants (PlantBottle Technology). The business model aim at creating recycling joint ventures to improve the capacity for plastics reprocessing in Great Britain and France (Continuum and Infineo). The joint ventures ensure that the increasing demand for recycled PET can be met – enabling manufacturers to have access to more rPET and to use it in their packs.</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input checked="" type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Plastic bottles
New product output	PET bottles

Degree of implementation	<input type="checkbox"/> <i>Early</i> <input checked="" type="checkbox"/> <i>Medium</i> <input type="checkbox"/> <i>Mature</i>
Period of implementation	Since 2012-2013
Stakeholders involved	Recycling operators, bottle manufacturing plants
Value Proposition	<ul style="list-style-type: none"> - Raise the content of recycled material in new products - Target of 100% plant based plastic bottle - Overcome restrictions in the supply of locally available recycled PET
Key partners	Continuum in Great Britain with ECO Plastics, and Infineo in France with APPE about recycling. Technological partners (Virent, Gevo and Avantium) about the plant bottle technology.
Customer Relationships & channels	Awareness campaigns through: London 2012 Olympic and Paralympic Games, Infimeo educational centre that can host visits from schools and high-schools and educate students.
Economic added value (and effect on green jobs)	<ul style="list-style-type: none"> - 12,5 M€ invested in local recycling plants in France and Great Britain, helping the public recycling system which was not so effective. - Thirty new skilled jobs have also been created for the local area as a result of the partnership.
Environmental benefits	<ul style="list-style-type: none"> - Less raw plastic consumption: Continuum produces 25.000 tons of rPET a year – double the amount of food-grade rPET previously produced in Great Britain - The project saves around 33.500 tons of CO2 per year, the equivalent of taking over 15.715 cars off the road. - Continuum has already supplied CCE with enough high quality rPET to include 25% rPET in all its plastic bottles in Great Britain.
Social benefits	- Improving environmental education and behaviour in citizens and scholars.
Awards, mentions	Green Business Awards 2012, 2014 Sustainable Bio Awards (plant bottle technology)
Information source	Company website, Ellen Macarthur Foundation
Link to the specific case study	https://www.ellenmacarthurfoundation.org/case-studies/increasing-post-consumer-plastic-content-in-packaging https://www.cokecce.com/system/file_resources/25/121113_ECO_Plastics_wins_Green_Business_Award_draft2.pdf
Further information (contact, organization)	Coca-Cola European Partners Bakers Road, Uxbridge, UB8 1EZ, United Kingdom, Tel. +44 1895 231313 comms@ccep.com

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.11
Name	AUTOCRAFT DRIVETRAIN SOLUTIONS
Company	Autocraft Drivetrain Solutions
Sector	Automotive
Location	Great Britain
Type	<input checked="" type="checkbox"/> <i>Business Model</i> <input type="checkbox"/> <i>Case study</i> <input checked="" type="checkbox"/> <i>B2B</i> <input type="checkbox"/> <i>B2C</i>
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Large player in the remanufacturing industry - Part of European Remanufacturing Network - Mature business and high impact on raw material
Description of the model	Remanufacturing services on a wide range of engines and components. Autocraft Drivetrain Solutions provide remanufacturing services on a wide range of engines and components for the automotive industry. Autocraft recovers up to 85 percent of the core engine through innovative methods, and works in partnership with OEMs when they design new engines, to design with remanufacturing in mind.
Circular Economy process stage	<input checked="" type="checkbox"/> <i>Raw materials</i> <input type="checkbox"/> <i>Consumption</i> <input checked="" type="checkbox"/> <i>Design</i> <input type="checkbox"/> <i>Collection</i> <input checked="" type="checkbox"/> <i>Production</i> <input checked="" type="checkbox"/> <i>Recycling</i> <input checked="" type="checkbox"/> <i>Distribution</i>
General waste fraction	<input type="checkbox"/> <i>All waste</i> <input type="checkbox"/> <i>Clothes and Textiles</i> <input type="checkbox"/> <i>Paper and cardboard</i> <input type="checkbox"/> <i>Residual waste</i> <input type="checkbox"/> <i>Glass</i> <input type="checkbox"/> <i>Bio-waste</i> <input type="checkbox"/> <i>Light packaging</i> <input type="checkbox"/> <i>All packaging</i> <input type="checkbox"/> <i>Food waste</i> <input type="checkbox"/> <i>Bulky waste</i> <input type="checkbox"/> <i>Goods and furniture</i> <input checked="" type="checkbox"/> <i>Other: Special waste</i>
Waste or sub product input	Iron, steel, aluminium, other engine components
New product output	Remanufactured engine and accessories for motor vehicles 
Degree of implementation	<input type="checkbox"/> <i>Early</i> <input type="checkbox"/> <i>Medium</i> <input checked="" type="checkbox"/> <i>Mature</i>
Period of implementation	Since 1970
Stakeholders involved	OE manufacturers
Value Proposition	Autocraft is considering expanding into other types of product or components as a path for further growth, with the goal to become a GBP 20 million company within 5 years.
Key partners	Autocraft works in partnership with the OEMs when they design new engines with end-of-life “Design for Reman” in mind.
Customer Relationships & channels	Part of European Remanufacturing Network, participation in ReMaTec (the world’s leading remanufacturing trade show).
Economic added value (and effect on green jobs)	The company employs around 160 people. It has recently invested in a £ 1.3m PTWA (Plasma) spraying machine for engine cylinder bores, to replace liners and oversized pistons.

Environmental benefits	<ul style="list-style-type: none"> - The processes salvage approximately 85% of the material from the exchange unit and this is used to build the remanufactured product. - Materials of non-salvageable components are recycled. - Recycled quantities in a year: 350 tons of cast iron, 300 tons of mixed aluminium / iron, 200 tons of mixed engine parts, 60 tons of steel - OE manufacturers are helped in reducing their environmental impact throughout the life of the vehicle.
Social benefits	<ul style="list-style-type: none"> - As energy and raw material costs continue to increase, remanufacturing is delivering greater savings to customers. - High quality materials, long lasting
Awards, mentions	Quoted as a case study by Ellen MacArthur Foundation
Information source	Company website, Ellen MacArthur Foundation
Link to the specific case study	https://www.ellenmacarthurfoundation.org/case-studies/remanufacturing-in-the-automotive-industry http://www.autocraftds.com/what-we-do/engine-remanufacture/
Further information (contact, organization)	Autocraft Drivetrain Solutions Ltd Syston Lane, Belton, Grantham, Lincolnshire NG32 2LY, United Kingdom Phone: +44 (0)1476 581300 Fax: +44 (0)1476 581302 info@autocraftds.com

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.12
Name	ARP SUPPLIERS
Company	ARP Suppliers
Sector	EEE/ Toner cartridges
Location	The Netherlands
Type	<input checked="" type="checkbox"/> <i>Business Model</i> <input type="checkbox"/> <i>Case study</i> <input type="checkbox"/> <i>B2B</i> <input checked="" type="checkbox"/> <i>B2C</i>
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Best practice in Business models Report - European Remanufacturing Network - Strong partners' network
Description of the model	<p>Retrieving toners from toner brokers. An empty laser toner does have some value. Brokers collect these empty laser toners, ARP buys these empty toners and disassemble them. Components that can be reused are cleaned like screws. Key components will be replaced to guarantee quality. Aluminium and iron parts are collected and brought to a metal and iron trader who will recycle the material. Besides this 99% of all the plastics cannot be reused and becomes a waste stream. After cleaning, the toner is assembled, then the toner is filled with ink again and reassembled with the cleaned reused and new components to a cartridge. The cartridge can be bought by the consumer. Toners are recycled maximal two times, this is to guarantee the quality, through the process 80-99% of the original quality can be reached. After two times of reuse the cartridge is disassembled and all components become a waste stream. The cartridges are sold online in Germany, Austria, the Netherlands, France and Belgium. When a new type of toner is launched, it takes two years after the launch of a new toner to build a buffer of toners.</p>
Circular Economy process stage	<input type="checkbox"/> <i>Raw materials</i> <input checked="" type="checkbox"/> <i>Design</i> <input checked="" type="checkbox"/> <i>Production</i> <input checked="" type="checkbox"/> <i>Distribution</i> <input type="checkbox"/> <i>Consumption</i> <input checked="" type="checkbox"/> <i>Collection</i> <input checked="" type="checkbox"/> <i>Recycling</i>
General waste fraction	<input type="checkbox"/> <i>All waste</i> <input type="checkbox"/> <i>Paper and cardboard</i> <input type="checkbox"/> <i>Glass</i> <input type="checkbox"/> <i>Light packaging</i> <input type="checkbox"/> <i>Food waste</i> <input type="checkbox"/> <i>Goods and furniture</i> <input type="checkbox"/> <i>Clothes and Textiles</i> <input type="checkbox"/> <i>Residual waste</i> <input type="checkbox"/> <i>Bio-waste</i> <input type="checkbox"/> <i>All packaging</i> <input type="checkbox"/> <i>Bulky waste</i> <input checked="" type="checkbox"/> <i>Other: Special waste</i>
Waste or sub product input	HP Laser Toner

New product output	Recycled HP Laser Toner
Degree of implementation	<input type="checkbox"/> <i>Early</i> <input type="checkbox"/> <i>Medium</i> <input checked="" type="checkbox"/> <i>Mature</i>
Period of implementation	Since 2000
Stakeholders involved	Public and private consumers
Value Proposition	Excellent prices, high availability and good quality products
Key partners	4IP Solutions, Adobe, APC by Schneider Electric, ASUS, Canon, CISCO, DELL, DYMO, Epson, HP, Hewlett Packard, IGEL Technology, IYYAMA, Lenovo, LG, Microsoft, Netgear, Plantronics, Ricoh, Samsung, Sophos, Toshiba, Vwware
Customer Relationships & channels	<p>Within the private sector, ARP helps both SMEs and large international corporations get the right IT resources (dedicated account representatives, a customisable online platform and our tailored LiveFlow e-procurement solution)</p> <p>ARP also supports public institutions (healthcare, government and education). Public-sector customers are supported directly by ARP's expert public-sector teams, and they also benefit from special prices and conditions.</p>
Economic added value (and effect on green jobs)	Jobs are created at ARP and at the core brokers.
Environmental benefits	<ul style="list-style-type: none"> - Instead of make, take, waste the service life of a cartridge is extended (two times of reuse max) - There are no advanced material recovered in ARP's remanufacturing business
Social benefits	<ul style="list-style-type: none"> - Savings for costumers: with the current business model, remanufactured cartridges can be sold for 60%-80% of the initial price. ARP ensures a guarantee of 4 years.
Awards, mentions	Best practice in European Remanufacturing Network
Information source	Company website, Business models Report - European Remanufacturing Network
Link to the specific case study	https://www.remanufacturing.eu/case-studies/arp-suppliers-toner-cartridges/ https://www.arp.nl/en/
Further information (contact, organization)	<p>ARP suppliers</p> <p>Phone: +31- 043-855-0961</p> <p>E-mail: ben.brouns@arp.com</p>

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.13
Name	LAVAZZA COMPOSTABLE CAPSULE
Company	Lavazza
Sector	Food and beverage
Location	Italy
Type	<input checked="" type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input type="checkbox"/> B2B <input checked="" type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - High impact/visibility on the market - Innovation - Selected as a best practice during the exhibition "Ecomondo 2015"
Description of the model	<p>A compostable capsule espresso 100% Italian made of Mater-Bi. A small product that will radically change the way of production and consumption, embodying the values of circular economy and the bio-economy. The product will be made of Mater Bi 3G (the third generation of bioplastics, Novamont) and will contain two Arabica blends certified by the NGO Rainforest Alliance. The capsule, once consumed, can be harvested with wet waste and started to industrial composting where, along with coffee, becomes compost, or fertilizer natural to the soil.</p>
Circular Economy process stage	<input type="checkbox"/> Raw materials <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input checked="" type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input checked="" type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Bio-waste, Food waste
New product output	Mater-bi coffee capsule
Degree of implementation	<input checked="" type="checkbox"/> Early <input type="checkbox"/> Medium <input type="checkbox"/> Mature

Period of implementation	Since 2016
Stakeholders involved	Consumers
Value Proposition	Make possible the complete organic recycling of the post-consumers coffee
Key partners	Key partner: Novamont. For educational purpose: Politecnico di Torino, Slow Food e Pollenzo University. Partners of Shamengo (a non-governmental organization with the mission: to make the world a better place).
Customer Relationships & channels	Ecological capsules entered the market starting from e-commerce and then big retails and supermarket. Lavazza participated in "Fà la cosa giusta" and "Ecomondo" most important Italian exhibitions on environmental good practice and waste, and in Expo Milano 2015, educational centre installed at Cascina Cuccagna Milano. Marketing and press release.
Economic added value (and effect on green jobs)	- EUR 14 million invested for "sustainability" since 2015
Environmental benefits	<ul style="list-style-type: none"> - Waste prevention through the separate collection of bio-waste - Diversion from landfill for composting - Mater-Bi 3G makes use of plant and traceable substances, reduces CO2 emissions and has a higher rate of renewability to 50% - Arabica blends certified by the NGO Rainforest Alliance 
Social benefits	<ul style="list-style-type: none"> - Opportunity for the consumers to live every day the potential of the bio-economy - Educational perspective (incentive for separate collection of bio-waste)
Awards, mentions	Selected among the best in the category 'Waste and Resources' Sustainable Development Award 2015 sponsored by the Foundation for Sustainable Development and Ecomondo - Rimini Fiera. Presence of Lavazza and Novamont at Cop21, the International Conference on Climate Change of the United Nations in Paris.
Information source	Company website, Novamont Website
Link to the specific case study	http://www.lavazza.it/it/passione_caffe/iltempodiuncaffe/capsula-compostabile/ http://www.novamont.com/leggi_press.php?id_press=55 http://www.ilsole24ore.com/art/food/2016-10-28/caffe-nasce-capsula-green-lavazza-e-novamont-stesso-aroma-e-zero-sprechi-130540.shtml?uuid=ADomJCIB
Further information (contact, organization)	Davide Asinelli d.asinelli@lavazza.it Francesca De Sanctis francesca.desanctis@novamont.com

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.14
Name	ENHANCED LANDFILL MINING
Company	Group Machiels
Sector	Mining industry
Location	Belgium
Type	<input checked="" type="checkbox"/> <i>Business Model</i> <input type="checkbox"/> <i>Case study</i> <input checked="" type="checkbox"/> <i>B2B</i> <input type="checkbox"/> <i>B2C</i>
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Mentioned as best practice in State of Green Business 2016 - Innovative process with a lot of environmental and social benefits through all the Europe
Description of the model	<p>“Closed circle” landfill mining operation. Enhanced Landfill Mining is a consortium of scientists, academics and companies who aim to convert old landfills into sustainable energy, on the one hand, and reusable raw materials on the other hand. One of the most important ELFM projects is the valorisation of the Remo Milieubeheer landfill site in Houthalen-Helchteren. This site contains more than 15 million tons of waste: 45% of it could be recycled to materials, the remaining waste has a high enough caloric value for use in high-efficient energy generation after pre-treatment. The Closing the Circle project will take about 20 years. In this period all the stored waste will be valorised and the Remo site will be developed into a sustainable nature park.</p> 
Circular Economy process stage	<input type="checkbox"/> <i>Raw materials</i> <input type="checkbox"/> <i>Design</i> <input type="checkbox"/> <i>Production</i> <input type="checkbox"/> <i>Distribution</i> <input type="checkbox"/> <i>Consumption</i> <input checked="" type="checkbox"/> <i>Collection</i> <input checked="" type="checkbox"/> <i>Recycling</i>
General waste fraction	<input checked="" type="checkbox"/> <i>All waste</i> <input type="checkbox"/> <i>Paper and cardboard</i> <input type="checkbox"/> <i>Glass</i> <input type="checkbox"/> <i>Light packaging</i> <input type="checkbox"/> <i>Food waste</i> <input type="checkbox"/> <i>Goods and furniture</i> <input type="checkbox"/> <i>Clothes and Textiles</i> <input type="checkbox"/> <i>Residual waste</i> <input type="checkbox"/> <i>Bio-waste</i> <input type="checkbox"/> <i>All packaging</i> <input type="checkbox"/> <i>Bulky waste</i> <input type="checkbox"/> <i>Other: _____</i>
Waste or sub product input	Landfilled waste
New product output	Recycled products, energy
Degree of implementation	<input type="checkbox"/> <i>Early</i> <input checked="" type="checkbox"/> <i>Medium</i> <input type="checkbox"/> <i>Mature</i>
Period of implementation	Since 2013
Stakeholders involved	Citizens, industry, researchers, institutions

Value Proposition	Through the collaboration with the strategic research partners in the ELFM consortium, Closing the Circle allows Flanders to grow into a Competence Centre for Enhanced Landfill Mining and Enhanced Waste Management, as well as offer worldwide valorisation opportunities. This collaboration comprises technological innovation complemented by new business models and new regulations.
Key partners	KULeuven, VITO and UHasselt
Customer Relationships & channels	Organization of The First Enhanced Landfill Mining Seminar in the European Parliament.
Economic added value (and effect on green jobs)	<ul style="list-style-type: none"> - The project offers employment to hundreds of unskilled and highly-skilled people over a period of 20 years. - The project involves an investment of more than € 230 million.
Environmental benefits	<ul style="list-style-type: none"> - Developing a worldwide competence centre for landfill mining and environmental technology. - Recovery of a sustainable nature park. - The calorific potential of the recycling residue for the generation of green electricity for 200,000 households for 20 years by applying plasma technology. - Effectively and efficiently recycle reusable materials and use them again, 16% directly and 22% after further treatment.
Social benefits	<ul style="list-style-type: none"> - Remo site will be developed into a sustainable nature park with benefits on society. - The project meets the objectives of the Flemish Government in terms of valorisation of old landfill sites and creates a guideline for a Waste to Materials policy in Flanders.
Awards, mentions	Mentioned as a best practice in State of Green Business Report 2016 Report by GreenBiz
Information source	Company website, Waste Management World website
Link to the specific case study	https://waste-management-world.com/a/closing-the-circle-enhanced-landfill-mining http://www.machiels.com/company-detail.aspx?ID=885c55e0-f3b6-4fe6-aa25-1fa7bfc312dd
Further information (contact, organization)	Dr. Peter Tom Jones - Chairman Enhanced Landfill Mining Consortium Peter.Jones@mtm.kuleuven.be T +32 11 28 70 27 contact@machiels.com

CIRCULAR ECONOMY BEST PRACTICE DATA-SHEET	
ID	CE.15
Name	CARTA CRUSCA
Company	Cartiera Favini
Sector	Paper packaging
Location	Belgium
Type	<input type="checkbox"/> Business Model <input checked="" type="checkbox"/> Case study <input checked="" type="checkbox"/> B2B <input type="checkbox"/> B2C
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Suggested by experts - Quoted in reports - Innovative product
Description of the model	<p>CartaCrusca, a new life for the bran. CartaCrusca is the first paper came from the bran no longer usable for human consumption. To achieve this ecological paper, Favini replaces 20% of cellulose from tree with the bran resulting from the grinding of wheat, barley, rye and other grains. Thanks to the processing techniques, Favini is able to rehabilitate bran in a raw material for the production of packaging paper. CartaCrusca is produced in two formats with different weights, in order to satisfy Barilla's requests: 250 g/m2 format is used for cardboard, packages, shopping bags and 100 g/m2 format is used for other printed materials, such as leaflets, blocks, recipe book, etc.</p> 
Circular Economy process stage	<input checked="" type="checkbox"/> Raw materials <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Production <input type="checkbox"/> Distribution <input type="checkbox"/> Consumption <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling
General waste fraction	<input type="checkbox"/> All waste <input checked="" type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Clothes and Textiles <input type="checkbox"/> Residual waste <input checked="" type="checkbox"/> Bio-waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other: _____
Waste or sub product input	Bran
New product output	Paper for packaging
Degree of implementation	<input type="checkbox"/> Early <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Mature
Period of implementation	Since 2013
Stakeholders involved	Business, farmers, consumers

Value Proposition	Promoting the sub-product “bran”, that’s a waste derived from grain milling. Currently bran is sold to feed industries and biogas producers. This market is subject to high price volatility and does not recognize enough value for bran fractions. Furthermore, only a small part of bran is intended for human consumption. There was therefore a need to give more value to this sub-product, entering it into the production cycle and transforming it into new raw material for other production processes.
Key partners	Barilla as key partner for designing and as only customer.
Customer Relationships & channels	Exclusive relationship with Barilla 
Economic added value (and effect on green jobs)	Not available
Environmental benefits	<ul style="list-style-type: none"> - New life to a waste material - Saving cellulose from trees - New recyclable material
Social benefits	Awareness of the final consumers
Awards, mentions	<p>Winner of Packaging Section in <i>Sette Green Award 2014</i></p> <p>Finalist of the 2014 LUXE PACK award</p> <p>Winner of the Packaging Oscar 2015 “Award for innovation”</p> <p>LUXE PACK award in GREEN SHANGHAI 2015</p>
Information source	Company Website, Barilla website, Comieco
Link to the specific case study	http://www.favini.com/gs/carte-grafiche/crush/cartacrusca-case-history/ http://www.comieco.org/le-nostre-prospettive/best-pack/ecoimballaggio/cartacrusca.aspx
Further information (contact, organization)	<p>Favini Srl</p> <p>Via Alcide De Gasperi 26, 36028 Rossano Veneto (VI) Italy</p> <p>Phone +39 0424 547711</p> <p>rossano@favini.com</p>

Annex 5. Best practices data-sheets in Prevention and Awareness Campaigns

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET			
ID	AC.1		
Title	THE REAL NAPPY CAMPAIGN 		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Milton Keys, UK - <i>Period of implementation:</i> 1997-2011 - <i>Current status:</i> Onwards - Emphasis returns solely to education and public information work - <i>Languages:</i> English - <i>Promoter of the campaign:</i> Milton Keynes Council, UK with the support of WRAP 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Great success of the campaign - Long-lasting - High replicability 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other_____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	Target group <input type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input checked="" type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Diapers		
Short description	As a growing town popular with young families, Milton Keynes reduced pressure on local landfills by helping parents make the switch to reusable nappies, through a targeted local information campaign along with cash-back incentives.		

Description	<p>Disposable nappies make up half of the household waste produced by families with a new baby. Each infant will have used on average 4.000 to 6.000 nappies by the age of two and a half, contributing over a tonne of waste to landfill. A guide for parents was created, featuring step by step instructions to simplify the switch to reusable nappies and detailed local information on suppliers as well as laundering services. There are a variety of types of reusable nappies and differences in cost, performance and environmental impact are described in the guide, which also responds to frequently asked questions and dispels common myths. A central element of the real nappy campaign in Milton Keynes is its cash-back incentive scheme. The cash-back incentive scheme is offering families who invest more than £60 in reusable nappies a payment of £35 to £40. The application form is included in the guide and payment is made within two weeks of sending receipts.</p>
Communication tools	<p>Leaflets, posters, newspaper advertising, web page and other promotional activities:</p> <ul style="list-style-type: none"> - Milton Keynes Nappy Show - MK Council Real Nappy Fashion Show - MK Council Real Nappy Leaflet (in-house guide) - Real Nappy Guide (produced by WEN) - Newspaper wrap-a rounds and adverts - Stands at local Baby and Toddler exhibitions - Direct marketing to midwives and ante-natal clinics - Web page on council website - Nappy Information Evenings (to be hold 4 times a year) 
Training tools	<ul style="list-style-type: none"> - Nappy samples for demonstration purposes - Nappy Loan Kits, Nappy Trial Kits and Midwife Demo Kits - Real Nappy Campaign branded wet bags
Other tools developed during the campaign	<p>Many new local incentive schemes were created: some local authorities give to the family a voucher to spend on cloth nappies with specific retailers. Others offer cash back with proof of purchase.</p>
N. of stakeholders involved	<p>8.000 parents per year with children under 2.5 years old (expected)</p>
Rate of participation	<p>Participation is hard to track. Records of how many residents applied for the cash-back incentive:</p> <ul style="list-style-type: none"> - 2004/05: 1 - 2005/06: 184 - 2006/07: 147 - 2007/08: 153 - 2008/09: 96 - 2009/10: 93 - 2010/11: 106 <p>However, there could well be many more parents who have switched to real nappies but unable to track these, for example: parents not applying for the incentive payment, parent outside the Milto Keynes Council boundary, etc.</p>
Key points of success	<ul style="list-style-type: none"> - Promote the use of reusable nappies through a cash back theme - Recruitment of the Real Nappy Development Officer (RNDO) - Duration during the time, even when the incentive scheme was withdrawn, through the use of information, evenings and events - Enthusiastic education of real nappies is promoted by all staff involved with waste reduction education to the public. Part of the staff has also used real nappies on their own children and it is this personal experience which most engages other parents.

Quantitative targets	<p>The calculation below shows the estimated tonnage saving from converting parents from disposable nappies to washable cloth nappies. Usage figure of 1600 nappies per annum and average nappy weight of 200 g taken from a WRAP report on real nappies.</p> <ul style="list-style-type: none"> - 780 babies using 1600 nappies each per year = 1.24 million nappies - 1,25 million nappies x 2.5 years (average time in nappies) = 3.125 million nappies - 3.125 million nappies at 200 g average per nappy = 625 tons waste - 250 tons nappy waste diverted per year (minimum) - 625 tons of nappy waste diverted over the lifetime of the finance
Environmental impact	<p>Between 2004 and 2006, over which time 23.000 nappies were successfully diverted from landfill. Avoided greenhouse gases emissions. A complex LCA study was performed and then updated.</p>
Social economic impact / benefit	<p>Using reusable nappies saves families up to £500 per infant, or more if they are used for subsequent children. Awareness among parents of the environmental impact of disposable nappies grew significantly.</p> <p>Avoided cost for society: Landfill costs £75 per tonne including landfill tax and gate fees. 625 x £75 = £ 46,875 over the lifetime of the scheme where financial incentives were used.</p>
Costs detailed	<p>The main costs for the four phases were:</p> <ul style="list-style-type: none"> - Phase 1) - Initial launch: Officer time only (not quantified) - Phase 2) - WRAP funded: £57.300 comprising: <ul style="list-style-type: none"> · Real Nappy Development Officer - £27.300 · Marketing & Advertising - £23.000 · Real Nappy cash-back - £5.000 · Real Nappy Loan Kits - £2.000 - Phase 3) - Council funded: £10.000 per year comprising: <ul style="list-style-type: none"> · Marketing and advertising - £6.000 · Real Nappy cash-back £4.000 - Phase 4) - Funding withdrawn – 2011 onwards: Officer time only (not quantified)
Monitoring methodology, if any	<p>Monitoring was based entirely around the application of nappy cash-back data. This obviously limits the accuracy of the data as not everybody in Milton Keynes who switched to real nappies will have made a nappy cash-back, and there is no guarantee that everybody who applied for a nappy cashback will have continued using the nappies. Other problems revolve around quantifying waste tonnages and savings as different people change nappies at different rates, and small children all move on to potty training at different times. Some children still wear nappies at age 5 while some can be fully potty trained by age 2.</p> <p>Elsewhere in the UK, the Highland Real Nappy Project (HNRP) has developed a method of monitoring the impact of nappy projects (based on the tonnage conversion toolkit) that takes account of the different levels of usage between those using the project's starter packs and trial kits, based on follow-up surveys with users.</p>
Quality of the information found related to replicability of the campaign	<p>Recommendations have been provided for the replicability of the campaign: impartial, non-selling role of Council staff; dedicated member of staff to promote nappies in the community on an on-going weekly basis; building on local relationships with health professionals, nurseries, baby groups, local ante-natal classes, National Childbirth Trust Charity group, Breastfeeding support networks, etc. To not only circulate posters and guides but to also offer hands-on demonstrations in many varied locations and environments.</p> <p>A nation-wide real nappy promotion also needs to be achieved by the real nappy industry as a whole, to achieve a far higher media-profile and public awareness. It may only need one well-placed media 'Celebrity' to use real nappies on their baby to have a direct and immediate impact on the public.</p>
Information source	<p>PRE-WASTE FACTSHEET N. 82 Waste Prevention Best Practices Factsheets GoReal website</p>
Link to the specific case study	<p>http://www.prewaste.eu/index.php?option=com_k2&view=item&id=378&Itemid=101 http://www.goreal.org.uk/about/</p>

Further information	Sarah.spicer@milton-keynes.gov.uk Christopher.harbottle@milton-keynes.gov.uk Real Nappy Information Service: www.goreal.org.uk
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PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.2		
Title	SCHOOL CANTEENS CONTEST		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Halmstad, Sweden - <i>Period of implementation:</i> 2008-2011 - <i>Current status:</i> Finished - <i>Languages:</i> Swedish, English - <i>Promoter of the campaign:</i> Halmstad municipality 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Quality of explanation - Monitoring and instruments given to schools 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input checked="" type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other_____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	Target group <input type="checkbox"/> Citizen <input checked="" type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Food waste		
Short description	Halmstad schools competition to increase awareness and reduce food waste in school canteens.		
Description	<p>The campaign was aimed to involve both students and canteen staff. The campaign was addressed directly to the students, on site in the canteen, using brochures and posters, and also with a trainer. They involved a local famous football player who promoted the importance of healthy food and prevention of food wastage. He also kindly signed autographs. Staff in school canteens observed that unreasonably large amounts of food were thrown away. They weighted the food waste generated, on a daily basis during three weeks in four occasions at each school (January, May and October 2009 and in November 2010) and they compared these results with the baseline value. During the campaign the results were presented for each school publicly on a daily basis to encourage competition amongst the students of the participating schools. They announced the final results and awarded the winning school with a special lunch party (live music, entertainment etc.).</p>		

Communication tools	Website, posters and brochures
Training tools	Coaching of school staff
Other tools developed during the campaign	None
N. of stakeholders involved	14 schools. 6.850 students and the staff in the canteens
Rate of participation	100%
Key points of success	<p>1. The access to an existing network of an organisation supplying food for school canteens through the Municipal Meal Manager, with its support and dissemination possibilities, proved to be crucial for the outcome of the campaign.</p> <p>2. By engaging the canteen staff, including them in the planning and informing them sufficiently to become spokespersons, they did not consider the extra work to weigh the food as a negative workload but rather as something essential and necessary. Partially, the mere attention on the canteen staff was perceived as something positive, the feeling of participation and contribution were also important factors.</p>
Quantitative targets	Food waste per portion diminished by 5,8 gr (13%). Baseline before the campaign: 44,7 gr/portion served.
Environmental impact	<ul style="list-style-type: none"> - 1 kg of school food is equal to about 1 kg of CO₂, so nearly 7 tons of CO₂ can be saved annually with the given result. - 6.850 students and daily portions; a full school year consists of 173 days. This gives 1.185.050 servings annually and consequently an avoidance of 6.783 kg of food wastage.
Social economic impact / benefit	School meals can be viewed as an investment in public health and improvement of the students' performance. The cost per portion (400 g) is approximately 1€, so approximately 17,18 € were saved annually.
Costs detailed	The initial budget for the 3-year campaign was inferior to 10.000 €.
Monitoring methodology, if any	Surveys to the students (600 replays) and parental verification. Food waste weighting during three weeks in 4 occasions.
Quality of the information found related to replicability of the campaign	The information in general is clear and well developed. The effectiveness of the campaign is evidenced thanks to the monitoring. This campaign could be applied elsewhere thanks to the explanation of the methodology used. The strategy for developing a good campaign is very accurate and detailed. In this campaign the successful results drew media attention, which consequently achieved the local political support.
Information source	Pre waste fact sheet 29
Link to the specific case study	http://www.prewaste.eu/index.php?option=com_k2&view=item&id=323&Itemid=101
Further information	Halmstad municipality direkt@halmstad.se



PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

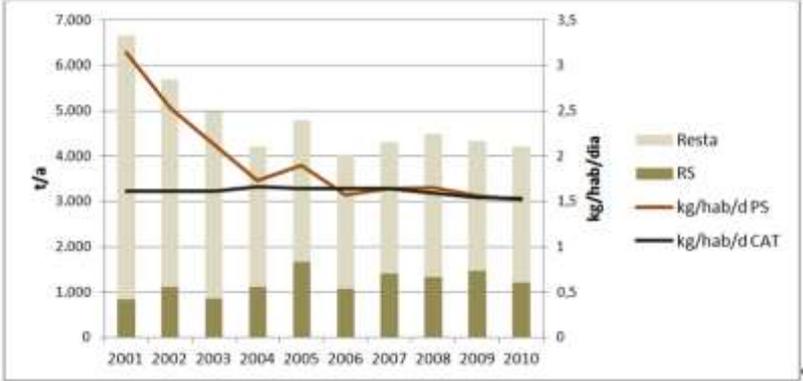
ID	AC.3		
Title	PACKAGING ADVISORY		
Basic data	<ul style="list-style-type: none"> - Location: France - Period of implementation: 2006 - Current status: finished - Languages: French, English - Promoter of the campaign: Eco-Emballages 		
Why it has been identified as a best practice	- Communication materials use		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input checked="" type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	Waste management stage <input type="checkbox"/> Prevention <input checked="" type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input type="checkbox"/> Citizen <input type="checkbox"/> Students <input checked="" type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input checked="" type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Packaging waste		
Short description	Members of Eco-Emballages are supported in their waste minimisation efforts by training and consulting services on efficient packaging design. They were helped also with assessment to redesign existing packaging strategies.		
Description	<p>These services offered engineers and designers, and also SMEs, the opportunity to complete intensive eco-design training, to partner with student engineers and to conduct packaging audits, in order to identify efficient ways to reduce packaging waste. Several services were offered free of charge to EcoEmballages members like an intensive one-day eco-design training session for engineers and designers with a focus on packaging minimisation.</p> <p>Packaging audits for SMEs were conducted in two days, which identify ways to optimise packaging use and minimise waste.</p> <p>Partnerships with students at ESIEC, a French engineering school specialised in packaging, created synergies where the students lead a company project on packaging prevention.</p>		
Communication tools	Website, advertising		

Training tools	Several services are offered free of charge to Eco-Emballages members: <ul style="list-style-type: none"> - Intensive one-day eco-design training sessions for engineers and designers with a focus on packaging minimisation. Courses use simplified life cycle analysis methodology. - Packaging audits for SMEs, conducted in two days, which identify ways to optimise packaging use and minimise waste. These audits are now being expanded to larger businesses.
Other tools developed during the campaign	Partnerships with students at ESIEC, a French engineering school specialised in packaging, wherein the student leads a company project on packaging prevention.
N. of stakeholders involved	In 2015 about 50.000 companies have joined Eco-Emballages
Rate of participation	Not available
Key points of success	Training for companies highlighting their own advantages. Practical help for enterprises.
Quantitative targets	In 2015, 4.500 tons of packaging have been avoided. In the period 2007-2012, 106.000 tons of packaging have been avoided.
Environmental impact	Packaging reduction of 10 to 20% in weight. Packaging audits result in an average 0,4% increase in turnover. The result of eco-design education is harder to quantify, but the integration of waste prevention principles at the design stage has evident long-lasting ramifications for packaging waste in the environment.
Social economic impact / benefit	The result of eco-design education is harder to quantify, but the integration of waste prevention principles at the design stage has evident long-lasting ramifications for packaging waste in the environment.
Costs detailed	Not available
Monitoring methodology, if any	Eco-Emballage publishes yearly an annual report on results of its activities and with quantitative targets on packaging reduction.
Quality of the information found related to replicability of the campaign	The information is underdeveloped to carry out a similar campaign in other companies and locations. The effectiveness of the campaign not because we know little about the developed methodology and results, because it doesn't explain how they have been monitored.
Information source	Promoció de l'oferta i la demanda de productes amb menys envàs i a granel GENCAT
Link to the specific case study	http://residus.gencat.cat/web/.content/home/ambits_dactuacio/prevencio/planificacio_de_la_prevencio/recull_envasos lleugers/EL-V-C_15_Reduccio_embalatges.pdf http://ec.europa.eu/environment/waste/prevention/pdf/Eco_Emballages_Factsheet.pdf
Further information	Eco-Emballages www.ecoemballages.fr Eco-Emballages business services: www.ecoemballages.fr/entreprises/pourquoiadherer

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

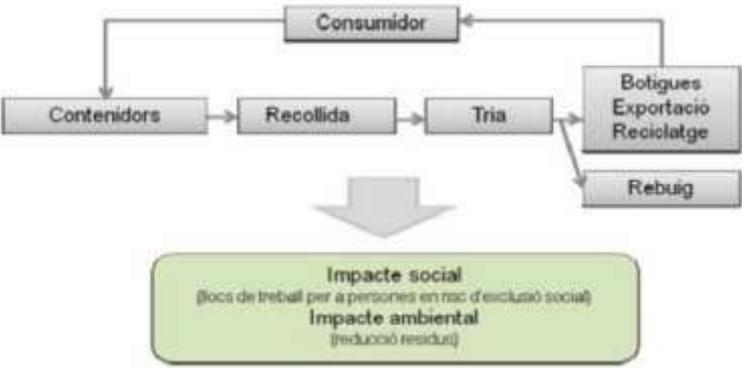
ID	AC.4		
Title	COMMUNITY COMPOSTING IN PALLARS SOBIRÀ		
Basic data	<p>- Location: Pallars Sobirà (Catalonia), Spain</p> <p>- Period of implementation: 2010-present</p> <p>- Current status: onwards</p> <p>- Languages: Catalan, English</p> <p>- Promoter of the campaign: ARC (Waste Agency of Catalonia)</p> 		
Why it has been identified as a best practice	- Monitoring system and availability of data		
Type of campaign	<p>Waste fraction</p> <p><input type="checkbox"/> All waste</p> <p><input type="checkbox"/> Paper and cardboard</p> <p><input type="checkbox"/> Glass</p> <p><input type="checkbox"/> Light packaging</p> <p><input checked="" type="checkbox"/> Food waste</p> <p><input type="checkbox"/> Goods and furniture</p> <p><input type="checkbox"/> Textile</p> <p><input type="checkbox"/> Residual waste</p> <p><input type="checkbox"/> All packaging</p> <p><input type="checkbox"/> Bulky waste</p> <p><input type="checkbox"/> Other_____</p>	<p>Waste management stage</p> <p><input type="checkbox"/> Prevention</p> <p><input type="checkbox"/> Redesign</p> <p><input type="checkbox"/> Reuse</p> <p><input type="checkbox"/> Collection</p> <p><input type="checkbox"/> Recycling</p> <p><input type="checkbox"/> Treatment</p> <p><input checked="" type="checkbox"/> On site treatment</p> <p><input type="checkbox"/> Preparation for reuse</p> <p><input type="checkbox"/> Other_____</p>	<p>Target group</p> <p><input type="checkbox"/> Citizen</p> <p><input type="checkbox"/> Students</p> <p><input type="checkbox"/> SME</p> <p><input type="checkbox"/> Researchers</p> <p><input type="checkbox"/> Associations</p> <p><input type="checkbox"/> Educational Centres</p> <p><input checked="" type="checkbox"/> Domestic Generator</p> <p><input type="checkbox"/> Non Residential Generator</p> <p><input type="checkbox"/> Commercial Generator</p> <p><input type="checkbox"/> Industrial Generator</p> <p><input type="checkbox"/> Waste Collection Operators</p> <p><input type="checkbox"/> Waste Collection Companies</p> <p><input type="checkbox"/> Treatment Plants Operators</p> <p><input type="checkbox"/> Waste Manager</p> <p><input type="checkbox"/> Public Bodies</p>
Waste fraction (detailed level)	Domestic Food waste		
Short description	Community Composting is a pioneering initiative in Catalonia that involves the management of the organic fraction of a village. It involves the cooperation of all residents as they become their own managers. The campaign is aimed specially for villages with less than 100 inhabitants.		

Description	<p>The community composter is situated next to the road containers, the main idea is that the users put their foodwaste inside it directly, as if it was a regular foodwaste container. Regarding the number of inhabitants, they put one or two composters of 800 liters, a bag of dry matter (pruning), an information signal and a pitchfork.</p> <p>For the villages <100 inhabitants the campaign consists on:</p> <ul style="list-style-type: none"> - visits door to door explaining the future collocation of the new composter and the procedure to be followed to compost. Delivery of buckets to separate foodwaste at the kitchen; - installation of the composter; - follow-up once or twice per month to manage the composter, detect errors or doubts in the process and give information when necessary. <p>In some towns with more than 100 inhabitants they started to build a biggest and separated composting centre in the same town, but this strategy ended when they started with the DtD separate collection of foodwaste.</p> 
Communication tools	<p>Informative poster, letter to all residents. Project through a video edited and performed by students of the school. They have posted monthly in the local magazine to disseminate the advantages of composting and on the website of the Regional Council.</p>
Training tools	<ul style="list-style-type: none"> - Campaign door to door with neighbours - Tracking 2 o 3 times per month at the beginning - Environmental education in schools - Composting parties
Other tools developed during the campaign	<p>Composter and a pitchfork. Dry matter. Dedicated bucket with compostable bags.</p>
N. of stakeholders involved	<p>25 towns with less than 100 inhabitants and one village with 203 inhabitants (2012)</p>
Rate of participation	<p>Not available</p>
Key points of success	<ul style="list-style-type: none"> - One dedicated person to monitor and manage the composting process, as well as solving doubts and disseminate results proved to be crucial for the outcome of the campaign - Relevance of including environmental education in the schools and their participation in the composting process

Quantitative targets	<p>25 towns with less than 100 inhabitants. 42 composters have been installed. One village (Llavorsí) with 203 inhabitants installed 5 composters (eliminated when the DtD collection started in 2015). They managed in 2010 10,7 tons of food waste.</p> 
Environmental impact	<p>Effectiveness of 0,88 kg/liter composted in each composter installed. In total estimated a reduction of 26.572 kg, representing an average of 3,48 kg / inhab/ year. Environmental savings because it reduces the waste garbage truck travels so also CO2 emissions.</p>
Social economic impact / benefit	<p>Strong involvement and sensitization of domestic generators</p>
Costs detailed	<p>A trip to the landfill (51 km) of a truck loaded with 22.000 kg, costs 170 €. Annual savings of waste treatment fraction: 2.672 € / year. Data on investment cost not available.</p>
Monitoring methodology, if any	<p>Waste and compost weighting and tracking.</p>
Quality of the information found related to replicability of the campaign	<p>The information in general is clear and well developed. The context of the campaign is very well explained. The strategy for developing a good campaign is very accurate and detailed. With all this information the project can be applicate in other places.</p>
Information source	<p>Potential d'implementació del compostatge casolà i comunitari a Catalunya - Waste Agency Catalunya</p>
Link to the specific case study	<p>http://residus.gencat.cat/web/.content/home/ambits_dactuacio/recollida_selectiva/residus_municipals/materia_organica_form_-_fv/jornades_estudis_i_enllacos/potencial_compostatge_casola_a_catalunya_final.pdf www.calculadoraprevencio.cat</p>
Further information	<p>Urban Ecology Agency of Barcelona http://www.bcnecologia.net/en</p>

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.5		
Title	ROBA AMIGA		
			
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Catalonia, Spain - <i>Period of implementation:</i> 2008-present - <i>Current status:</i> onwards - <i>Languages:</i> Catalan, Spanish - <i>Promoters of the campaign:</i> Catalonia Caixa, AIRS and Caritas 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Large campaign - Durability of the campaign and improvement during the years - Social benefits linked to environmental ones 		
Type of campaign	Waste fraction	Waste management stage	Target group
	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input checked="" type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input checked="" type="checkbox"/> Reuse <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input checked="" type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Clothes, shoes, household linen and other textile		
Short description	Roba Amiga is a project of social rehabilitation, working on recovery of textile and reuse for people with fewer resources.		

Description	<p>Roba Amiga model follows the 3Rs: Reduce, Reuse and Recycle, closing the cycle between the waste and the consumer with clear benefits for environment and society through a model that promotes the inclusion of people at risk of social exclusion, creating new green jobs for them. The collection of clothes, shoes, household linen and other textile waste for revaluation, offers opportunities to reuse in the second hand market and reduces considerably the volume of waste that ends up in landfills or incinerators.</p> 
Communication tools	Website, posters and brochures
Training tools	<p>To sensitize and educate citizens towards the management of used clothing, the cooperative set up an exhibition. The exhibition is accompanied by workshops for children and it is also a point of dissemination activities of the cooperative Roba Amiga.</p> <p>It has presence at fairs, high schools, neighbourhood festivals, congresses, conferences, etc.</p>
Other tools developed during the campaign	More than 1.100 printed containers, geo-localized in the web-site
N. of stakeholders involved	Expected participation of all the inhabitants of Catalonia
Rate of participation	10% of all the inhabitants in Catalonia
Key points of success	<ul style="list-style-type: none"> - As people get to know the campaign, they are eager to participate because of the good perception of the benefits associated to this kind of collection - Transparency is key - They are facing some problems with scavengers that stole the clothes to sell them. They have changed the design of the street containers
Quantitative targets	In 2016 in Catalonia there were 1.642 containers, they collected 8.278.268 Kgs of clothes. 451 municipalities and companies collaborate.
Environmental impact	<ul style="list-style-type: none"> - Recycling and production of fluff for industrial and waste (60%). Of this 60%, 75% can be used decomposing in the "raw materials": cotton (49%), wool (34%) and synthetic fibers (17%) - Exportation to third world countries (36%) - Roba Amiga shops, which sell second-hand clothes with very good quality (4%)
Social economic impact / benefit	<p>Promotes the inclusion of people experiencing or at risk of social exclusion. Currently, the Roba Amiga Cooperative integrates the activity of 5-integration companies which together provide employment to over 200 people, of whom 60% are in the process of insertion. Exportation to developing countries, creates also jobs and strength local economies.</p>
Costs detailed	Not available
Monitoring methodology, if any	<p>Computer program, where they enter all data from collection to selling, such as the origin of the clothes, collected kg, packaging, distribution, delivered for social purposes. They use their own program.</p>
Quality of the information found related to replicability of the campaign	<p>This project is well accepted. Every year they conduct a series of campaigns to maintain the attention of people. Each year more clothes are collected to be reused again. This project is well organized and structured.</p>
Information source	Foment de la reutilització de roba GENCAT (promoting the reuse of clothes)

Link to the specific case study	http://residus.gencat.cat/web/.content/home/ambits_dactuacio/prevencio/planificacio_de_la_prevencio/recull_altres/TE_16_Reutilitzacio_roba.pdf http://www.robaamiga.cat/ca/
Further information	Roba Amiga info@robaamiga.cat

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.6		
Title	REPAIRED BETTER THAN NEW		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Barcelona, Catalonia, Spain - <i>Period of implementation:</i> 2009 - present - <i>Current status:</i> onwards - <i>Languages:</i> Catalan - <i>Promoter of the campaign:</i> AMB (Barcelona metropolitan area) <div style="text-align: center;">  </div>		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Great success of the initiative - Social benefits associated to the environmental ones 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input checked="" type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	Waste management stage <input type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input checked="" type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager <input type="checkbox"/> Public Bodies
Waste fraction (detailed level)	Furnitures, clothes, electronic devices, etc.		
Short description	The campaigns promotes the good maintenance and repairing of devices, better than throw them and buy new ones, through workshops and free counselling help people to fix them by themselves.		
Description	This campaign is developed in the framework of the program "Better than new, 100% old", that aims to promote reuse and repairing in general through raising awareness , promoting repair and second hand shops and second hand markets and webs of exchange and sale. The main actions developed in the campaign are the opening of a dedicated space in the city centre, open daily, where people can go to get advice and use the space and the tools provided for repairing their devices. They also offer to do workshops in all the municipalities of the Metropolitan Area.		

Communication tools	BlogSpot YouTube channel Twitter account	
Training tools	<p>On the website http://www.millorquenou.cat/, it's available the map of the reuse centres, some information about classes on how to repair objects and reparation guidelines on specific types of objects.</p> <p>Also the guideline "Tallers de reparació i botigues de segona mà a l'àrea metropolitana de Barcelona" is available on line at this link: http://www.esplugues.cat/ambits/temes/medi-ambient/guia-millor-que-nou-2015</p>	
Other tools developed during the campaign	<p>The repair centre, located in the centre of Barcelona, is open every day and anyone can go there to consult and use the space and tools provided in the repair of objects. It also offers the option to export workshops and advice to other centres and home requiring it.</p>	
N. of stakeholders involved	<p>All the Barcelona's inhabitants</p>	
Rate of participation	<p>Participation of citizens was very high from the beginning: in May 2009 the centre registered 250 visits per month. In the first year, the centre registered 871 visitors.</p>	
Key points of success	<p>Free service</p>	
Quantitative targets	<p>In the first year, items from visitors was 1.060; WEEE represented 57,5% of the total.</p> <p>The total weight of the objects provided the service has been 3,27 tons of material waste, of which recovered 2,28 t (69,83%).</p>	
Environmental impact	<p>Prolonging the lifespan of products avoids their early replacement by new products. To reduce the depletion of natural resources, it is crucial to maximise the utilization of the precious materials already contained in everyday products. Environmentally, it is optimal to give appliances a second life: by 2050, our level of consumption of minerals, fossil fuels and biomass will reach 140 billion tons, over double the current amount (Source: <i>ZeroWasteEurope</i>).</p>	
Social economic impact / benefit	<p>From economic point of view, finished products have more economic value than the raw materials inside them. By breaking products apart for recycling, this added value is lost. Repair, reuse and remanufacturing maintain, rather than destroy that economic value. Moreover, maintenance and repair services would provide a significant potential for job creation if labour is taxed less and resource consumption more.</p> <p>From social point of view, consumers would have a better choice of after sales service providers at more competitive prices, driving down the cost of repair. Easily repairable goods could also be sold on the second hand market at low prices, especially to low-income groups. Easily repairable products and modular design may also have a marked impact on the EU's consumption patterns while boosting innovation in a rejuvenated market for repair, reuse and repurposing (Source: <i>ZeroWasteEurope</i>).</p>	
Costs detailed	<p>Not available</p>	

Monitoring methodology, if any	Not available
Quality of the information found related to replicability of the campaign	To not only circulate posters and guides but to also offer hands-on demonstrations in many varied locations and environments.
Information source	Promoció de la reparació de béns i productes Report, Agència de residus de Catalunya
Link to the specific case study	http://residus.gencat.cat/web/.content/home/ambits_dactuacio/prevencio/planificacio_de_la_prevencio/recull_altres/VL_18_3_Reparacio_bens_i_productes.pdf www.calculadoraprevencio.cat
Further information	http://reparatmillorquenou.blogspot.it/ http://www.millorquenou.cat/ millorquenou@amb.catt

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.7		
Title	  <p>Reparatur- und Service-Zentrum R.U.S.Z. <small>Litkeowgasse 12-14, 1140 Wien • Tel +43 1 982 16 47 • office@rusz.at</small></p>		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Vienna, Austria - <i>Period of implementation:</i> 1998-present - <i>Current status:</i> onwards - <i>Languages:</i> German, English - <i>Promoters of the campaign:</i> R.U.S.Z., RepaNet and the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Pioneering initiative, durability during the time - Awards for its social and ecological commitment (environmental award of the City of Vienna in 2013, the ENERGY GLOBE Award 2007, the Climate Protection Award 2009 and the first place in "Ideas against Poverty" 2009) 		
Type of campaign	<p>Waste fraction</p> <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input checked="" type="checkbox"/> Other	<p>Waste management stage</p> <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input checked="" type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	<p>Target group</p> <input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Electronic waste		
Short description	Encourage the repair of electrical and electronic appliances with a guide and creation of repair centres.		
Description	<p>The initiative started with the creation of an R.U.S.Z. (Reparatur und Service Zentrum – Repair and Service Center), where jobless people were trained to repair goods at affordable prices and disassemble electronic equipment when repairing is not possible in order to separate hazardous and non-hazardous waste. Items most commonly repaired are electronic and electrical household devices. After the success of this centre, others were created.</p> <p>The main fields of activity are: repair service of household electronic and entertainment devices (70%), production and sale of 2nd life devices (20%), other projects (10%).</p>		

Communication tools	Three-year media campaign in which brochures, leaflets and vouchers were widely distributed in Vienna and surroundings. The initiative is promoted on the TV, radio and print media. In lectures at universities, or excursions/site visits, students are informed about sustainable consumption and production.
Training tools	Jobless people are trained to repair goods. The main centre has 1.800 m ² fully equipped for mechanical and electrical engineers, and a huge spare part depot.
Other tools developed during the campaign	REPAIR CAFE "SCHRAUBE14": meeting point, info point and cultural centre for residents and entrepreneurs. RUSZ takes up this idea from repair cafes of The Netherlands, Belgium, France and Germany to further obviate the planned obsolescence of electrical and electronic devices. 
N. of stakeholders involved	Potentially all inhabitants of Vienna are involved. On average RUSZ has 14.000 customers/year.
Rate of participation	0,82% of the Vienna's population (1.700.000 inhabitants)
Key points of success	<ul style="list-style-type: none"> - Positive echo in the media, importance of using the press and other means of marketing and communication - Importance of political backing and City Administration - Cooperation with universities - Importance of being well networked - Cooperation with unions - Keep in touch with researchers - Partnership and win-win cooperation between partners
Quantitative targets	6.000 customers per year in the first RUSZ (all private consumers and owners of electrical/ electronic equipment, municipalities). An additional 8.000 customers a year are served by the rest of the centres.
Environmental impact	R.U.S.Z. has prevented more than 10.000 tons of waste from electrical and electronic equipment (WEEE) since 1998. On average you can save 5 times the appliance's weight in CO ₂ . The research and development unit of R.U.S.Z. developed a technical method for reducing the water and energy consumption of older washing machines by 20%.
Social economic impact / benefit	It can be estimated that the average household can save about € 75/appliance. The lifetime of electric equipment is extended by 25%. R.U.S.Z. enabled 300 former long-term unemployed and disabled people to find regular jobs and stabilized another 400 people at risk (employs only the long-term unemployed and disabled on an unlimited basis.) 
Costs detailed	R.U.S.Z. (and D.R.Z) was/were funded with € 35.000, per transitory work place per year on average (which amounted to a total of about € 3 million in 2007).
Monitoring methodology, if any	Number of repaired/upgraded products and appliances sold.
Quality of the information found related to replicability of the campaign	The information in general is clear and well developed. A mature and extended part of recommendations and lessons learnt is given. RUSZ publishes yearly, on its website, a report about activities and results.
Information source	Pre waste fact sheet 10
Link to the specific case study	http://www.prewaste.eu/index.php?option=com_k2&view=item&id=272&Itemid=101 http://rusz.at/
Further information	Repair and service centre RUSZ office@rusz.at

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.8		
Title	SPARKLING WATER FROM PUBLIC FOUNTAINS		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Several municipalities in Umbria Region, Italy - <i>Period of implementation:</i> 2009 - <i>Current status:</i> onwards - <i>Languages:</i> Italian - <i>Promoters of the campaign:</i> Umbra Acque S.p.A, Umbria Region, municipalities 		
Why it has been identified as a best practice	- Pioneering campaign which replicated in a large number of Italian municipalities		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input checked="" type="checkbox"/> Glass <input checked="" type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other_____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	Target group <input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Plastic packaging and glass bottle		
Short description	Tap water of town waterworks from municipal dispenser. Town dwellers can get supplies of deputed drinking-water coming from the waterworks, avoiding the purchase of water bottles.		



Description	The experience consists of the installation of public fountains of either still and sparkling water from which the town dwellers can get supplies of depurated drinking-water coming from the town waterworks. The first two fountains have been opened in Foligno and Spoleto municipalities on May 2009. Public fountains have been installed in about 30 municipalities in the Umbria Region. They operate through a complex system of depuration filters, carbon and UV rays to improve organoleptic qualities, for 5 cents/euro per 1,5 litres. Each dispenser has an information panel showing the average chemical and physical parameters in water distribution. Water can also be refrigerated. The fountains are usually installed in strategic urban places, easily accessible by the public. They work from 7 to 23.
Communication tools	Each fountain is provided of informative panels. Each municipality is responsible for communication toward citizens. Local (web)newspaper spread the news about the new installations.
	
Training tools	There is no need of specific training: the use of the fountain is very simple and immediate for citizens.
Other tools developed during the campaign	None
N. of stakeholders involved	About 500.000 citizens of 40 Municipalities are served by Umbra Acque
Rate of participation	Not available
Key points of success	<ul style="list-style-type: none"> - The public fountain model is suitable to be transferred to other towns, either of small and large size - The investment for the public administration is quite modest and the environmental and social impact is very positive - In Italy there are at least 400 public fountains, mainly located in northern and central regions
Quantitative targets	40 fountains now installed. From 2011 to 31/10/2013, 18.089.903 litres were provided from public fountains.
Environmental impact	Water provided from the beginning allowed avoiding the purchase of 12.059.935 bottles, for a total weight of plastic 482.397 Kg, with further savings for avoided disposal costs. Reduction of CO2 emissions of 1.604 ton CO2. Other benefits are due to the avoided transport.
Social economic impact / benefit	Public fountain has a symbolic value upon global consumer culture as since antiquity fountains have played a very important social function and acted as a powerful attraction point, being places of confluence and socialization. Public water is safe and monitored, even more than bottled water and is much cheaper.
Costs detailed	Umbria Region with Umbra Acque gives funds to municipalities for the installation of the fountains: about 15.000 € for each fountain. No other cost details are available.
Monitoring methodology, if any	Umbra Acque has the management of the waterworks, so is able to monitor the amount of water provided to citizens and the number of fountains installed. The monitoring is not publicly available.

Quality of the information found related to replicability of the campaign	The public fountain model is suitable to be transferred to other towns, either of small and large size.
Information source	ZeroWaste, GUIDE GREEN SOLUTIONS FOR WASTE FOR & FROM PUBLIC ADMINISTRATIONS, 2014 Umbra Acque website
Link to the specific case study	http://www.zerowastepro.eu/uploads/Green%20Solutions%20Guide%20ZEROWASTEPro.pdf http://www.umbraacque.com/progetto-fontanelle
Further information	Umbra acque info@umbraacque.com www.regione.umbria.it

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.9		
Title	NO-ADVERTISEMENT STICKER WITH LEGAL BACKING IN BRUSSELS		
			
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Belgium, Brussels Capital Region - <i>Period of implementation:</i> 1998-present - <i>Current status:</i> onwards - <i>Languages:</i> French, Dutch, English - <i>Promoter of the campaign:</i> Brussels Environment (IBGE) 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Impact avoided - Quality of explanation - Duration during the time - Quality and amount of data 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input checked="" type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager <input type="checkbox"/> Public Bodies
Waste fraction (detailed level)	Paper unaddressed advertisement, commercial catalogues, unaddressed free newspaper		
Short description	Stop pub / stop reclame stickers to avoid waste of paper		

Description	<p>Since 1999, a sticker is available for the mailbox of Brussels residents by which they can choose not to receive unaddressed advertisements and/or free newspapers.</p> <p>The sticker received legal backing through a regional decree, which entitles individuals to file a complaint if they receive unwanted advertising and/or newspapers in their mailbox despite having placed the sticker.</p> <p>At present, the sticker can be requested for free by phone or email from Brussels Environment. A complaint can easily be filed by completing an online form or sending a letter to Brussels Environment.</p>
Communication tools	<p>Between mid-2009 and mid-2010 alone, some 43.000 explanatory folders and 86.000 stickers were distributed; 63 displays to present the stickers in libraries, cultural centres, toy libraries and town halls were distributed; a total of 787.471 stickers were distributed from 1999 to June 2010.</p> <p>Besides the information permanently available on the Brussels Environment website, news items have been posted on the website and on a Facebook page; a short video sequence promoting the use of the sticker as well as other paper waste prevention actions was shown on a local TV channel and another such sequence posted online.</p> <p>A press release was distributed and targeted letters were sent to community associations, business associations, and homeowner associations of apartment builders to enlist their help to distribute the stickers.</p> <p>The advertising campaign in 2000 included a commercial (30 sec) shown in Brussels cinemas, a radio commercial; TV commercials on local TV (TV Brussel) and a 15-day poster campaign. The most effective proved to be radio and TV commercials.</p> 
Training tools	<p>Intermittently information campaigns towards the general public have been carried out to promote the use of the sticker. This has last been done in 1999 and 2002. After several years during which hardly any promotional activities were carried out and during which the % of mailboxes with stickers remained relatively stable, activities increased again in 2009.</p> <p>Regular mailings are also sent to voluntary information relays to distribute stickers (19 municipalities, 26 libraries and cultural centres, 204 community associations, 3 business associations, 37 house owner associations, schools, etc.).</p>
Other tools developed during the campaign	<p>'Regional Decree of 22 April 1999 (amended on 2004) on the prevention and management of waste from paper and cardboard products introduces a takeback obligation for paper waste. Publishers of free printed unaddressed advertising or newspapers must comply with or enforce the actions of the regional government in order to limit the dissemination of free unaddressed printed materials.</p> <p>"Robinson list" set up at national level as a voluntary initiative by the "Belgian Direct Marketing Association" (www.robinsonlist.be), in which a person could specifically require the advertisement company no longer to contact them for commercial purposes.</p> <p>- In its other communications towards citizens for waste prevention and environmental protection, Brussels Environment recommends the "no advertisement" sticker as one of several actions ("10 conseils pour réduire votre production de déchets" and "Ma maison au quotidien: 100 conseils pour mieux vivre chez soi en respectant l'environnement").</p>
N. of stakeholders involved	<p>19 municipalities and approximately 1 million inhabitants. Potential: 545.308 residences with the target of 45% in the 2010.</p>

Rate of participation	The share of mailboxes with stickers has grown from 11% to 20% between 2003 and 2011. It is estimated that 2,4-5% of mailboxes had such as sticker in 1998.
Key points of success	The sticker received legal backing through a regional decree. Active communication/distribution campaign over the time Involvement of other actors that distribute stickers: municipalities, libraries and culturally centre, community associations, business associations, house owner associations, schools.
Quantitative targets	Forecasted: The maximum potential was estimated 45% in the 2010 waste management and prevention plan. Increasing the number of mailboxes with stickers would thus contribute to the overarching objective to reduce annual domestic paper wastage compared to 2005 by 3 kg/inhabitant by 2013 and by 7 kg/inhabitant (7.000 tons) by 2020, as set in the 2010 waste management and prevention plan. Achieved: A total of 787.471 stickers were distributed from 1999 to June 2010 based on orders and stocks of IBGE. The share of mailboxes with stickers has grown from 11% to 20% between 2003 and 2011. In some municipalities (Etterbeek) it now reaches 34%. In February 2011, mail services counted 110.108 mailboxes with a sticker which represents 20.1%% of 548.997 mailboxes in the Brussels region.
Environmental impact	The real amount of paper waste prevented can only be estimated. When a sticker is placed, the avoided waste stream is estimated at 10 kg per inhabitant per year (75% unaddressed advertisement, 17% commercial catalogues, 8% unaddressed free newspapers). In 2011, it has been estimated 2.000 tons/year of avoided paper waste. By moving from 12% of stickers in 2005 (the base year for the current waste prevention plan) to 20% of stickers in 2011, some additional 800 tons of paper waste are avoided annually (corresponding to 2.320 tons of CO2 equivalents avoided). An indirect side effect, was that companies that distribute advertising or free newspapers discontinued the distribution in certain neighbourhoods where the density of mailboxes with stickers is particularly high as it becomes less cost-effective for them. Side effects of the increased use of stickers could be a witch towards addressed mailing of advertisements and free press in envelopes or under plastic film which is more difficult to recycle. It is not yet entirely clear is this shift is a general market evolution or linked to the increased use of the sticker.
Social economic impact / benefit	Paper waste reduction at source by limiting the distribution of unwanted advertisements and free press may at first glance seem unfavourable for the overall employment and local employment – notably due to fewer jobs in distribution and waste disposal. However, these initiatives have the advantage of improving the effectiveness of resource use and direct marketing by avoiding distributions to inhabitants who are not interested. The resources saved can be used for other expenses, potentially available for other local jobs. Therefore, even in these cases it is possible that the result in terms of jobs is not negative.
Costs detailed	The last major information and distribution campaign in 2002 cost € 12.840,52 TTC, and included advertisement on tramways and buses as well as detached advertising inserts in the press. The initial campaign, which enabled to increase sticker penetration rate from 5% to 12%, involving commercials on the radio/television/cinema on tramways cost 10 000 000 BEF, i.e. about € 250.000. The initial large scale printing, distribution and communication campaigns required higher funding. Currently the annual budget is stable: € 20.000 in 2010 and 2011 (including printing & monitoring actions & targeted distribution) Printing costs of the stickers depend on the quantities ordered: e.g. 0,625 €/sticker and 0,82 €/sticker for 10.000 and 1.000 units respectively. Human resource costs and distribution costs are very low. Currently this initiative is entirely funded by Brussels Capital Region. In the future, it could be financed by the publishers of these advertisements through the Take-back obligation fund.

<p>Monitoring methodology, if any</p>	<p>The number of mailboxes with stickers & total number of mailboxes is quantified by exhaustive counting of the stickers on all the mailboxes in the Brussels region (Source: La Poste) at no additional cost for Brussels Environment.</p> <p>Survey on placement of sticker on mailbox (telephone interviews or face-to-face interviews): claiming that they already placed a sticker or that they are willing to do so.</p> <p>Compliant by inhabitant because of non-observance of the sticker, notified to the companies responsible.</p> <p>Periodical analyses of the constituents of municipal waste to quantify various fractions and their evolution: Every year or every few years a qualitative and/or quantitative analysis of rubbish bags from a large sample of households is carried out during 2 representative weeks.</p> <p>One-shot tailored rubbish bag analysis: comparison between the amount of advertisements and free press found in rubbish bags taking into account whether households have placed a sticker and whether they selected "No advertisement" or "No advertisement and no free press" (Source: consultant). Such an assessment was carried out once when the sticker was introduced. It should ideally be repeated in the future.</p>
<p>Quality of the information found related to replicability of the campaign</p>	<p>Some suggestions to further improvements: Better involvement of municipalities and voluntary relays: systematically distributing the sticker to all households moving into a different home within the Brussels region (130.000 inhabitants/year = about 65.000 households) when they register their new address at the municipality as part of the "Welcome pack".</p> <p>Potentially take a more drastic approach: reverse the rationale of the sticker. That is, unaddressed advertising and free press can only be placed in those letterboxes on which a sticker is placed that explicitly requests advertisements and free press. This future option is considered by the current waste management and prevention plan.</p> <p>Find long-term funding, e.g. finance the costs of the initiative through the take-back obligation fund.</p> <p>Also tackle other paper waste streams such as addressed junk mail, telephone books. Encourage alternate ways of advertising (dematerialisation): the growing place of Information and Communication Technologies (ICT) in the home opens the way for new approaches allowing "all paper" to be avoided by giving priority to electronic media, whether for telephone books or information provided by the written press.</p>
<p>Information source</p>	<p>Prewaste - factsheet 18 Brussels Environment (IBGE) "Etude sur l'évaluation du succès de l'autocollant « Stop Pub »" and website</p>
<p>Link to the specific case study</p>	<p>http://www.prewaste.eu/index.php?option=com_k2&view=item&id=279&Itemid=101 http://www.environnement.brussels/thematiques/dechets-ressources/mes-dechets/refuser-la-publicite</p>
<p>Further information</p>	<p>Joëlle Van Bambeke jva@ibgebim.be</p>

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.10		
Title	ACCOMPANIED PAPER WASTE PREVENTION IN SCHOOLS IN BRUSSELS 		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Belgium, Brussels Capital Region - <i>Period of implementation:</i> 1999 - <i>Current status:</i> closed - <i>Languages:</i> French, Dutch, English - <i>Promoter of the campaign:</i> Brussels Environment (IBGE) 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Quality of explanation - Spread at Regional scale - Lasting effect on children and teachers 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input checked="" type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other_____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	Target group <input type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input checked="" type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Paper		
Short description	Change behaviour of pupils and schools' employees in Brussels, through assistance on paper consumption reduction.		
Description	<p>The goal of the project is to change the behaviour of pupils and the school as a whole to produce less waste. Teachers/Schools who wish to engage a class or the entire school in actions in favour of environmental protection can obtain assistance on paper consumption reduction.</p> <p>To engage in paper waste reduction they can choose the topic the level of commitment that suits them best: Short term assistance (access to free teaching materials (electronic or paper) and equipment (reusable glasses, lunch boxes...) and free training sessions for teachers (on specific topics or general environmental education) or commitment over an entire school year (accompanied turn-key projects for classes and accompanied school challenge).</p>		

Communication tools	Posters, brochures, interactive games, CD, DVD. An entire section of the Brussels Environment website is dedicated to schools (the 3 separate target audiences of the website are individuals, professionals & schools).
Training tools	<p>A participating school is provided by:</p> <ul style="list-style-type: none"> - educational materials - available materials and accompanied projects (“recruitment process”) - assistance during academic year <p>The TURN-KEY (“Clé sur porte”) projects involve 3 to 4 interactive sessions animated by specialised education workers that are organised in one to three classes per school over the course of the school year to improve the behaviour of pupils and teachers. These classes act as information relays for the rest of the school. In subsequent years the teachers should be able to continue implementing similar projects on their own.</p> <p>The SCHOOL CHALLENGE (“Défi”) combines two approaches: on the one hand, children are involved hands-on in the project, carry out a paper audit of the school, implement changes at their level and communicate towards other pupils (bottom-up approach) and management and staff commit themselves and implement changes at their level (top down approach). The same animations and tools as in the turn-key projects are used. On top of that, an Ecoteam with representatives from management, staff (secretariat, cleaning, maintenance, local authorities...) and pupils meets several times during the year with the specialised education worker. The overall commitment and time investment by the school is higher. The management can for instance adapt the school regulation or the way supplies are purchased and used.</p> <div data-bbox="679 920 1295 1368" style="text-align: center;"> </div>
Other tools developed during the campaign	Other topics covered by other school projects include drinking container waste reduction (for primary schools only), and on also food wastage reduction and general waste prevention (for primary and secondary schools) energy and noise.
N. of stakeholders involved	There are about 650 Primary and Secondary Schools in the Brussels Capital Region with some 200.000 pupils (up to 54 participating schools per year).
Rate of participation	For the academic year 2010-11, 19 Brussels primary school classes and one entire school will be accompanied to tackle paper consumption.
Key points of success	<ul style="list-style-type: none"> - Clarity about the desired objective in terms of waste prevention - Involvement of teachers and local actors when developing the actions - Start with pilots and scale up - Reasonable time allowed to achieve objective with interim evaluations and reorientations - Search for the support of the management of the school

Quantitative targets	<p>In its 4th Waste Prevention & Management Plan of 2010, Brussels Environment (IBGE) set a goal to reduce paper waste by 2,5 kg/pupil by 2020.</p> <p>While the effect on waste generation has so far not been fully measured, the results show that there is still a huge waste prevention potential in schools, as well as educational potential for the pupils and their parents.</p> <p>Punctual measurements as a result of a school challenge indicate:</p> <ul style="list-style-type: none"> - a decrease of paper consumption of 35% - a decrease of 25% of informative letters to the parents if only the eldest child receives the letter (instead of both children attending the same school) <p>1 kg of paper avoided = 2,9 kg of CO₂ equivalents avoided Target: 2,5 kg of paper avoided annually per pupil x 200.000 pupils = 500 tons of CO₂ equivalents avoided each year</p>
Environmental impact	<p>Global results on raising awareness (study carried out in 2008):</p> <ul style="list-style-type: none"> - 32% of the pupils gained awareness on the environment at school - 21% of the children talk to their parents about the good practices they learnt <p>A lasting effect on children was observed: a survey revealed that 2 years after a turn-key project the pupils having been in a class that took part knew and implemented twice as many ways to prevent waste compared to pupils who had not been involved. From the key turn projects and challenges, it could be observed that teachers also changed their habits: Less than 50% of the teachers print on both sides before the project, after the project almost all teachers claim to print on both sides, whenever possible. The same percentage change was observed for the use of a draft paper box in class.</p>
Social economic impact / benefit	<p>Local jobs among the non-profit organisations that are contracted to recruit and accompany the schools are supported. Shared projects eliminate social barriers among pupils.</p>
Costs detailed	<p>Direct costs : staff cost: IBGE staff about 0,2 Full Time Equivalent / consultants (hired for 3 year period): about € 1500 per class for a turn-key project and 6000 EUR per school for a school challenge. Examples of costs of teaching materials are:</p> <ul style="list-style-type: none"> - 1.500 colouring books (design & printing) 1.995 € - 1.000 teaching reference guides (drafting, layout, translation, photographs, printing) 11.640 € - 1.000 commitment cards
Monitoring methodology, if any	<ul style="list-style-type: none"> - Progress reports and annual report by external consultants on project implementation; - At least 3 meetings during the school year for follow-up and remediation. - survey among pupils to measure behavioural change carried out by pupils at the beginning and at the end of the project (Source: schools / consultants); - current waste management & prevention practices in schools : survey among 300 teachers and 60 head masters; - survey among 212 head masters; - survey among parents: whether their children have benefited from waste prevention information/projects in school; - waste composition analysis: assessment of the breakdown of waste generated in schools by checking rubbish bins was punctually carried out at pilot scale (20 to 30 schools). <p>Frequency of the monitoring: Behavioural changes are measured by a qualitative survey among pupils taking place at the beginning and at the end of the project in each participating school and even 2 years after its implementation.</p>
Quality of the information found related to replicability of the campaign	<p>Recommendation for better implementations: Ensure separate collection is in place before moving towards prevention.</p> <p>Equipment needed by schools should be purchased by them (possibly with some financial support) so that they feel responsible for it rather than simply giving it for free.</p> <p>Possibly focus also on pre-schools since teachers have greater freedom in the choice of topics tackled and may be more receptive to accompanied projects.</p> <p>Schools expressed preference for a more integrated approach to waste prevention and the three topics (paper/packaging/food) will be integrated in the future into a single waste prevention topic.</p>

Information source	Prewaste - factsheet 22
Link to the specific case study	http://www.prewaste.eu/index.php?option=com_k2&view=item&id=281&Itemid=101
Further information	Brussels Environment – IBGE Roxane KEUNINGS rke@ibgebim.be

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.11		
Title	ECOFESTE PARMA		
			
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Province of Parma, Italy - <i>Period of implementation:</i> 2003-present - <i>Current status:</i> onwards - <i>Languages:</i> Italian - <i>Promoter of the campaign:</i> Waste Observatory of Provincia of Parma, Virtuous Municipalities Association, Parma Municipality Environmental Department, Novamont 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Brand for eco-events - Pioneer initiative in Italy 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input checked="" type="checkbox"/> Paper and cardboard <input checked="" type="checkbox"/> Glass <input checked="" type="checkbox"/> Light packaging <input checked="" type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input checked="" type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input checked="" type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager <input type="checkbox"/> Public Bodies
Waste fraction (detailed level)	Food waste, light packaging, paper and cardboard, glass, cooking oil		
Short description	Promotion of environmental friendly events, acting towards the waste prevention and reduction and separate collection. Certification through the "Ecofeste" brand.		

<p>Description</p>	<p>In 2003, Province of Parma started to certificate environmental friendly events with the "Ecofeste" brand, involving in the initiative through an agreement the Municipalities, Mountain Communities and Waste Management Companies.</p> <p>The Ecofeste brand is given to all initiative ensuring actions towards the waste prevention and reduction and separate collection, which consist for instance in: recycling of plastic, glass, paper, cans, oils of frying, the use of biodegradable or ceramic dinnerware and metal flatware in replacement of disposable plates and plastic cutlery.</p> <p>To obtain the brand, each event must obtain a minimum score with mandatory actions (separate collection of all waste fractions) and voluntary actions (awareness activities for citizens). The final score is used also to calculate the financial contribution to be provided in support of each event.</p> <p>In 2016, through an agreement with Comuni Virtuosi Association and Environmental Department of Parma Municipality with the collaboration of Novamont, has been launched the "ecofeste" certificated brand. The certification will be given to all organizers (private or public) reaching the following requirements:</p> <ul style="list-style-type: none"> - high separate collection rate of paper, cardboard, glass, plastics, cans, frying oil, bio-waste - an event responsible per waste management will be identified and collaborators will be adequately trained - recyclable dishes, cutlery, glasses (ceramic, glass, metal, etc.) or bio-waste and compostable disposable cutlery - reducing packaging - targeted and specific communication actions on separate collection and waste management for the participants <p>Novamont participates providing bioplastic dishes in MATER-BI.</p>
<p>Communication tools</p>	<p>Data about 2004:</p> <ul style="list-style-type: none"> - 2 totems - 100.000 placemats - 10.000 calendars - campaign on daily press <div style="display: flex; justify-content: space-around; align-items: center;">    </div>
<p>Training tools</p>	<p>Waste Observatory of Province of Parma realized guidelines named "Ecoevents, instruction for use", to be spread to each event organizers.</p>
<p>Other tools developed during the campaign</p>	<p>3 ecoevents had entertainment centre on waste</p>
<p>N. of stakeholders involved</p>	<p>In 2004, about 170.000 people participated to Eco-events</p>

Rate of participation	<p>The total amount of event in Province of Parma is 300-400 events for 600 days. The waste production is more or less 500-600 ton/year.</p> <p>In 2003, 30 municipalities (total 47) and 2 regional parks participated for 59 Eco-events were realized.</p> <p>In 2004, 20 municipalities (total 47) and 1 regional park participated for 90 Eco-events were realized with 170.000 participants.</p> <p>In 2005, 30 municipalities (total 47) participated and 130 Eco-events were realized</p> <p>In 2007, 22 municipalities participated and 90 Eco-events were realized.</p>
Key points of success	<ul style="list-style-type: none"> - Strong involvement and commitment from Municipalities, because of very strong tradition on local events in the Province of Parma - Collaboration with waste management companies - Involvement of various supporters of the initiative (e.g. Legambiente, Novamont, etc.) - The action is always under the supervision and control of Parma Province - High visibility and return on image of organizes, municipalities and provinces
Quantitative targets	<p>In 2003: 30 municipalities (total 47) and 2 regional parks, 59 Eco-events</p> <p>In 2005: 30 municipalities (total 47) and 130 Eco-events</p> <p>In 2007: 22 municipalities and 90 Eco-events</p> <p>In 2007, 6 Municipalities substituted completely the disposable cutlery and dishes, purchasing industrial dishwasher.</p> <p>In 2005, the 75% of Ecoevents served wine in returnable jug, 50% of Ecoevents foresaw the reuse of food waste in pet houses.</p> <p>In 2007, 50% of Ecoevents used recyclable dishes and 45% of Ecoevents used recyclable cutlery. 22 events used bio- cutlery and bio-dishes to be collected with bio-waste.</p> <p>84% of Ecoevents served wine in returnable jug and 76% served water in returnable jug. 78% of Ecoevents foresaw the reuse of foodwaste in pet houses or other circuits.</p>
Environmental impact	<p>Thanks to Ecoevents, in many municipalities for the first time bio-waste was collected; the separate collection of bio-waste went from 48% of the Ecoevents (42) in 2004, to 80% of the Ecoevents (72) in 2007.</p> <p>Many Ecoevents separated and collected oil for frying.</p> <p>Many municipalities have started a service for the waste separate collection specific for events.</p> <p>In best practices Ecoevents for each place setting has been estimated the prevention of 0,5 kg of waste.</p>
Social economic impact / benefit	High visibility on participants. Strong role in sensitizing citizens on waste management.
Costs detailed	20.000 €/year for financing Ecofeste initiatives and 5.000 €/years for providing communication tools
Monitoring methodology, if any	Monitoring resulted quite difficult because each event is organized in different municipalities with different implementation characteristic. General monitoring data exist until 2008.
Quality of the information found related to replicability of the campaign	In the web, there is a lot of information about rules of Ecoevents. Less information about single results and monitoring especially after 2008. In any case, the initiative could be easily replied.
Information source	<ul style="list-style-type: none"> - Pratiche di riduzione della produzione dei rifiuti attuate in Italia – Piedmont Region - La banca dati sulle buone pratiche per la sostenibilità ambientale - GELSO ISPRA - Province of Parma slides on the initiative and results - Come ti riduco - Decalogo di buone pratiche finalizzate alla riduzione della produzione di rifiuti, Province of Florence

Link to the specific case study	http://www.sinanet.isprambiente.it/gelso/banca-dati/provincia/provincia-di-parma/ecofeste http://www.regione.piemonte.it/ambiente/rifiuti/dwd/Documenti/pratiche_piano.pdf http://www.comune.parma.it/comune/avvisi-pubblici/Ecofeste-Parma-2016_m1045.aspx http://www.provincia.fi.it/fileadmin/assets/Rifiuti/%5C'Come_tu_Riduco%5C'.pdf http://www.focus.it/ambiente/ecologia/nasce-ecofeste-parma-il-marchio-per-eventi-a-basso-impatto
Further information	Lorenzo Frattini, Assessorato Ambiente Provincia di Parma l.frattini@provincia.parma.it

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.12		
Title	LOVE FOOD HATE WASTE CAMPAIGN IN NORTH LONDON		
			
Basic data	<ul style="list-style-type: none"> - Location: London, UK - Period of implementation: 2009-2010 - Current status: closed - Languages: English - Promoters of the campaign: WRAP / North London Waste Authority 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Large impact - Great success - Extensive advertising - High replicability 		
Type of campaign	Waste fraction	Waste management stage	Target group
	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input checked="" type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other_____	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	<input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input checked="" type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Food waste		
Short description	Awareness campaign to reduce food waste and promote measures that can achieve a real reduction in food waste amongst North London residents.		
Description	<p>The location for the campaign was in 7 North London Boroughs: Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest.</p> <p>The campaign was based upon WRAP research which shows that households could save up to £50 per month by reducing their food waste. The initiatives identified consist of a number of voluntary incentives, awareness raising programmes and educational measures. The campaign involved a variety of activities like food waste roadshows, a recipe competition for residents, Love Food Hate Waste adverts, Involvement of local retailers, etc.</p>		

Communication tools	<p>A media campaign including outdoor advertising, PR and print and electronic media coverage.</p> <p>A new website was created specifically for Love Food Hate Waste North London (www.nlwa.gov.uk/lfhw/).</p> <p>"Love Food Hate Waste" adverts were placed at bus stops. "Love Food Hate Waste" adverts were featured on 30 buses, posters, leaflets, recipes and easy tip cards and wallet cards. Other promotional materials included banners, tea towels, fridge thermometers, food clips, spaghetti measurers and portion mugs.</p> <p>Two interactive games, the Wheel of Food and the Perfect Portions, were produced and the latter was developed specifically for the North London campaign.</p>
Training tools	<p>Food waste adviser training for borough and NLWA officers.</p> <p>Two dedicated Outreach Officers (Love Food Hate Waste Advisers)</p>
Other tools developed during the campaign	<p>Specific pages were developed and maintained on partner websites with links to lovefoodhatewaste.com.</p> <p>Boroughs developed and delivered a series of messages for electronic media, internet pages, message of the day, pop ups etc.</p>
N. of stakeholders involved	The total population of the North London: about 1.675.200 people
Rate of participation	Not available
Key points of success	<p>The campaign as a whole was an effective engagement tool; people could relate to it directly and it was also an excellent conversation starter at events. Not only did it motivate North London residents to change their food waste habits, but it also enabled them to follow best practice examples from their own communities.</p> <p>At roadshows, the props and displays have proven effective in drawing residents to the stand.</p> <p>The community presentations have facilitated valuable communication with a different audience.</p> 
Quantitative targets	<p>More than 3.500 people were directly engaged through the outreach programme.</p> <p>More than 260 events were delivered.</p> <p>Over 90% of the retailers responded positively to the campaign and 57% reported that their customers had shown an interest in the campaign. It is also worth noting that 90% of the retailers would also be open to involving their store in future environmental campaigns. 31.911 people had the opportunity to see the stand.</p>
Environmental impact	<p>Avoided 5.143 tons of food waste in the 12 month period. It is also hoped that it will divert an additional 9.383 tons of food waste by March 2011.</p> <p>Compositional analysis results indicate that there was a decrease by 4,4% in the organic food waste in the residual waste stream, decreasing from 30,31% to 25.89% (considering other possible contributing factors).</p>
Social economic impact / benefit	Working in the partnership enabled the achievement of a number of joint objectives and raised awareness of various issues associated with food waste. All partners contributed towards promoting sustainability whilst encouraging behavioural change, positive action and getting closer to disadvantaged communities.
Costs detailed	Cost of the campaign was £182.000 (about 213.400 €) per year and was funded by the UK Waste and Resources Action Programme. NLWA and the seven constituent boroughs contributed £15.000 (about 17.600 €) in the form of staff time to manage the project.

Monitoring methodology, if any	Outreach Workers monitored the materials distributed. Publicity opportunities were assessed as well as cost effectiveness of the campaign. This is outlined in the report. Qualitative data (mainly questionnaires) were also collected and follow up visits to retailers took place 3 months after the campaign. At the end of each event, the Outreach Workers made an overall assessment of how effective the event had been, bearing in mind factors such as weather and timings in case these influenced attendance figures.
Quality of the information found related to replicability of the campaign	Lot of materials have been produced and are available on LoveFoodHateWaste website. The campaign was repeated for the West London in 2012-2013. More info: http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf
Information source	Pre-waste factsheet 4
Link to the specific case study	http://www.prewaste.eu/index.php?option=com_k2&view=item&id=274&Itemid=101
Further information	North London Waste Authority Dimitra.Rappou@NLWA.gov.uk

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.13		
Title	FUND BY CARBON TAX ON PACKAGING 		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> The Netherlands - <i>Period of implementation:</i> 2007-2013 - <i>Current status:</i> finished - <i>Languages:</i> Dutch, English - <i>Promoter of the campaign:</i> Dutch Ministry of Housing, Special Planning and the Environment 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Great success of the initiative at worldwide level 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input checked="" type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input type="checkbox"/> Other _____	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input checked="" type="checkbox"/> Citizen <input checked="" type="checkbox"/> Students <input checked="" type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input checked="" type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Plastic packaging		
Short description	Carbon tax on packaging used to start a fund to help reduce waste and increase the rate of recycling in the country.		

Description	<p>The carbon tax on packaging is the first of its kind in Europe and has been used primarily to start a fund to help reduce waste and increase the rate of recycling in the country.</p> <p>The packaging tax has been paid by producers/suppliers of products packed in plastics (levied by weight). The tax revenues were partly earmarked for waste separation and prevention of litter.</p> <p>Producers/suppliers are responsible for the collection of the plastic material after consumption of the product (producer responsibility).</p> <p>The municipalities have a crucial role in the collection and separation of plastics from regular household waste and transfer of the separated plastics to recycling installations. Municipalities were compensated for that from packaging tax revenues. Thanks to the tax revenues a lot of communication tools have been developed during the time in order to sensitize citizens.</p>
Communication tools	<ul style="list-style-type: none"> - Teaser campaign - Prime time radio/TV commercials - Advertisements in newspapers/magazines - Communication via municipalities - Online games - TV shows (especially for children) - Education for children
Training tools	Unknown
Other tools developed during the campaign	Financial tool: carbon-based packaging tax
N. of stakeholders involved	16,7 million inhabitants, 380 ca municipalities involved in awareness campaigns payed by the fund
Rate of participation	100% of packaging producers/suppliers of products packed in plastics
Key points of success	<ul style="list-style-type: none"> - Separate collection of all plastic packaging, to meet the target of 42% - Experiment with “post separation” from MSW (7,5% of households) - Legal obligation for municipalities to participate before January 2010 - Large campaign (TV, newspapers, magazines, bus stops, motorway commercials, municipal communication) - Sorting instructions and close cooperation between institutions and enterprises
Quantitative targets	<p>From 24% recycling in 2006 to 42% recycling in 2012, an increase of 75% in 6 years From 3% country coverage (2007) to 96% coverage (2011)</p> 
Environmental impact	<p>High quality sorting and recycling: Reuse of secondary materials -> PET, PP, PE: packaging and high end products and Mixed plastics: both high end and low end products.</p> <p>Recycling of all plastic packaging contributes to:</p> <ul style="list-style-type: none"> - More than 75% production of secondary resources (partly closed loop) - CO₂: emissions reduction with 0,84 kg CO₂eq per kg collected, compared to the present Waste to Energy practice in the NL <p>Options for improvement:</p> <ul style="list-style-type: none"> - energy efficiency: transport, sorting and especially recycling - net costs of the overall process

Social economic impact / benefit	Consumer panel is very positive (from survey)
Costs detailed	<p>The tax is based on a calculation of CO2 emissions from the production of each kilogram of packaging material. The eight materials included in the tax, in order from lowest cost to highest are: wood, glass, paper & corrugated, other materials, miscellaneous metals, biodegradable, plastic, aluminium. The tax has generated revenues for € 365 Million of which €2 50 Million National Treasury and €115 Million Waste Fund (estimated and effective). Costs: one of the most cost efficient systems in EU.</p> <p>In terms of dynamic efficiency effects, there are indications that the process of collection and separation has become more efficient (e.g. reduction in compensation for municipalities from € 475/ton plastic in 2009 to € 430 in 2013).</p>
Monitoring methodology, if any	<p>Business Monitor in November 2011: survey for 1,000 persons in areas with separate collection.</p> <p>Monitoring and accounting for recycling (municipal and B2B packaging waste):</p> <ul style="list-style-type: none"> - 419 municipality reports, 90 audits per year - Packaging waste certification guideline for waste management companies - Reporting to the government
Quality of the information found related to replicability of the campaign	<p>The quality of information is high, even if some documents are available in Dutch. An English detailed report on how the tax has been calculated is available on line (http://www.ce.nl/?go=home.downloadPub&id=604&file=07_8545_30e.pdf)</p>
Information source	Waste Prevention Best Practice datasheet
Link to the specific case study	<p>http://ec.europa.eu/environment/waste/prevention/pdf/Netherlands_Factsheet.pdf</p> <p>http://www.fao.org/fileadmin/user_upload/nr/sustainability_pathways/docs/paul_christiaens_nedvang.pdf</p> <p>http://apraise.org/sites/default/files/netherlands_and_germany.pdf</p> <p>http://rsta.royalsocietypublishing.org/content/371/1986/20110570</p>
Further information	<p>Dutch Ministry of Housing, Special Planning and the Environment</p> <p>http://international.vrom.nl</p>

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.14		
Title	LET'S CLEAN UP EUROPE! 		
Basic data	<ul style="list-style-type: none"> - <i>Location:</i> Europe - <i>Period of implementation:</i> 2013 - <i>Current status:</i> onwards - <i>Languages:</i> French, Spanish, English, Italian, Hungarian, Dutch, Catalan - <i>Promoter of the campaign:</i> AICA, the International Association for Environmental Communication 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Great success of the initiative - Strong environmental impact - Spread at European level - High replicability 		
Type of campaign	Waste fraction	Waste management stage	Target group
	<input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input type="checkbox"/> Reuse <input checked="" type="checkbox"/> Collection <input type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other_____	<input checked="" type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input checked="" type="checkbox"/> Associations <input checked="" type="checkbox"/> Educational Centres <input checked="" type="checkbox"/> Domestic Generator <input checked="" type="checkbox"/> Non Residential Generator <input checked="" type="checkbox"/> Commercial Generator <input checked="" type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Littering		
Short description	Clean-up initiative to fight against the littering. The primary causes of littering are unsustainable production and consumption patterns, poor waste management strategies and a lack of awareness of citizens.		

<p>Description</p>	<p>This clean-up initiative brings all the players together (Legambiente, Surfrider Foundation, Let's Do It! World and the members of the Clean Europe Network, etc.) to organize clean-up activities concentrated in a single day (or weekend) all over Europe, to boost visibility and enhance the overall effectiveness in terms of waste collected.</p> <p>LCUE initiative starts in 2013 during the EWWR 2013 edition. In particular, the best practice refers to LCUE 2016 that ran from the 1 to the 15 of May 2016, with a focus and an invitation to concentrate actions, where possible, on the weekend from 6 to 8 May 2016.</p>
<p>Communication tools</p>	<p>The communication tools provided by AICA were both digital tools and physical objects in the form of gadgets and a LCUE flag.</p> <ul style="list-style-type: none"> - Digital tools available for free download on letscleanupeurope.eu. Along with hints and tips on the right column of the website, it featured a European map of LCUE actions, the list of LCUE Coordinators, recordings of webinar trainings, a web banner and email signature available for download to help disseminating the event and participation in it. - Tools available on LCUE website: Webinar training (recordings and presentations), Map of actions, LCUE logo, LCUE badge, LCUE flag, Twitter cover, Facebook cover, Social media small cover, LCUE web banner, LCUE banner with phrase, LCUE poster, 60x160, printable, PT & LCUE Poster Brussels, LCUE poster, 70x100, printable, LCUE poster "We're taking part here!", 70x100, printable, LCUE Signatures - Other tools created: Social Networks profiles (Facebook and Twitter), YouTube Playlist of LCUE actions (constant update), 3 infographics sent to the Coordinators before LCUE 2016 and disseminated through Social Networks, a post-event infographic with definitive results was also produced and disseminated. - Gadgets: A.I.C.A. realized and shipped to Coordinators: Small portable containers (used as 7. - Dissemination: Media coverage: Drafting and releasing of two international press releases; On-line articles: ashtrays for cigarette butts, chewing-gum and to "store" small trash on-the-go), Light water flask, LCUE flag; Social media (Facebook, Twitter, etc.) <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
<p>Training tools</p>	<p>In order to help all the coordinators, A.I.C.A. developed some useful tools, such as a Methodology factsheet available online, containing a to-do list on how to organize a clean-up activity. In addition to this, coordinators were provided with communication tools (printable posters, web banner, email signature, infographics, flags and others to be shared with action developers and displayed during clean-ups). Coordinators could refer to the webinar training hold on-line in 2015.</p> <p>Action Developers -belonging to any of the following categories: citizens, associations, schools, business, public administrations and others- were provided with LCUE logo and other methodology and communication tools for free download, a methodology for Action Developers and Coordinators prepared in 2015, a factsheet provides a common methodology to successfully implement a clean-up initiative, including a "to-do-list" before and during the action. It is also a useful tool to be used beyond the LCUE initiative as it contains interesting organizational and practical tips on awareness raising about littering and excessive waste generation.</p>

Other tools developed during the campaign	In Italy, A.I.C.A. organized a central event: "Keep Clean and Run"2016 (Pulisci e Corri), an eco-trail that covered 350 km, in 3 regions of Italy, in an awareness-raising itinerary: it was a challenge of two runners who, while running an average of 50 km a day, picked up litter found in nature. Each stage ended with public meetings intended to raise awareness among citizens of the municipality in which runners stopped. This attracted the attention of media and gave the opportunity to involve several stakeholders: local authorities, associations of volunteers, passionate about sport, environment and a broader general public of citizens.
N. of stakeholders involved	Potentially involved all the citizens of the member states of the European Union.
Rate of participation	In 2013: 2.295 participants - effective In 2014: 400.000 participants - estimated In 2015: 538.514 participants - effective In 2016: 472.177 participants - effective
Key points of success	Reunion, under the LCUE flag, of events from different organizations and established traditions, in order to give even greater visibility to those clean-up actions already present in the territory, leaving all of the existing initiatives with their logos and names.
Quantitative targets	Expected results of LCUE in the scope of the project are: <ul style="list-style-type: none"> - the establishment of a coordination of the European Clean Up Day at a pan-European level; - the provision of methodology and communication tools for organizing the event; - at least 50 actions realized in ECUD 2016 in the whole area of the four partners territories (of which 20 in Italy, 10 in Catalonia, 5 in Brussels Region and 15 in Hungary); - participation of at least 3.650 volunteers involved directly in the ECUD 2016 actions; - collection of at least 15 tons of waste during ECUD 2016 actions in the whole area of the four partners territories (Italy, Catalonia, Brussels Region, Hungary). Results (2016): 5.982 clean-up actions, 472.177 participants involved and over 6.000 tons of waste collected during LCUE actions in May 2016. Expected results have been attained: methodology and communication tools for the event were provided; the number of actions, the number of participants and the amount of waste collected during LCUE 2016 actions were largely exceeded. The number of actions increased by 70% (from 3.383 actions in 2015 to 5.801 in 2016) as well as the amount of waste collected.
Environmental impact	Over 6.000 tons of waste collected during LCUE actions in May 2016.
Social economic impact / benefit	Raising awareness against littering and more civic sense.
Costs detailed	€ 17.000 - 23.000 (£15k – 20k)
Monitoring methodology, if any	Yearly, report on the implementation of the European Clean Up Day. Action developers are in charge of giving feedback on quantitative (number of participants to LCUE action, amount of waste collected) and qualitative data about the action implemented. One of the main objectives of the campaign is gathering data.
Quality of the information found related to replicability of the campaign	High quality of information. Existing tools (webinar, methodology, and other tools) to replicate the action or to participate in the next editions.
Information source	Let's Clean Up Europe Report NeatStreets database
Link to the specific case study	http://www.letscleanupeurope.eu/ http://neatstreets.co/project/lets-clean-europe/ http://www.ewwr.eu/docs/ewwr/Report_Lets_Clean_Up_Europe_2016.pdf
Further information	A.I.C.A. - European Secretariat of LCUE Francesca Davoli francesca.davoli@envi.info

PREVENTION AND AWARENESS CAMPAIGNS BEST PRACTICE DATA-SHEET

ID	AC.15		
Title	HALVING WASTE TO LANDFILL 		
Basic data	<ul style="list-style-type: none"> - Location: United Kingdom - Period of implementation: 2008-2012 - Current status: finished - Languages: English - Promoter of the campaign: WRAP 		
Why it has been identified as a best practice	<ul style="list-style-type: none"> - Win-to-win strategy for businesses - Involvement of a particular sector of waste generators 		
Type of campaign	Waste fraction <input type="checkbox"/> All waste <input type="checkbox"/> Paper and cardboard <input type="checkbox"/> Glass <input type="checkbox"/> Light packaging <input type="checkbox"/> Food waste <input type="checkbox"/> Goods and furniture <input type="checkbox"/> Textile <input type="checkbox"/> Residual waste <input type="checkbox"/> All packaging <input type="checkbox"/> Bulky waste <input checked="" type="checkbox"/> Other	Waste management stage <input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Redesign <input checked="" type="checkbox"/> Reuse <input type="checkbox"/> Collection <input checked="" type="checkbox"/> Recycling <input type="checkbox"/> Treatment <input type="checkbox"/> On site treatment <input type="checkbox"/> Preparation for reuse <input type="checkbox"/> Other _____	Target group <input type="checkbox"/> Citizen <input type="checkbox"/> Students <input type="checkbox"/> SME <input type="checkbox"/> Researchers <input type="checkbox"/> Associations <input type="checkbox"/> Educational Centres <input type="checkbox"/> Domestic Generator <input type="checkbox"/> Non Residential Generator <input type="checkbox"/> Commercial Generator <input checked="" type="checkbox"/> Industrial Generator <input type="checkbox"/> Waste Collection Operators <input type="checkbox"/> Waste Collection Companies <input type="checkbox"/> Treatment Plants Operators <input type="checkbox"/> Waste Manager Public Bodies
Waste fraction (detailed level)	Construction & Demolition Waste		
Short description	Voluntary agreement undertaken by construction companies to adopt good practices in waste reduction, recycling and the use of recycled and recovered materials.		
Description	<p>Supply chain producers and clients can make their own commitments in support of the overall waste reduction target. This voluntary agreement allows businesses to make a public commitment to the UK's Strategy for Sustainable Construction and work towards reducing construction, demolition and excavation waste sent to landfill by 50% by 2012 (in England almost 13 million tons of this waste ends up in landfill without any form of recovery or reuse). By engaging key players in their own organisation and supply chain, signatories define a target for waste reduction, set a baseline to measure against and embed the target within corporate policy. WRAP provides tools and good practice guidance to support implementation of the key actions required by the Commitment and helps turn a corporate target into a real outcome.</p> <p>The model wording covered waste reduction, waste recovery and greater use of recovered materials at all stages of a project: policy, preparation & design, pre-construction & construction, use and post-completion.</p>		

Communication tools	WRAP branding, marketing and support
Training tools	WRAP provides several tools to help construction companies meet their commitment, including: <ul style="list-style-type: none"> - Waste assessment tools - Construction logistics plans - Site waste management plans - Green procurement guides - Guidelines on designing out waste - Cost-benefit analysis and case studies
Other tools developed during the campaign	None
N. of stakeholders involved	Not available
Rate of participation	In 2008: 100 signatories In 2011: 602 signatories In 2012: 808 signatories
Key points of success	<ul style="list-style-type: none"> - Clear and simple message with an iconic target - Aligned with industry needs (focus on cost savings): Signatory companies can achieve: real cost reductions, legal compliance, clear market recognition, clear environmental benefits - Addressing whole supply chain - Suite of guidance and tools available - Strong communications support 
Quantitative targets	In 2008 and 2009, contractors setting baseline performance for waste have reported that their activities across the UK have resulted in 16.9 million tons of CD&E waste. Of this, 73% of arising is recovered with only 4.6 million tons of waste being sent to landfill. In 2009, Waste sent to landfill was cut by 28%.
Environmental impact	Overall impacts: <ul style="list-style-type: none"> - reduction in materials use - waste prevention - durability/reuse/recyclability in refurbishment - lower embodied carbon materials and design - improved water efficiency
Social economic impact / benefit	Raise awareness of environmental issues and provide guidance and training to increase knowledge and share best practice.
Costs detailed	The 67 contractors that have set a reporting baseline (in either 2008 or 2009) have a combined total annual spend of approximately £24bn. When construction spend is taken into account the amount of waste sent to landfill per £ million decreases by 44% – from 178 tons/£ million in 2008 to 100 tons/£ million in 2009.

<p>Monitoring methodology, if any</p>	<p>Signatories were encouraged to register their baseline and targets within WRAP's Waste to Landfill Reporting Portal. The Portal integrated with WRAP's other tools to collect waste data from projects and allowed signatories to monitor their corporate progress. The data from the Waste to Landfill Reporting Portal formed the basis of the "Construction Commitments: Halving Waste to Landfill - Signatory Report 2011".</p> <p style="text-align: center;">Reporting data</p> 
<p>Quality of the information found related to replicability of the campaign</p>	<p>All the documentation is available not publicly at WRAP website. The campaign is replicable with involvement of a high institutional level.</p>
<p>Information source</p>	<p>Waste Prevention Best Practice datasheet</p>
<p>Link to the specific case study</p>	<p>http://ec.europa.eu/environment/waste/prevention/pdf/HalvingWasteToLandfill_Factsheet.pdf http://www.wrap.org.uk/sites/files/wrap/HW2L_Report_10555.pdf http://www.wasteminz.org.nz/wp-content/uploads/Halving-waste-to-landfill.pdf</p>
<p>Further information</p>	<p>WRAP www.wrap.org.uk/swmp</p>

Annex 6. Web-workshop on evaluation of replicability of awareness and prevention campaigns

The following slides have been shared with pilots during the web-workshop on evaluation of replicability of awareness and prevention campaigns best practices that took place on 11st May 2017.



Web-workshop, 11st May 2017

D 1.2 - BEST PRACTICES ON PREVENTION AND AWARENESS CAMPAIGNS

WASTE 4think Moving Towards Life Cycle Thinking



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AC.1 The Real Nappy campaign

WASTE FRACTION: DIAPERS



- **Where:** Milton Keys, UK
- **When:** 1997-2011
- **Who:** Milton Keynes Council, UK with the support of WRAP
- » **What:** As a growing town popular with young families, Milton Keynes reduced pressure on local landfills by helping parents make the switch to reusable nappies, through a targeted local information campaign along with cash-back incentives.
- **Why:** diapers produce a lot of unsorted waste

http://www.prewaste.eu/index.php?option=com_k2&view=item&id=378&Itemid=101
<http://www.goreal.org.uk/about/>

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AC.2 School Canteens Contest

WASTE FRACTION: FOOD WASTE

- *Where: Halmstad, Sweden*
 - *When: 2008-2011*
 - **Who: Halmstad municipality**
 - » **What: Halmstad schools competition for students and staff to increase awareness and reduce food waste in school canteens**
 - Why: staff in school canteens observed that unreasonably large amounts of food were thrown away



http://www.prewaste.eu/index.php?option=com_k2&view=item&id=323&Itemid=101



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101019150.

AC.3 Packaging advisory for producers

WASTE FRACTION: PACKAGING

- *Where: France*
 - *When: 2006*
 - **Who: Eco-Emballages**
 - » **What: intensive eco-design training for engineers and designers, and also SMEs to identify efficient ways to reduce packaging waste**
 - Why: reduce packaging through eco-design



The Point Vert logo designates products that participate in Eco-Emballages programmes and contribute financially to recycling services

http://residus.gencat.cat/web/.content/home/ambits_dactuacio/prevencio/planificacio_de_la_prevencio/recull_envasos_lleugers/EL-V-C_15_Reduccio_embalatges.pdf



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101019150.

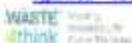
AC.4 Community composting in Pallars Sobirà

WASTE FRACTION: BIO-WASTE

- *Where: Pallars Sobirà, Catalonia, Spain*
 - *When: 2010- present*
 - **Who: ARC (Waste Agency of Catalonia)**
 - » **What: pioneering initiative in Catalonia that involves the management of the organic fraction of a village (less than 100 inhabitants). It involves the cooperation of all residents as they become their own managers.**
 - Why: increase the reuse of bio-waste



http://residus.gencat.cat/web/.content/home/ambits_dactuacio/recollida_selectiva/residus_municipals/materia_organica_form_fv/jornades_estudis_i_enllacos/potencial_compostatge_casola_a_catalunya_final.pdf



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101019150.

AC.5 Roba amiga

WASTE FRACTION: TEXTILES

- Where: Catalonia, Spain
 - When: 2008-onwards
 - Who: Catalonia Caixa, AIRS and Caritas
 - » What: project of social rehabilitation, working on recovery of textile and reuse for people with less resources
 - Why: reduces considerably the volume of textile waste that ends up in landfills or incinerators



http://residus.gencat.cat/web/contenut/home/ambits_dactuacio/recollida_selectiva/residus_municipals/materia_organica_form_fv/ornades_estudis_i_enllacos/potencial_compostatge_casola_a_catalunya_final.pdf
<http://www.robaamiga.cat/>



AC.6 Repaired better than new

WASTE FRACTION: FURNITURE, CLOTHES, ELECTRONIC DEVICES

- Where: Barcelona, Catalonia, Spain
 - When: 2009-onwards
 - Who: AMB (Barcelona metropolitan area)
 - » What: promotes the good maintenance and repairing of devices, better than throw them and buy new ones, through workshops and free counseling to help people to fix them by themselves
 - Why: modify the general public's perception in favour of prevention and reuse



http://residus.gencat.cat/web/contenut/home/ambits_dactuacio/prevencio/planificacio_de_la_prevencio/recull_altres/VL_18_3_Reparacio_bens_i_productes.pdf



AC.7 RUSZ

WASTE FRACTION: ELECTRONIC WASTE

- Where: Vienna, Austria
 - When: 1998-onwards
 - Who: R.U.S.Z., RepaNet and the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management
 - » What: encourage the repair of electrical and electronic appliances with a guide and creation of repair centers
 - Why: reduce the production of WAEE, involving jobless people



http://www.prewaste.eu/index.php?option=com_k2&view=item&id=272&Itemid=101



AC.8 Sparkling Water from Public Fountains

WASTE FRACTION: PLASTIC AND GLASS PACKAGING

- *Where: Umbria, Italy*
 - *When: 2009-onwards*
 - **Who: Umbra Acque S.p.A, Umbria Region, municipalities**
 - » **What: tap depurated drinking-water of town waterworks from municipal dispenser**
 - Why: reduce the purchasing of bottles of water



<http://www.zerowastepro.eu/uploads/Green%20Solutions%20Guide%20ZEROWASTEPro.pdf>
<http://www.umbraacque.com/progetto-fontanelle>

WASTE 4think Young
TOWARDS LIFE
Cycle Thinking



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The dissemination of results from this project will be done in the European Commission and other institutions for the sake of the wider public domain.

AC.9 No-advertisement sticker with legal backing in Brussels

WASTE FRACTION: PAPER

- *Where: Brussels, Belgium*
 - *When: 1998-onwards*
 - **Who: Brussels Environment – IBGE**
 - » **What: No-advertisement sticker with legal backing for residents that decide not to receive unaddressed advertisement in Brussels**
 - Why: commercial paper waste prevention



http://www.prewaste.eu/index.php?option=com_k2&view=item&id=279&Itemid=101
<http://www.environnement.brussels/thematiques/dechets-ressources/mes-dechets/refuser-la-publicite>

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AC.10 Accompanied paper waste prevention in schools in Brussels

WASTE FRACTION: PAPER

- *Where: Brussels, Belgium*
 - *When: 1999-onwards*
 - **Who: Brussels Environment – IBGE**
 - » **What: change behaviour of pupils and schools' employees in Brussels, through assistance on paper consumption reduction**
 - Why: paper waste prevention in schools



http://www.prewaste.eu/index.php?option=com_k2&view=item&id=279&Itemid=101
<http://www.environnement.brussels/thematiques/dechets-ressources/mes-dechets/refuser-la-publicite>

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AC.11 Ecofeste Parma

WASTE FRACTION: FOODWASTE, LIGHT PACKAGING, PAPER, CARDBOARD, GLASS, OIL



- **Where:** Province of Parma, Italy
- **When:** 2003-onwards
- **Who:** Parma Province and Municipality, Comuni Virtuosi Association, Novamont
- » **What:** promotion of environmental friendly events, acting towards the waste prevention and reduction and separate collection. "Ecofeste" brand certification
- **Why:** reduce environmental impact of events and sensitize all the citizens

<http://www.sinanet.isprambiente.it/qeiso/banca-dati/provincia/provincia-di-parma/ecofeste>

http://www.residuoemonte.it/ambiente/rifuti/dwd/Documenti/pratiche_piano.pdf



AC.12 Love Food Hate Waste Campaign

WASTE FRACTION: FOOD-WASTE



- **Where:** London, UK
- **When:** 2009-2010
- **Who:** WRAP / North London Waste Authority
- » **What:** awareness campaign to reduce food waste and promote measures that can achieve a real reduction in food waste amongst North London residents.
- **Why:** reduce food waste, sensitizing citizens

http://www.prewaste.eu/index.php?option=com_k2&view=item&id=274&Itemid=101

www.lovefoodhatewaste.com



AC.13 Fund by carbon Tax on packaging

WASTE FRACTION: PLASTIC PACKAGING



- **Where:** The Netherlands
- **When:** 2007-2013
- **Who:** Dutch Ministry of Housing, Special Planning and the Environment
- » **What:** carbon tax on packaging used to start a fund to help reduce waste and increase the rate of recycling in the country.
- **Why:** reduce packaging waste and increase recycling involving producers

http://ec.europa.eu/environment/waste/prevention/pdf/Netherlands_Factsheet.pdf

http://www.fao.org/fileadmin/user_upload/nr/sustainability_pathways/docs/paul_christiaens_nedvang.pdf



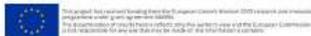
AC.14 Let's Clean Up Europe!

WASTE FRACTION: LITTERING



- **Where: Europe**
 - **When: 2013-onwards**
 - **Who: ENVI-AICA**
 - » **What: Clean-up initiative to fight against the littering, due to unsustainable production and consumption patterns, poor waste management strategies and a lack of awareness of citizens**
 - Why: behavioural change of citizens

http://ec.europa.eu/environment/waste/prevention/pdf/Netherlands_Factsheet.pdf
http://www.fao.org/fileadmin/user_upload/nr/sustainability_pathways/docs/paul_christiaens_nedvang.pdf



AC.15 Halving waste to landfill

WASTE FRACTION: CONSTRUCTION & DEMOLITION WASTE



- **Where: UK**
 - **When: 2008-2012**
 - **Who: WRAP**
 - » **What: voluntary agreement undertaken by construction companies to adopt good practices in waste reduction, recycling and the use of recycled and recovered materials**
 - Why: involving industries in waste reduction

http://ec.europa.eu/environment/waste/prevention/pdf/HalvingWasteToLandfill_Factsheet.pdf
http://www.wrap.org.uk/sites/files/wrap/HW2L_Report_10555.pdf
<http://www.wasteminz.org.nz/wp-content/uploads/Halving-waste-to-landfill.pdf>



Evaluation of replicability

Campaign	Level of interest (1-10)	Comments	Particularly interested because of... (insert X) ...and why (insert comment, if you want)				Replicability in the pilot area (give an evaluation in the rank 1-10)
			Waste fraction	Target group	Objectives	Main message	
AC.1 The real nappy campaign							
AC.2 School Canteens Contest							
AC.14 Let's Clean Up Europe!							

Replicability



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